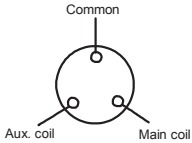


CHAPITRE 6. LISTES DES PIECES ELECTRIQUES

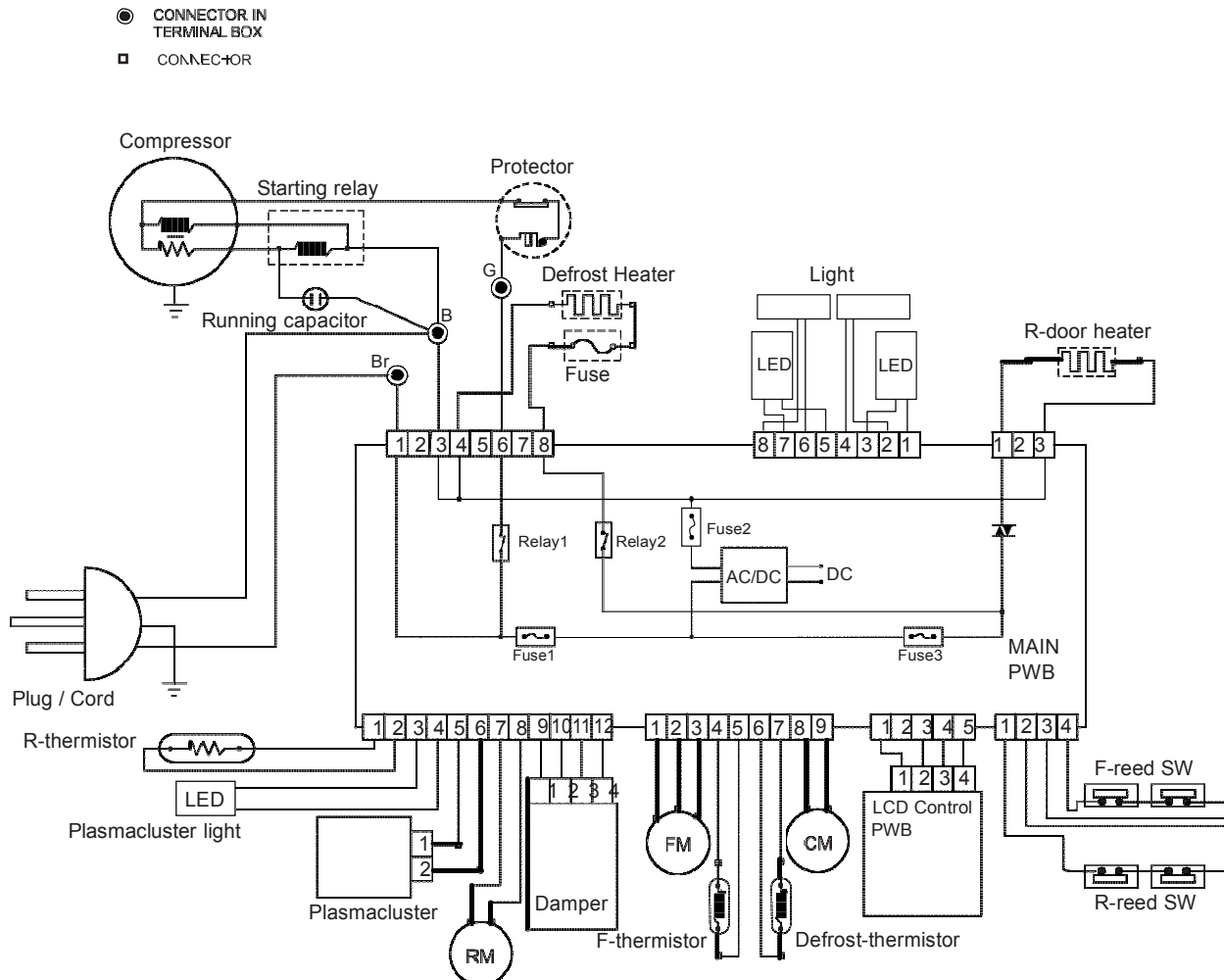
ITEMS	TYPE NAME	RATING	SPECIFICATIONS
R Thermistor F	—	DC 5V	R0 = 6.4 kΩ, B(0) = 3811
Thermistor Defrost	—	DC 5V	R0 = 6.4 kΩ, B(0) = 3811
Themistor	—	DC 5V	R0 = 15 kΩ, B(0) = 3811
• RD Heater (F750SP)	—	220-240V 8021Ω	6.6W at 230V
• RD Heater (F800SP)	—	220-240V 8365Ω	6.32W at 230V
Thermo. fuse	SF70E	250V 10A	Working temp. : 70 °C
Defrost heater	MM6-4350	220-240V 286Ω	185W at 230V
R-Fan motor	D08A-12PM.05(K)	DC12V 0.07A	—
F-Fan motor	FBA12J15VXD	DC14.5V 0.28A	—
C-Fan motor	D09T-12CS307(EX)	DC12V 0.09A	—
Volet motorisé	NSBC101FA1	DC12V	—
Reed SW	MS-332/651	DC5V	Magnetic Switch
SW Magnet	FM10.9X7X25.4(SR-3)	—	Magnet Switch
Lamp (Side)	FPWB-A617CBKZ	DC14.5V	150mA white LED Lamp
Lamp (Top)	FPWB-A619CBKZ	DC14.5V	75mA white LED Lamp
LCD operation	FPWB-A615CBKZ	DC14.5V	Blue LCD
Indicateur du Ioniseur	FPWB-A621CBKZ	DC14.5V	Blue LED
Compresseur	EGM90CLC	220-240V/50Hz	Cooling capacity : 218W (50Hz) Main coil : 18.40Ω Aux. coil : 25.50Ω (at 25 °C)
			
Starting Relay	PTH8M220MD2	—	22Ω (at 25 °C)
Overload Relay (Protector)	4TM189NFBYY-53	—	Open/Close : 120/ 61 °C
Running capacitor	RC-EZA254CBZZ	—	400V 5μF
Ionizer-K (Plasmacluster unit)	CKITTA131AKKZ	DC15V	4.55kV p-p (Second wave)

“ • “ denotes parts that cannot be replaced or parts that cannot be replaced as an individual unit.

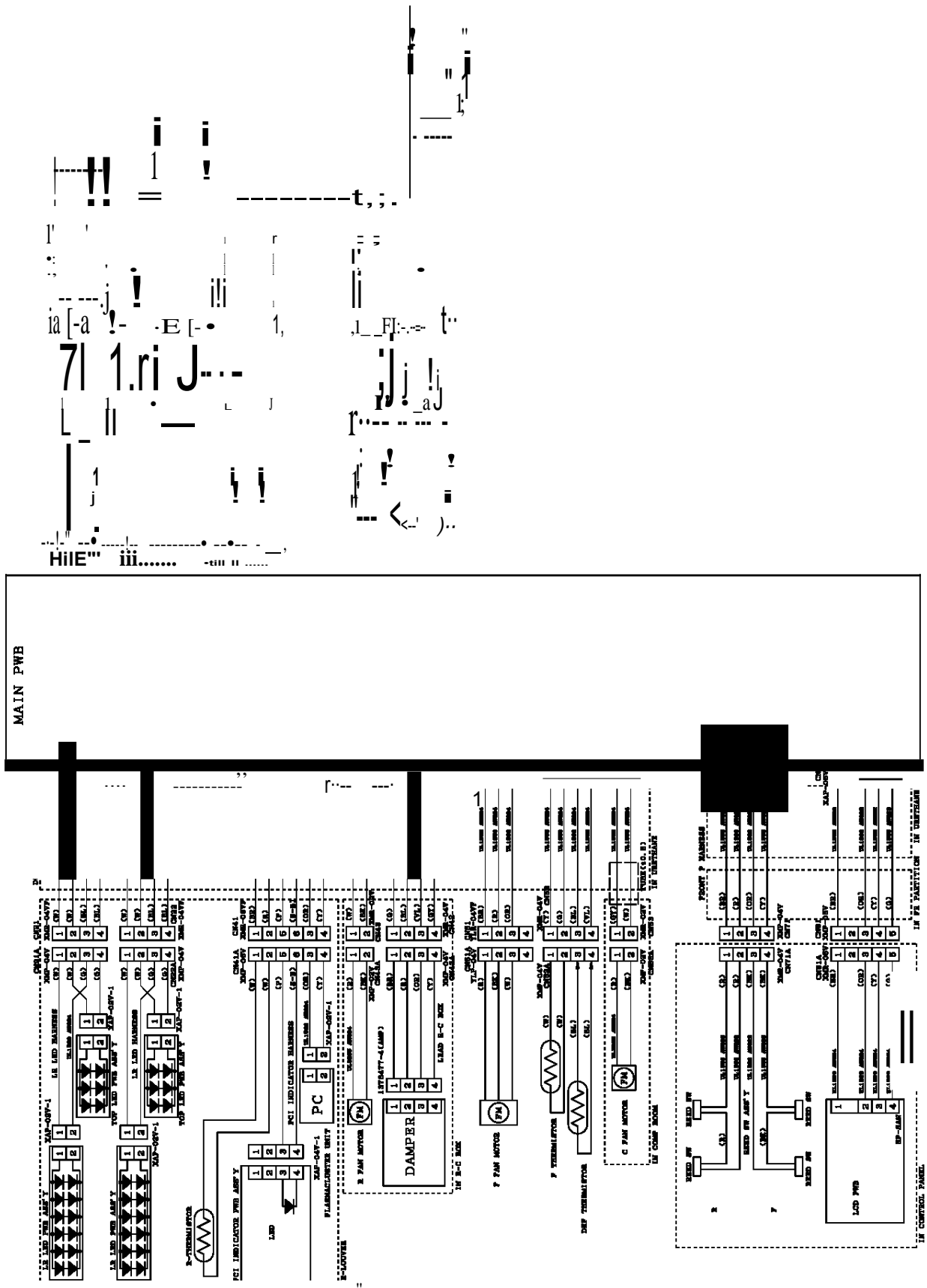
CHAPITRE 7. WIRING DIAGRAM

[1] WIRING DIAGRAM

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



[2] ELECTRIC ACCESSORIES LAYOUT



CHAPITRE 8. FAILURE DIAGNOSIS

[1] OUTLINE OF CONTROL

1. Contrôle du Marche/Arrêt du compresseur

- 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 rapid ice making or rapid 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 5 minutes after the compressor stops, it will not start regardless of the detected temperature by R-thermistor and F-thermistor.

2. Dégivrage

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. Sondes

Thermistors are installed in 4 places; in the refrigerator and freezer compartment, and close to the Control panel and Evaporator. (R-thermistor, F-thermistor, Outside temp-thermistor, Def-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. It decides the defrost timing and changes the operation mode when the outside temperature is high.

[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 "EE03" (Def-thermistor system defect), follow up the flowchart of EE03. (In case of any abnormality in the Def-thermistor, defrosting will not be made for safety reasons.)
- In case the diagnosis result is "EE07" (Defrost defect), follow up the flowchart of EE07.

(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 and also the breakage of heater and 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 0.4 second, the control of the microcomputer will might 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.(If cold enough in the cabinet, the microcomputer will begin defrosting in 40 minutes according to the condition.)
- The temperature and operation mode set by user will be maintained even if a power failure occurred. (However defrosting, rapid freezing, rapid ice making, and timer will not be maintained.)
- When the self diagnosis is made, each mode and setting are resumed to the initial condition.

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[4] DIAGNOSIS METHOD OF FAILURE AROUND PWB

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

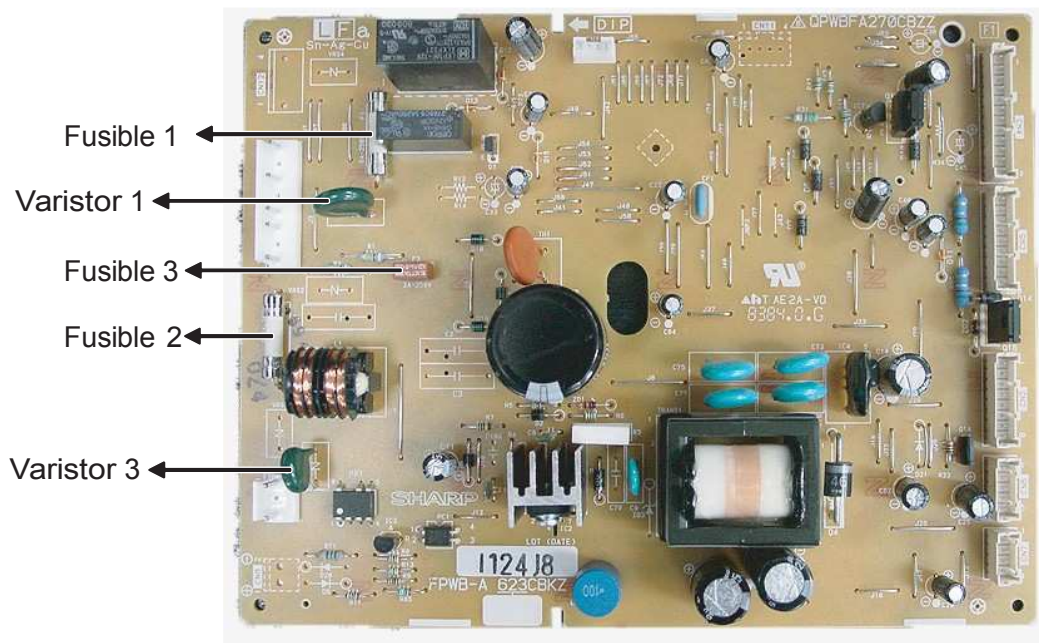
In case that the power supply doesn't enter, check by the following procedure.

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 "CN4" on the PWB and measure the resistance between 1 and 2 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 "CN5" on the PWB and measure the resistance value between 6 and 7 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 "CN5" on the PWB and measure the resistance value between 4 and 5 pins of harness side.

