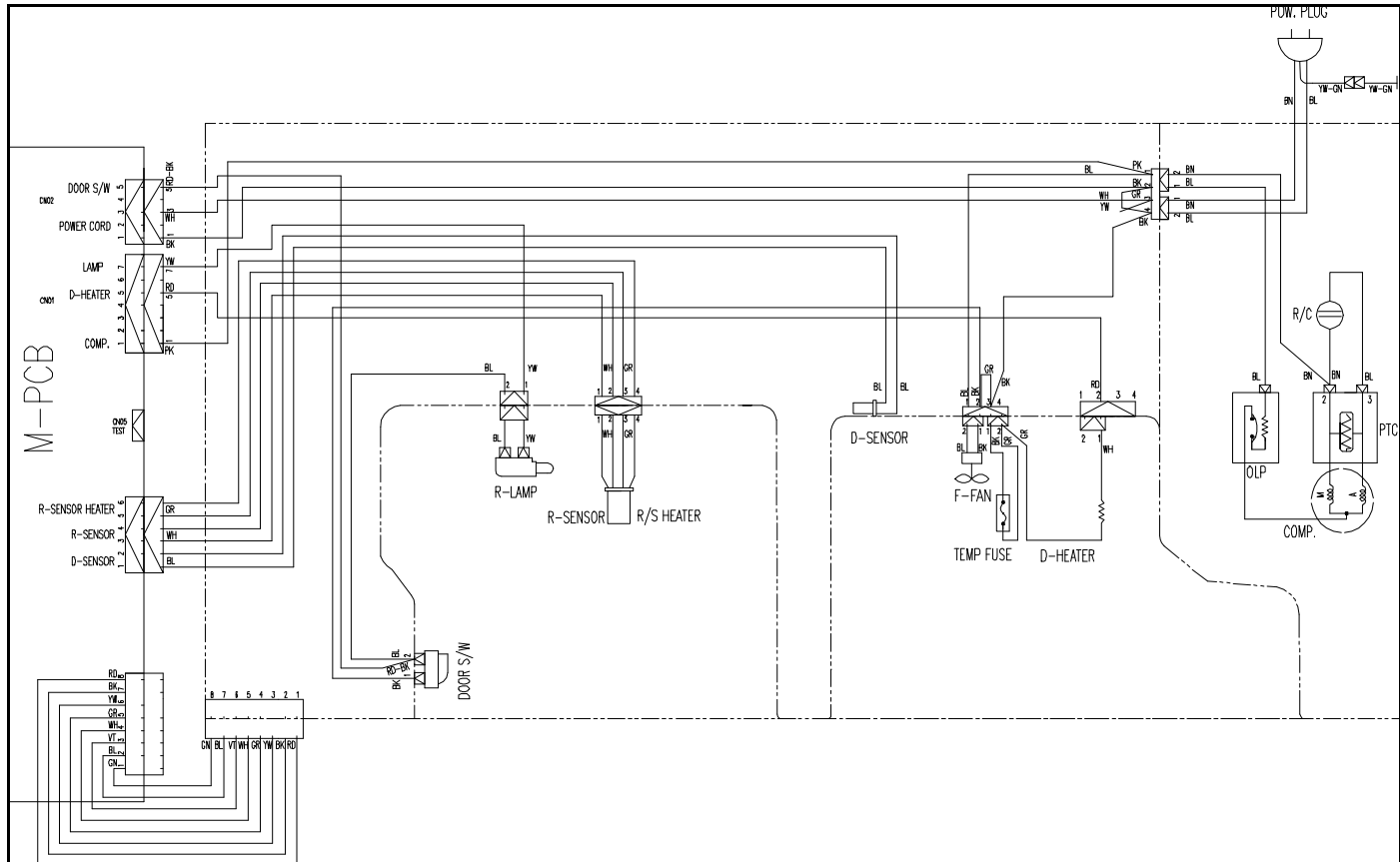


Model name		ERF-364A/EU							
Division		Automatic							
Refrigerant type		R-134A							
Refrigerant Q'ty		100gr							
Blowing agent		C-PENTANE							
Cooling system		Fan cool system							
Defrost system		Automatic start & Automatic stop system							
Compressor		HPL17YH-5							
Rated voltage		AC220~240V / 50Hz							
Rated input (W)		135W							
Lamp rated input (W)		15W							
Gross capacity (liter)	Freezer	93							
	Refrigerator	223							
	Total	316							
External dimension (mm)	Height	1780							
	Width	600							
	Depth	636,7							
Energy consumption	kwh/24h	0,98							
	class	A							
Freezing capacity(kg/24h)		5							
Star rating		* ***							
Climate class		N							
Net weight (kg)		69							

