



**Commercial  
Refrigerator  
Service Manual**

**Undercounter Freezer**

**Model No.:**                   **TUF-28SD**  
   **TUF-48SD**

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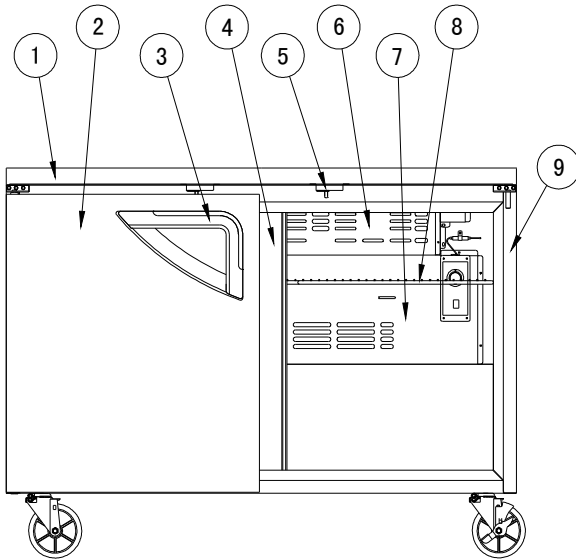
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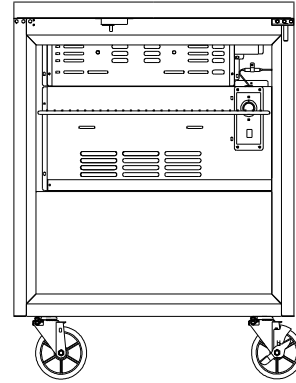
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# 1. FEATURE CHART