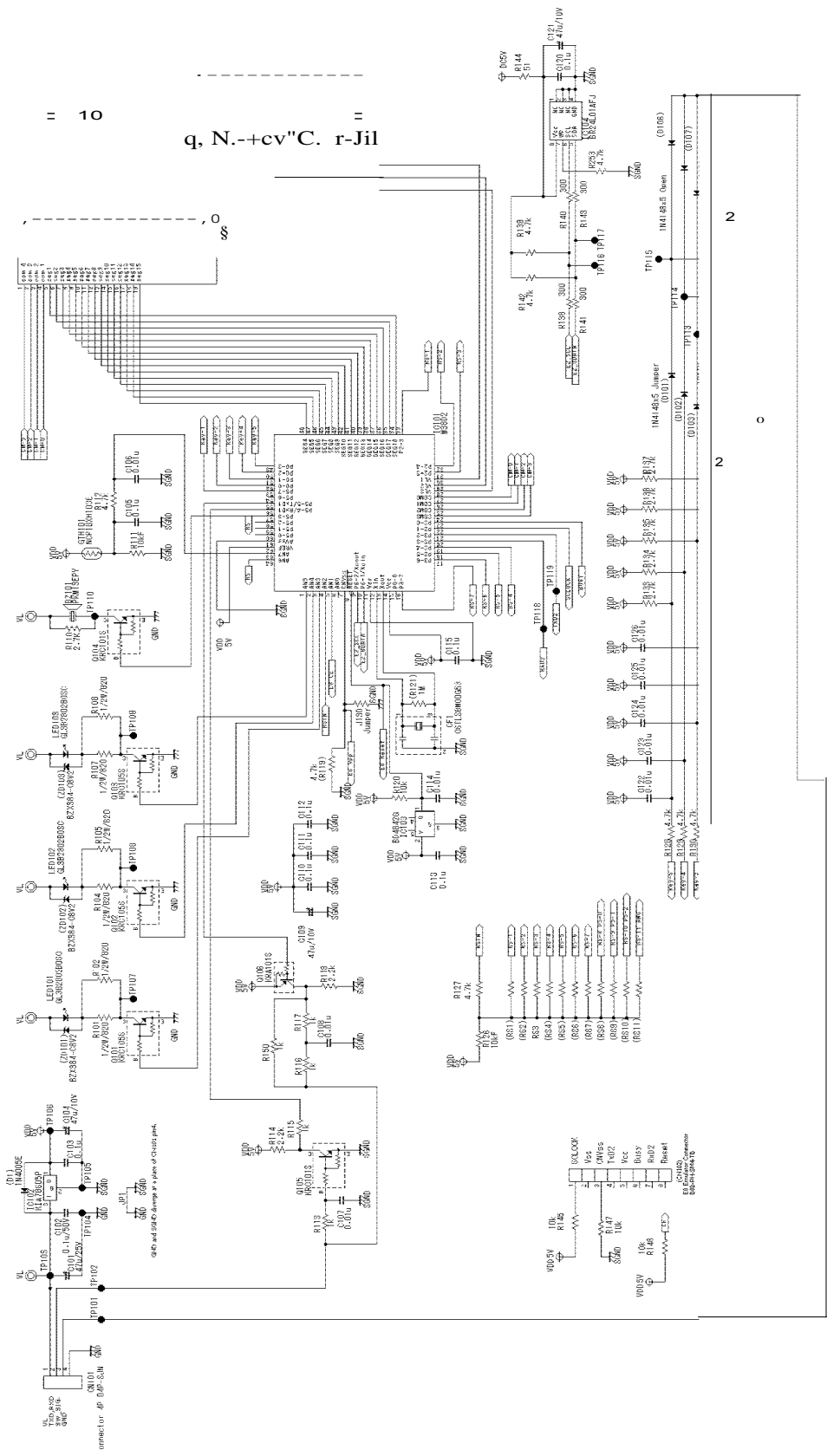
[5] CONVERSION TABLE BETWEEN TEMPERATURE AND RESISTANCE VALUE**1. R-thermistor**

Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)
-25	26.1	-9	10.3	7	4.52
-24	24.54	-8	9.75	8	4.3
-23	23.08	-7	9.24	9	4.1
-22	21.72	-6	8.76	10	3.91
-21	20.46	-5	8.3	11	3.73
-20	19.27	-4	7.87	12	3.56
-19	18.16	-3	7.47	13	3.4
-18	17.13	-2	7.09	14	3.24
-17	16.16	-1	6.74	15	3.1
-16	15.25	0	6.4	20	2.47
-15	14.4	1	6.08	25	1.99
-14	13.6	2	5.78	30	1.61
-13	12.85	3	5.5	35	1.31
-12	12.15	4	5.23	40	1.08
-11	11.49	5	4.98		
-10	10.88	6	4.74		

2. Def-thermistor, F-thermistor

Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)	Temperature (°C)	Resistance Value (KΩ)
-25	61.17	-9	24.13	7	10.58
-24	57.51	-8	22.85	8	10.09
-23	54.1	-7	21.65	9	9.61
-22	50.92	-6	20.52	10	9.16
-21	47.94	-5	19.46	11	8.74
-20	45.17	-4	18.46	12	8.34
-19	42.57	-3	17.51	13	7.96
-18	40.14	-2	16.63	14	7.6
-17	37.86	-1	15.79	15	7.26
-16	35.74	0	15	20	5.79
-15	33.74	1	14.26	25	4.66
-14	31.87	2	13.55	30	3.77
-13	30.12	3	12.89	35	3.08
-12	28.48	4	12.26	40	2.52
-11	26.94	5	11.67		
-10	25.49	6	11.11		

[7] CIRCUIT DIAGRAM OF LCD PWB



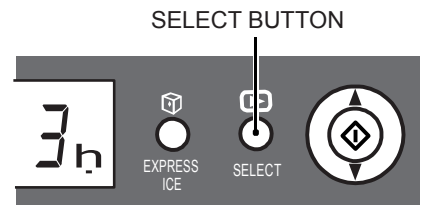
LCD Operation Board Circuit Diagram (PT)

1. Rating of resistors without appointment are under 1/4W, error :
 2. Rating of capacitors without appointment 0.01u/50V, 0.1u/25V
 3. Parts with parentheses are not in use, but can be inserted.

CHAPITRE 9. MODE AUTO-DIAGNOSTIC

1. Entering method of the mode

- 1) Press the [Select] button on the LCD panel over 5 seconds at the opening condition of the freezer and refrigerating 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 Reed SW system can be considered.

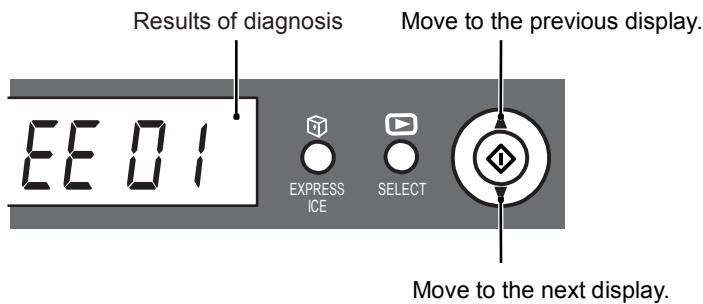


2. When the self-diagnosis mode is entered, the following movements will be made. Forced release operation is not prepared for the self-diagnosis mode. It returns to the normal movement after a lapse of 2 minutes.

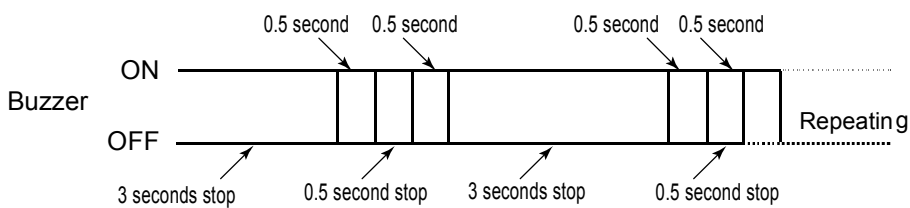
- During the express ice making, express freezing or timer, the mode is released.
- Plasmacluster will not release the mode, and ON is forced for 2 minutes whether it is ON or OFF.
- When the self-diagnosis mode is entered, beep sound for reminding of closing the door must not be sounded for 20 minutes.
- Defect and various conditions are shown by the beeping buzzer pattern.
- Defect and various conditions are displayed on the LCD 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 LCD panel (at the defect of F-thermistor system)



- Buzzer notice example; (at defrost defect, 2 times of 0.5 second ON)



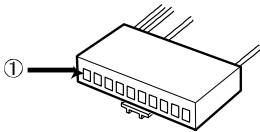
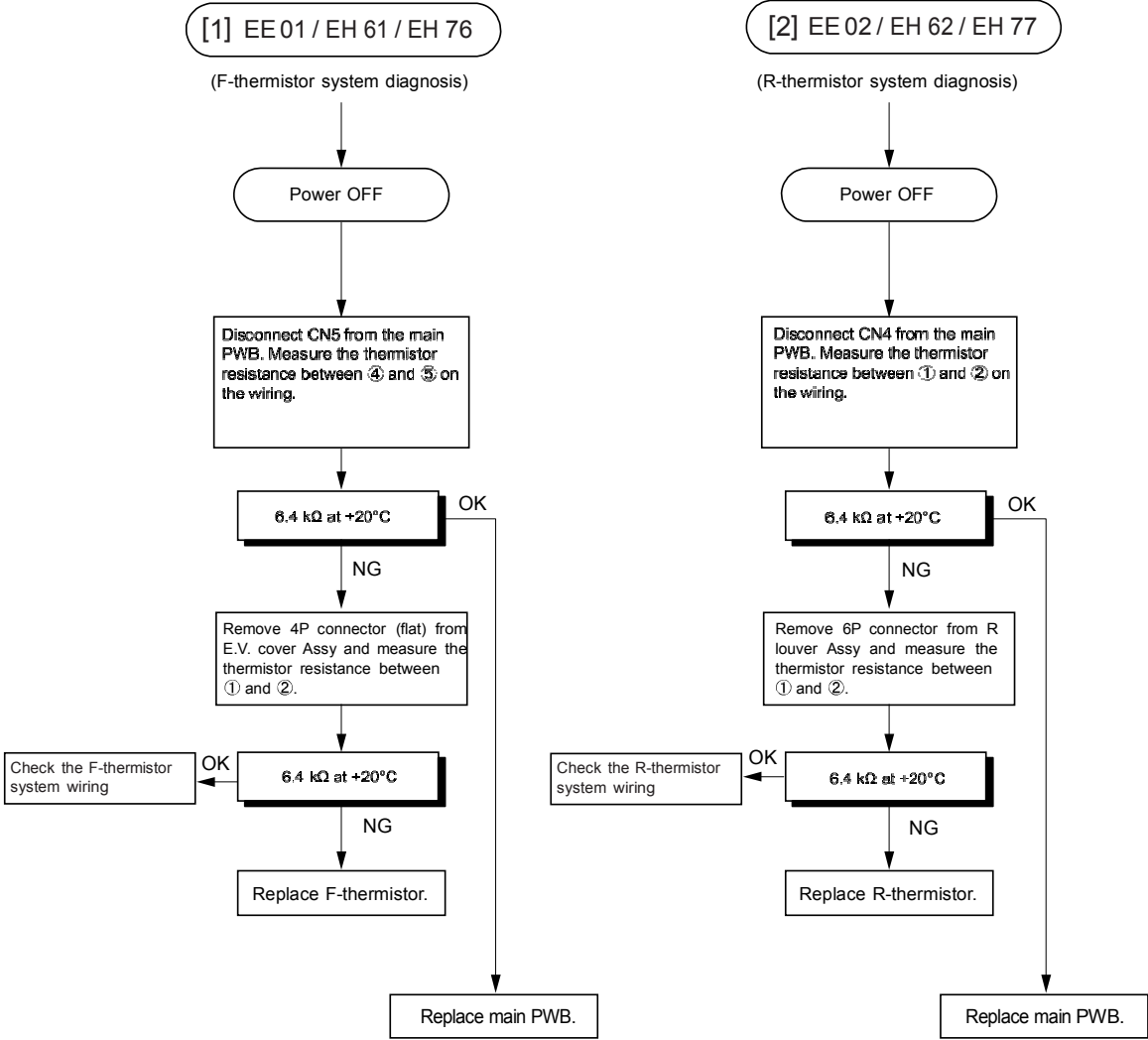
Voir dans la rubrique « Information » du site technique SHARP pour télécharger la procédure en français.

