SHARP SERVICE MANUAL

No.SX528SJ79AHTJT

Refrigerator-freezer
MODEL
SJ-FS810V-WH

DESTINATION ····· J

Refrigerant; R600a
Refer to "REFRIGERATING-CYCLE REPAIR MANUAL" for handling this refrigerant.

CONTENTS

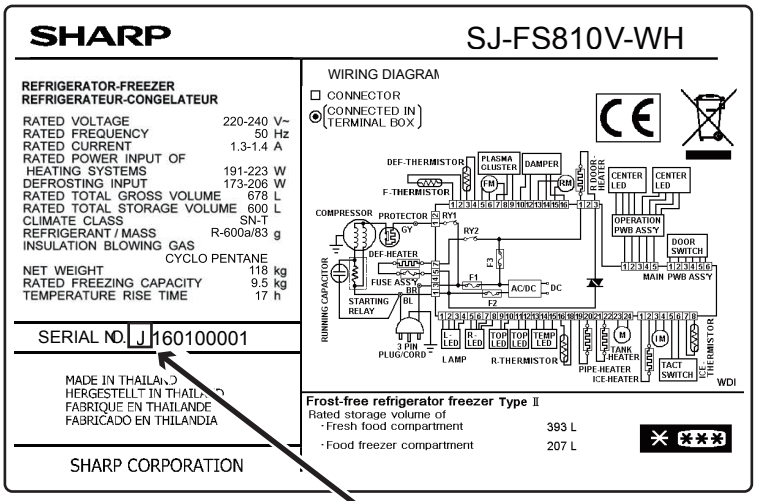
SHARP CORPORATION

- DEFINITION of serial number for VESTEL

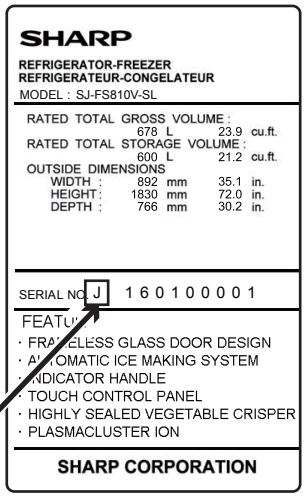
  Initial letter of serial number : J

  The serial number on the “Name label” and “Feature label”

1. Name label



2. Feature label

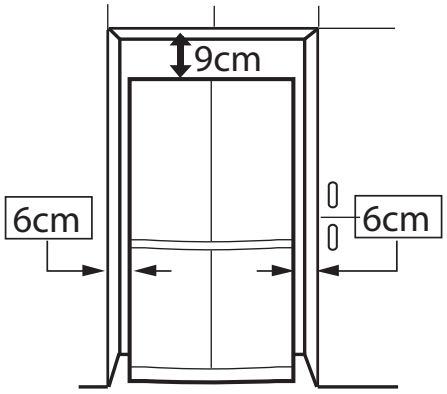


J : Vestel Electronics

[1]INSTALATION

Free standing type

• To ensure adequate ventilation for this refrigerator, install with 6 cm space at the rear and both sides, with a minimum space of 9 cm above the refrigerator.



• This refrigerator shall be used under the ordinary place condition between +5 ºC and +43 ºC of ambient temperature, and also not be left under -10 ºC for long days.

• To be used this refrigerator within the range of the rated voltage±6%.

[2] SPECIFICATIONS

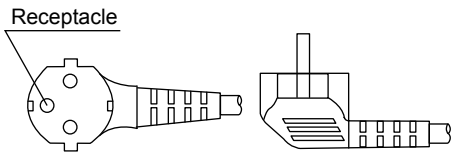
Items		SJ-FS810V
Type		4 Door
Outer dimensions	Height	1830 mm (72.0 ")
	Width	892 mm (35.1 ")
	Depth	766 mm (30.2 ")
Rated storage volume	Total	600liter (21.2 cu.ft)
	Freezer	207liter (7.3 cu.ft)
	Refrigerator	393liter(13.9 cu.ft)
Rated gross volume	Total	678liter(23.9 cu.ft)
Defrosting	System	Heater system
	Start	Automatic
	Finish	Automatic
Door material		Glass
Plasmacluster unit		1
Temperature control		Automatic (Adjustable)
No-frost freezer		Yes
Interior lamp (LED)		48
Caster		4
Evaporating pan		1 (unremovable)
Refrigerator Compartment	R-shelf ass'y	2
	V-shelf ass'y	1
	Fruit case ass'y	1
	Fresh case ass'y	1
	V-case ass'y	1
	Door pocket ass'y	3
	Bottle pocket L ass'y	1
	Bottle pocket R ass'y	1
	Bttl pocket partition	1
	U-pok door	1
	Utility pocket ass'y	1
	Egg pocket ass'y	1
	Egg tray	1
	Water tank	1
Freezer Compartment	Auto ice maker	1
	Ice storage box	1
	F-case S ass'y	3
	L-case S ass'y	2
Control panel	Plasmacluster	Yes
	Energy saving	Yes
	Express Freezing	Yes
	Vacation mode	Yes
	Door alarm	Yes
	Temp.control	Yes
	Child lock	Yes
	Ice making	Yes
	Large ice making	Yes
	Clear ice making	Yes
	Ice tray cleaning	Yes
Aluminium panel		Yes
Deodorizing unit (Honeycomb type)		Yes

RATING

Items		SJ-FS810V
Rated voltage	(V~)	220-240
Rated frequency	(Hz)	50
Climate class		SN-T
Rated current	(A)	1.3-1.4
Rated input of heating systems	(W)	191-223
Defrosting input	(W)	173-206
Refrigerant (Charging quantity) [Flammable]		R600a(83g)
Insulation blowing gas [Flammable]		Cyclo pentane (HC)
Net Weight	(kg)	118

PLUG TYPE

Plug cord	2pin+Earth
Plug type	CS
Destination mark	E



COLOR

Items	-WH
Outside color	White
Inside color	White

AUTOMATIC ICE MAKER

• Water supply system …… Water is sent from the water tank to the ice tray.

• Water tank capacity …… Approx. 1.8L

• Ice-making capability

Ice size	Normal	Large
One day	Approx. 1.2kg	Approx. 1.5kg
One time (eight pieces)	Approx. 100g	Approx. 230g

• Time required for one ice making

Ice size	Normal	Large
Normal ice	Approx. 2 hours	Approx. 3 and a half hours
Clear ice	Approx. 6 hours	Approx. 8 hours

• Others …… Mesh filter

Shovel (for ice extraction)

A check of operation can be performed in cleaning mode.

• Heat-resistant temperature of a water tank …… Approx. 60 °C

• Ice cube volume (Maximum)

Ice size	Normal	Large
Volume	Approx. 232 pieces	Approx. 112 pieces

[3] FICHE

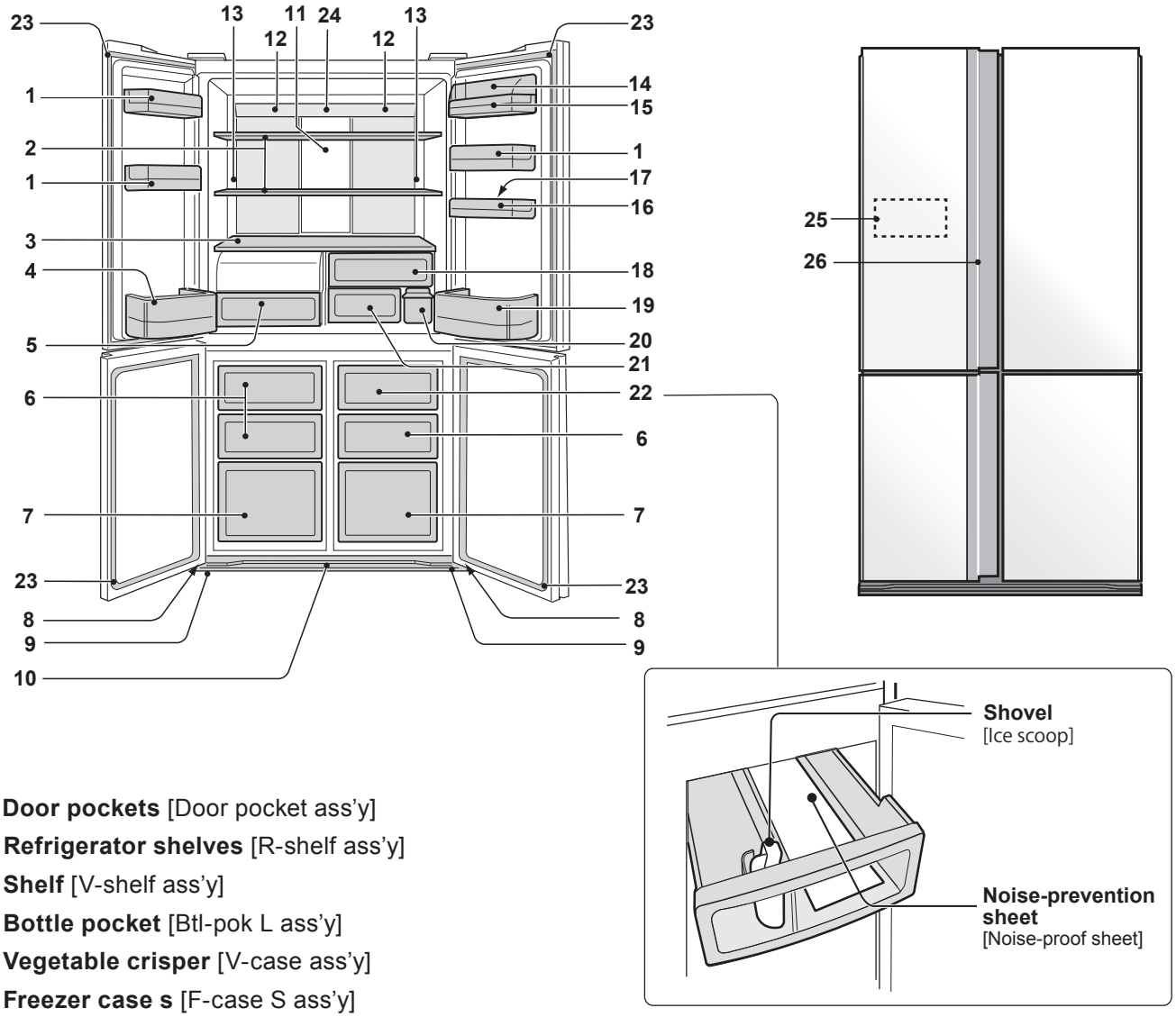
ANNEX III (EU) Regulation No.1060/2010			
A	Trade mark		SHARP
B	Model name		SJ-FS810V
C	Category		7
D	Energy efficiency class		A^{+}
E	EU Ecolabel award		—
F	Annual energy consumption *1	[KWh/ year]	487
G	Storage volume of all compartments that do not merit a star rating	[L]	393
H	Storage volume of all frozen-foodstorage compartments that merit a star rating	[L]	**** 207
I	The design temperature of “other compartment” warmer than +14°C		—
J	Frost free		YES
K	Temperature rise time	[h]	17
L	Freezing capacity	[Kg/24h]	9.5
M	Climate class		SN-T
N	Airborne acoustic noise emission	[dB(A)]	37
O	Built-in appliance		No (Free-standing type)

*1 Energy consumption “XYZ” kWh per year,based on standard test results for 24 hours.
Actual energy consumption will depend on how the appliance is used and where it is located.

[4] DESIGNATION OF VARIOUS PARTS

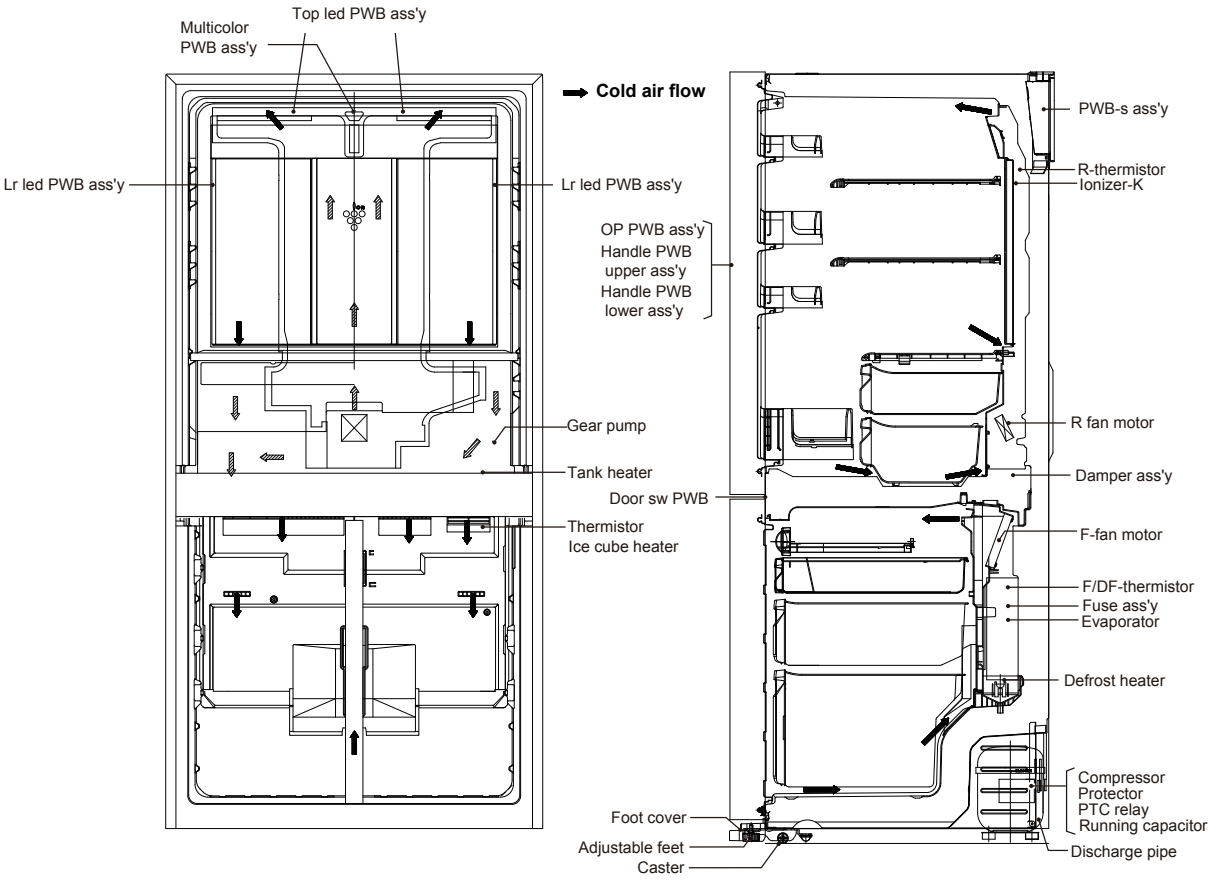
1. EXTERNAL DESCRIPTION

The names in parenthesis "[ ]" are the denominations used in the PARTS GUIDE.



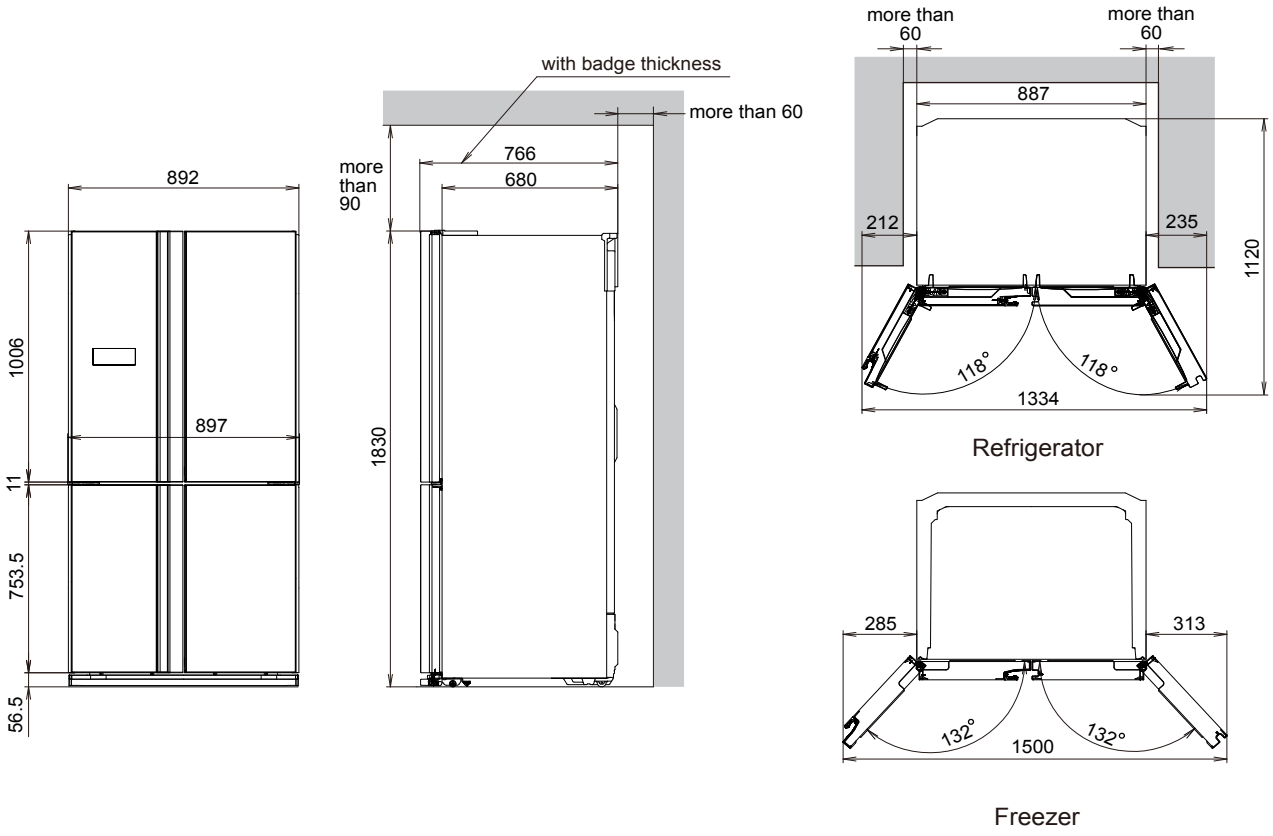
1. Door pockets [Door pocket ass'y]
2. Refrigerator shelves [R-shelf ass'y]
3. Shelf [V-shelf ass'y]
4. Bottle pocket [Btl-pok L ass'y]
5. Vegetable crisper [V-case ass'y]
6. Freezer case s [F-case S ass'y]
7. Freezer case l [F-case L ass'y]
8. Casters
9. Adjustable feet [Adjustable leg ass'y]
10. Foot cover [Base cover]
11.Aluminum panel [AL panel]
12.Light [Top led PWB ass'y]
13.Light [LR led PWB ass'y]
14.Utility pocket cover [U-pok door]
15.Utility pocket [Utility pok ass'y]
16.Egg pocket [Egg pok ass'y]
17.Egg holder [Egg tray]
18.Fruit case [Fruit case ass'y]
19.Bottle pocket [Btl-pok R ass'y]
20.Water tank
21. Fresh case [Fresh case ass'y]
22. Ice storage box [Ice storage box ass'y]
23. Magnetic door seals [Door packing]
24. Eco sign [Multicolor PWB ass'y]
25. Touch control panel [OP PWB ass'y]
26. Handle indicator
[Handle PWB upper / lower ass'y]

2. CONSTRUCTIONS



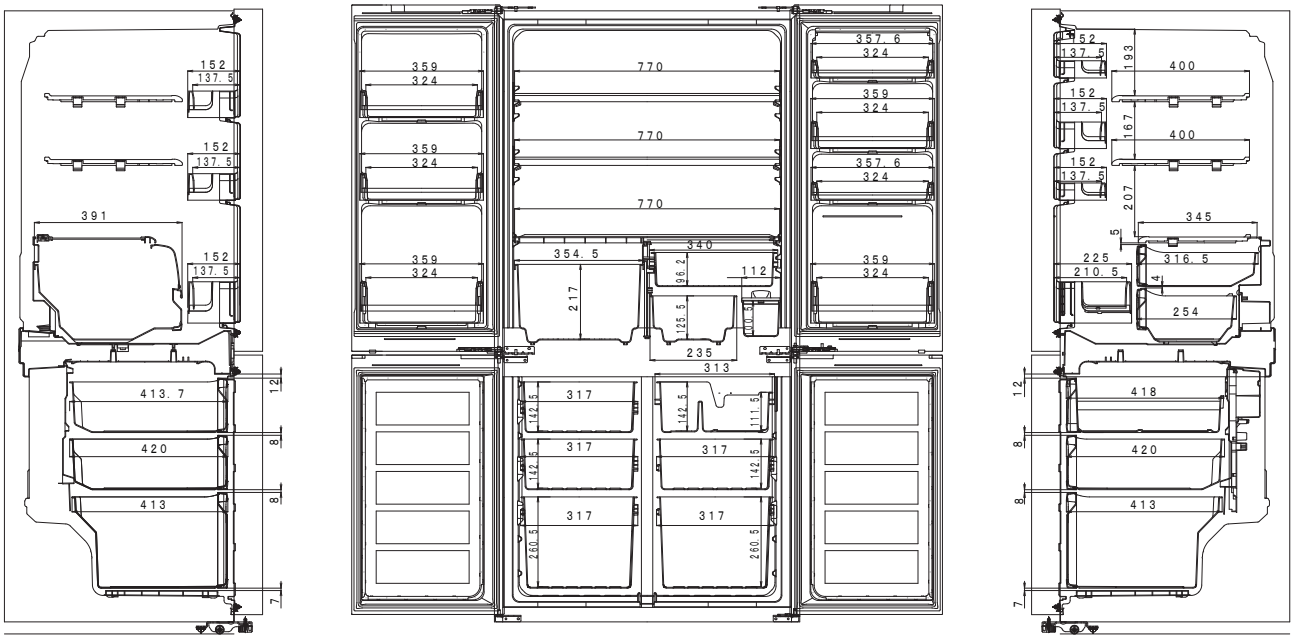
[5] DIMENSIONS

1. OUTER DIMENSIONS AND CLEARANCE

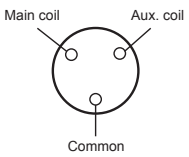


2. INNER DIMENSIONS

The dimensions between shelves can be changed by setting the shelves on the other rails.



