

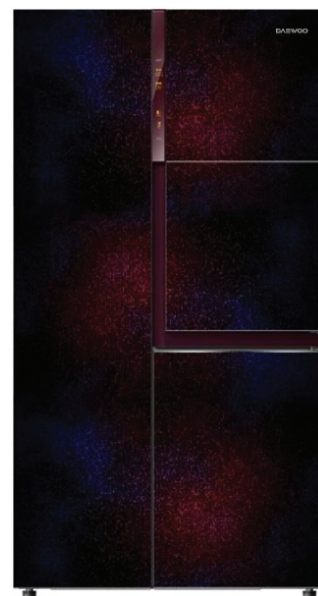
S/M No.:

Service Manual

Refrigerator



FRN-T30H3GP
(FRT-803ZG..)



FRN-T30H3TB
(FRT-803HB..)



FRN-T30H3PW
(FRT-813HP..)



FRN-T30H2MW
(FRT-822HW..)

✓ Caution

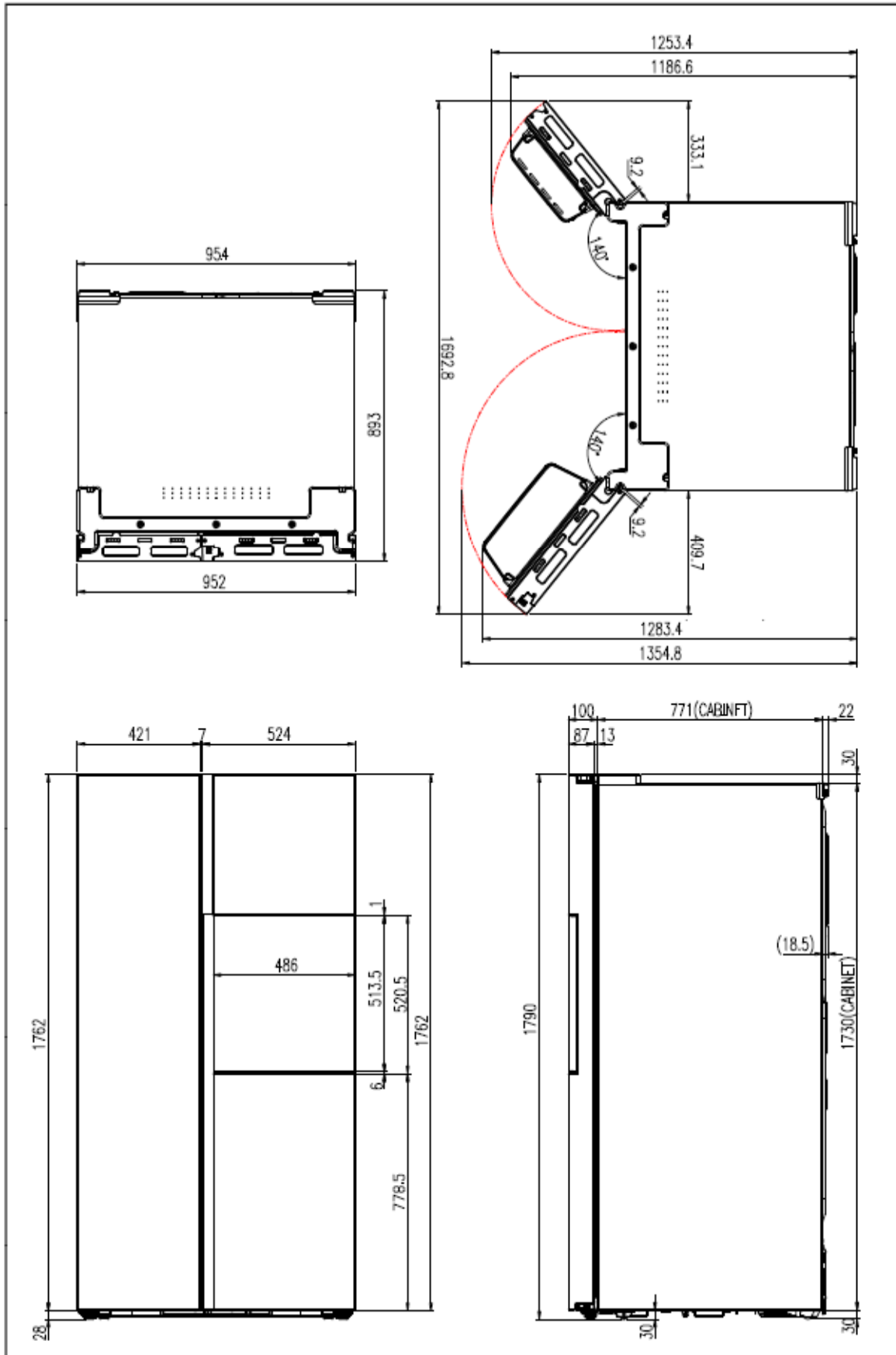
In this manual, some parts can be changed for improving their performance without notice. So, If you need the latest parts information, please visit and refer to PPL (Parts Price List) in Service Information Center. (<http://svc.dwe.co.kr>)

1. Information

Buyer No.		FRN-T30H3GP (Glitzen Pearl)	FRN-T30H3TB (Stella Black)	FRN-T30H3PW (Preuve White)	FRN-T30H2MW (Mone White)
Factory No.		FRT-803ZG..	FRT-803HB..	FRT-813HP..	FRT-822HW..
Image					
Gross Vol. (IEC 62552)	Total	904.2	904.2	904.2	907.5
	Freezer	374.2	374.2	374.2	374.2
	Refrigerator	530.0	530.0	530.0	533.3
Storage Vol. (IEC 62552)	Total	778.6	780.2	817.9	822.7
	Freezer	330.7	330.7	330.7	330.5
	Refrigerator	447.9	449.5	487.2	492.2
Diemension	Width (mm)	954	954	954	954
	Depth (mm)	893	893	893	893
	Height (mm)	1790	1790	1790	1790
Weight (kg)		149 kg	149 kg	141 kg	140 kg

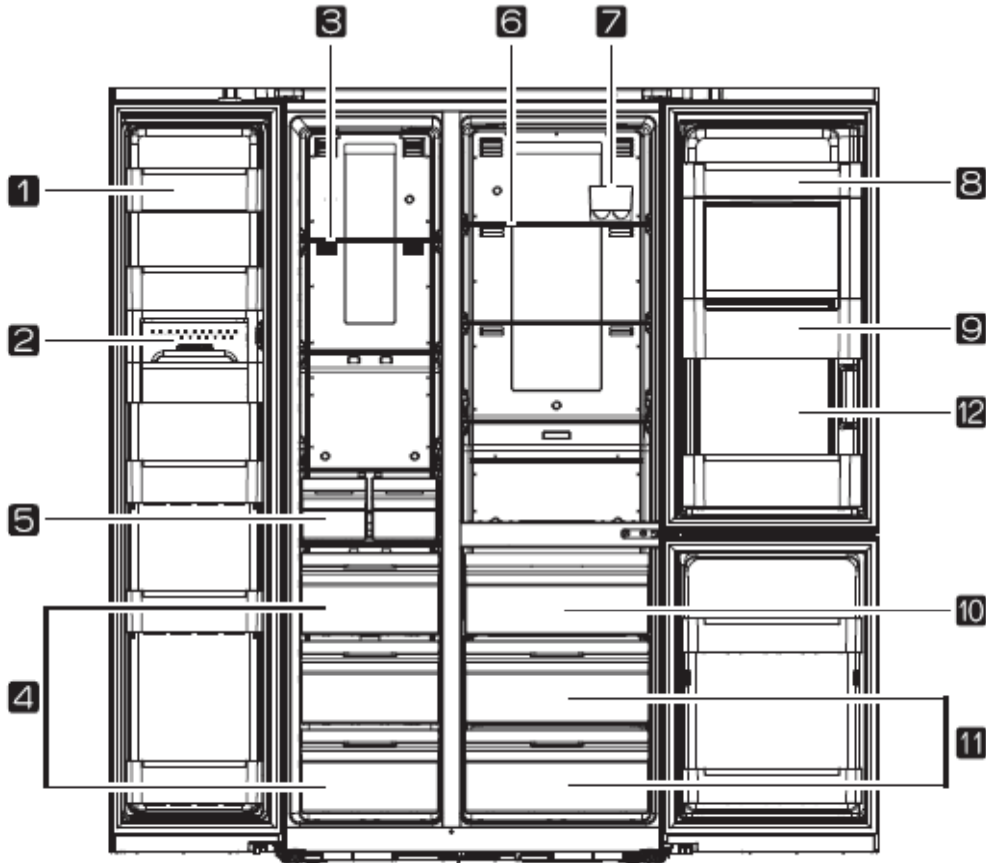
Cooling Cycle	Refrigerant Type	R-600a
	Refrigerant Charge	70g
	Evaporator Type	Fin Type
	Condenser Type	Compulsory Convection Type
	Dryer	Molecular Sieve xH-9
	Capillary Tube	ID0.7 x T0.55 x L2,200
Heater	Frz) Defrost Heater	210W
	Ref) Defrost Heater	150W
	H/Bar Heater	10W
Electronic Part	Fuse Temp. (Defrost)	AC 250V, 10A, 77C
	Freezer Fan Motor	DREP 9020 LR
	Refrigerator Fan Motor	DREP 9020 LR
	Condenser Fan Motor	DRCP 9020 LC
	Freezer Lamp LED	DC 12V
	Refrigerator Lamp LED	DC 12V

2. Outside Diemension



3. Interior Parts

1) T30H3GP / T30H3TB



1. Door storage compartment

7. Egg case

2. Ice maker / Ice storage bin

8. Door storage compartment

3. Freezer shelf

9. Can pocket

4. Freezer compartment drawer

10. Multi crisper

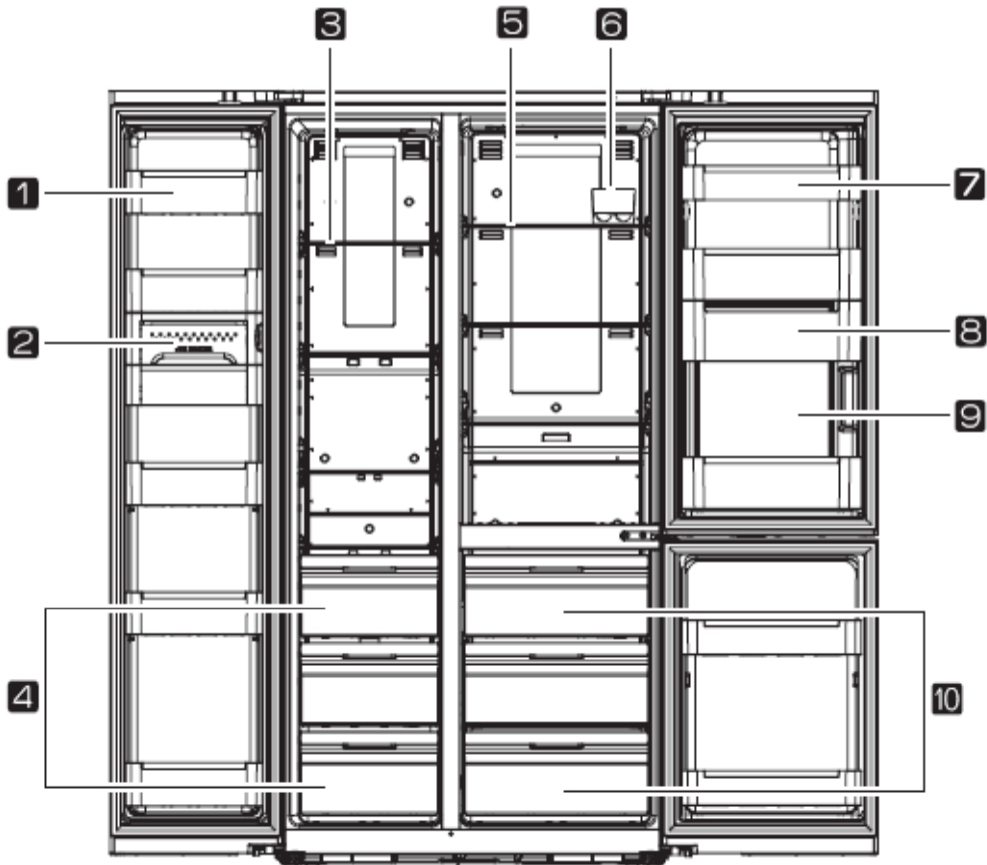
5. Takeout case

11. Vegetable / fruit drawer

6. Refrigerator shelf

12. EZ Home bar

2) T30H3PW / T30H2MW



* The real features are model dependent.