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No	Status	Buzzer	LCD Display	Content	Correspondence method
-	No defects	None	- - - -		
1	F-thermistor system defect	●	EE 01	Defect of each thermistor, short circuit/wire breakage of thermistor wiring and defect of main PWB	→[1]
2	R-thermistor system defect	●	EE 02		→[2]
3	DEF-thermistor system defect	●	EE 03		→[3]
4	Outside temperature-thermistor system defect	●	EE 04		→[4]
5	Defrost defect	● ●	EE 07	Wire breakage of fuse•defrost heater, defect of main PWB (120-minute defrosting has been occurred continuously 2 times within the past 48 hours.)	→[5]
6	F fan motor system defect	● ● ●	EE 08	Defect of each fan motor, fan-lock and defect of wiring/main PWB (When fan motor is ON, over current or no current is detected.)	→[6]
7	C fan motor system defect	● ● ●	EE 09		→[7]
8	R fan motor system defect	● ● ●	EE 10		→[8]
9	Ionizer (Plasmacluster) system defect	● ● ●	EE 11		→[9]
10	LCD Display communication defect	● ● ● ● ●	EE 12	Short circuit/wire breakage of wiring and defect of LCD or main PWB (Communication with LCD PWB has been abnormal over 3 times within the past 48 hours.)	→[10]
11	F-thermistor system defect history	◎ ● ●	EH 61	Defect of thermistor system has been occurred over 1 minute continuously within the past 48 hours.	→[1]
12	R-thermistor system defect history	◎ ● ●	EH 62		→[2]
13	DEF-thermistor system defect history	◎ ● ●	EH 63		→[3]
14	Outside temperature-thermistor system defect history	◎ ● ●	EH 64		→[4]
15	F fan motor system defect history	◎ ● ●	EH 66	Defect of fan motor has been occurred over 3 times continuously within the past 48 hours.	→[6]
16	C fan motor system defect history	◎ ● ●	EH 67		→[7]
17	R fan motor system defect history	◎ ● ●	EH 68		→[8]
18	Ionizer (Plasmacluster) electrifying defect history	◎ ● ●	EH 72	Defect of Ionizer (Plasmacluster) electrifying has been occurred over 3 times continuously within the past 48 hours.	→[9]
19	F-room high temperature history	◎ ● ●	EH 76	Temperature of F-thermistor has been reached over -10°C continuously for 6 hours or more within the past 48 hours. (except right after the installation)	→[1]
20	R-room high temperature history	◎ ● ●	EH 77	Temperature of R-thermistor has been reached over +10°C continuously for 6 hours or more within the past 48 hours. (except right after the installation)	→[2]

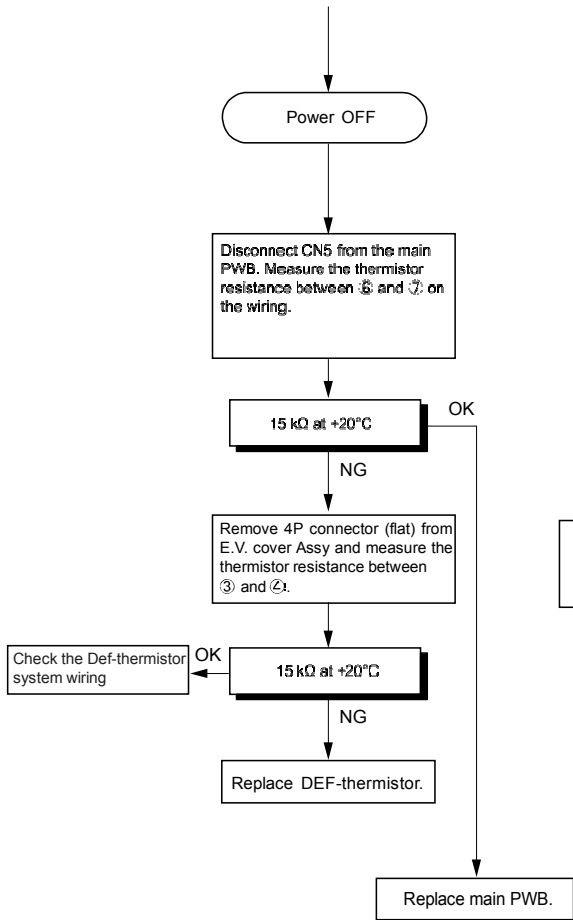
• Buzzer: ● =0.5 sec ON/0.5 sec OFF, ◎ =2 sec ON/0.5 sec OFF

Correspondence method



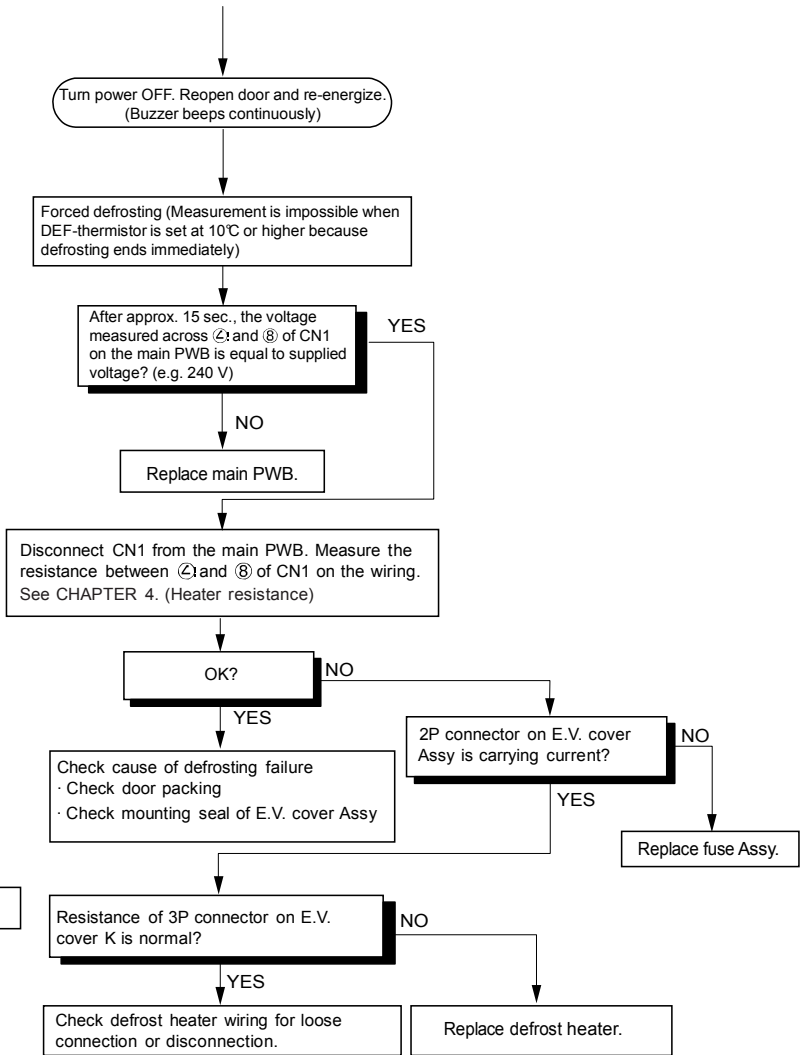
[3] EE 03 / EH 63

(DEF-thermistor system diagnosis)



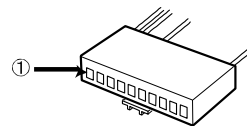
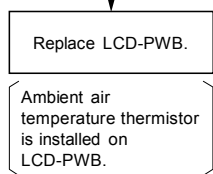
[5] EE 07

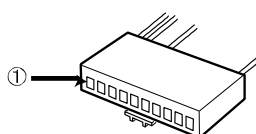
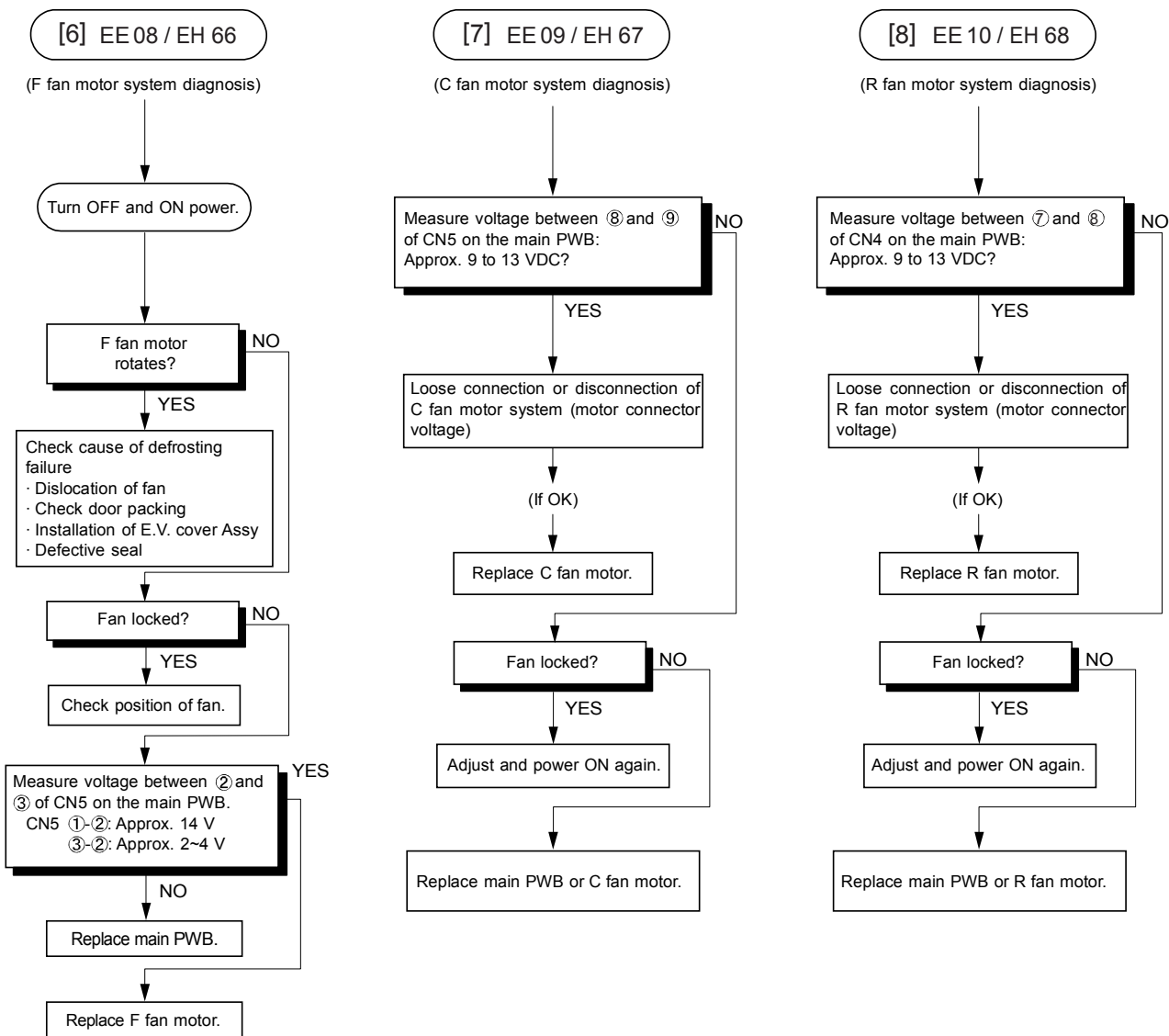
(Defrosting diagnosis)

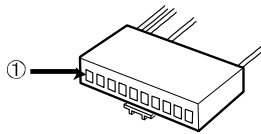
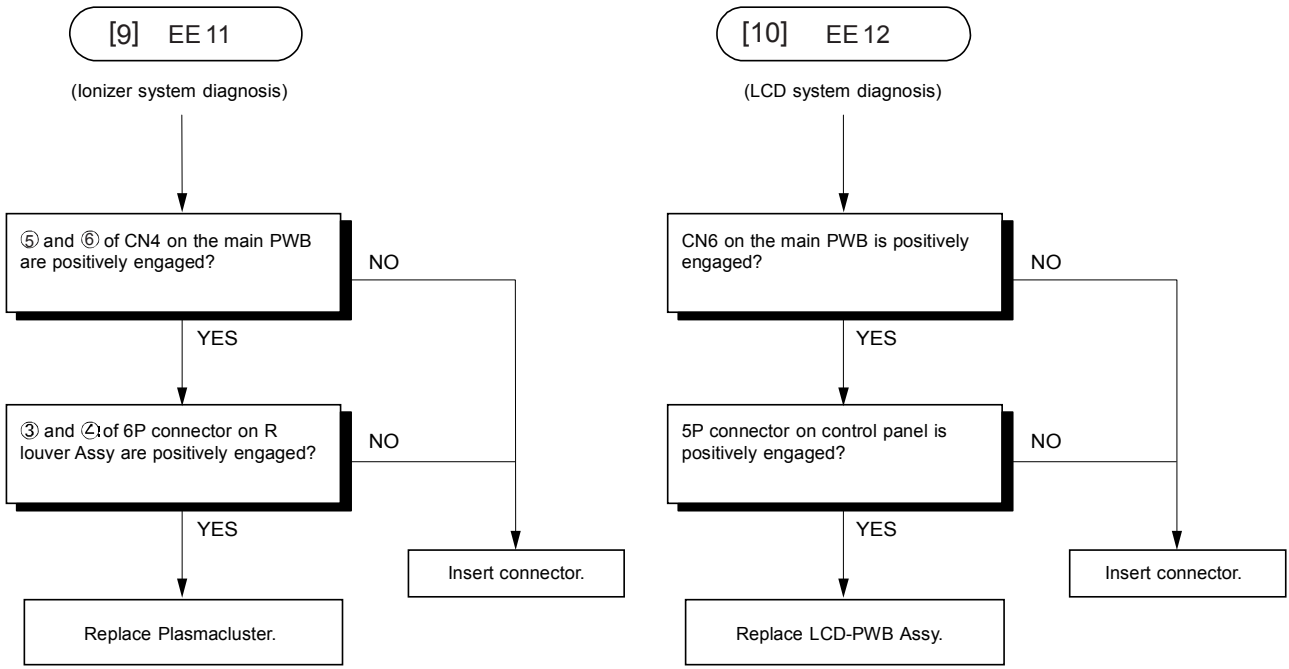


[4] EE 04 / EH 64

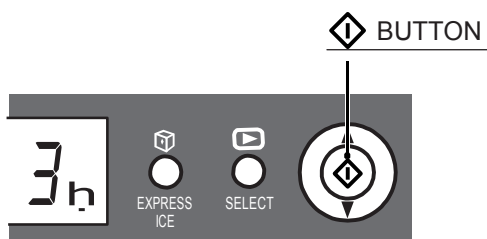
(Ambient air temperature - thermistor system diagnosis)







CHAPITRE 10. MODE MAGASIN




1. Entering method of the mode

Within 2 minutes after main power input, press the [] button over 3 seconds at the opening condition of the refrigerating room door.

NOTE: This cannot be made at the ON condition of CHILD LOCK.

2. Release of the mode

Press the [] button over 3 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, each fan motor, heater and Plasmacluster are stopped.
- 2) Damper is always made [OPEN] condition.
- 3) Indoor lamp is lit when refrigerating room door is open.
- 4) LCD display
 - Icon will be lit at random.
 - In case of starting the timer, express ice making or express freezing, forced termination is made in 20 seconds.