## 1-1.FRONT VIEW

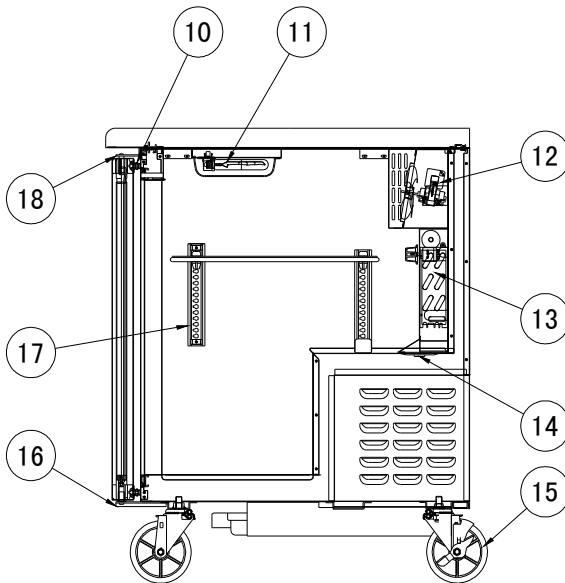


TUF-48SD



TUF-28SD

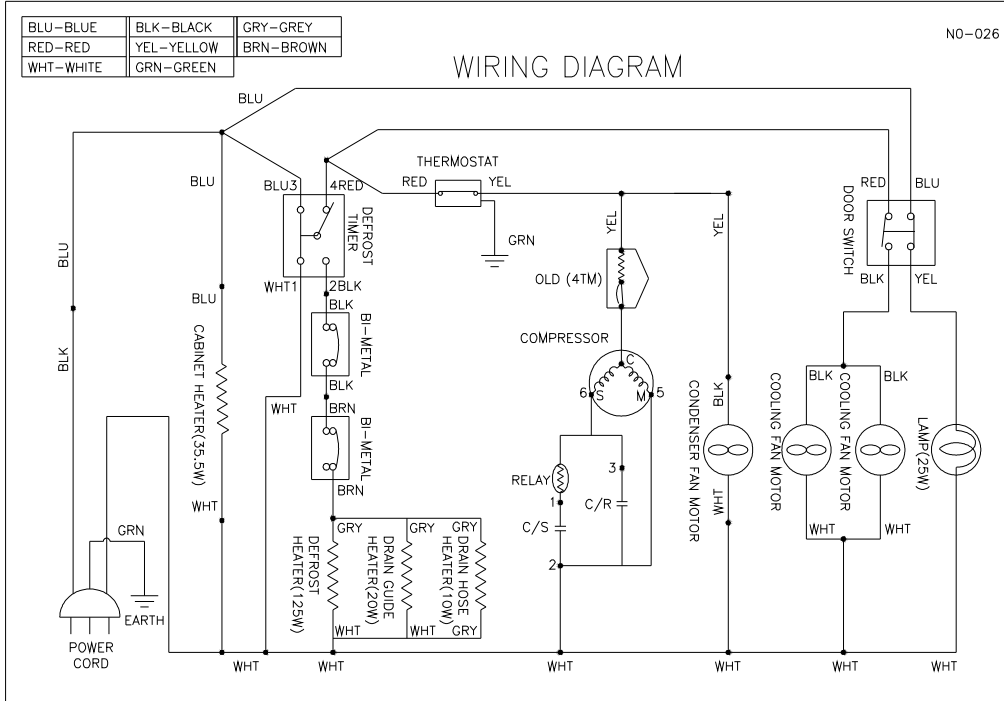
## 1-2.SIDE VIEW



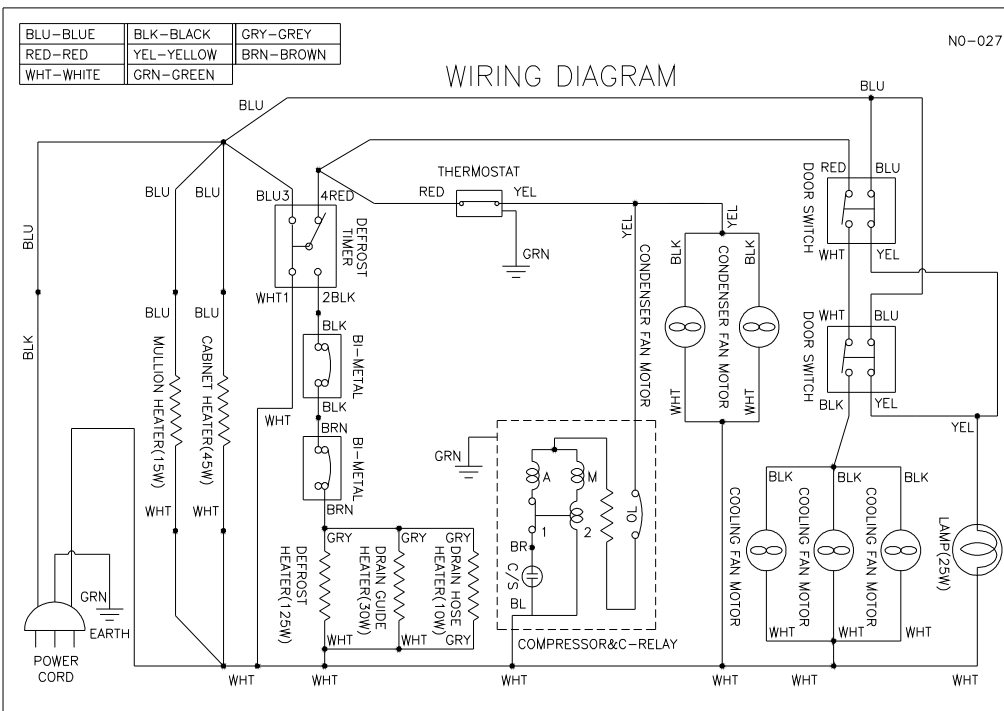
- 1 COUNTER TOP
- 2 DOOR(L)
- 3 DOOR HANDLE(L)
- 4 MULLION
- 5 DOOR SWITCH
- 6 LOUVER
- 7 EVAPORATOR DUCT
- 8 SHELF( R )
- 9 CABINET ASSEMBLY
- 10 DOOR GASKET
- 11 LAMP
- 12 EVAPORATOR FAN MOTOR
- 13 EVAPORATOR COIL
- 14 EVAPORATOR DRAIN
- 15 CASTOR
- 16 DOOR BOTTOM HINGE
- 17 SHELF CLIP
- 18 TOP HINGE

# 2. WIRING DIAGRAMS

## 2-1. TUF-28SD



## 2-2. TUF-48SD



## 3.PART DETAILS

### 3-1. COMPRESSOR COMPARTMENT



TUF-28SD



TUF-48SD

### CONDENSING UNIT ASSEMBLY

### 3-2. DOOR



DOOR GASKET

3-3. REFRIGERATION COMPARTMENT



TEMPERATURE CONTROL & EVAPORATOR



EVAPORATOR FAN MOTOR



THERMOSTAT

# 4.MAIN COMPONENTS

## 1.COMPRESSOR

MODEL	PART NAME	PART NO.	HORSE	CAPACITY	TYPE OF	INPUT	MAKER
TUF-48SD	CAE2420Z	G2F5700100	~	~	CSR	~	~
TUF-28SD	HBL-27YE-1	M369700100	1/4HP	~	CSR	~	DAEWOO

