DAEWOO

Refrigerators (Combis)

MODEL : * ERF-384A

✔ **Caution**

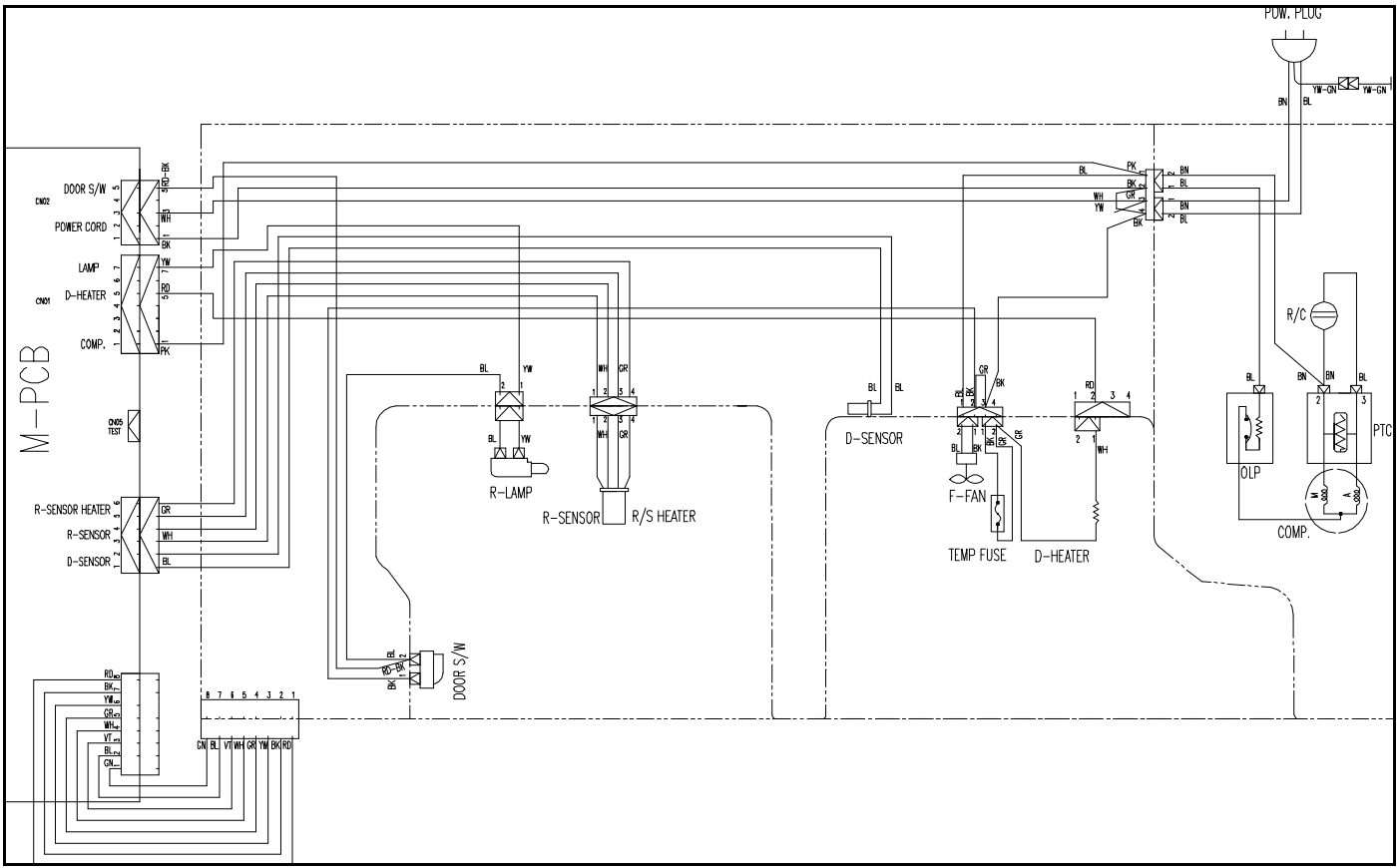
: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information,please refer to PPL(Parts Price List) in Service Information Center(http://svc.dwe.co.kr).

