

# SHARP SERVICE MANUAL

No.S9902SJ22FTVTT



SJ-A28S-SL  
SJ-B27S-SL

## Refrigerator-freezer

### MODELS

- SJ-A20S-SL
- SJ-B21S-SL
- SJ-A24S-SL
- SJ-B25S-SL
- SJ-A28S-SL
- SJ-B27S-SL
- SJ-A31S-SL
- SJ-A34S-SL

DESTINATION ..... T

#### Refrigerant; HFC-134a

Refer to "HFC-134a COOLING UNIT" Service Manual for handling this refrigerant.

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CHAPTER 1. SPECIFICATION

SJ-A20S/B21S/A24S/B25S/A28S/B27S

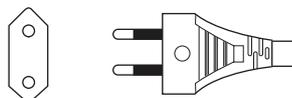
Items		SJ-A20S SJ-B21S	SJ-A24S SJ-B25S	SJ-A28S SJ-B27S
Type		2-Door		
Outer dimensions	Height	1253mm(49.3")	1389mm(54.7")	1491mm(58.7")
	Width	545mm(21.5")	545mm(21.5")	545mm(21.5")
	Depth	620mm(24.4")	620mm(24.4")	620mm(24.4")
Rate storage volume (Rated volume)		184liter(6.5cu.ft)	212liter(7.5cu.ft)	227liter(8.0cu.ft)
Defrosting	System	Heater system		
	Start	Automatic		
	Finish	Automatic		
Temperature control		Automatic (Adjustable)		
No-frost freezer		Yes		
Interior lamp		1		
Evaporating pan		1		
Freezer Compartment	F-shelf	1		
	Ice cube maker	Twin ice cube maker		
	Ice storage box	1		
	Door pocket	1		2
Refrigerator Compartment	Fresh case	1		
	R shelf (plastic)	1	2	-
	R shelf ass'y (glass)	-	-	2
	V shelf (plastic)	1	1	-
	V shelf ass'y (glass)	-	-	1
	Vegetable case	1		
	Egg pocket	1		
	Small pocket	-	1	
	Door pocket B	-	1	
	Bottle pocket	1		
Door pocket	1			
Deodorizing unit		1 (Honeycomb type)		
Stand		Yes		

RATING

Items		SJ-A20S SJ-B21S	SJ-A24S SJ-B24S	SJ-A28S SJ-B27S
Rated voltage	(V~)	220		
Rated frequency	(Hz)	50		
Climate class		T		
Rated power input	(W)	100		
Rated current	(A)	0.58		
Current input	(A)	0.85		
Defrosting input	(A)	0.58		
Defrosting power	(W)	128		
Refrigerant (Charging quantity) [Non-flammable]		HFC-134a(75 g)	HFC-134a(75 g)	HFC-134a(95 g)
Insulation blowing gas [Flammable]		Cyclo pentane (HC)		
Net Weight	(kg)	39	41	45

PLUG TYPE

Plug cord	2 pin
Plug type	-
Destination mark	T



COLOR

Items	-SL
Outside color	Silver
Inside color	White

SJ-A20S/B21S/A24S/B25S/A28S/B27S/A31S/A34S

SJ-A31S/A34S

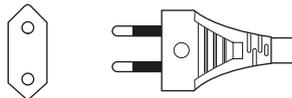
Items		SJ-A31S	SJ-A34S
Type		2-Door	
Outer dimensions	Height	1580mm(62.2")	1700mm(66.9")
	Width	600mm(23.6")	600mm(23.6")
	Depth	631mm(24.8")	631mm(24.8")
Rated storage volume (Rated volume)		292liter(10.3cu.ft)	313liter(11.1cu.ft)
Defrosting	System	Heater system	
	Start	Automatic	
	Finish	Automatic	
Temperature control		Automatic (Adjustable)	
No-frost freezer		Yes	
Interior lamp		1	
Evaporating pan		1	
Freezer Compartment	F-shelf	1	
	Ice cube maker	Twin ice cube maker	
	Ice storage box	1	
	Door pocket	2	
Refrigerator Compartment	Fresh case	1	
	R shelf ass'y (glass)	2	3
	V shelf ass'y (glass)	1	
	Vegetable case	1	
	Egg pocket	1	
	Egg tray	1	
	Small pocket	1	2
	Door pocket B	1	
	Bottle pocket	1	
	Door pocket	1	
Deodorizing unit		1 (Honeycomb type)	

RATING

Items		SJ-A31S	SJ-A34S
Rated voltage	(V~)	220	
Rated frequency	(Hz)	50	
Climate class		T	
Rated power input	(W)	109	
Rated current	(A)	0.58	
Current input	(A)	0.95	
Defrosting current	(A)	0.58	
Defrosting power	(W)	128	
Refrigerant (Charging quantity) [Non-flammable]		HFC-134a(100 g)	
Insulation blowing gas [Flammable]		Cyclo pentane (HC)	
Net Weight	(kg)	52	54

PLUG TYPE

Plug cord	2 pin
Plug type	-
Destination mark	T



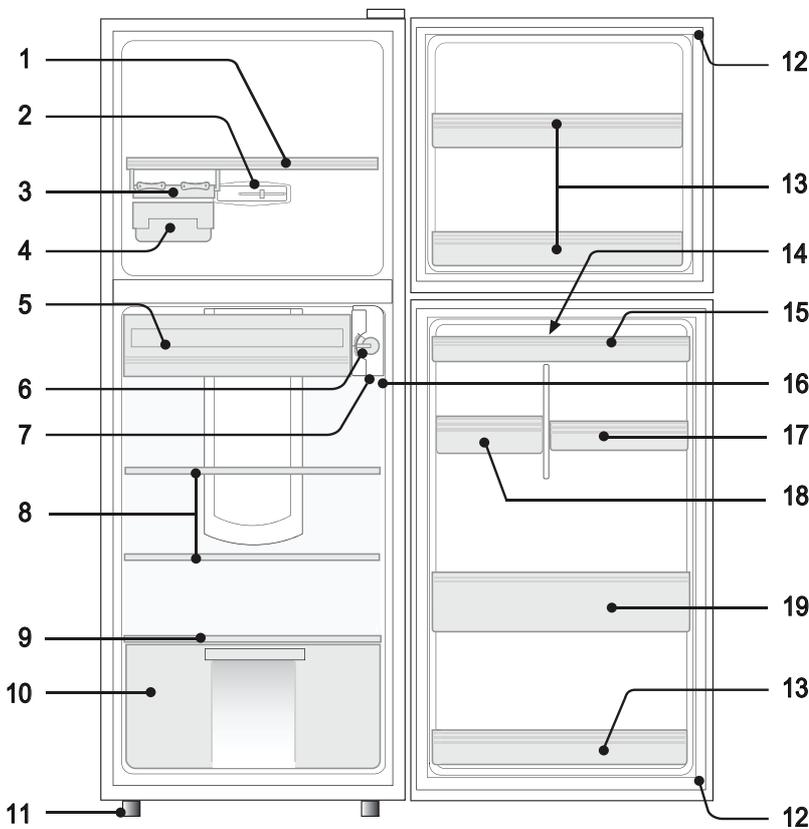
COLOR

Items	-SL
Outside color	Silver
Inside color	White

## CHAPTER 2. DESIGNATION OF VARIOUS PARTS

### [1] EXTERNAL DESCRIPTION

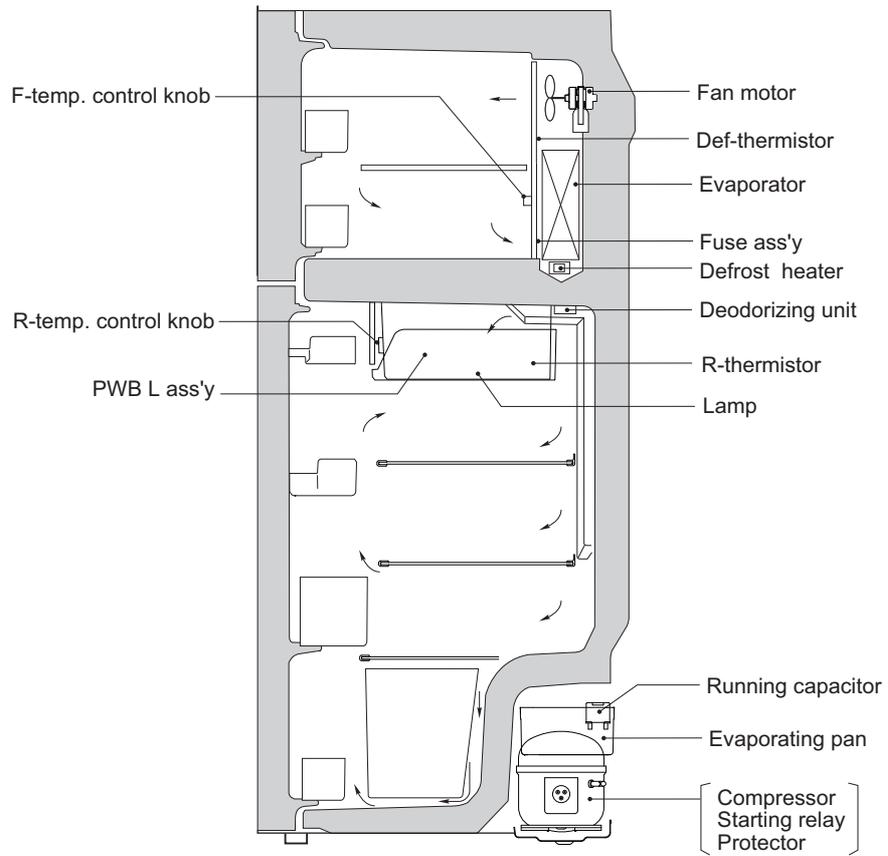
The names in parenthesis "[ ]" are the denominations used in the REPLACEMENT PARTS LIST.



1. Freezer shelf [F-shelf]
2. Freezer temp.control knob
3. Ice cube maker
4. Ice cube box [Ice storage box]
5. Fresh room
6. Refrigerator temp.control knob
7. Light [Lamp]
8. Refrigerator shelf  
[ R-shelf (plastic) : SJ-A20S/B21S; 1 pc.  
SJ-A24S/B25S; 2 pcs.  
R-shelf ass'y (glass) :SJ-A28S/B27S/A31S;  
2 pcs, SJ-A34S; 3 pcs.]
9. Vegetable shelf  
[ R-shelf (plastic) : SJ-A20S/B21S/A24S/B25S,  
R-shelf (glass) : SJ-A28S/B27S/A31S/A34S ]
10. Vegetable crisper [Vegetable case]
11. Adjustable foot [Adjustable leg]
12. Magnetic door seal [Door packing]
13. Door pocket  
(SJ-A20S/B21S/A24S/B25S; 2 pockets,  
SJ-A28S/B27S/A31S/A34S; 3 pockets)
14. Egg holder [Egg tray]  
(Only SJ-A31S/A34S)
15. Egg pocket
16. Light switch
17. Small pocket (right) [Small pocket]  
(SJ-A24S/B25S/A28S/B27S/A31S; 1 pocket,  
SJ-A34S; 2 pockets)
18. Small pocket (left) [Door pocket B]  
(SJ-A24S/B25S/A28S/B27S/A31S/A34S)
19. Bottle pocket