## 2.COMPRESSOR RELAY ,OVERLOAD

MODEL	RELAY	PART NO.	OVERLOAD	PART NO.	MAKER	NOTE
TUF-48SD	KPT 483 3ARR12 07 07	~	MST16AHN-3240	~	SAMSUNG	~
TUF-28SD	GSR SO68 BO8 08	~	4TM795TFBZZ-52	~	DAIWO	~

## 3.COMPRESSOR CAPACITOR

MODEL	STARTING	PART NO.	RUNNING	PART NO.	MAKER	NOTE
TUF-48SD	~	~	~	~	~	~
TUF-28SD	200V/100uF	~	230V/10uF	~	~	~

## 4.CONDENSER FAN MOTOR

MODEL	PART NAME	PART NO.	POLE	INPUT	TYPE	BLADE	MAKER
TUF-48SD	IS-4420DWSN-2A	M729900100	4P	47W	SHADED POLE INDUCTION	AL 5	SAMSUNG
TUF-28SD	IS-4420DWSN-2A	M729900100					

## 5.EVAPORATOR FAN MOTOR

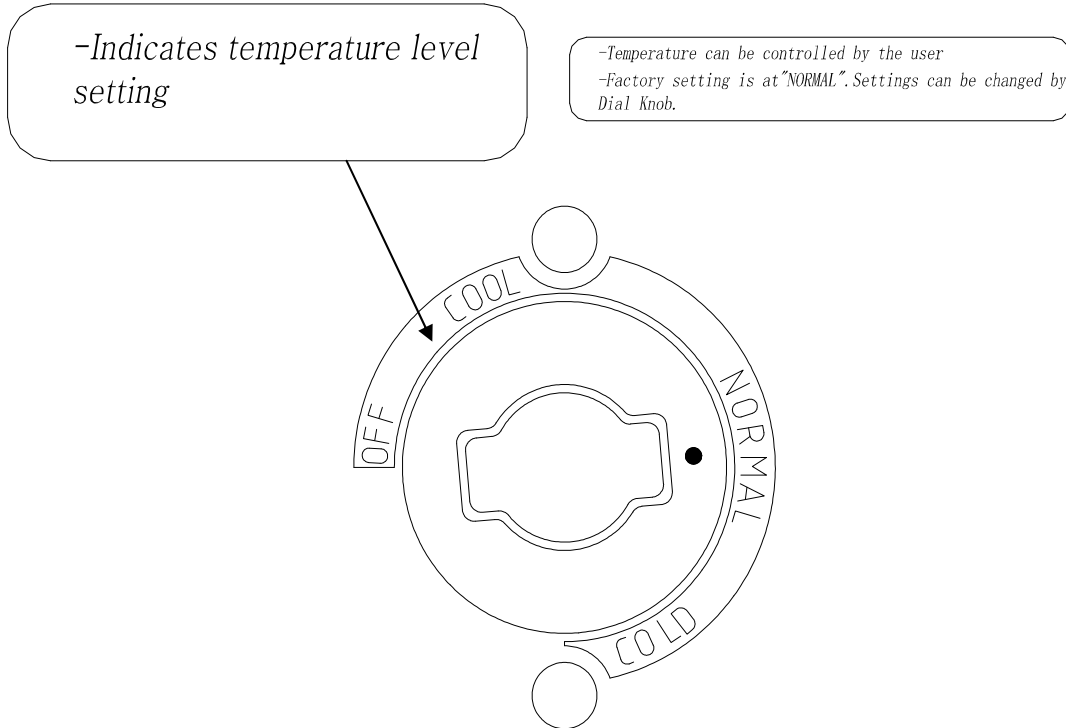
MODEL	PART NAME	PART NO.	POLE	INPUT	TYPE	BLADE (NUMBER)	MAKER
TUF-48SD	DAI-615DEUA	DAI-6152DEUA	2P	225W	SHADED POLE INDUCTION	NA-66 4	DEYOUNG
TUF-28SD	DAI-615DEUA		2P	225W			

