

1. SPECIFICATIONS

1. Specifications

Model Name		ERF-310		ERF-340		ERF-370	
Division		M	A	M	A	M	A
Refrigerant(R134a)		150g	<—	<—	<—	160g	<—
Cooling system		Fan cooling convection					
Refrigation system		Air forced convection					
Defrost system		Fin evaporator forced					
Defrost operation		Automatic start and stop					
Cold control		Dialing	Button	Dialing	Button	Dialing	Button
Gross Capacity (l.)	Freezer	93	<—	93	<—	112	<—
	Refrigerator	218	<—	248	<—	251	<—
	Total	311	<—	341	<—	363	<—
External Dimension (mm)	Height	1780	<—	1911	<—	2000	<—
	Width	600	<—	<—	<—	<—	<—
	Depth	618	<—	<—	<—	<—	<—
Net weight (Kg)		69	<—	75	<—	79	<—
Energy class		C grade					
Power consumption (kWh/24h)		1.45	1.48	1.5	1.54	1.58	1.62
Freezing capacity (kg/24h)		5	6.5	5	6.5	6	7.5
Autonomy (F room)		12 h					
Rated input		120	125	120	125	130	135
Lamp rated input (W)		15					
Rated voltage		AC 230/50 Hz					

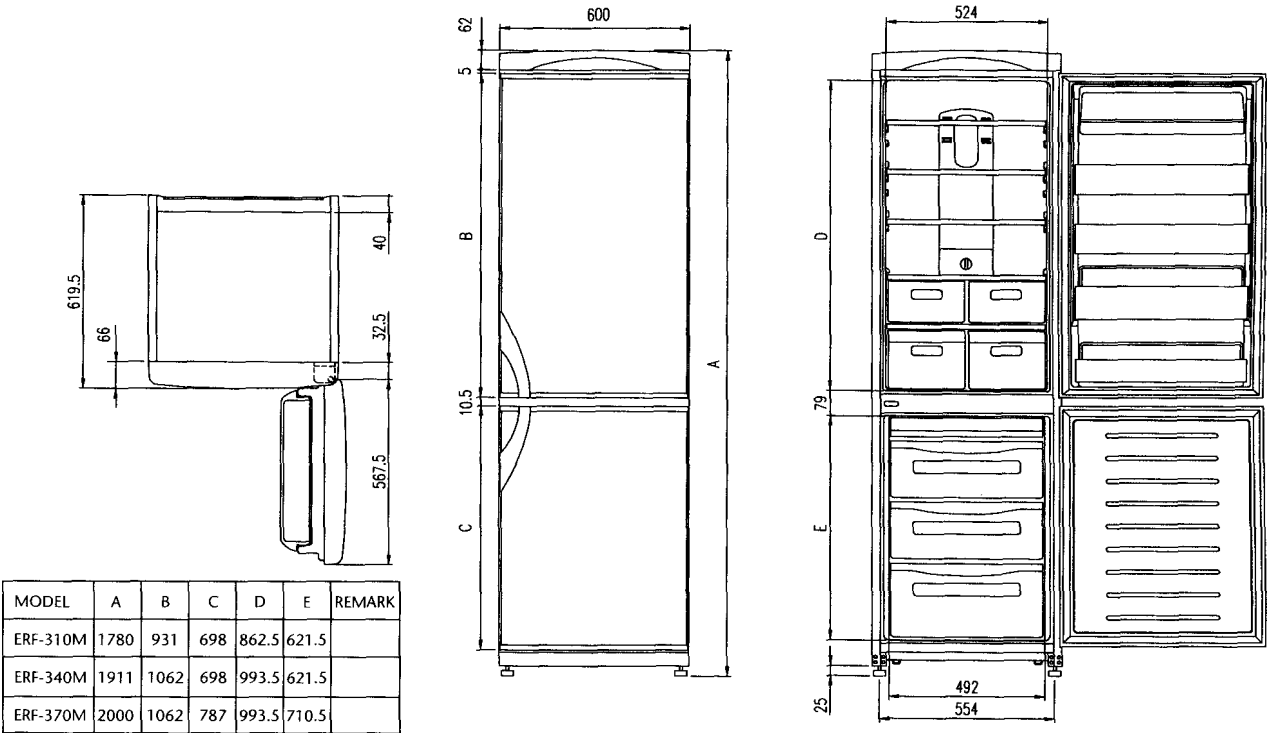
Note) A: Electronic control type
M: Manual control type