[2] CONSTRUCTIONS

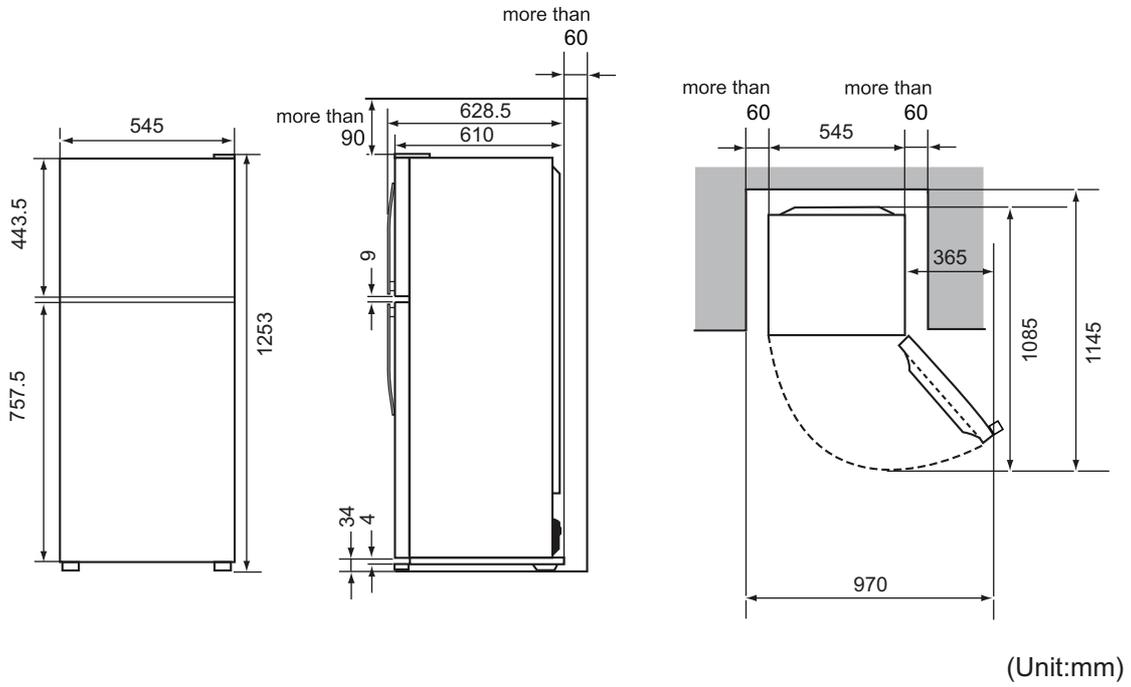
→ Mark: Cold air flow



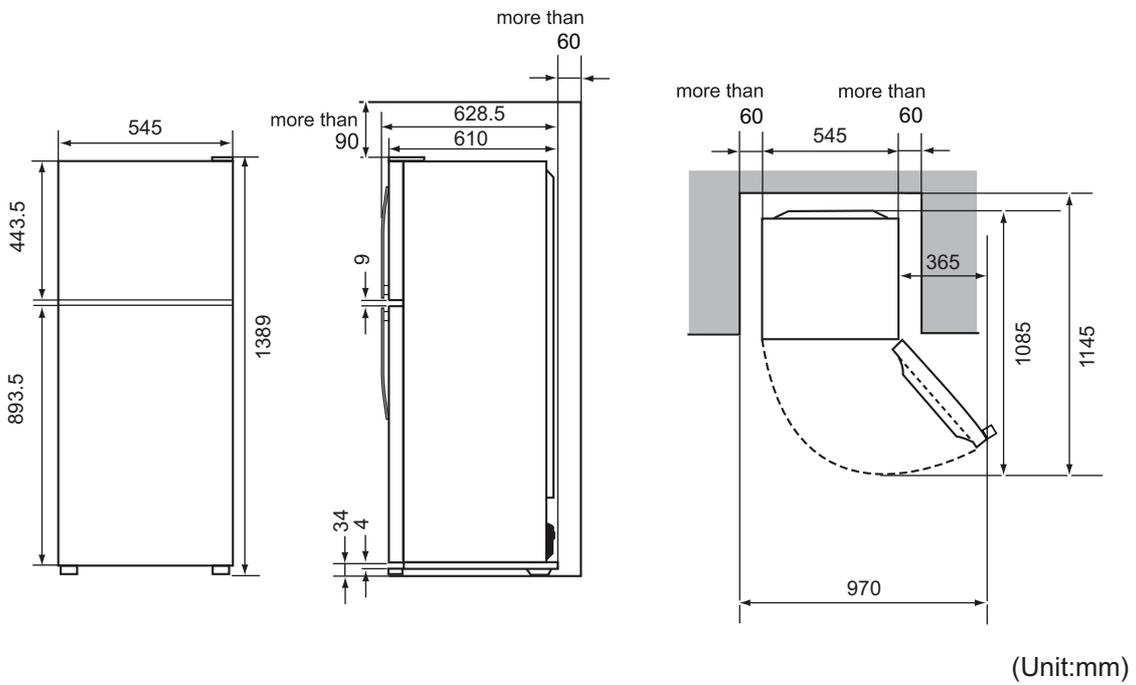
## CHAPTER 3. DIMENTIONS

### [1] OUTER DIMENTIONS AND CLEARANCE

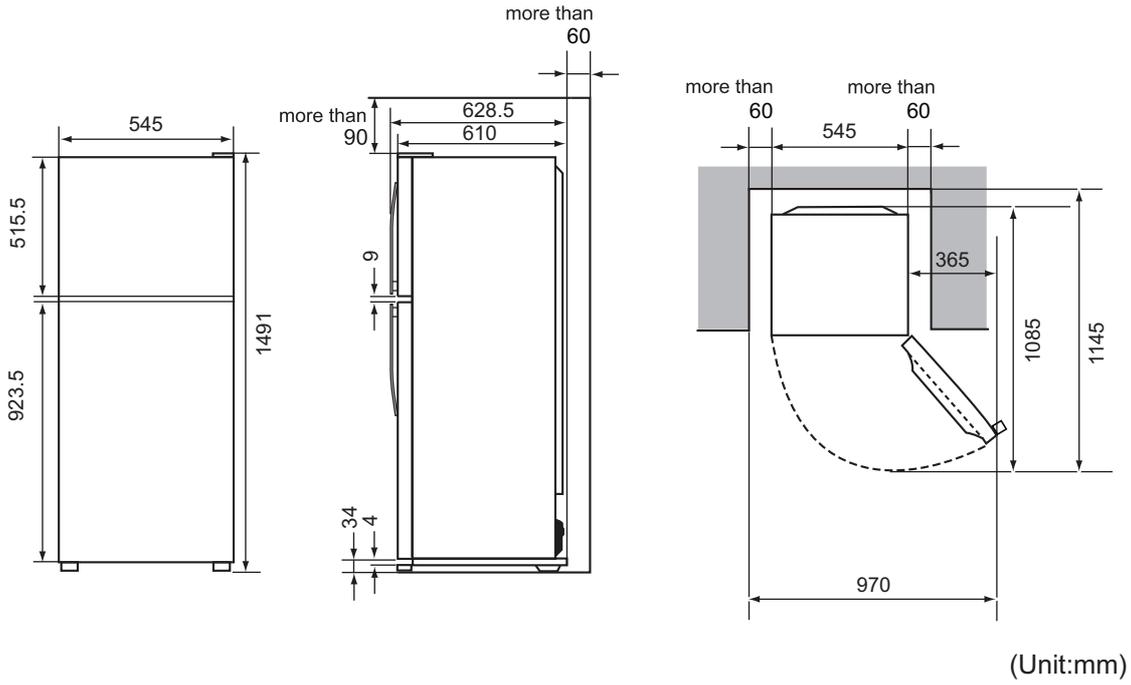
#### 1. SJ-A20S/B21S



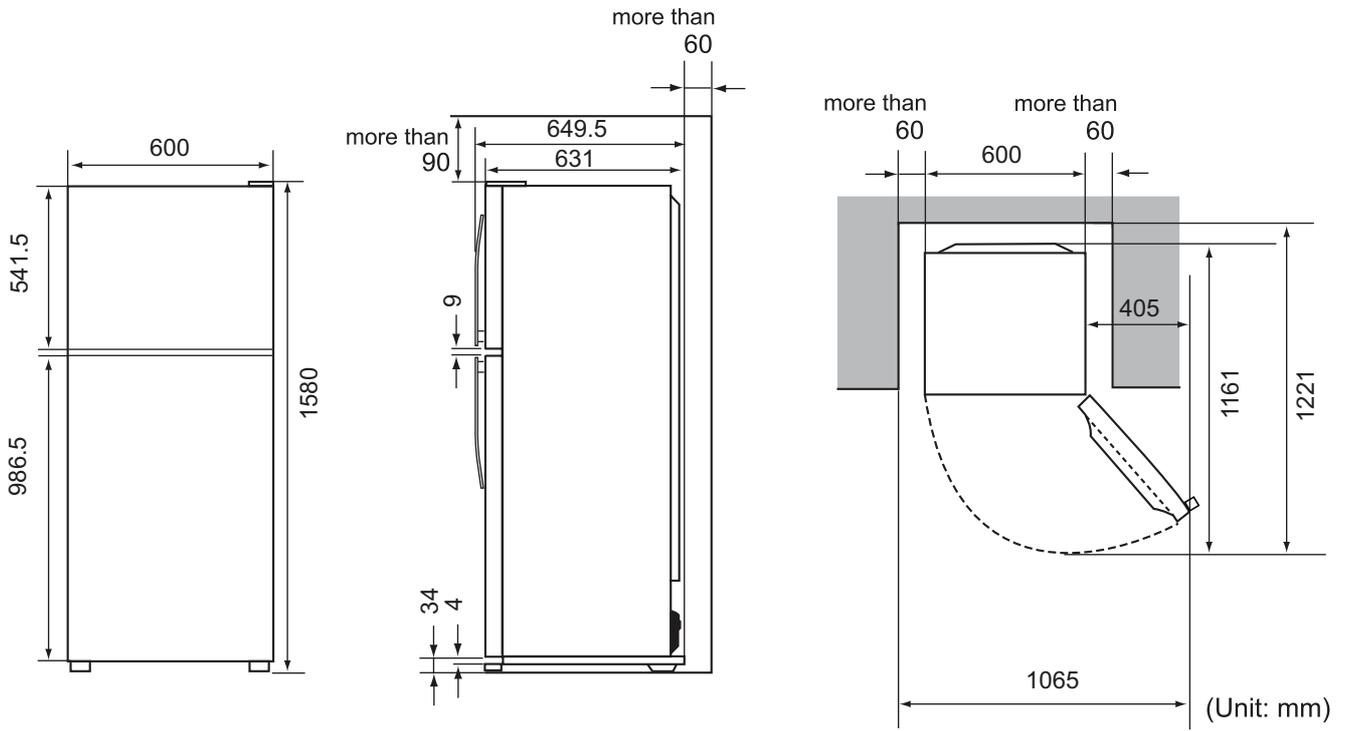
#### 2. SJ-A24S/B25S



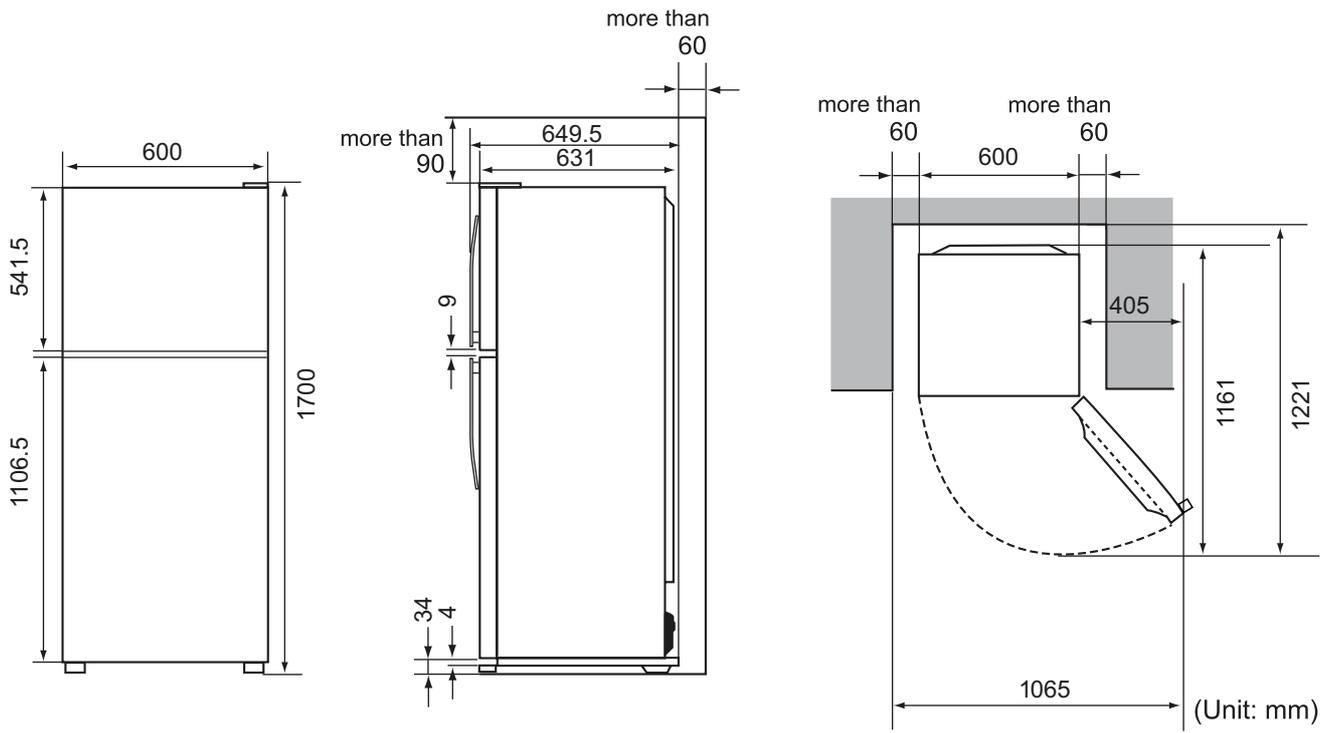
3. SJ-A28S/B27S



4. SJ-A31S

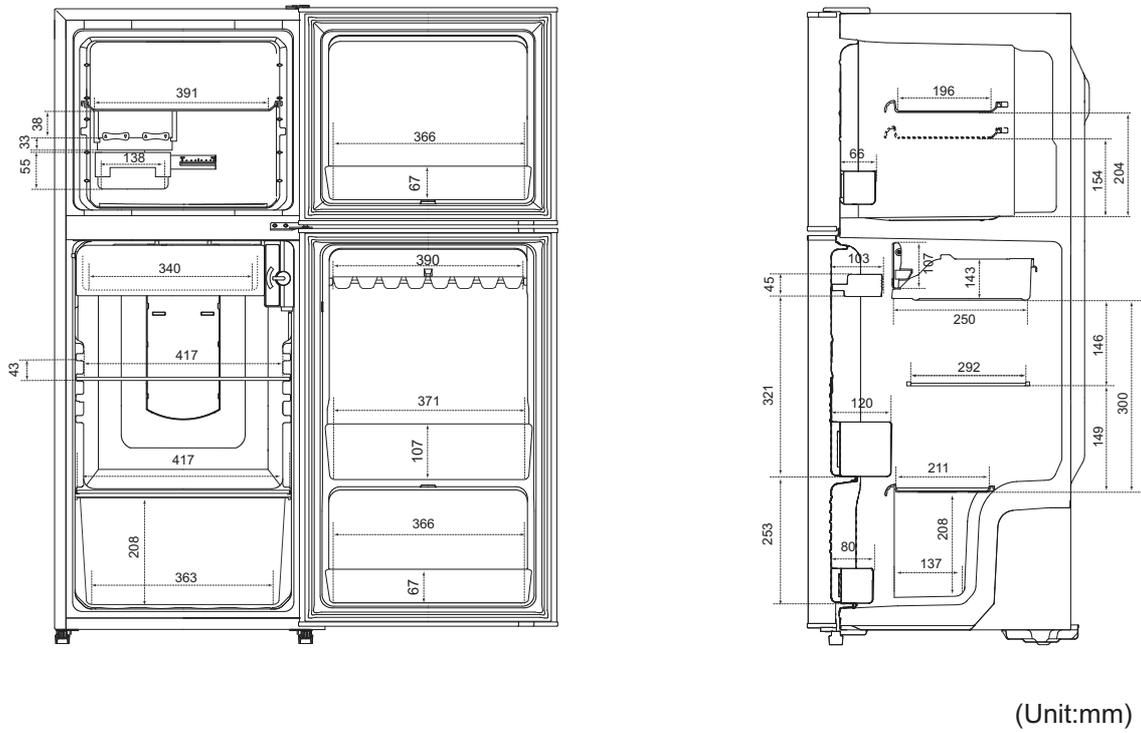


5. SJ-A34S

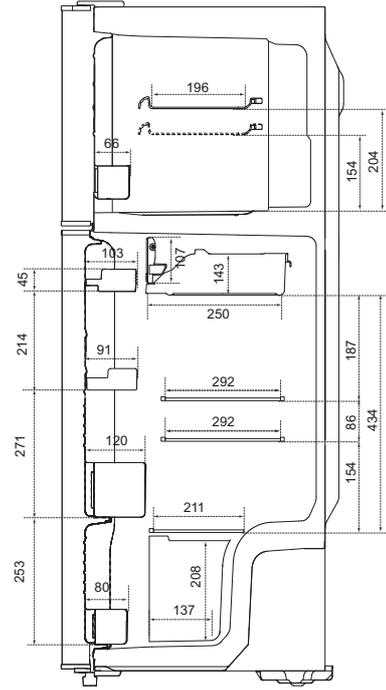
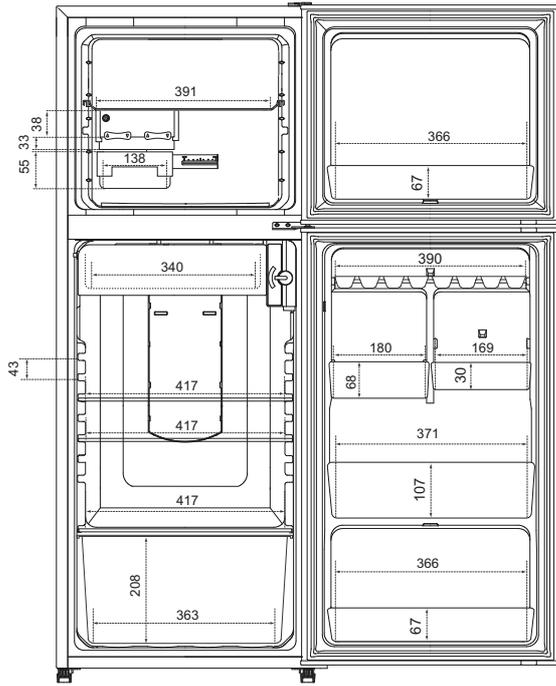


[2] INNER DIMENSIONS

1. SJ-A20S/B21S

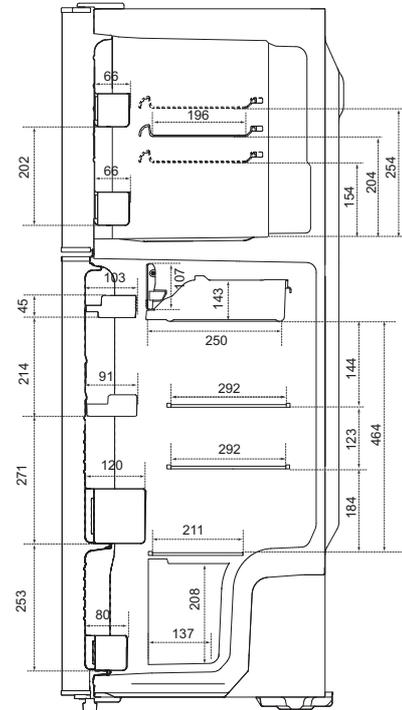
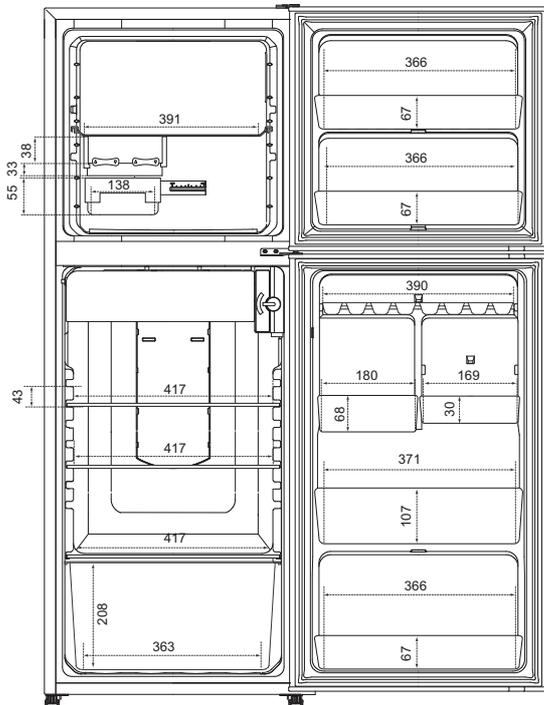