1. Door storage compartment

6. Egg case

2. Ice maker / Ice storage bin

7. Door storage compartment

3. Freezer shelf

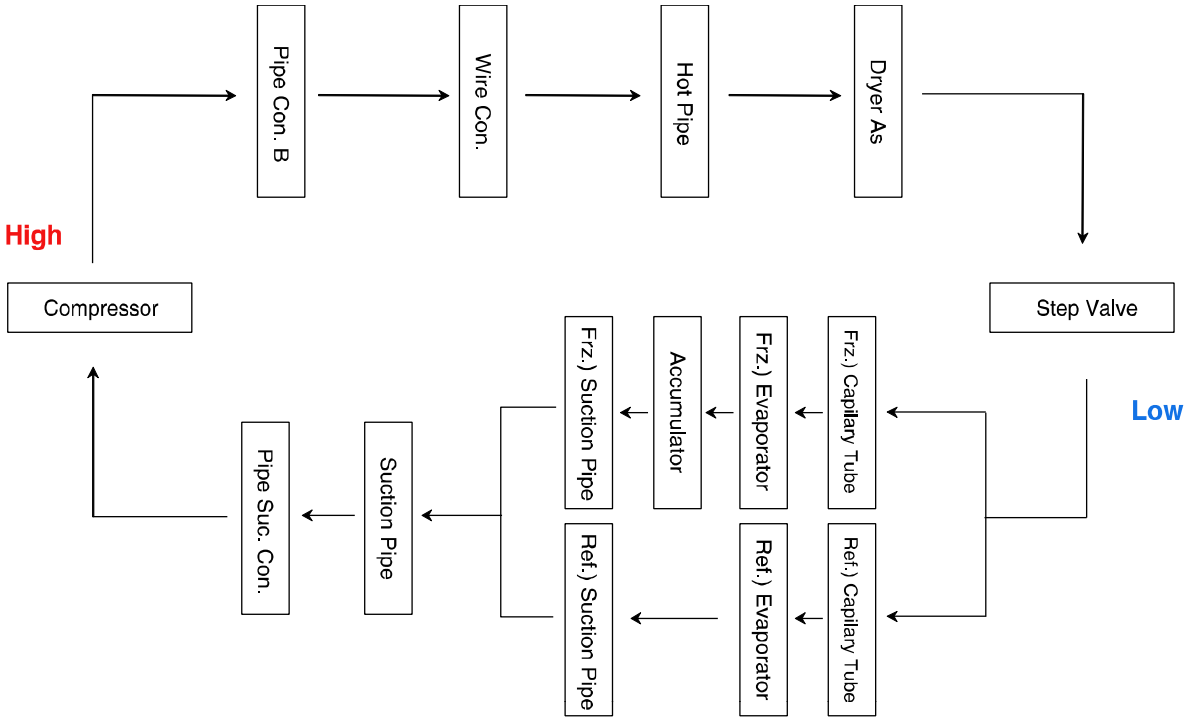
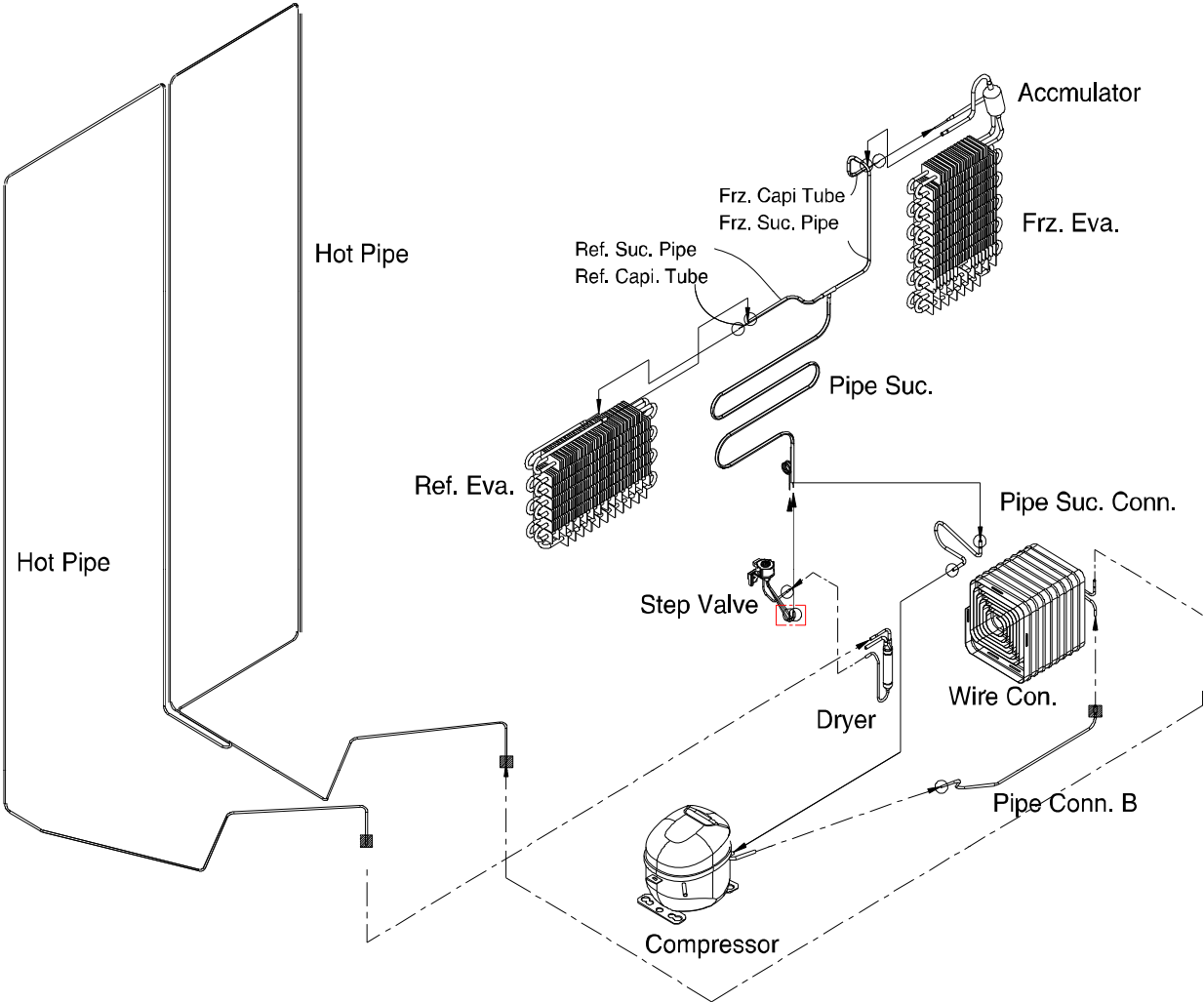
8. Can pocket

4. Freezer compartment drawer

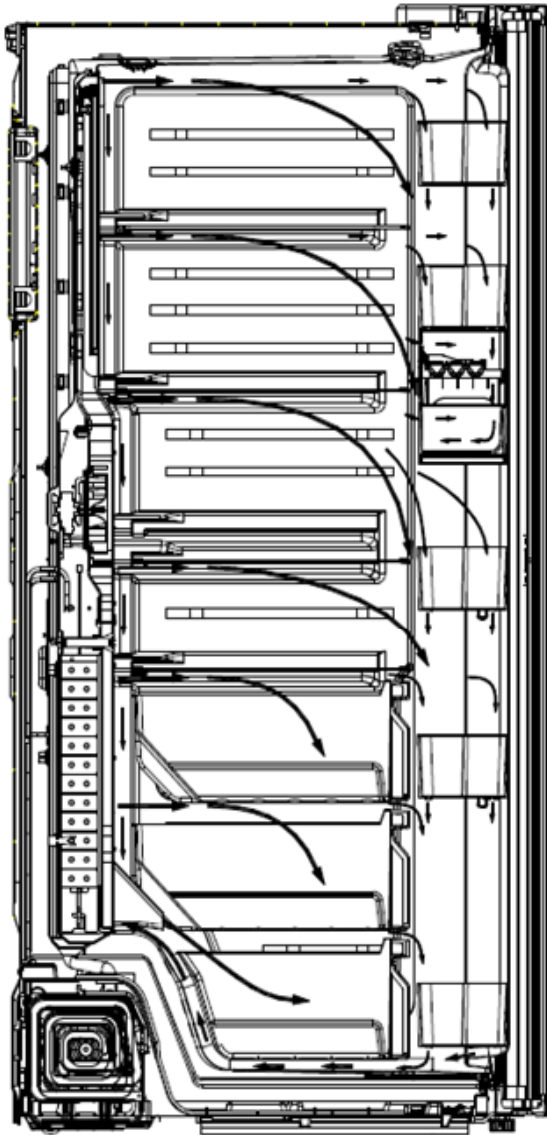
9. EZ Home bar

5. Refrigerator shelf

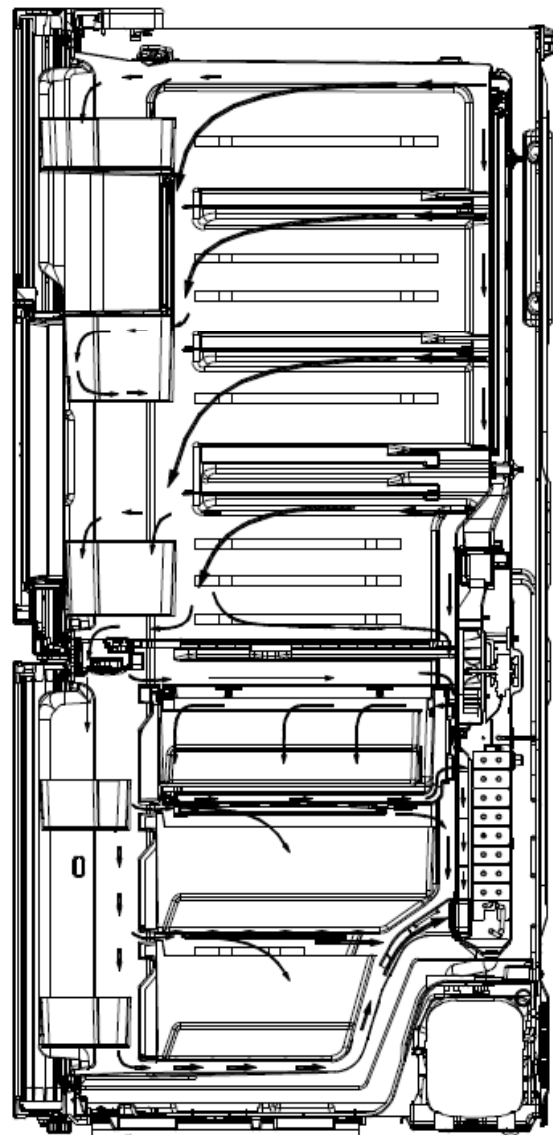
10. Vegetable / fruit drawer



[Freezer Compartment]

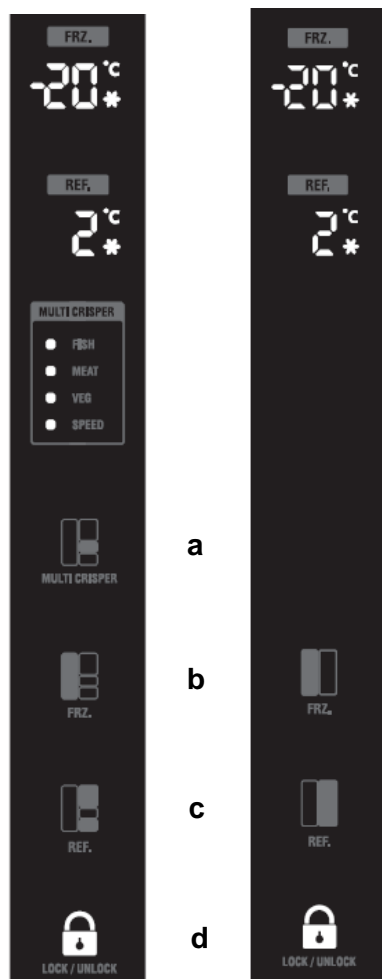


[Refrigerator Compartment]



* The illustration is 'FRN-T30H3GP / FRN-T30H3TB' model.

1. Display



T30H3GP/TB

T30H3PW/MW

a Multi Crisper (Option) button

; To select **Fish - Meat - Vegetable - Speed** mode.
(Speed mode works for 60 minutes.)

b Frz. Set button

1) Initial plug in : Medium (-20C)
2) Every time you press the Frz. Set button, the setting temperature changes below order.



c Ref. Set button

1) Initial plug in : Medium (2C)
2) Every time you press the Ref. Set button, the setting temperature changes below order.



d Lock button (Childproof lock)

- 1) After 2 minutes when no dial setting, this mode is active automatically.
Except Lock icon, all Led is Off.
- 2) After another 30 seconds, Lock icon is also off except Eco led.
- 3) Manually, you can enter this mode by touching Lock button for 1 second.
After 2 min 30 sec all led is off except Eco led.

Power Save

; After 2 min 30 sec when no dial setting or no door opening, all led is off except Eco led.

ECO Mode 

; Eco Mode is automatically lights up when energy-saving mode is driving.

- 1) Green : Power saving mode
- 2) Blue : Normal control mode
- 3) Pink : Acceleration mode (Refrigerator is driving continually to lower temperature of inside of refrigerator when there is a big difference between inside and outside.)

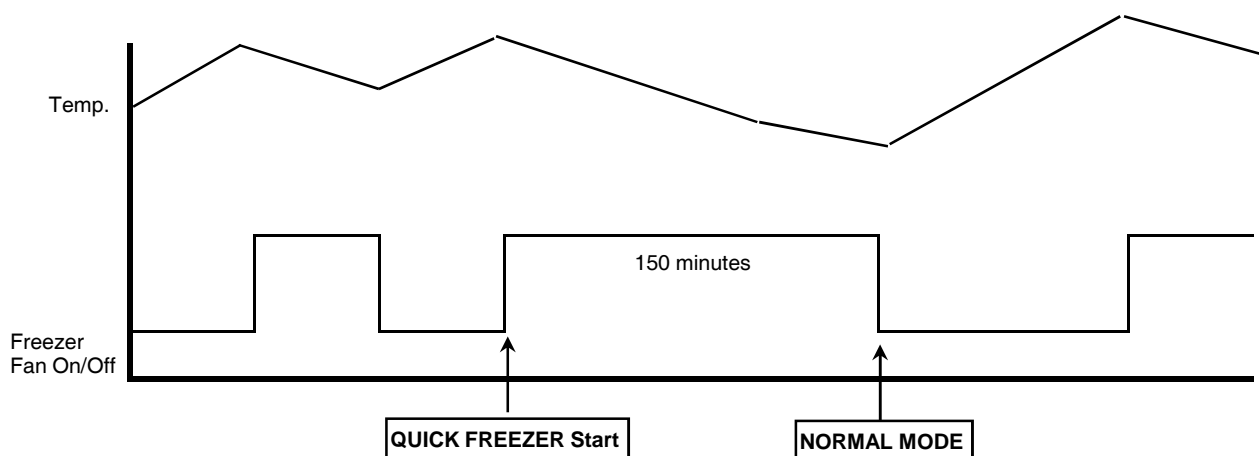
2. Freezer Compartment Control

- 1) Adjust by the pushing the FRZ.SET button.
- 2) Compressor & Freezer Fan controlled by each mode ON/OFF point.
- 3) Freezer Compartment ON/OFF Difference : 4.5C
 - MEDIUM OFF point : -20.8C
- 4) Control Temperature Point in Each Mode

Division		Plug in	1st Press	2nd Press	3rd Press	4th Press	5th Press	6th Press	7th Press	8th Press
Display		-20	-21	-22	-23	-23 *	-16	-17	-18	-19
Mode		Medium	Medium - Max		Max	Quick	Min	Min - Medium		
Sensor	On	-16.3	-17.4	-18.3	-19.3	-21.3	-12.1	-13.1	-14.1	-15.2
	Off	-20.8	-21.9	-22.8	-23.8	-25.8	-16.6	-17.6	-18.6	-19.7

5) Quick Freezer Mode

; In this mode, Compressor & Freezer Fan motor is on unconditionally for 150 minutes.