2. Types of the approved safety standards

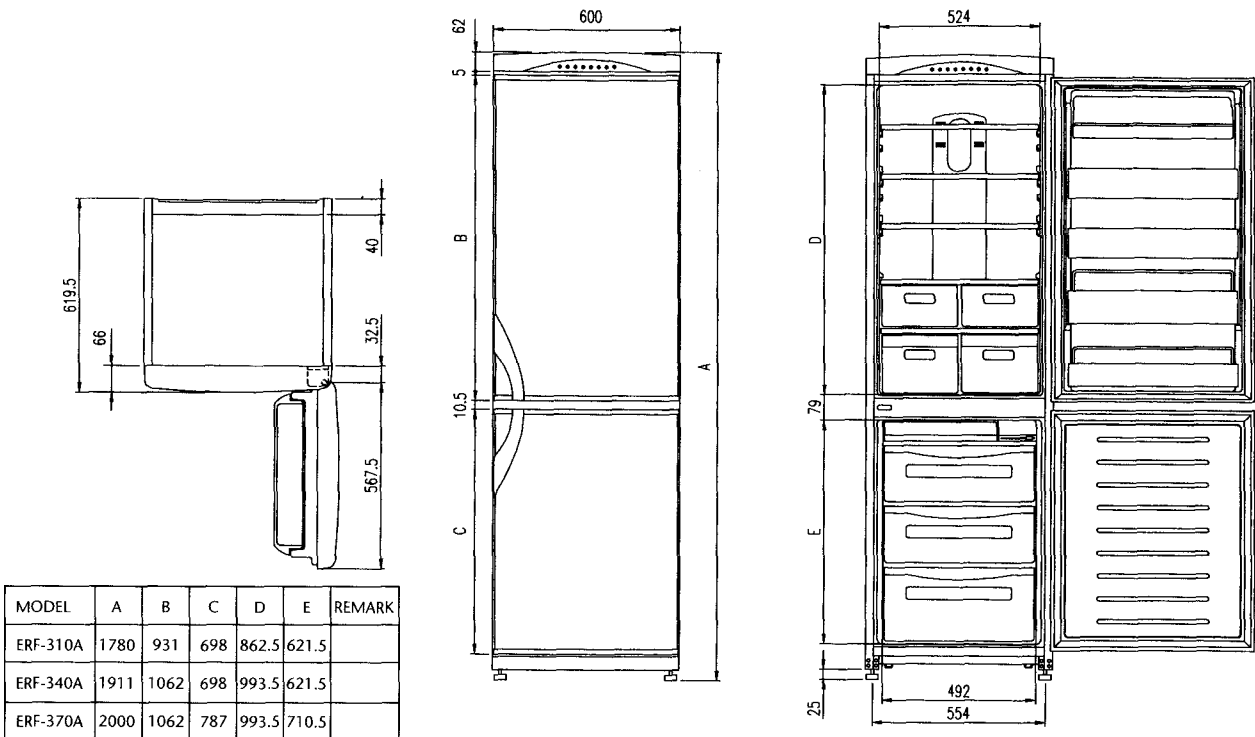


2. EXTERNAL DRAWINGS

1. ERF-310M, 340M, 370M

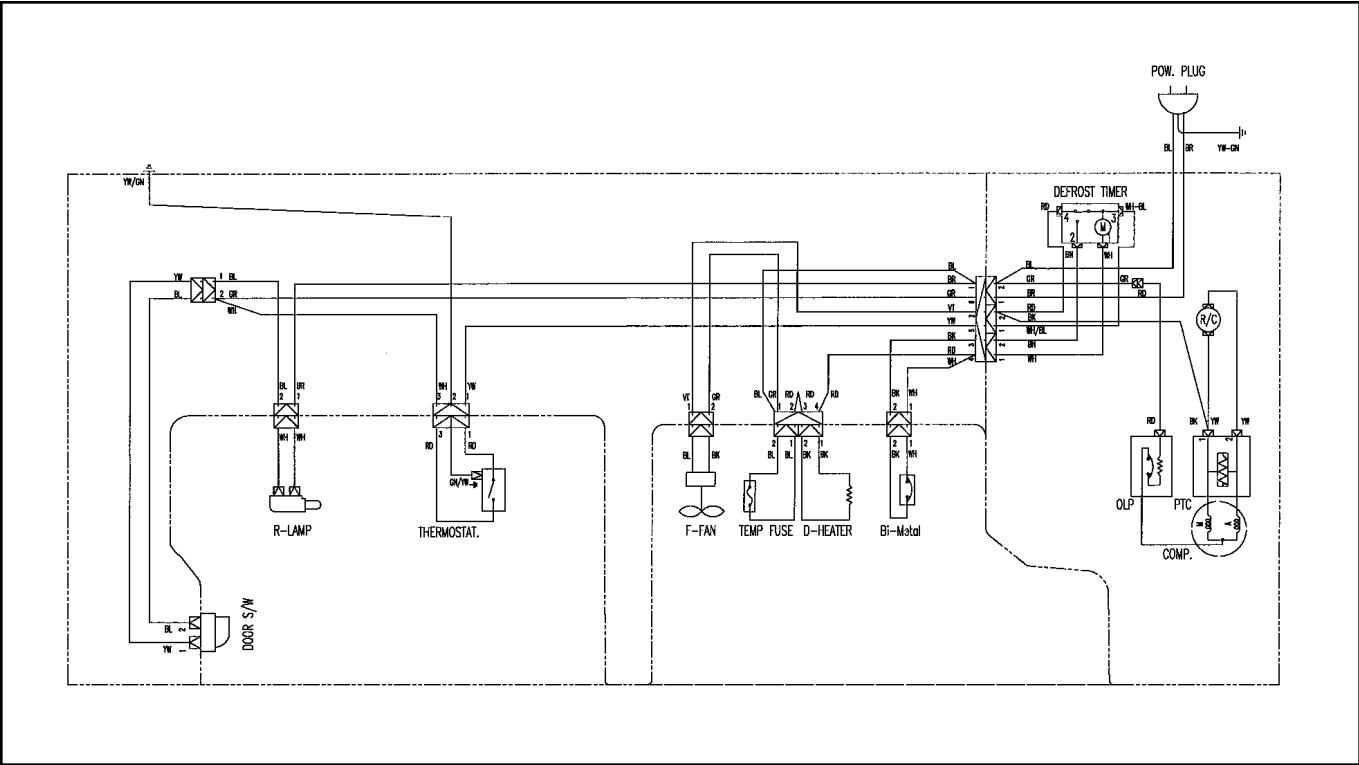


2. ERF-310A, 340A, 370A

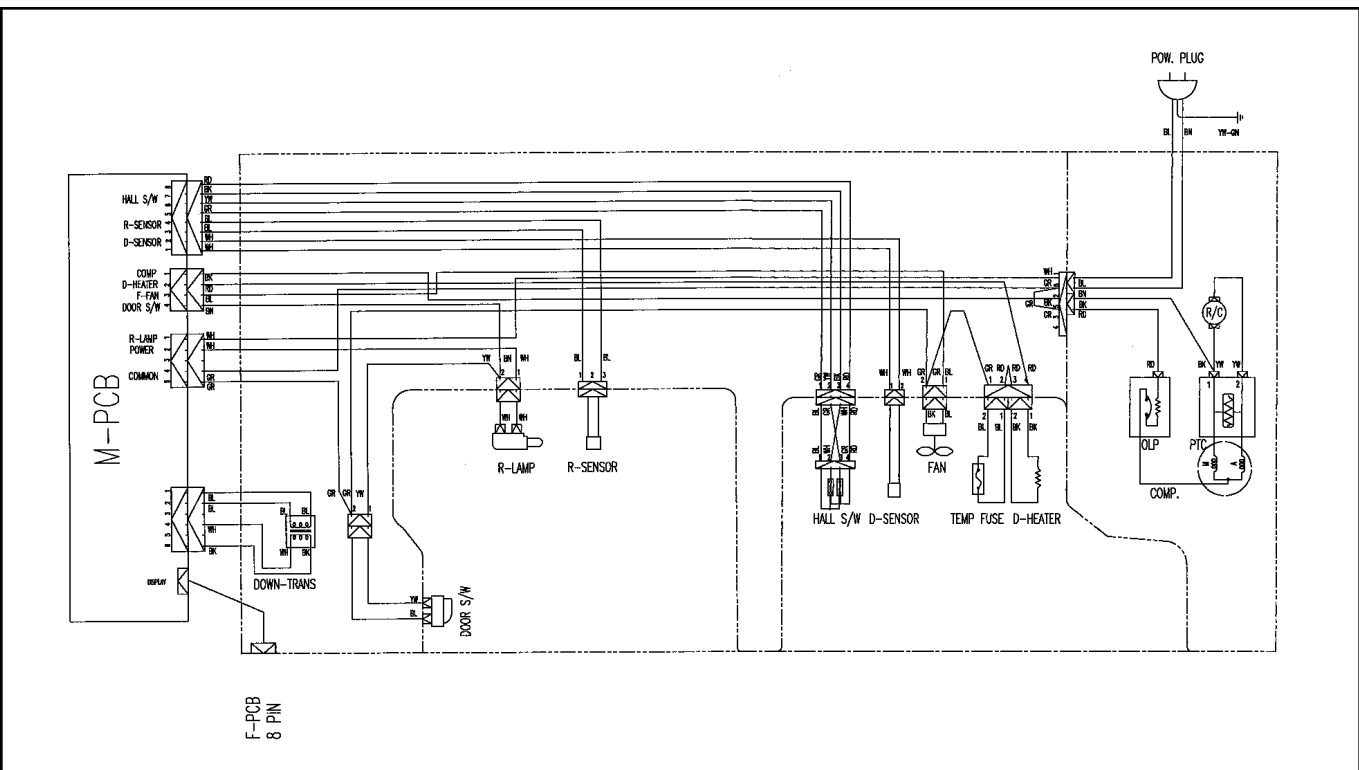


3. WIRING DIAGRAMS

1. ERF-310M, 340M, 370M

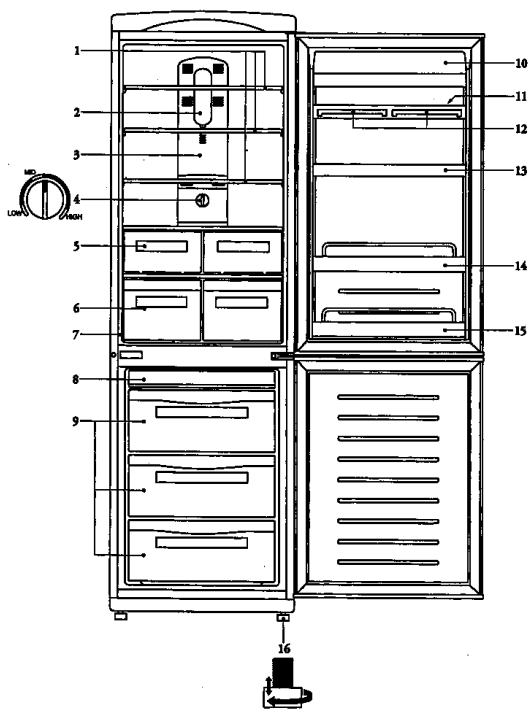


2. ERF-310A, 340A, 370A



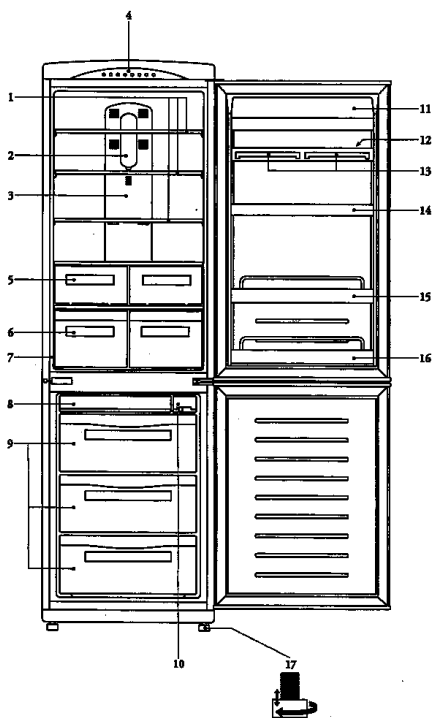
4. NAME OF

1. ERF-310M, 340M, 370M



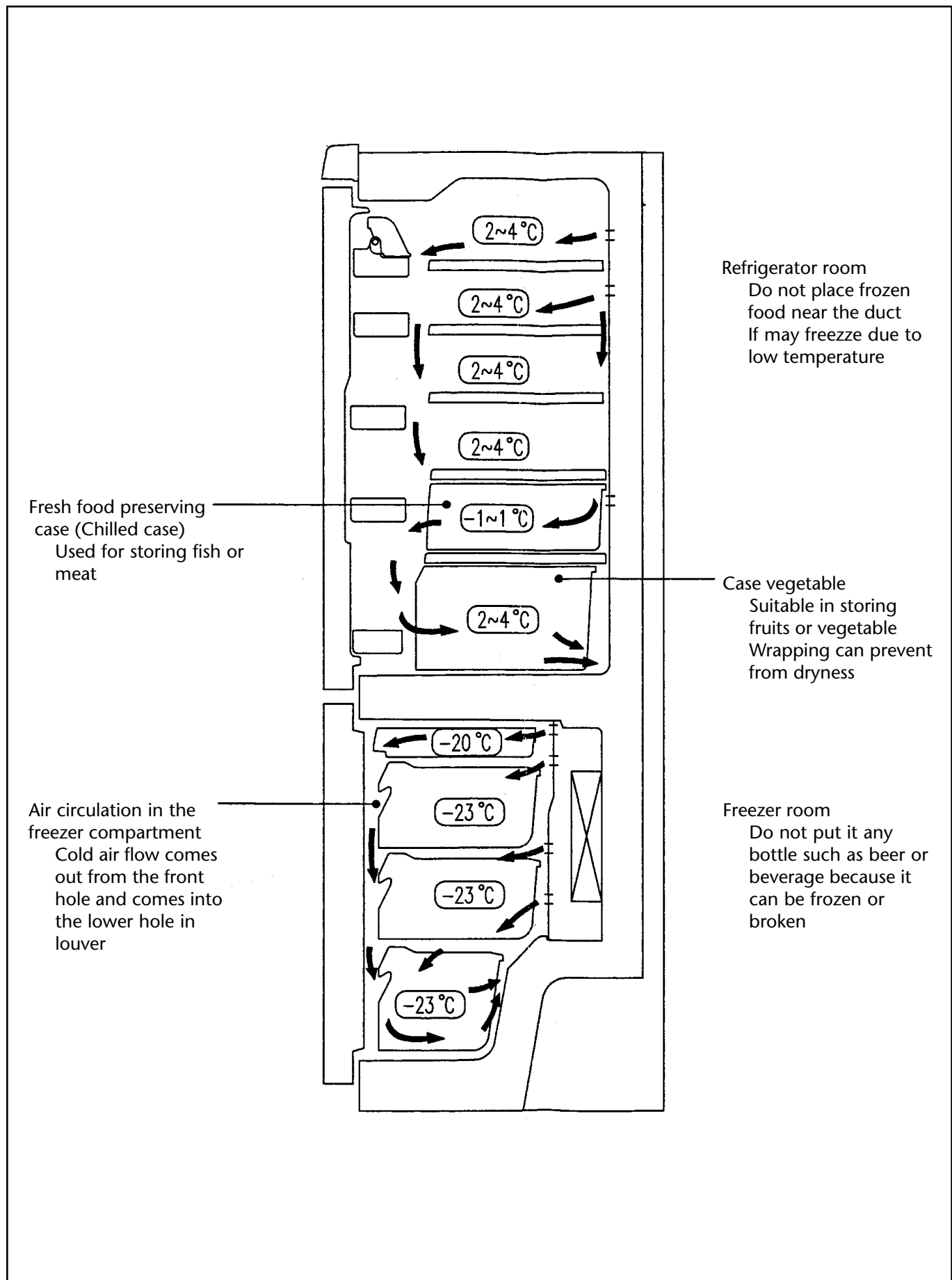
- 1. Removable shelf (ERF-310 series: 2 shelves and ERF-340,370 series: 3 shelves), glass or crystal clear plastic depending on model.
- 2. Light.
- 3. Multi air-flow duct.
- 4. Refrigerator and freezer temperature control knob.
- 5. Low temperature compartments.
- 6. Vegetable bin. Two bins or one bin; in case of one bin item (15) won't be applied depending on model.
- 7. Rating plate. It is attached in the refrigerator compartment on the left-hand side next to the vegetable bins.
- 8. Ice cube tray.
- 9. Compartment for storing and freezing.
- 10. Butter pocket.
- 11. Removable pocket (for egg tray)
- 12. Egg tray.
- 13. Removable pocket (not in ERF-310M)
- 14. Bottle pocket.
Pocket assembled with plastic bottle fixture ("A" type) or with metal bar ("B" type) depending on model.
- 15. R door pocket (depending on model).
- 16. Adjustable feet.