2. SJ-A24S/B25S



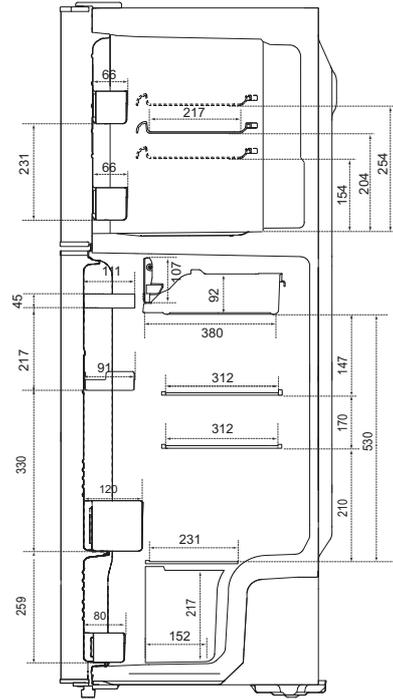
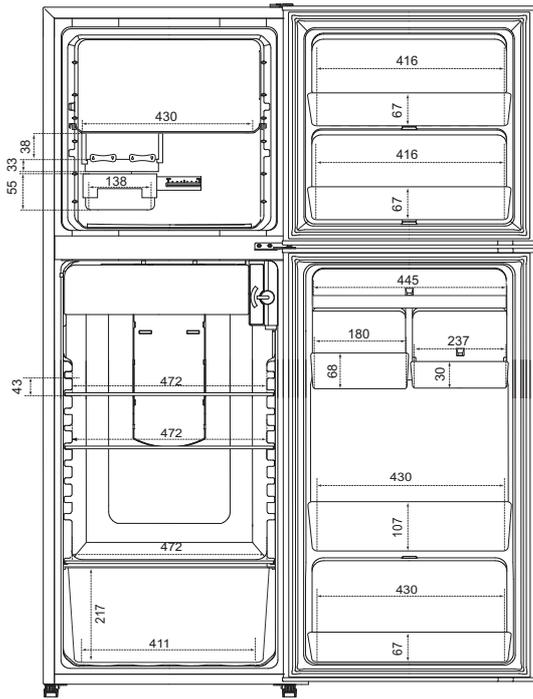
(Unit:mm)

3. SJ-A28S/B27S



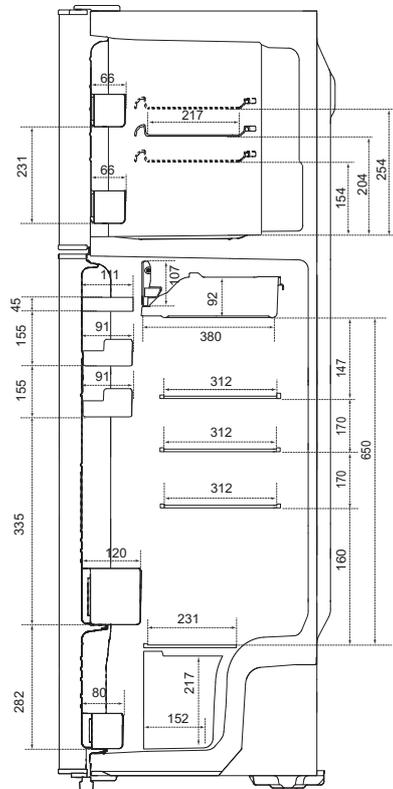
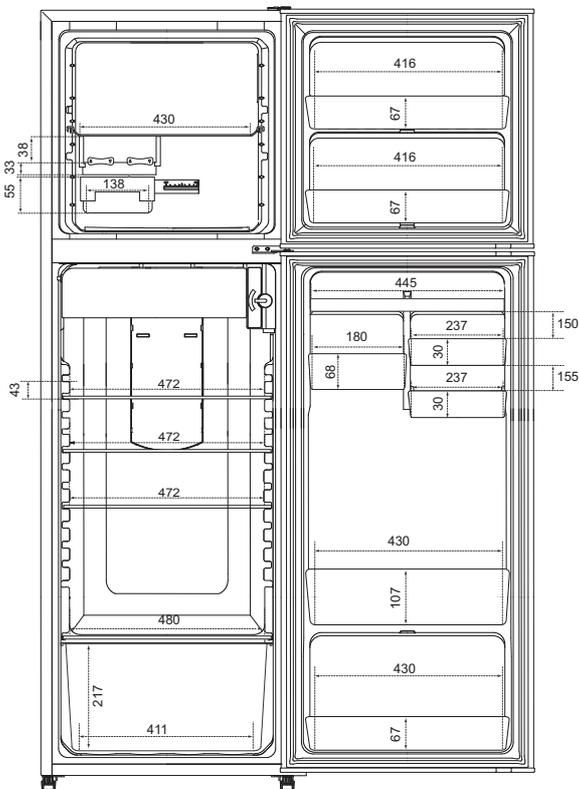
(Unit:mm)

4. SJ-A31S



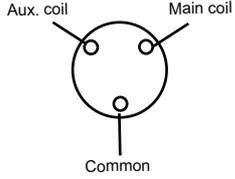
(Unit: mm)

5. SJ-A34S



(Unit: mm)

CHAPTER 4. LIST OF ELECTRICAL PARTS

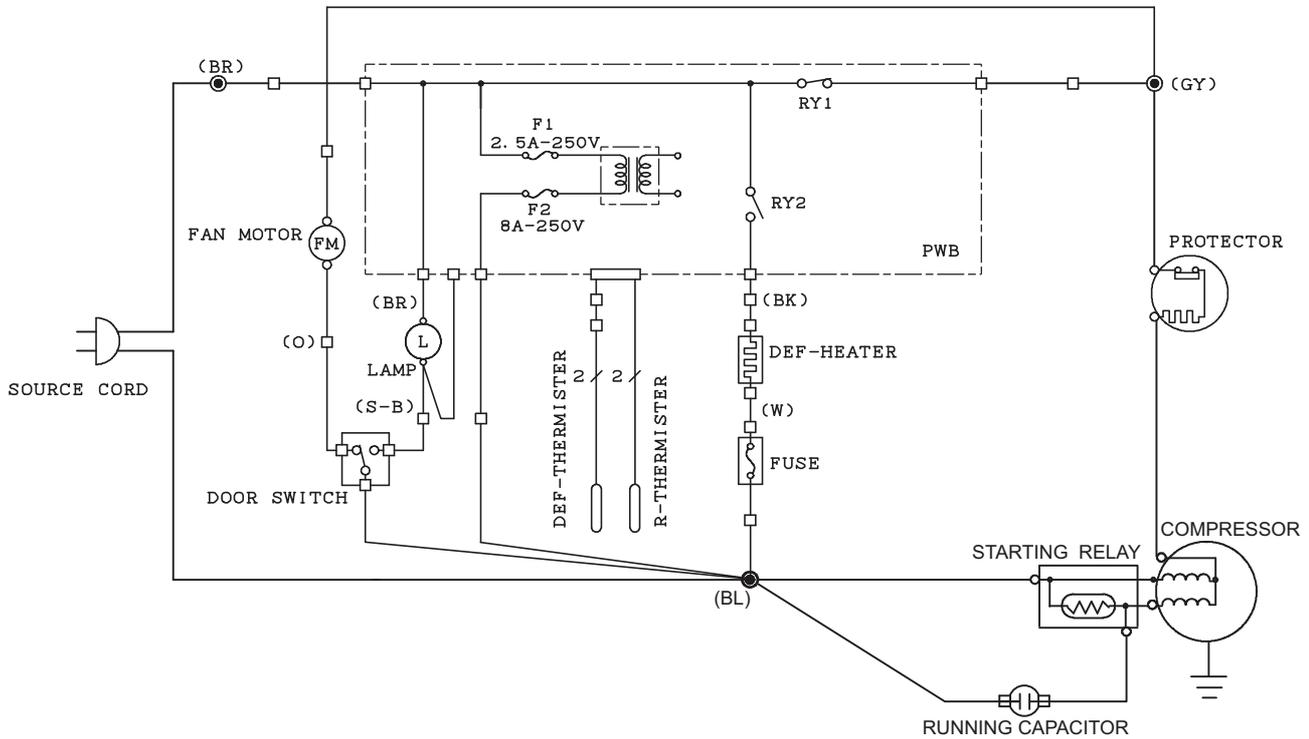
ITEMS	TYPE NAME	RATING	SPECIFICATIONS
R Thermistor	—	DC 5V	R0 = 6.4 kΩ, B(0) = 3811
Defrost Thermistor	—	DC 5V	R0 = 6.4 kΩ, B(0) = 3811
Thermo. fuse	SF70E	250V 10A	Working temp. : 70 °C
Defrost heater	—	220 - 240V 378Ω	140W at 230V
Fan motor (A20S/B21S/A24S/B25S/ A28S/B27S)	3R00121	AC 200-240V, 50Hz	—
(A31S/A34S)	3R00101B	AC 220-240V,50Hz AC 220-230V,60Hz	—
Door switch	SDKNA20101	250V 0.25A 125V 0.5 A	3 Terminals push-botton type
R Lamp	—	240V 15W	#187 Straight Terminal, Pitch 6
Compressor (A20S/B21S/A24S/B25S)	FL0845-ST	220-240V/50Hz	Cooling capacity : 106 W (50Hz) Main coil : 23.8 Ω Aux. coil : 29.7 Ω (at 75 °C)
(A28S/B27S)	FL1152-SZ	220-240V/50Hz	Cooling capacity : 136 W (50Hz) Main coil : 23.8 Ω Aux. coil : 42.4 Ω (at 75 °C)
(A31S/A34S)	FL1257-SW	220-240V/50Hz	Cooling capacity : 170 W (50Hz) Main coil : 18.4 Ω Aux. coil : 31.5 Ω (at 75 °C)
			
Starting Relay	PEN0SBT	50/60 Hz	22 ± 4.4Ω (at 25 °C)
Overload Relay(Protector) (A20S/B21S/A24S/B25S)	5TM158RFBYY-53	—	Open/ Close : 120 ± 0.5 / 61 ± 9.0°C
(A28S/B27S)	5TM149NFBYY-53	—	Open/ Close : 120 ± 0.5 / 61 ± 9.0°C
(A31S/A34S)	5TM189RFBYY-53	—	Open/ Close : 130 ± 0.5 / 61 ± 9.0°C
Running capacitor (A20S/B21S/A24S/B25S/ A28S/B27S)	RC-EZA237CBZZ	—	400V 3 μF
(A31S/A34S)	RC-EZA249CBZZ	—	400V 4 μF
Main PWB	FPWB-A667CBKZ	220-240V	—

# CHAPTER 5. WIRING DIAGRAM

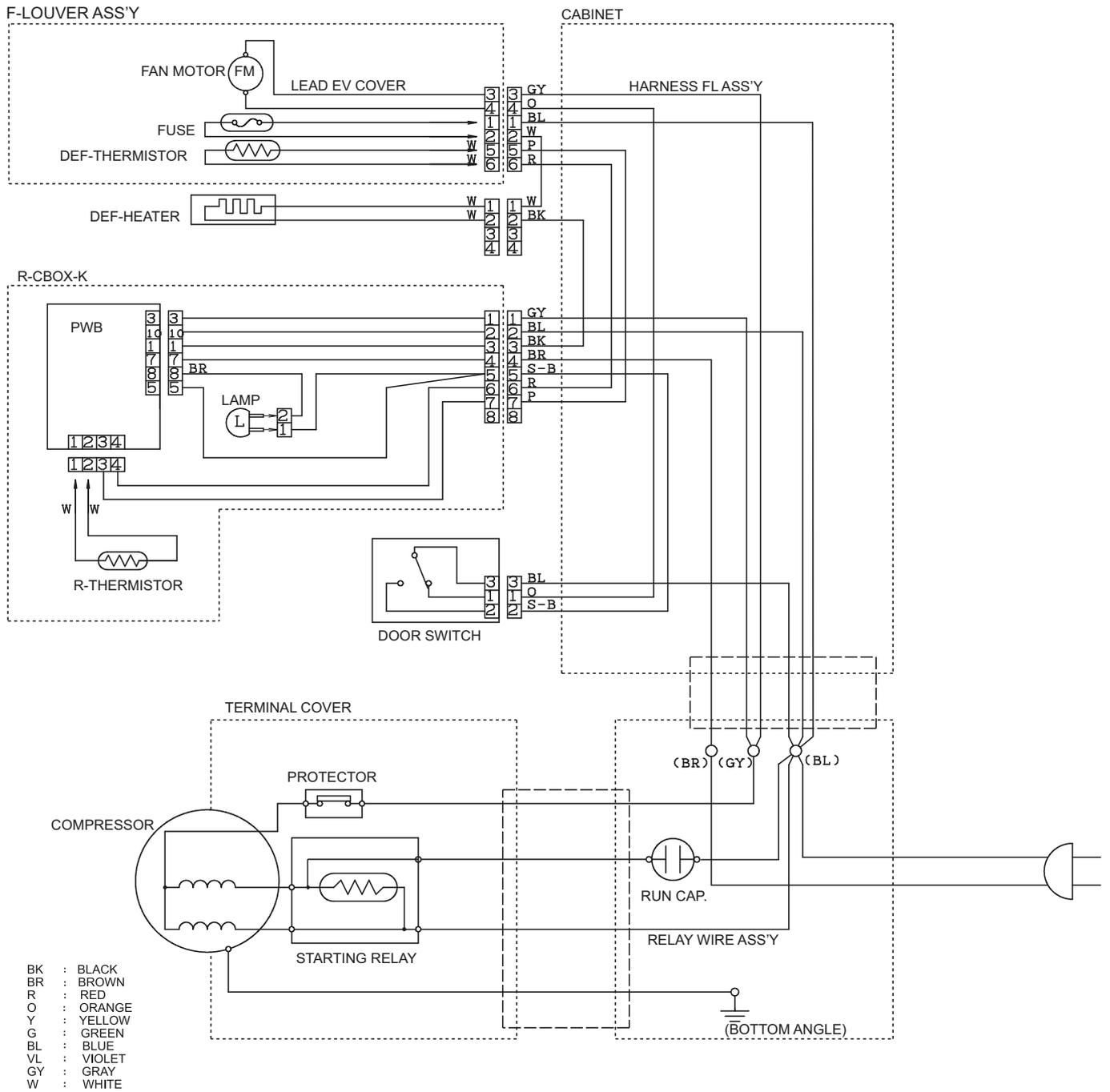
## [1] WIRING DIAGRAM

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

- |                |                               |
|----------------|-------------------------------|
| BK : BLACK     | ● : CONNECTOR IN TERMINAL BOX |
| BR : BROWN     | □ : CONNECTOR                 |
| R : RED        |                               |
| O : ORANGE     |                               |
| Y : YELLOW     |                               |
| G : GREEN      |                               |
| BL : BLUE      |                               |
| VL : VIOLET    |                               |
| GY : GRAY      |                               |
| W : WHITE      |                               |
| P : PINK       |                               |
| S-B : SKY BLUE |                               |



[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.