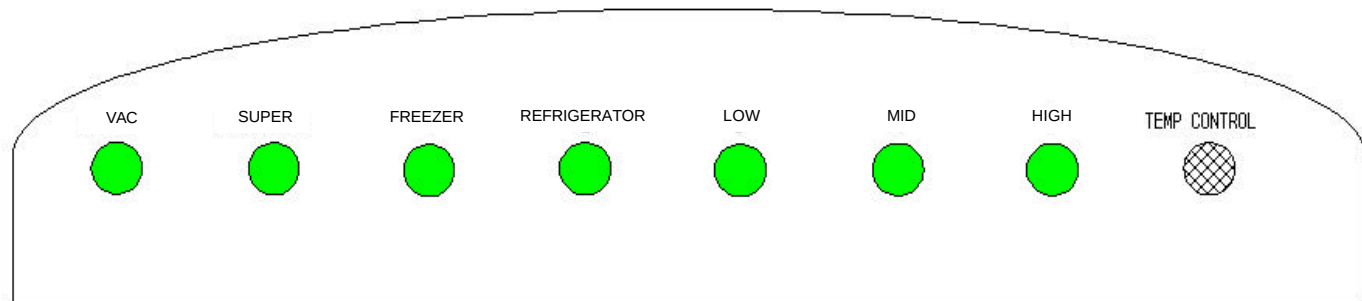
2. WIRING DIAGRAMS

2.1- ERF-364A..EU

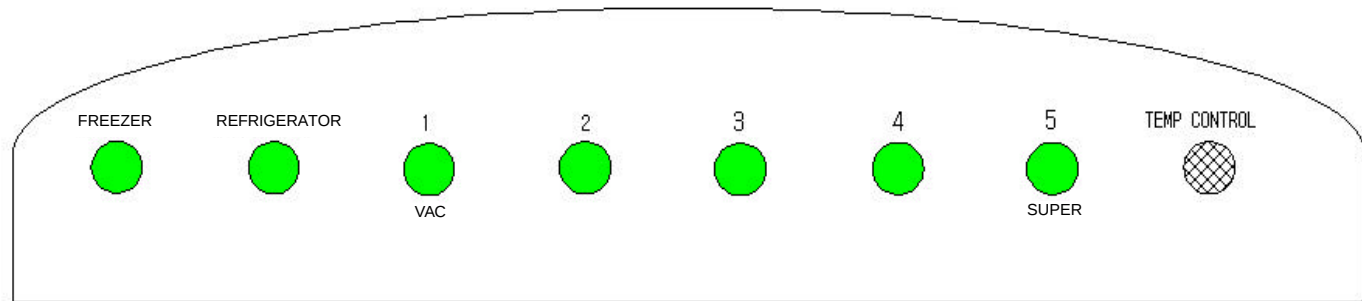


4- C/P DIFFERENCE BETWEEN ERF-...A AND ERF-...A..EU

ERF-...A

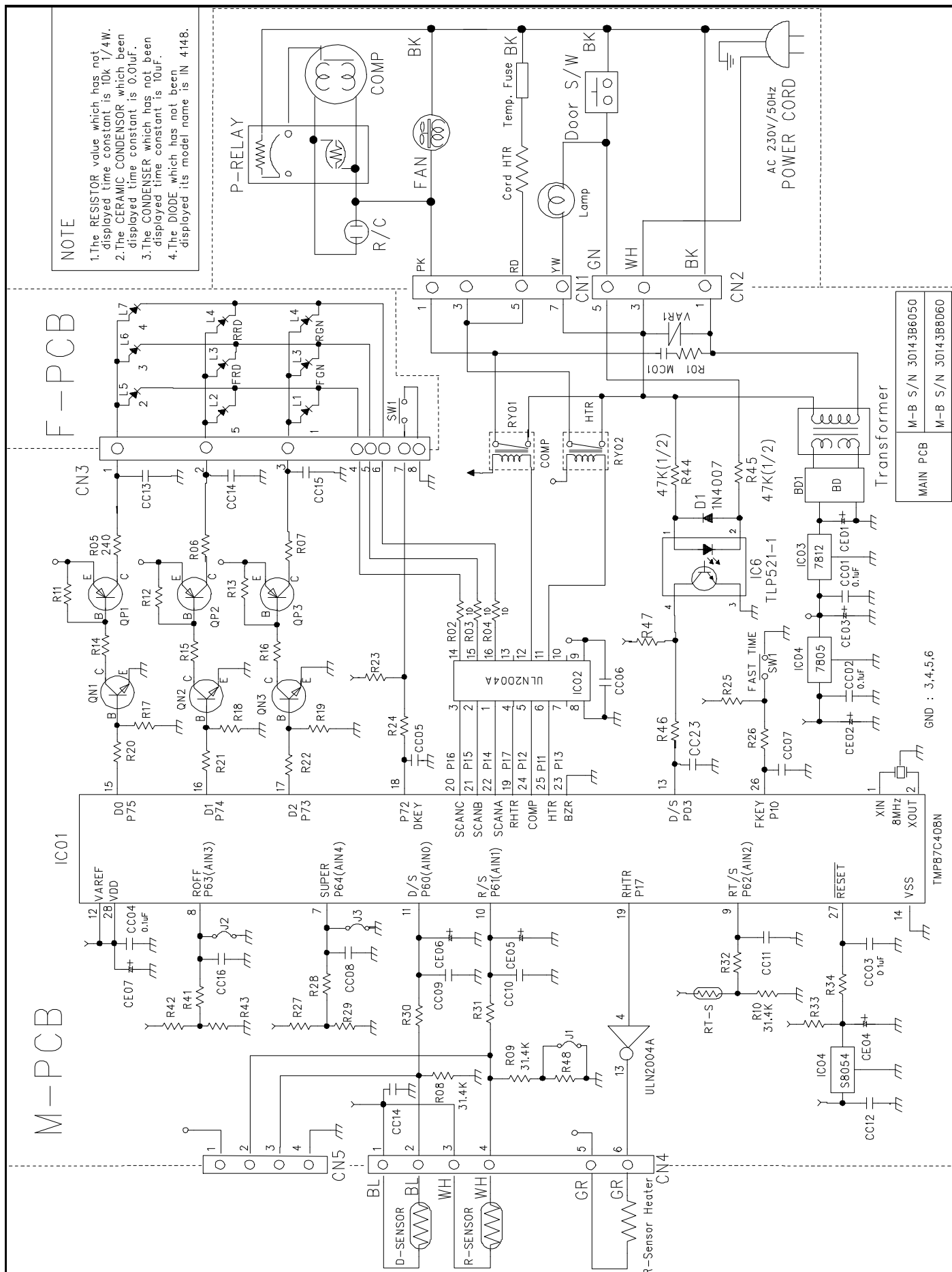


ERF-...A...EU



8- MAIN PCB DIAGRAMS

8.1- ERF-364A..EU

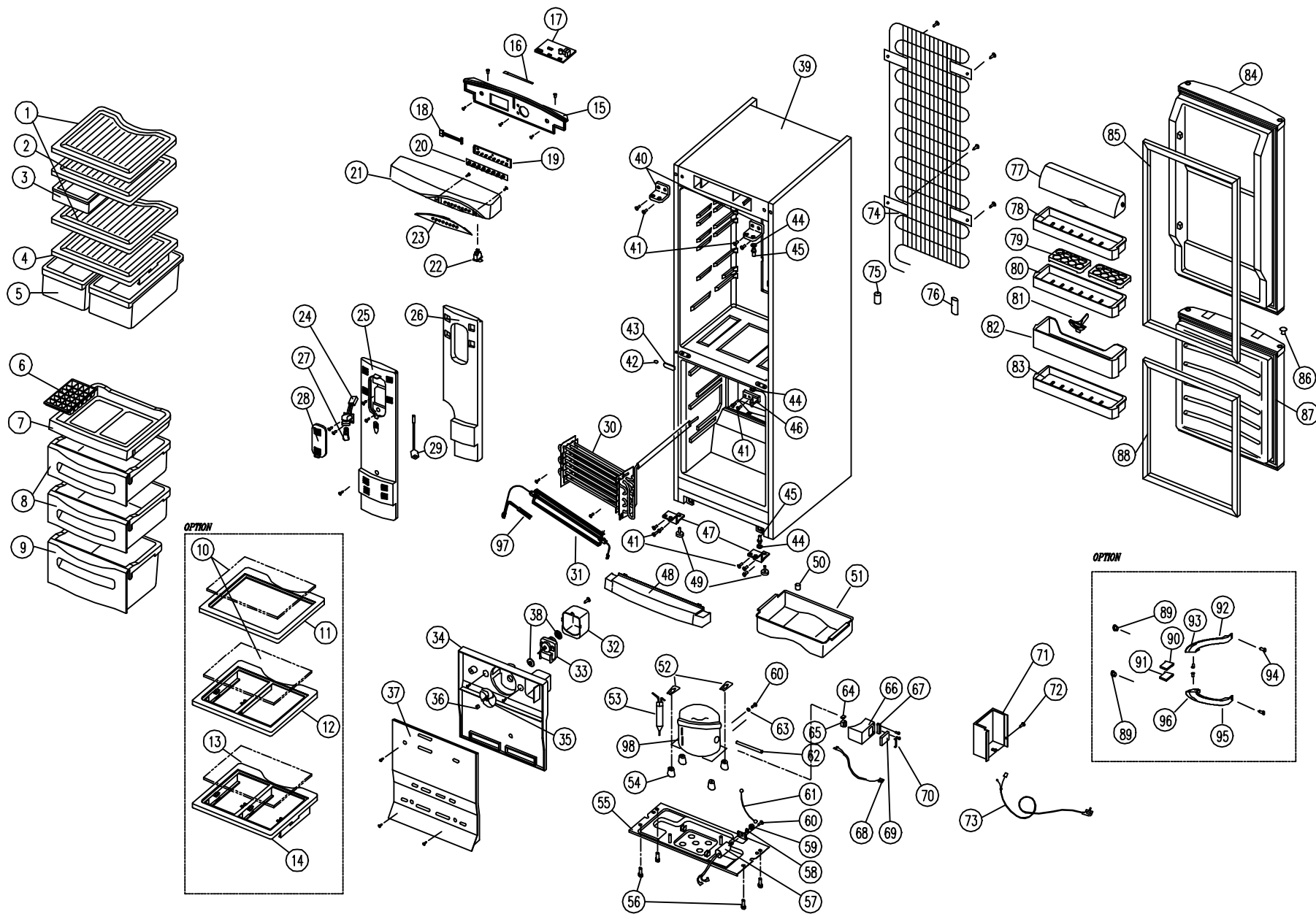


PART LIST OF COLOUR COMPONENTS (ERF-364A, 384A, 394A, 414A)

WHITE							
No	Part Name	Part code	MODEL				Description
			364	394	384	414	
1	PANEL CONTROL LL	3014231000	1	1	1	1	ABS
2	BASE CONTROL PANEL	3010312900	1	1	1	1	HIPS
3	REFRIGERATOR DOOR (364)	3010057730	1	-	-	-	URT FORMING (CO-LAMINAR)
4	REFRIGERATOR DOOR (384)	3010057720	-	-	1	-	URT FORMING (CO-LAMINAR)
5	REFRIGERATOR DOOR (394-414)	3010057750	-	1	-	1	URT FORMING (CO-LAMINAR)
6	FREEZER DOOR (364-394)	3010086570	1	1	-	-	URT FORMING (CO-LAMINAR)