CHAPITRE 11. DISASSEMBLING/ASSEMBLING PROCEDURES

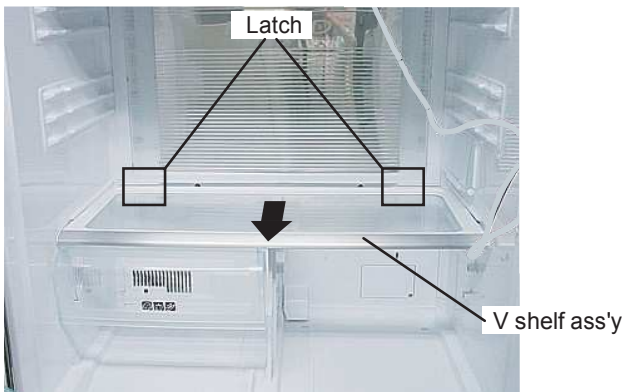
CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE ANY REPAIRING.

[1] COMPARTIMENT REFRIGERATEUR

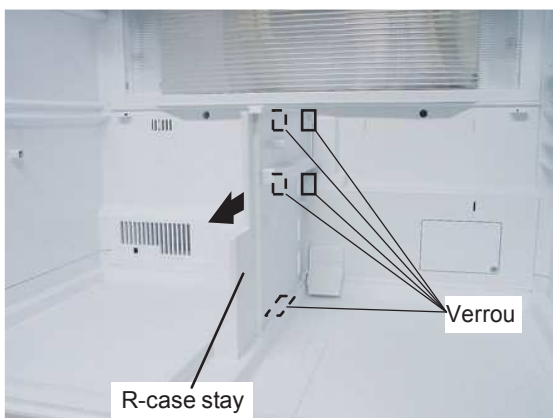
Parents parts name	Included electrical parts
R-louver ass'y	Plasmacluster unit, Lr led pwb ass'y, Top led pwb ass'y, Pci pwb ass'y, Lr led harness, Pci indicator harness, R-thermistor
R control box ass'y	Damper ass'y, Lead r-c box, R fan motor

1. Procédures de démontage

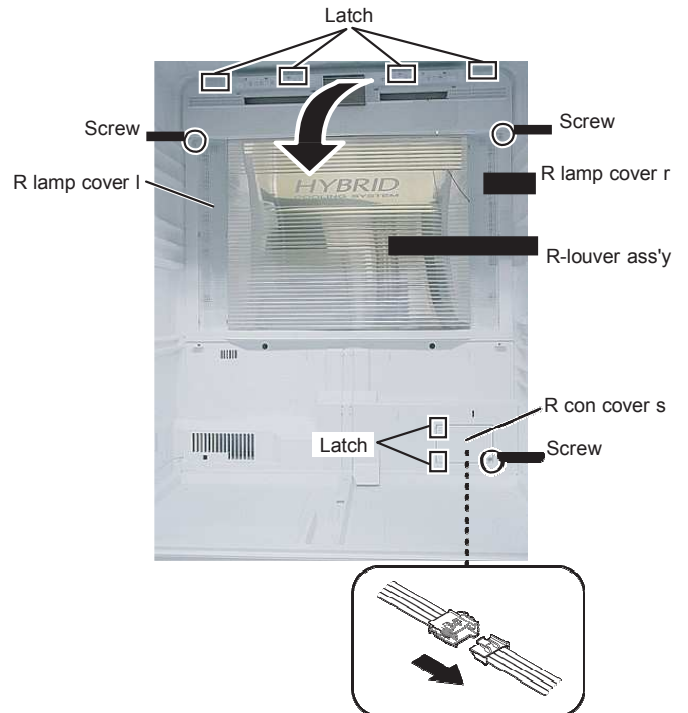
1. Remove the accessories(shelves, fresh case, etc.).
2. Remove the v shelf ass'y.



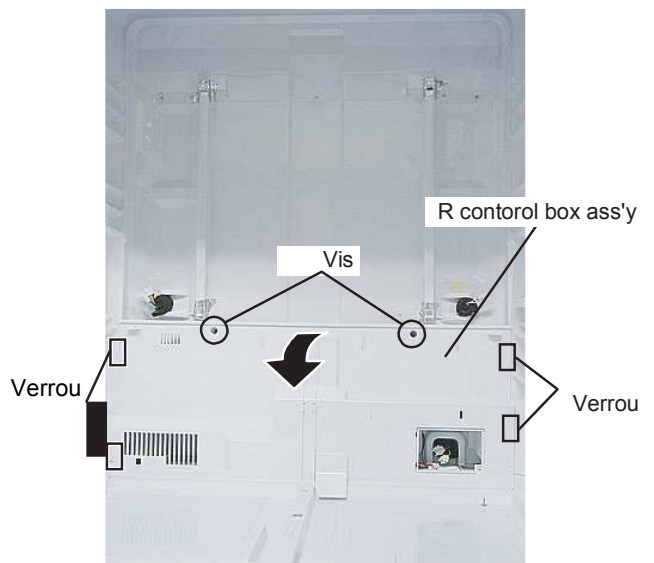
3. Remove the r-case stay



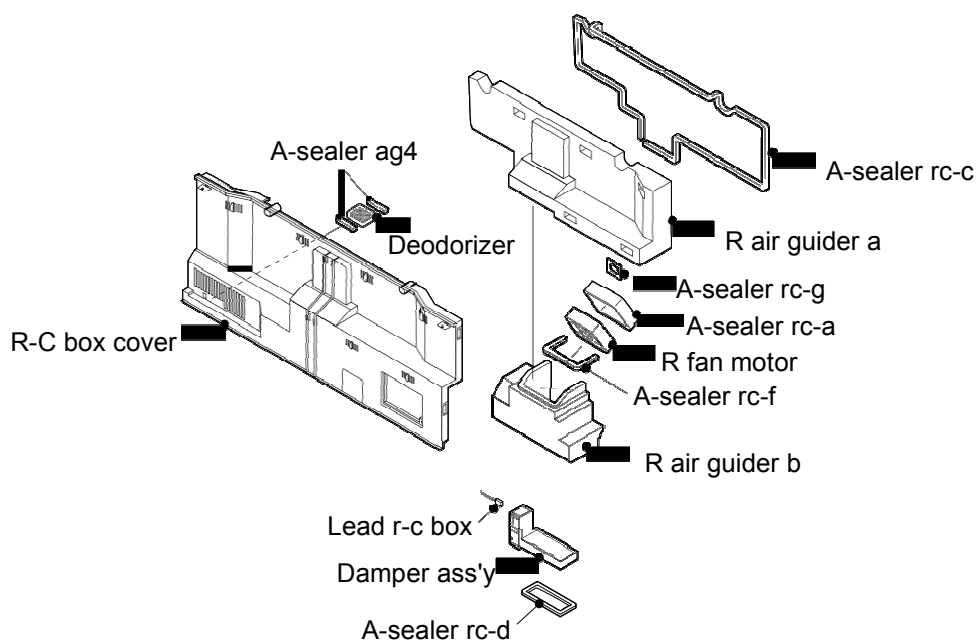
4. Remove the r con cover s, and disconnect the connector.
5. Remove the r lamp cover and the r-louver ass'y.



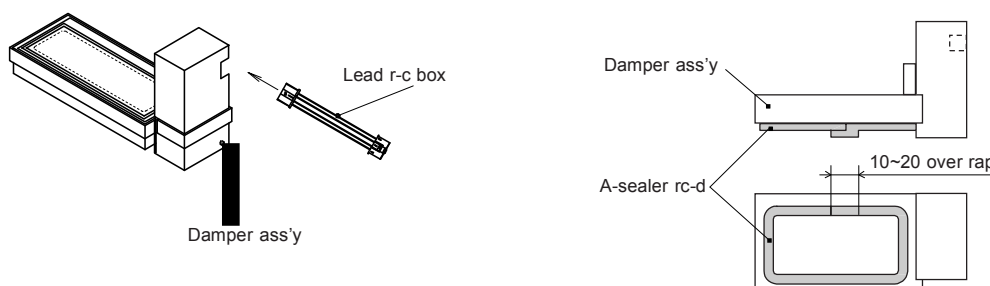
6. Remove the r control box ass'y.



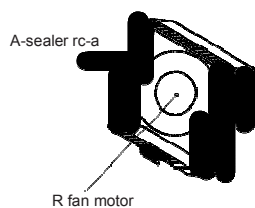
2. Procédures de montage du: R CONTROL BOX ASS'Y.



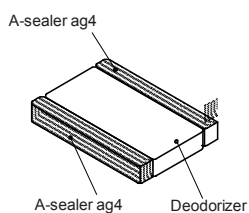
1. Insert Lead r-c box to Damper ass'y and next stick A-sealer rc-d to Damper ass'y (lead wire shall be fix by A-sealer rc-d)



2. Stick A-sealer rc-a to R fan motor.

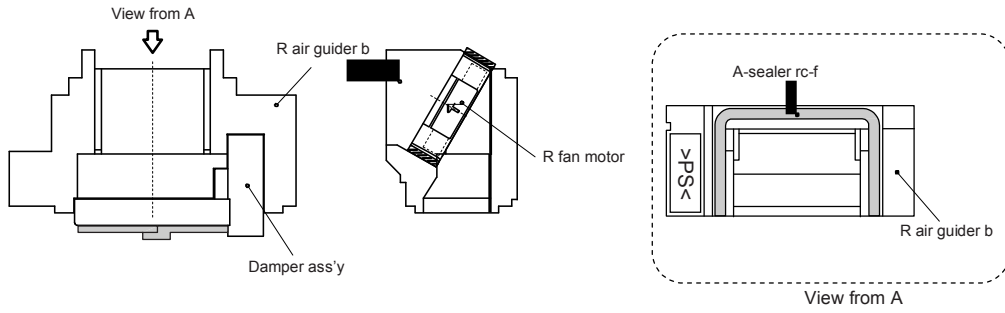


3. Stick A-sealer ag4 to deodorizer.

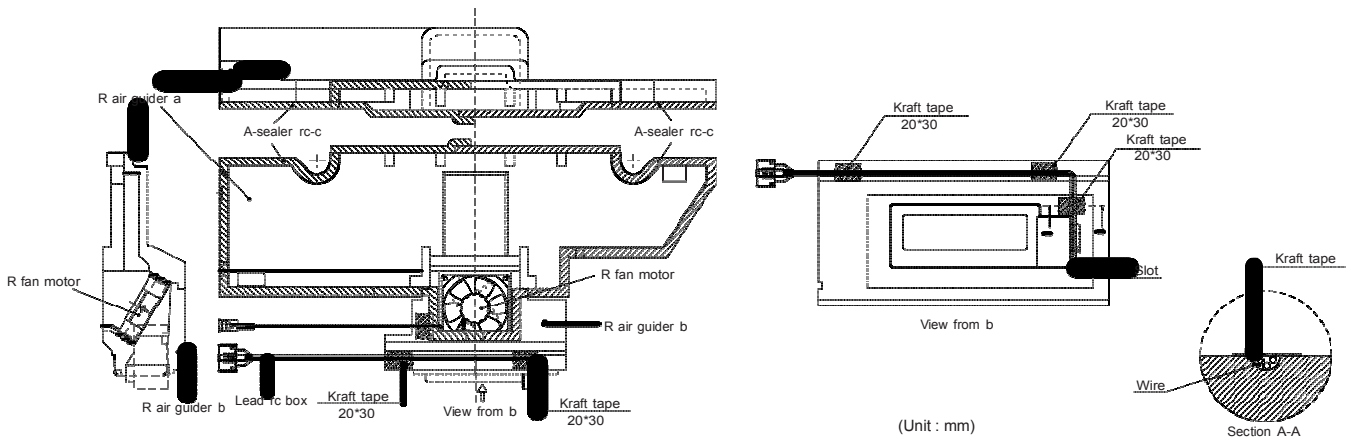


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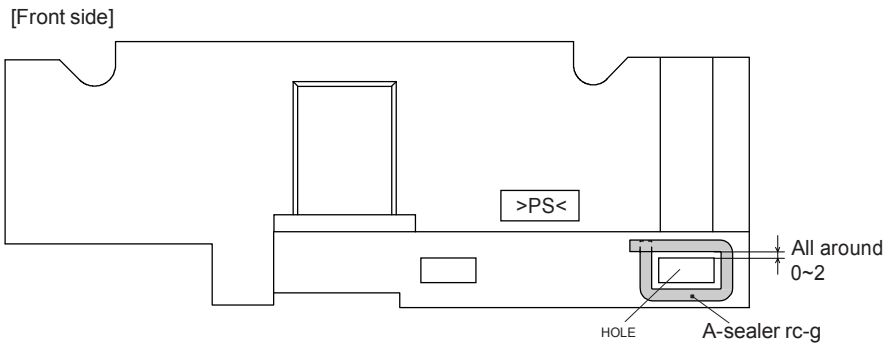
4. Insert R fan motor and damper ass'y to R air guider b, and Stick A-sealer rc-f to R air guider b.



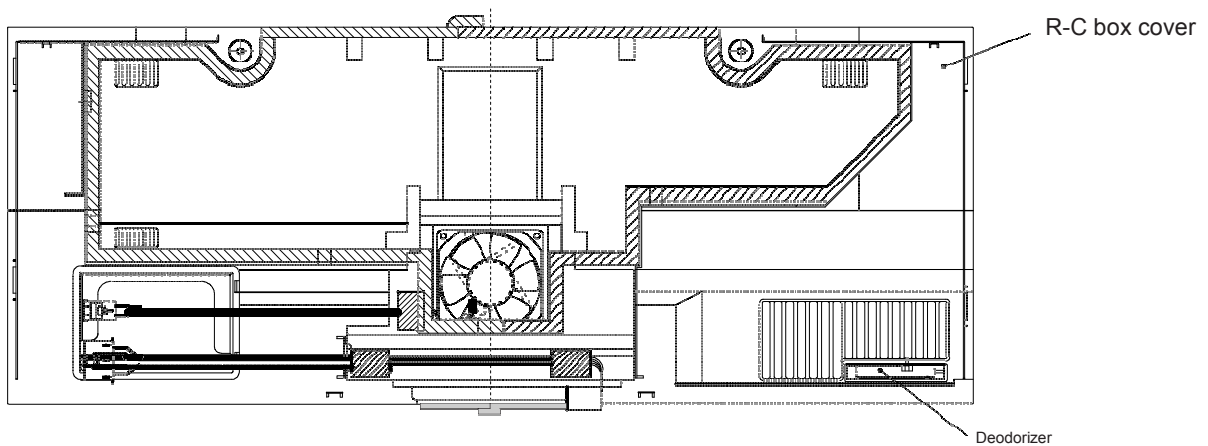
5. Assemble R air guider b to R air guider a. Wire-harness are fixed with kraft tapes. Stick A-sealer rc-c to R air guider a/b (lead wire shall surely insert slot of R air guider).