## CHAPTER 6. FAILURE DIAGNOSIS

### [1] OUTLINE OF CONTROL

#### 1. ON/OFF Control of Compressor

When the plug of refrigerator is connected, the compressor will start automatically and run for approximately 5 minutes. After then, ON/OFF of the compressor will be controlled depend on the temperature detected by the R-thermistor. During 6 minutes after the compressor stops, it will not start regardless of the detected temperature by R-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 50 hours, minimum time 4 hours)

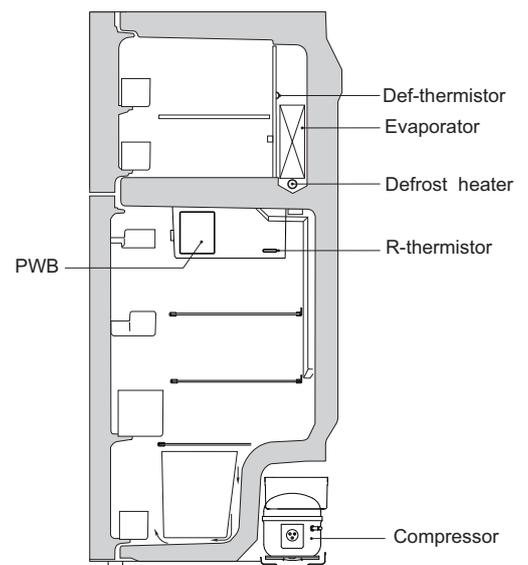
#### 3. Thermistor

Thermistors are installed in 2 places; in the refrigerator compartment and close to the Evaporator. (R-thermistor and Def-thermistor)

It is not installed in the freezer compartment.

R-thermistor reads the temperature in the refrigerator compartment and controls ON/OFF of compressor.

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



### [2] CHECK MODE OF DEFROST HEATER (Forced Defrosting)

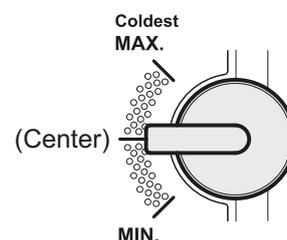
The operation of the defrost heater can be checked by starting it.

In case the failure of defrosting is suspected, this is an effective inspection method.

#### 1. Starting Method

At the power OFF condition.

- 1) Keep the door of the refrigerator compartment open.
- 2) Set the Temp. Control Knob in the refrigerator compartment to the following position.  
 220-240V models: Center  
 110-127V models: Max
- 3) Keep the door open and supply power source.



#### 2. Normal Operation

- 1) Approximately 3 seconds after power supply, the relay on the PWB will be turned ON and the defrost heater will be electrified for 5 seconds.
- 2) After 5 seconds, if the temperature of Def-thermistor reaches high enough (over 10°C) and judged as defrosting completion, the compressor runs for 5 minutes and then returns to the normal control.

On the other hand, if the temperature of Def-thermistor is still low (under 10°C), the defrost heater will be electrified until the temperature of Def-thermistor reaches the specified temperature or higher.

After completion of electrification, the compressor runs for 5 minutes and then returns to the normal control.

- \* In the case that any abnormality in Door Switch, Volume, R-thermistor or Def-thermistor, or the Temp. Control Knob is not in the position corresponding to the value of the rating voltage settled to the PWB itself, this mode will not be entered nor the defrost heater is electrified.

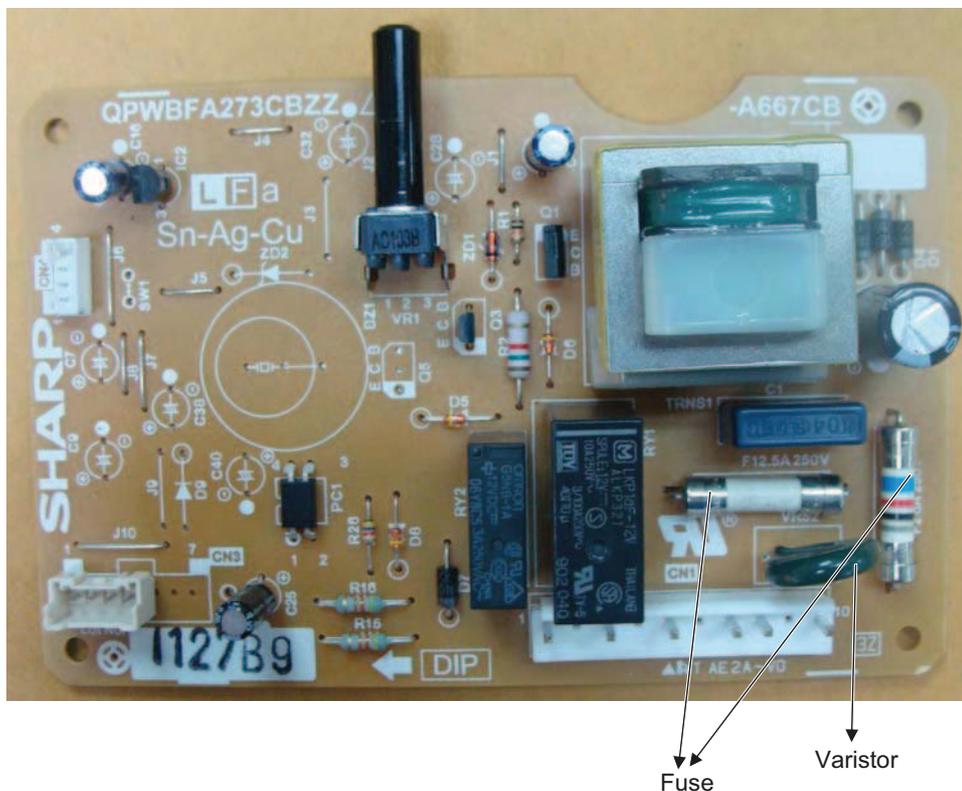
### [3] RE-SETTING OF MICROCOMPUTER AT POWER FAILURE

- At the power failure for over 0.1 second, the control of the microcomputer will be reset.  
When the power is re-supplied, the temperature of R-thermistor will be detected again and ON/OFF of the compressor will be decided.
- At the momentary power failure (less than 0.1 second), the protector of the compressor might work due to the high load to the compressor for re-starting.
- When resetting is made during the operation of the defrost heater, the normal cooling will be resumed.

### [4] DIAGNOSIS METHOD OF FAILURE

Check by the following procedure;

- Disconnect power supply and check the following point.
  - Is there any failure portion in inserting connectors?
- Detach the PWB and check the appearance.
  - Is there any burning or abnormal damage?
- Check the conditions of the fuse and the varistor. (Fuse and varistor are located at the position in the figure.)
  - 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 (several hundreds Ω~several KΩ)	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 next check item.	—

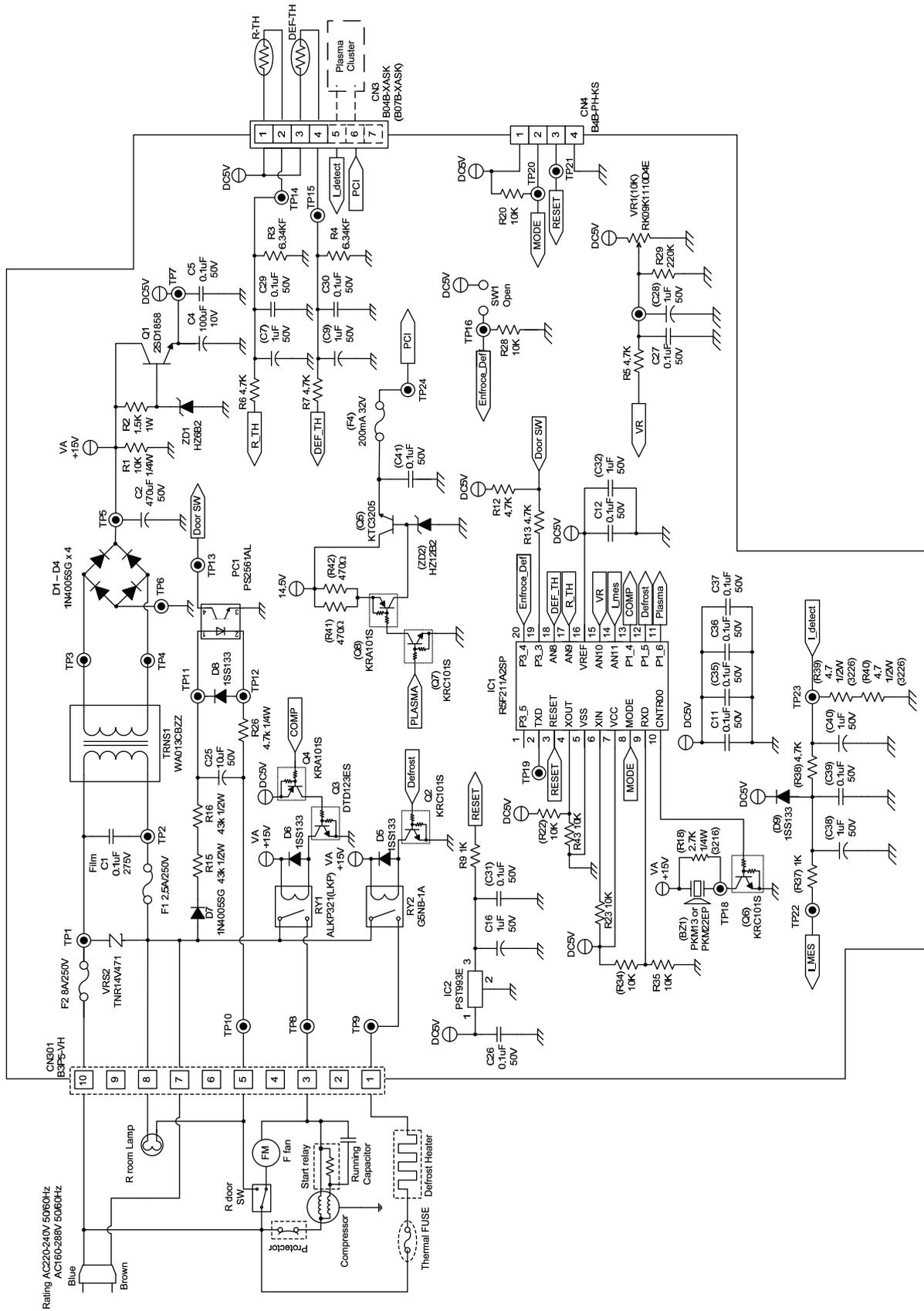
- Check whether the temperature (resistance value) shown by R-thermistor is correct or not. (Refer to the table below.)
  - Detach the connector "CN3" on the PWB and measure the resistance value between 1 and 2 pins.
- Check whether the temperature (resistance value) shown by Def-thermistor is correct or not. (Refer to the table below.)
  - Detach the connector "CN3" on the PWB and measure the resistance value between 3 and 4 pins.

[5] CONVERSION TABLE

Conversion Table between R-thermistor and Def-thermistor Temperature and Resistance Value

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

[6] CIRCUIT DIAGRAM OF MAIN PWB



# CHAPTER 7. FUNCTIONS

## [1] ADJUSTABLE TEMPERATURE CONTROL

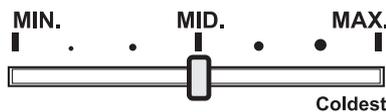
### 1. Temperature control

#### 1) FREEZER COMPARTMENT

The FREEZER TEMP. CONTROL regulates the quantity of cold air to the freezer.

"MAX" setting directs more cold air to the freezer compartment. (making the freezer compartment colder)

"MIN" setting directs less cold air to the freezer compartment. (making the freezer compartment less colder)



FREEZER TEMP.CONTROL

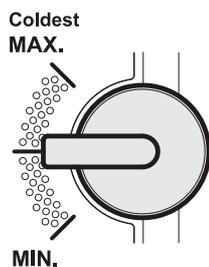
KNOB SETTING	PURPOSE
MAX	• For making ice rapidly of fast freezing. And winter season.
↑	• When restocking with fresh food.
MID	• For normal freezing.
↓	• For storing frozen food for a short period (up to one month).
MIN	• When frozen food or ice cream is not stored.

#### 2) REFRIGERATOR COMPARTMENT

The REFRIGERATOR TEMP. CONTROL controls the compressor running time of the refrigeration system.

"Coldest"(5) setting will result in colder temperature in the both (refrigerator and freezer) compartments.

"MIN"(1) control setting will result in warmer temperature in the both (refrigerator and freezer) compartment.



REFRIGERATOR TEMP.CONTROL

KNOB SETTING	PURPOSE
MAX	• For keeping freshness of food longer.
↑	• When the refrigerator does not provide sufficient cooling.
(Center)	• For normal operation.
↓	• When the refrigerator provides excessive cooling.
MIN	

- When refrigerator temperature control sets to the "MAX", some foods stored may become frozen. In this case adjust control set back to the center position.

#### NOTE:

- For hot summer conditions (about over 35 °C ambient temperature), set your FREEZER TEMP. CONTROL to less colder than "MID" (towards "MIN"). This is because "MAX" setting may result in too little air flow to the refrigerator compartment, causing too warm temperature in the refrigerator compartment. And set your refrigerator compartment freeze, you must set the REFRIGERATOR TEMP. CONTROL to less colder setting. (toward "MIN").
- In a cold kitchen (about under 10 °C ambient temperature), set your FREEZER TEMP. CONTROL to "MAX" to avoid too warm temperature in the freezer compartment. This is because the compressor operation is too short in winter, and not enough cold air is provided to the freezer compartment. And if the foods in the refrigerator compartment freeze, you must set the REFRIGERATOR TEMP. CONTROL to less colder setting. (toward "MIN").
- With the FREEZER TEMP. CONTROL set to "MAX", there will be less cold air directed to the refrigerator compartment, and the refrigerator compartment may not become cold enough.

### 2. Reference value of temperature

SETTING OF FREEZER TEMP. CONTROL KNOB	MAX (Coldest)	MID	MIN
Freezer temperature	Approx. -21°C	Approx. -18°C	Approx. -15°C

The values shown above refer to the case where the refrigerator temp. control knob is set at "MID".