DAEWOO ELECTRONICS CO., LTD.

Model name		ERF-384A/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	114							
	Refrigerator	223							
	Total	337							
External dimension (mm)	Height	1869							
	Width	600							
	Depth	636,7							
Energy consumption	kwh/24h	1,02							
	class	A							
Freezing capacity(kg/24h)		5							
Star rating		* ***							
Climate class		N							
Net weight (kg)		72							

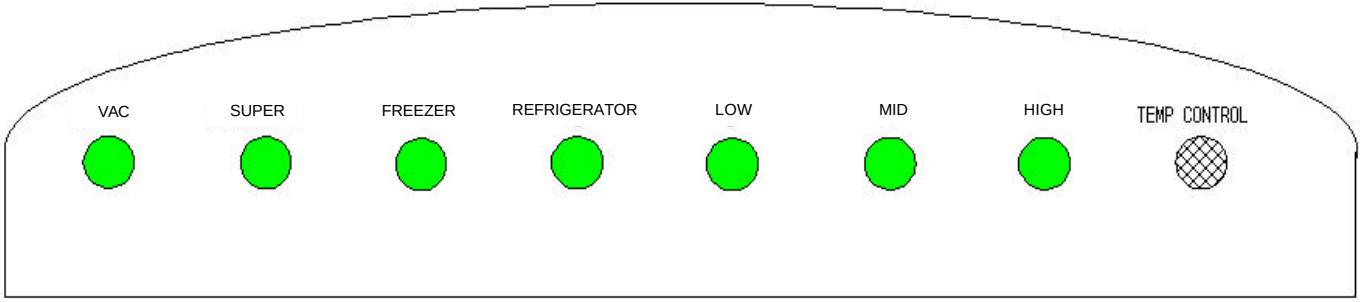
2. WIRING DIAGRAMS

2.1- ERF-384A..EU

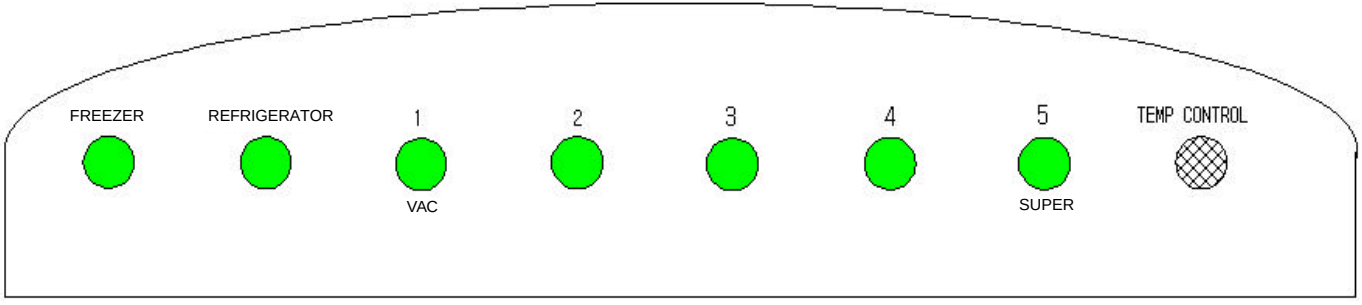


3- C/P DIFFERENCE BETWEEN ERF-...A AND ERF-...A..EU

ERF-...A

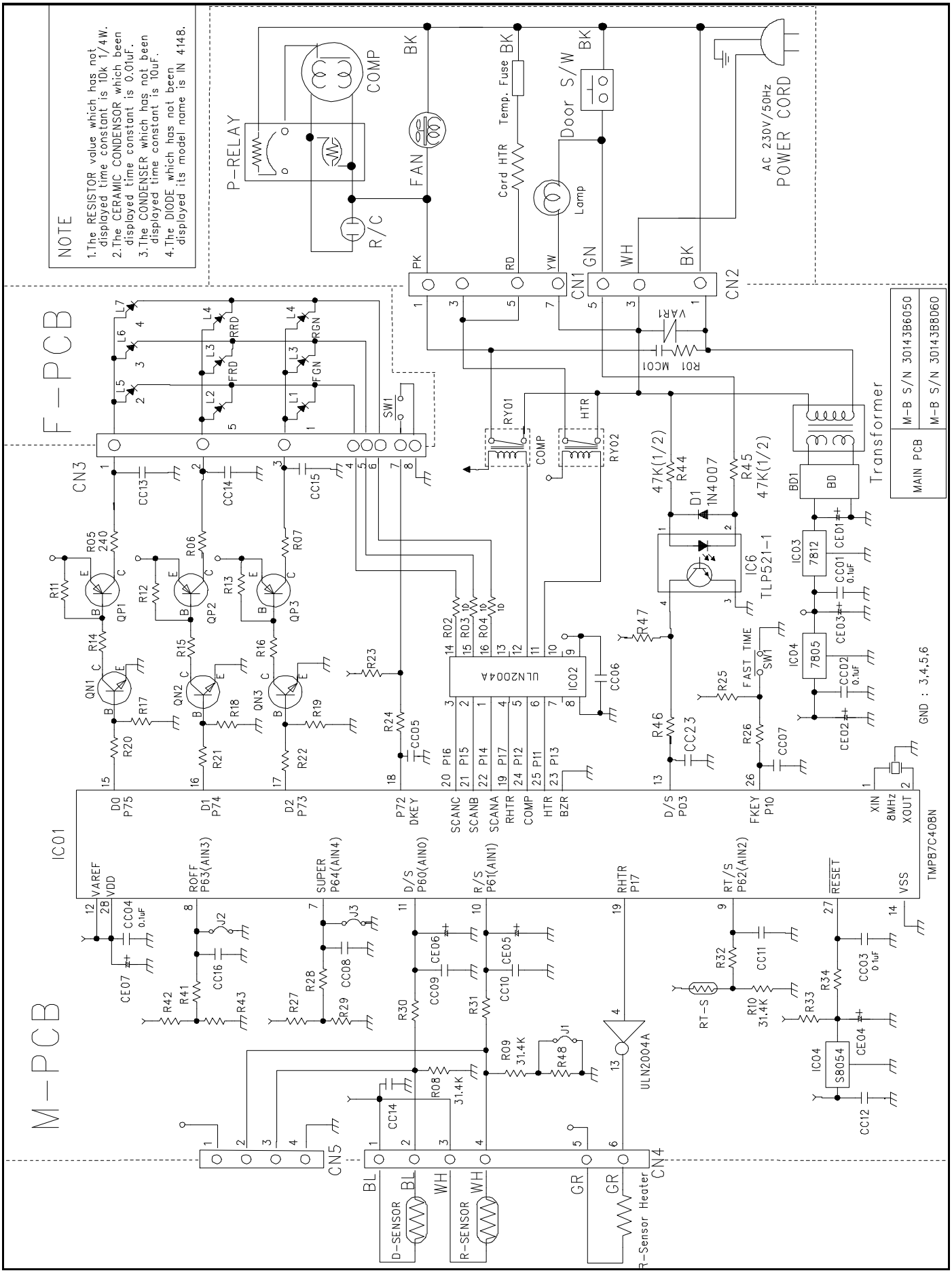


ERF-...A...EU



4- MAIN PCB DIAGRAMS

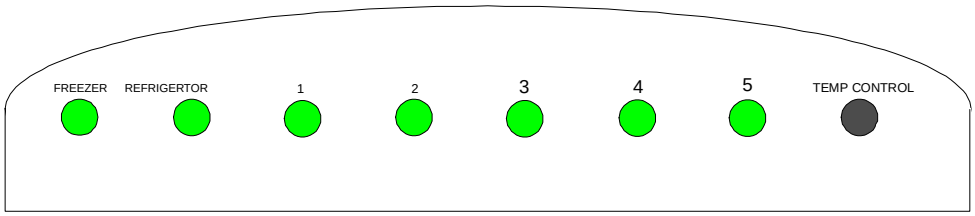
4.1- ERF-384A..EU