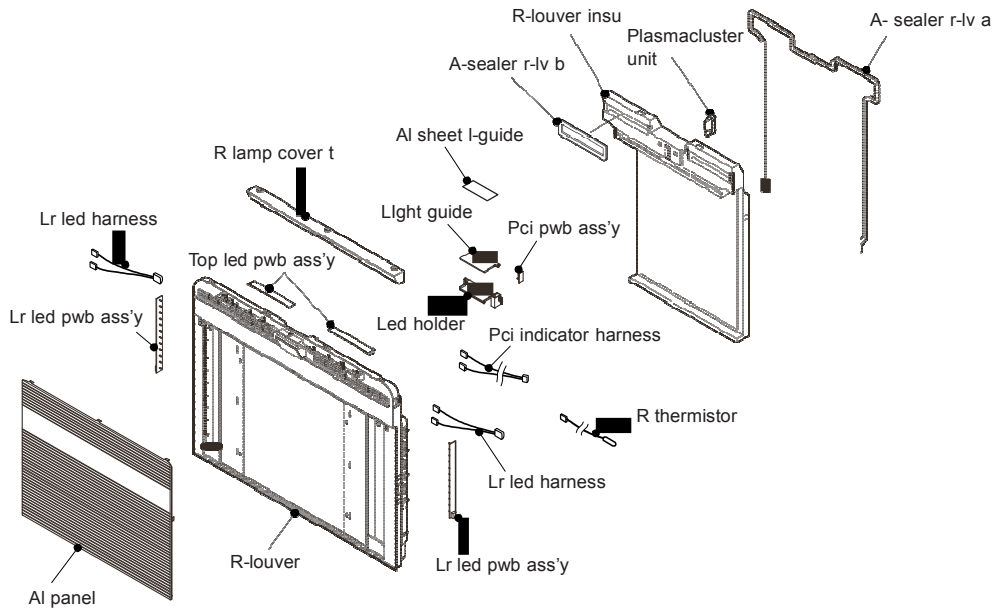
6. Stick A-sealer rc-g to R air guider a.



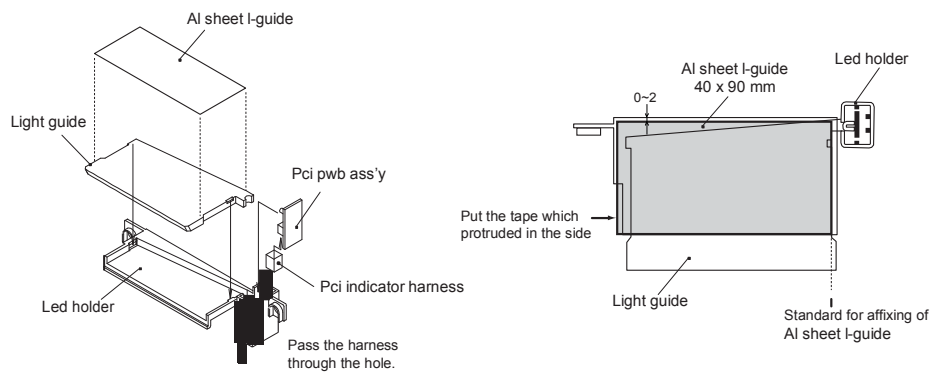
7. Insert Deodorizer to R-C box cover. Assemble these sets and R-C box cover.



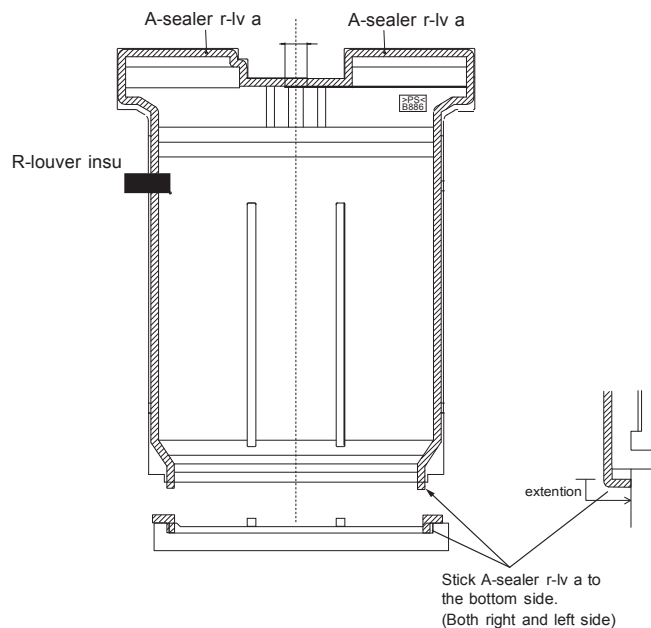
3. Procédures de montage du: R-louver ass'y.



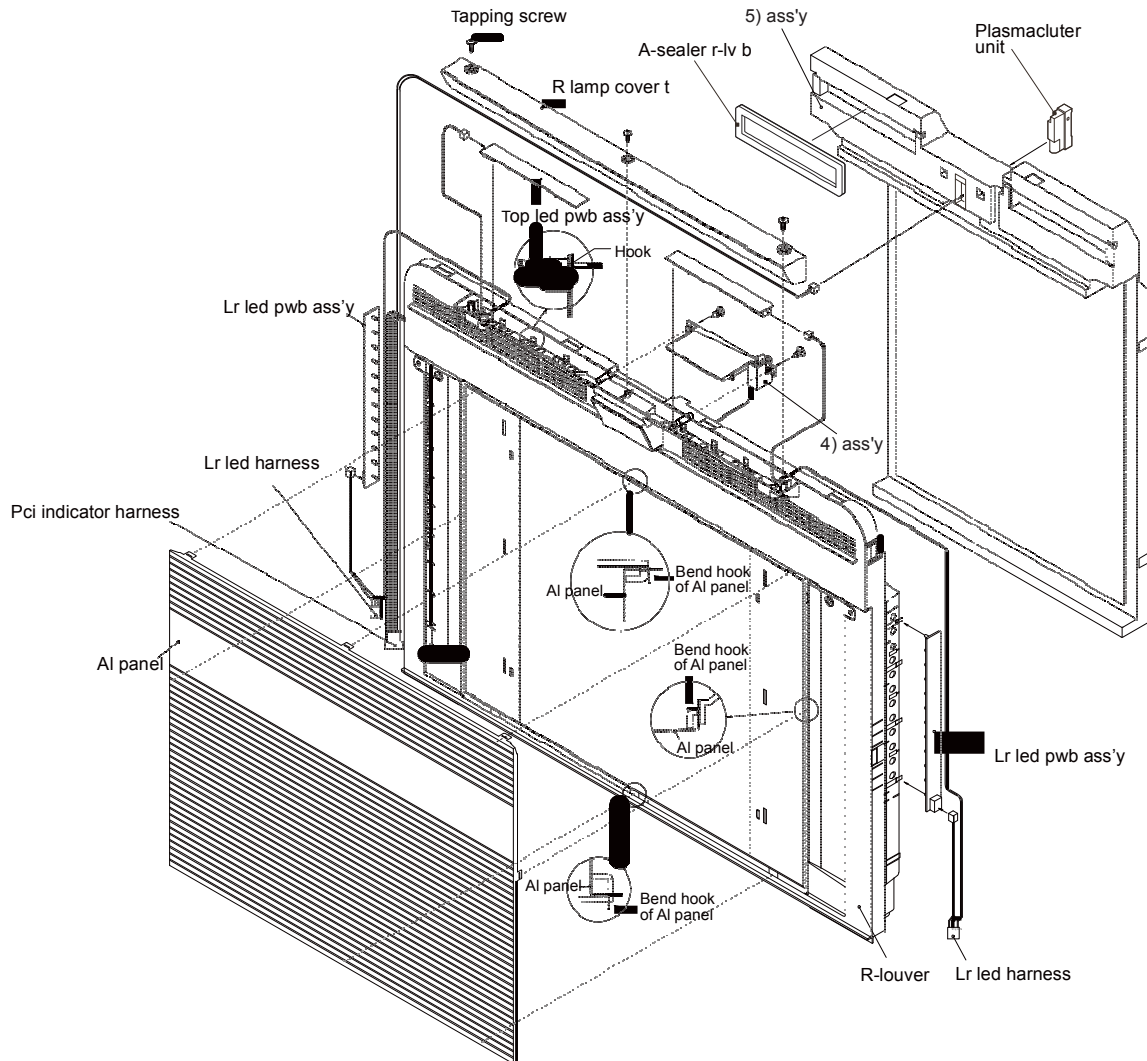
1. Connect Pci indicator harness to Pci pwb ass'y.
2. Insert Pci pwb ass'y into Led holder.
3. Fix Light guide on Led holder.
4. Stick Al sheet l-guide to Light guide and Led holder.



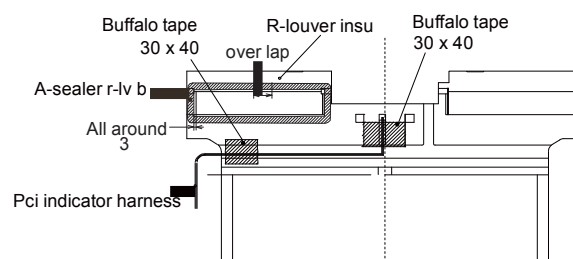
5. Stick A-sealer r-lv a to R-louver insu.



6. Fix Al panel to R-louver.
7. Fix 4) ass'y on the R-louver with tapping screw.
8. Connect Lr led harness to Lr led pwb ass'y and Top led pwb ass'y.
9. Fix 8) ass'y on R-louver.
10. Connect Pci indicator harness to plasmacluster unit.
11. Insert Plasmacluster unit into 5) ass'y.
12. Fix 5) ass'y to R-louver.
13. Fix R lamp cover t by tapping screw to R-louver.

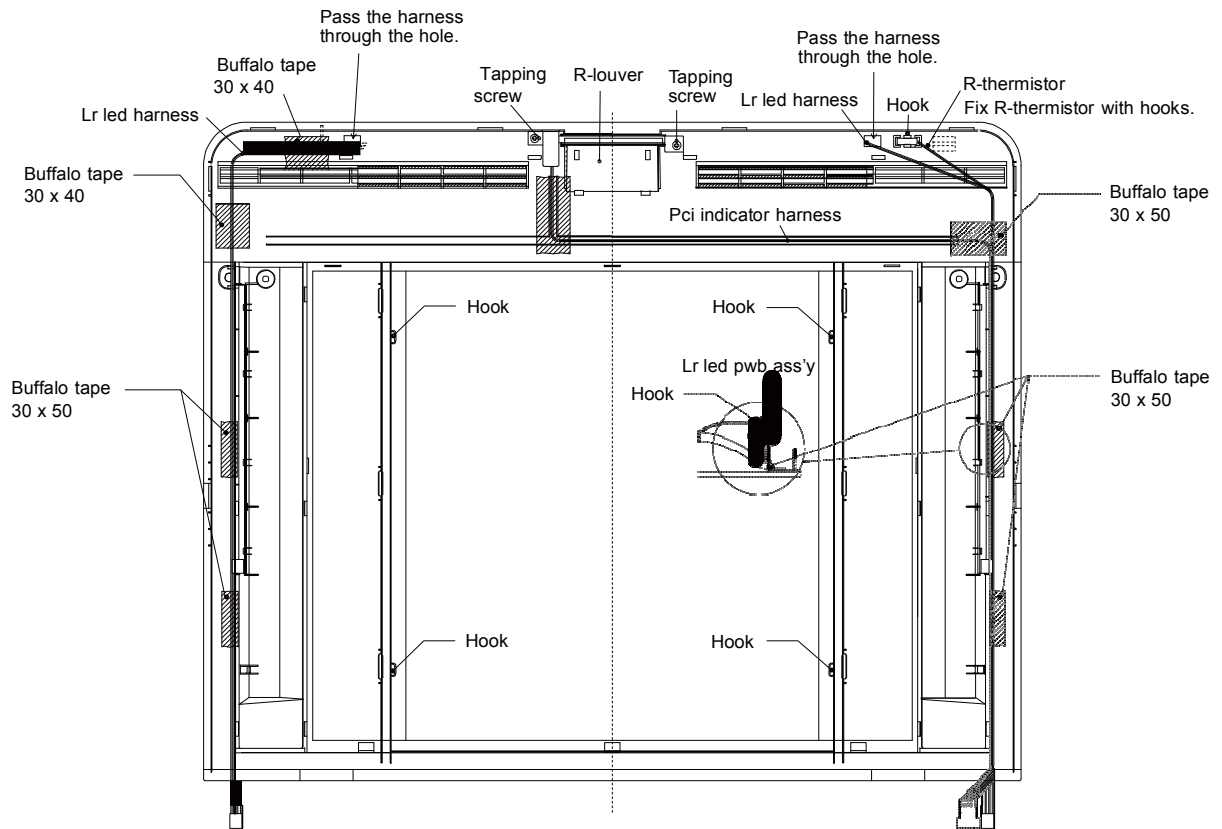


14. Fix Plasmacluster unit and Pci indicator harness by buffalo tape to R-louver insu.
15. Stick A-sealer r-lv b to R-louver insu.



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16. Fix each harness by buffalo tape to R-louver.