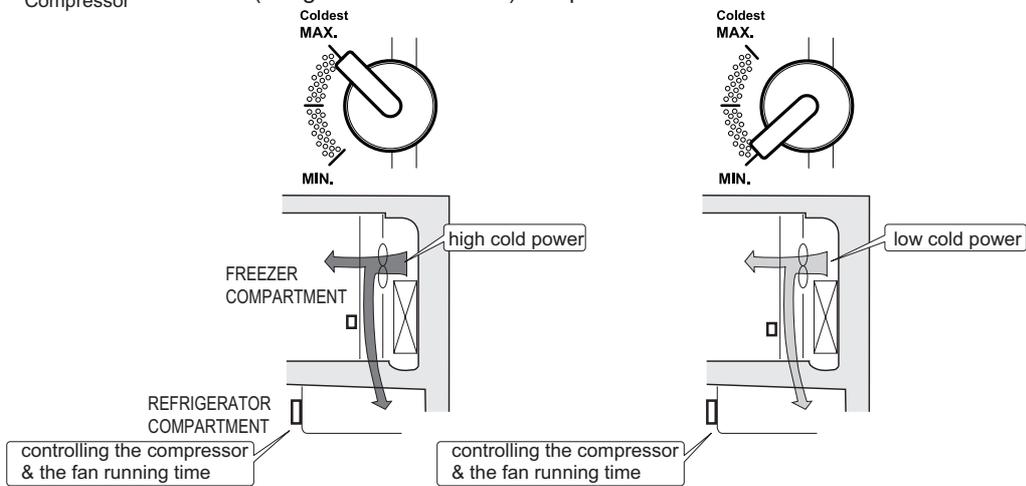
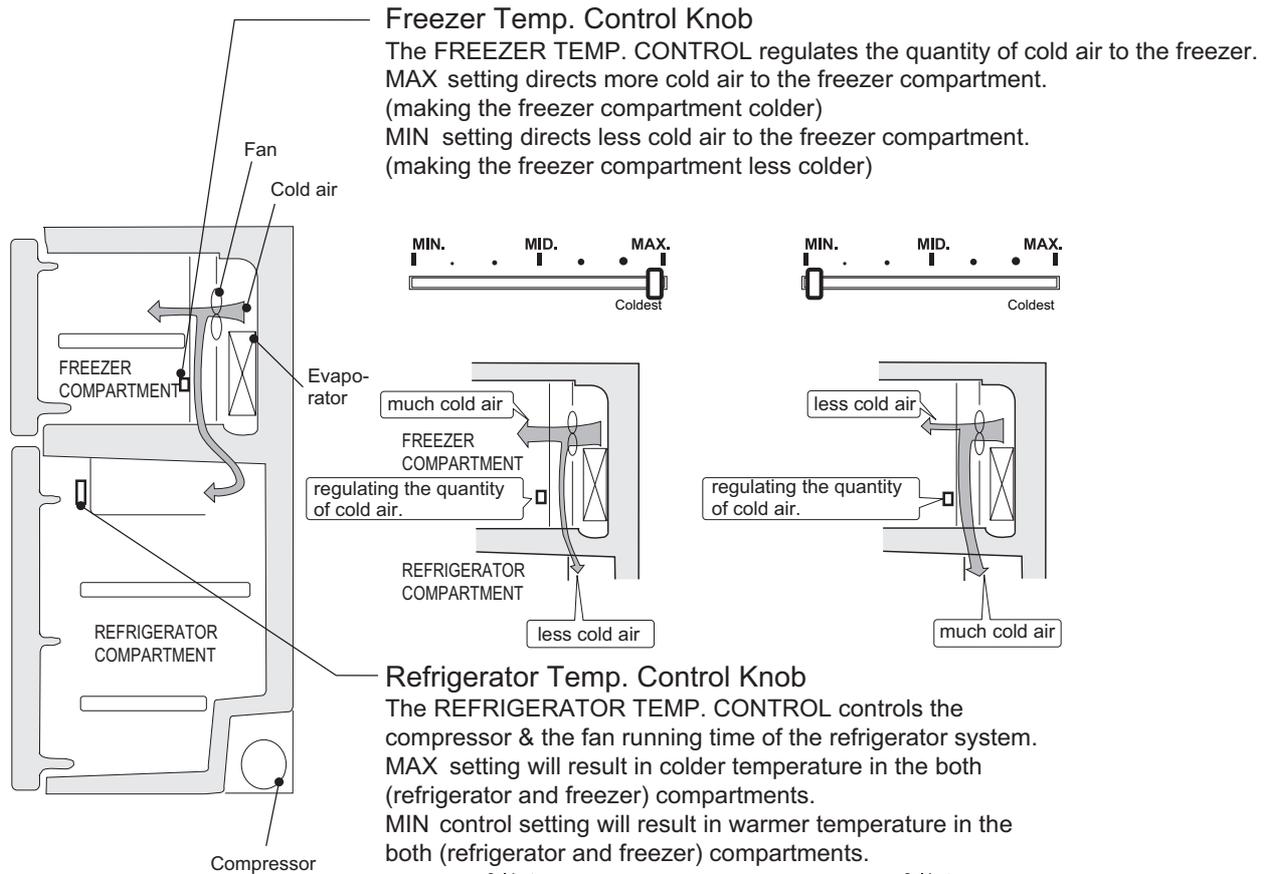
SETTING OF REFRIGERATOR TEMP. CONTROL KNOB	MAX (Coldest)	(Center)	MIN
Refrigerator temperature	Approx. 0°C	Approx. 3°C	Approx. 6°C

The values shown above refer to the case where the freezer temp. control knob is set at the center position.

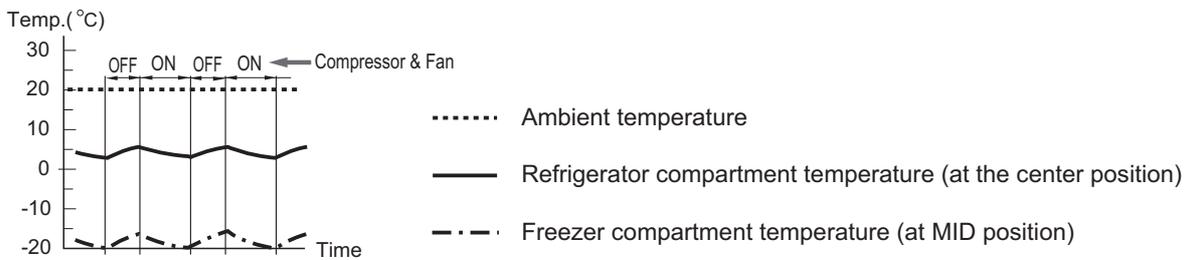
The values tables above refer to the measurement carried out center area and 1/3 of overall height from the bottom at each of the refrigerator and the freezer after the machine has been operated at an ambient temperature of 32 °C with no food stored and the door closed until the temperature is stabilized.

The values vary depending upon frequency of opening and closing, the doors ambient temperature, amount of stored foods and manner of storing foods.

3. Temp. control system



Normal operation (ex. at 20 °C ambient temperature)



# CHAPTER 8. ASSEMBLING PROCEDURES OF MAIN PARTS AND CAUTIONS

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

## [1] F-LOUVER ASS'Y (SJ-A20S/B21S/A24S/B25S/A28S/B27S)

### 1. Fan motor ass'y

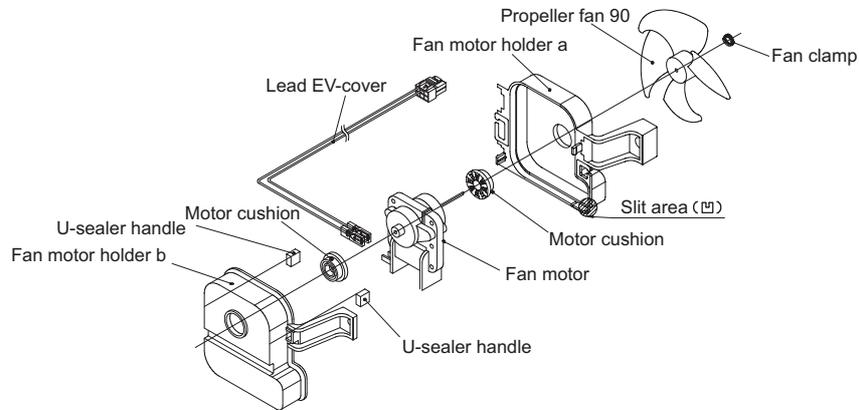


Figure A-1

1. Stick U-sealer handle to Fan motor holder b (Fig. A-2).
2. Insert the terminal of Lead EV-cover to Fan motor (Fig. A-3).
3. Insert shaft of Fan motor to the hole of motor cushion, set at Fan motor holder b.  
Then insert the boss of rear to the hole of Motor cushion, fix with Tapping screw(1 piece).
4. Set Fan clamp to propeller fan 90 mm. and then insert it to the shaft of Fan motor( Fig. A-4).

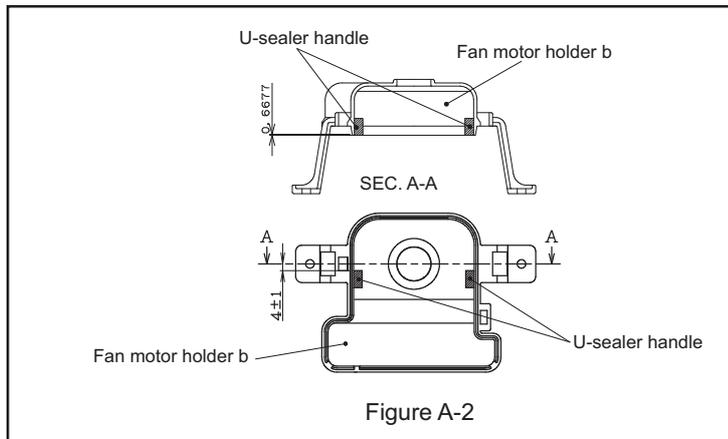


Figure A-2

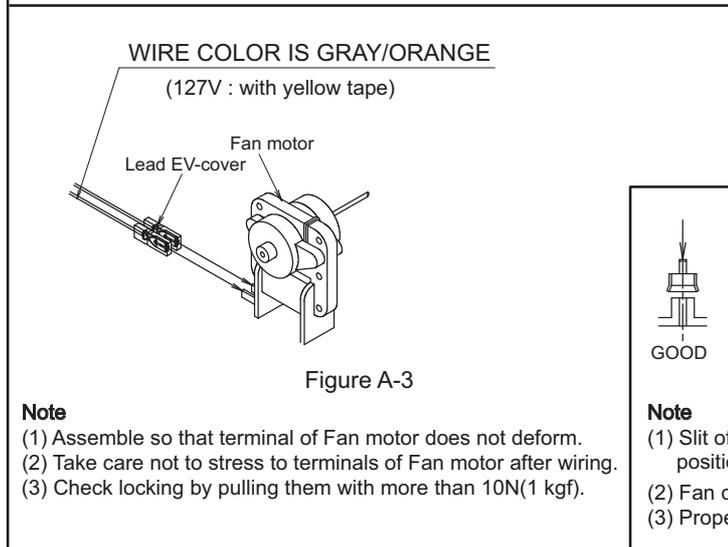


Figure A-3

- Note**
- (1) Assemble so that terminal of Fan motor does not deform.
  - (2) Take care not to stress to terminals of Fan motor after wiring.
  - (3) Check locking by pulling them with more than 10N(1 kgf).

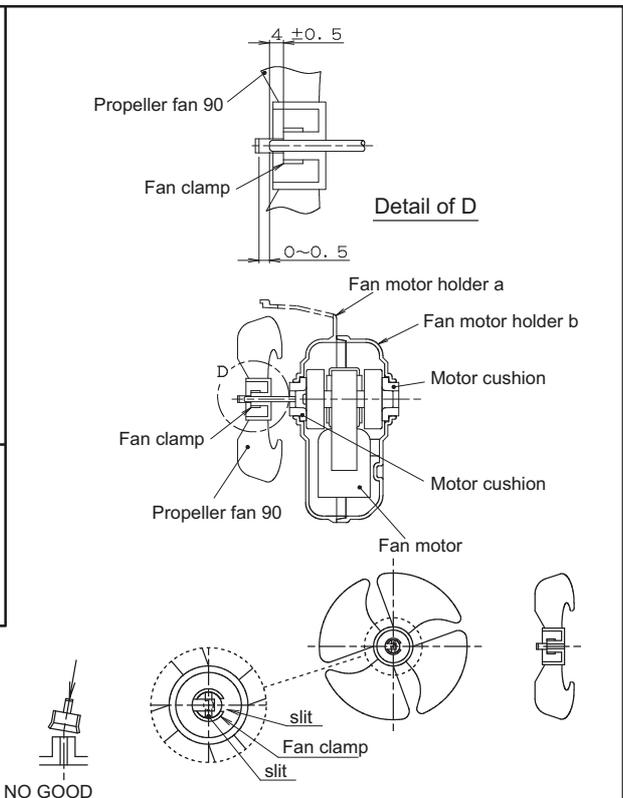


Figure A-4

- Note**
- (1) Slit of each Fan Clamp and propeller fan 100 should not be at same position.
  - (2) Fan clamp should be inserted vertically to the end of boss.
  - (3) Propeller fan should not be taken out from shaft when pulled by 2 kgf.

2. EV-cover ass'y

1. Bind Fuse ass'y with L-band c. Then wind glass cloth tape (W25 x L50mm ) to lead wire of Fuse ass'y (Figure A-5).

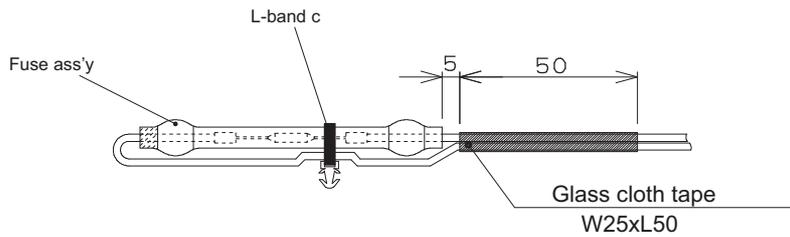


Figure A-5

2. Stick EVC-sealer a to square hole of EV-cover.
3. Set Fan motor ass'y to EV-cover. Then Fix with 2 tapping screw(Figure A-6) .
4. Set Fuse ass'y to EV-cover then stick aluminum tape (W39 x L35mm) and EV-cover al to EV-cover.
5. Set Def-thermistor to EV-cover and fix to Fan motor holder b with aluminum tape (W39 x L50mm ).
6. Insert the terminal of Def-thermistor to terminal No.5/No.6 and then insert the Fuse ass'y to the terminals No.1/No.2. on the 6P connector of Lead EV-cover (Figure A-7).
7. After wiring at rear of EV-cover take out lead wire from square hole to front and fix with L-band c. Then stick EVC-sealer b to lead wire.

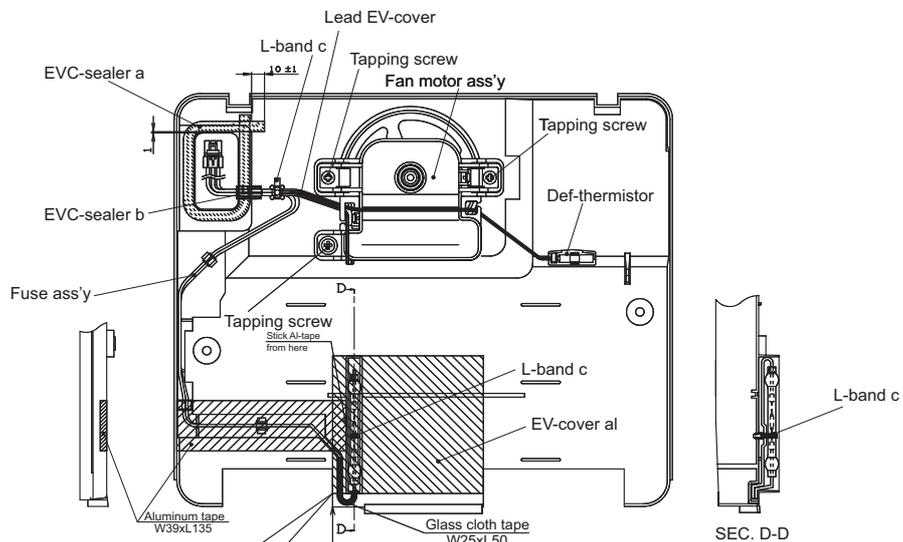
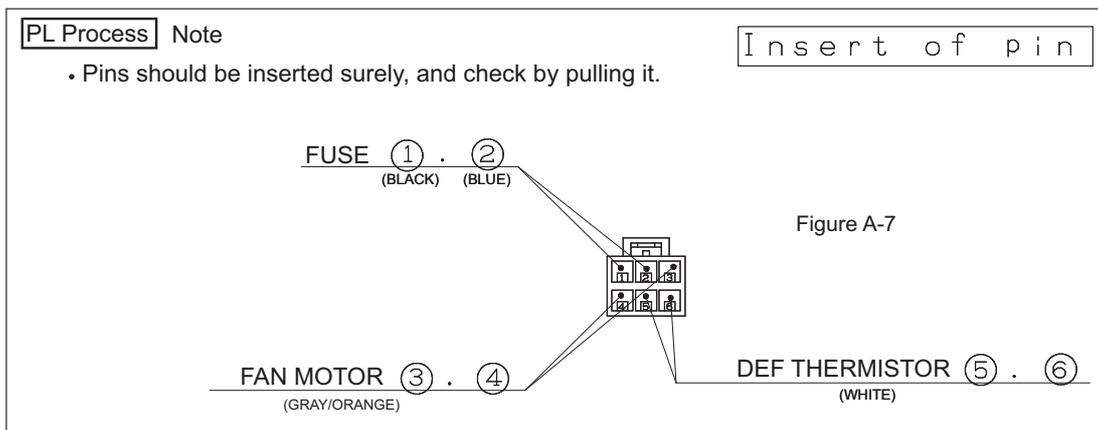


Figure A-6

※ Note  
 • Lead wire of Fuse ass'y must not over EV-cover.  
 SCALE 2:1



3. F - louver ass'y

1. Set F-louver to front side of EV-cover with double face tape (W15xL45mm.).
2. Insert F-control knob to F-louver. Then set to front side of EV-cover.
3. Stick EVC-sealer c to bottom of F-louver ass'y.