2. ERF-310A, 340A, 370A

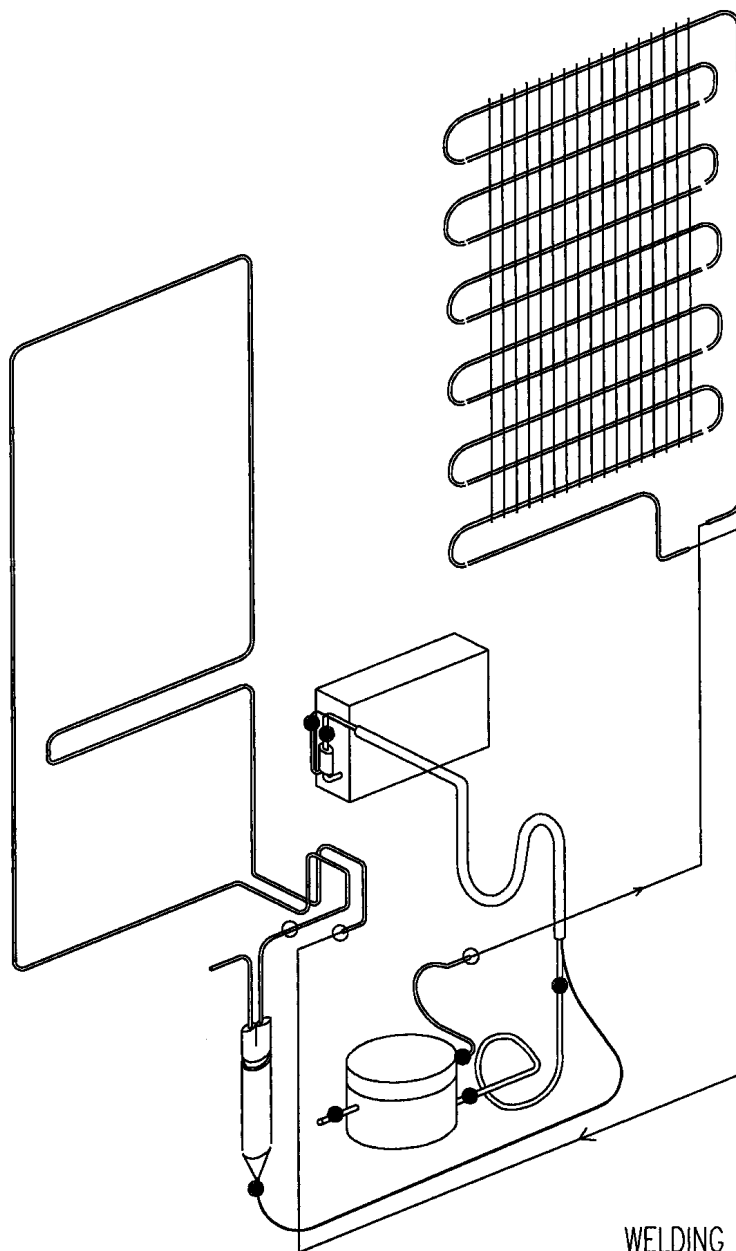


- 1. Removable shelf (ERF-310 series: 2 shelves and ERF-340,370 series: 3 shelves), glass or crystal clear plastic (depending on model).
- 2. Light.
- 3. Multi air-flow duct.
- 4. Refrigerator temperature control.
- 5. Low temperature compartments.
- 6. Vegetable bin. Two bins or one bin; with one bin, item (16) will not be applied (depending on model).
- 7. Rating plate. Positioned in the refrigerator compartment on the left-hand side next to the vegetable bins.
- 8. Ice cube tray.
- 9. Compartment for storing and freezing.
- 10. Freezer temperature control.
- 11. Butter pocket.
- 12. Removable pocket (for egg tray)
- 13. Egg tray.
- 14. Removable pocket (not in ERF-310A).
- 15. Bottle pocket.
Pocket assembled with plastic bottle fixture ("A" type) or with metal bar ("B" type) depending on model.
- 16. R door pocket (depending on model).
- 17. Adjustable feet.