7	FREEZER DOOR (384)	3010086780	-	-	1	-	URT FORMING (CO-LAMINAR)
8	FREEZER DOOR (414)	3010086580	-	-	1	1	URT FORMING (CO-LAMINAR)
9	REFRIGERATOR DOOR (364)-HH	3010086490	1	-	-	-	URT FORMING (CO-LAMINAR)
10	REFRIGERATOR DOOR (384)-HH	3010057710	-	-	1	-	URT FORMING (CO-LAMINAR)
11	REFRIGERATOR DOOR (394-414)-HH	3010057740	-	1	-	1	URT FORMING (CO-LAMINAR)
12	FREEZER DOOR (364-394)-HH	3010086590	1	1	-	-	URT FORMING (CO-LAMINAR)
13	FREEZER DOOR (384)-HH	3010086770	-	-	1	-	URT FORMING (CO-LAMINAR)
14	FREEZER DOOR (414)-HH	3010086600	-	-	1	1	URT FORMING (CO-LAMINAR)
15	HANDLE *F	3012626900	1	1	1	1	PBT
16	HANDLE *R	3012627000	1	1	1	1	PBT
17	COVER DOOR CAP *L	3011467300	2	2	2	2	ABS
18	COVER DOOR CAP *R	3011467400	2	2	2	2	ABS
19	CAP HANDLE	3010910000	4	4	4	4	HIPS
20	CAP SCREW	3010920200	1	1	1	1	HIPS
21	CAP DOOR BUSHING	3010918301	1	1	1	1	PP
22	COVER CAB BRACKET	3011467500	1	1	1	1	HIPS