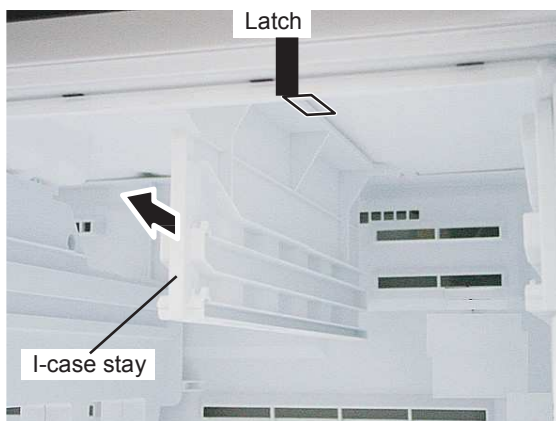


[2] COMPARTIMENT CONGELATEUR

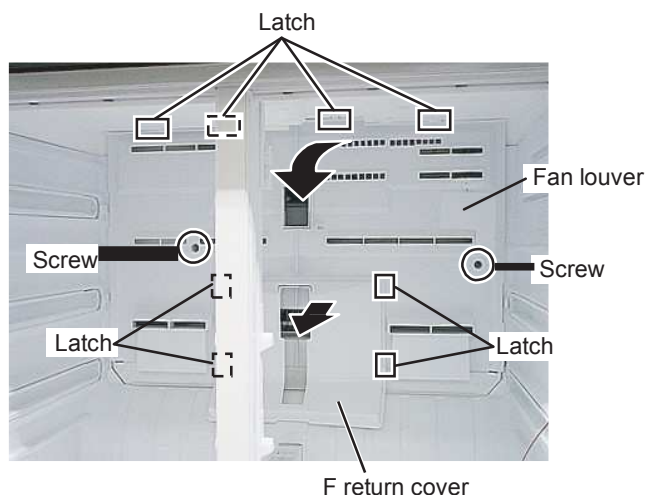
Parents parts name	Included electrical parts
Ev cover ass'y	F/df-thermistor, F fan motor
Evaporator ass'y	Fuse ass'y
Def-heater ass'y	Defrost heater

1. Procédures de démontage

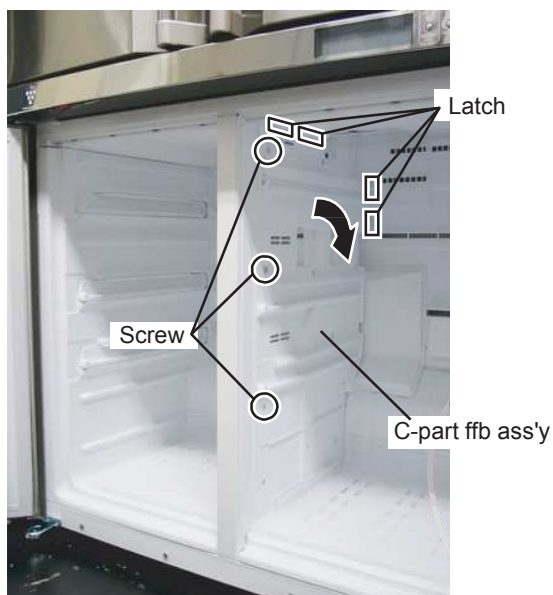
1. Remove the accessories(shelves, case, etc.).
2. Remove the i-case stay.



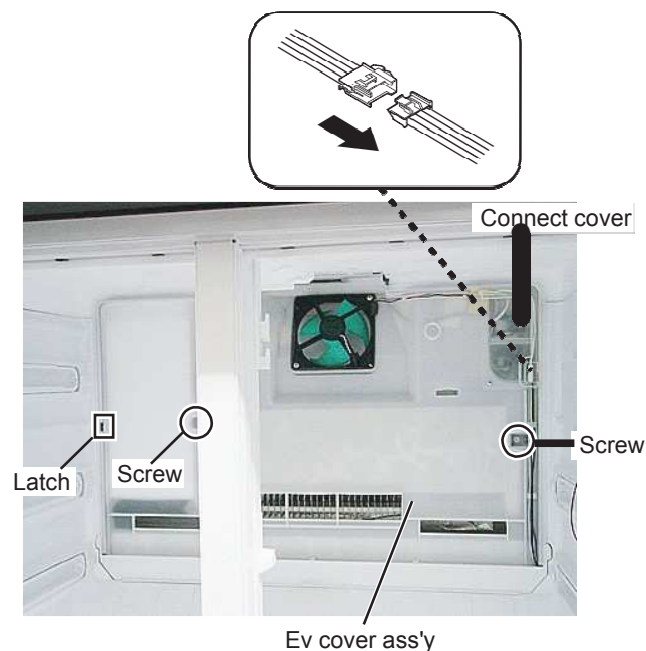
4. Remove the f return cover.
5. Remove the fan louver.



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

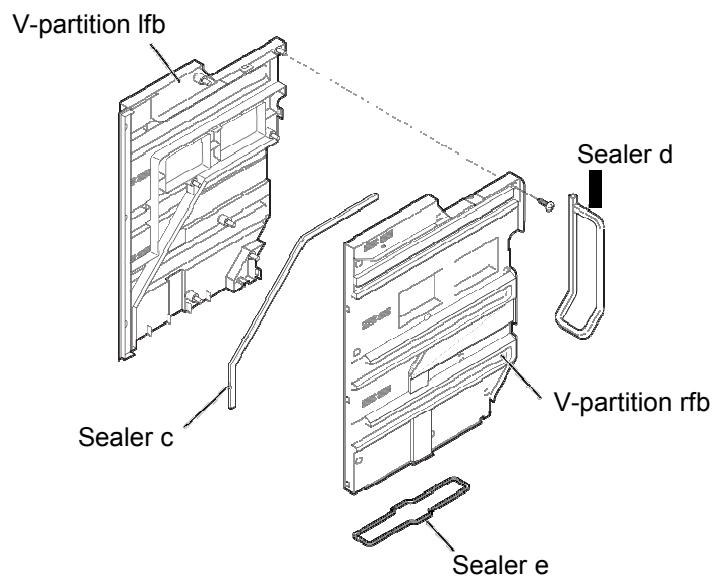


6. Remove the connect cover, and disconnect the connector.
7. Remove the ev cover ass'y.

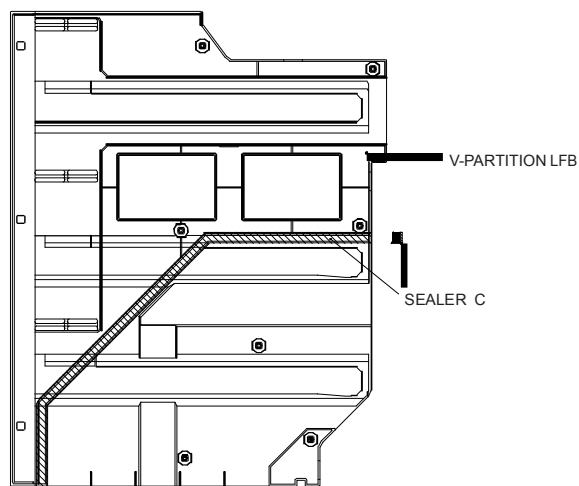


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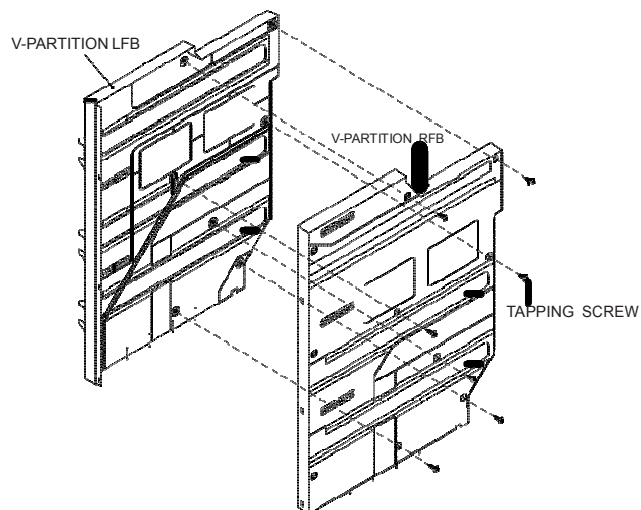
2. Procédure de montage du: C PARTITION FFB ASS'Y.



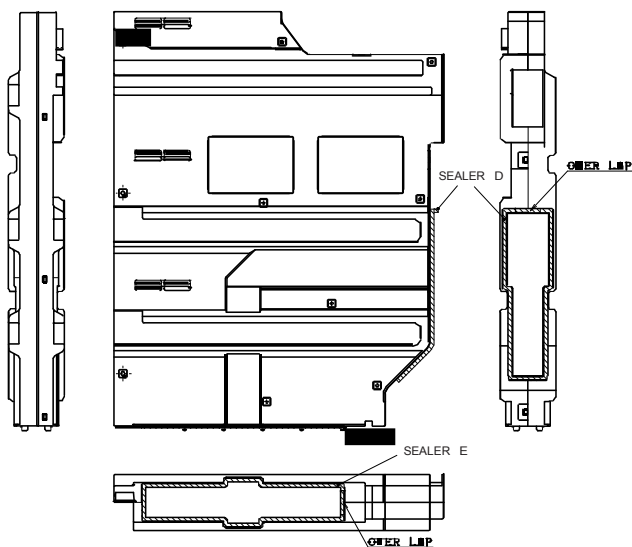
1. Stick Sealer c to V-Partition lfb.



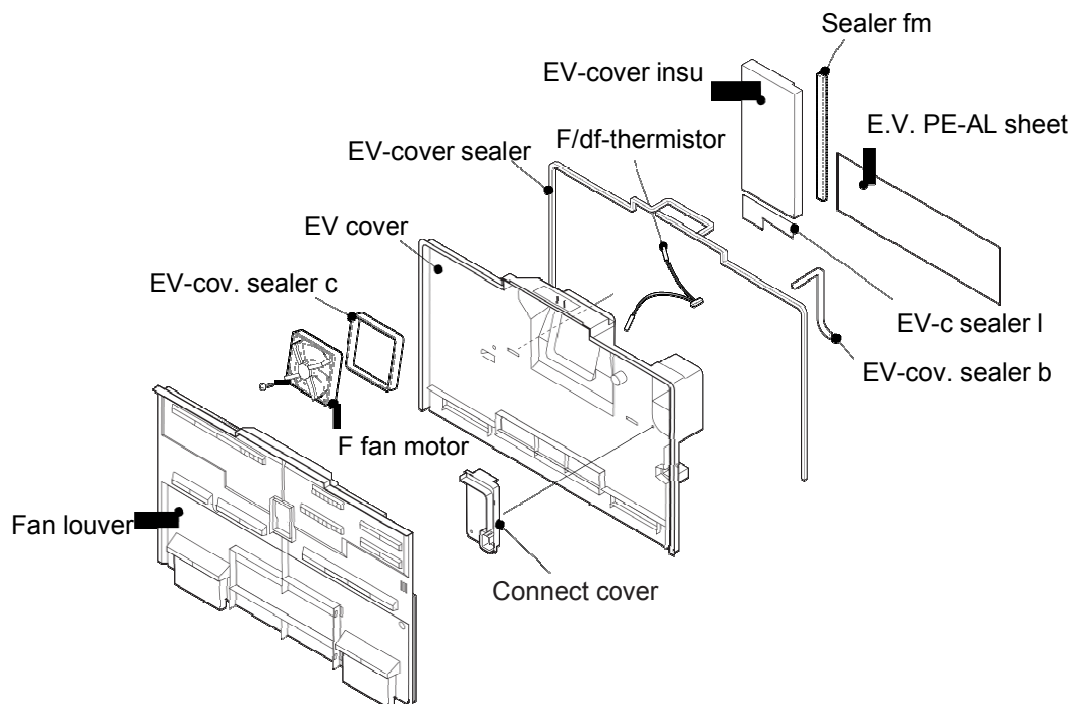
2. Fix V-partition lfb and V-Partition rfb with the tapping screw.



3. Stick Sealer d to the back side.
Stick Sealer e to the bottom side.



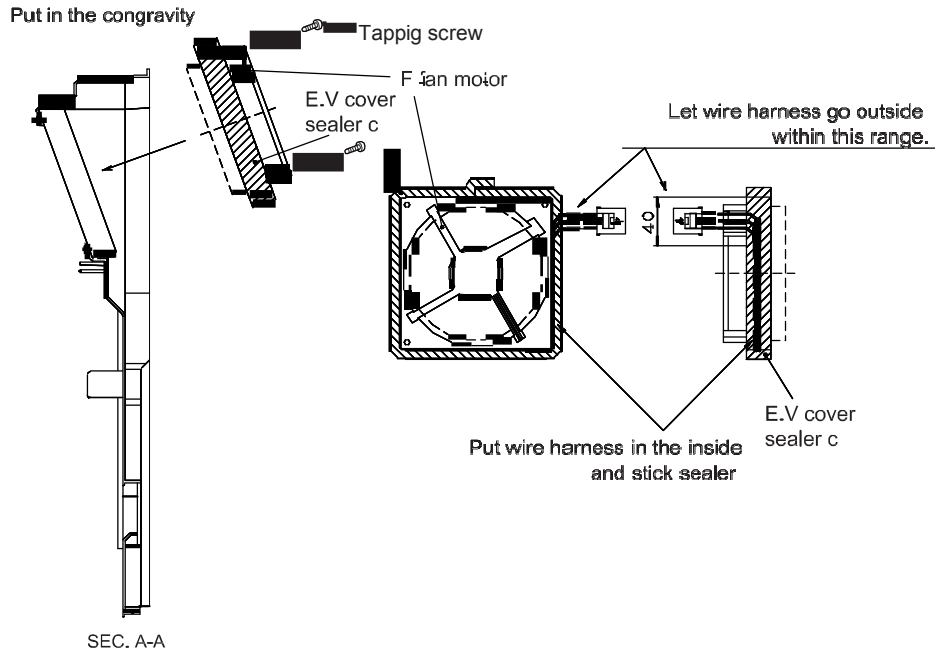
3. Assembling procedures of E.V. COVER ASS'Y.