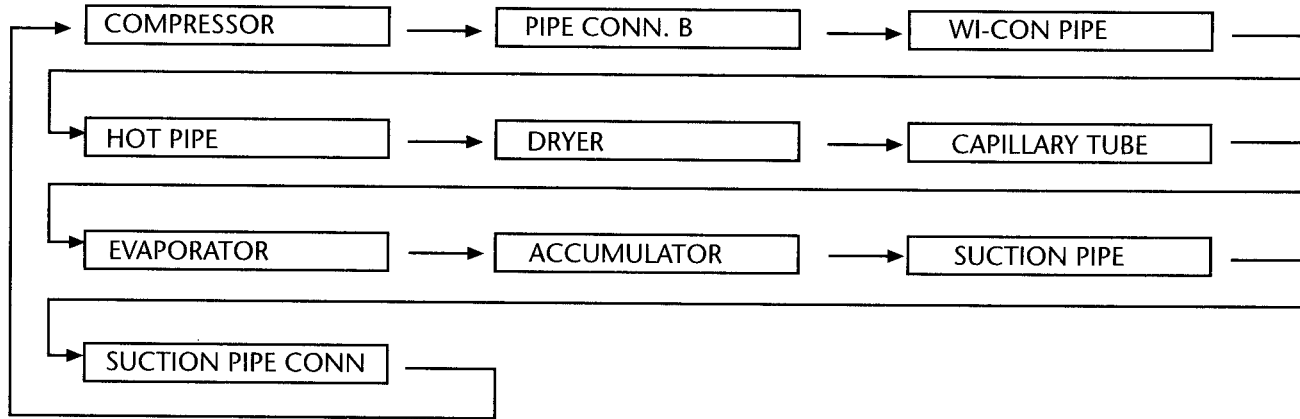
5. AIR FLOW DIA -



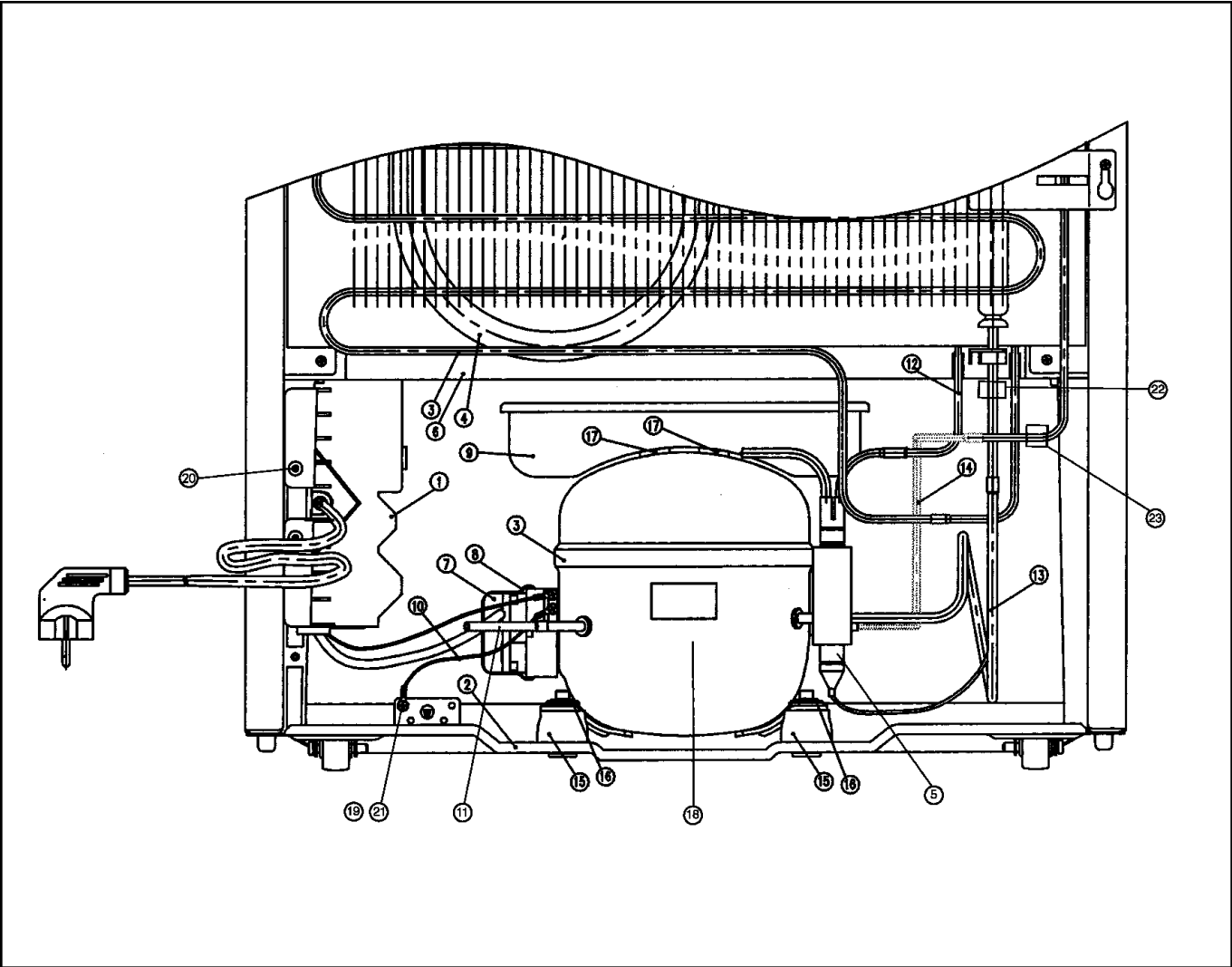
6. REFRIGERANT CYCLE DIA -



WELDING [● : 5% SILVER
○ : 35% SILVER



7. MACHINE ROOM VIEW AND



NO	PART NAME	NO	PART NAME	NO	PART NAME
1	ASS`Y BOX POWER	9	CASE VAPORI	17	ABSORBER VAPORI CASE
2	BASE COMP. AS	10	HARNESS EARTH	18	COMPRESSOR
3	ASS`Y WI-CON	11	PIPE CHARGE	19	SCREW MACHINE
4	SUCTION PIPE AS	12	HOT PIPE	20	SPECIAL SCREW C.
5	DRYER AS	13	PIPE SUCTION CONN	21	SPECIAL WASHER
6	BASE CAB.	14	CONN. B	22	ABSORBER PIPE B
7	COVER RELAY BOX	15	ABSORBER COMP.	23	ABSORBER PIPE C
8	BAND RELAY	16	FIXTURE COMP.		

9. COMPONENTS SPECIFICATIONS

1. COMPRESSOR

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	HPL25YG1-5	<—	HPL27YG1-5	
Part code	39561125R51	<—	39561127R51	
Rated voltage	220-240V 50Hz	<—	<—	
Starting type	RSIR	<—	<—	
Refrigerant	R134 a			

2. RELAY ASSEMBLY

2.1 PTC

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	PTH490D-AS330	<—	<—	
Part code	3817907000	<—	<—	

2.2 OLP

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	4TM213NHBYY	<—	4TM265NHBYY	
Part code	3817911200	<—	3817911300	

3. RUNNING CAPACITOR

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	MA80040040	<—	MA80050040	
Specifications	4uF 400VAC	<—	5uF 400VAC	
Part code	3016400800	<—	3016400810	

4. AS MOTOR FAN

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	IS-23211DWBFH	<—	<—	
Specifications	2400RPM	<—	<—	
Part code	3015903700	<—	<—	

Component specifications

5. HEATER D AS

		ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part	RICA	RS6	<—	<—	
Name	CONSONI	16	<—	<—	
Specifications		230V 230W	<—	<—	
Part code		3012803600	<—	<—	

6. LAMP

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Type	Pygmy	<—	<—	
Specifications	230V 15W	<—	<—	
Part code	3013600700	<—	<—	

7. SWITCH LAMP

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	1051	<—	<—	
Specifications	250V 0.25A	<—	<—	
Part code	3018111500	<—	<—	

8. SOCKET LAMP AS

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	1058	<—	<—	
Specifications	250V 2A	<—	<—	
Part code	3017903100	<—	<—	

9. FUSE TEMPERATURE

	ERF-310A/M	ERF-340A/M	ERF-370A/M	Remarks
Part name	SF76E	<—	<—	
Specifications	250V 15(10)A	<—	<—	77°C
Part code	3017200700	<—	<—	

10. SWITCH BI-METAL

	ERF-310M	ERF-340M	ERF-370M	Remarks
Part name	261N	<—	<—	
Specifications	250V 10(3)A	<—	<—	
Part code	3018115600	<—	<—	

11. SWITCH D TIMER

	ERF-310M	ERF-340M	ERF-370M	Remarks
Part name	TMDE807UC1	<—	<—	
Specifications	9h 37 min	<—	<—	
Part code	3018115700	<—	<—	

12. THERMOST AT

	ERF-310M	ERF-340M	ERF-370M	Remarks
Part name	K50-P1530	<—	<—	
Specifications	250V 6A	<—	<—	
Part code	3018300300	<—	<—	