[6] LIST OF ELECTRICAL PARTS

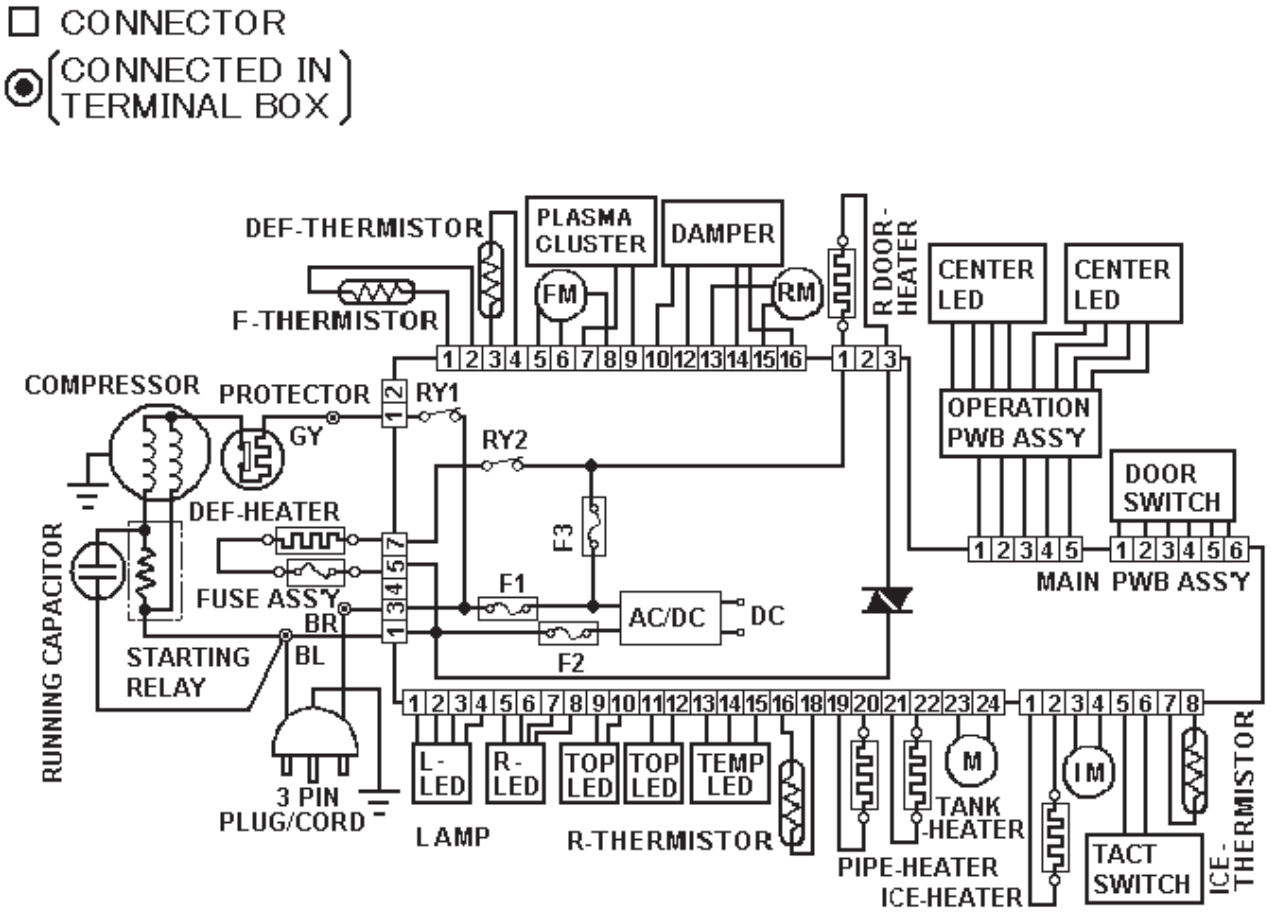
ITEMS	PARTS CODE	TYPE NAME	RATING	SPECIFICATIONS
R thermistor	RH-HXA158CBZZ	-	DC5V	R0 = 6.4 kΩ, B(0) = 3811
F /DEF thermistor	RH-HXA108CBZZ	-	DC5V	(F) R0 = 6.4 kΩ, B(0) = 3811
				(DEF) R0 =15 kΩ, B(0) = 3811
Damper ass'y	DTHM-A031CBKZ	-	DC12V	-
R fan motor	RMOTRA095CBZZ	D08A-12PM05(K)	DC12V	-
F fan motor	RMOTRA096CBZZ	FBA12J15VXD	DC15V	-
Fuse ass'y	FFS-TA087CBKZ	SF70E	250V 10A	Working temp. : 73 ℃
Defrost heater	FHETBA193CBZZ	-	220V-240V 286Ω	185W at 230V
LR LED PWB ass'y	FPWB-B270CBKZ	-	DC25mA	White LED Lamp 18pcs × 2lines
TOP LED PWB ass'y	FPWB-B268CBKZ	-	DC50mA	White LED Lamp 6pcs × 2lines
Multicolor PWB ass'y	FPWB-A940CBKZ	-	Blue LED:DC15mA Orange LED:DC20mA	Blue LED:1pcs Orange LED:1pcs
Door switch PWB	FPWB-A917CBKZ	-	DC5V	-
Ice maker ass'y	DVMA-A127CBKZ	-	DC12V	
Ice thermistor	RH-HXA157CBZZ	-	DC5V	R0 = 6.0 kΩ, B(0) = 3811
Gear pump	FGER-A014CBZZ	-	DC12V	-
Ice cube heater	FHETBA389CBZZ	-	DC24V 12W (48Ω)	-
Tank heater	FHETBA390CBZZ	-	DC24V 1.0W (576Ω)	-
● Water pipe heater	RHETBA388CBZZ	-	DC24V 2.8W (206Ω)	-
● Rd-heater	RHETBA391CBZZ	-	230V 6.32W (8365Ω)	-
Plasmacluster unit	CKITTA159AKKZ	-	DC15V	4.55kV p-p (Second wave)
Compressor	FCMPLA441CBKZ	NX1120Y	220-240V / 50Hz	Cooling capacity : 232W Main coil : 13.9 Ω Aux. coil : 17.9 Ω (at 25 ℃) 
Starting relay (PTC relay)	RSTT-A245CBZZ	PTH7M150MD2	-	15Ω(at 25℃)
Overload Relay (Protector)	RHOG-A302CBZZ	4TM222NFBYY-53	-	Open/Close : 120/61℃
Running capacitor	RC-EZA250CBZZ	-	230V (220-240V)	400V 4μF
Main PWB ass'y	FPWB-B090CBKZ	-	220-240V 50/60Hz	-
Operation panel PWB ass'y	FPWB-A909CBKZ	-	DC24V	-
Handle PWB upper ass'y	FPWB-A905CBKZ	-	DC10V	RGB LED Lamp : 1pcs
Handle PWB lower ass'y	FPWB-A907CBKZ	-	DC10V	RGB LED Lamp : 1pcs

●:Unexchengeable parts or Independently unexchangeable parts.

[7] WIRING DIAGRAM

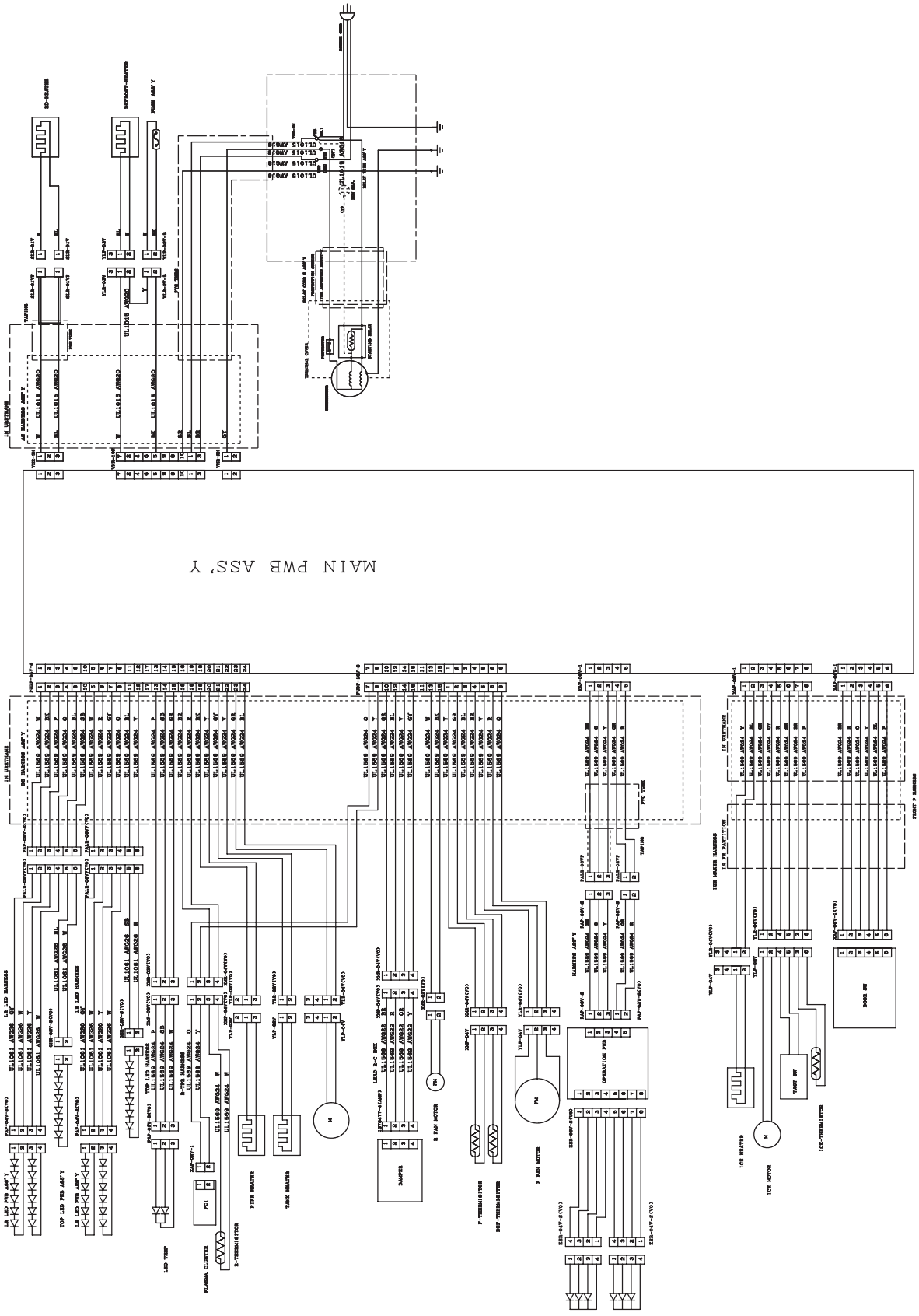
1. WIRING DIAGRAM

Be sure to replace the electrical parts with specified ones for maintaining the safety and performance of the set.



BK : BLACK
BR : BROWN
R : RED
O : ORANGE
Y : YELLOW
GR : GREEN
BL : BLUE
V : VIOLET
GY : GRAY
W : WHITE
P : PINK
SB : SKY-BLUE
G/Y : GREEN/YELLOW STRIPE

2. ELECTRIC ACCESSORIES LAYOUT



3. PRECAUTIONS FOR USING LEAD-FREE SOLDER

1) Employing lead-free solder

The PWB of this model employs lead-free solder. This is indicated by the "LF" symbol printed on the PWB and in the service manual. The suffix letter indicates the alloy type of the solder.

Example:

Indicates lead-free solder of tin, silver and copper

2) Using lead-free wire solder

When repairing a PWB with the "LF" symbol, only lead-free solder should be used. (Using normal tin/lead alloy solder may result in cold soldered joints and damage to printed patterns.)

As the melting point of lead-free solder is approximately 40°C higher than tin/lead alloy solder, it is recommend that a dedicated bit is used, and that the iron temperature is adjusted accordingly.

3) Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is higher and has poorer wettability, (flow), to prevent damage to the land of the PWB, extreme care should be taken not to leave the bit in contact with the PWB for an extended period of time. Remove the bit as soon as a good flow is achieved.The high content of tin in lead free solder will cause premature corrosion of the bit. To reduce wear on the bit, reduce the temperature or turn off the iron when it is not required.

Leaving different types of solder on the bit will cause contamination of the different alloys, which will alter their characteristics, making good soldering more difficult. It will be necessary to clean and replace bits more often when using lead-free solder. To reduce bit wear, care should be taken to clean the bit thoroughly after each use.

[8] FAILURE DIAGNOSIS

1. OUTLINE OF CONTROL

1) ON/OFF Control of Compressor

• ON/OFF of the compressor will be controlled depend on the temperature detected by the R-thermistor and F-thermistor. (Normal cooling control)

• In case the surrounding temperature is high at the power supply input, the compressor will be ON at once and the normal cooling control will start after several hours.

• When the Express freezing is requested by user during the operation, the compressor will be ON and cooling operation will be started regardless of the detected temperature by the thermistors. However, if requested during the defrosting operation, the request will be executed after the completion of defrosting and ON of the compressor might be delayed.

• During 6 minutes after the compressor stops, it will not start regardless of the detected temperature by R-thermistor and F-thermistor.

2) Defrosting

Microcomputer calculates the appropriate timing of defrosting and defrosting is made automatically. Therefore no manual operation by user is required. The cycle of defrosting varies depend on the usage condition of the refrigerator. (Maximum time about 50 hours, minimum time 8 hours)

3) Thermistor

Thermistors are installed in 5 places; in the refrigerator and freezer compartment, and close to the Operation PWB and Evaporator and the bottom of the ice tray. (R-thermistor, Fthermistor, Outside temp-thermistor, Def-thermistor, Ice-thermistor)

R-thermistor and F-thermistor detects the temperature in the refrigerator and freezer compartment respectively and controls ON/OFF of compressor.

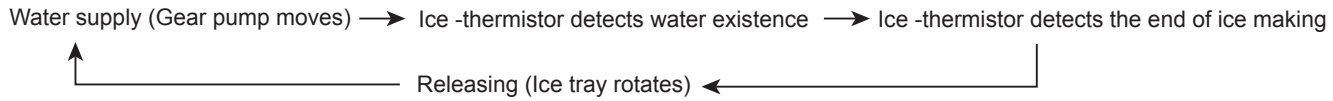
Def-thermistor detects the temperature around the evaporator and shows the progress of defrosting.

Outside temp-thermistor detects the surrounding temperature of refrigerator. The microcomputer decide the operation mode using the outside temperature.

Ice-thermistor detects the end of ice making, and water existence in Auto Ice maker.

4) Auto Ice Maker

• Automatic Ice maker operation



• Clear ice

An ice cube heater is heated and ice is made slowly.

• Water pipe heater

Freeze proofing of a water pipe.

• Tank heater

Freeze proofing of a water tank.

5) R room lamp

• R room lamp goes out, 60minutes after opening a refrigerating room doors. (for power supply circuit protection)

2. WHEN THE DEFROSTING FAILURE IS DOUBTFUL

Execute the Self-Diagnosis Mode. (Refer to the Chapter “SELF-DIAGNOSIS MODE”)

• In case the diagnosis result is “ E.03” (Def-thermistor system defect), follow up the flowchart of E.03. (In case of any abnormity in the Def-thermistor, defrosting will not be made for safety reasons.)

• In case the diagnosis result is “ E.07” (Defrost defect), follow up the flowchart of E.07.

(This diagnosis result will be displayed when defrosting is made for 120 minutes, the maximum time length. In this case, the defect of PWB itself or also the breakage of heater or heater circuit (melt down of current fuse and temperature fuse) are considerable.)

3. RE-SETTING OF MICROCOMPUTER AT POWER FAILURE

- At the power failure for over about 1 second, the control of the microcomputer will be reset.
- Microcomputer might continue to operate for approximately 10 seconds maximum at power failure depending on the load at the operation. Approximately 30 seconds is necessary for the definite power OFF condition.
- When the power is re-supplied, the normal cooling will be resumed.
- The temperature and operation mode set by user will be maintained even if a power failure occurred. (However express freezing, and ice tray cleaning will not be maintained.)
- When the mode for display is released after to be made, each mode and setting are resumed to the initial condition.

4. DIAGNOSIS METHOD OF FAILURE AROUND PWB

First of all, check by using the self-diagnosis.

In case that the power supply doesn't enter, check by the following procedure.

1.Disconnect power supply and check the following point.

- Is there any failure portion in inserting connectors?

2.Detach the PWB and check the appearance.

- Is there any burning or abnormal damage?

3.Check the conditions of the fuse and the varistor. (Fuse and varistor are located at the position in the figure.)

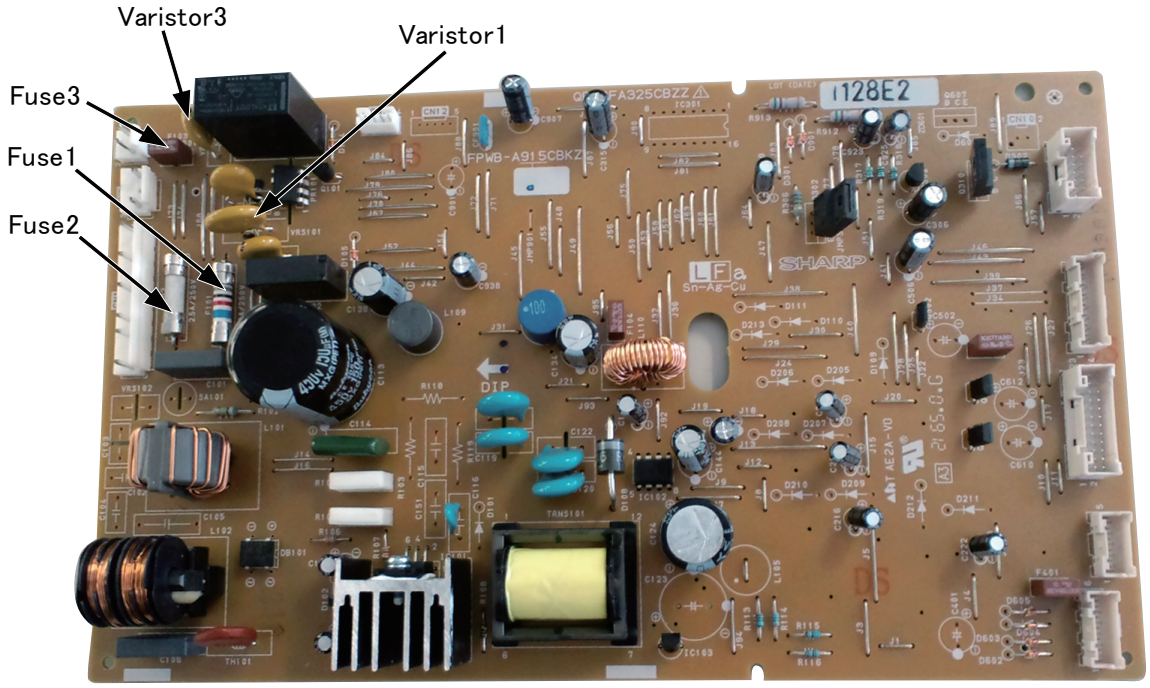
- Under the condition of power supply plug connected;

  In case of no cooling and no indoor lamp lighting, there might be a possibility of fuse (F1 or F2) melt down.

  When the fuse F1 or F2 is melt down, PWB does not operate at all.

  When the fuse F3 is melt down, defrosting heater and refrigerator door heater are not electrified. (Defrosting error will be diagnosed as “Defrosting failure” by the self diagnosis.) In this case, the cooling performance may deteriorate or dew generation may occur on the door, because the defrosting is not done.

- Melting in the fuse cannot be checked visually (as the safer one than transparent glass tube is used). Be sure to detach the connector “CN1” before measuring the resistance between the both ends of the fuse by the tester.
- Next, measure the resistance value between the both leads of the varistor.



		Varistor	
		Normal (over approx.1.5MΩ)	Damage
Fuse	Melting	Flow of excessive current is considerable for some reasons. Check for any portion to cause short circuits especially on the primary circuit.	There is a possibility of excessive voltage applied from outside with the factor such as thunder etc. When repeated with a factor other than thunder, there might be the apparatus near by generating noises.
	Conduction	Fuse and varistor are normal. Possibility to be caused by excessive current or voltage near the power supply is low. Proceed to the other check item.	

4. Check whether the temperature (resistance value) shown by R-thermistor is correct or not. (Refer to the table below.)

• Detach the connector “CN8” on the PWB and measure the resistance between 16 and 18 pins of harness side.

5. Check whether the temperature (resistance value) shown by Def-thermistor is correct or not. (Refer to the table below.)

• Detach the connector “CN7” on the PWB and measure the resistance value between 3 and 4 pins of harness side.

6. Check whether the temperature (resistance value) shown by F-thermistor is correct or not. (Refer to the table below.)

• Detach the connector “CN7” on the PWB and measure the resistance value between 1 and 2 pins of harness side.