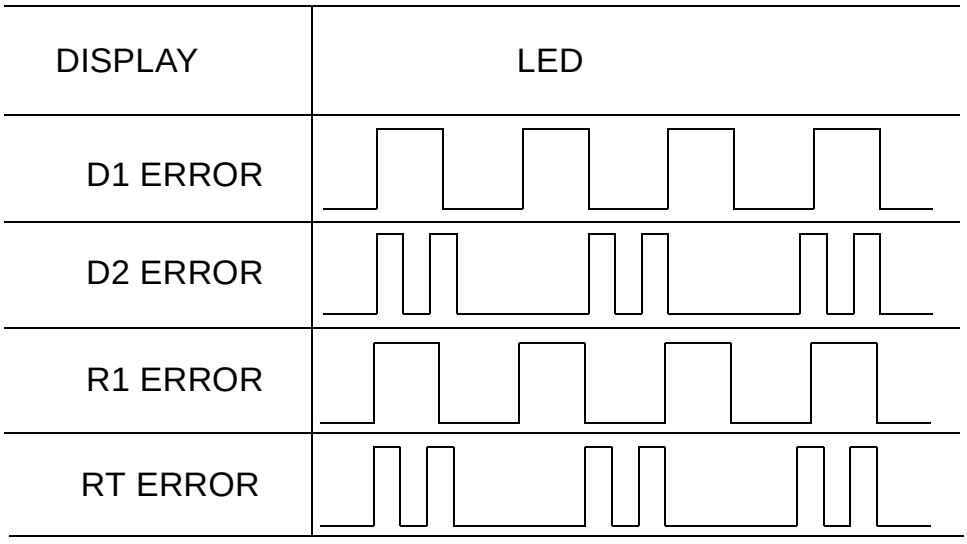


Part List of colour components INOX (Dark gray)							
			MODEL				
No	Part Name	Part code	364	394	384	414	Description
1	PANEL CONTROL L/L	3014231010	1	1	1	1	ABS
2	BASE CONTROL PANEL	3010312910	1	1	1	1	HIPS
4	REFRIGERATOR DOOR	3010057830	-	-	1		URT FORMING (INOX)
8	FREEZER DOOR	3010086680	-	-	1	1	URT 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