13. DOWN TRANS AS

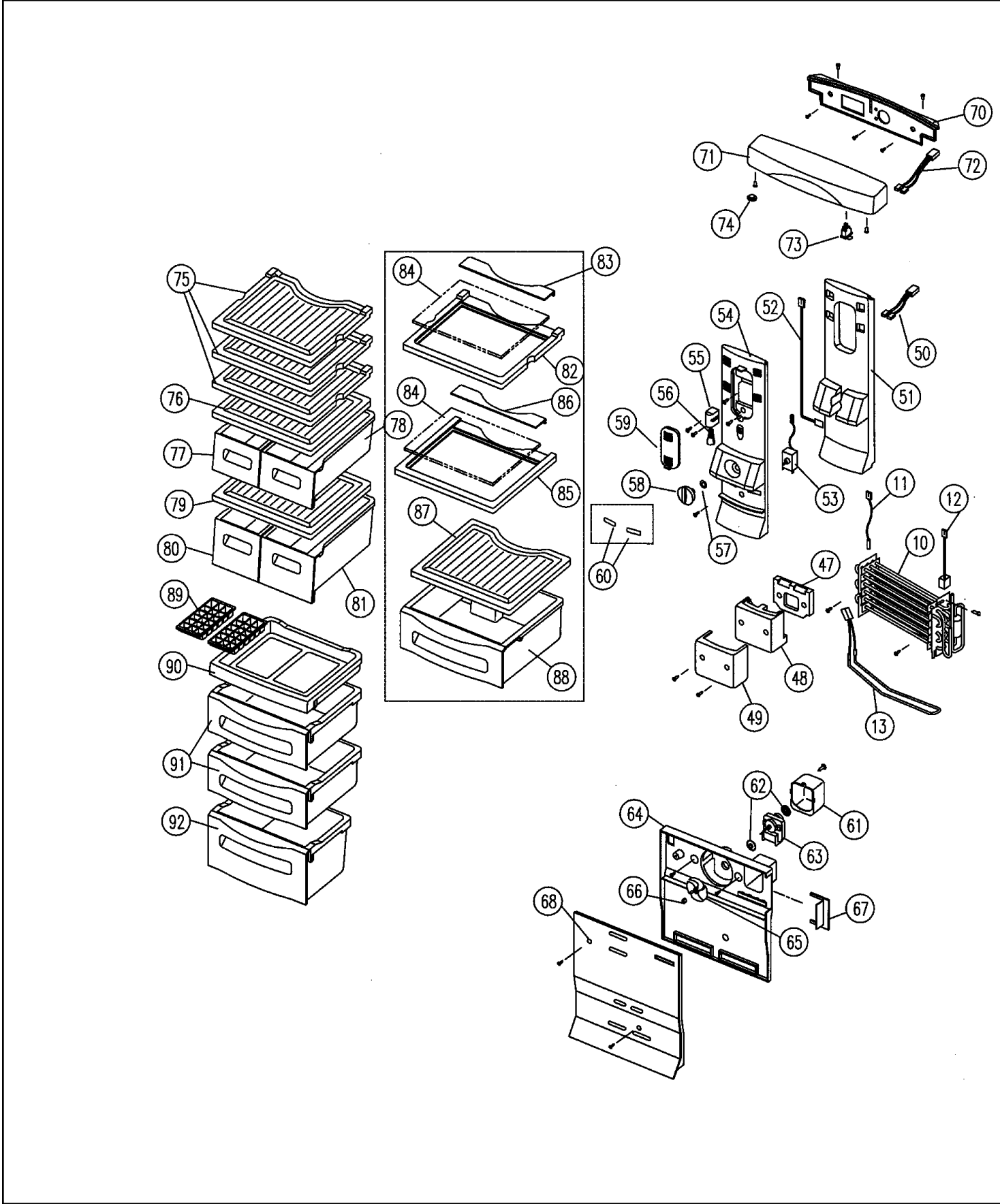
	ERF-310A	ERF-340A	ERF-370A	Remarks
Part name	ERF-310	<—	<—	
Specifications	230V / 50Hz	<—	<—	
Part code	5EPK041009	<—	<—	

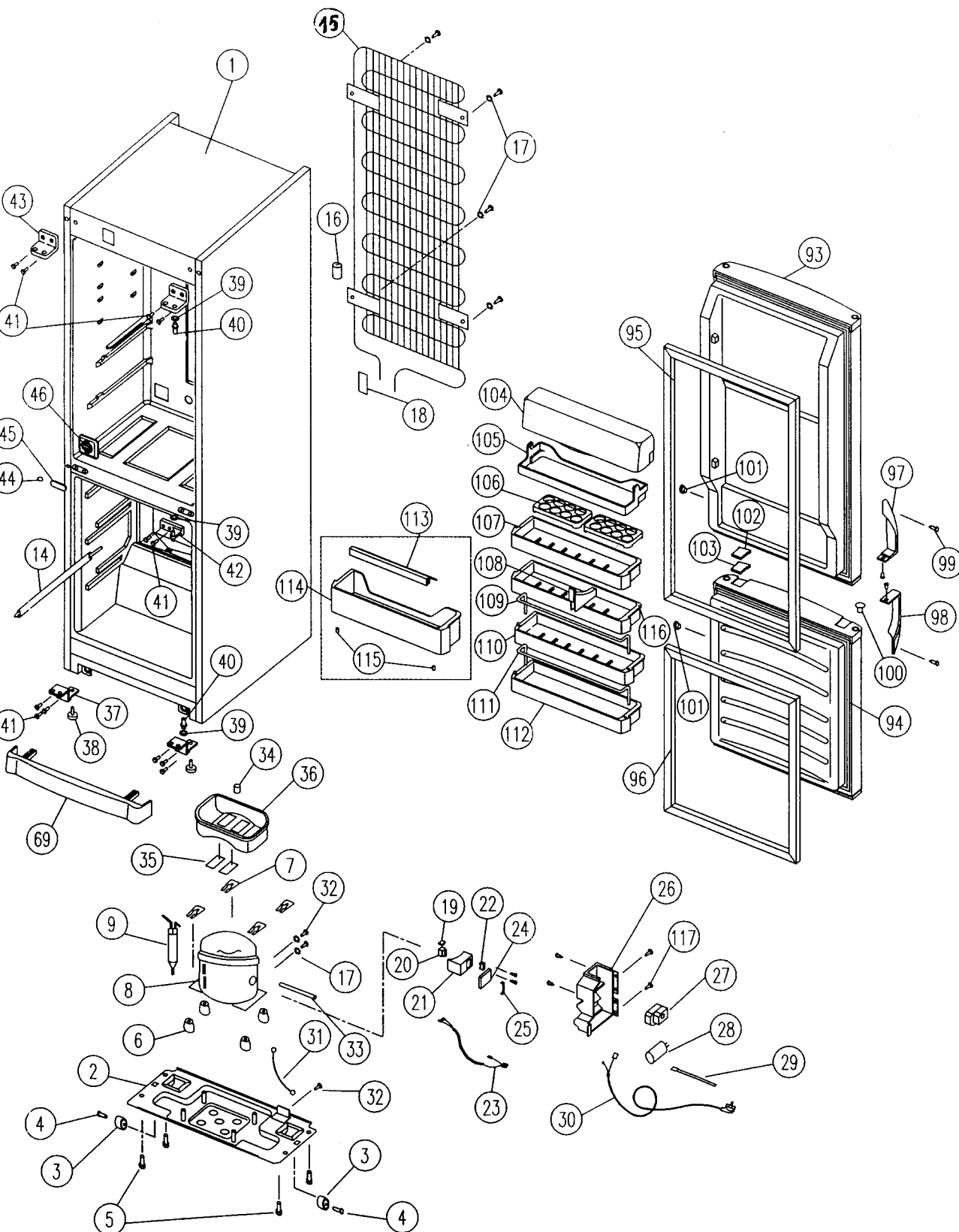
14. SENSOR R AS

	ERF-310A	ERF-340A	ERF-370A	Remarks
Part name	TH310G34GBNR	<—	<—	
Specifications	30 K Ω (AT 0°C)	<—	<—	
Part code	3014801800	<—	<—	