5. CONVERSION TABLE BETWEEN TEMPERATURE AND RESISTANCE VALUE

1) R-thermistor, F-thermistor

Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)
-25	26.1	-9	10.3	7	4.5
-24	24.5	-8	9.8	8	4.3
-23	23.1	-7	9.2	9	4.1
-22	21.7	-6	8.8	10	3.9
-21	20.5	-5	8.3	11	3.7
-20	19.3	-4	7.9	12	3.6
-19	18.2	-3	7.5	13	3.4
-18	17.1	-2	7.1	14	3.2
-17	16.2	-1	6.7	15	3.1
-16	15.3	0	6.4	20	2.5
-15	14.4	1	6.1	25	2.0
-14	13.6	2	5.8	30	1.6
-13	12.9	3	5.5	35	1.3
-12	12.2	4	5.2	40	1.1
-11	11.5	5	5.0		
-10	10.9	6	4.7		

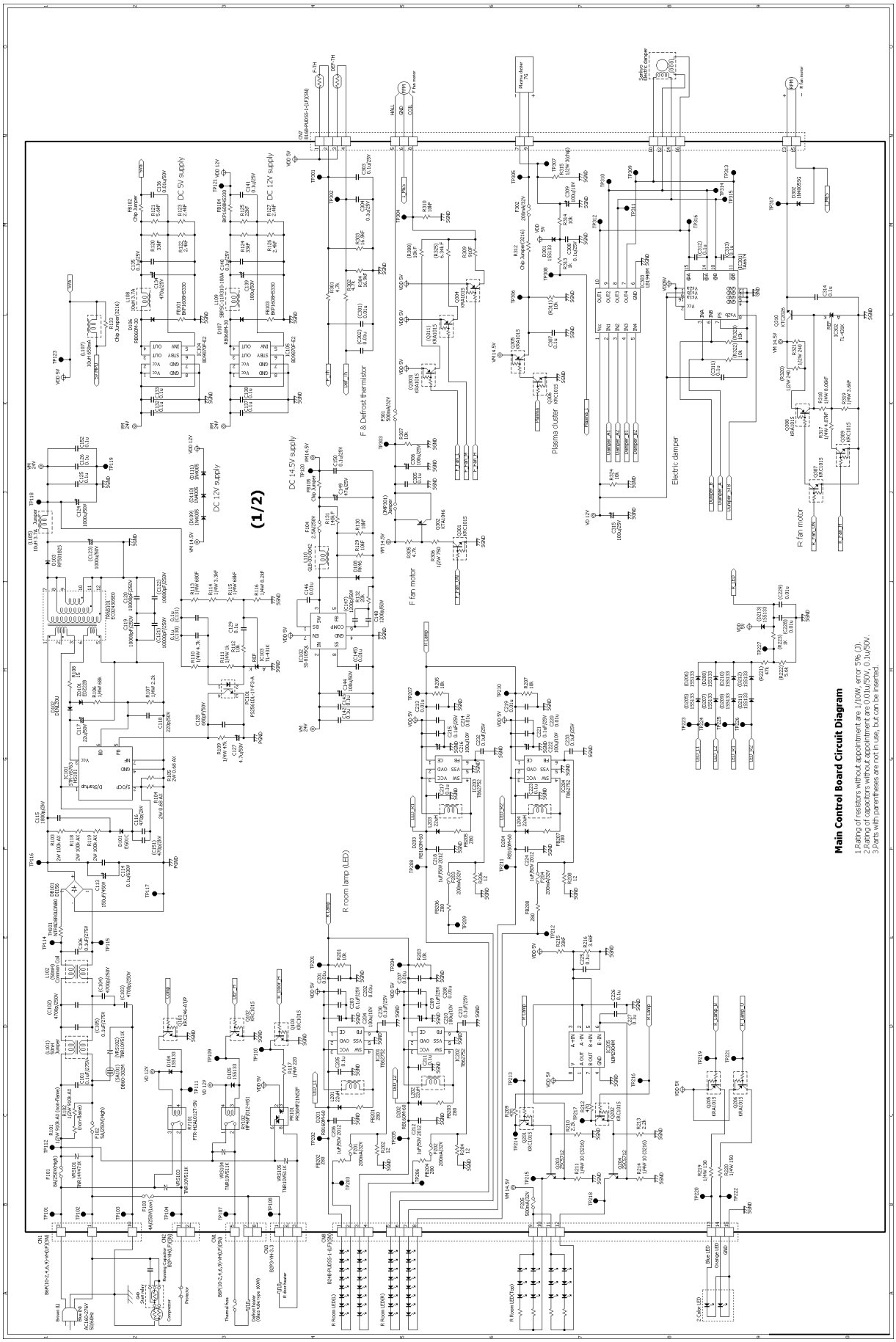
2) Def-thermistor

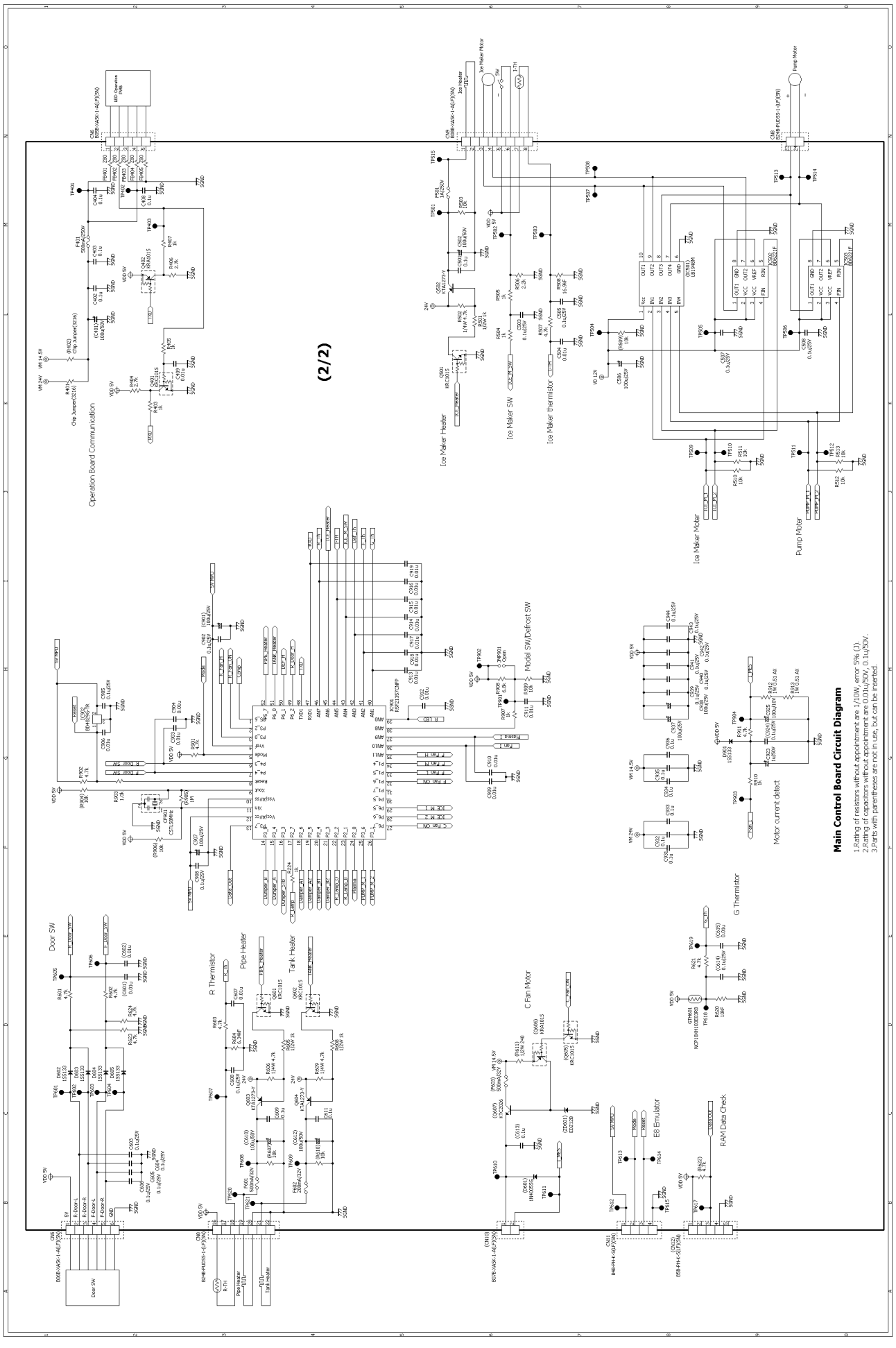
Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)
-25	61.2	-9	24.1	7	10.6
-24	57.5	-8	22.9	8	10.1
-23	54.1	-7	21.7	9	9.6
-22	50.9	-6	20.5	10	9.2
-21	47.9	-5	19.5	11	8.7
-20	45.2	-4	18.5	12	8.3
-19	42.6	-3	17.5	13	8.0
-18	40.1	-2	16.6	14	7.6
-17	37.9	-1	15.8	15	7.3
-16	35.7	0	15	20	5.8
-15	33.7	1	14.3	25	4.7
-14	31.9	2	13.6	30	3.8
-13	30.1	3	12.9	35	3.1
-12	28.5	4	12.3	40	2.5
-11	26.9	5	11.7		
-10	25.5	6	11.1		

3) Ice-thermistor

Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)
-25	19.5	-9	8.94	7	4.48
-24	18.52	-8	8.54	8	4.3
-23	17.59	-7	8.16	9	4.13
-22	16.72	-6	7.8	10	3.97
-21	15.9	-5	7.46	11	3.81
-20	15.12	-4	7.14	12	3.67
-19	14.39	-3	6.83	13	3.53
-18	13.7	-2	6.54	14	3.39
-17	13.04	-1	6.26	15	3.26
-16	12.43	0	6	20	2.7
-15	11.84	1	5.75	25	2.25
-14	11.29	2	5.51	30	1.88
-13	10.77	3	5.28	35	1.59
-12	10.27	4	5.07	40	1.35
-11	9.8	5	4.86		
-10	9.36	6	4.67		

[9] CIRCUIT DIAGRAM OF MAIN PWB



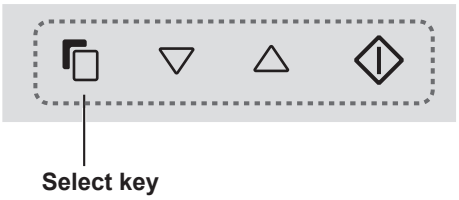

(2/2)
Operation Board Communication
Ice Maker Heater
Ice Maker SW
Ice Maker thermistor
Ice Maker Motor
Pump Motor
Model SW/Defrost SW
Motor current detect
Door SW
Pipe Heater
Tank Heater
R Thermistor
C Fan Motor
G Thermistor
EE Emulator
RAM Data Check
Main Control Board Circuit Diagram
1.Rating of resistors without appointment are 1/10W, error 5% (J).
2.Rating of capacitors without appointment are 0.01u/50V, 0.1u/50V.
3.Parts with parentheses are not in use, but can be inserted.

[10] SELF-DIAGNOSIS MODE

1. Entering method of the mode

1) Press the [Select] key on the control panel over 5 seconds at the opening condition of the refrigerating room doors and the freezing room doors.

2) With a beep sound of buzzer, the self-diagnosis mode is entered. When the self-diagnosis mode is not entered by the above operation, defect of Door SW system can be considered.

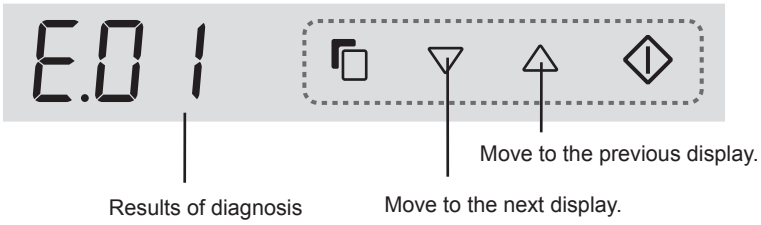


2. When the self-diagnosis mode is entered, the following movements will be made. Forced release operation is not prepared for the self-diagnosis mode. It returns to the normal movement after a lapse of 2 minutes.

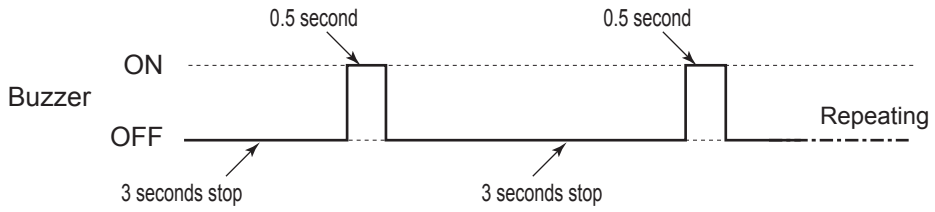
- Plasmacluster will not release the mode, and ON is forced for 2 minutes whether it is ON or OFF.
- When the self-diagnosis mode is entered, beep sound for Door alarm must not be sounded for 20 minutes.
- Defect and various conditions are shown by the beeping buzzer pattern.
- Defect and various conditions are displayed on the Control panel. In case of plural defects and various conditions, these are displayed one after another by button operation and all contents are notified.

3. Display of self-diagnosis

- Display example of control panel (at the defect of F-thermistor system)



- Buzzer notice example; (at fan motor system defect, 2 and 0.5 second ON)

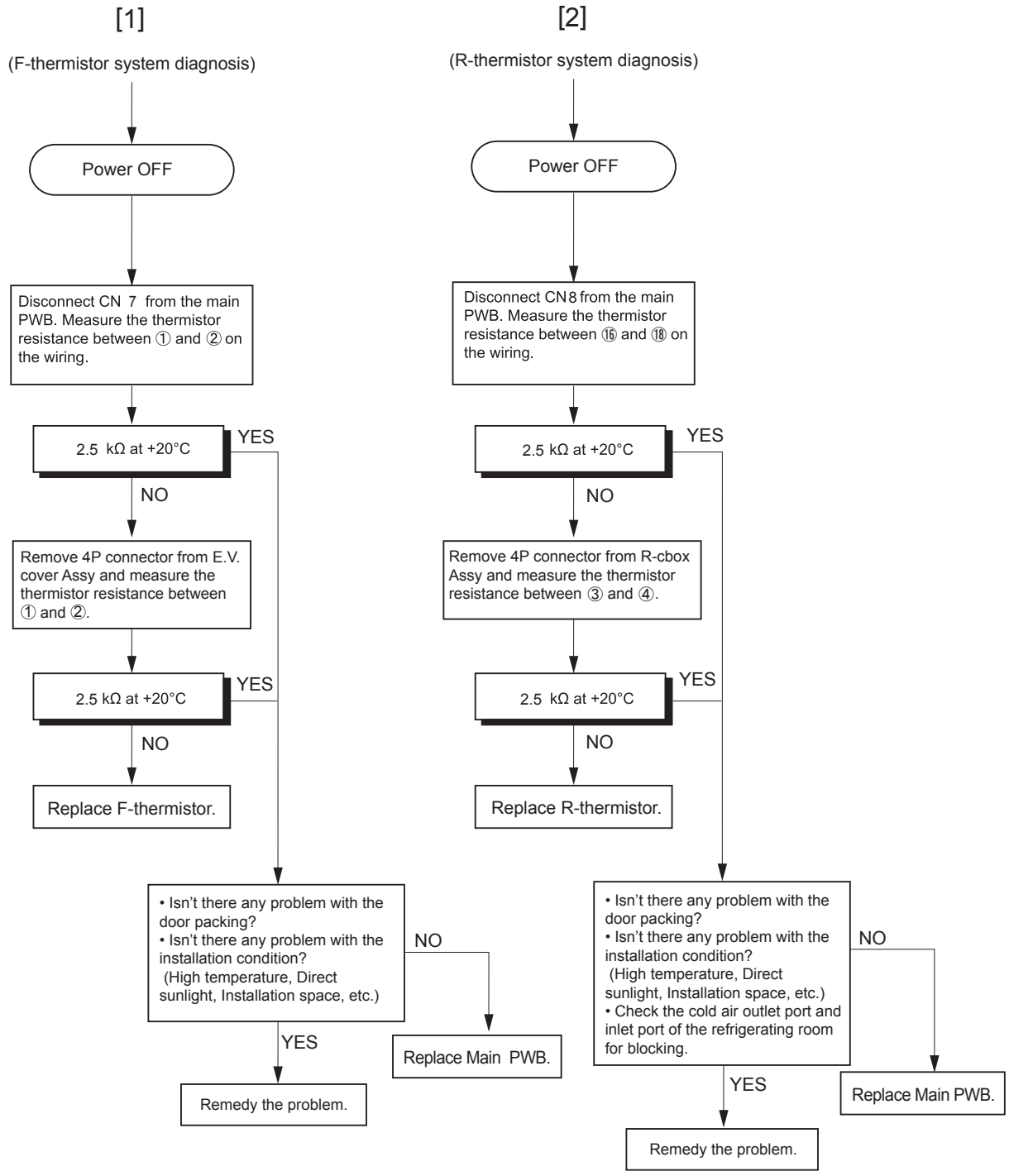


4. Defect display

No.	Status	Buzzer	LED Display	Content	Correspondance method
—	No defects None None -- --	None	-- --		
1	F-thermistor system defect	●	E.01	Defect of each thermistor, short circuit/wire breakage of thermistor wiring and defect of main PWB	→ [1]
2	R-thermistor system defect	●	E.02		→ [2]
3	DEF-thermistor system defect	●	E.03		→ [3]
4	Outside temperature-thermistor system defect	●	E.04	Defect of operation PWB.	→ [4]
5	ICE-thermistor system defect	●	E.05	Defect of each thermistor, short circuit/wire breakage of thermistor wiring and defect of main PWB	→ [5]
6	Defrost defect	●	E.07	Wire breakage of Thermo. fuse, def. heater, defect of main PWB (120-minute defrosting has been occurred continuously 2 times within the past 48 hours.)	→ [6]
7	Cooling fan motor system defect	●	E.08	Defect of wiring / main PWB (When fan motor is ON, over current or no current is detected.)	→ [7]
8	R room fan motor system defect	●	E.10		→ [8]
9	Plasmacluster system defect	●	E.11	Defect of wiring / main PWB (When Plasmacluster is ON, over current or no current is detected.)	→ [9]
10	Operation PWB communication defect	●	E.12	Defect of wiring , Operation or main PWB (Communication with Operation PWB has been abnormal over 5 times within the past 48 hours.)	→ [10]
11	Touch IC communication defect	●	E.13	Defect of touch sheet conector, Operation PWB (Communication with Touch PWB has been abnormal over 2 times with in the past 48 hours)	→ [11]
12	Auto ICE Maker system defect	●	E.15	Defect of wiring , ICE Maker , main PWB	→ [12]
13	Ice storage box is full	None	C.51	(It is not defect)	→ [13]
14	Water tank is out of water	None	C.52	(It is not defect)	→ [14]
15	F-thermistor system defect history	◎●●	H.61	Defect of thermistor system has been occurred over 1 minute continuously within the past 48 hours	→ [1]
16	R-thermistor system defect history	◎●●	H.62		→ [2]
17	DEF-thermistor system defect history	◎●●	H.63		→ [3]
18	Outside temperature-thermistor system defect history	◎●●	H.64		→ [4]
19	ICE-thermistor system defect history	◎●●	H.65		→ [5]
20	Cooling fan motor system defect history	◎●●	H.67	Defect of fan motor has been occurred over 3 times continuously within the past 48 hours	→ [7]
21	R room fan motor system defect history	◎●●	H.68		→ [8]
22	Plasmacluster system defect history	◎●●	H.73	Defect of Plasmacluster system has been occurred over 3 times continuously within the past 48 hours.	→ [9]
23	ICE cooling insufficient history	◎●●	H.74	Temperature of ICE-thermistor has been reached over -6°C continuously for 6 hours or more within the past 48 hours.	→ [5]
24	F-room high temperature history	◎●●	H.75	Temperature of F-thermistor has been reached over -10°C continuously for 6 hours or more within the past 48 hours.	→ [1]
25	R-room high temperature history	◎●●	H.76	Temperature of R-thermistor has been reached over +10°C continuously for 6 hours or more within the past 48 hours	→ [2]

Buzzer : ● = 0.5sec. ON/ 0.5sec. OFF, ◎ = 2sec. ON/ 0.5sec. OFF

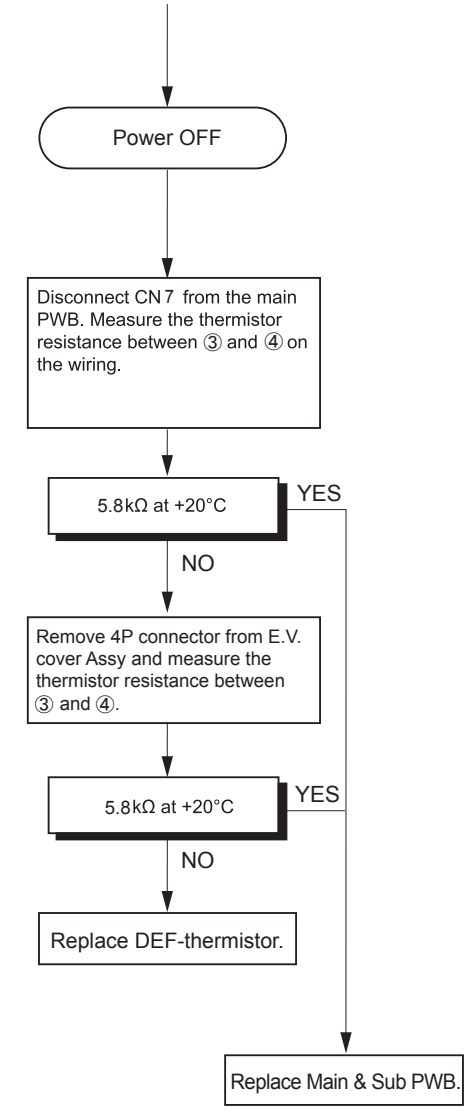
5. Correspondence method



✻ For the resistance of the thermistor, refer to [6] 5. CONVERSION TABLE BETWEEN TEMPERATURE AND RESISTANCE VALUE

[3]