## 6.SWITCH

PART NAME	PART NO.	RATING	MAKER
THERMOSTAT	UF48300200	GNF-106D-06A-2	RANCO
		TUF-28SD,TUF-48SD	

# 5. TEMPERATURE CONTROL INSTRUCTION

## 5-1.HOW TO USE THE TEMPERATURE CONTROL



## 5-2.FUNCTION TABLE

No	Function	Controlled	Description											
1	Tempressor Control	Compressor Evap.Fan motor Cond.Fan Motor	1.The temperature can be changed by turning the dial knob 2.Compressor is automatically turned on and off by thermostat.											
	Model:		■ Cut in and out temperature chart. °F											
	TUF-28SD TUF-48SD (GNF-106D-06A)		<table border="1"> <thead> <tr> <th>NO.</th> <th>Cool</th> <th>Normal</th> <th>Cold</th> </tr> </thead> <tbody> <tr> <td>Cut in</td> <td>4.1</td> <td>5.9 ± 2.7</td> <td>9.5</td> </tr> <tr> <td>Cut Out</td> <td>-8.5</td> <td>-6.7 ± 2.7</td> <td>-3.1</td> </tr> </tbody> </table>	NO.	Cool	Normal	Cold	Cut in	4.1	5.9 ± 2.7	9.5	Cut Out	-8.5	-6.7 ± 2.7
NO.	Cool	Normal	Cold											
Cut in	4.1	5.9 ± 2.7	9.5											
Cut Out	-8.5	-6.7 ± 2.7	-3.1											

## 6. PARTS LIST FOR UNDERCOUNTER FREEZER

Part name	Part code	Description	Model		Remark
			48	28	
<b>Cabinet</b>					
CABINET Assembly	UF20000100			1	
CABINET Assembly	UF40000100		1		
CASTER	M726500100	5INCH MOVING	2	2	SAME AS BEFORE
CASTER	M726500200	5INCH MOVING STOPPING	2	2	SAME AS BEFORE
<b>DOOR</b>					
TOP HINGE ( R )	M722900100	STS304,SM45C	1	1	
TOP HINGE ( L )	M722900200	STS304,SM45C	1		
TOP HINGE SPACER	M725000100	ABS	2	1	
BOTTOM HINGE (U)(R)	30229M0400	STS304,SM45C	1	1	SAME AS BEFORE
BOTTOM HINGE (U)(L)	30229M0300	STS304,SM45C	1		SAME AS BEFORE
DOOR GASKET	M272300100	PVC		1	SAME AS BEFORE
DOOR GASKET	M722300100	PVC	2		SAME AS BEFORE
DOOR Assembly (R)	M270000900	SUS304-#4		1	SAME AS BEFORE
DOOR Assembly (R)	M720000900	SUS304-#4	1		SAME AS BEFORE
DOOR Assembly (L)	M720001100	SUS304-#4	1		SAME AS BEFORE
<b>COMPRESSOR COMPARTMENT</b>					
COMPRESSOR	M369700100	HBL-27YE-1 (1/4HP)		1	SAME AS BEFORE
COMPRESSOR	G2F5700100	CAE2420Z	1		
SUCTION PIPE (B)	UF24400101	OD9.52X0.6T L=1550		1	
SUCTION PIPE (B)	UF44400100	OD9.52X0.6T L=2218	1		
SUCTION PIPE (A)	UF24400201	OD9.52XT0.6		1	
SUCTION PIPE (A)	UF44400200	OD9.52XT0.6	1		
COMP BASE	UF20300100	SBHG0.078"(Thickness)		1	
COMP BASE	UF40300100	SBHG0.078"(Thickness)	1		
HARNESS CAPACITOR (STARTING)	M602700303			1	
HARNESS CAPACITOR (RUNNING)	M602700605			1	
CONDENSER FAN MOTOR	3963328120	IS4420DWSN-2A	1	1	SAME AS BEFORE
POWER CORD	M721300100	KKP-30(9.85FT)	1	1	SAME AS BEFORE
CONDENSER FAN AIR GUIDE	M722500900	SBHG0.019"(Thickness)			
DRAIN HOSE	M273200100	PVC L=270		1	SAME AS BEFORE
DRAIN PAN	30211A0202	PP		1	SAME AS BEFORE
DRAIN PAN	M729300100	PP	1		
HARNESS RELAY	M272700300			1	
HARNESS RELAY	M602700503		1		
DRAIN PIPE	M724400500	STS304/ODΦ6.35X0.5T	1	1	