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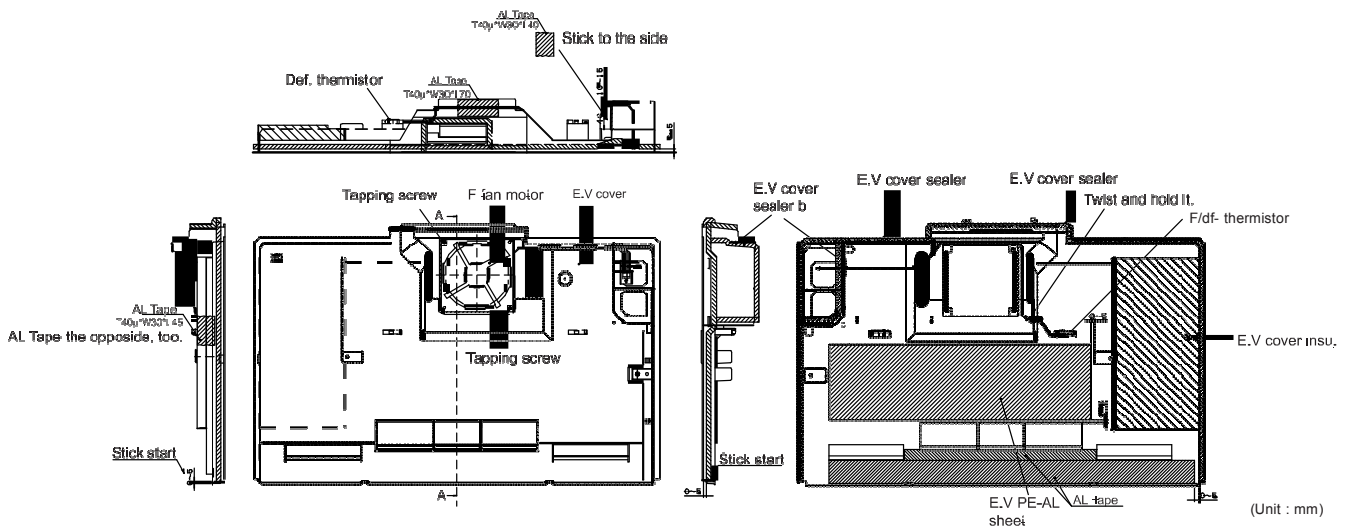
1. Assembly F fan motor

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



2. Sticking of sealers and PE-AL sheet to E.V cover.

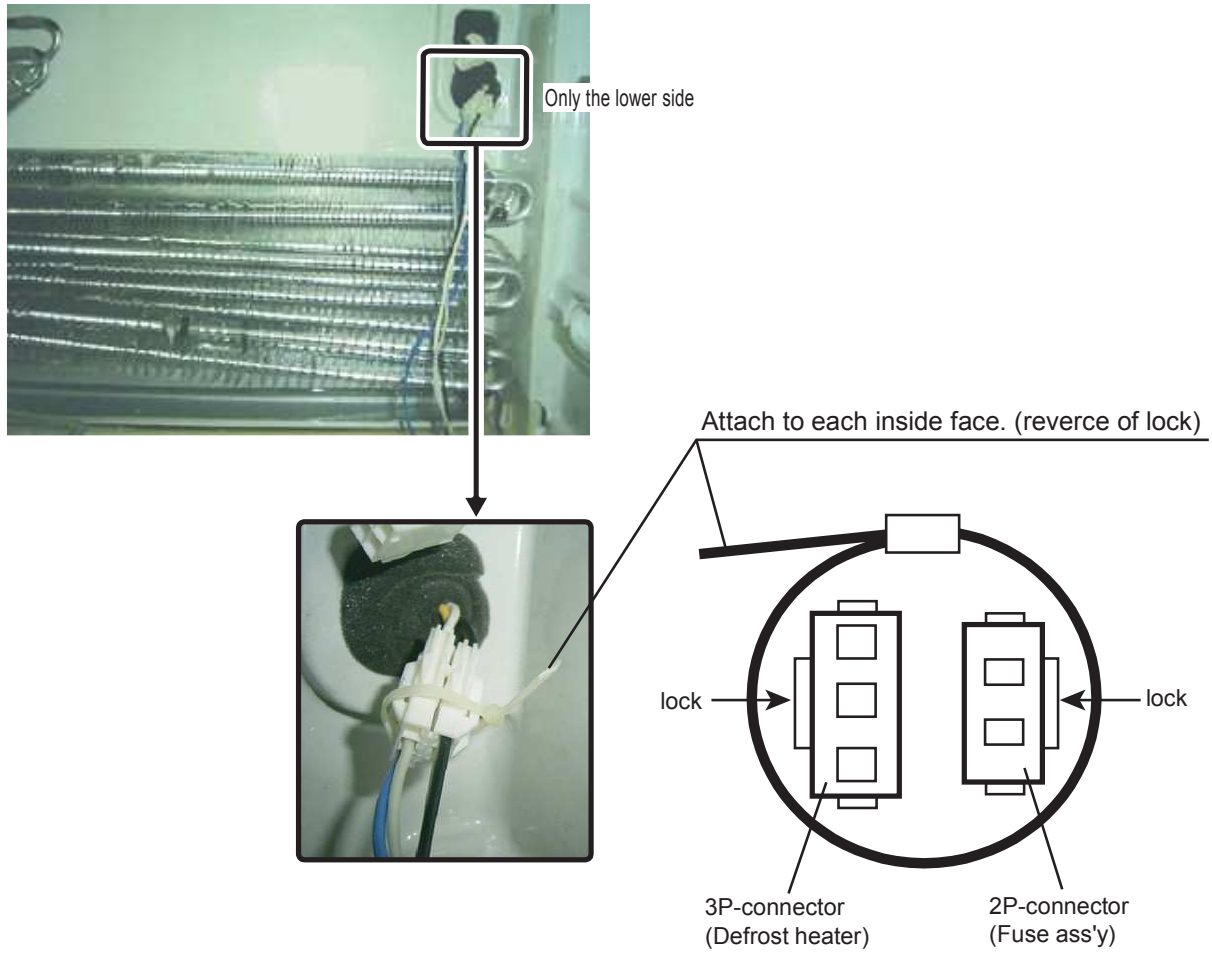
3. Insert F/df-thermistor (wire color : Blue) to E.V cover.
4. Insert E.V cover insulation to E.V cover.



5. Insert F/df-thermistor (wire color : White) to connect cover.
6. Fix 5) ass'y to E.v cover with tapping screw.

4. Banding the connectors

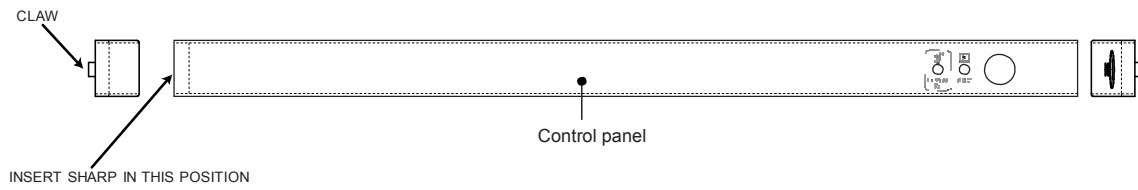
1. It is necessary to bind the connector joint of the Defrost heater and fuse ass'y in the band.



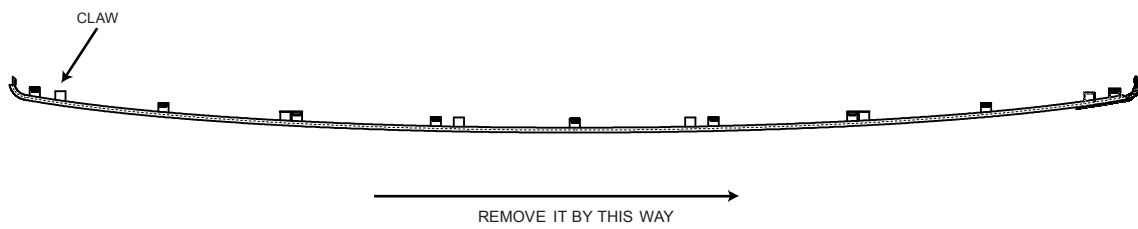
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[3] COMMENT REMONTER LE BANDEAU DE CONTROL

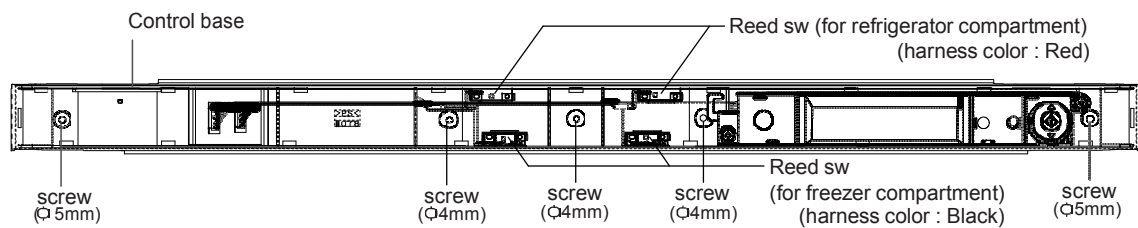
1. Insert the sharp tool into gap between control panel and control base, and then push it for take out the claw from control base.



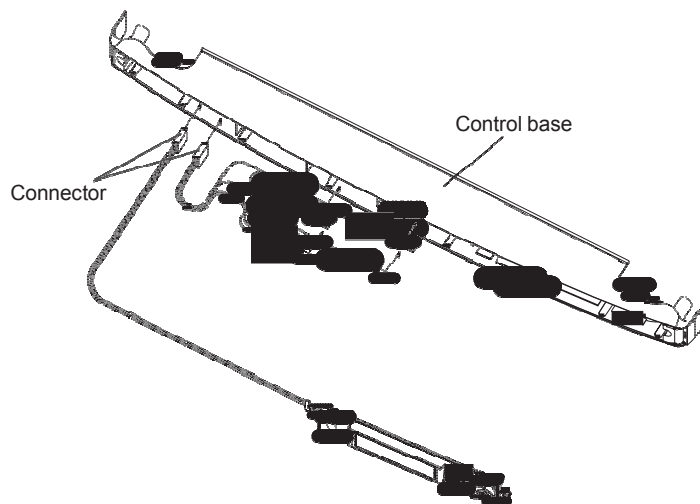
2. Remove the control panel carefully by hand.
(Take out the claw of control panel from control base)



3. Insert the screw driver for take out 5 screws in the position as see the picture.



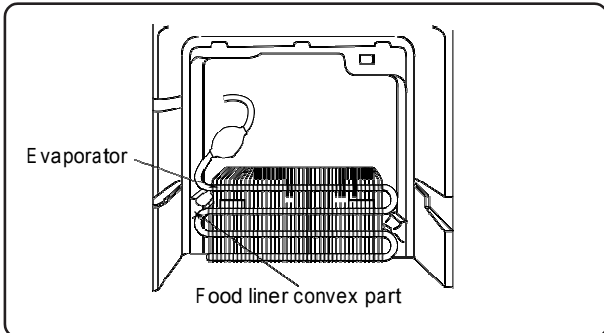
4. Take off the connector (2 connectors) and then remove the control base.



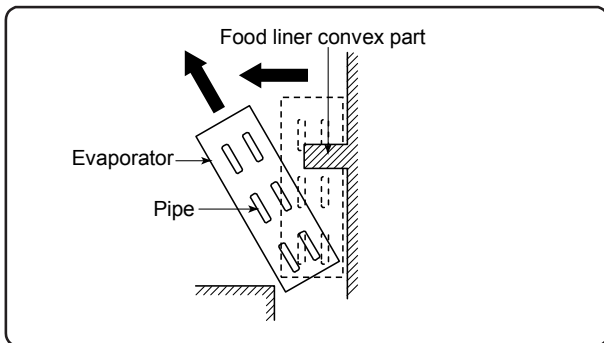
[4] DEFROST HEATER

1. Taking-out Evaporator

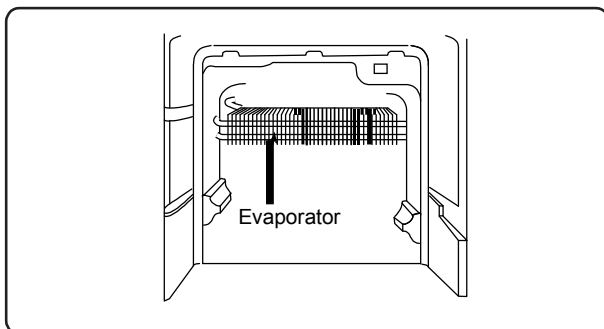
1. Take-out C Partition ffb ass'y.
2. Take-out Fan louver.
3. Take-out E.V cover ass'y.



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.



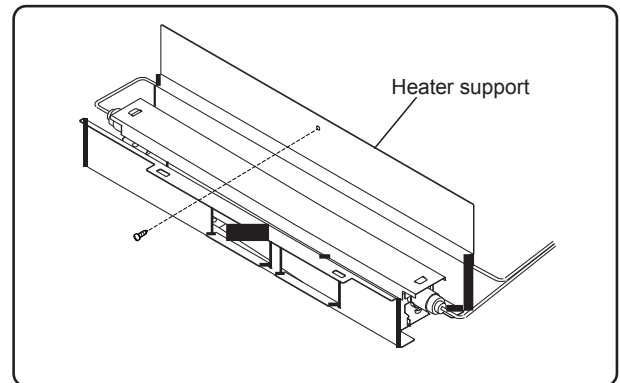
5. Pull the Evaporator for remove as shown in the above figure.



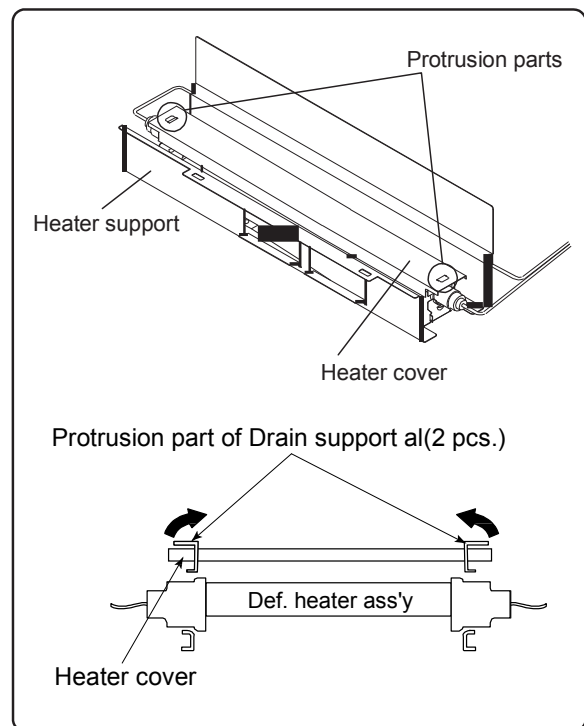
NOTE: When pulling Evaporator and bending the pipes, pay attention so as not to break and deform the pipes. Still, take care not to hurt yourself by fin of Evaporator.