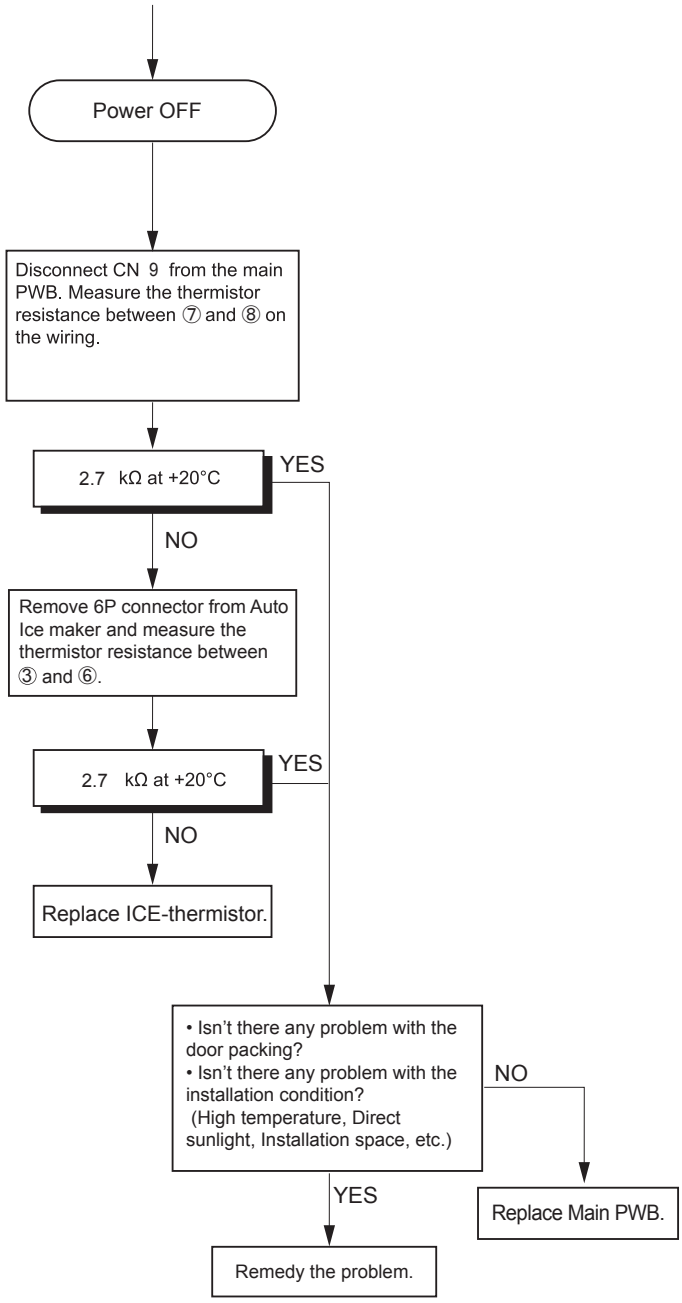
(DEF-thermistor system diagnosis)



✻ For the resistance of the thermistor, refer to [6] 5. CONVERSION TABLE BETWEEN TEMPERATURE AND RESISTANCE VALUE

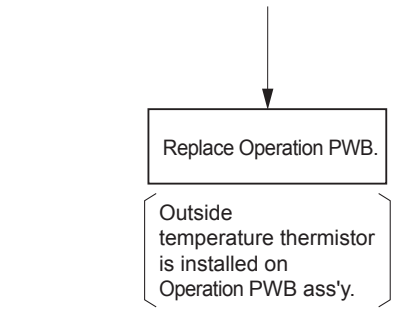
[5]

(ICE-thermistor system diagnosis)



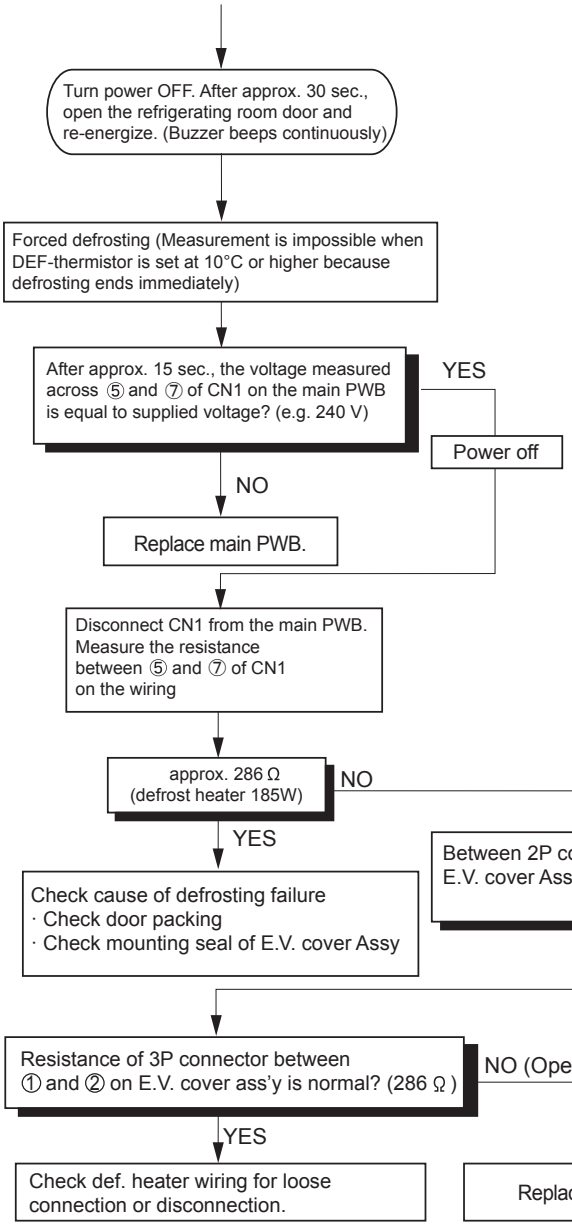
[4]

(Outside temperature - thermistor system diagnosis)



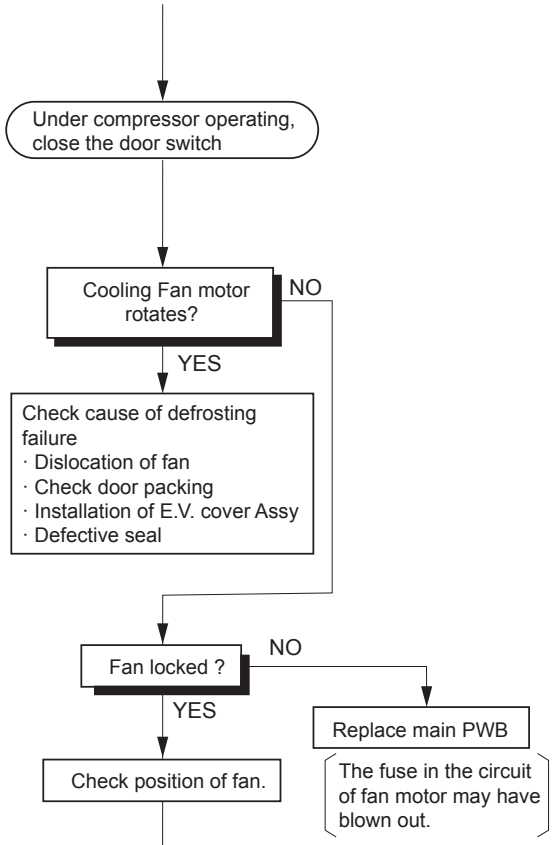
[6]

(Defrosting diagnosis)



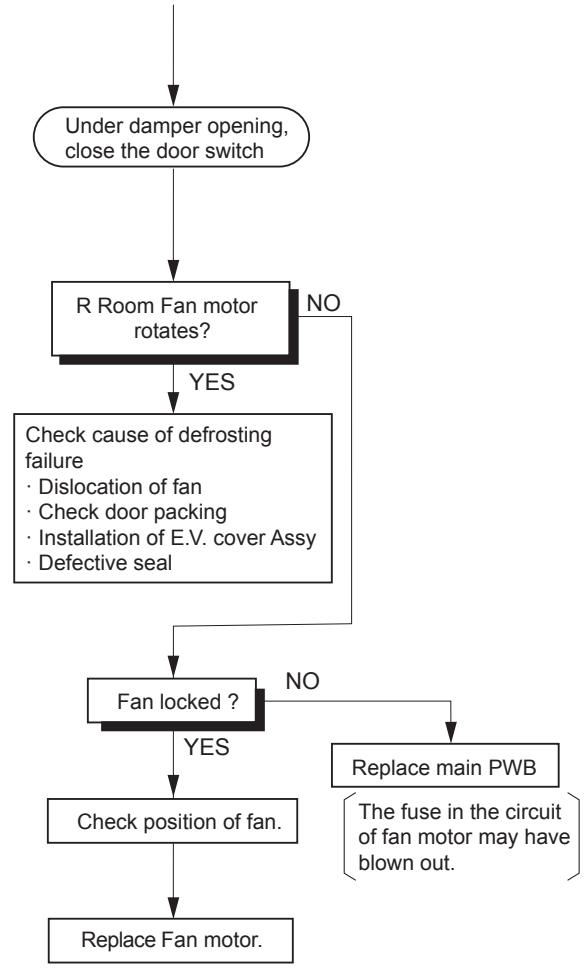
[7]

(Cooling Fan motor system diagnosis)



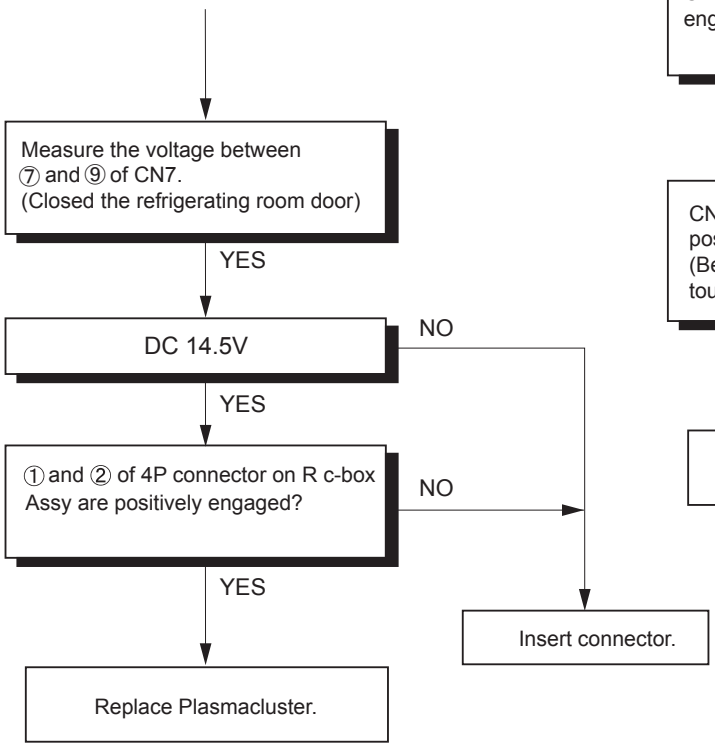
[8]

(R room Fan motor system diagnosis)



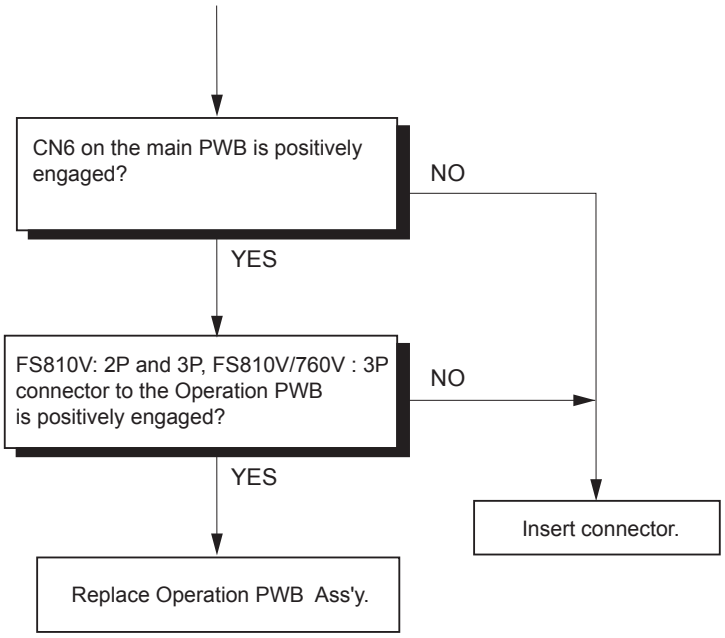
[9]

(Plasmacluster system diagnosis)



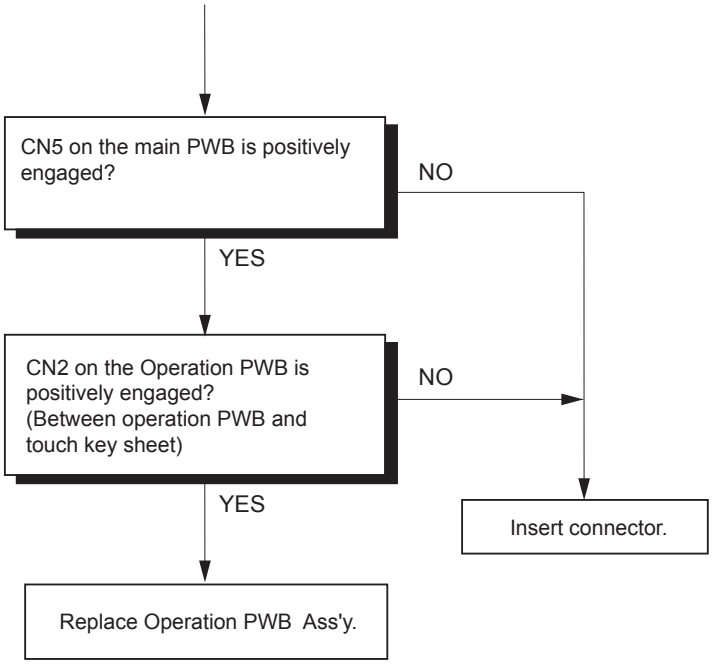
[10]

(Operation PWB communication diagnosis)

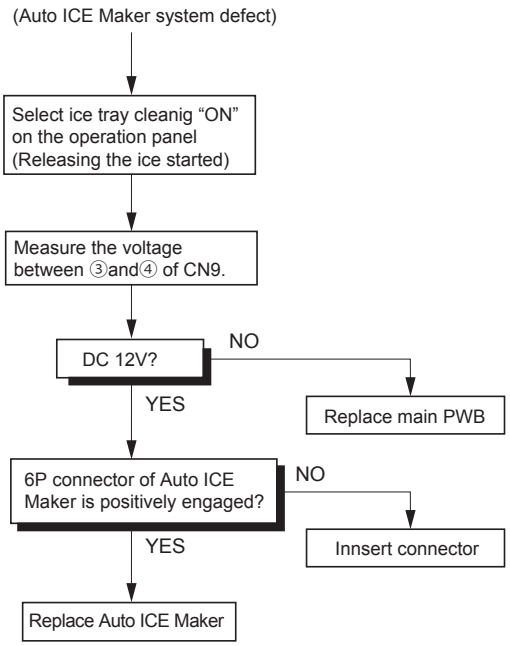


[11]

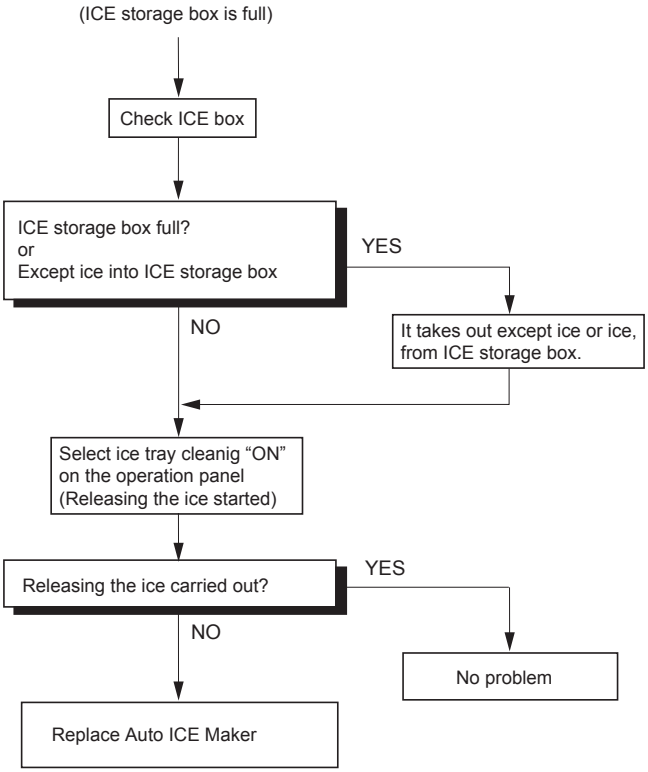
(Touch IC communication)



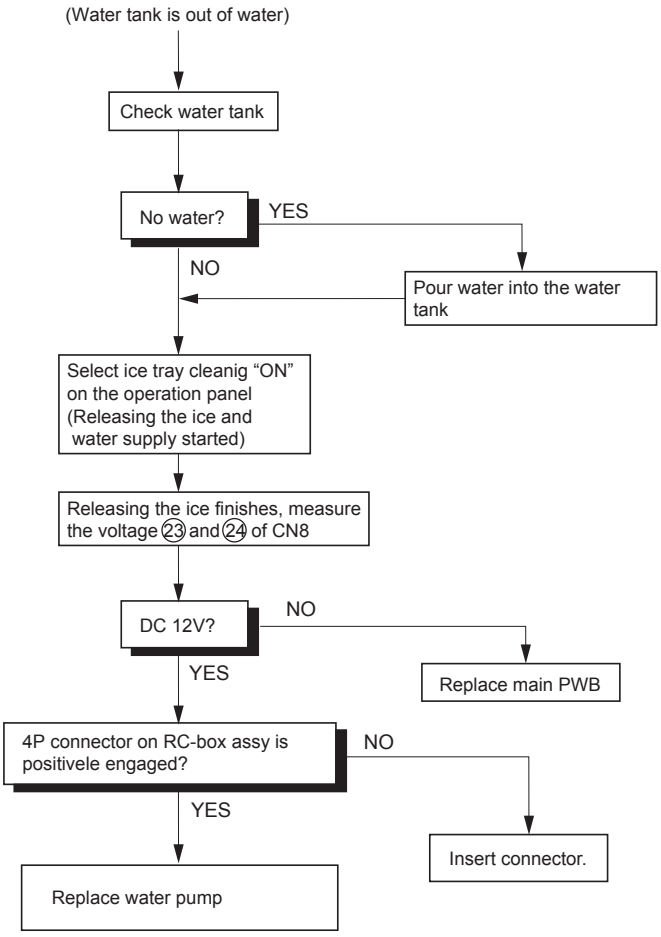
[12]


(Auto ICE Maker system defect)
Select ice tray cleanig “ON” on the operation panel (Releasing the ice started)
Measure the voltage between ③and④ of CN9.
DC 12V?
NO
Replace main PWB
YES
6P connector of Auto ICE Maker is positively engaged?
NO
Innsert connector
YES
Replace Auto ICE Maker

[13]


(ICE storage box is full)
Check ICE box
ICE storage box full? or Except ice into ICE storage box
YES
It takes out except ice or ice, from ICE storage box.
NO
Select ice tray cleanig “ON” on the operation panel (Releasing the ice started)
Releasing the ice carried out?
YES
No problem
NO
Replace Auto ICE Maker

[14]


(Water tank is out of water)
Check water tank
No water?
YES
Pour water into the water tank
NO
Select ice tray cleanig “ON” on the operation panel (Releasing the ice and water supply started)
Releasing the ice finishes, measure the voltage ㉓ and ㉔ of CN8
DC 12V?
NO
Replace main PWB
YES
4P connector on RC-box assy is positivele engaged?
NO
Insert connector.
YES
Replace water pump

[11] MODE FOR DISPLAY

1) Entering method of the mode

Within 2 minutes after main power input, press the [◈] button over 5 seconds at the opening condition of the refrigerating room door.

2) Release of the mode

Press the [◈] button over 5 seconds at the opening condition of the refrigerating room door.

(Even without the above operation, release can be made by main power OFF.)

3) Movement in the mode

1.Compressor, auto ice maker, heater and Plasmacluster are stopped.

2.Damper is always made [CLOSE] condition.

3.Indoor lamp is light and fan motor ON when door is open.

4.LED display will be displayed in turn automatically.

5.Door alarm is not operated.

[12] DISASSEMBLING/ASSEMBLING PROCEDURES

CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY REPAIRING.

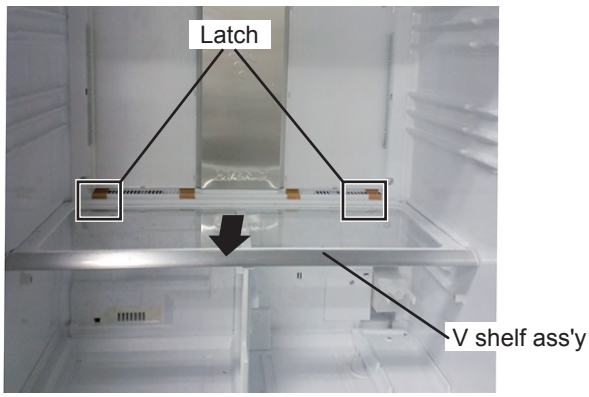
1. REFRIGERATOR COMPARTMENT

Presents parts name	Included electrical parts
R-louver ass'y	Plasmacluster unit, Lr led pwb ass'y, Top led pwb ass'y, Pci pwb ass'y,Lr led harness, Pci indicator harness, R-thermistor
R control box ass'y	Damper ass'y, Lead r-c box, R fan motor
Pump unit ass'y	Gear pump
C partion r cover ass'y	Tank heater
Pipe cover ass'y	Water pipe heater

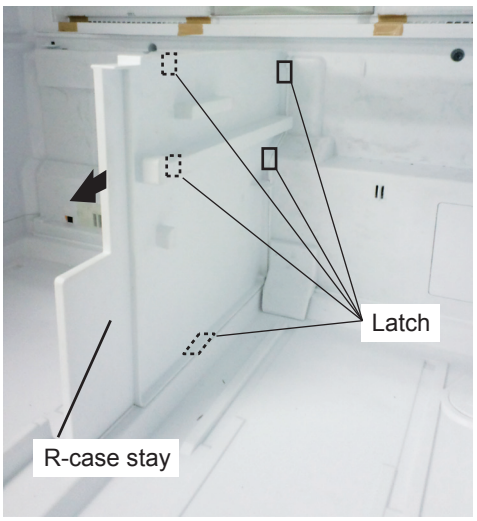
1-1. Disassembling procedures

1) Remove the accessories(shelves, fresh case, etc.).

2) Remove the v shelf ass'y.