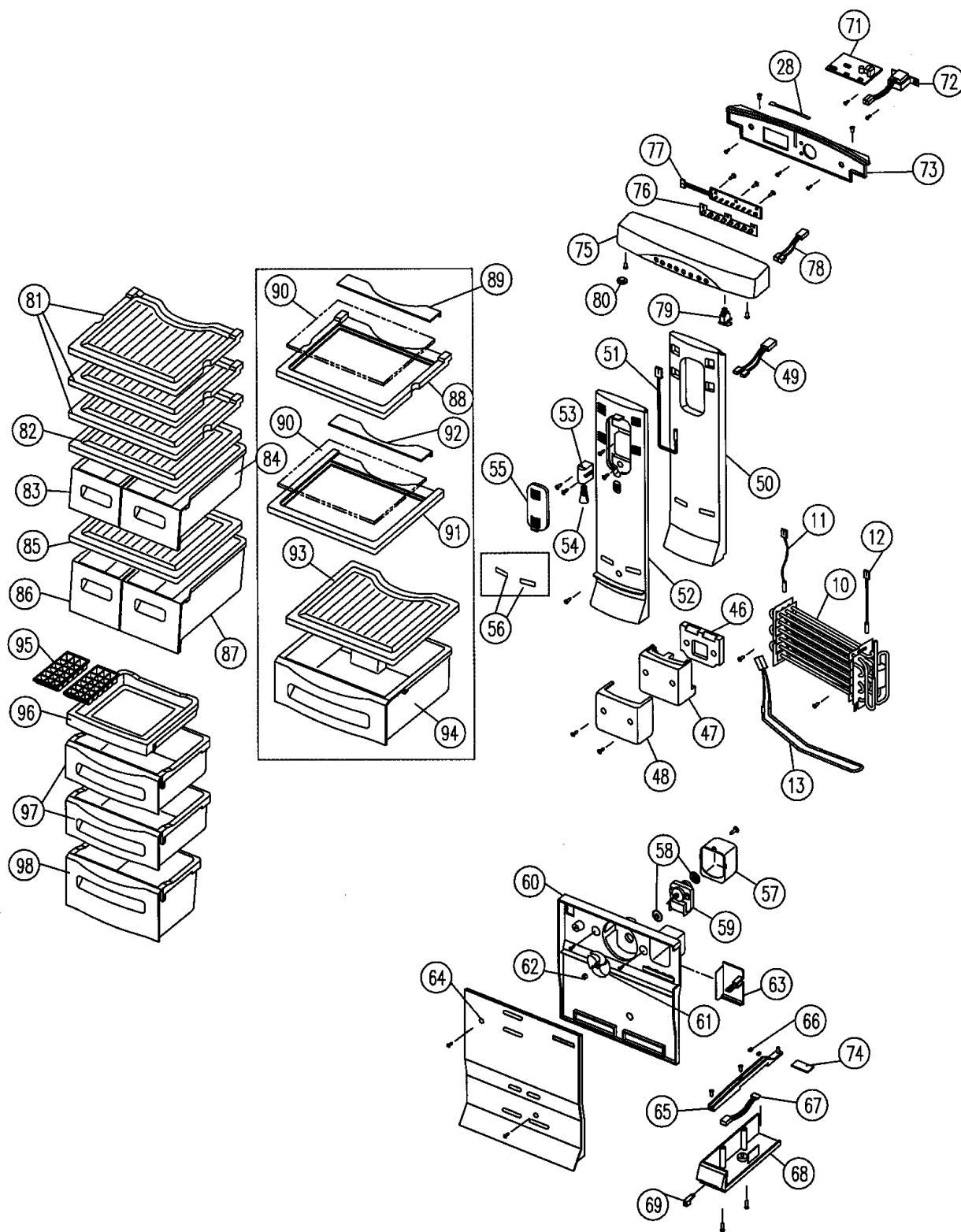
15. SENSOR D AS

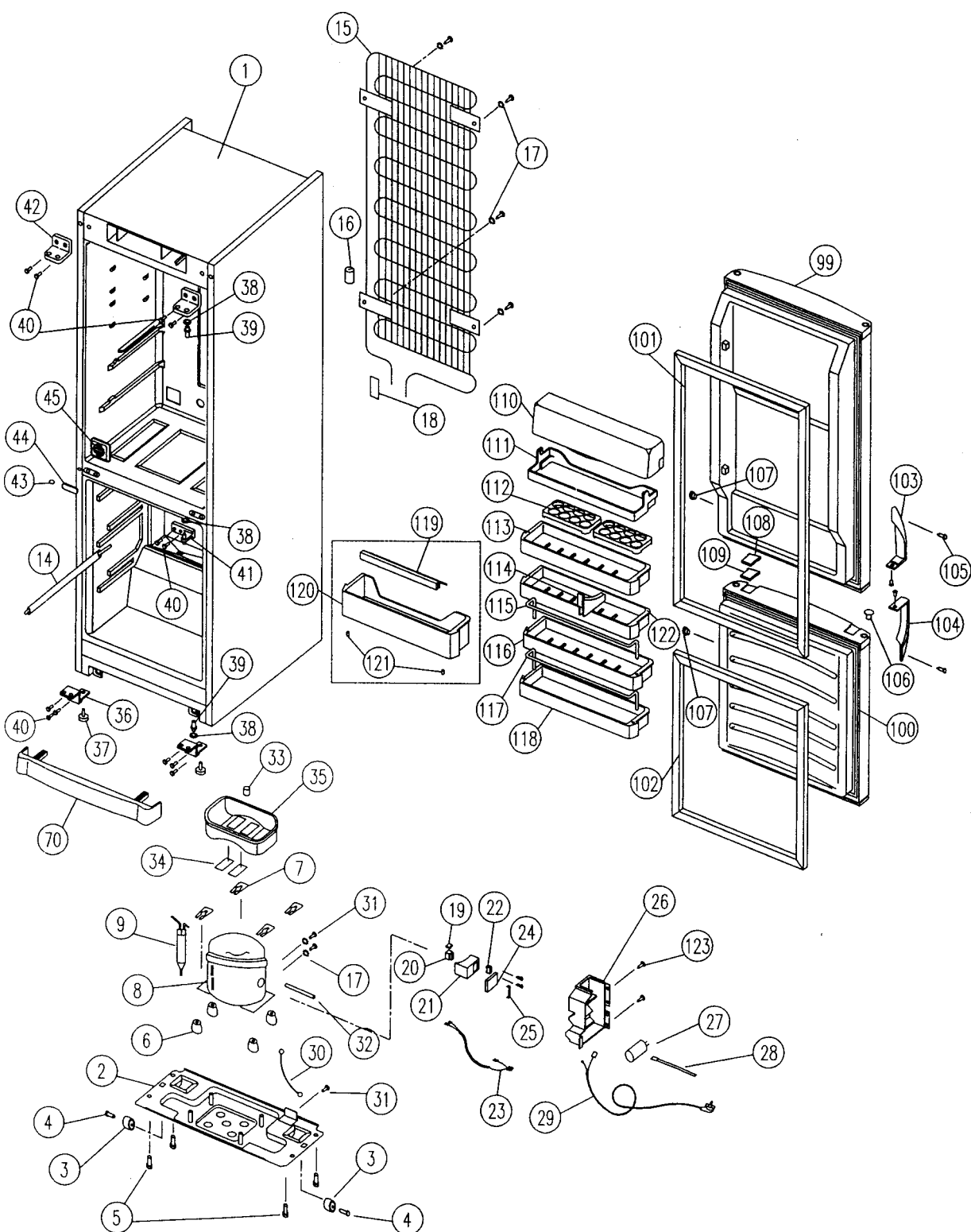
	ERF-310A	ERF-340A	ERF-370A	Remarks
Part name	TH310G34GBNR	<—	<—	
Specifications	30 K Ω (AT 0°C)	<—	<—	
Part code	3014801700	<—	<—	