SILVER							
No	Part Name	Part code	MODEL				Description
			364	394	384	414	
1	PANEL CONTROL LL	3014231020	1	1	1	1	ABS + SILVER
2	BASE CONTROL PANEL	3010312910	1	1	1	1	HIPS +SILVER
3	REFRIGERATOR DOOR (364)	3010057760	1	-	-	-	URT FORMING (CO-LAMINAR)
4	REFRIGERATOR DOOR (384)	3010057800	-	-	1	-	URT FORMING (CO-LAMINAR)
5	REFRIGERATOR DOOR (394-414)	3010057770	-	1	-	1	URT FORMING (CO-LAMINAR)
6	FREEZER DOOR (364-394)	3010086620	1	1	-	-	URT FORMING (CO-LAMINAR)
7	FREEZER DOOR (384)	3010086800	-	-	1	-	URT FORMING (CO-LAMINAR)
8	FREEZER DOOR (414)	3010086630	-	-	1	1	URT FORMING (CO-LAMINAR)
9	REFRIGERATOR DOOR (364)-HH	3010057780	1	-	-	-	URT FORMING (CO-LAMINAR)
10	REFRIGERATOR DOOR (384)-HH	3010057820	-	-	1	-	URT FORMING (CO-LAMINAR)
11	REFRIGERATOR DOOR (394-414)-HH	3010057790	-	1	-	1	URT FORMING (CO-LAMINAR)
12	FREEZER DOOR (364-394)-HH	3010086640	1	1	-	-	URT FORMING (CO-LAMINAR)
13	FREEZER DOOR (384)-HH	3010086790	-	-	1	-	URT FORMING (CO-LAMINAR)
14	FREEZER DOOR (414)-HH	3010086650	-	-	1	1	URT FORMING (CO-LAMINAR)
15	HANDLE *F	3012626910	1	1	1	1	PBT + DARK GREY
16	HANDLE *R	3012627010	1	1	1	1	PBT + DARK GREY
17	COVER DOOR CAP *L	3011467320	2	2	2	2	ABS + SILVER
18	COVER DOOR CAP *R	3011467420	2	2	2	2	ABS + SILVER
19	CAP HANDLE	3010910010	4	4	4	4	HIPS +SILVER
20	CAP SCREW	3010920210	1	1	1	1	HIPS +SILVER
21	CAP DOOR BUSHING	3010918310	1	1	1	1	PP + SILVER
22	COVER CAB BRACKET	3011467520	1	1	1	1	HIPS + SILVER

INOX (Dark gray)							
No	Part Name	Part code	MODEL				Description
			364	394	384	414	
1	PANEL CONTROL LL	3014231010	1	1	1	1	ABS
2	BASE CONTROL PANEL	3010312910	1	1	1	1	HIPS
3	REFRIGERATOR DOOR (364)	3010057830	1	-	-	-	URT FORMING (INOX)
4	REFRIGERATOR DOOR (384)	3010057870	-	-	1	-	URT FORMING (INOX)
5	REFRIGERATOR DOOR (394-414)	3010057840	-	1	-	1	URT FORMING (INOX)
6	FREEZER DOOR (364-394)	3010086670	1	1	-	-	URT FORMING (INOX)
7	FREEZER DOOR (384)	3010086820	-	-	1	-	URT FORMING (INOX)
8	FREEZER DOOR (414)	3010086680	-	-	1	1	URT FORMING (INOX)
9	REFRIGERATOR DOOR (364)-HH	3010057850	1	-	-	-	URT FORMING (INOX)
10	REFRIGERATOR DOOR (384)-HH	3010057890	-	-	1	-	URT FORMING (INOX)
11	REFRIGERATOR DOOR (394-414)-HH	3010057860	-	1	-	1	URT FORMING (INOX)
12	FREEZER DOOR (364-394)-HH	3010086690	1	1	-	-	URT FORMING (INOX)
13	FREEZER DOOR (384)-HH	3010086810	-	-	1	-	URT FORMING (INOX)
14	FREEZER DOOR (414)-HH	3010086700	-	-	1	1	URT FORMING (INOX)
15	HANDLE *F	3012626910	1	1	1	1	PBT + DARK GREY
16	HANDLE *R	3012627010	1	1	1	1	PBT + DARK GREY
17	COVER DOOR CAP *L	3011467310	2	2	2	2	ABS
18	COVER DOOR CAP *R	3011467410	2	2	2	2	ABS
19	CAP HANDLE	3010910010	4	4	4	4	HIPS
20	CAP SCREW	3010920210	1	1	1	1	HIPS
21	CAP DOOR BUSHING	3010918310	1	1	1	1	PP
22	COVER CAB BRACKET	3011467510	1	1	1	1	HIPS