## PARTS LIST FOR UNDERCOUNTER FREEZER

Part name	Part code	Description			Remark
			48	28	
CONDENSER CONNETCOR PIPE (A)	UF44400300	ODΦ7.94X0.5T	1		
CONDENSER CONNETCOR PIPE	UF24400300	ODΦ7.94X0.5T		1	
CONDENSER CONNETCOR PIPE (B)	UF44400400	ODΦ7.94X0.5T	1		
CONDENSER MOTOR BRACKET	3020602202	SBHG ,0.09(Thickness)	1	1	SAME AS BEFORE
CONDENSER FAN BLADE	M729800100	AL 5	1	1	SAME AS BEFORE
REFRIGERATION COMPARTMENT					
EVAP FAN MOTOR	M729900200	DAI-6152DEUA	2	2	SAME AS BEFORE
DRYER FIXTURE	M722000500		1	1	
LOUVER	UF25800100	SUS439-2B/0.023"(Thickness)		1	
LOUVER	UF45800100	SUS439-2B/0.023"(Thickness)	1		
SHELF	M727800100	STS304	2		
SHELF	M277800100	STS304		1	
FIXTURE SHELF CLIP	30220L0900	PA-66	8	4	SAME AS BEFORE
SHELF MID BRACKET	M720600100	SUS304-#4/ 0.039"(Thickness)	1		
SHELF STANDARD	M725300200	SUS304/0.039"(Thickness)	8	4	
DRAIN PAN GUIDE	UF22500100	SBHG,T 0.19		1	
DRAIN PAN GUIDE	UF42500100	SBHG,T 0.19	1		
EVAPORATOR AS	UF27000101	CU,SPG,AL		1	
EVAPORATOR AS	UF47000101	CU,SPG,AL	1		
EVAPOVATOR FAN DUCT	M276900200	STS439-2B/0.023"(Thickness)		1	
EVAPOVATOR FAN DUCT	M486900200	STS439-2B/0.023"(Thickness)	1		
EVAPOVATOR DUCT	M276900300	STS439-2B/0.023"(Thickness)		1	
EVAPOVATOR DUCT	M486900300	STS439-2B/0.023"(Thickness)	1		
FIXTURE EVAP DUCT BRACKET	M720601000	STS304-2b/0.039"(Thickness)	2	2	SAME AS BEFORE
BRACKET MOTOR	30220T0300	STS304-2B/0.039"(Thickness)	2	2	SAME AS BEFORE
FAN COOLING BLADE	3011802210	ABS	1	1	SAME AS BEFORE
MULLION FRAME	M722200100	ABS	1		SAME AS BEFORE
MULLION BACK FRAME	M722200200	STS439/0.019"(Thickness)	1		SAME AS BEFORE
MULLION FRAME INSULATION	M723300100	F-PS	1		SAME AS BEFORE
THERMOMETER	UF48300200	GNF-106D-06A-2	1	1	SAME AS BEFORE
CONDENSER AS	UF25900101	CU,SPG,AL		1	
CONDENSER AS	UF45900101	CU,SPG,AL	1		
SPACER CUSHION	M721500300	RUBBER	4	4	
PAN	30211A0203	P.P	1	1	
HARNESS MAIN	UF22700103			1	
HARNESS MAIN	UF42700103		1		
CABINET HARNESS HEATER	UF22800100	35W		1	
CABINET HARNESS HEATER	UF42800301	45W	1		