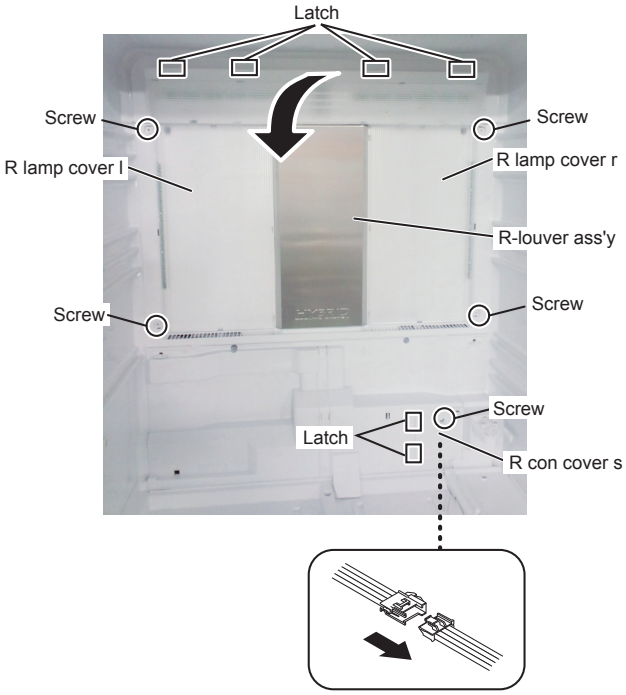


3) Remove the r-case stay.

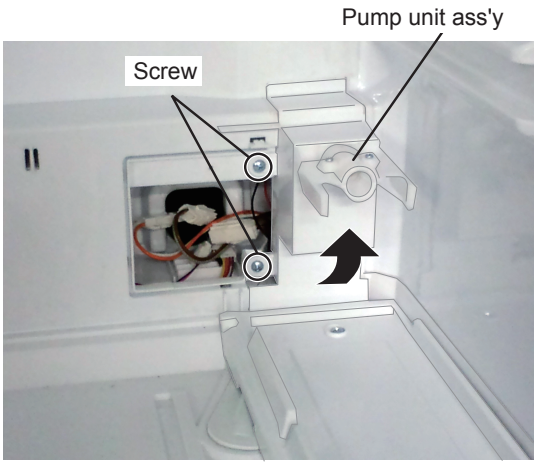


4) Remove the r lamp cover and the r-louver ass'y.

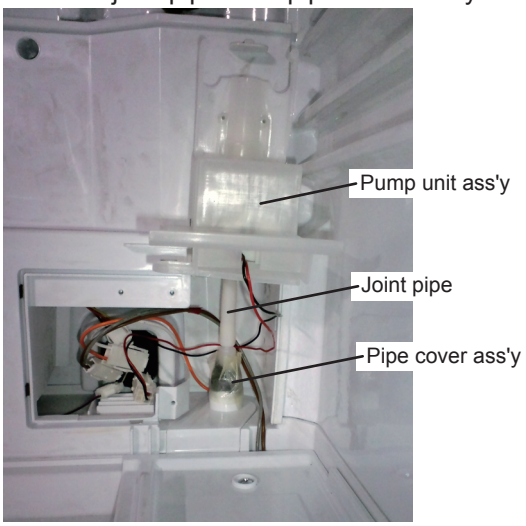
5) Remove the r con cover s, and disconnect the connector.



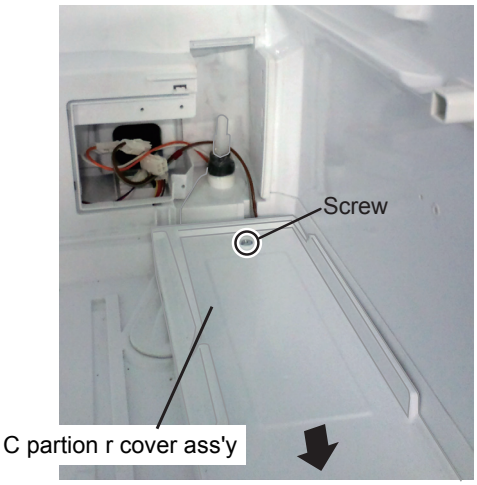
6) Remove the pump unit ass'y.



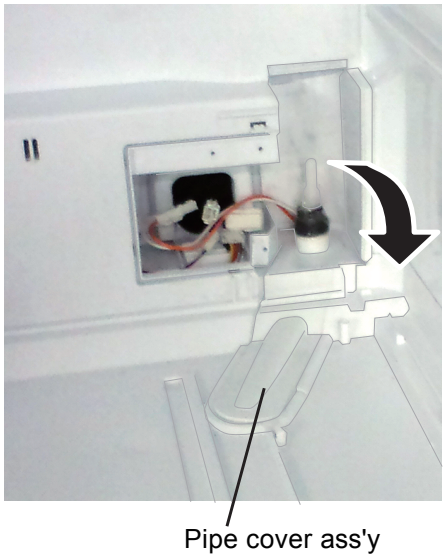
7) Remove joint pipe from pipe cover ass'y.



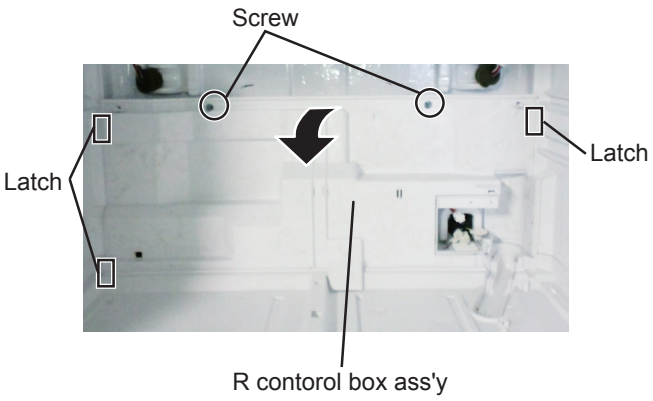
8) Remove the c partion r cover ass'y.



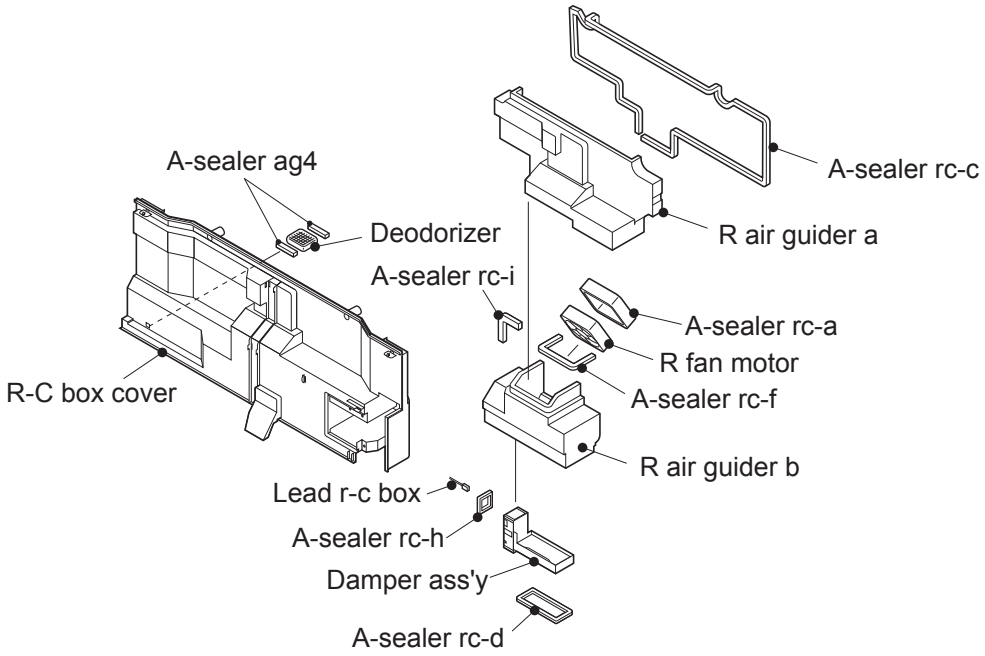
9) Remove the pipe cover ass'y.



10) Remove the r control box ass'y.

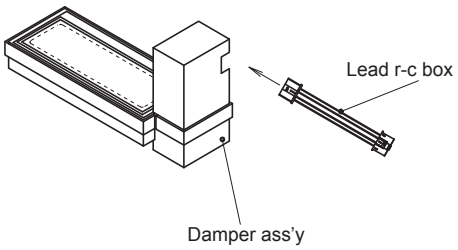


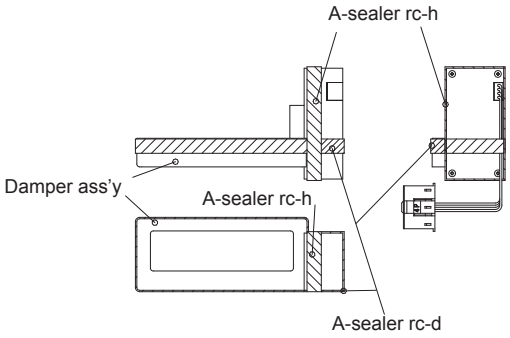
1-2. Assembling procedures of R CONTROL BOX ASS'Y.



1) Insert Lead r-c box to Damper ass'y.

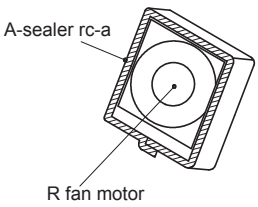
2) Stick A-sealer rc-d and A-sealer rc-h to Damper ass'y.

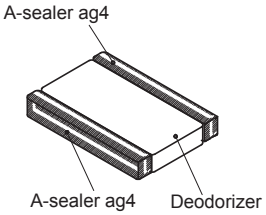




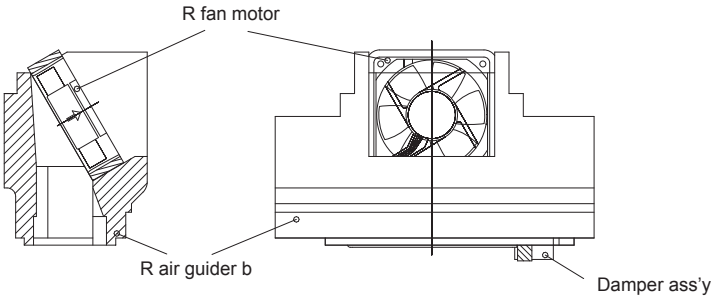
3) Stick A-sealer rc-a to R fan motor.

4) Stick A-sealer ag4 to deodorizer.



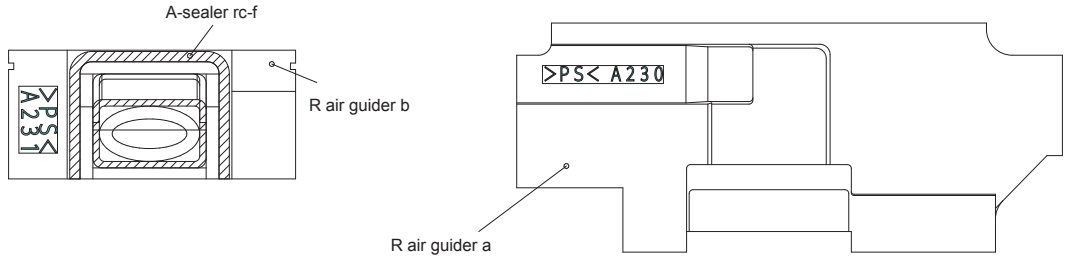


5) Insert R fan motor and damper ass'y to R air guider b.



6) Stick A-sealer rc-f to R air guider b.

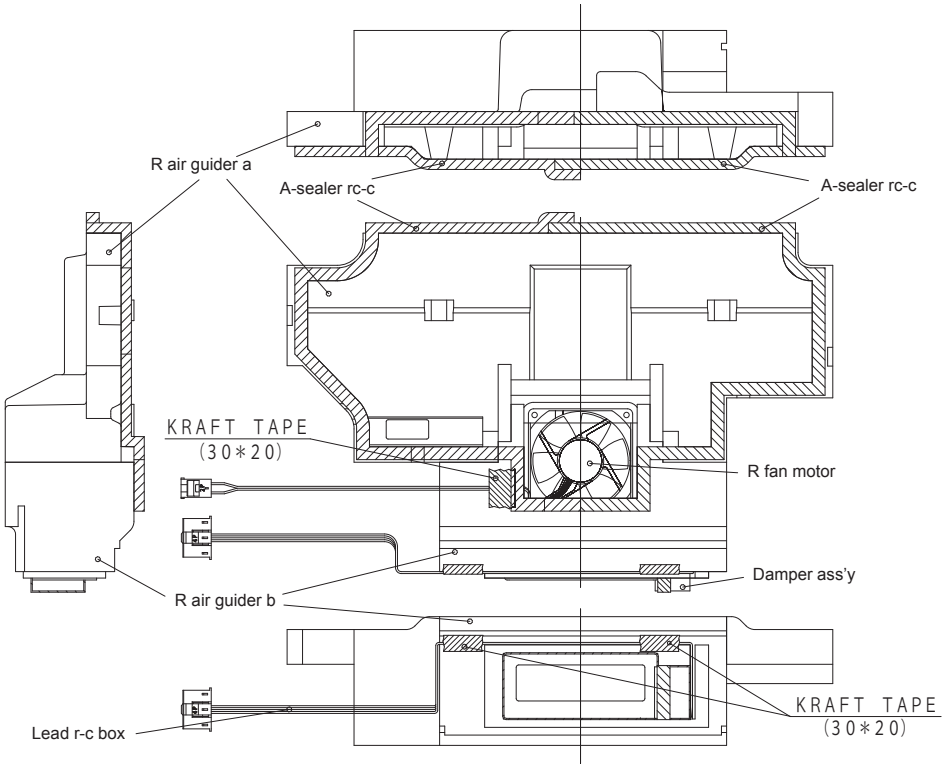
7) Stick A-sealer rc-g to R air guider a.



8) Assemble R air guider b to R air guider a.

Wire harness are fixed with kraft tape.

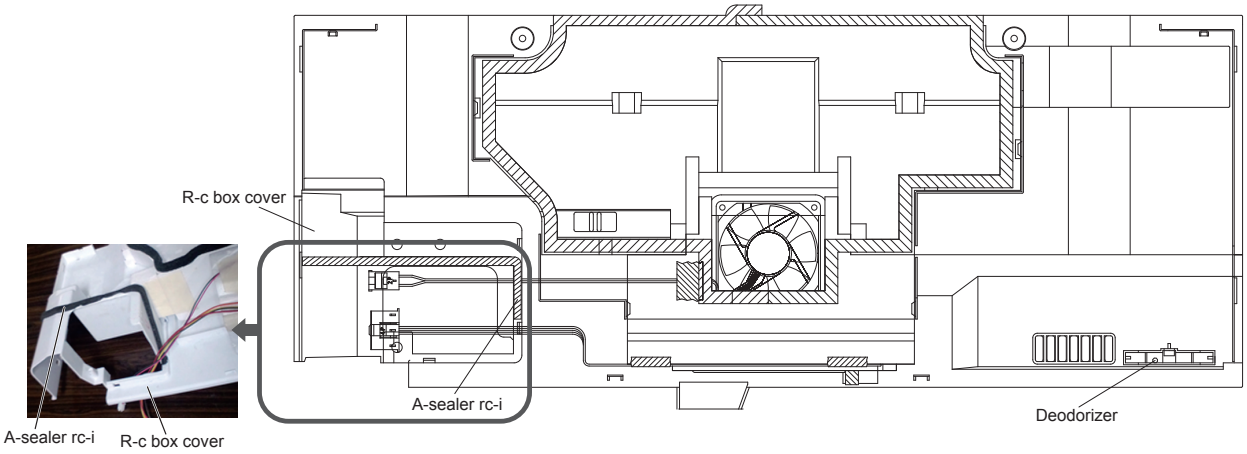
Stick A-selar rc-c to R air gider a/b.



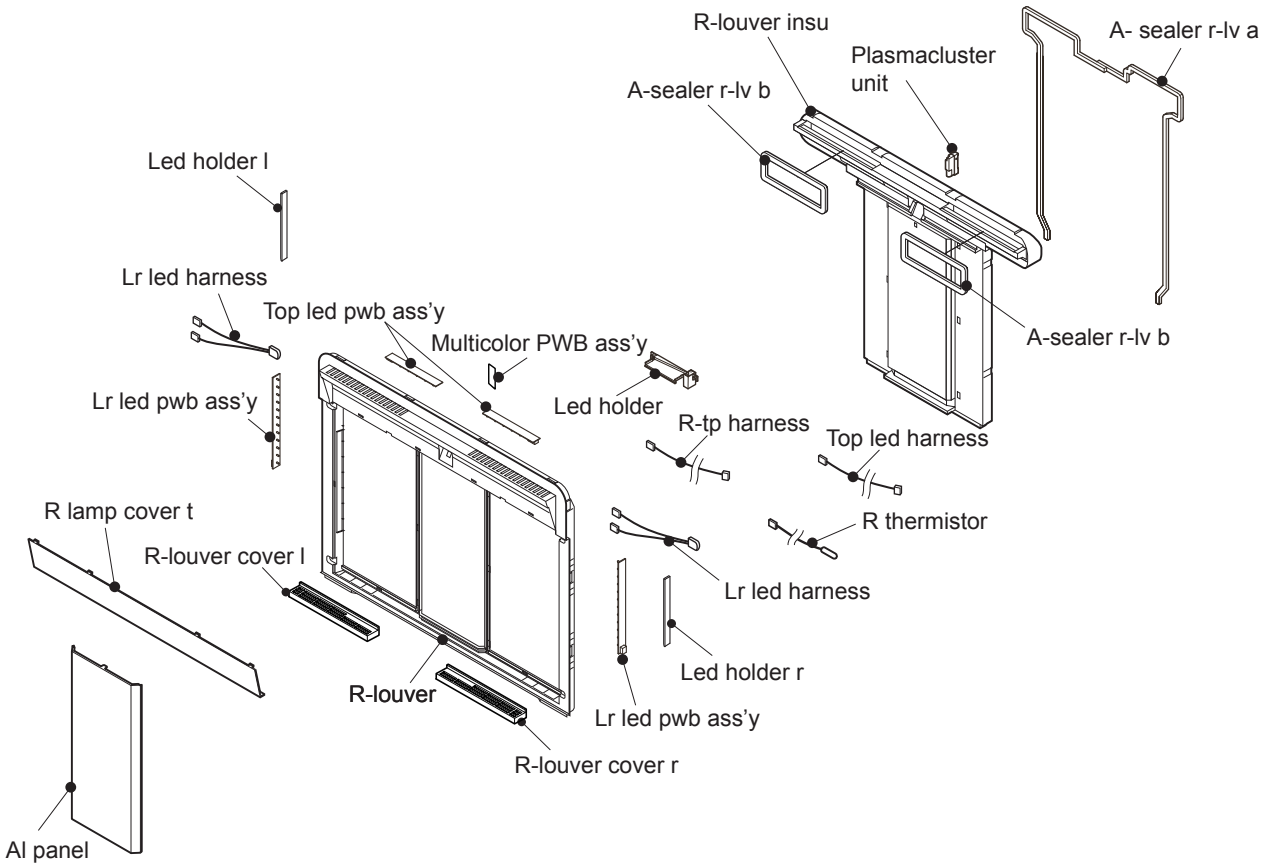
9) Stick A-sealer rc-i to R-c box cover.

Insert Deodorizer to R-c box cover.

Assemble these sets and R-c box cover.



1-3. Assembling procedures of R-louver ass'y.



1) Fix Al panel to r-louver.

2) Fix R-louver cover l and R-louver cover r to R-louver.

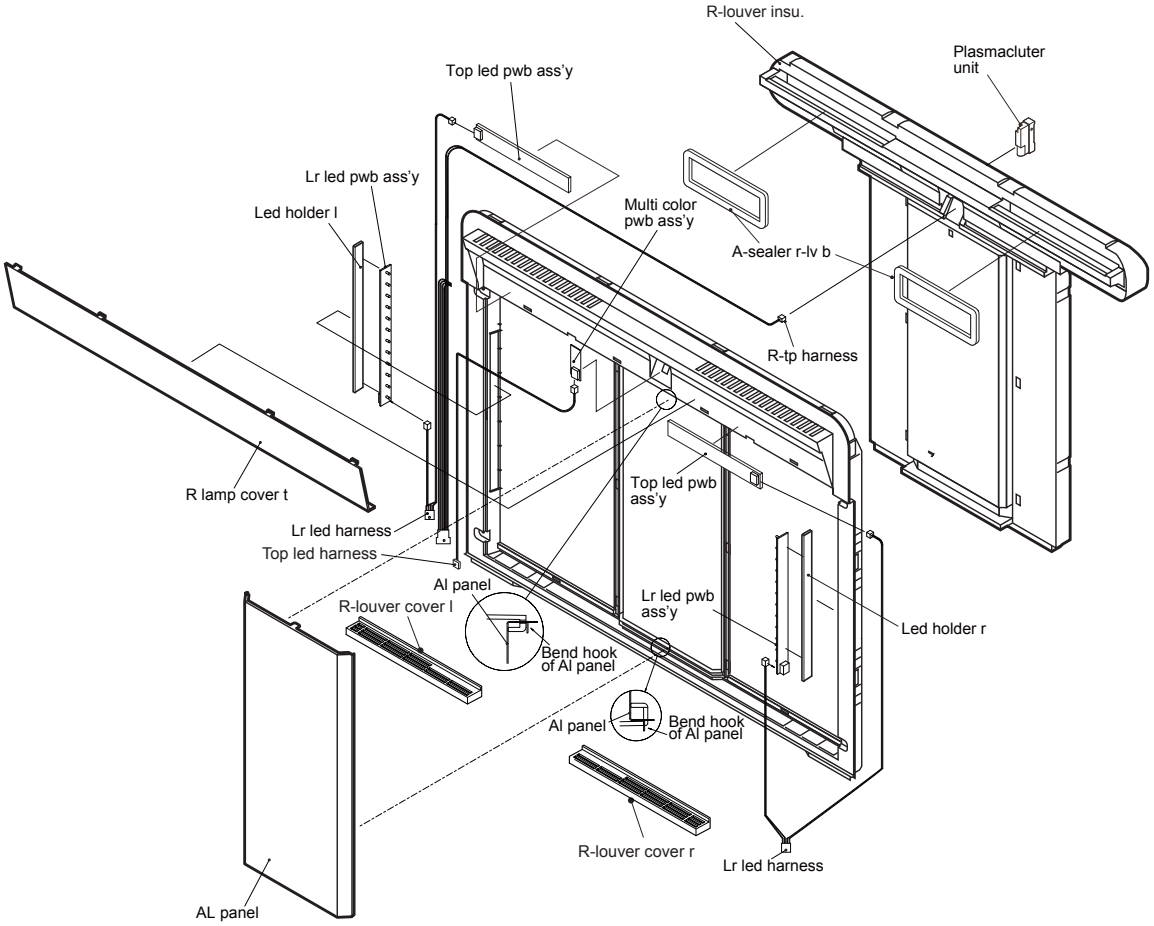
3) Connect Top led harness ass'y to multicolor pwb ass'y.