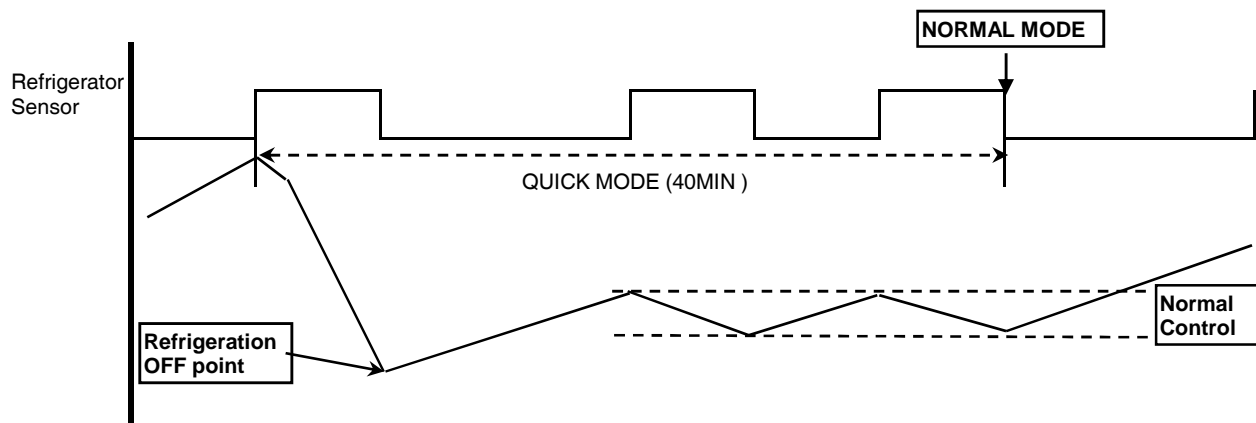
- After Quick mode, the dial is to Medium mode. (After 150 minutes or sensor temperature is below -25.8C.
- Quick freezer mode is free of Refrigerator sensor.
- In this mode defrosting is not active. Defrosting is priority to Quick mode.

2. Refrigerator Compartment Control

- 1) Adjust by the pushing the REF.SET button.
 - 2) Refrigerator Compartment ON/OFF Difference
 - Dial 5C / 4C / 3C : 2.0C
 - Dial 2C : 2.1C
 - Dial 1C : 2.6C
 - Dial 0C : 3.5C
- * Medium OFF point : 3.5C

Division		Plug in	1st Press	2nd Press	3rd Press	4th Press	5th Press	6th Press
Display		2	1	0	0*	5	4	3
Mode		Medium	Medium Max	Max	Quick	Min	Min - Medium	
Sensor	On	5.6	4.6	4.5	1.5	9.6	8.6	6.6
	Off	3.5	2.0	1.0	-2.0	7.6	6.6	4.6

3) Quick Refrigerator Mode : This mode runs for 40 minutes.



- This mode runs for 40 min until the sensor reach -2.0 C and free of Freezer sensor.
- After this mode, the dial setting is to Medium.
- In this mode defrosting is not active. Defrosting is priority to Quick mode.

3. Multi Crisper Control (*Option)

- 1) Adjust by the pushing the Multi Crisper button.
- 2) Display is 'Fish → Meat → Vegetable → Speed'
- 3) Each mode controls Compressor, Fan Motor, Step Valve and Damper.

<i>Division</i>	<i>Fish</i>	<i>Meat</i>	<i>Vegetable</i>	<i>Speed</i>
<i>On</i>	1.0 C	-2.5 C	same as Ref. compartment.	-2.5 C
<i>Off</i>	-1.0 C	-4.5 C		-4.5 C

- 4) Speed mode
 - It works 60 minutes. After finishing this mode it changes to Vegetable mode.
 - In this mode defrosting is not active. Defrosting is priority to Speed mode.

3. Fan voltage of each control mode

- 1) Normal fan motor RPM : Slow operation with relative low noise level.

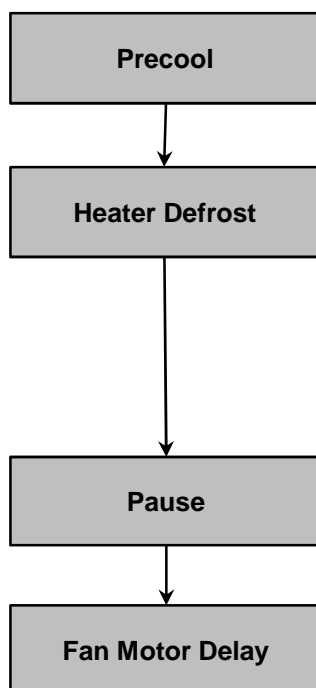
<i>Fan Motor</i>	<i>Freezer</i>	<i>Refrigerator</i>	<i>Compressor cooling</i>	<i>Remark</i>
<i>Normal</i>	1500 RPM	1300 RPM	1150 RPM	

- 2) Load response : Operation mode which need to be operated by temperature rise at inner side of refrigerator according to operating condition.

4. Load response mode

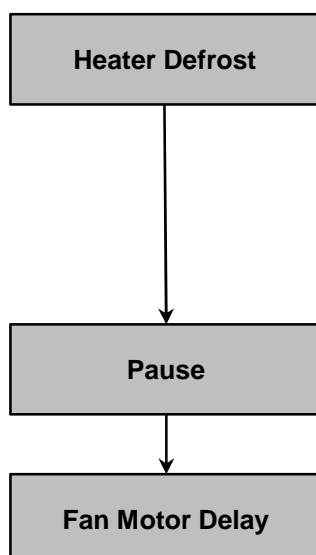
- 1) Purpose : To recover temperature rise inside of refrigerator as quickly as possible by heavy load or frequent door opening.
- 2) Operating condition
 - ; When door opening time is more than 1 minutes → Freezer & Refrigerator compartment enter load response mode.
- 3) How to control : Change compressor rpm +1 step up.
- 4) How to end : When each sensor reaches to sensor off point.

1. Freezer Defrost Process



- Time limit : 50 minutes. (Comp., Freezer Fan, Step Valve is active.) or
- Until Freezer Defrost sensor is below -27c.
(If Error F3 happens, Precool is over.)
- Until Freezer Defrost Sensor is 13c.
- If Error F3 happens, Defrost Heater is active for 30 minutes.
- For 30 sec. after Defrost start : Heater is on without conditions.
- 30 min.'s Defrost : When Error F3 happen.
- 80 min.'s Defrost : Normal state, maximum defrost time.
- For 10 min.
- Defrost heater, Comp. and Freezer / Refrigerator Fan is off.
- For 5 min.
- Compressor is on, Heater is off.

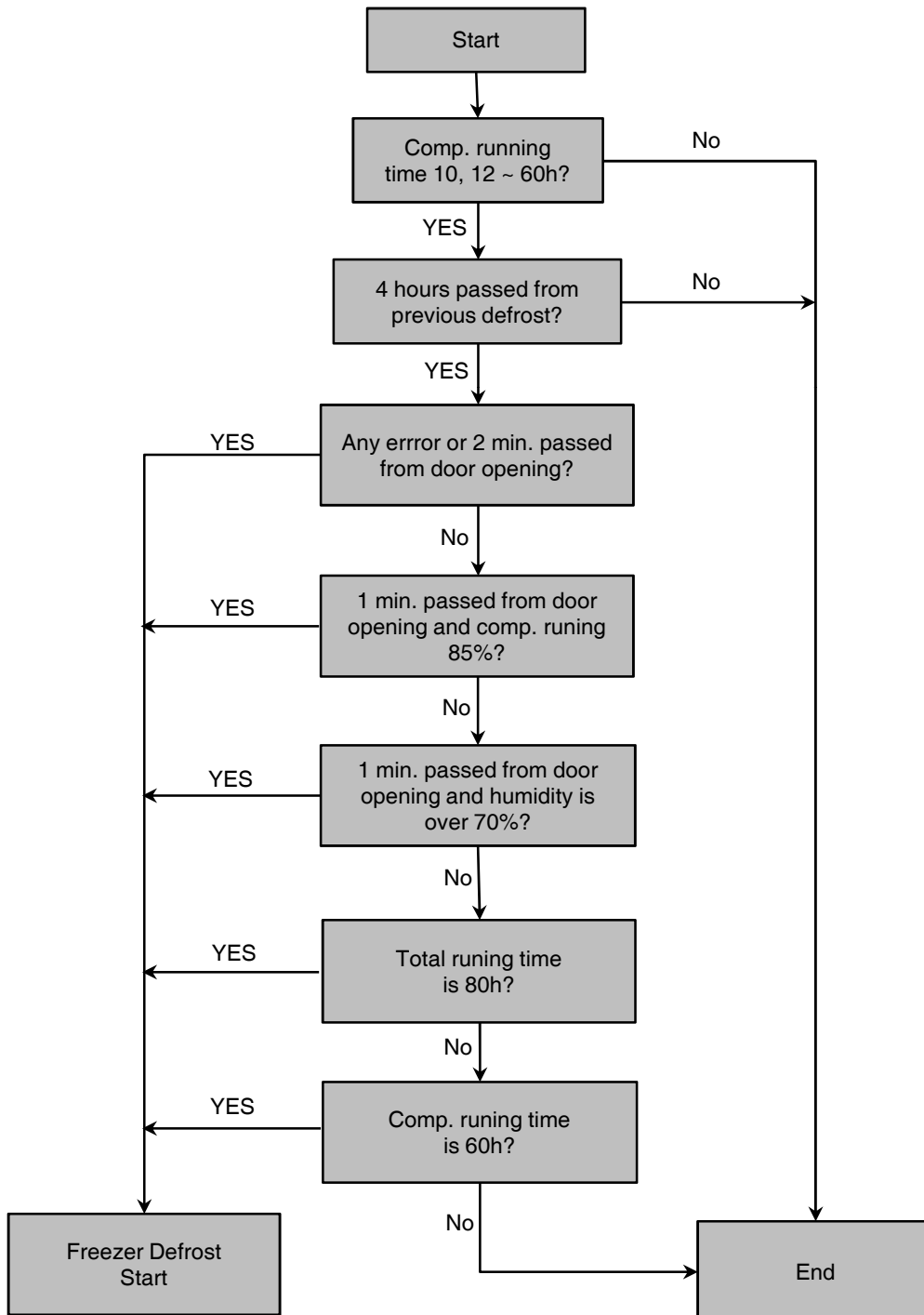
2. Refrigerator Defrost Process



- Until Ref. Defrost sensor is 20c.
- If maximum time is 60 min. Error R3 happen.
- Ref. Defrost sensor is abnormal, Heater is on for 10 min. (Maximum time limit)
- For 30 sec. after Defrost start : Heater is on without conditions.
- 10 min.'s Defrost : When Error R3 happen.
- 60 min.'s Defrost : Normal state, maximum defrost time.
- For 10 min.
- Defrost heater, Comp. and Freezer / Refrigerator Fan is off.
- For 5 min.
- Compressor is on, Heater is off.

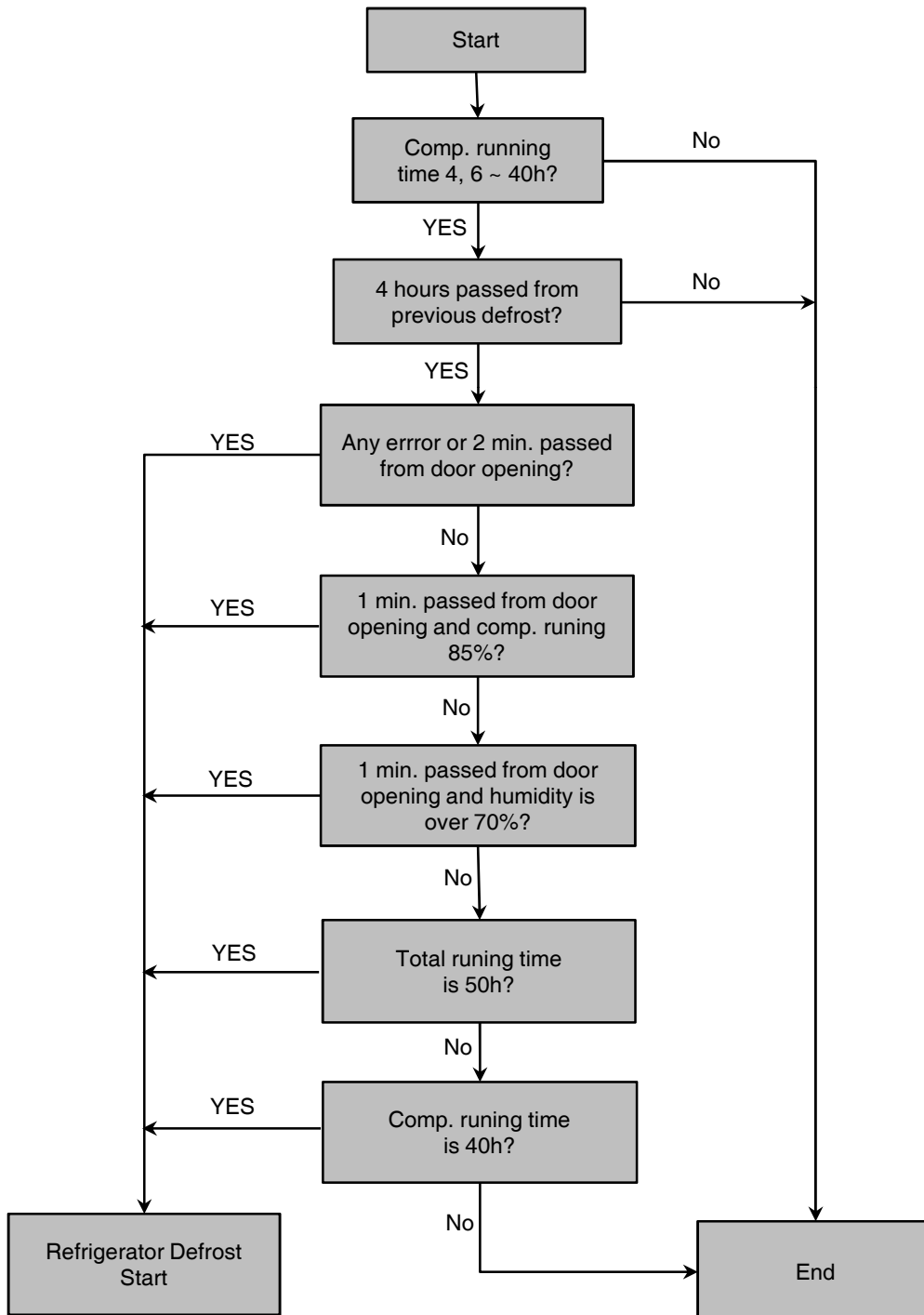
3. When Freezer Compartment Defrost Mode start?

- ; When total Compressor running time becomes at 10, 12 ~ 60hours.
- Any error happens (R1, F1, D1, F3, RT-Sensor, C1, Door switch etc.) or door opening time is over 2 minutes.
- Door opening time is over 1 minutes and compressor operating rate is over 85%.
- Door opening time is over 1 minutes and Humidity is over 70%.
- Total compressor running time (on time + off time) is 80hours.
- Compressor running time (on time only) is 60hours.