2. Replacement of Def. heater.

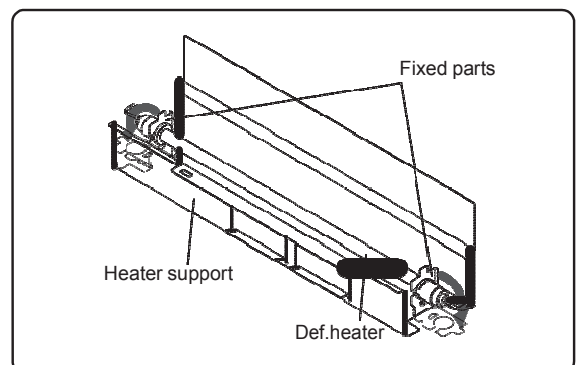
1. Remove the center screw of Heater support to take it off from the food liner.



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

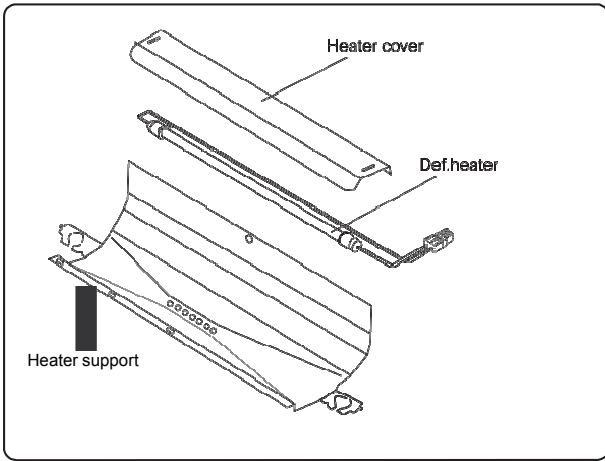


3. Open Def.heater fixed part of Heater support to the right and left, then remove Def.heater.

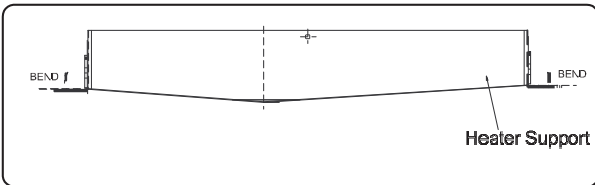


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4. Replace Def. heater with new one.

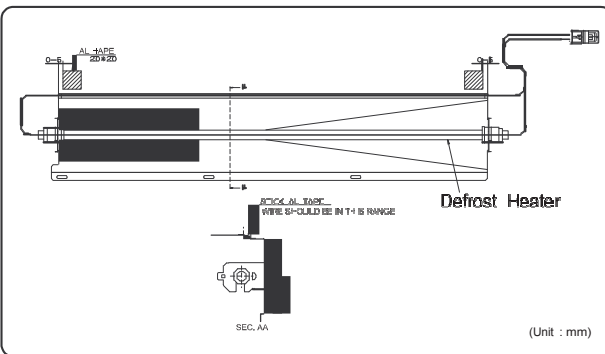


5. Bend end of heater support.

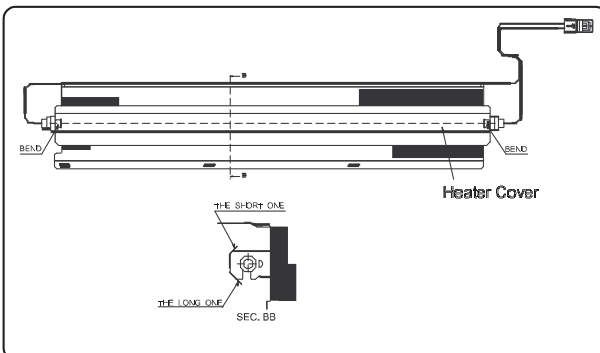


6. Assemble Defrost heater to Heater Support.

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



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



3. Installing of Evaporator

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

2. Correct the deformed fin.

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

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

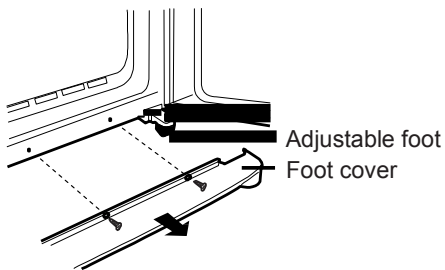
[5] WHEN LEFT AND RIGHT DOORS ARE NOT ON THE SAME LEVEL

1. Cause

The floor is not flat and refrigerator is slanting.

2. Adjustment

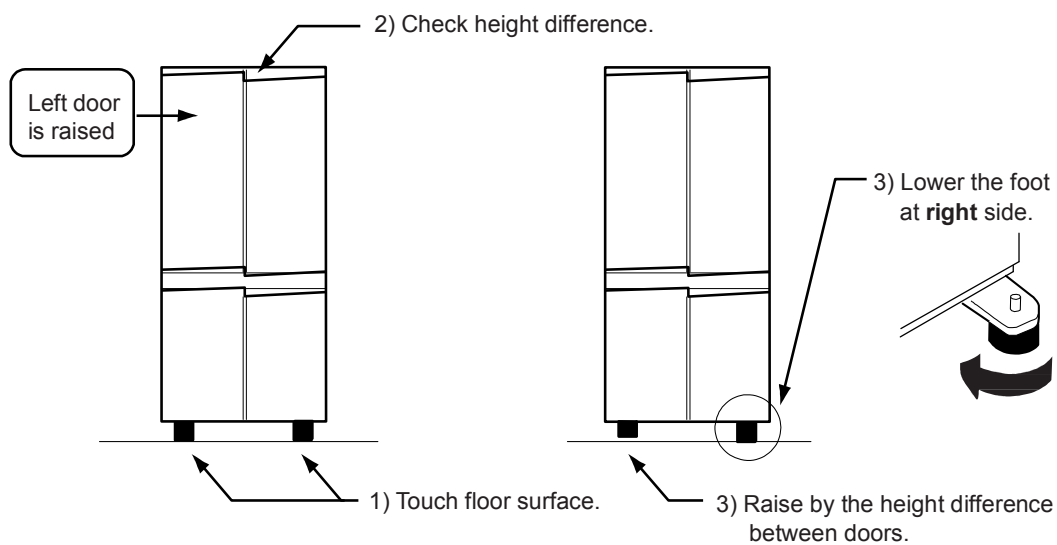
1. Unscrew 4 screws on the bottom of the cabinet, and remove the foot cover.



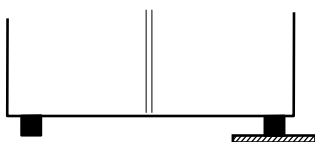
2. Adjust the adjustable feet as follows:

[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.

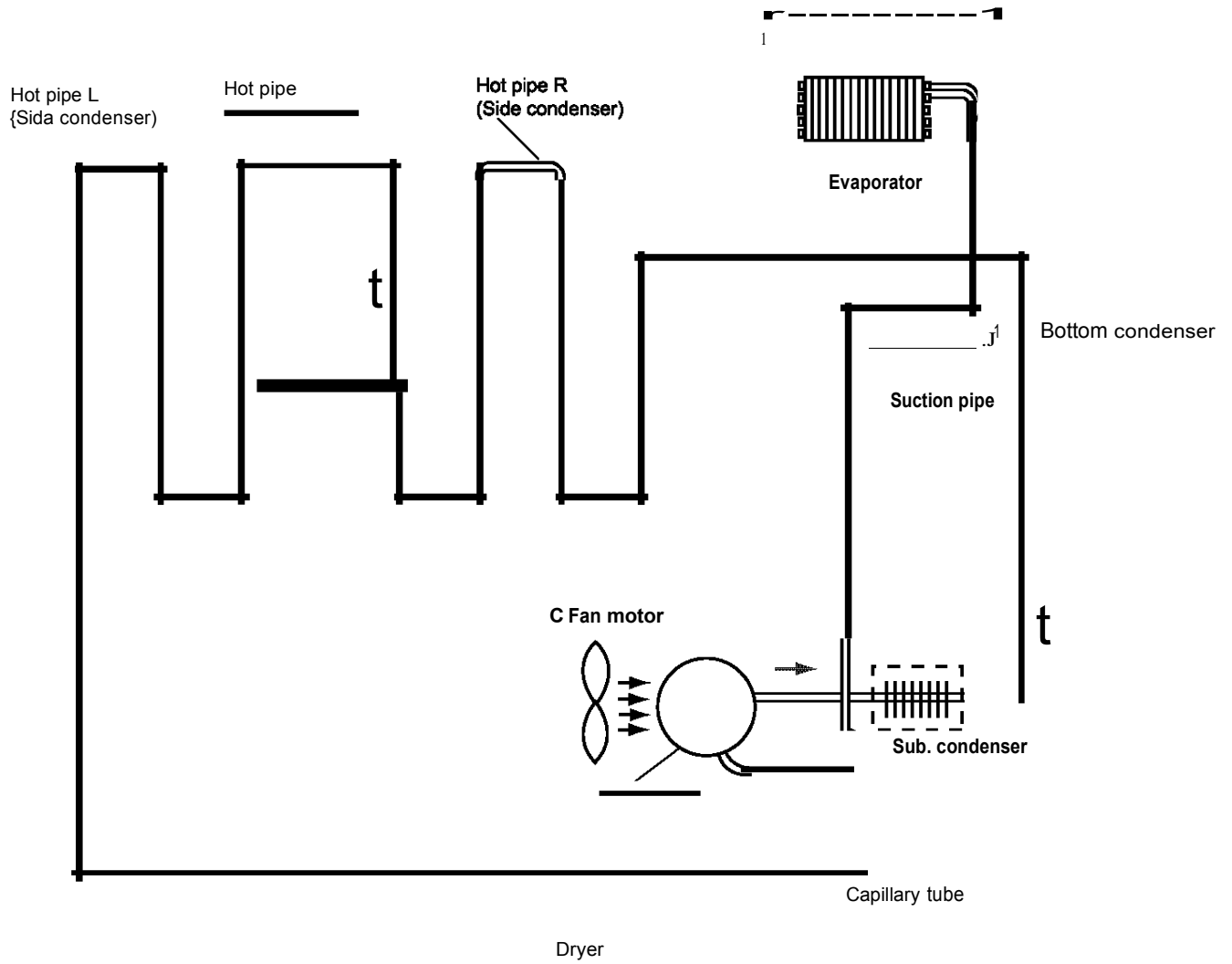


NOTE: When the right door is higher than the left door, extend the left adjustable foot.

CHAPITRE 12. UNITE DE REFROIDISSEMENT

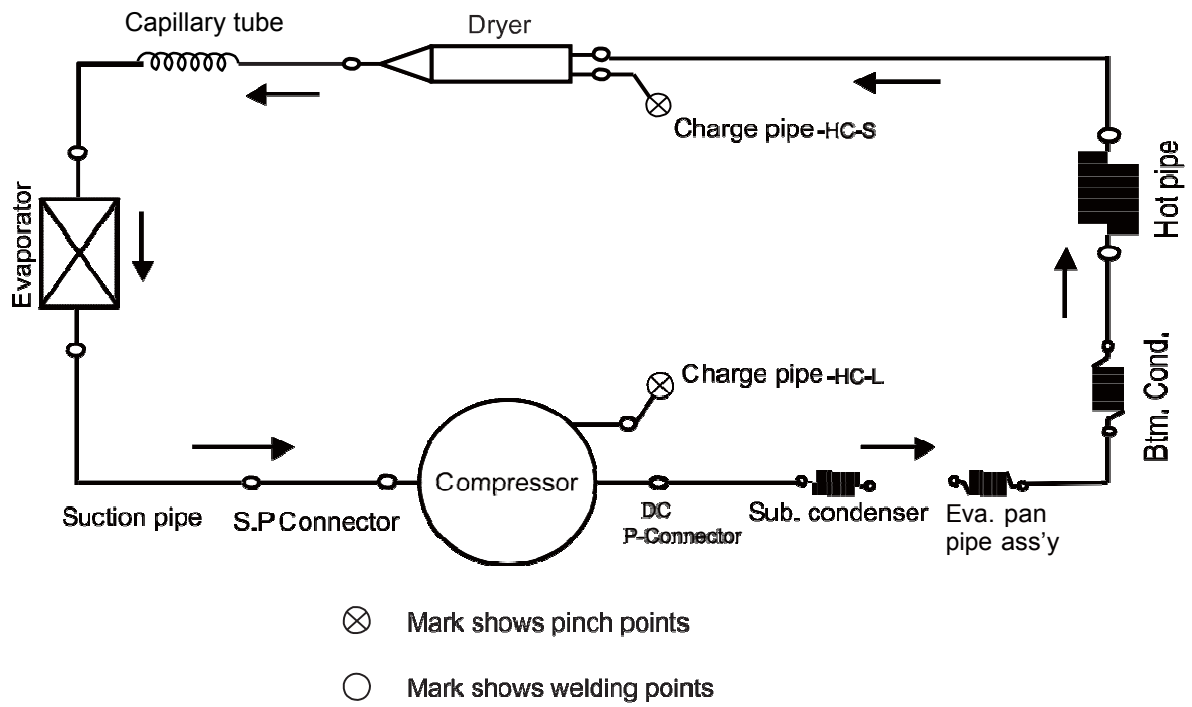
[1] UNITE DE REFROIDISSEMENT

— — — Marle Refrigerant flow



[2] LOCATION

1. Location 1



2. Location 2