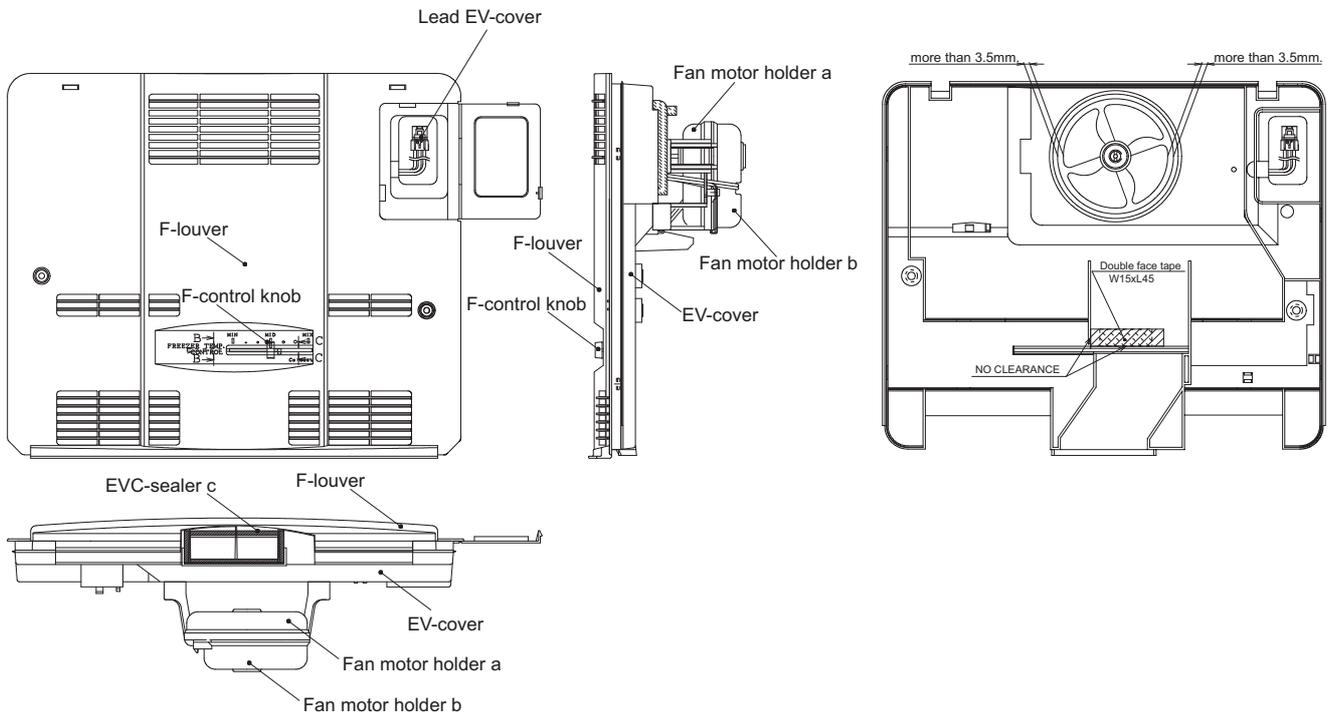


Figure A-8

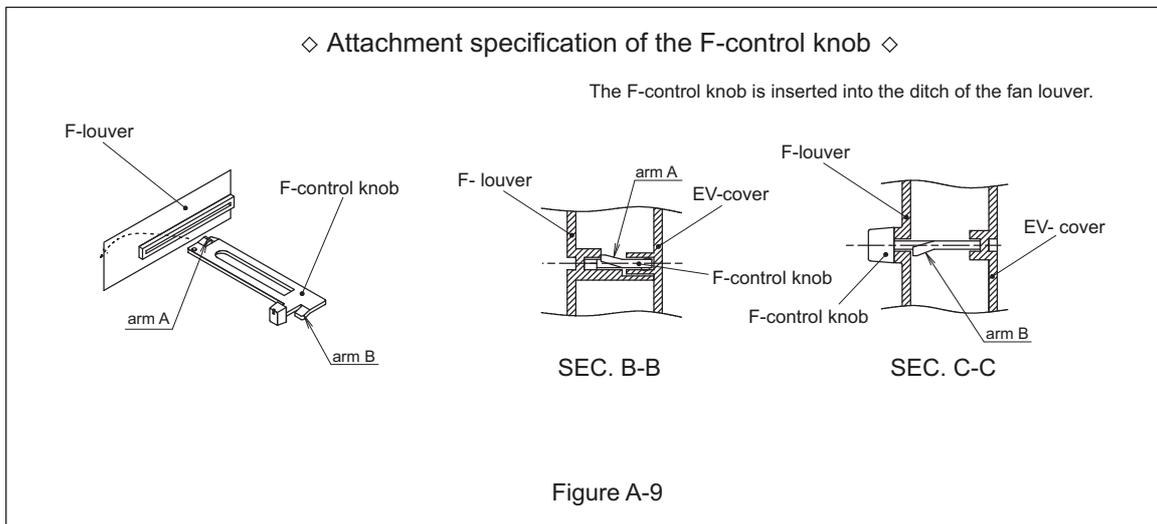


Figure A-9

[2] F-LOUVER ASS'Y (SJ-A31S/A34S)

1. Fan motor ass'y

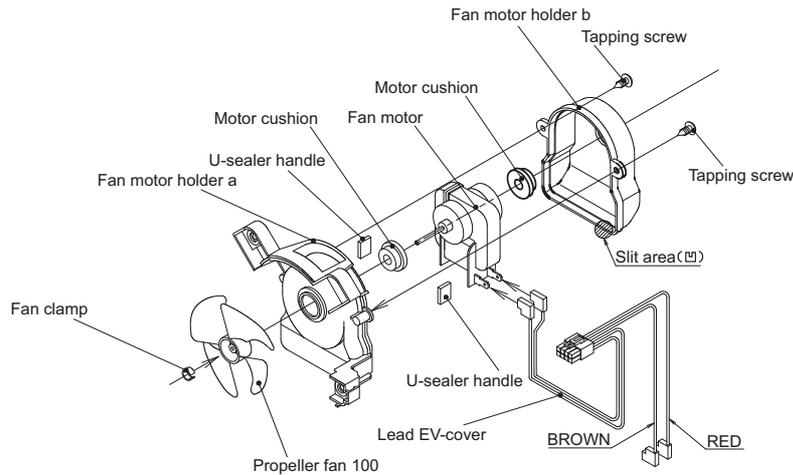


Figure A-1

1. Stick U-sealer handle to Fan motor holder a (Fig. A-2).
2. Insert the terminal of Lead EV-cover to Fan motor (Fig. A-3).
3. Insert shaft of Fan motor to the hole of motor cushion, set at Fan motor holder a.  
Next, insert the boss of rear to the hole of Motor cushion, set at fan motor b.  
Then fix with Tapping screw (2 pieces).
4. Set Fan clamp to propeller fan 100 mm. and then insert it to the shaft of Fan motor ( Fig. A-4).

Figure A-2

Figure A-4

**WIRE COLOR IS GRAY/ORANGE**  
(127V : with yellow tape)

Figure A-3

**Note**

- (1) Assemble so that terminal of Fan motor does not deform.
- (2) Take care not to stress to terminals of Fan motor after wiring.
- (3) Check locking by pulling them with more than 10N(1 kgf).

**Note**

- (1) Slit of each Fan Clamp and propeller fan 100 should not be at same position.
- (2) Fan clamp should be inserted vertically to the end of boss.
- (3) Propeller fan should not be taken out from shaft when pulled by 2 kgf.

2. EV-cover ass'y

1. Bind Fuse ass'y with L-band c. Then wind glass cloth tape (W25 x L50mm ) to lead wire of Fuse ass'y (Figure A-5).

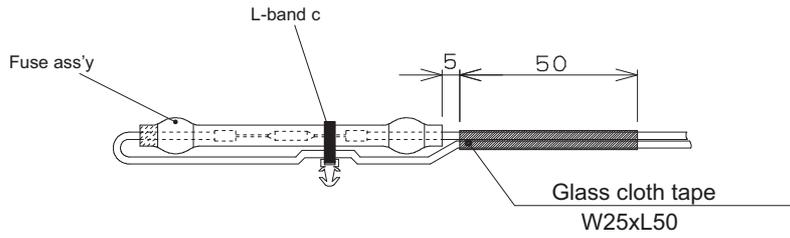


Figure A-5

2. Stick EVC-sealer a to square hole of EV-cover.
3. Set Fan motor ass'y to EV-cover. Then Fix with 3 tapping screw(Figure A-6) .
4. Set Fuse ass'y to EV-cover then stick aluminum tape (W39 x L35mm) and EV-cover al to EV-cover.
5. Set Def-thermistor to EV-cover and fix to Fan motor holder b with aluminum tape (W39 x L50mm ).
6. Insert the terminal of Def-thermistor to terminal no.5/No.6 and then insert the Fuse ass'y to the terminals No.1/No.2. on the 6P connector of Lead EV-cover (Figure A-7).
7. After wiring at rear of EV-cover take out lead wire from square hole to front and fix with L-band c. Then stick EVC-sealer b to lead wire.

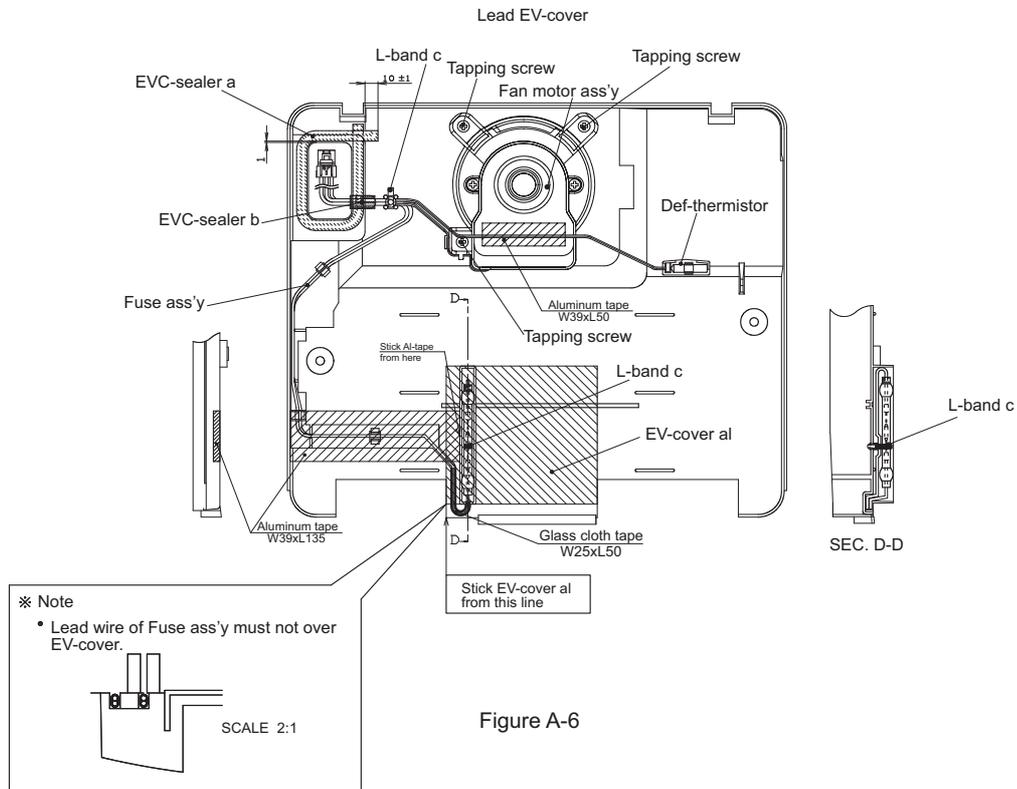


Figure A-6

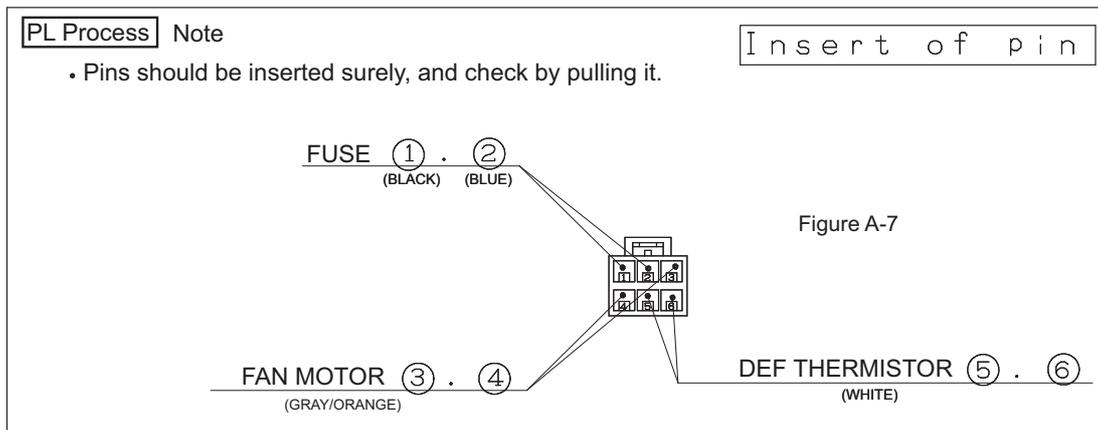


Figure A-7

3. F - louver ass'y

1. Set F-louver to front side of EV-cover with double face tape (W15xL45mm.).
2. Insert F-control knob to F-louver. Then set to front side of EV-cover.
3. Stick EVC-sealer c to bottom of F-louver ass'y.