4. When Refrigerator Compartment Defrost Mode start?

- ; When total Compressor running time becomes at 4, 6 ~ 40hours.
- Any error happens (R1, F1, D1, F3, RT-Sensor, C1, Door switch etc.) or door opening time is over 2 minutes.
- Door opening time is over 1 minutes and compressor operating rate is over 85%.
- Door opening time is over 1 minutes and Humidity is over 70%.
- Total compressor running time (on time + off time) is 50hours.
- Compressor running time (on time only) is 40hours.



1. Plug-in Defrost

- 1) When Freezer & Refrigerator Defrost sensor is below 3.5c, Defrost mode start.
- 2) Freezer and Refrigerator compartment defrost start by defrost sensor.
- 3) Plug-in Defrost makes Compressor Delay 6 min.

2. Pull Down Mode

- 1) How to start?
 - Push the Lock button to enter test mode.
 - Push the Lock button 10 times while holding the Ref. Set button.
- 2) Control : Compressor and all Fan motor is on and Step Valve is Open / Open for 30 hours.
- 3) Display : 'C o' display on the FCP. (Need to enter Error Display Mode)
- 4) How to exit this mode : After 30 hours or Plug-out.

3. Compressor RPM Control

1) Compressor RPM is dependent on RT (Room Temperature), appliance state (Dial setting) and Step Valve position.

Mode	RT sensor is below 29.1c		RT sensor is 29.1 ~ 36.5c		RT sensor is over 36.5c	
	Freezer	Refrigerator	Freezer	Refrigerator	Freezer	Refrigerator
Normal	1830 RPM		3000 RPM	2360 RPM	3490 RPM	30000 RPM
Load Response	2360 RPM	2360 RPM	3490 RPM	30000 RPM	3490 RPM	30000 RPM
Quick	2360 RPM	2360 RPM	3490 RPM	30000 RPM	3490 RPM	30000 RPM
Pull Down	3490 RPM	3490 RPM	3490 RPM	3490 RPM	3490 RPM	3490 RPM
Power Saving	1650 RPM		-			

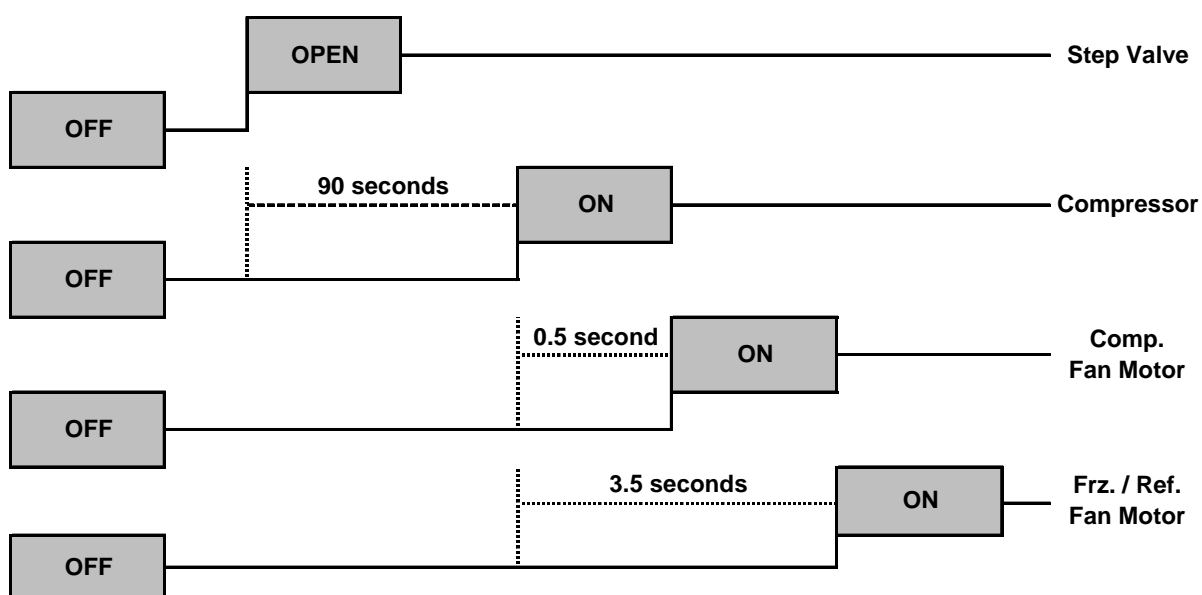
- 2) Initial plug-in : For initial 2 minutes, compressor rpm is 1650. And then follow above table.
- 3) For 6 minutes after compressor is off, it doesn't restart.

1. Buzzer

- 1) When FCP buttoning.
- 2) After 3 seconds plug-in.
- 3) When Pull Down or A/S Defrosting start.
- 4) Every 1 minute with door opening for 5 minutes.

2. Electric parts time delay

- 1) Compressor / All Fan Motor
 - Check Step Valve position and after 90 seconds compressor start.
 - (But, after 5 seconds from initial plug-in compressor start.)



- 2) Frz. / Ref. Fan Motor time delay is 20 seconds when door opening.
(This function is active after 2 hours' plug-in.)
- 3) Frz. Fan Off : After 3 minutes from Off condition.
- 4) Ref. Fan Off : After 3 minutes from Off condition.

3. Step Valve Control

Division	34 Step	100 Step	154 Step	195 Step
Frz. Compartment	Close	Close	Open	Open
Ref. Compartment	Close	Open	Open	Close

- 1) Set the starting Point : Rotate CW) 210 step and CCW) 154 step when initial plug-in.
- 2) Compressor is ON after 90 seconds from Step Valve when compressor active condition happen.
- 3) Step valve rotate 34 step (Close / Close) after 2 seconds from compressor is OFF.

4. Led Lamp Control

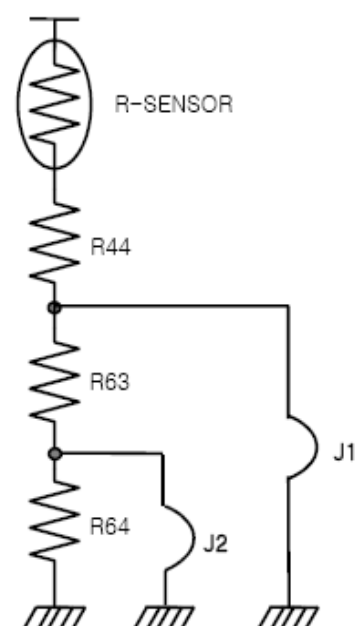
- 1) Each door switch connected to each compartment Led Lamp.
- 2) When door switch is opened for 10 minutes, Led Lamp is off automatically.
- 3) When door switch is opened for 1 hour, FCP display Error 'd F' or 'd R' or 'd H'.
('d F' = Freezer door switch error, 'd R' = Refrigerator door switch error, 'd H'= Homebar door switch error.)
- 4) When above No. 3) conditions happen, door switch signal discarded.

5. DEMO Mode

- 1) How to start?
 - Push the Lock button to enter test mode.
 - Push the Frz.Set button 10 times while holding the Ref. Set button.
- 2) Control
 - All electrical component is OFF.
 - But, each door opening makes each fan motor ON.
(Door Open → Fan ON, Door Close → Fan OFF)
- 3) Display
 - ECO LED : PINK → SKY BLUE → GREEN
 - Frz. / Ref. dial step display
 - (Option : Multi Crisper) 'Fish → Meat → Vegetable → Speed'
- 2) How to finish?
 - Reset power.
 - Push the Frz.Set button 10 times while holding the Ref. Set button.

6. Weak Cooling Easy Troubleshooting

- 1) Adjust Ref. sensor Off point (Max. 3c down)
- 2) Troubleshooting
 - i. Resistance (R44) : Normal state.
 - ii. Resistance (R44+R63) : Cut J1 to make resistance 2K up. (1.5c down)
 - iii. Resistance (R44+R63+R64) : Cut J2 to make resistance 2K up. (3.0c down)



7. Multi Crisper Compartment (Option Parts)

- 1) Every 'Multi crisper' buttoning,
Fish → Meat → Vegetable → Speed (Default is Fish mode)
- 2) When choosing 'Speed' mode,
After 60 minutes' operation (max. time limit), back to 'Fish' mode.
- 3) Damper Control
; Damper is controlled by Refrigerator sensor and Multi Crisper Internal sensor.

Ref. Sensor	Multi Crisper Sensor	Demaper
ON	ON	Open
OFF	OFF	Open
ON	OFF	Open
OFF	ON	Close

8. Ionizer LED Control

- 1) Door Opening → Ionizer LED Lamp is ON.
- 2) Ionizer operation is link to Ref. Fan Motor.

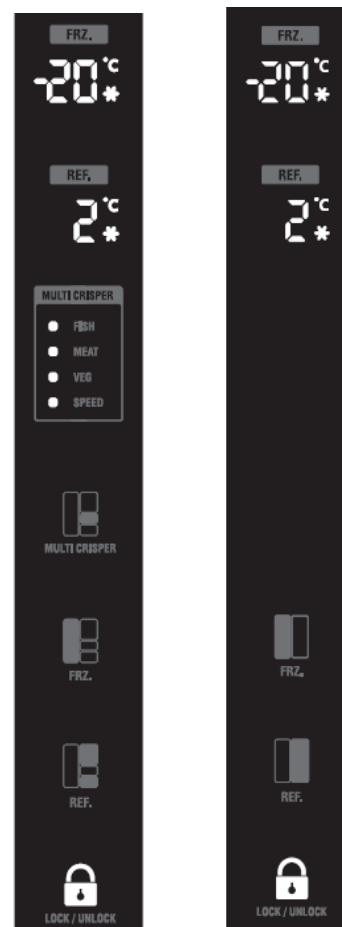
1. How to enter this check mode

- 1) Push the LOCK button.
- 2) Push the LOCK button 5 times while pressing the Frz.SET button.

2. The Front LED displays the current error code (if happens).

; Every time you press the Freezer Set button, the following value display.

- 1) The appliance running time. (From the plug in.)
- 2) Freezer sensor temperature.
- 3) Freezer Defrost sensor temperature.
- 4) Refrigerator sensor temperature.
- 5) Refrigerator Defrost sensor temperature.
- 6) Multi Crisper Room temperature (*Option Parts)
- 7) Room Temperature sensor display.
- 8) Humidity sensor display.
- 9) Freezer Fan RPM Display.
- 10) Refrigerator Fan RPM Display.
- 11) Compressor Cooling Fan RPM Display.



3. How to exit this mode

- 1) Push the LOCK button.
- 2) After 4 minutes automatically exit.

4. Error Code

No	Display (Error Code)	Remark
1)	F 1	Freezer sensor disconnection or short
2)	R 1	Refrigerator sensor disconnection or short
3)	r t	Room temperature sensor disconnection or short
4)	F d	Freezer Defrost sensor disconnection or short
5)	D r	Refrigerator Door switch is defective.
6)	d F / d H	Freezer Door switch is defective. / Homebar switch is defective.
7)	C 1	Abnormal or defective cycle
8)	E P	EEPROM reading/writing Error
9)	d 2	A/s forced defrosting is running. (No Error)
10)	C o	Pull Down Mode is running. (No Error)
11)	F 3	Return after defrosting : Defrosting parts is abnormal or defective. (Freezer)
12)	r d	Refrigerator Defrost sensor disconnection or short
13)	H 5	Humidity sensor is disconnection or short.
14)	d 2	Multi Crisper room door switch is defective.

No	Display (Error Code)	Remark
15)	r 2	Multi Crisper room room sensor disconnection or short
16)	r 3	Return after defrosting : Defrosting parts is abnormal or defective. (Refrigerator)
17)	F u	Step Valve (Freezer part) pipe blockage.
18)	r u	Step Valve (Refrigerator part) pipe blockage.
19)	C H	Step Valve (Freezer / Refrigerator) pipe wrong assembly.

5. Troubleshooting when error display

(If the relative parts is normal, Error code display will be reset.)

1) 'F 1' error

- Cause : Freezer sensor disconnection or short.
- Control : Short - continuous operation. Disconnection - No operation.

2) 'R 1' error

- Cause : Refrigerator sensor disconnection or short.
- Control : Short - continuous operation. Disconnection - No operation.

3) 'r t' error

- Cause : Room temperature sensor disconnection or short.
- Control : Normal operation. Discard control conditon by RT sensor.

4) 'F d' error

- Cause : Freezer defrost sensor disconnection or short.
- Control : Defrost heater is ON for 30 minutes.

5) 'd F', 'd r', 'd H', 'd 2' error (Door switch)

- Cause : When door is opening for more than 1 hour.
- Control : Discard all information from doow swtich.

6) 'C 1' error

- Cause : After compressor 3 hours' operation, Frz. Defrost sensor is over 0c or Ref. Defrost sensor is over 15c.
- Control : Normal control.

7) 'E P' error

- Cause : EEPROM IC reading / writing is error.
- Control : Normal operation but no saving the Dial setting & Locking.

5. Troubleshooting when error display

8) 'd 2' display (No error)

- Display A/s Defrosting is operating.

9) 'C o' display (No error)

- Display Pull Down Mode is operating.

10) 'r d' error

- Cause : Refrigerator defrost sensor disconnection or short.
- Control : Defrost heater is ON for 10 minutes.

11) 'H 5' error

- Cause : Humidity sensor disconnection or short.
- Control : Discard all signal from the humidity sensor.

12) 'r 2' error

- Cause : Multi Crisper room sensor disconnection or short.
- Control : Short - continuous operation. Disconnection - No operation.

13) 'F 3' error (Freezer Compartment)

- Cause : Defrosting is active for 80 minutes (maximum limit time).
- Control : Reduce defrosting operation time to 30 minutes.

14) 'r 3' error (Refrigerator Compartment)

- Cause : Defrosting is active for 60 minutes (maximum limit time).
- Control : Reduce defrosting operation time to 10 minutes.

15) 'F u' error

- Cause : Pipe blockage in freezer compartment. It doesn't make any cold air in freezer room.
- Control : Normal operation.

16) 'R u' error

- Cause : Pipe blockage in refrigerator compartment. It doesn't make any cool air in refrigerator room.
- Control : Normal operation.

16) 'C H' error

- Cause : Each freezer & refrigerator pipe wrong assembly.
- Control : Normal operation.

7) EF error

- Cause : When Flow-sensor abnormal. (There is no pulse during some time.)
The number of pulse signal is below 10 by 1 second during water supply.
- Check point : Water supply line.

8) Et error

- Cause : Level switch abnormal. (No pulse is sensed for some time.)
- Control : By time. (Supply mode is skipped.)

9) Eg error

- Cause : When Ice sensor temperature (5 minutes after water supply) doesn't go up.
- Check point : Ice sensor or water supply line.

10) EA error

- Cause : When sensing ice drop 3 times in level sensor switch error.
- Control : Stop ice maker
- After 1 time rotation EA error code disappear if level switch is normal.