4) Fix 3) ass'y to r-louver.

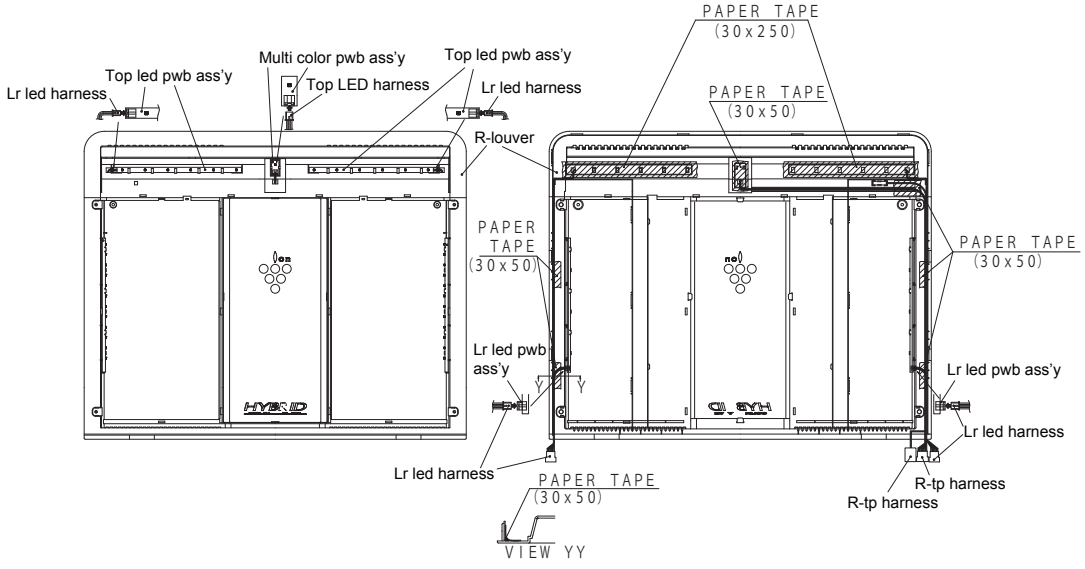
5) Fix Lr led pwb ass'y to led holder l & r.

6) Fix 5) ass'y to r-louver. Connect lr led harness to lr led pwb ass'y.

7) Fix top led pwb ass'y to r-louver. Connect lr led harness to top led pwb ass'y.



8) Fix each harness by paper tape to R-louver.

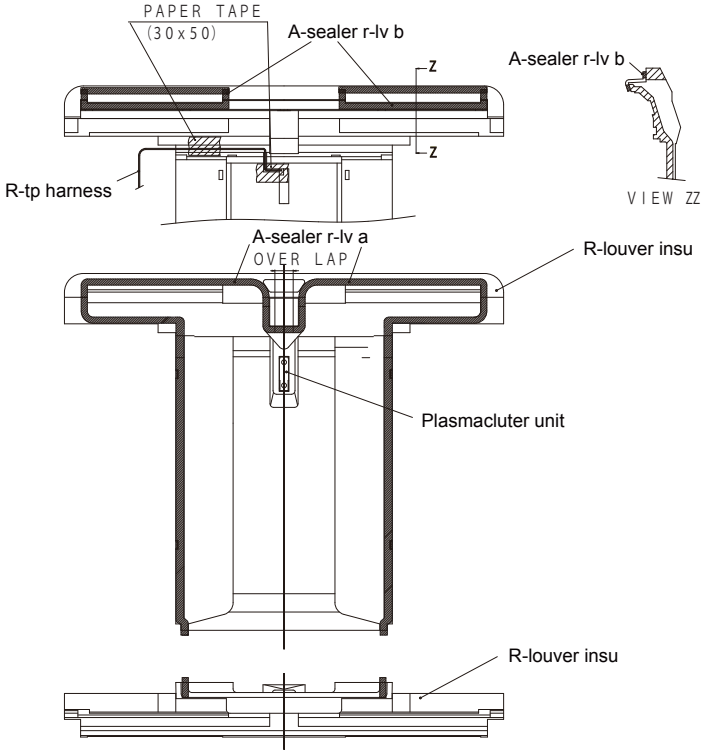


9) Connect r-tp harness ass'y to plasmacluster unit.

10) Insert plasmacluster unit into r-louver insu.

11) Fix plusmacluster unit and r-tp harness ass'y by paper tape to r-rouver insu.

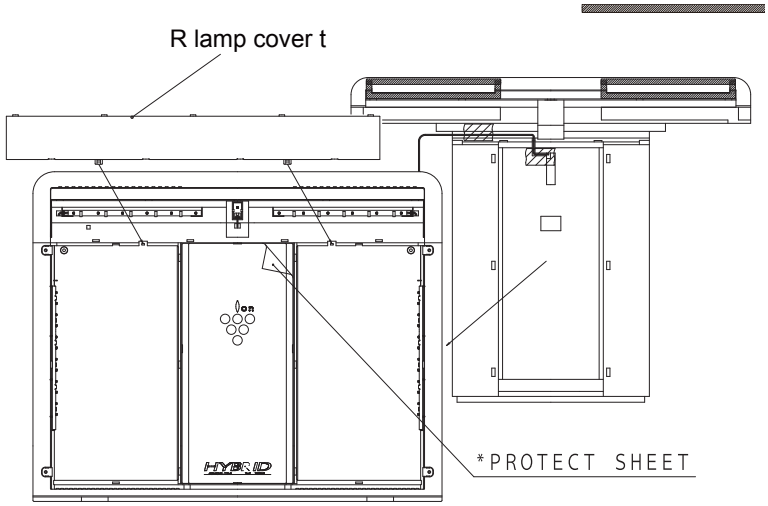
12) Stick A-sealer r-louver a & b to r-rouver insu.



13) Fix 12) ass'y to r-louver.

14) Fix r lamp cover t to r-louver.

Note. After removing *Protect sheet pf al panel , check LED turn on.

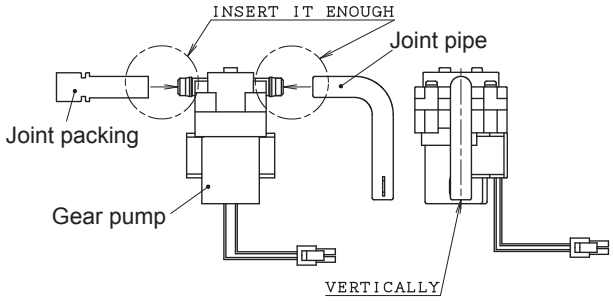


1-4. Assembling procedures of Pump unit ass'y

1) Insert joint packing and joint pipe to gear pump.

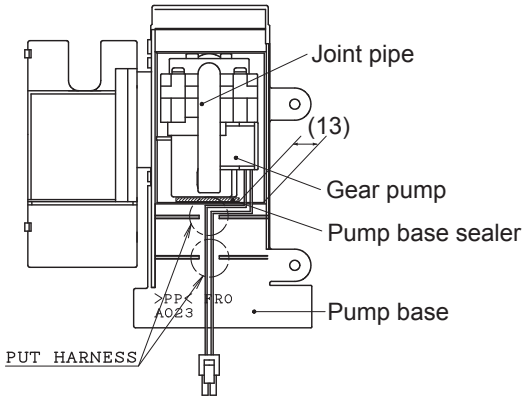
*Insert it enough

Joint pipe is vertically.

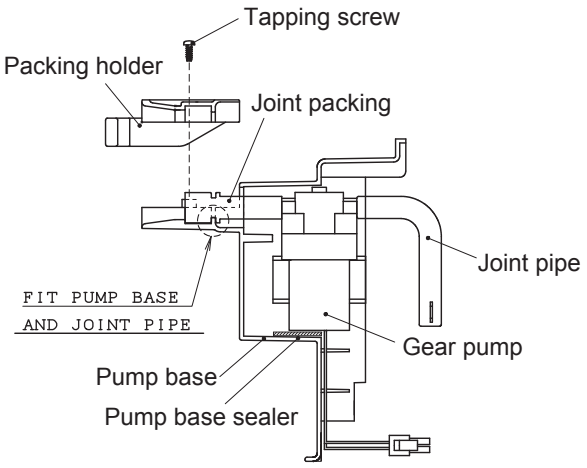


2) Stick pump base sealer to pump base.

Set 1) assy to pump base and put harness of gear pump.



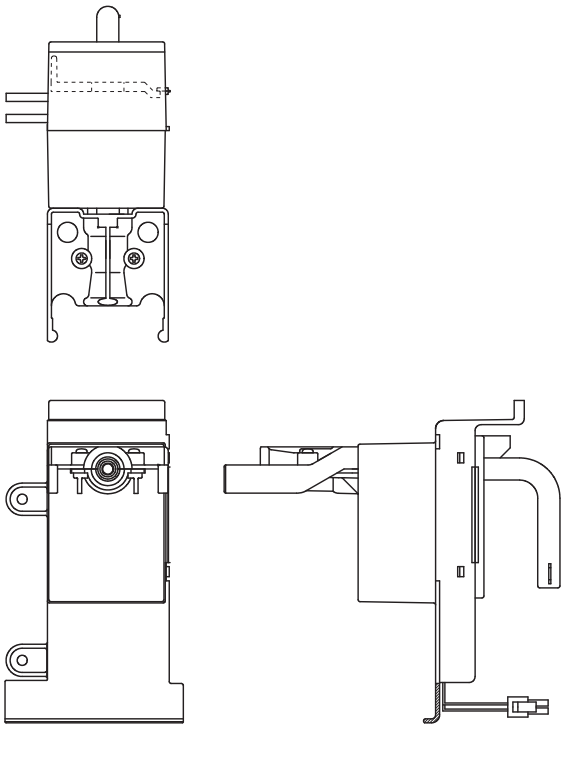
3) Fix packing holder by tapping screw.(2 places)



4) Close pump base.

*Fix joint packing to pump base.

*Hook of pump base enough.



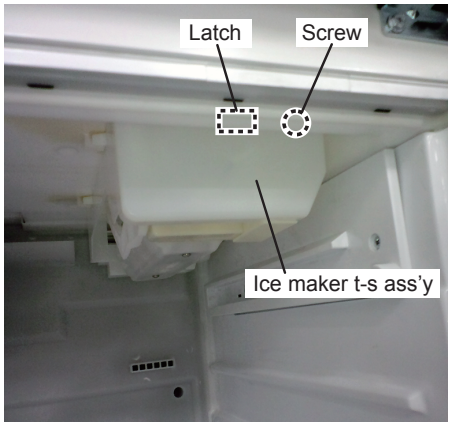
2. FREEZER COMPARTMENT

Parents parts name	Included electrical parts
Ev cover ass'y	F/def-thermistor, F fan motor
Evaporator ass'y	Fuse ass'y
Def-heater ass'y	Defrost heater
Ice maker t-s-ass'y	Thermistor, Ice cube heater , Ice maker ass'y

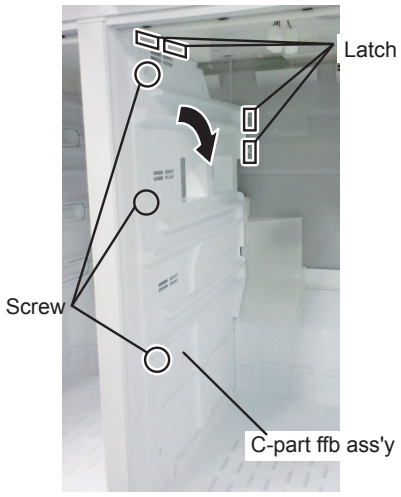
2-1. Disassembling procedures

1) Remove the accessories(shelves, case, etc.).

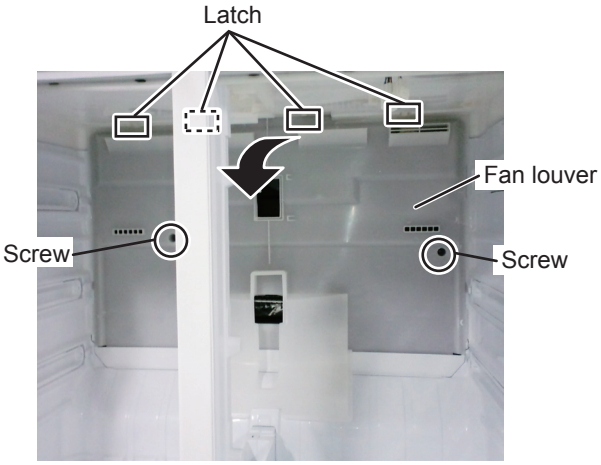
2) Remove the ICE MAKER T-S-ASS'Y.



3) Remove the c-part ffb ass'y.

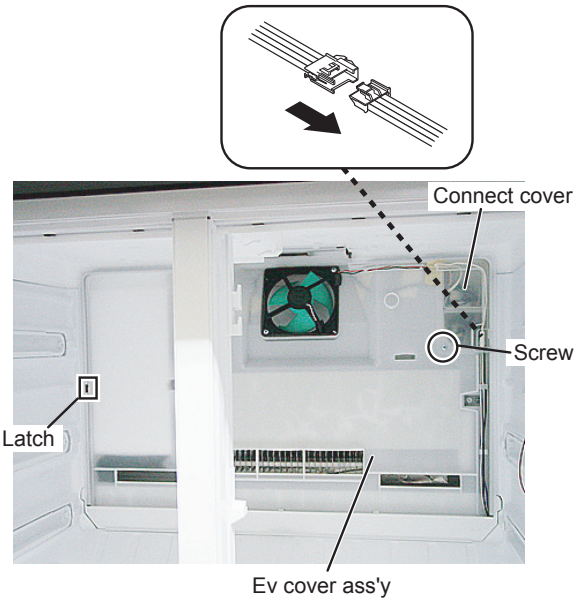


4) Remove the fan louver.

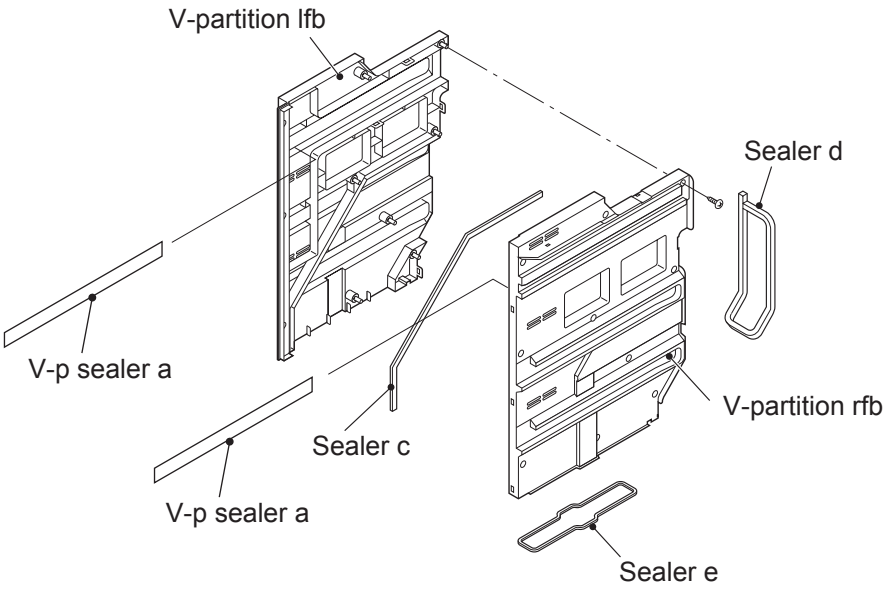


5) Remove the connect cover, and disconnect the connector.

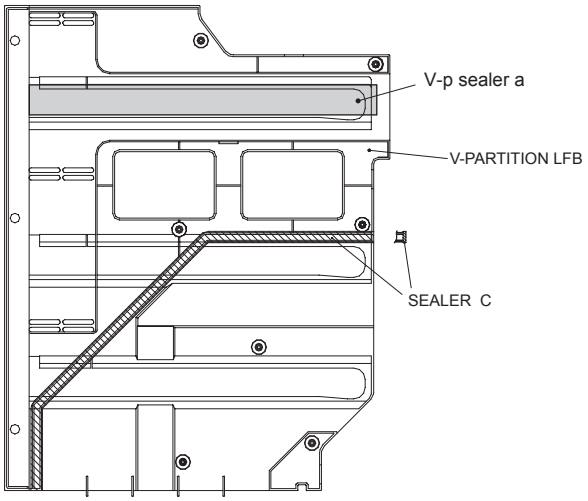
6) Remove the ev cover ass'y.



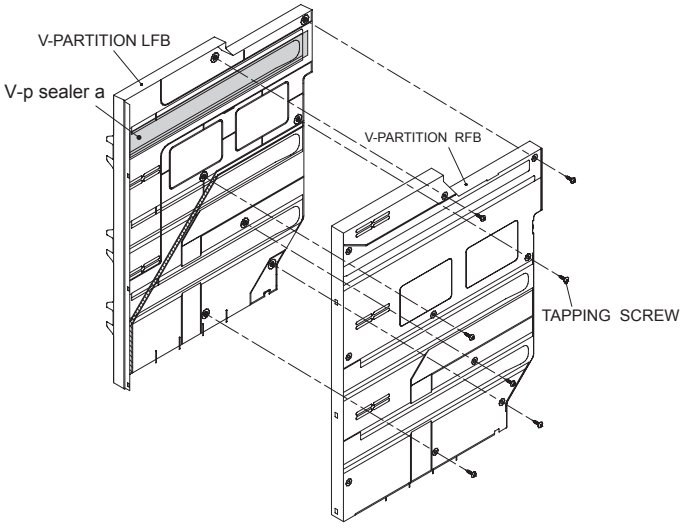
2-2. Assembling procedures of C PARTITION FFB ASS'Y.



1) Stick Sealer c to V-Partition lfb.

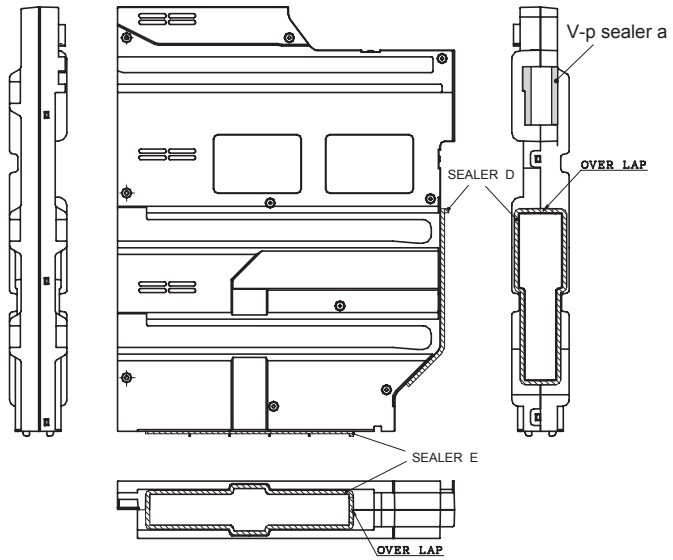


2) Fix V-partition lfb and V-Partition rfb with the tapping screw.

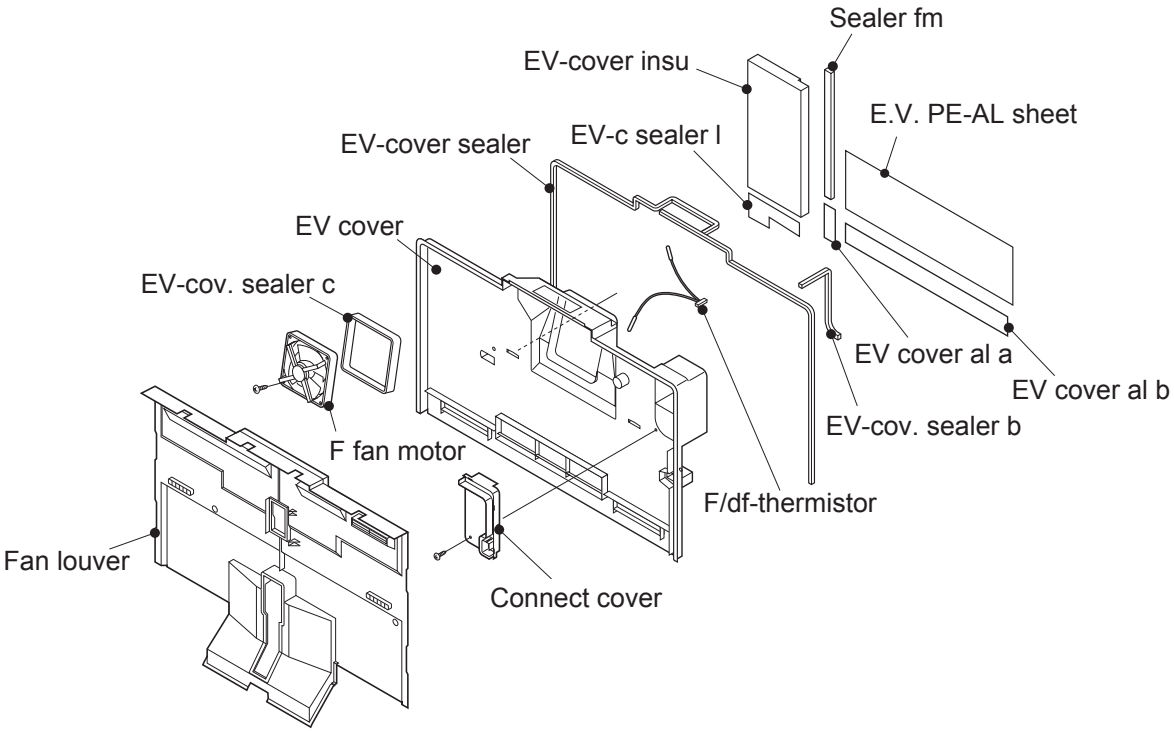


3) Stick Sealer d to the back side.

Stick Sealer e to the bottom side.