## 7.REPLACEMENT OF MAIN COMPONENTS

### 7-1.REPLACING DOOR

#### A.Unscrew the top hinge



#### B.Lift the door



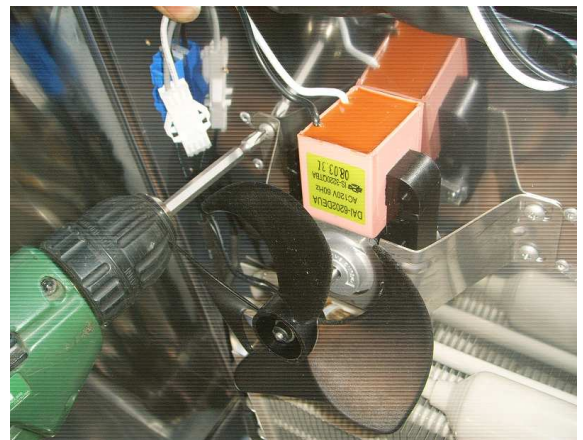
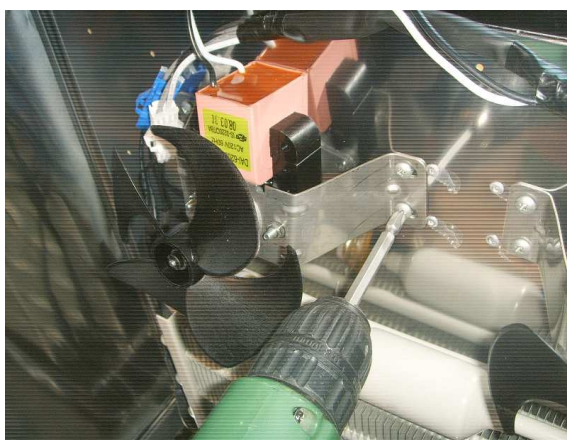
REPLACEMENT OF MAIN COMPONENTS

7-2. REFRIGERATION COMPARTMENT PARTS

A. Disassemble the evaporator fan duct assembly



B. Disassemble the evaporator fan motor



## REPLACEMENT OF MAIN COMPONENTS

C. Disassemble the evaporator duck



D. Remove the thermostat & sensor



E. Remove the evaporator coil



7-3.COMPRESSOR COMPARTMENT PARTS

A.Disassemble the rear grill



B.Disassemble the cable tie



## REPLACEMENT OF MAIN COMPONENTS

### C. Disassemble the condensing unit



Unscrew two screws as above



Pull out the condensing unit

### D. Disassemble the condenser fan motor



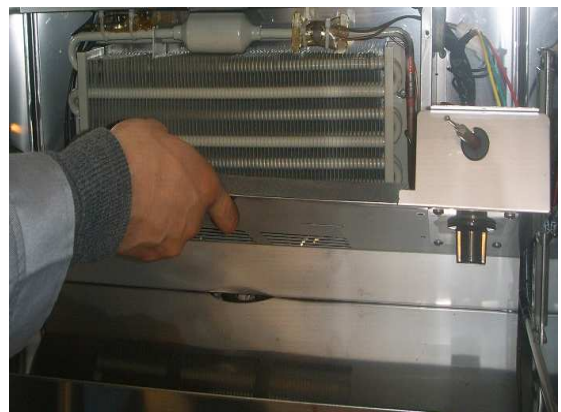
## REPLACEMENT OF MAIN COMPONENTS

### 7-4.REPLACING THE EVAPORATOR & EVAPORATOR FAN MOTOR.

A.Unscrew the screws located on left and right side of the louver and the eva fan duct.



B.Unscrew the screws located on left and right side of the eva duct.

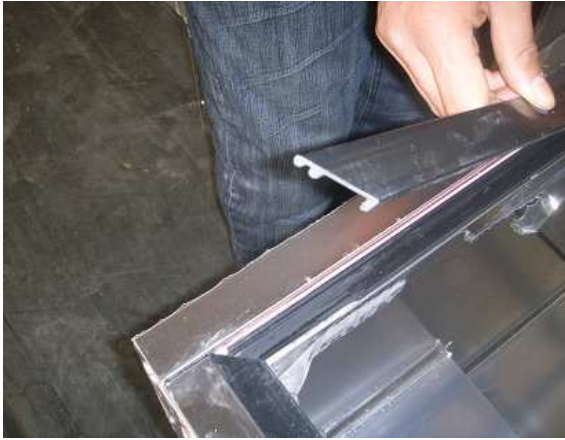


## REPLACEMENT OF MAIN COMPONENTS

C.And then, you can replace fan motor, evaporator coil and thermo sensor.



7-5.REPLACING THE HEATER.



CABINET HEATER



DEFROST HEATER



EVA DRAIN GUIDE HEATER

REPLACEMENT OF MAIN COMPONENTS



EVA DRAIN HOSE HEATER



MULLION HEATER

7-6.REPLACING THE DEFROST TIMER.



REPLACEMENT OF MAIN COMPONENTS

7-7.REPLACING THE LAMP ASSEMBLY.



7-8.REPLACING THE DOOR SWITCH.