11) Eu error

- Cause : Sensor which senses if ice is full or not is abnormal.
- Control : When drops the ice, the motor rotates 90 degree.

12) C1 error

- Cause : When compressor works for over 3 hours although Defrost sensor is over -5C.
- Check point : Refrigerant leakage.

13) F3 error

- Cause : in case defrosting mode ends after 60 minutes.
- Check point : Measure the resistance between both terminals of the defrost heater.
If the resistance is infinity (disconnection) or 0 ohm (short).

Function Key Summary

; All Function Key is active in Lock Mode. (After pushing Lock button)

[A/S Deforsting Mode]

→ Ref. Set 5 times while pushing Frz. Set

[Pull Down Mode]

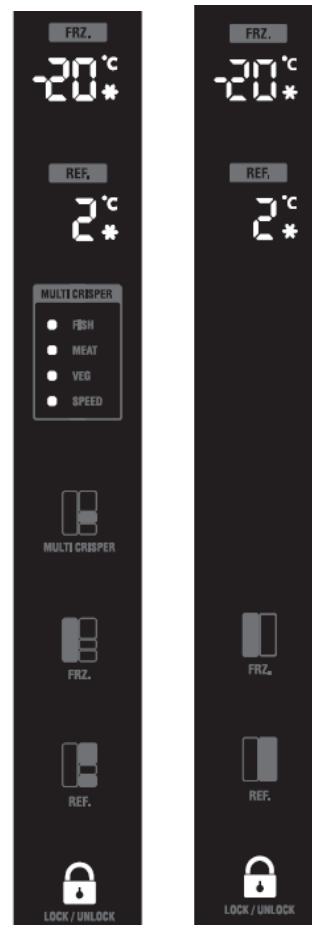
→ Lock 10 times while pushing Ref. Set

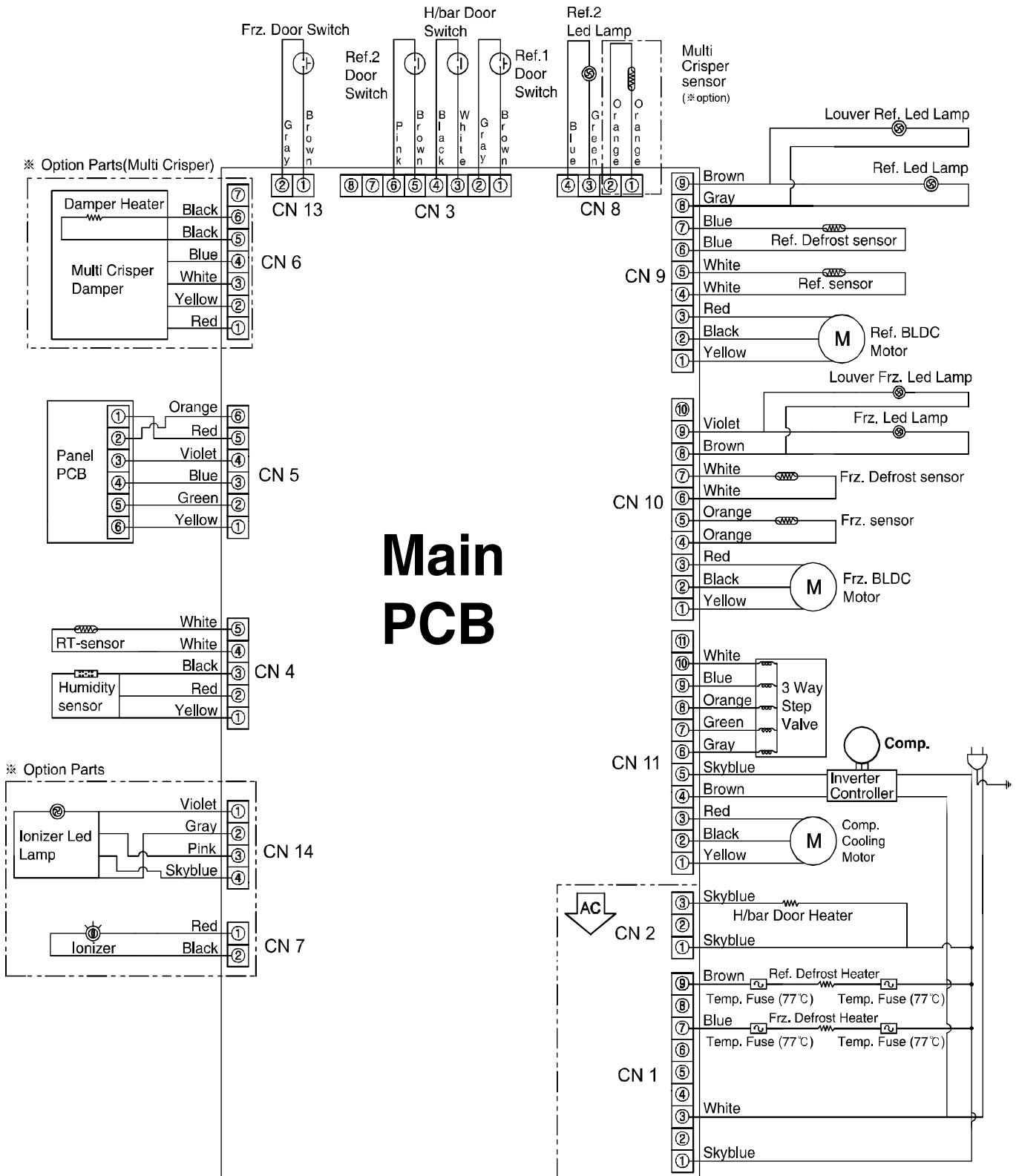
[Demo Mode]

→ Frz. Set 10 times while pushing Ref. Set

[Error Display Mode]

→ Lock 5 times while pushing Frz. Set





1. Inner LED Lamp

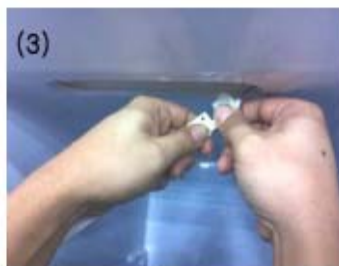
Freezer LED Lamp



Take out the LED window.



Unscrew 2 point.



Exchange LED PCB.



Refrigerator LED Lamp



2. Multi Crisper & Ionizer LED (*Option Parts)

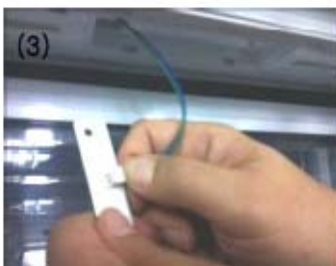
Multi Crisper LED Lamp



(1) Take out the LED cover.



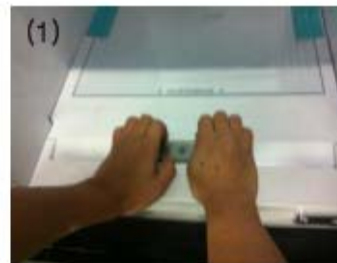
(2) Unscrew 2 point.



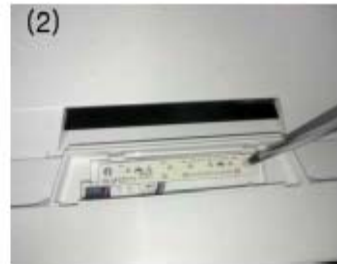
(3) Exchange the LED PCB.



Ionizer LED Lamp



(1) Disassemble LED cover pushing back side.



(2) Unscrew 2 point.



(3) Exchange the LED PCB.

3. Freezer inner LED Panel



Disassemble Freezer Louver screw (4ea).

Pull out Freezer Louver with proper tools.

Disconnect the wire.

Disconnect the wire from the Freezer Louver. (check wire harness disconnected or not.)

Unscrew 4 points.

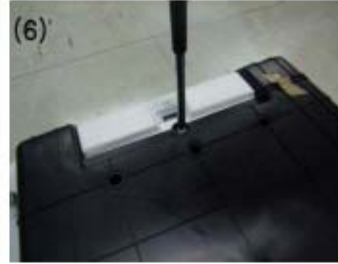
Disassemble with pushing the hook.

Remove sealing material from the Louver.

Take off LED cover.

Exchange the LED. (If defected)

4. Refrigerator inner LED Panel



Unscrew 7 points.



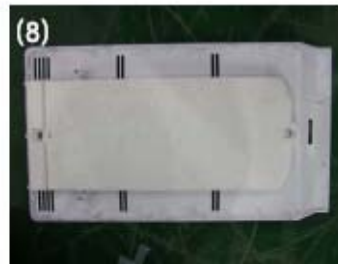
Disassemble Ref. Louver screw (3ea).



Disassemble with pushing the hook.



Pull out Refrigerator Louver with proper tools.



Remove sealing material



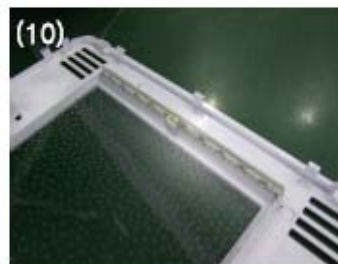
Disconnect the wire.



Take off LED cover.



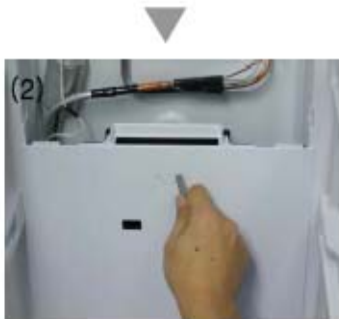
Disconnect the wire from the Freezer Louver. (check wire harness disconnected or not.)



Exchange the LED. (If defected)

5. Freezer side Evaporator

(1) Remove Freezer Louver A : Previous page.



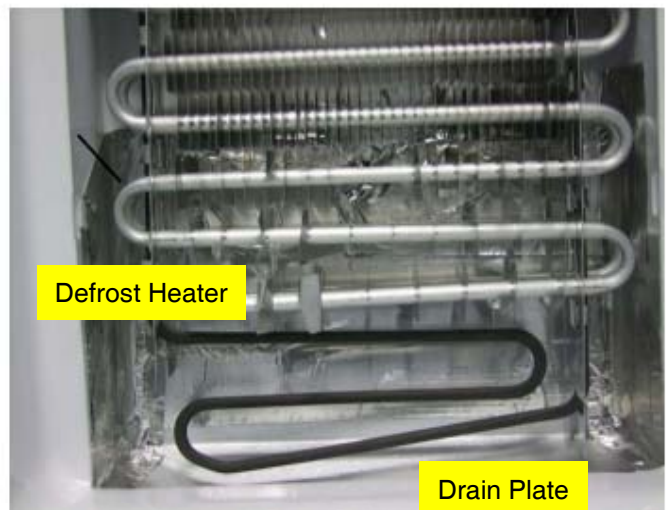
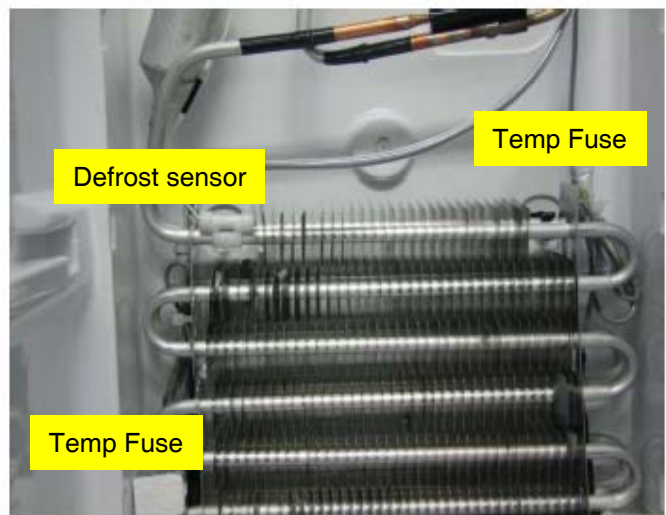
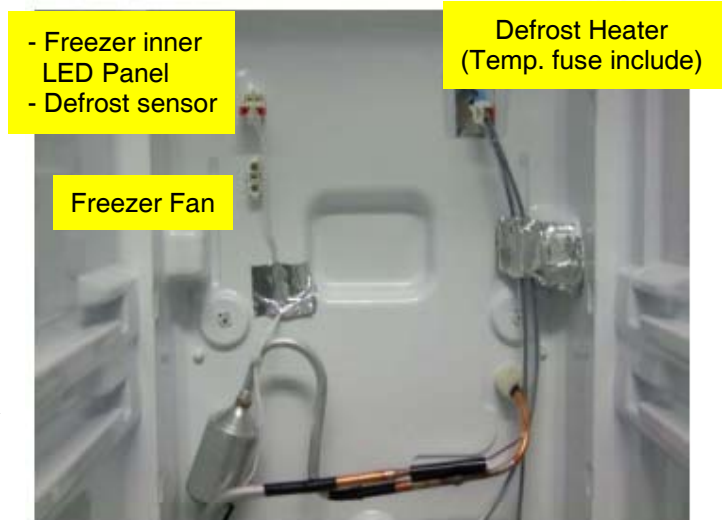
Remove screw cap & screw. (1 point)



Pull out Freezer Louver B.



Freezer compartmnet evaporator shape.



6. Refrigerator side Evaporator

(1) Remove Ref. Louver A : Previous page.