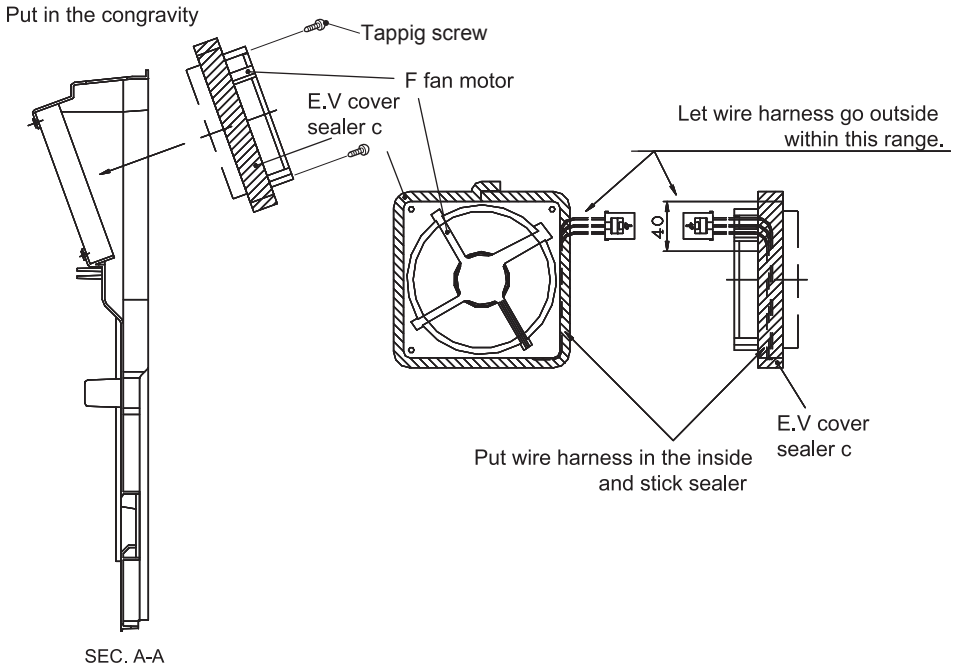


2-3. Assembling procedures of E.V. COVER ASS'Y.



1) Assembly F fan motor

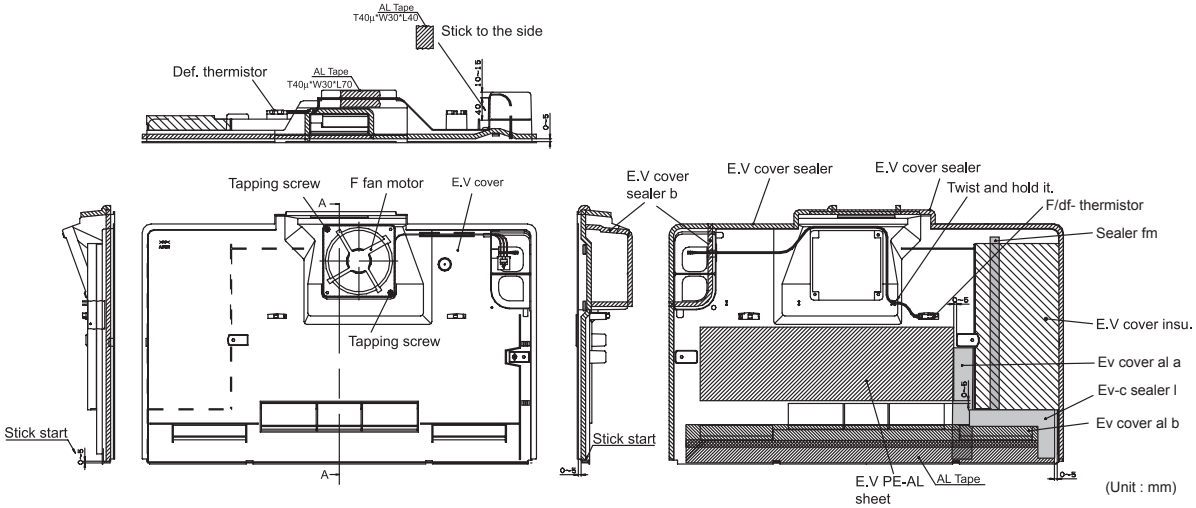
- Sticking of sealer to F fan motor.
- Insert F fan motor to E.V cover .Then fix with tapping screw.



2) Sticking of sealers and Al tapes to E.V cover.

3) Insert F/df-thermistor (wire color : Blue) to E.V cover.

4) Insert E.V cover insulation to E.V cover.

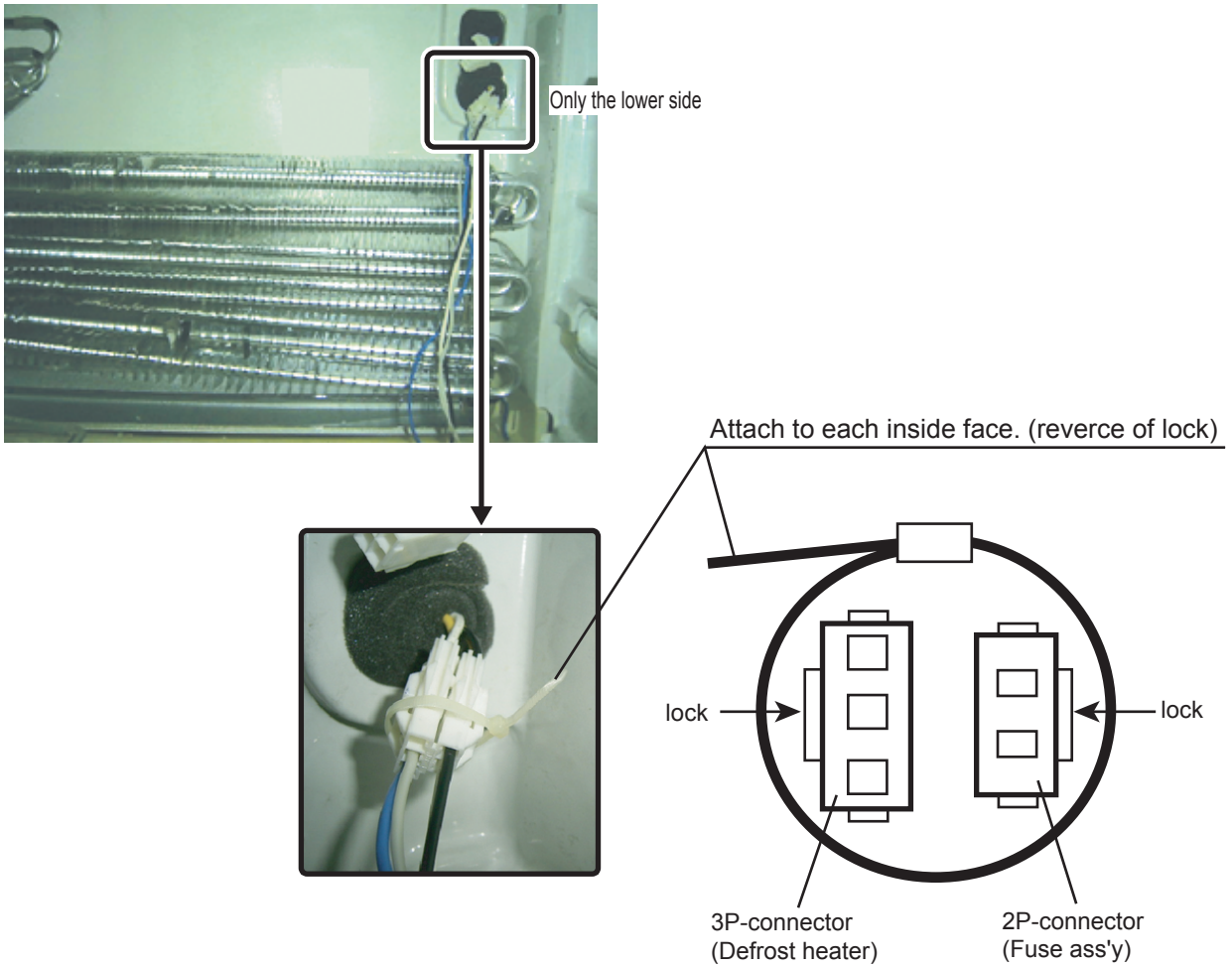


5) Insert F/df-themistor (wire color : White) to E.v cover.

6) Fix 5) ass'y to E.v cover with tapping screw.

2-4. Banding the connectors

It is necessary to bind the connector joint of the Defrost heater and fuse ass'y in the band.



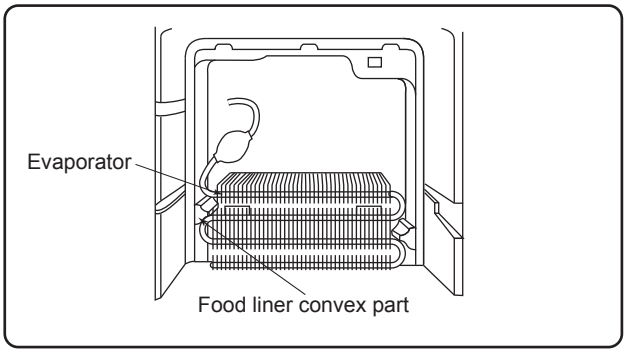
2-5. DEFROST HEATER ASSEMBLY

2-5-1. Taking-out Evaporator

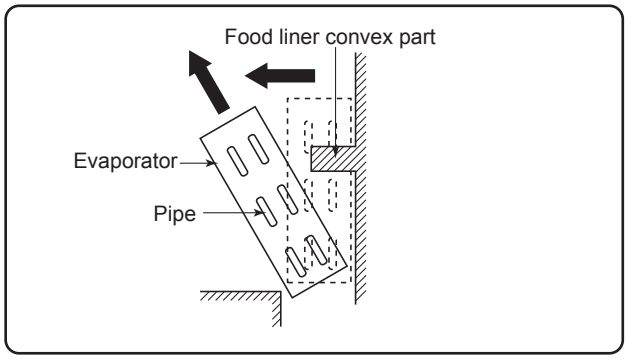
1) Take-out C Partition ffb ass'y.

2) Take-out Fan louver.

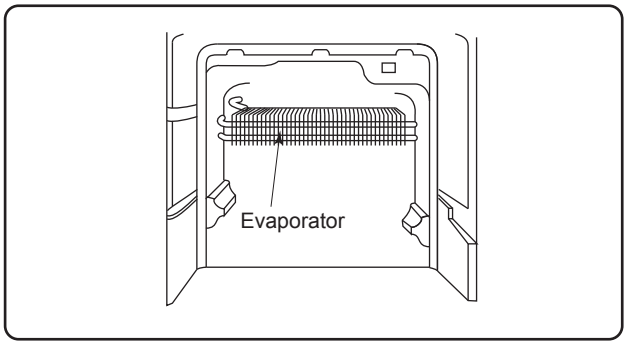
3) Take-out E.V cover ass'y.



4) As shown in the above figure, pull the upper part of Evaporator toward you, pull it diagonally so that the pipe of Evaporator does not contact the convex part of food liner.



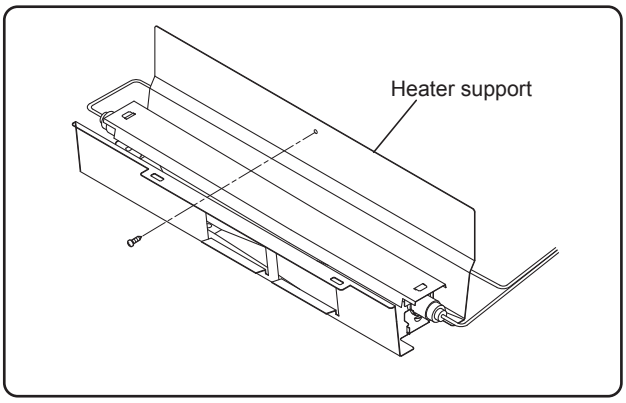
5) Pull the Evaporator for remove as shown in the above figure.



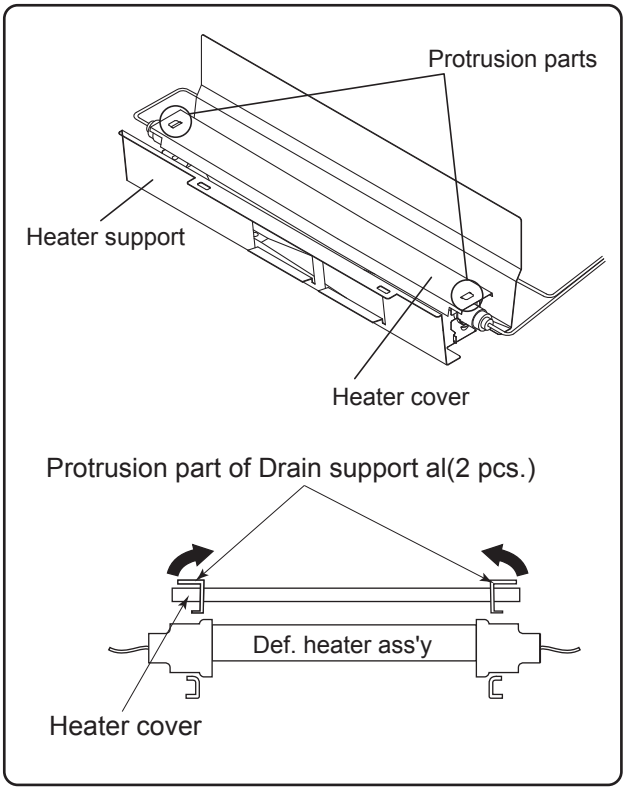
NOTE: When pulling Evaporator and bending the pipes,pay attention so as not to break and deform the pipes. Still, take care not to hurt yourself by fin of Evaporator.

2-5-2. Replacement of Def. heater

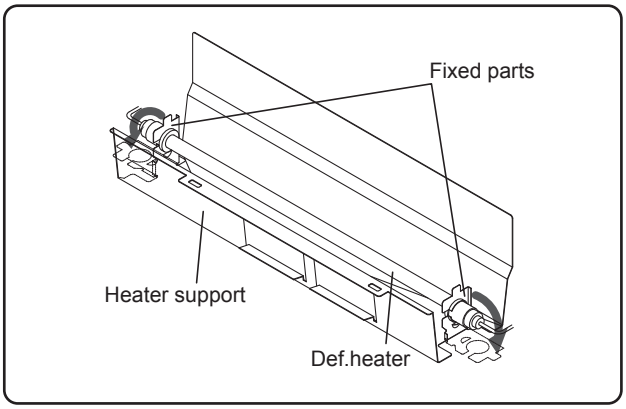
1) Remove the center screw of Heater support to take it off from the food liner.



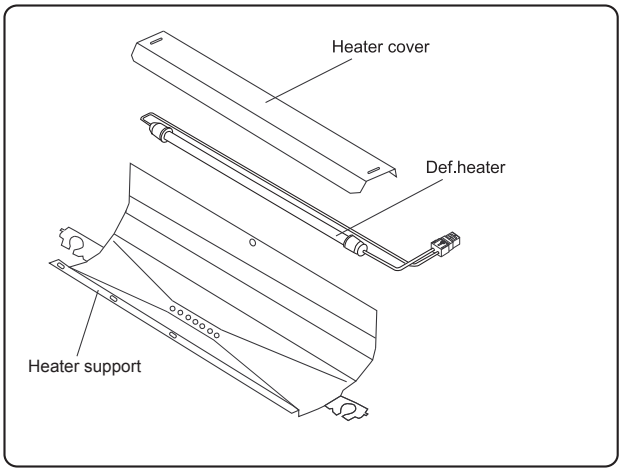
2) Raise the protrusion part of Heater support. Then remove Heater cover.



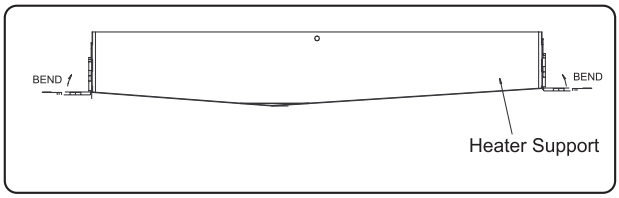
3) Open Def.heater fixed part of Heater support to the right and left, then remove Def.heater.



4) Replace Def. heater with new one.

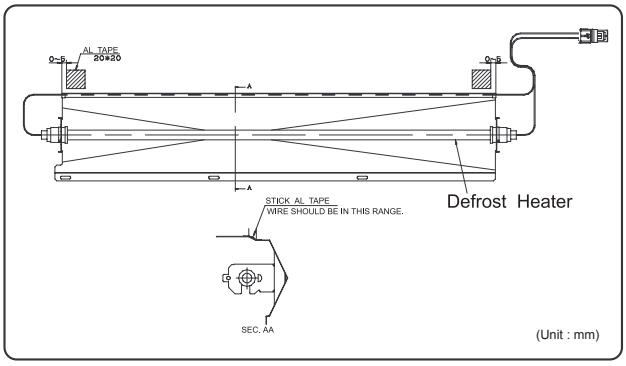


5) Bend end of heater support.

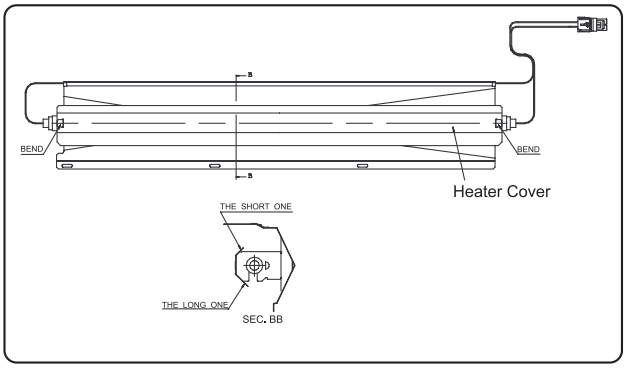


6) Assemble Defrost heater to Heater Support.

7) Assemble Heater cover to Heater Support. Bend top edge to outside.



8) Roll the leading wire Sealer to Lead wire Defrost Heater.



2-5-3. Installing of Evaporator

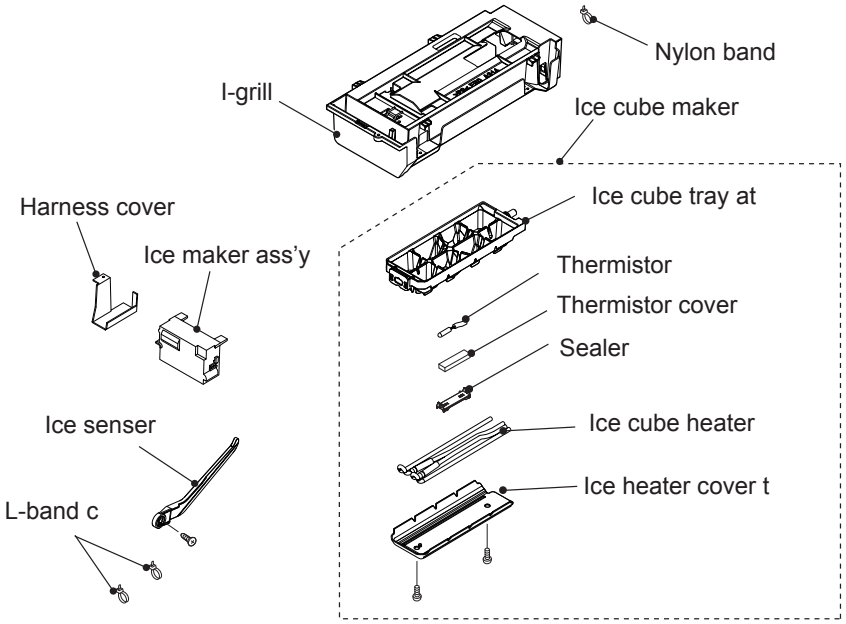
1. Install Evaporator as shown in 3) in the reverse order of 4).

2. Correct the deformed fin.

NOTE: 1.When installing Evaporator, take care not to deform significantlyand break the pipes.

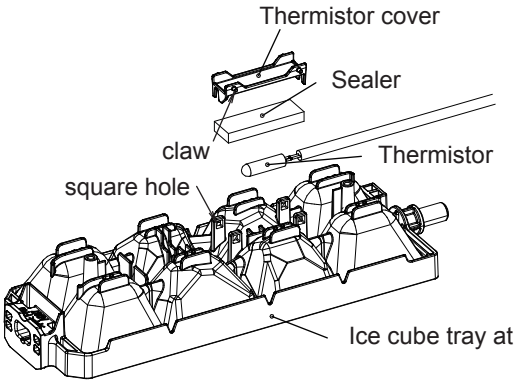
2.Take care not to damage the lead wires and hurt yourself by the fin of Evaporator.

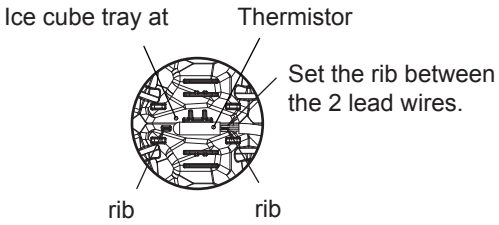
2-6. Ice maker T-S ass'y



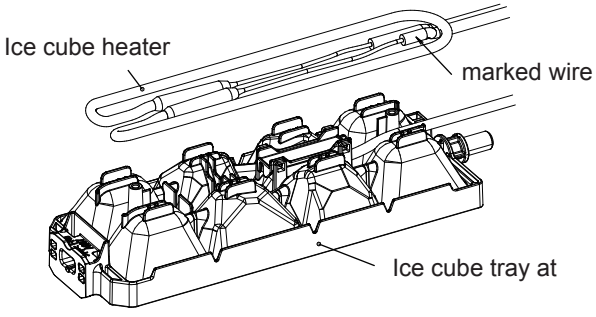
1) Put Thermistor on back side of Ice cube tray at .

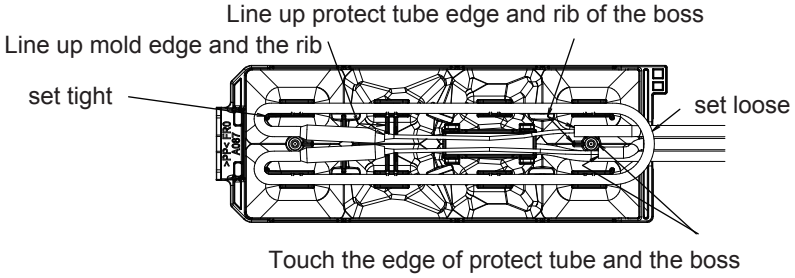
Put Selar on Thermistor , cover them with Thermistor cover and fix by 4 claws and square holes.