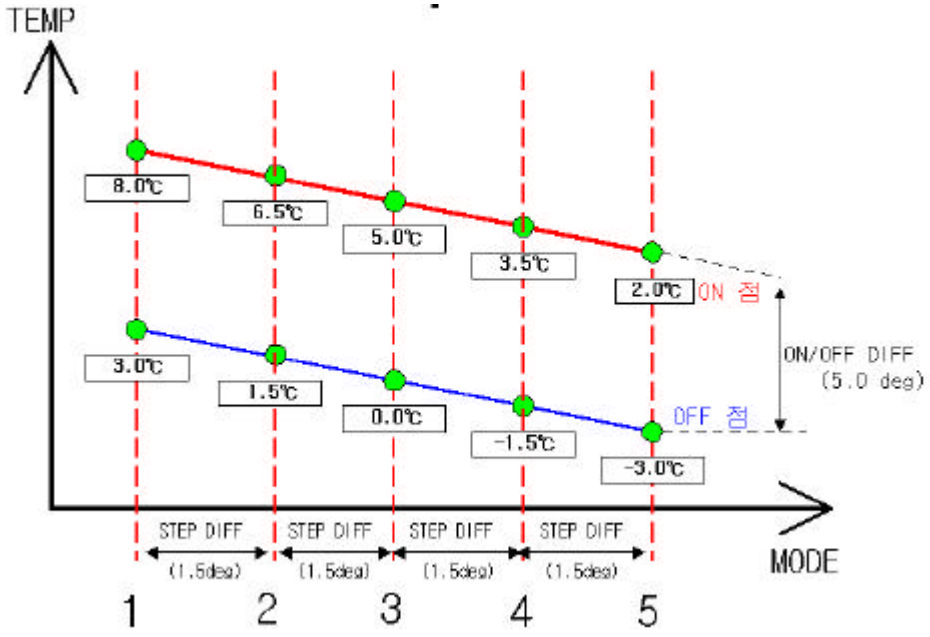
5. PCB CONTROL FUNCTIONS

5.1- ERF-..4A..EU

<table>
<tr><th>NO</th><th>FUNCTION</th><th>CONTENTS</th></tr>
<tr><td>1</td><td>DISPLAY</td><td>


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.


- SHORT CIRCUIT CONDITION : LOW, MID, HIGH, VAC, SUPER LED lamps are all on
</td></tr>
</table>

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. ②FORCED DEFROST : will be start when this button pushed for over 5 seconds continuously. ③SHORT CIRCUIT OPERATION : will be started and stopped when this button pushed over 30 times. 2) TEMPERATURE CONTROL ①COMP will be controlled by the on/off condition of each mode. ②STEP DIFF of ROOM R : 1.5 deg ③OFF point of ROOM R : 0°C ④ON/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 ①COMP & FAN will be on independent of the operation condition. ②The 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

<table>
<tr><td>4</td><td>SUPER
MODE 5</td><td>Press TEMP. CONTROL button and make 5 led lamp on.
ON POINT : 2.0°C
OFF POINT : -3.0°C</td></tr>
<tr><td>5</td><td>FREEZER
OK / NG
DISPLAY</td><td>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 D-SENSOR 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.)</td></tr>
<tr><td>6</td><td>REFRIGERATOR
OK / NG
DISPLAY</td><td>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 R-SENSOR is short or open condition.)</td></tr>
<tr><td>7</td><td>DETERMINATION
OF
DEFROST</td><td>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></td></tr>
</table>

<table>
<tr><td>8</td><td>DEFROST
MODE</td><td>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)</td></tr>
<tr><td>9</td><td>INITIAL
DEFROST</td><td>1) When power is on, if the temperature at the D-sensor is under 3.5°C, then General Defrost Mode starts.</td></tr>
<tr><td>10</td><td>PREVENTION
OF COMP.
RESTART</td><td>1) RT ≤ 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.)</td></tr>
<tr><td>11</td><td>ERROR
DISPLAY
&
CONTROL</td><td>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.</td></tr>
</table>

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- ≤RT SENSOR ≤ 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.

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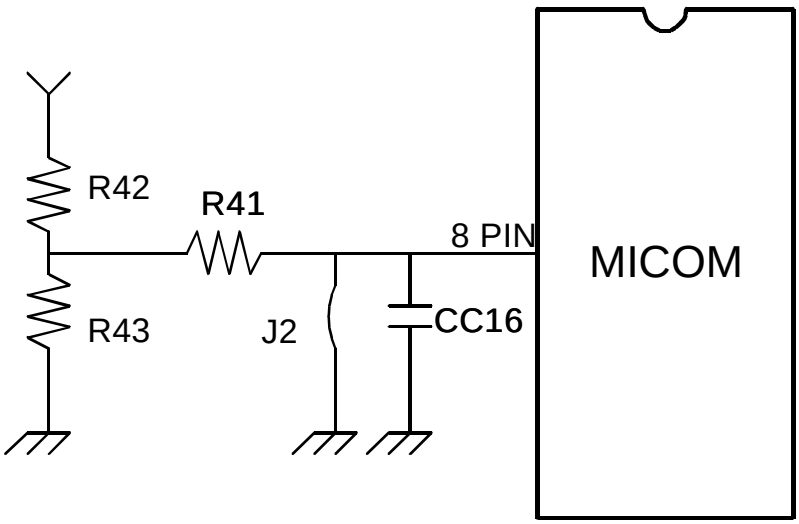
R OFF POINT OPTION

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.



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