Remove screw cap & screw. (2 point)



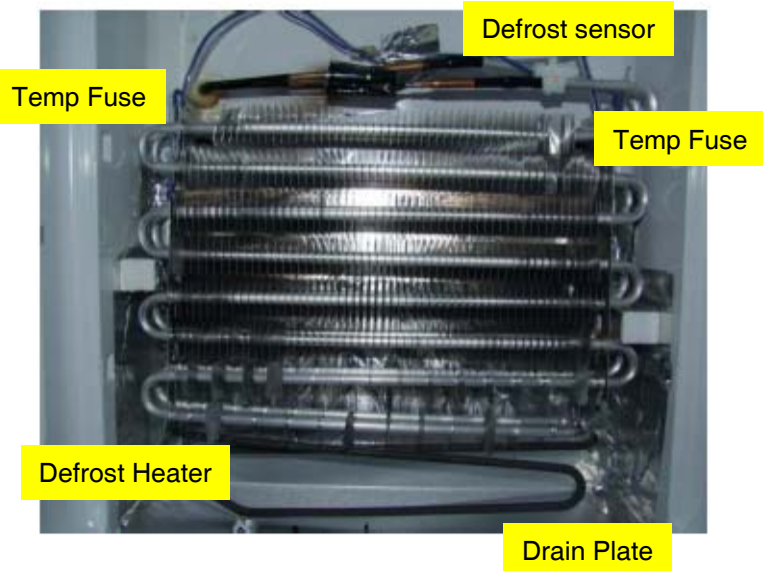
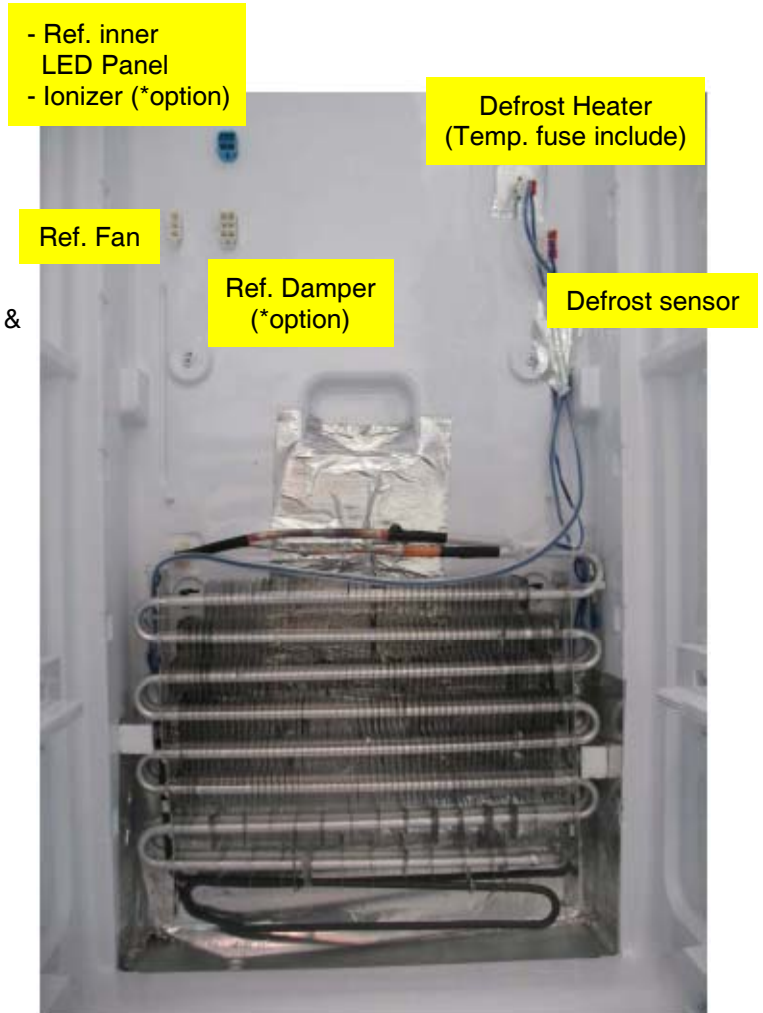
Pull out Ref. Louver B.



Disconnet all wire harness.



Pull out Ref. Louver C.

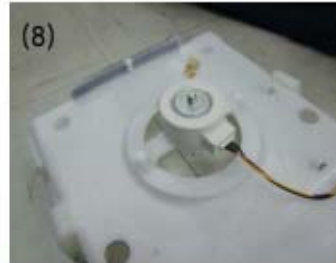


7. Freezer Fan Motor

(1), (2) Remove Frz. Louver A : Previous page.



Remove 4ea screws.



Disassemble the Fan Motor.



Disassemble with holding the hook.



Remove the spring from the Fan.



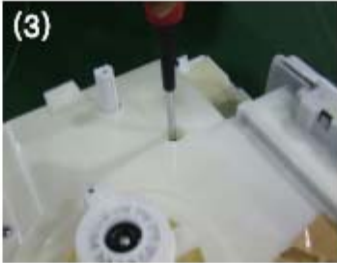
Remove the Fan Blade.



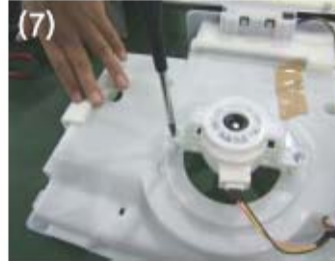
Unscrew 2 points.

8. Refrigerator Fan Motor

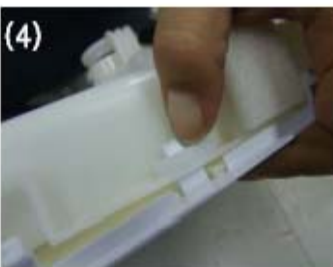
(1), (2) Remove Ref. Louver A : Previous page.



Remove 4ea screws.



Unscrew 2 points.



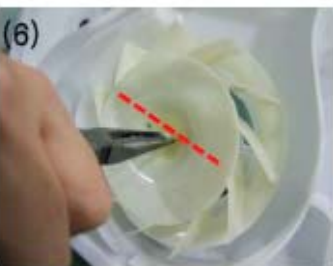
Disassemble with holding the hook.



Disassemble the Fan Motor.



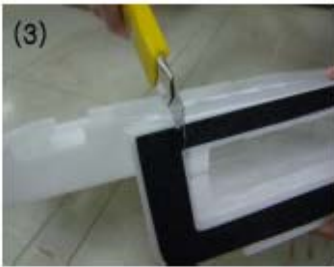
Remove the spring from the Fan.



Remove the Fan Blade.

9. Damper As, Ionizer (*Option Parts) & Deodorizer

(1), (2) Remove Ref. Louver A & B : Previous page.



Cut the Sealing material.



Remove 2 screws, disassemble Damper Cover.



Remove Damper As.



Remove Ionizer.

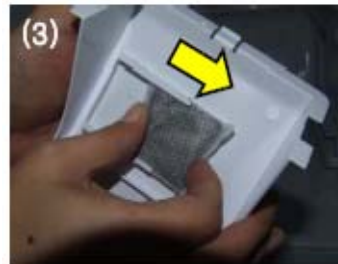


Check assembly direction when assembling the Ionizer.

(1) Pull out the case.



Remove the Air Return Cover pushing the mark point.

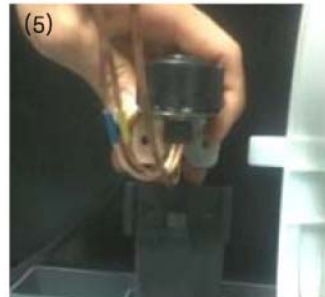


Exchange deodorizer.

10. Step Valve As



Disconnct the housing.



Pull out the Step Valve As.



Cut the Capi-pipe 2 point.

※ When assembling the Step Valve As, check capi-pipe color.
(Yellow - Yellow / Blue - Blue)

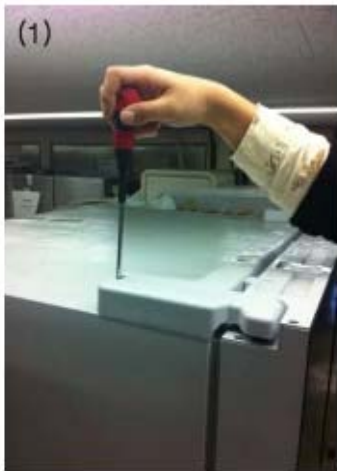


Remove Dryer As & pipe by torching.



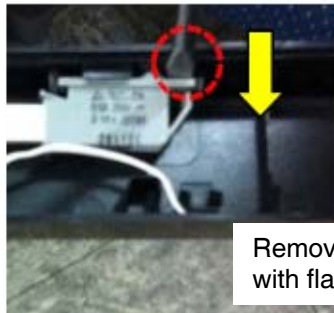
Unscrew 2 points.

11. Door Switch, RT Sensor & Humidity Sensor

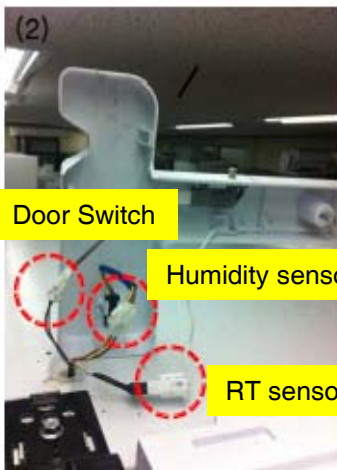


Unscrew 5 points.

[Door Switch]



Remove door switch arrow direction with flat tool.



Disconnect wire harness.

[Humidity Sensor]



Remove opposite Ref. door switch connector.

[RT Sensor]



(4) Exchange any defected parts.

12. FCP Panel



Remove upside 1 screw.



Disconnect the wire harness.



Lift up FCP Panel about 10 cm.

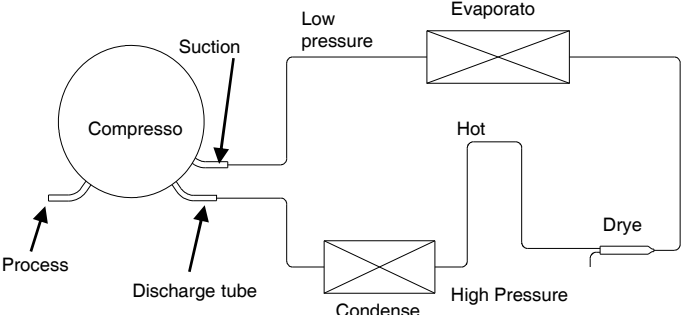


Holding the topside and rotate the FCP Panel CCW.

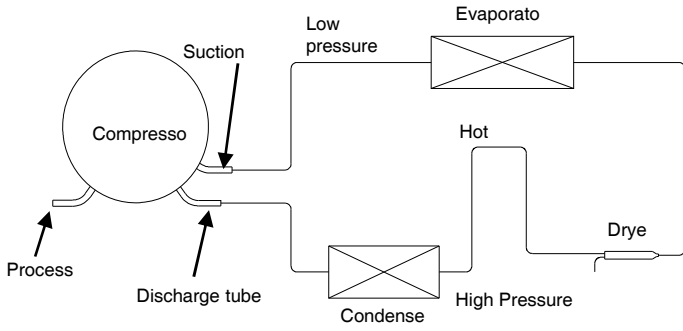
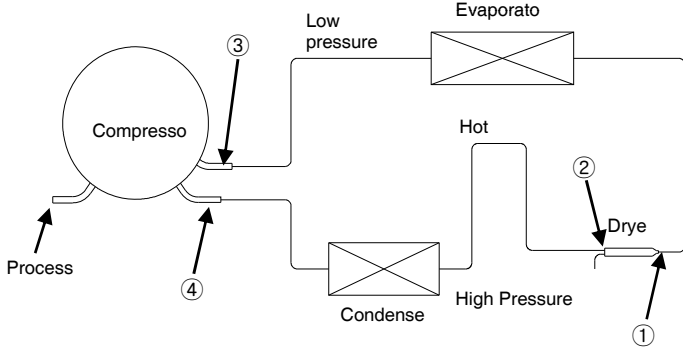
1. Summary of Heavy Repair

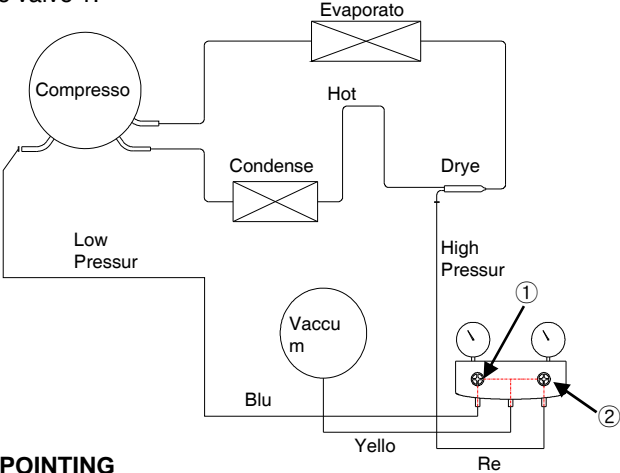
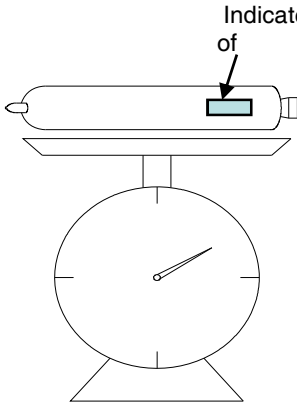
Process	Contents	Tools
Remove refrigerant Residuals	Cut charging pipe ends (Comp. & Dryer) and discharge refrigerant from drier and compressor.	Nipper, side cutters
Parts replacement and welding	Confirm refrigerant (R-134a or R-600a) and oil for compressor and drier. Confirm N2 sealing and packing conditions before use. Use good one for welding and assembly. Weld under nitrogen gas atmosphere. Repair in a clean and dry place.	Pipe Cutter, Gas welder, N2 gas
Vacuum	Evacuate for more than forty minutes after connecting manifold gauge hose and vacuum pump to high (drier) and low (compressor) pressure sides.	Vacuum pump , Manifold gauge.
Refrigerant charging and charging inlet welding	Weigh and control the bombe in a vacuum conditions with electronic scales and charge through compressor inlet (Process tube). Charge while refrigerator operates). Weld carefully after inlet pinching.	Bombe (mass cylinder), refrigerant manifold gauge, electronic scales, punching off flier, gas welding machine
Check refrigerant leak and cooling capacity	Check leak at weld joints. Note :Do not use soapy water for check. Check cooling capacity - Check condenser manually to see if warm. - Check hot pipe manually to see if warm. - Check frost formation on the whole surface of the evaporator.	Electronic Leak Detector, Driver.
Compressor compartment and tools arrangement	Remove flux from the silver weld joints with soft brusher wet rag. (Flux may be the cause of corrosion and leaks.) Clean tools and store them in a clean tool box or in their place.	Copper brush, Rag, Tool box
Transportation and installation	Installation should be conducted in accordance with the standard installation procedure. (Leave space of more than 5 cm from the wall for compressor compartment cooling fan mounted model.)	