2) Set the Ice cube heater along the groove on back side of Ice cube tray at.

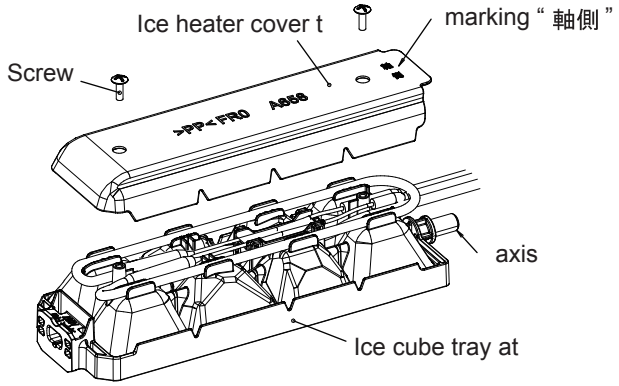




3) Cover Ice cube tray at with Ice heater cover t , and fix 2 point by tapping screw.

*Set Ice heater cover t so as to " 軸側 " marking side is on axis of Ice cube tray at.

*Tightening toruque is 0.5N•m.



4) Put rib of Ice senser in groove of ice maker ass'y.

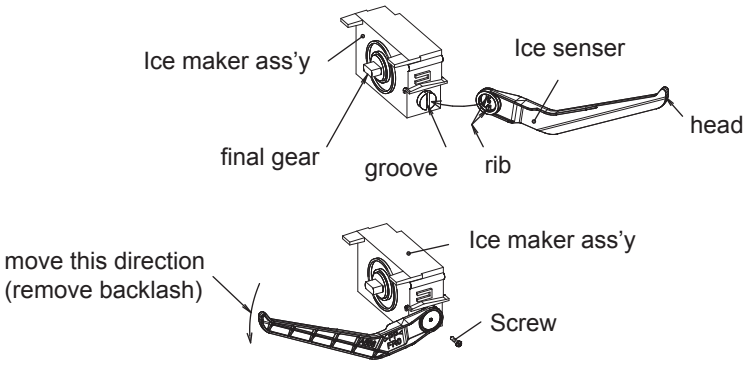
*Put head of Ice senser points final gear of Ice maker ass'y.

Fix Ice senser to Ice maker ass'y by tapping screw.

*Use jig to prevent variability fixing Ice senser.

*Fix Ice senser but remove allowance between Ice senser and Ice maker ass'y.

*Tightning torque is 0.5N•m.

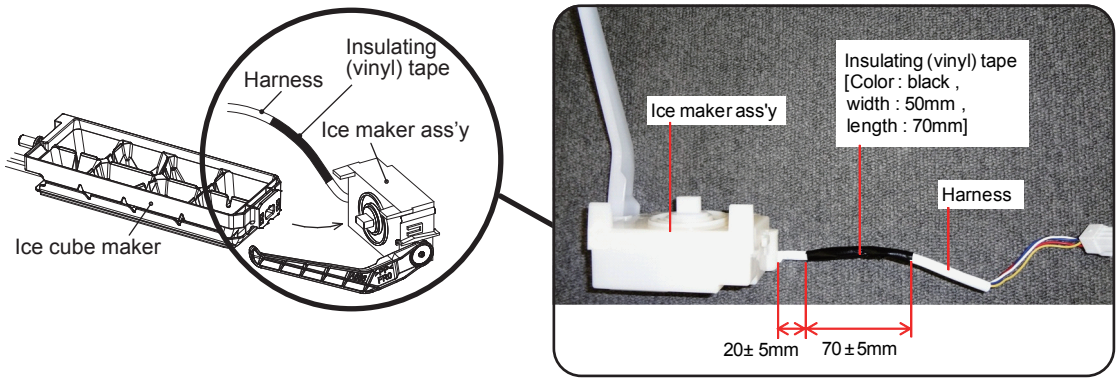


5) Put Ice cube maker to final gear of Ice maker ass'y.

Rollup the insulating (vinyl) tape twice and more on the harness.

*Set Ice cube maker correct direction asbelow picture.

*Put certainly Ice cube maker to final gear.



6) Put harness of Ice maker T-T ass'y through hole A and hole B (in front and back side of I-grill).

*hole A(front side) : for harness of Ice maker ass'y

hole B(back side) : for harness of Thermistor ahd heater

*protect tube edge (Ice cube tray at side) is always coverd with Ice heater cover t.

(don't pull harness strongly)

*Check whether red tape wraps harness of heater.

7) Set Ice maker T-T ass'y to I-grill.

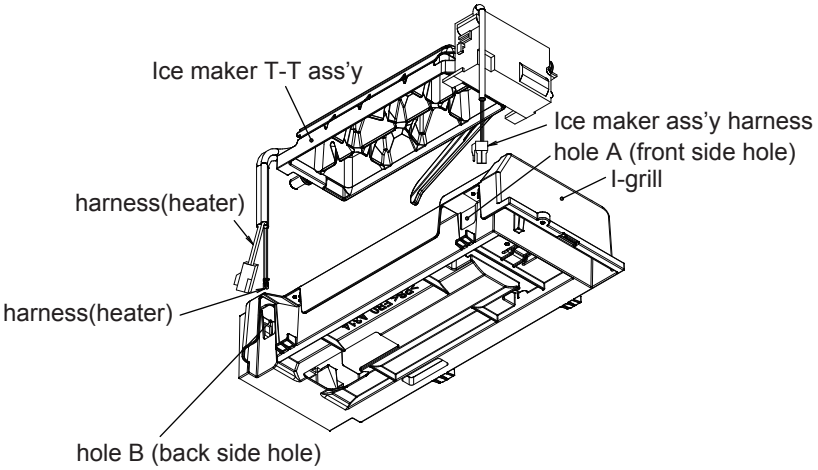
*Axis of Ice cube tray at hock hole C, reiease stopper (front side) and put legs of Ice maker ass'y under the stopper.

*Put harness of Ice maker ass'y through hold D along front of Ice maker ass'y.

*Check fixing stopper after put Ice maker T-T ass'y.

*Check head of Ice senser is hole E.

• There is more than 2.5mm clearance between head of Ice senser and hole E.



8) Connect socket contact of Thermistor and Connector housing of Ice maker ass'y.

*Don't mistake putting socket contact and attend direction claw of socket contact.

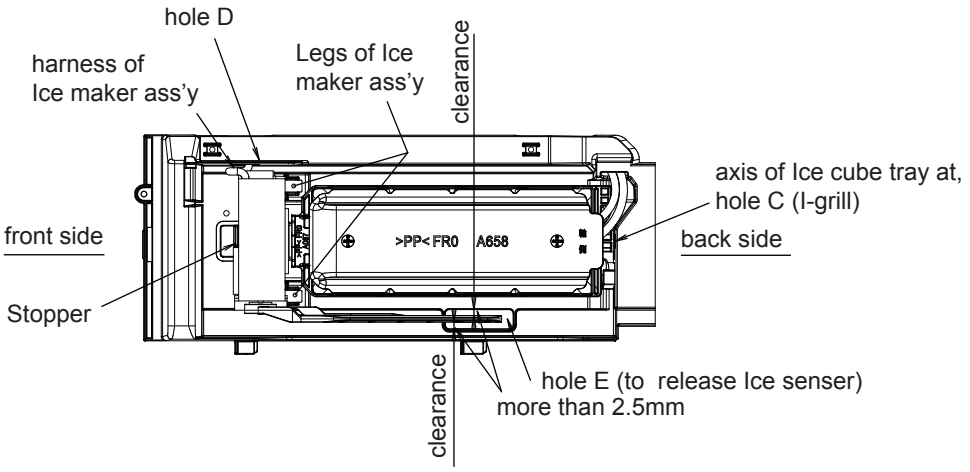
• Connector hole : No.3 (claw direction is same as Housing one)

• Connector hole : No.6 (claw direction is opposite of Housing one)

*Check certainly putting socket contact in Connector housing.

• Don't remove when you pull by 9.8N(1.0kgf).

• Don't force to put in.



9) Bundle harness by insulating (vinyl) tape, L-band c and fix at I-grill.

*Fix L-band c same as below picture but don't roll.

*Don't pull harness of Ice cube heater by more than 2 kgf.

(1)Bundle protect tube covering Thermistor and Ice cube heater by fix at I-grill.

*Cover edge of protect tube (Ice cube tray at side) with Ice heater cover t.

(Don't pull harness strongly)

*Line edge surfaces of protect tubes and bind at left side of marking of Ice cube heater as below picture.

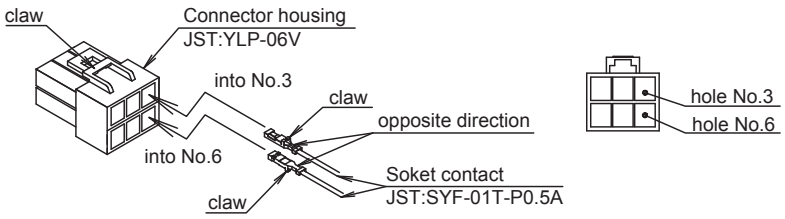
(about 55mm between edge surface of protect tube and center of L-band c)

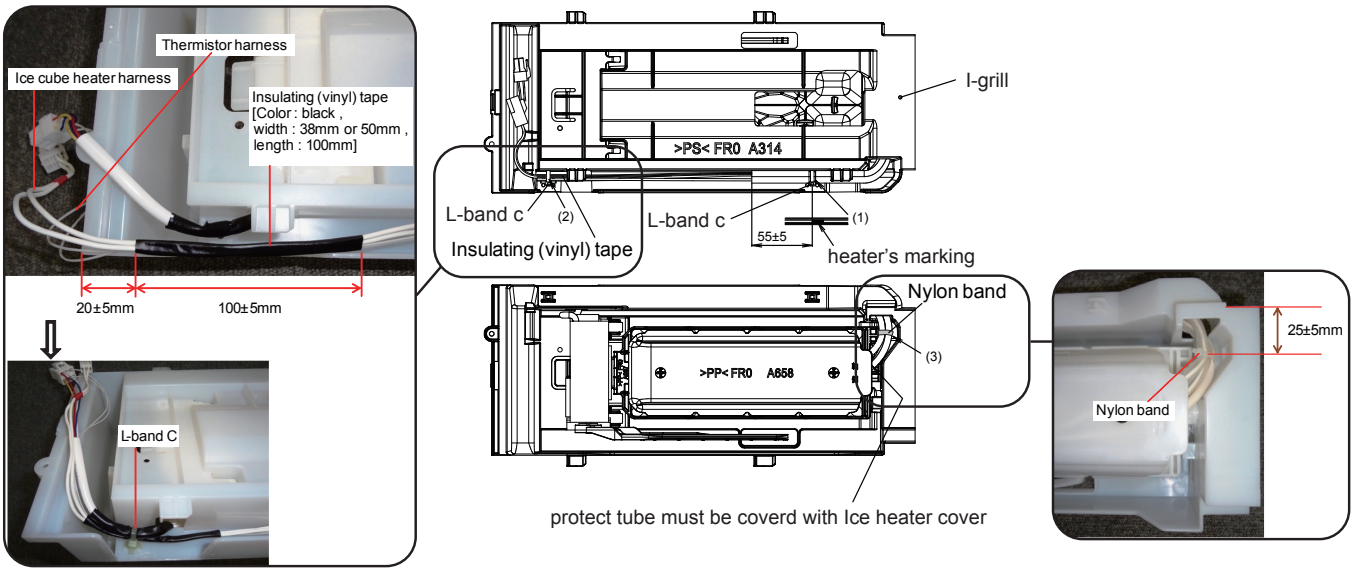
(2)Roll up the insulating (vinyl) tape twice and more on the thermistor harness and Ice cube heater harness.

Bundle harnesses of Ice maker ass'y , Thermistor and Ice cube heater and fix them at I-grill.

*Don't be too loose harnesses of Thermistor and Ice cube heater.

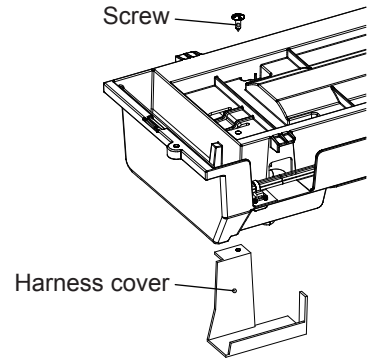
(3)Three harness is bundled in a nylon band.





10) Fix Harness cover at I-grill by tapping screw.

*Don't nip harness of Ice maker ass'y.



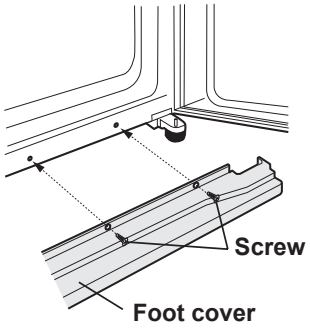
3. WHEN LEFT AND RIGHT DOORS ARE NOT ON THE SAME LEVEL

3-1. Cause

The floor is not flat and refrigerator is slanting.

3-2. Adjustment

1. Unscrew 4 screws on the bottom of the cabinet,and remove the foot cover.



2. Adjust the adjustable feet as follows:

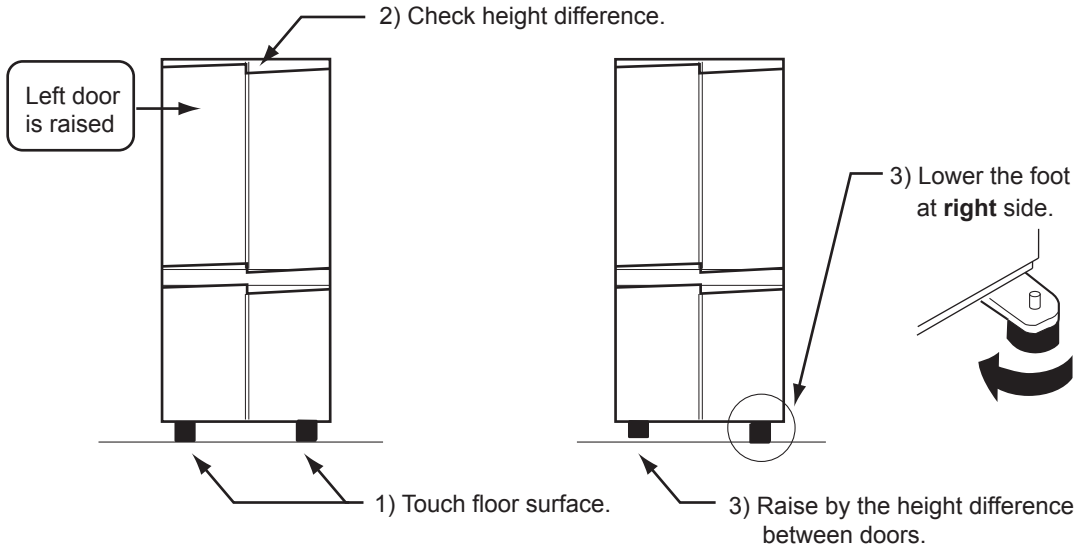
[When left door is raised]

1) Raise and then lower the both feet until they touch the floor.

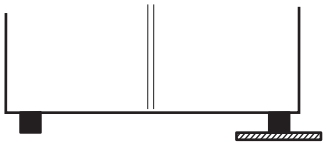
2) Measure the height difference between right and left doors.

3) Extend the right adjustable foot until the left adjustable foot floats by the distance equal to the door level difference.

4) Several days are required until the both feet touch the floor and refrigerator seats stably.



5) If the height difference is not completely compensated, place a plate of the right thickness under the adjustable foot.

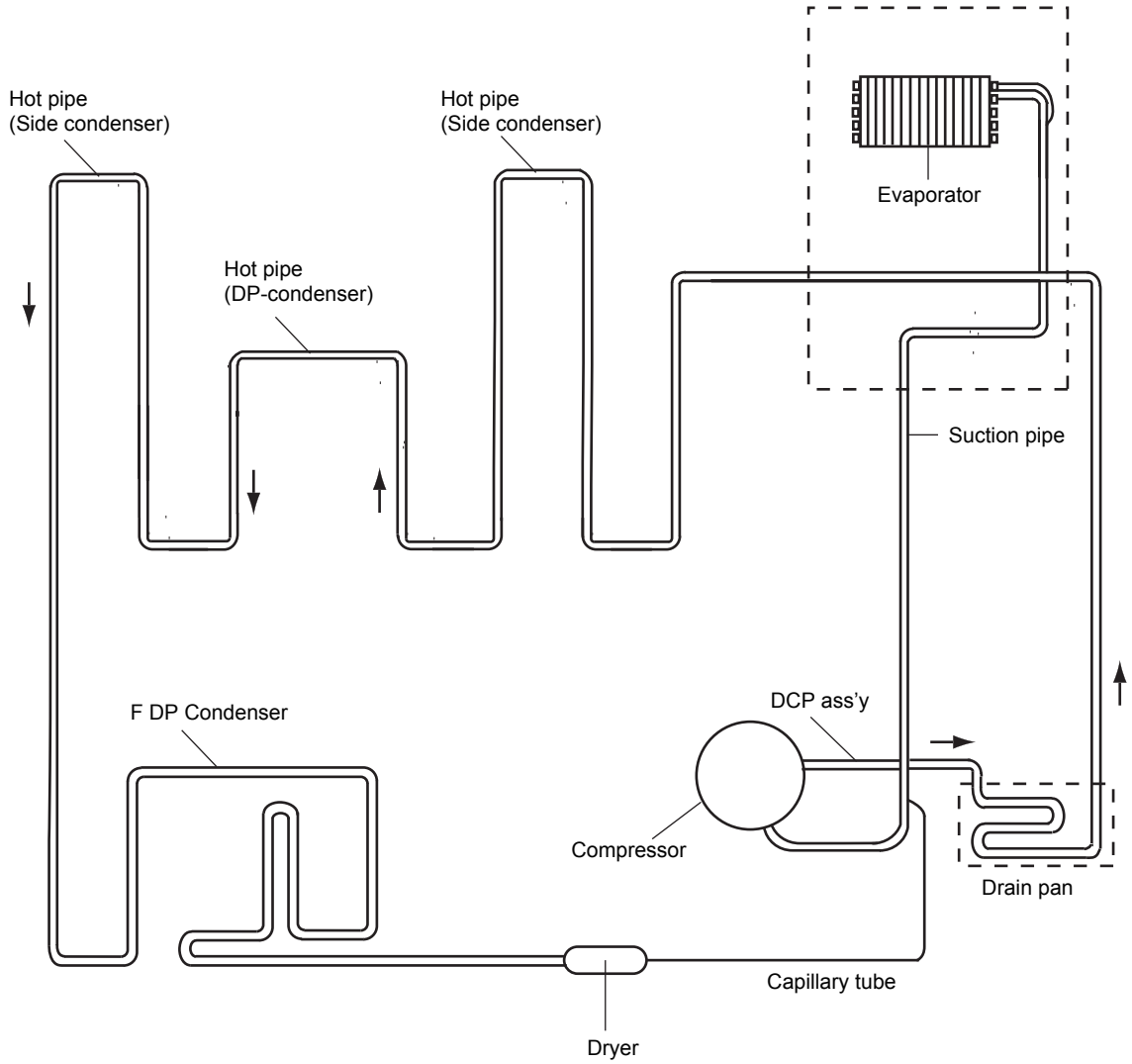


NOTE: When the right door is higher than the left door, extend the left adjustable foot.

[13] COOLING UNIT

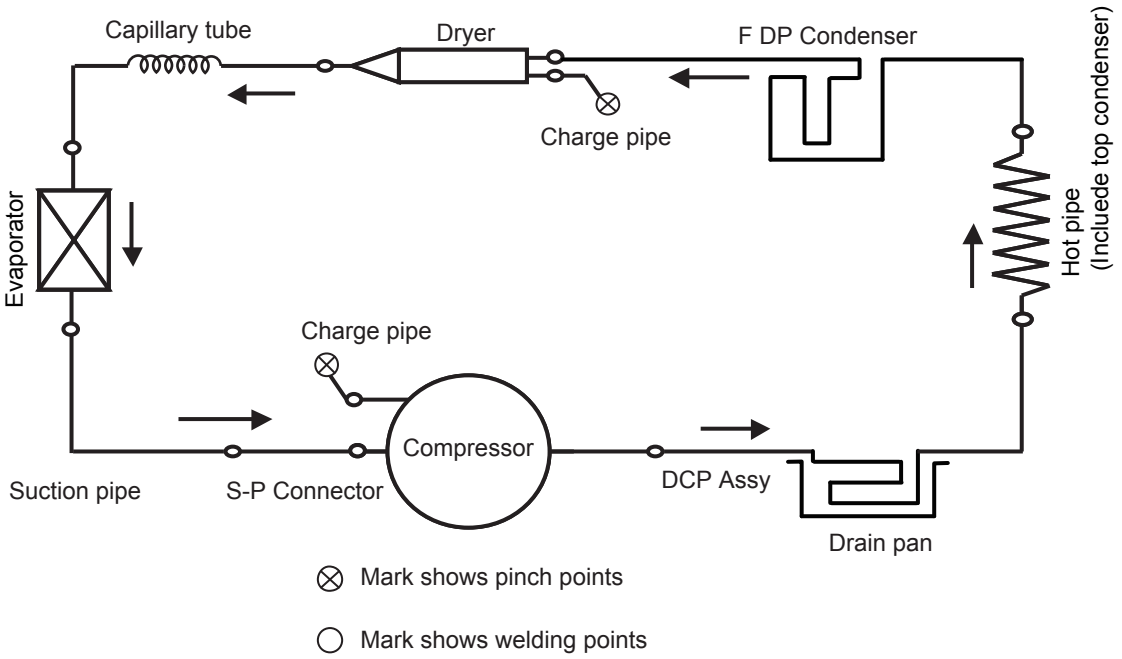
1. COOLING UNIT

→ Mark:Refrigerant flow



2. LOCATION

1) LOCATION 1



2) LOCATION 2