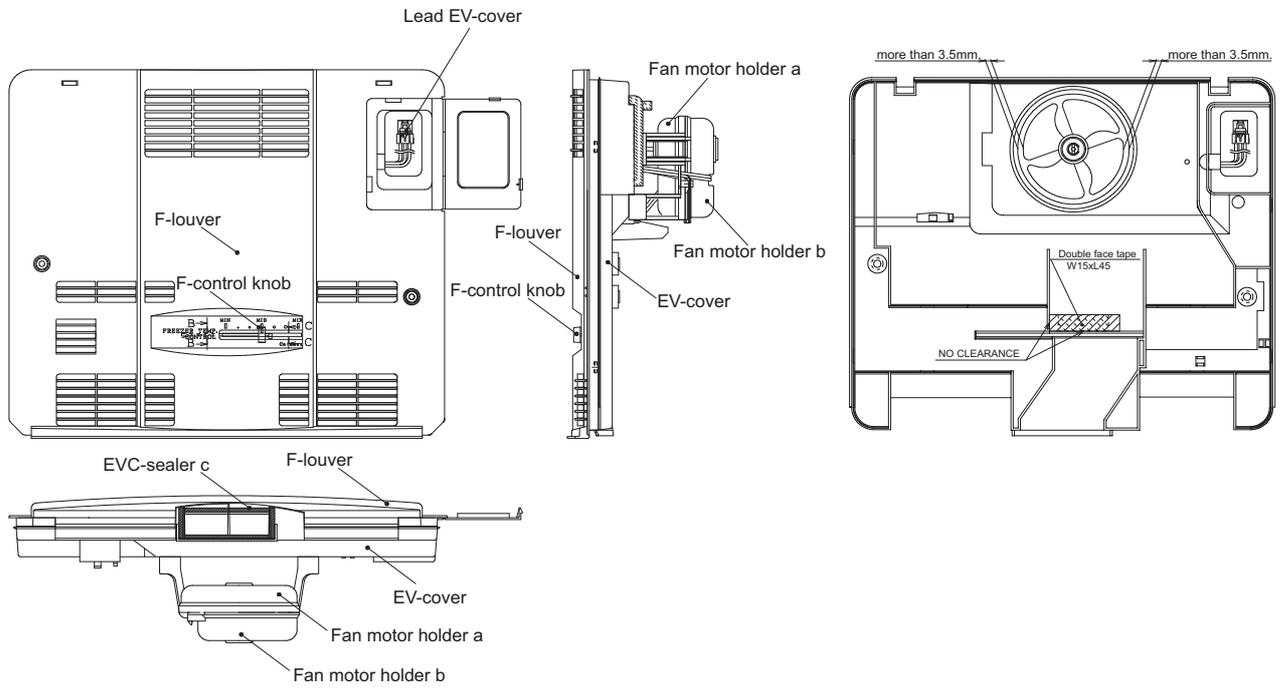


Figure A-8

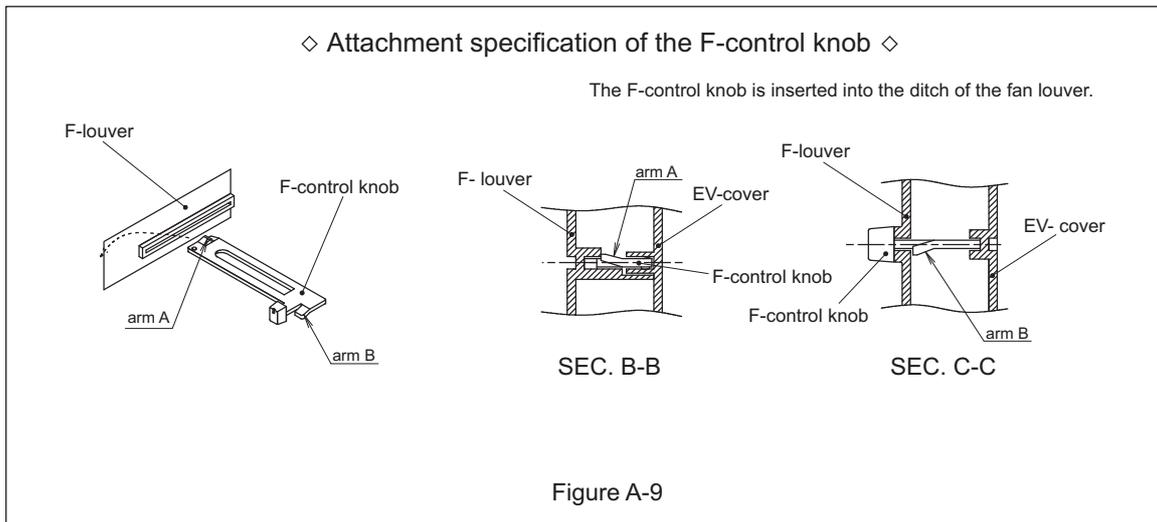


Figure A-9

[3] R CONTROL COV. ASS'Y

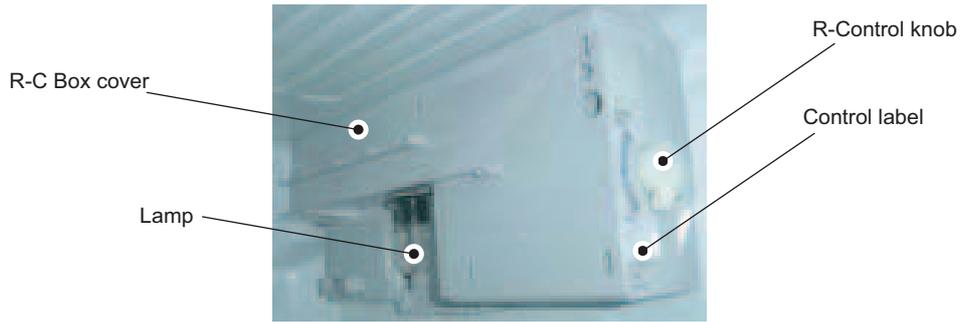


Figure A-10

1. Insert Lead R-Thermistor to Lead R-C Box.
2. Inset Lead R-C box to PWB L ass'y.
3. Assemble the PWB L ass'y with PWB holder A and then assemble the PWB holder A with PWB holder B.
4. Stick the R-control AL on PWB holder A/B ass'y.

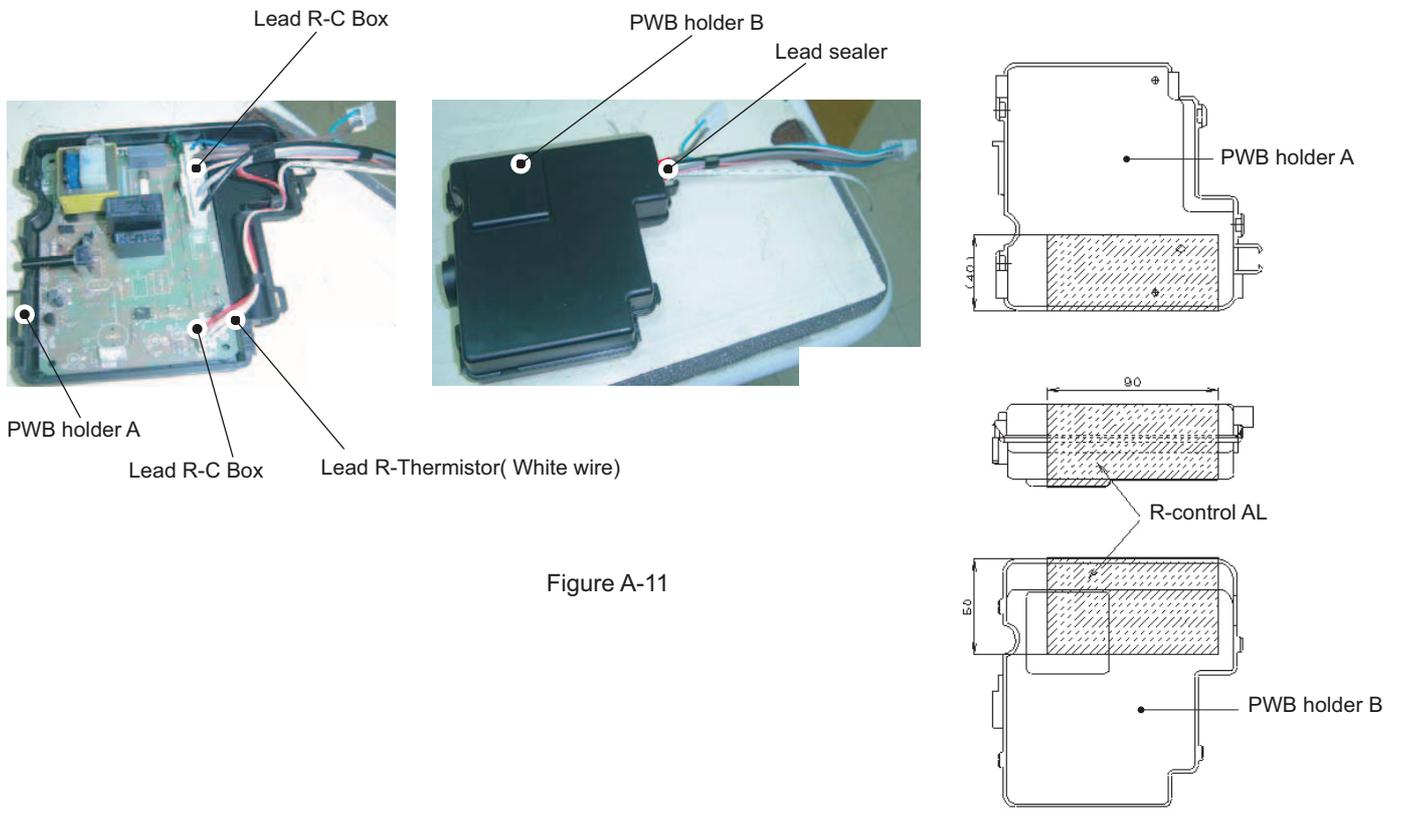


Figure A-11

- 5. Assemble Lamp with R-C Box cover then fix with 2 tapping screw.
- 6. Stick Knob sealer on R-C Box cover and then insert Knob joint to R-C Box cover.
- 7. Assemble the PWB ass'y with R-C Box cover. And place the R-Thermistor on the groove of R-C Box cover.
- 8. Insert Lead R-C Box to Lamp.

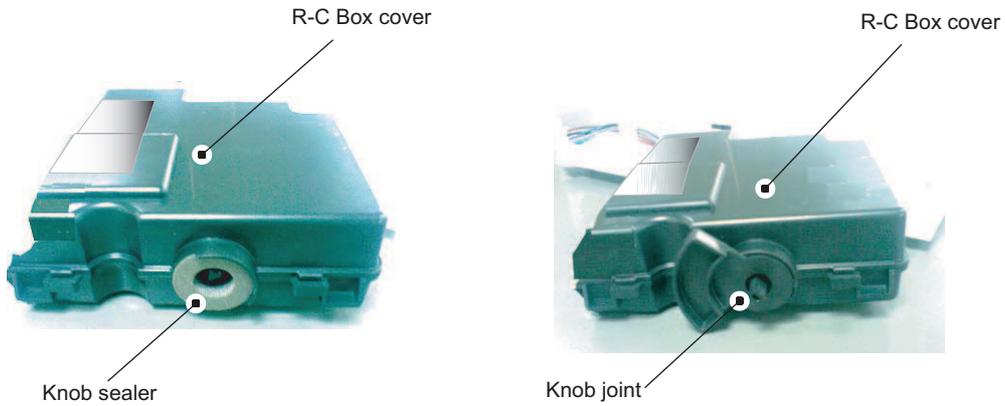


Figure A-12

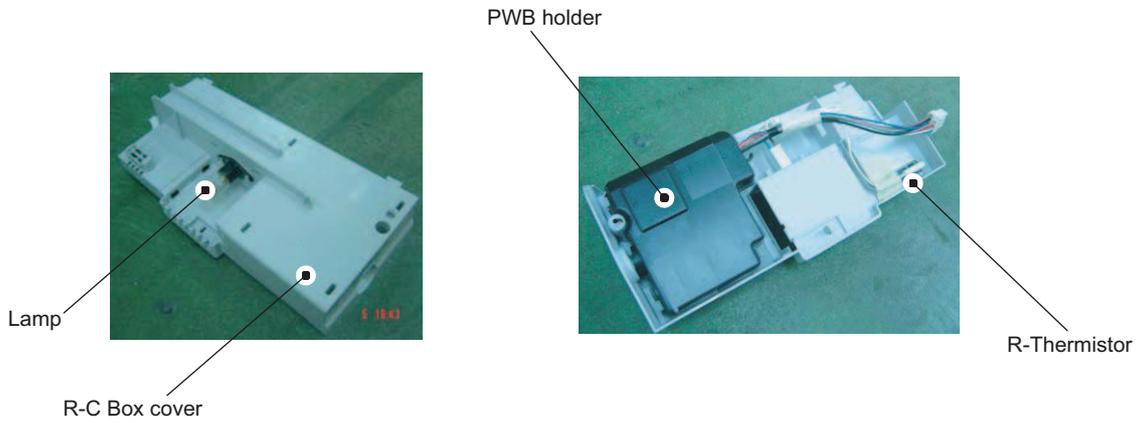


Figure A-13

- 9. Insert R-Control knob to R-C Box cover.
- 10. Stick Control Label on R-C Box cover.

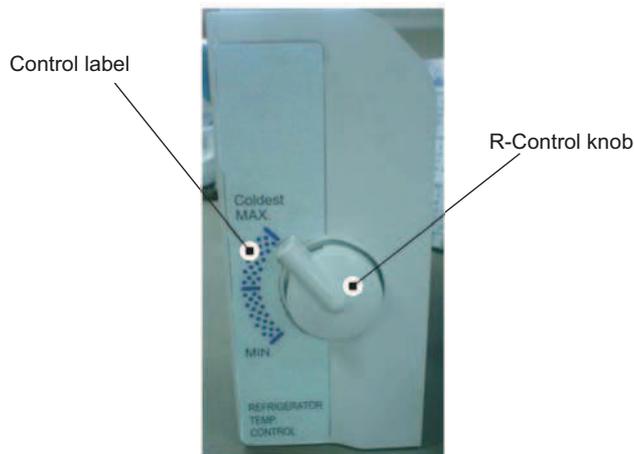
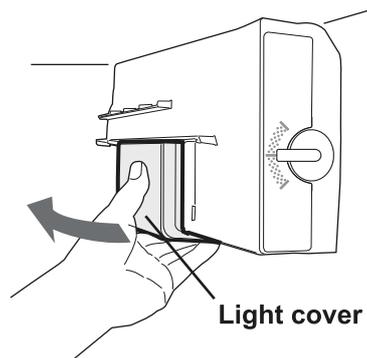


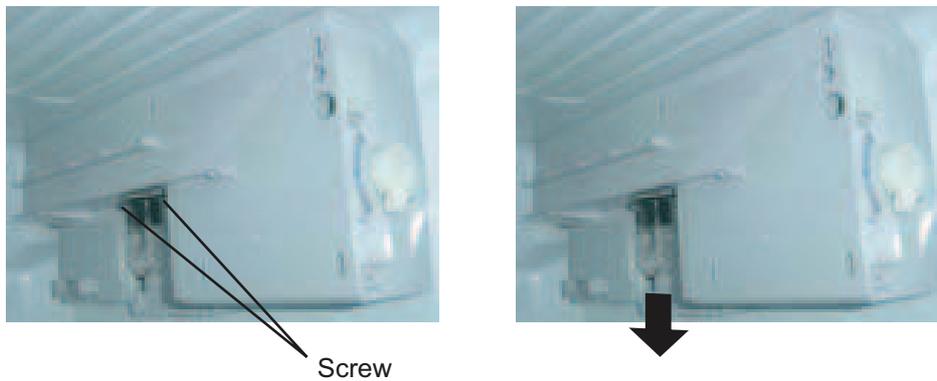
Figure A-14

#### [4] HOW TO REPLACE THE LAMP

1. Remove the Light cover.



2. Remove the 2 screw, and pull the Lamp out.



3. Insert the new Lamp to the connector, and fix with 2 screws.
4. Set the Light cover.

[5] DEFROST HEATER

1. Taking-out Evaporator

1. Take-out Fan louver ass'y.
2. Take-out E.V cover ass'y.

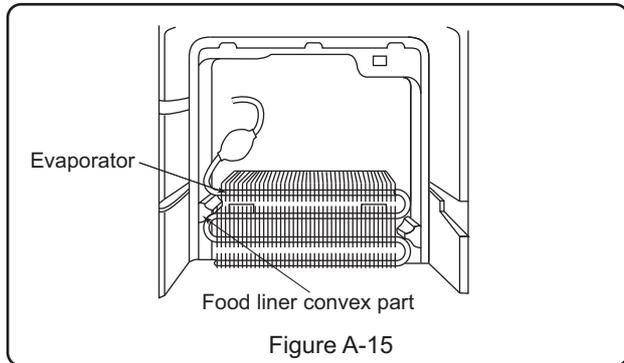


Figure A-15

3. As shown in Figure A-15, 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.

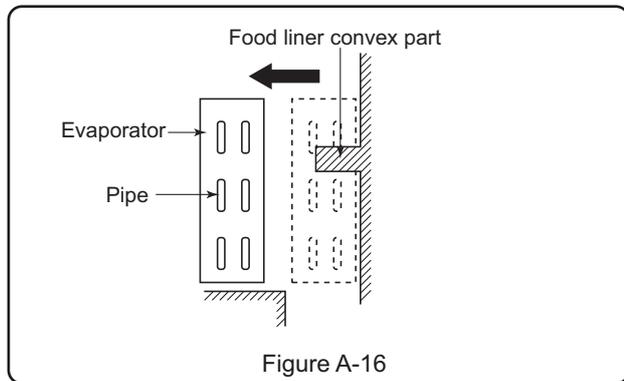


Figure A-16

4. Pull the Evaporator for remove as shown in Figure A-16.

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.