PART LIST

5. Part List (ERF-364A_EU, 394A_EU, 414A_EU Type)

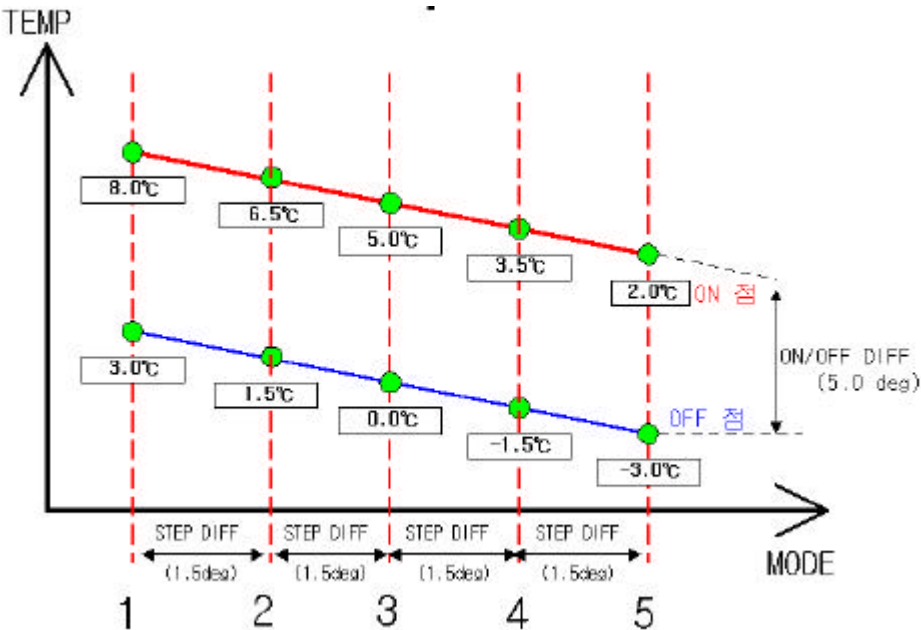
NO	PART NAME	PART CODE	MODEL			DESCRIPTION	REMARK
			364	394	414		
1	SHELF R	3017823200	3	3	3	GPPS	391/411
2	COVER CHILLED CASE	3011453400	-	1	1		
3	CASE CHILD	3011163300	-	1	1	GPPS	
4	COVER VEGTB CASE	3011453600	1	1	1	GPPS	
5	CASE VEGTB	3011163480	2	2	2	GPPS	
6	CASE ICING	3011163200	1	1	1	PP	
7	CASE FD	3011115940	1	1	1	HIPS	
8	CASE FB (414:CASE FC)	3011115301	2	2	-	HIPS	
		3011115410	-	-	2	HIPS	
9	CASE FA	3011115230	1	1	1	HIPS	
10	PLATE SHELF GLASS	3014547700	3	3	3	GLASS t4.0	OPTION
11	FRAME GLASS SHELF	3012202400	3	3	4	HIPS	OPTION
12	FRAME C/CASE COVER	3012202500	-	1	1	HIPS	OPTION
13	PLATE V/CASE COVER GLASS	3014547800	1	1	1	GLASS t4.0	OPTION
14	FRAME V/CASE COVER	3012202600	1	1	1	HIPS	OPTION
15	BASE CONTROL PANEL	COLOUR PAGE 6	1	1	1	HIPS	
16	CABLE TIE	4016N03281	1	1	1		
17	PCB MAIN AS	30143B8060	1	1	1		
18	HARNESS F PCB	3012718300	1	1	1		
19	PCB F AS	30143B6160	1	1	1		
20	WINDOWS LED	3015507400	1	1	1	SILICON RUBBER	
21	PANEL CONTROL	COLOUR PAGE 6	1	1	1	ABS	
22	SWITCH LAMP	3018111500	1	1	1	250V 0,25A	
23	WINDOW C/PANEL L/L	3015507220	1	1	1	ABS	
24	SOCKET LAMP AS	3017903900	1	1	1	AC250V	ASSY
25	COVER MULTI DUCT	3011451900	1	-	-	HIPS	
		3011452100	-	1	1	HIPS	
26	INSULATOR MULTI DUCT	3016637000	1	-	-	F-PS	
		3013337200	-	1	1	F-PS	
27	LAMP	3013600700	1	1	1	230V 15W	
28	WINDOW LAMP	3015503300	1	1	1		GPPS
29	SENSOR R AS	3012731800	1	1	1		
30	EVAPORATOR AS	3017045600	1	1	1	EVA+SUC PIPE	
31	HEATER D AS	3012807600	1	1	1	GLASS HEATER+FUSE TEMP	
32	BRACKET FAN MOTOR	3010615600	1	1	1	PP	
33	MOTOR FAN AS	3011804710	1	1	1	IS-231 1DWBF0	
34	LOUVER F B	3018905500	1	1	-	PP	
		3018905600	-	-	1	PP (414:HIPS)	
35	FAN	3011801410	1	1	1	ABS /100	
36	FIXTURE FAN RING	3012005400	1	-	-	SUS304 t0.5	
37	LOUVER F A	3018913800	1	1	-	HIPS	
		3018913900	-	-	1	HIPS	
38	BUSHING FAN MOTOR	3010901800	2	2	2	NR	
39	ASSY CAB URT	3010071001	1	-	-	ASSY	
		3010071010	-	1	-	ASSY	
		3010071020	-	-	1	ASSY	
40	HINGE *T	3012908100	2	2	2	P/O+ZN t3.2	
41	SPECIAL BOLT C	3016004900	10	10	10	M5xP0.89xL16 SWCH22A	
42	CAP SCREW	COLOUR PAGE 6	1	1	1	PE-LD	
43	CAP SCREW HOLE	3010920300	1	1	1	HIPS	
44	SPECIAL WASHER HINGE	3016005500	3	3	3	S20C t1.0 13/7	
45	SHAFT HI	3014903200	2	2	2		
46	HINGE *M	3012908001	1	1	1	DIE CASTING	
47	HINGE *U	3012908201	2	2	2	P/O+ZN t3.2	
48	COVER CAB BRACKET	COLOUR PAGE 6	1	1	1	HIPS	
49	FOOT ADJUSTING AS	3012101800	2	2	2	PP+SPECIAL BOLT	
50	CAP DRAIN HOSE	3010919700	1	1	1	NBR	