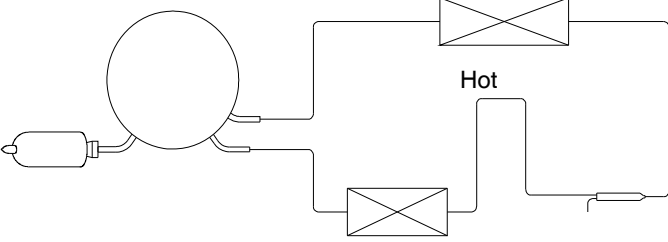
2. Precautions During Heavy Repair

Items	Precautions
Use of tools.	- Use special parts and tools for R-134a or R-600a.
Removal of retained refrigerant.	<p>1) Remove retained refrigerant more than 5 minutes after turning off a refrigerator. (If not, oil will leak inside.)</p> <p>2) Remove retained refrigerant by cutting first high pressure side (drier part) with a nipper and then cut low pressure side. (If the order is not observed, oil leak will happen.)</p>  <p>The diagram illustrates a refrigeration cycle. On the left is a circular compressor labeled 'Compresso'. It has two ports: 'Suction' at the top and 'Discharge tube' at the bottom. An arrow labeled 'Process' points to the suction port. The discharge tube connects to the high-pressure side of the cycle. This side includes a condenser labeled 'Condense' and a drier labeled 'Drye'. The high-pressure side is also labeled 'High Pressure'. The low-pressure side includes an evaporator labeled 'Evaporato' and is labeled 'Low pressure'. A 'Hot' line connects the condenser to the evaporator, indicating the flow of heat. The cycle is completed by a suction line from the evaporator back to the compressor.</p>
Replacement of drier.	- Be sure to replace drier when repairing pipes and injecting refrigerant.
Nitrogen blowing welding.	- Weld under nitrogen atmosphere in order to prevent oxidation inside a pipe. (Nitrogen pressure : 0.1~0.2 kg/cm2.)
Others.	<p>1) Nitrogen only should be used when cleaning inside of cycle pipes inside and sealing.</p> <p>2) Check leakage with an electronic leakage tester.</p> <p>3) Be sure to use a pipe cutter when cutting pipes.</p> <p>4) Be careful not the water let intrude into the inside of the cycle.</p>

3. Practical Work for Heavy Repair

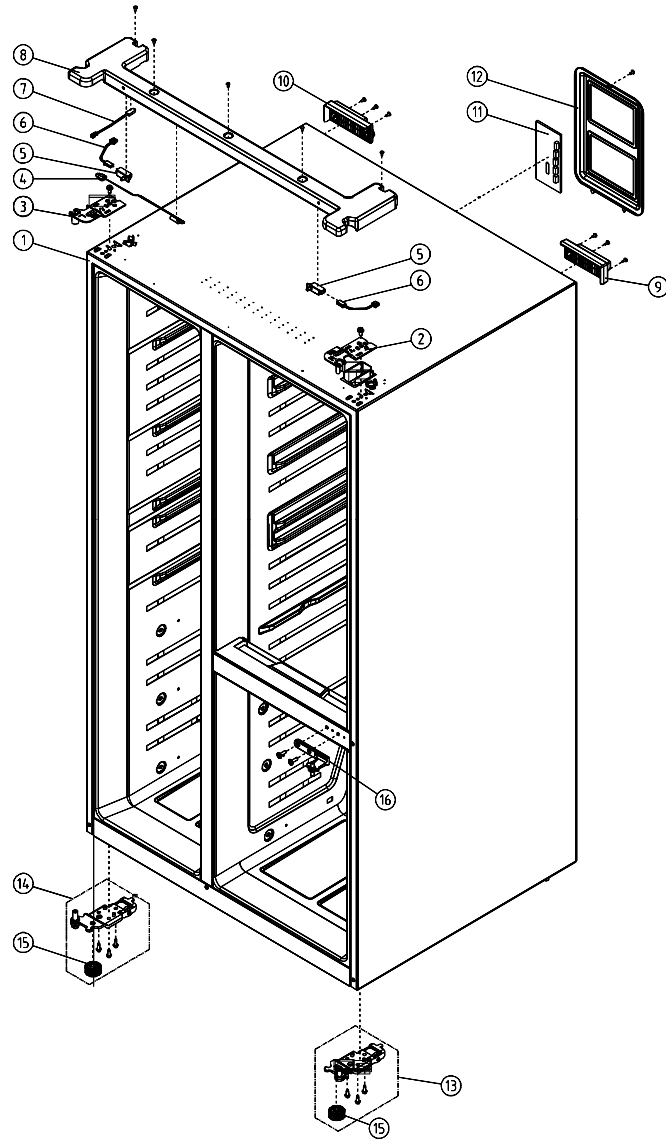
Items	Precautions
<p>1. Removal of residual refrigerant.</p>	<p>1) Remove residual refrigerant more than 5 minutes later after turning off the refrigerator. (If not, compressor oil may leak inside.) 2) Remove retained refrigerant slowly by cutting first high pressure side (drier part) with a nipper and then cut low pressure side.</p> 
<p>2. Nitrogen blowing welding.</p>	 <p>* When replacing a drier: Weld 1 and 2 parts by blowing nitrogen (0.1~0.2kg/cm²) to high pressure side after assembling a drier.</p> <p>* When replacing a compressor: Weld 3 and 4 parts by blowing nitrogen to the low pressure side. Note) For other parts, nitrogen blowing is not necessary because it does not produce oxidized scales inside pipe because of its short welding time.</p> <p>- KEYPOINTING Welding without nitrogen blowing produces oxidized scales inside a pipe, Which affect on performance and reliability of a product.</p>

Items	Precautions
<p>3.Vacuum degassing</p>	<p>* Pipe Connection Connect a red hose to the high pressure side and a blue hose to the low pressure side.</p> <p>* Vacuum Sequence Open 1,2 valves and evacuate for 40 minutes. Close valve 1.</p>  <p>KEYPOINTING</p> <ol style="list-style-type: none"> 1) If power is applied during vacuum degassing, vacuum degassing shall be more effective. 2) Operate compressor while charging refrigerant. (It is easier and more certain to do like this.)
<p>4.Refrigerant charging</p>	<p>* Charging sequence</p> <ol style="list-style-type: none"> 1) Check the amount of refrigerant supplied to each model after completing vacuum degassing. 2) Evacuate bombe with a vacuum pump. 3) Measure the amount of refrigerant charged. <ul style="list-style-type: none"> - Measure the weight of an evacuated bombe with an electronic scale. - Charge refrigerant into a bombe and measure the weight. Calculate the weight of refrigerant charged into the bombe by subtracting the weight of an evacuated bombe.  <p>- KEYPOINTING</p> <ol style="list-style-type: none"> 1) Be sure to charge the refrigerant at around 25C. 2) Be sure to keep -5g in the winter and +5g in summer. <div style="border: 1px solid black; background-color: #e0e0e0; padding: 5px; margin-top: 10px;"> <p>Calculation of amount of refrigerant</p> <p>the amount of refrigerant charged = a weight after charging - a weight before charging (a weight of an evacuated cylinder)</p> </div>

Item	Precautions
<p>4. Refrigerant charging</p>	<p>4) Refrigerant Charging Charge refrigerant while operating a compressor as shown above. 5) Pinch a charging pipe with a pinch-off plier after completion of charging. 6) Braze the end of a pinched charging pipe with copper brazer and take a gas leakage test on the welded parts.</p> 
<p>5. Gas-leakage test</p>	<p>* Take a leakage test on the welded or suspicious area with an electronic leakage tester.</p>
<p>6. Pipe arrangement in each cycle</p>	<p>* Check each pipe is placed in its original place before closing a cover back-M/C after completion of work.</p>

< Standard Regulations for Heavy Repair >

- 1) Observe the safety precautions for gas handling.
- 2) Use JIG (or wet towel) in order to prevent electric wires from burning during welding.
(In order to prevent insulation break and accident.)
- 3) The inner case shall be melted and insulation material (polyurethane) shall be burnt if not cared during welding inner case parts.
- 4) The copper pipe shall be oxidized by overheating if not cared during welding.
- 5) Not allow the aluminum pipes to contact to copper pipes. (In order to prevent corrosion.)
- 6) Make sure that the inner diameter should not be distorted while cutting a capillary tube.
- 7) Be sure that a suction pipe and a filling tube should not be substituted each other during welding.
(High efficiency pump.)

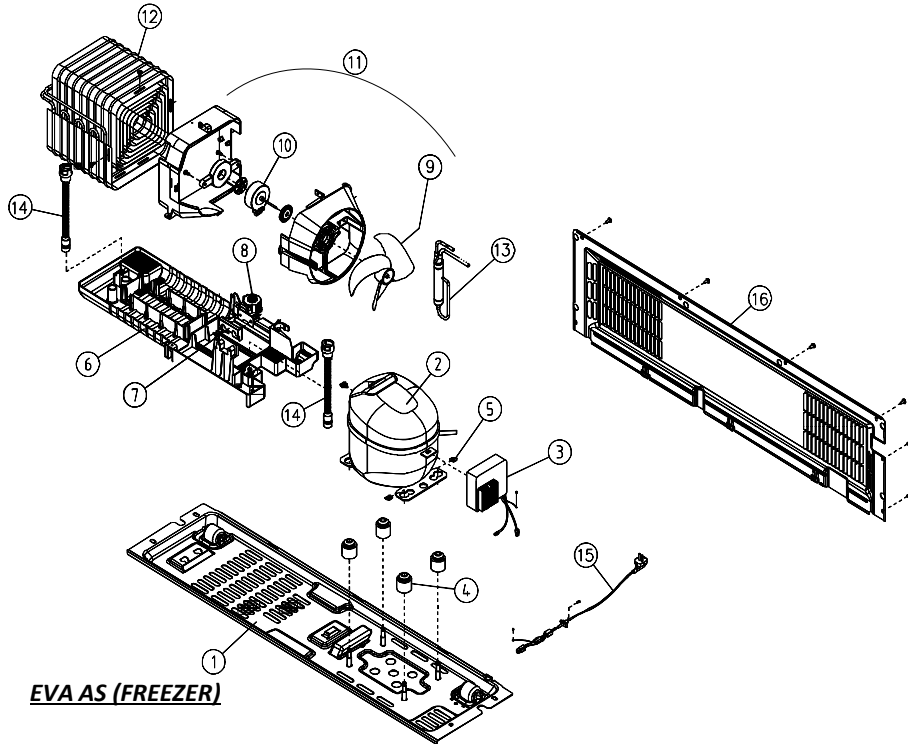


NO	PART-CODE	PART NAME	SPEC.	Q'ty
1	-	ASSY CAB URT	-	1
2	3012936801	HINGE *T *R AS	FR-T89LR	1
3	3012936701	HINGE *T *L AS	FR-T89LR	1
4	3014808610	SENSOR RT AS	PBN-43B	1
5	3018125601	SWITCH H/BAR DR AS	SP101B-2D1(G) GRAY	2
6	3012777500	HARNESS R DR S/W AS	FRX-621B	2
7	3014810600	SENSOR HUMID AS	DW-HS001A	1
8	301149BA00	COVER HI *T	PP	1
9	301099AA00	CAP CAB COVR *R	PP	1
10	301099A900	CAP CAB COVR *L	PP	1
11	30143KT030	PCB MAIN AS	CEM-1 195X153-1.6T	1
12	301149CX10	COVER M/PCB BOX AS	FR-T89LR_PCM B GRADE 0.4T	1
13	3012937000	HINGE *U *R AS	FR-T89LR	1
14	3012936900	HINGE *U *L AS	FR-T89LR	1
15	3012106200	FOOT ADJ AS	PP+NUT(ININSERT)	2
16	3012937200	HINGE R *M AS	FR-L86R	1

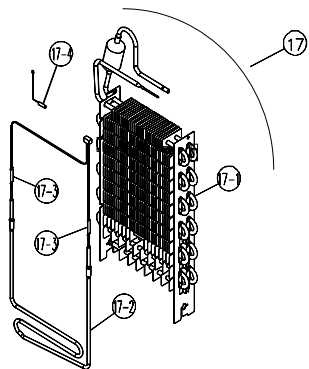
- Some parts can be chaged for improving their performance without notice.

No	DATE	NOTE	REMARK

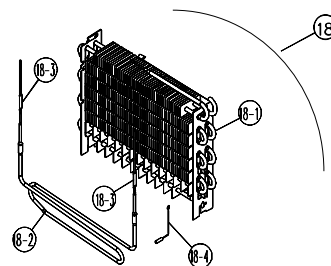
MACHINE ROOM



EVA AS (FREEZER)

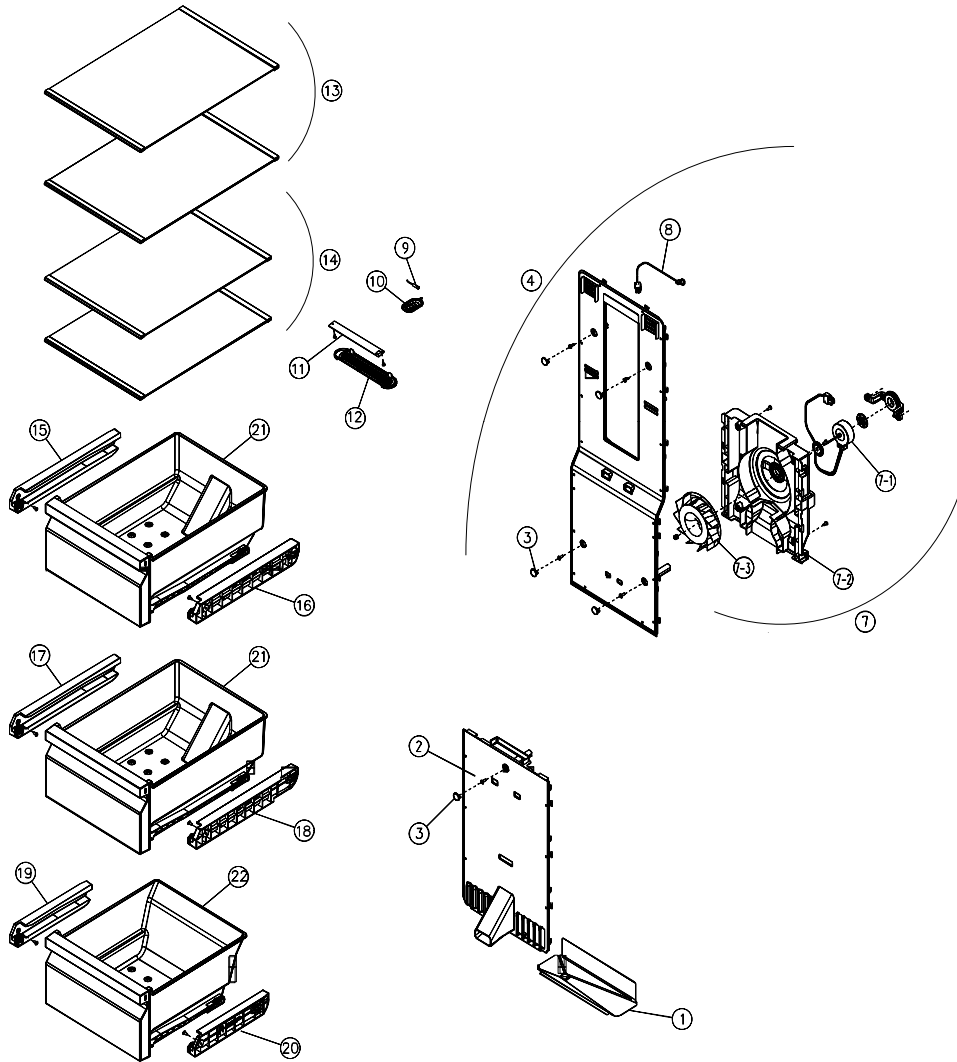


EVA AS (REFRIGERATOR)