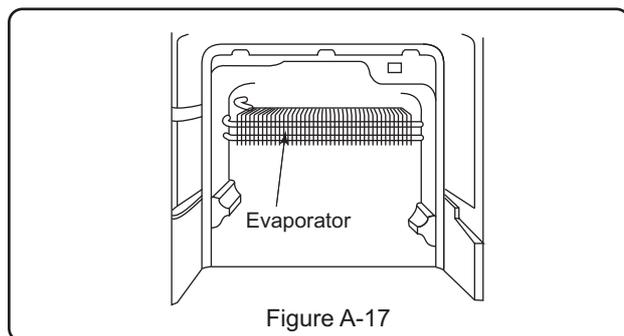


Figure A-17

2. Replacement of Def. heater.

1. Remove the aluminium tape on Heater support to take it off from the food liner.
2. Raise the protrusion part of Heater support. Then remove Heater cover.

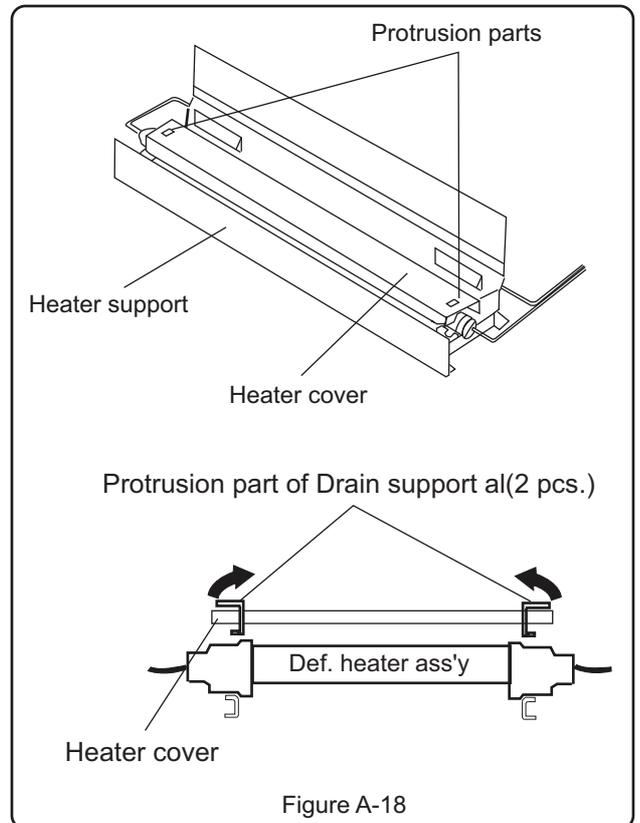


Figure A-18

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

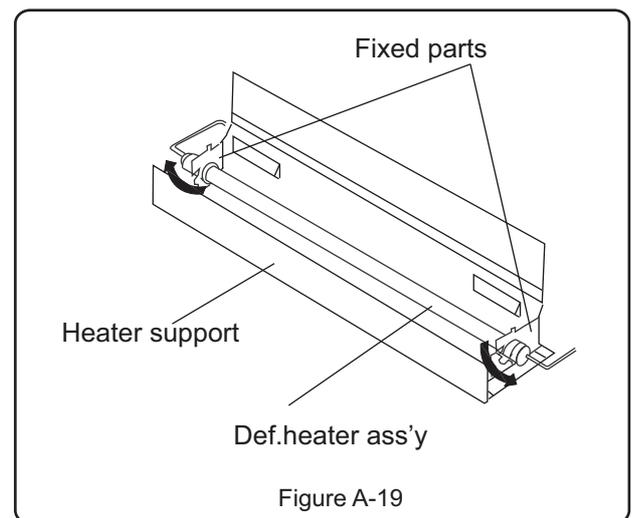


Figure A-19

4. Replace Def. heater ass'y with new one.

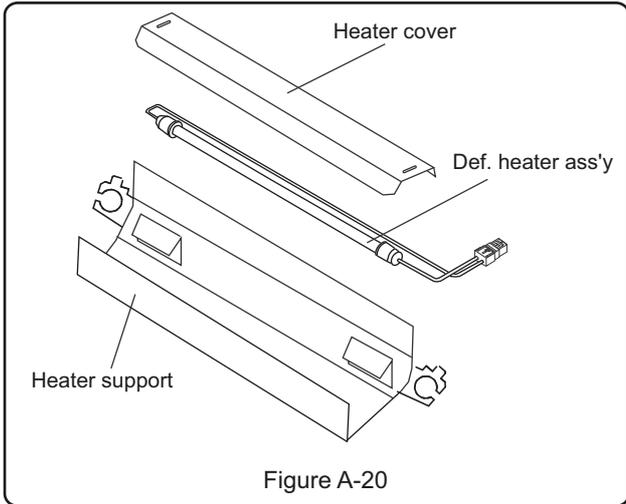


Figure A-20

5. Bend end of heater support 90.

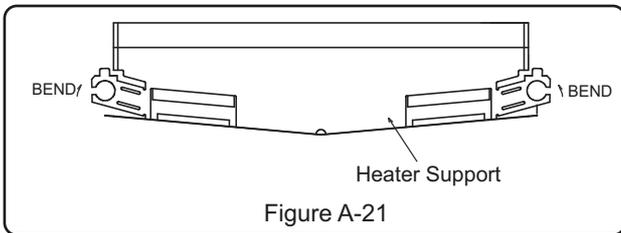


Figure A-21

6. Assemble Defrost heater to Heater Support.

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

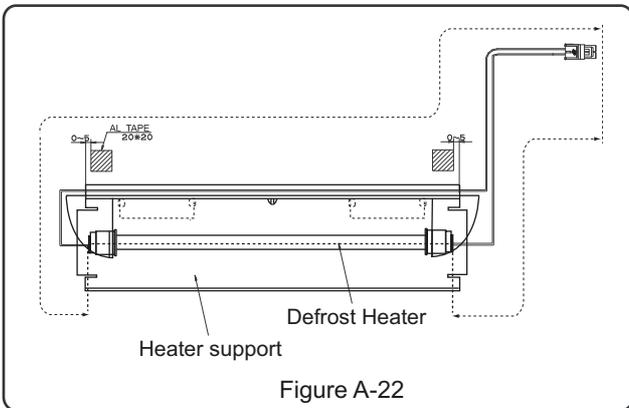


Figure A-22

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

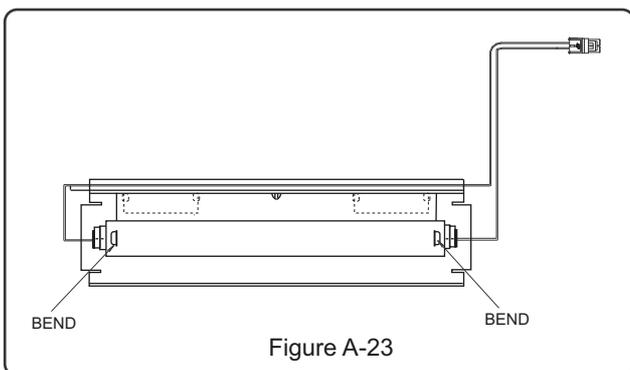


Figure A-23

### 3. Installing of Evaporator

1. Install Evaporator as shown in Figure.A-15 in the reverse order of Figure.A-16.

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.

3.You shouldn't touch Defrost Heater with your bare hand. (you should wear pure gloves)

4.You should wipe that with alcohol. When you touch Defrost heater with your bare hand.

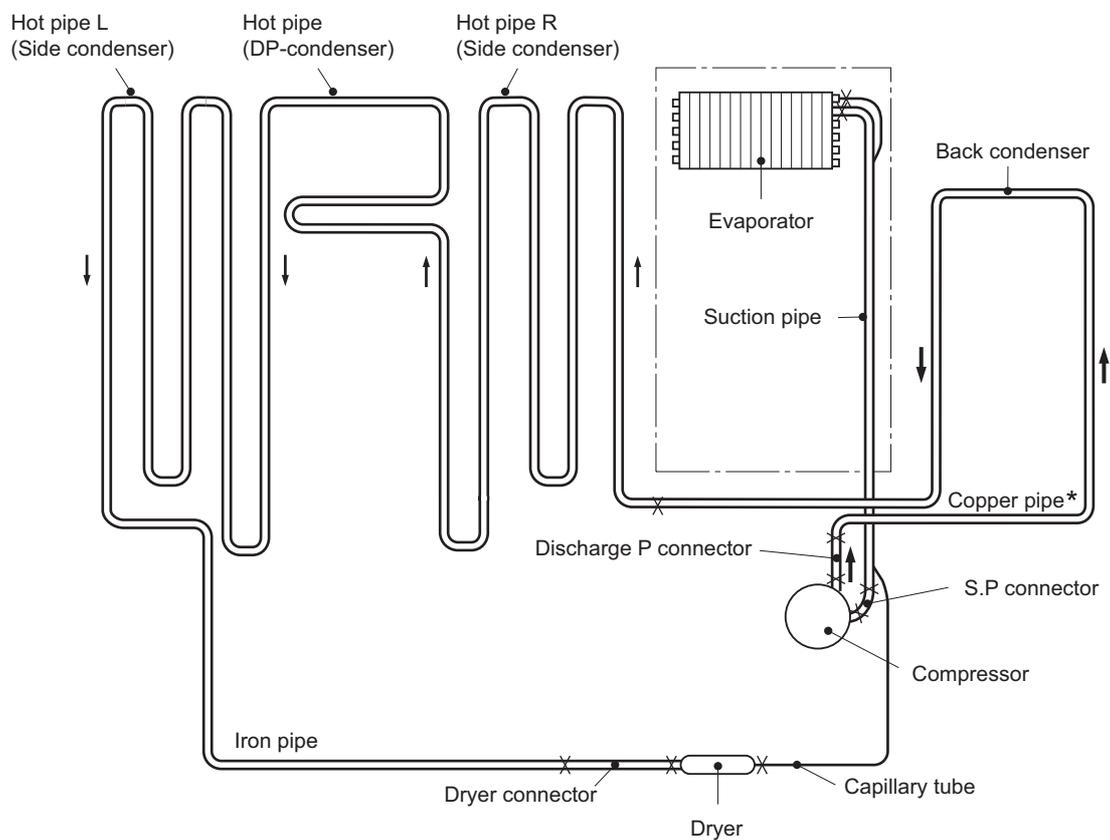
## CHAPTER 9. COOLING UNIT

### [1] COOLING UNIT

NOTE: The iron pipe is partly used of this refrigerator. Please note the following points when brazing the iron pipe.

- Brazing material should be silver brazing rod. (To be equivalent with BAg-20 or BAg-7)
- Flux should be FB3A type. (It should be non-chlorine type).
- Place an iron plate or cloth on the base frame to prevent the flux fall.
- Remove the paint and plating on the pipe by the sandpaper before start repairing.
- If you cut the iron pipe for repairing, remove the plating on the iron pipe end (20mm) by the sandpaper.
- Put the flux on silver brazing rod and dry the flux by the flame of the torch, and then start brazing.
- Remove the flux completely by the wire brush, and wipe off by the cloth after brazing.
- Leakage inspection should be done when compressor is running.
- After removing flux, paint the black enamel paint on the brazing part.

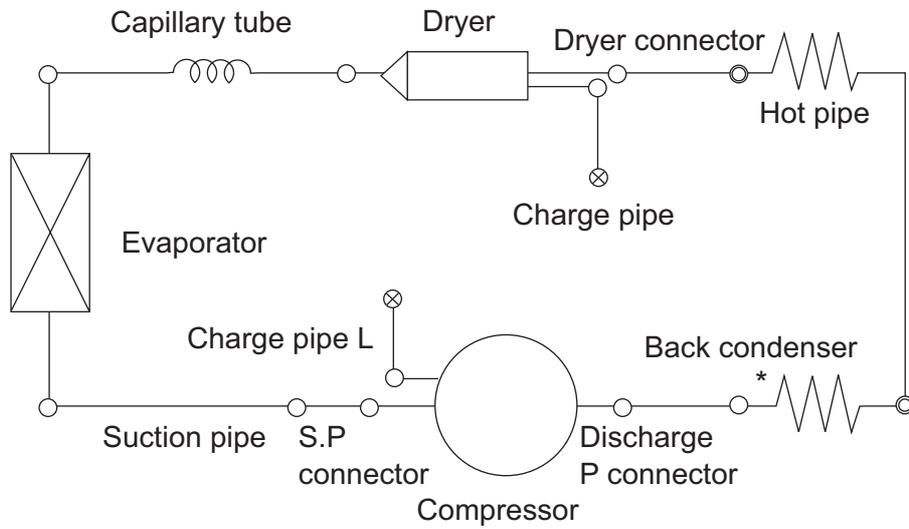
→ Mark: Refrigerant flow  
 × Mark: Brazing portion



\* Copper back condenser is used in some models. Before repairing, check the Back condenser is copper or iron.

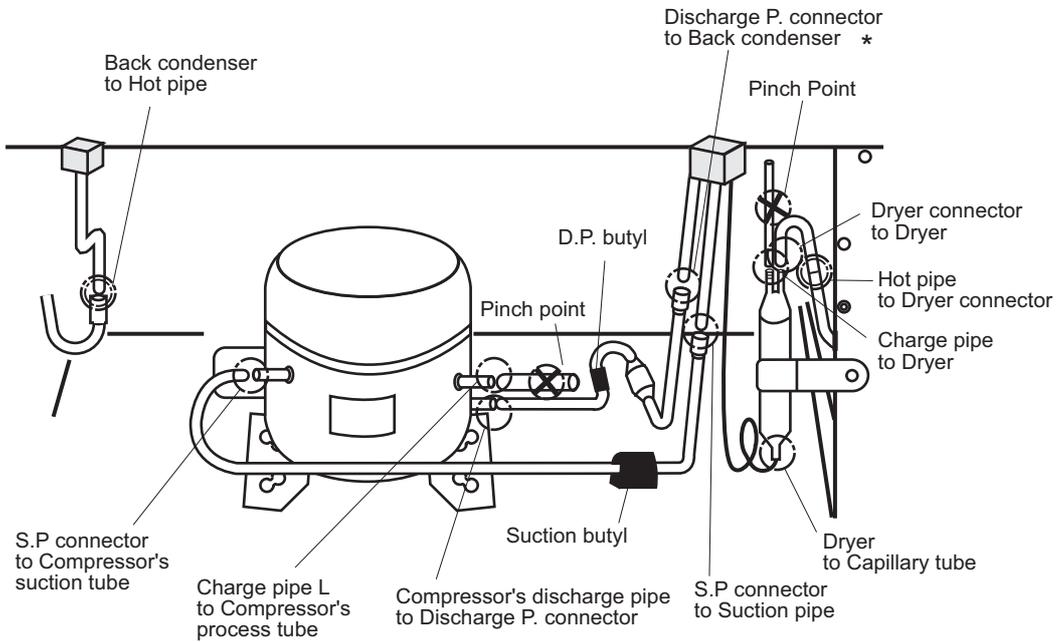
[2] LOCATION

1. Location 1



- ⊗ Mark shows pinch points
- Mark shows Cu brazing points
- ⊙ Mark shows Ag brazing points

2. Location 2



- Mark shows Cu brazing points
- ⊙ Mark shows Ag brazing points

\* Copper back condenser is used in some models. Before repairing, check the Back condenser is copper or iron.