NO	PART NAME	PART CODE	MODEL			DESCRIPTION	REMARK
			364	394	414		
51	CASE VAPORY	3011162600	1	1	1	PP	
52	FIXTURE COMP	3012005300	2	2	2	SK5+ZN5-C t0.8	
53	DRYER ASSY	3016802202	1	1	1	15Gr (t0.51)	
54	ABSORBER COMP	3010101700	4	4	4	NR	
55	BASE COMP	3010318600	1	1	1	SBHG t1.0	
56	SPECIAL SCREW A	3016004300	4	4	4	M6.5xL20	
57	CAPACITOR RUN	3016402110	1	1	1	4uF 400AC	
58	SPECIAL WASHER R/C	3016006410	1	1	1	A	
59	SPECIAL NUT R/C	3016006510	1	1	1	M8	
60	SCREW MACHINE	7051401065	2	2	2	PAN 4x10 BSNI	
61	HARNESS EARTH	3012735200	1	1	1	HOUSING+RING TERMINAL	
62	PIPE CHARGE	3014418202	1	1	1	DUCT1-O	
63	SPECIAL WASHER	3016004700	1	1	1	/4.3 STAR	earth:4
64	SWITCH P RELAY OL	3817923600	1	1	1	4TM129SHBYY-53	
65	SWITCH P RELAY PTC	3817923700	1	1	1	33W	
66	RELAY BOX	3810506400	1	1	1		
67	CABLE CLAMP	3818200300	1	1	1		
68	HARNESS RELAY	3012731900	1	1	1		
69	RELAY BOX COVER	3811401300	1	1	1		
70	BAND RELAY	3816100400	1	1	1		
71	COVER MECH HOUSING	3011454100	1	1	1	HIPS	
72	SPECIAL SCREW	3016004800	2	2	2		
73	CORD POWER AS	3011343310	1	1	1	250V, 10/16A	COMMON
		3011343410	1	1	1	250V, 5A	U.K. SPECIAL
74	PIPE WI-CON AS	3014434510	1	1	-		
75	ABSORBER PIPE C	3010103000	2	2	2	EPDM, 40gr.	PIPE CONN
76	ABSORBER PIPE B	3010101900	1	1	1	IIR	PIPE SUC
77	COVER BUTTER CASE	3011433100	1	1	1	GPPS	
78	CASE BUTTER	3011114620	1	1	1	GPPS	
79	CASE EGG	3011163600	2	2	2	PP	
80	POCKET EGG	3019008700	1	1	1	HIPS	
81	GUIDE POCKET	3012510200	1	1	1	PP	
82	POCKET BOTTLE A	3019008600	1	1	1	HIPS	
83	POCKET R DOOR	3019008730	1	1	1	HIPS	
84	ASSY R DOOR URT	COLOUR PAGE 6	1	-	-	ASSY	
		COLOUR PAGE 6	-	1	1	ASSY	
85	GASKET R DOOR AS	3012306600	1	-	-	PVC+MAGNET	
		3012306800	-	1	1	PVC+MAGNET	
86	CAP DOOR BUSHING	COLOUR PAGE 6	1	1	1	PP	
87	ASSY F DOOR URT	COLOUR PAGE 6	1	1	-	ASSY	
		COLOUR PAGE 6	-	-	1	ASSY	
88	GASKET F DOOR AS	3012306500	1	1	-	PVC+MAGNET	
		3012306700			1		
89	CAP HANDLE	COLOUR PAGE 6	1	1	1	HIPS	OPTION
90	COVER DOOR CAP *L	COLOUR PAGE 6	2	2	2	ABS	OPTION
91	COVER DOOR CAP *R	COLOUR PAGE 6	2	2	2	ABS	OPTION
92	HANDLE R	COLOUR PAGE 6	1	1	1	ABS	OPTION
93	DECO. HANDLE R	3011612500	1	1	1	ABS+CR COATING	OPTION
94	SPECIAL SCREW D	3016004820	4	4	4	T2 FLT 4x16 PAINTING	OPTION
95	HANDLE F	COLOUR PAGE 6	1	1	1	ABS	OPTION
96	DECO. HANDLE F	3011612400	1	1	1	ABS+CR COATING	OPTION
97	TEPERATURE FUSE	3017200420	1	1	1		
98	COMPRESSOR	3956117S50	1	1	1	HPL17YH1-5	
99	D-SENSOR	3012733910	1	1	1		

11. PCB CONTROL FUNCTIONS

11.1- ERF-..4A..EU

NO	FUNCTION	CONTENTS										
1	DISPLAY	FREEZER REFRIGERTOR 1 2 3 4 5 TEMP CONTROL 1) VAC ON : When VAC LED is ON by CONTROL SWITCH. 2) SUPER COOL ON : When SUPER COOL LED is ON by CONTROL SWITCH. 3) FREEZER TEMP DISPLAY : OK- GREEN LED on / NG RED LED on 4) REFRIGERATOR TEMP. DISPLAY : OK - GREEN LED on / NG- RED LED on 5) REFRIGERATOR TEMP. CONTROL DISPLAY : One of LEDS(LOW,MID,HIGH) is on 6) FUNCTION DISPLAY - D1 ERROR : FREEZER RED LED is on & off one time. - D2 ERROR : FREEZER RED LED is on & off two times. - R1 ERROR : REF. RED LED is on & off one time. - RT ERROR : REF. RED LED is on & off two times. <table><tr><th>DISPLAY</th><th>LED</th></tr><tr><td>D1 ERROR</td><td> </td></tr><tr><td>D2 ERROR</td><td> </td></tr><tr><td>R1 ERROR</td><td> </td></tr><tr><td>RT ERROR</td><td> </td></tr></table> - SHORT CIRCUIT CONDITION : LOW, MID, HIGH, VAC, SUPER LED lamps are all on	DISPLAY	LED	D1 ERROR		D2 ERROR		R1 ERROR		RT ERROR	
		DISPLAY	LED									
D1 ERROR												
D2 ERROR												
R1 ERROR												
RT ERROR												