MACHINE ROOM				
NO	PART-CODE	PART NAME	SPEC.	Q'ty
1	3010365700	BASE COMP AS	FR-T89LR..	1
2	39591A5280	COMPRESSOR	ENV4A5G-L2B , 220-240V/50HZ	1
3	3814300600	BOX INVERTER ASSY	SBC3-LC3	1
4	3010101480	ABSORBER COMP AS	FRU-541D	4
5	3016002520	WASHER COMP	SK-5 TO.8XW19XL19.5(2STAGE)	4
6	301119UV10	CASE VAPORI AS	PP(NATURAL)	1
7	3010143000	ABSORBER VALVE	NBR	1
8	3015403310	VALVE AS	DC 14V / 3WAY UNIPOLAR TYPE	1
9	3011836300	FAN	ABS(OD 150)	1
10	3015921800	MOTOR C FAN AS	DRCP9020LC	1
11	3018500900	M/BELL AS	FR-T89LR	1
12	3014478800	PIPE WICON AS	8ROWS CONDENSER	1
13	3016808150	DRYER AS	FR-T89LR	1
14	3013227500	HOSE DRN F/R B	PE	2
15	3011347410	CORD POWER AS	CP-2PIN(250V 10A)	1
16	301149C810	COVER MACH RM AS	PCM (SECOND GRANADE) / TO.4	1

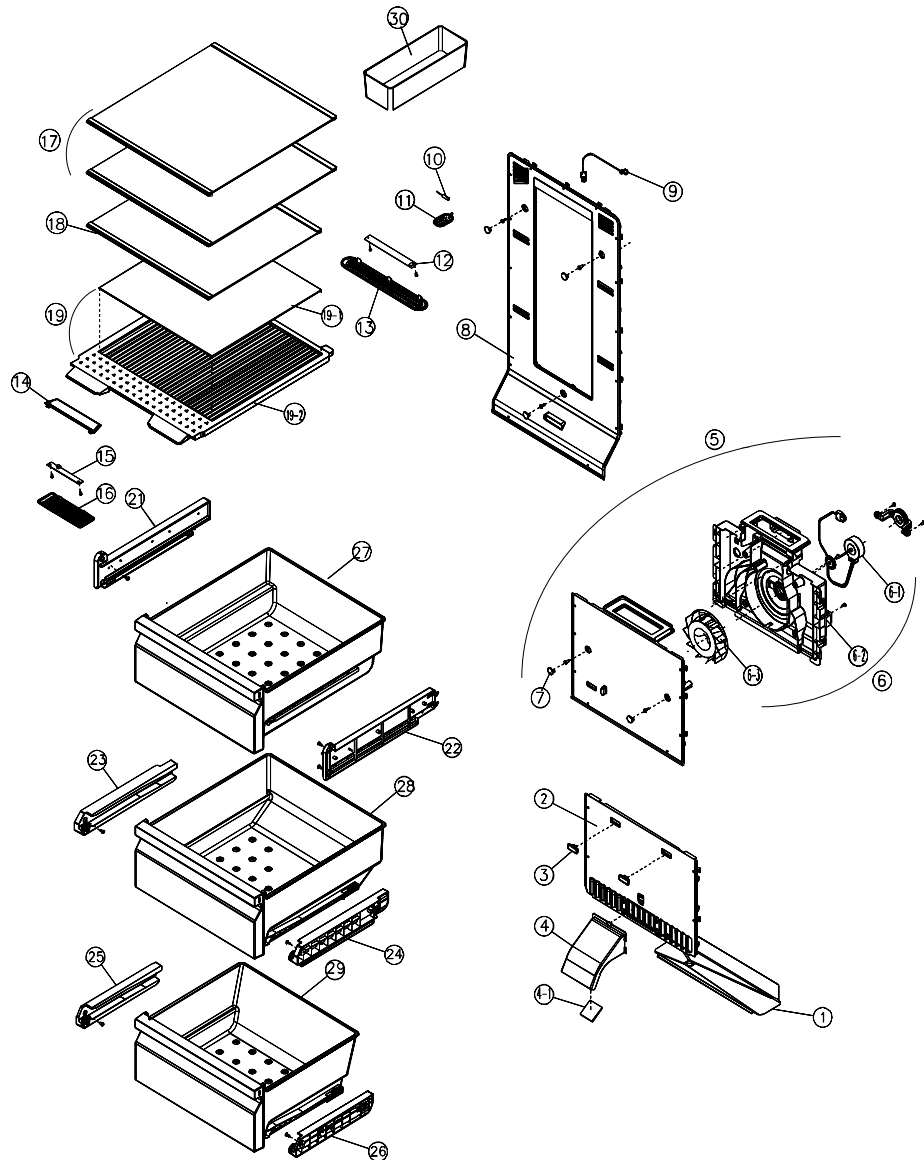
EVA AS				
NO	PART-CODE	PART NAME	SPEC.	Q'ty
17	3017070200	EVA F AS	220-240V,210W	1
17-1	3017069400	EVA F SAS	FR-T89LR	1
17-2	3012831400	HEATER SHEATH F AS	220-240V,210W	1
17-3	3017204400	FUSE TEMP F AS	250V / 10A / 77(+0,-4) °C	2
17-4	3014811000	SENSOR D F AS	PBN-43	1
18	3017070300	EVA R AS	220-240V,150W	1
18-1	3017069700	EVA R SAS	FR-T89LR	1
18-2	3012831300	HEATER SHEATH R AS	220-240V,150W	1
18-3	3017204300	FUSE TEMP R AS	250V / 10A / 77(+0,-4) °C	2
18-4	3014811000	SENSOR D F AS	PBN-43	1



NO	PART-CODE	PART NAME	SPEC.	Q'ty
1	3012547000	GUIDE DRN F	GA T0.4	1
2	3018931100	LOUVER F B AS	FR-T89LR..	1
3	3010924600	CAP F LOUVER	HIPS T2.3	5
4	3018930801	LOUVER F A AS	10-LED FR-4 131*20-1.6T(2PIN)	1
7	3012040000	FIXTURE F MOTR AS	FR-T89LR..	1
7-1	3015921700	MOTOR R FAN AS	DREP9020LR	1
7-2	3012040100	FIXTURE F MOTR	PP	1
7-3	3011836400	FAN F	ABS	1
8	3012784400	HARNESS F/LED AS(BACK)	FR-L86LR..	1
9	3014810810	SENSOR F AS	N3RC-K32D-D101	1
10	3011442620	COVER F SENSOR	ABS(WHITE)	2
11	30143MAR00	PCB FRE LED AS	5-LED, FR-4, 125X20X1.6T(3PIN)	1
12	3015522700	WINDOW F LED *T	ABS	1
13	3017860110	SHELF F A AS (FILM)	METAL DECO[OPTION]	2
14	3017860210	SHELF F B AS (FILM)	METAL DECO[OPTION]	2
15	3012549400	GUIDE CASE F A *L AS	FR-T89LR..	1
16	3012549500	GUIDE CASE F A *R AS	FR-T89LR..	1
17	3012546400	GUIDE CASE F B *L AS	FR-T89LR..	1
18	3012546500	GUIDE CASE F B *R AS	FR-T89LR..	1
19	3012546800	GUIDE CASE F C *L AS	FR-T89LR..	1
20	3012546900	GUIDE CASE F C *R AS	FR-T89LR..	1
21	301119BH20	CASE F A AS	FRT-803HB	2
22	301119BK20	CASE F B AS	FRT-803HB	2

- Some parts can be chaged for improving their perfomance without notice.

No	DATE	NOTE	REMARK

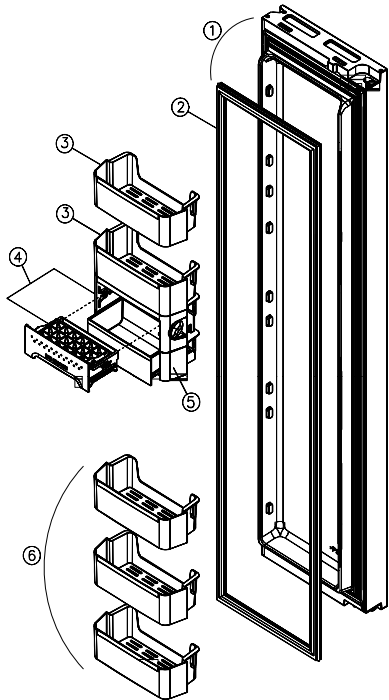


NO	PART-CODE	PART NAME	SPEC.	Q'ty
1	3012547100	GUIDE DRN R	GA T0.4	1
2	3018931700	LOUVER R C AS	FR-T89LR...	1
3	301099AP00	CAP R LUVR B	HIPS	2
4	301149BU00	COVER RETURN AS	FR-T89LR	1
4-1	3018701800	DEO ANTI AS	T5*W40*L40	1
5	3018932600	LOUVER R B AS	FR-T88LR..	1
6	3012040300	FIXTURE R MOTR AS	PBN-34B	1
6-1	3015921700	MOTOR R FAN AS	DREP9020LR	1
6-2	3012040400	FIXTURE R MOTR	PP	1
6-3	3011836400	FAN F	ABS	1
7	3010924600	CAP F LOUVER	HIPS T2.3	5
8	3018930801	LOUVER F A AS	10-LED FR-4 131*20-1.6T(2PIN)	1
9	3012784300	HARNES R/LED AS(BACK)	FR-L86LR..	1
10	3014810710	SENSOR R AS	N3JC-K41A-D100	1
11	3011442620	COVER F SENSOR	ABS(WHITE)	1
12	30143KT260	PCB REF LED AS	6-LED FR-4 174*20-1.6T (3PIN)	1
13	3015522700	WINDOW F LED *T	ABS	1
14	301149CH00	COVER R IONIZER LAMP AS	FR-T88LR	1
15	30143MA700	PCB LAMP AS	3-LED, FR-4, 118X16X1.6T(2PIN)	1
16	3001425900	COVER R LAMP	GPPS	1
17	3017860310	SHELF R A AS (FILM)	METAL DECO[OPTION]	2
18	3017860410	SHELF R B AS (FILM)	METAL DECO[OPTION]	1
19	301459BY00	PLATE SHELF DV *M *U AS	FR-L86LR..	1
19-1	3017862000	SHELF GLAS DV *M*T AS	SILK PRINT	1
19-2	301459B200	PLATE SHELF DV*M*U	HIPS	1
21	3012547900	GUIDE CASE VEGETB A *L AS	RAIL	1
22	3012548000	GUIDE CASE VEGETB A *R AS	RAIL	1
23	3012548100	GUIDE CASE VEGETB B *L AS	ROLLER	1
24	3012548200	GUIDE CASE VEGETB B *R AS	ROLLER	1
25	3012548300	GUIDE CASE VEGETB C *L AS	ROLLER	1
26	3012548400	GUIDE CASE VEGETB C *R AS	ROLLER	1
27	301119BR00	CASE VEGETB A AS	FRT-803HB	1
28	301119BS20	CASE VEGETB B AS	FRT-803HB	1
29	301119BT20	CASE VEGETB C AS	FRT-803HB	1
30	3010568600	BOX EGG	GPPS	1

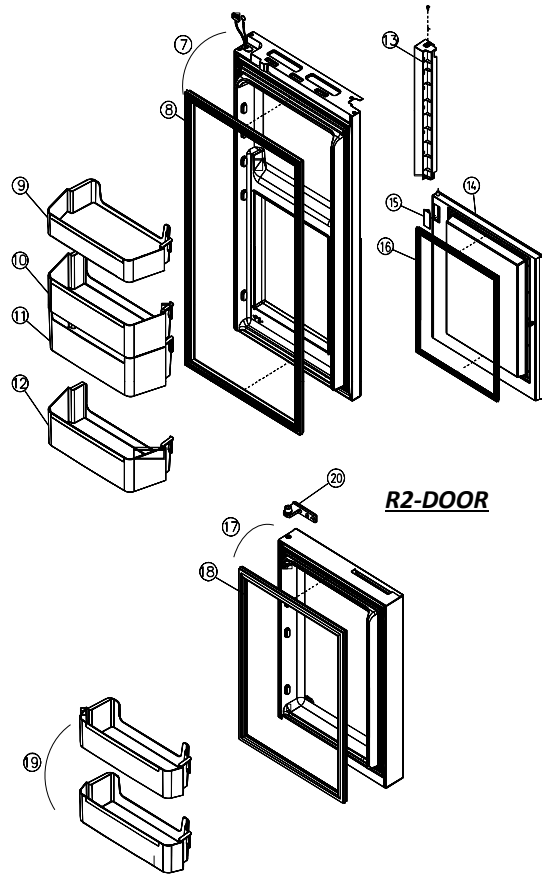
- Some parts can be chaged for improving their performace without notice.

No	DATE	NOTE	REMARK

F-DOOR



R1-DOOR



FREEZER DOOR

NO	PART-CODE	PART NAME	SPEC.	Q'ty
1	30100C1700	ASSY F DR	-	1
2	3012330200	GASKET F DR AS	PVC-S+MAGNET	1
3	3019067400	POCKET F *T	GPPS	2
4	3012244900	FRAME I/MAKER AS	FR-T89LR	1
5	3019068320	POCKET I/MAKER AS	SECC+PAINT(WH)	1
6	3019067420	POCKET F *T	GPPS,2 STAR PRINT	3

REFRIGERATOR DOOR (R1-DOOR)

NO	PART-CODE	PART NAME	SPEC.	Q'ty
7	30100B9610	ASSY R1 DR	-	1
8	3012330300	GASKET R1 DR AS	PVC-S+MAGNET	1
9	3019067600	POCKET R *T	GPPS	1
10	3019067700	POCKET R *M	GPPS	1
11	3019067810	POCKET R CAN	GPPS ,SILK PRINT	1
12	3019067730	POCKET R*M	GPPS,SILK PRINT	1
13	3014252120	PANEL *F CONTL AS	ENGLISH	1
14	301179E000	DOOR H/BAR AS	FR-T88LR..	1
15	301149B900	COVER H/BAR HI *T	ABS	1
16	3012330100	GASKET H/BAR A AS	PVC	2

REFRIGERATOR DOOR (R2-DOOR)

NO	PART-CODE	PART NAME	SPEC.	Q'ty
17	30100C1900	ASSY R2 DR	-	1
18	3012330400	GASKET R2 DR AS	PVC-S+MAGNET	1
19	3019068120	POCKET R*U	GPPS,NO PRINT	2
20	3012936200	HINGE *U H/BAR CPA *U	ABS	1

- Some parts can be chaged for improving their perfomance without notice.

No	DATE	NOTE	REMARK