2	TEMPERATURE ADJUSTMENT & CONTROL	1) TEMP. CONTROL BUTTON ① TEMP. CONTROL : When TEMP CONTROL button is pressed, the led lamps LOW, MID, HIGH, VAC, SUPER COOL, LOW will be on in sequence. TEMP. will be set if the button doesn't get pressed again for 5 seconds. ② FORCED DEFROST : will be start when this button pushed for over 5 seconds continuously. ③ SHORT CIRCUIT OPERATION : will be started and stopped when this button pushed over 30 times. 2) TEMPERATURE CONTROL ① COMP will be controlled by the on/off condition of each mode. ② STEP DIFF of ROOM R : 1.5 deg ③ OFF point of ROOM R : 0°C ④ ON/OFF DIFF of ROOM R : DEFAULT MODE : 4 deg ENERGY CONSUMPTION MODE : 5 deg  3) FORCED DEFROST ① Defrost mode will be Started independent of the cycle. ② The flow is same as the general defrost mode flow. 4) SHORT CIRCUIT OPERATION ① COMP & FAN will be on independent of the operation condition. ② The time limit of SHORT CIRCUIT OPERATION : 60 hrs
3	VACATION MODE 1	Press TEMP. CONTROL button and make 1LED lamp on.(Case: DEFAULT MODE & ENERGY CONSUMPTION MODE) ON POINT : 8.0°C OFF POINT : 3.0°C

4	SUPER MODE 5	Press TEMP. CONTROL button and make 5 led lamp on. ON POINT : 2.0°C OFF POINT : -3.0°C																													
5	FREEZER OK / NG DISPLAY	1) Initial Condition : FREEZER RED LED LAMP on 2) OK Condition : If temperature goes down under -5°C, green led lamp is supposed to be on. 3) NG Condition : If temperature condition or time condition is satisfied, red led lamp is on. • Temperature Condition : Over -5°C at D-SENSOR when Comp turns off. • Time Condition : Over -5°C at D SENSOR when Comp. Is running for 4hr. 4) D1 ERROR : FREEZER RED LED LAMP - on & off (This error means that DSENSOR is short or open condition.) 5) D2 ERROR : FREEZER RED LED LAMP - on & off two times (D2 ERROR happens when HEATER or TEMP. FUSE is open or there is heavy frost on the surface of EVA. On this condition, the system will be in defrost mode for 80 min.)																													
6	REFRIGERATOR OK / NG DISPLAY	1) Initial Condition : FREEZER RED LED LAMP on 2) OK Condition : If temperature goes down under 10°C, green led lamp is supposed to be on. 3) NG Condition : If temperature condition or time condition is satisfied, red led lamp is on. • Temperature Condition : Under -7°C or over 10°C at D-SENSOR when Comp turns off. • Time Condition : Over 10°C at D SENSOR when Comp. Is running for 4hr. 4) R1 ERROR : REFRIGERATOR RED LED LAMP - on & off (This error means that RSENSOR is short or open condition.)																													
7	DETERMINATION OF DEFROST	1) Starting condition of Defrost Mode ① When accumulated running time of comp. is 6, 8, 12, 30hrs. ② After Checking the condition ‘①’ if total time(COMP on time + COMP off time) is more than 24, 48, 75hrs, then defrost mode starts immediately. <table><tr><th rowspan="2">RT-SENSOR</th><th colspan="2">Accumulated running time of COMP</th><th colspan="2">Total running time of COMP</th></tr><tr><th>Door Open</th><th>Door Close</th><th>Door Open</th><th>Door Close</th></tr><tr><td>RT 33°C-</td><td>8HR</td><td>8HR</td><td>24HR</td><td>24HR</td></tr><tr><td>18<RT< 32°C</td><td>12HR</td><td>30HR</td><td>48HR</td><td>75HR</td></tr><tr><td>15<RT< 17°C</td><td>6HR</td><td>6HR</td><td>24HR</td><td>24HR</td></tr><tr><td>RT 14°C-</td><td>6HR</td><td>6HR</td><td>24HR</td><td>24HR</td></tr></table>	RT-SENSOR	Accumulated running time of COMP		Total running time of COMP		Door Open	Door Close	Door Open	Door Close	RT 33°C-	8HR	8HR	24HR	24HR	18<RT< 32°C	12HR	30HR	48HR	75HR	15<RT< 17°C	6HR	6HR	24HR	24HR	RT 14°C-	6HR	6HR	24HR	24HR
RT-SENSOR	Accumulated running time of COMP			Total running time of COMP																											
	Door Open	Door Close	Door Open	Door Close																											
RT 33°C-	8HR	8HR	24HR	24HR																											
18<RT< 32°C	12HR	30HR	48HR	75HR																											
15<RT< 17°C	6HR	6HR	24HR	24HR																											
RT 14°C-	6HR	6HR	24HR	24HR																											

8	DEFROST MODE	1) General Defrost Mode ① Start : By determination of defrost ② Process : general operation - Heater on - Pause - general operation <table><tr><td></td><td>R-134A</td><td>R-600A</td></tr><tr><td>TEMP. of Defrost return</td><td>10°C</td><td>16°C</td></tr><tr><td>PAUSE TIME</td><td>6min</td><td>7min</td></tr><tr><td>On D-sensor Error</td><td>30min</td><td>60min</td></tr><tr><td>Limit time</td><td>80min</td><td>80min</td></tr></table> 2) Forced Defrost Mode ① Start : by press TEMP. CONTROL button for 5 seconds continuously. ② Process : same as General Defrost Mode General Defrost Mode is on for initial 30 seconds after heater is on. (for TEST)		R-134A	R-600A	TEMP. of Defrost return	10°C	16°C	PAUSE TIME	6min	7min	On D-sensor Error	30min	60min	Limit time	80min	80min	
	R-134A	R-600A																
TEMP. of Defrost return	10°C	16°C																
PAUSE TIME	6min	7min																
On D-sensor Error	30min	60min																
Limit time	80min	80min																
9	INITIAL DEFROST	1) When power is on, if the temperature at the D-sensor is under 3.5°C, then General Defrost Mode starts.																
10	PREVENTION OF COMP. RESTART	1) $RT \leq 17$: The COMP can't be on within 40 min after comp. is off even though R-sensor is on condition. (This is to protect comp.) - FUNCTION of LOW RT 2) $RT > 8$: The COMP can't be on within 6 min after comp. is off even though R-sensor is on condition. (This is to protect comp.)																
11	ERROR DISPLAY & CONTROL	1) D1 ERROR (It happens when D-SENSOR is OPEN or SHORT) ① DISPLAY : FREEZER RED LED lamp in on & off one time. ② CONTROL : Return to the limit defrost time of Defrost (30 min) 2) D2 ERROR (It happens when heater is off by time (80 min)). ① DISPLAY : FREEZER RED LED lamp in on & off two times. ② CONTROL : Return to the limit defrost time of Defrost (80 min) 3) R1 ERROR (It happens when R-SENSOR is OPEN or SHORT) ① DISPLAY : REFRIGERATOR RED LED lamp in on & off one time. ② CONTROL : controlled by the condition of RT <table><tr><td>RT-S TEMP</td><td>ERROR</td><td>24- -</td><td>18- -</td></tr><tr><td>COMP. Operating rate(%)</td><td>40%</td><td>30%</td><td>44%</td></tr><tr><td>ON/OFF (min)</td><td>20 / 30</td><td>15 / 35</td><td>22 / 28</td></tr><tr><td>NOTE</td><td>ERROR</td><td>Low RT TEMP.</td><td>General</td></tr></table> ③ CANCEL : when R-SENSOR is working normally. 4) RT ERROR (It happens when RT-SENSOR is OPEN or SHORT) ① DISPLAY : REFRIGERATOR RED LED lamp in on & off two times. ② CONTROL : The system is normally operating but the controlling by RT-SENSOR doesn't work. ③ CANCELATION : when RT -SENSOR is working normally.	RT-S TEMP	ERROR	24- -	18- -	COMP. Operating rate(%)	40%	30%	44%	ON/OFF (min)	20 / 30	15 / 35	22 / 28	NOTE	ERROR	Low RT TEMP.	General
RT-S TEMP	ERROR	24- -	18- -															
COMP. Operating rate(%)	40%	30%	44%															
ON/OFF (min)	20 / 30	15 / 35	22 / 28															
NOTE	ERROR	Low RT TEMP.	General															

12	SHORT CIRCUIT TEST	1) START : by pressing TEMP CONTROL button 30 times continuously. 2) CANCEL : by pressing TEMP CONTROL button 30 times continuously Cf. the system generally operates when the limit time 60 hrs. passes. 3) DISPLAY : LOW, MID, HIGH, LED lamps are all on 4) CONTROL : COMP & FAN will be on independent of the operation condition. (There is no defrost mode on this test.)
13	FUNCTION OF TIME REDUCTION	1) HOW TO REDUCE: (There is no FAST KEY on PCB for MP.) 1 min : Click FAST KEY one time 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each second. 2) Practical Use : Can be applied to reduce needless time on test. EX) function of stop for 6 min, confirming the determination of defrost mode
14	LOW COOLING OPTION	1) R-SENSOR OFF POINT ADJUST (DOWN 1DEG) 2) If remove J1 when low cooling happens. Initial residence[31.4k-] + 1.5 k- =32.9 k- Operating Rsensor OFF Point -
15	FUNCTION OF LOW ROOM TEMPERATURE	1) LOW RT TEMP : - LOW RT TEMP A : RT SENSOR ≤ 14- - LOW RT TEMP B : $15- \leq \text{RT SENSOR} \leq 17$- 2) Control ①When Comp. is on, R-SENSOR HTR is off. When it passes 6 min after COMP. was off, R-SENSOR HTR is on. ②COMP. can't be on within 40min after COMP. is off. ③When it is Mode of General TEMP. or RT-SENSOR ERROR(open or short), R-SENSOR HTR is off. - Condition of LOW RT TEMP A - R-SENSOR Operating POINT increases 3- - Condition of LOW RT TEMP B - R-SENSOR Operating POINT increases 1- 3) Check function of R-S HTR At initial operation,, R-SENSOR HTR turn on and off four times for 8sec.

16

R OFF POINT
OPTION

- 1) R-SENSOR OFF POINT can be adjusted by changing the input voltage of MICOM 8 pin.
- 2) The default of input voltage is 0V.
- 3) The changed OFF POINT is base OFF POINT + OFF POINT of input voltage.

The diagram illustrates the circuit for adjusting the R-SENSOR OFF POINT. It features a voltage divider consisting of resistors R42 and R43 connected to ground. The output of this divider is connected to resistor R41, which is then connected to the 8 PIN of the MICOM. A jumper J2 and a capacitor CC16 are also connected to the node between R41 and the 8 PIN, with both grounded.

4) The change of R-SENSOR OFF POINT depend on the input voltage of MICOM

MICOM Input (V)	0	1.0	1.5	2.0	2.5	3.7	5.0
OFF POINT Variation (-)	0- (DEF)	1.0-	2.0-	3.0-	1.0-	2.0-	3.0-
R42, 43 (KΩ)	J2 (in use)	R42 : 40 R43 : 10	R42 : 23.3 R43 : 10	R42 : 15 R43 : 10	R42 : 10 R43 : 10	R42 : 3.5 R43 : 10	R42 : 10 R43 : DEL

5) APPLICATION (MAIN PCB)

- ① Default : MICOM8 PORT – 0V
- ② Change of R OFF POINT 1.0 deg - : changing R42, R43 after deleting J2
- EX) ①delete J2 ②R42 : 10 KΩ ③ R43 : 10 KΩ