2. ERF-310A, ERF-340A, ERF-370A





11. PART LIST

1. Parts list (M TYPE)

NO	PART NAME	PART CODE	DESCRIPTION	MODEL			REMARK
				310	340	370	
1	ASSY CAB URT	3010071030		1	-	-	
		3010071040		-	1	-	
		3010071050		-	-	1	
2	BASE COMP	3010310500	SBHG T1.2	1	1	1	
3	CASTER	3016500500	PA-6	2	2	2	
4	SHAFT CASTER	3014903100	Ø6xL40 SWRM10	2	2	2	
5	SPECIAL SCREW A	3016004300	M6.5xL20	4	4	4	
6	ABSORBER COMP	3010101700	NR	4	4	4	- D/W COMP
	FIXTURE COMP	3012005300	SK5+ZN5-C TQ.8	4	4	4	- D/W COMP
8	COMPRESSOR	395611251151	HPL25YG1-5	1	1	-	- D/W COMP
		395611271151	HPL27YG1-5	-	-	1	- D/W COMP
9	DRYER ASS	3016802200	15Gr	1	1	1	
10	EVA AS	3017003200		1	1	-	
		3017004600		-	-	1	
11	FUSE TEMPERATURE	3017200700	250V	1	1	1	
12	SWITCH BI-METAL	3018115600	250V 5A	1	1	1	
13	HEATER DAS	3012803600	230V 230W	1	1	1	
14	PIPE SUC AS	3014418700	DCUT1-0	1	1	1	
15	WI-CON ASSY	3010056000		1	1	-	
		3010056100		-	-	1	
16	ABSORBER PIPE C	3010102000	EPDM	2	2	2	
17	SPECIAL WASHER	3016004700	Ø4.3 STAR	8	8	8	
18	ABSORBER PIPE B	3010101900	IIR	1	1	1	
19	SWITCH P RELAY OIL	3817911200	4TM21 3NHB	1	1	-	- D/W COMP
		3817911300	4TM265NHB	-	-	1	- D/W COMP
20	SWITCH P RELAY PTC	3817907000	33 (MURADTA)	1	1	1	- D/W COMP
21	RELAY BOX	3810506400		1	1	1	- D/W COMP
22	CABLE CLAMP	3818200300		1	1	1	- D/W COMP
23	HARNESS RELAY	3012717070		1	1	1	
24	RELAY BOX COVER	3811401300		1	1	1	- D/W COMP
25	RELAY BAND	3816100400		1	1	1	- D/W COMP
26	BOX POWER	3010517201	HIPS	1	1	1	
27	SWITCH DEF TIMER	3018115700		1	1	1	
28	CAPACITOR RUNNING	3016400800	4 µF/350VAC	1	1	-	
		3016400810	5 µF/350VAC	-	-	1	
29	CABLE TIE			2	2	2	
30	CORD POWER AS	3011303900	CP-2 PIN	1	1	1	301_1303910: BS-1363 (U.K.)
31	HARNESS EARTH	3012717010		1	1	1	
32	SCREW MACHINE	7051401065	PAN 4x10 BSNI	3	3	3	
33	PIPE CHARGE	3014418200	DCUT1-0Ø6 xT0.6x100	1	1	1	- D/W COMP
34	CAP DRAIN HOSE	3010919700	NBR	1	1	1	
35	ABSORBER VAPORI CASE	3010102700	IIR	2	2	2	
36	CASE VAPORI (A)	3011115100	AL T0.6	1	1	1	- D/W COMP
37	HINGE *U	3012908200	P/O+ZN T4.0	2	2	2	
38	FOOT ADJUSTING AS	3012101800	PP+SPECIAL BOLT	2	2	2	
39	SPECIAL WASHER HINGE	3016005500	S20C T1.0 13/7	2	2	2	
40	SHAFT HI	3014903200		2	2	2	
41	SPECIAL BOLT C	3016004900	M5xP0.89xL16 SWCH22A	12	12	12	
42	HINGE *M	3012908000	DIE CASTING	1	1	1	
43	HINGE *T	3012908100	P/O+ZN T3.2	2	2	2	
44	CAP SCREW	3010920200	PE-LE	1	1	1	
45	CAP SCREW HOLE	3010920300	HIPS	1	1	1	
46	COVER RETURN DUCT	3011433700	HIPS	1	1	1	
47	INSU DAMPER B	3013325400	F-PS	1	1	1	
48	INSU DAMPER A	3013324500	F-PS	1	1	1	
49	COVER DAMPER	3011433500	HIPS	1	1	1	
50	HARNESS LAMP SOCKET	3012719800		1	1	1	
51	INSU MULTI DUCT	3013326810	F-PS	1	-	-	
		3013326910	F-PS	-	1	1	
52	HARNESS THERMOSTAT	3012717060		1	1	1	
53	THERMOSTAT	3018300300	250V 6A	1	1	1	
54	COVER MULTI DUCT	3011434110	HIPS	1	-	-	
		3011434210	HIPS	-	1	1	
55	SOCKET LAMP AS	3017903100		1	1	1	
56	LAMP	3013600700	230V 15W	1	1	1	

Part List

NO	PART NAME	PART CODE	DESCRIPTION	MODEL			REMARK
				310	340	370	
57	SPECIAL NUT	3016005400	HEX M10	1	1	1	
58	KNOB R	3013401410	HIPS	1	1	1	
59	WINDOW LAMP	3015503300	GP	1	1	1	
60	CAP M-DUCT COVER	3010924700	PP	2	2	2	- WITHOUT C-CASE
61	BRACKET FAN MOTOR	3010615600	PP	1	1	1	
62	BUSHING FAN MOTOR	3010901800	NR	2	2	2	
63	MOTOR FAN AS	3015903700	IS-23211 DWBFH	1	1	1	
64	LOUVER F B	3018905500	HIPS	1	1	-	
		3018905600	HIPS	-	-	1	
65	FAN	3011801400	ABS	1	1	1	
66	FIXTURE FAN RING	3012005400	SUS304 T0.5	1	1	1	
67	FLAP F	3017100310	HIPS	1	1	1	
68	LOUVER F A	3018905300	HIPS	1	1	-	
		3018905400	HIPS	-	-	1	
69	COVER CAB BRACKET	3011433300	HIPS	1	1	1	
70	BASE CONTROL PANEL	3010312900	HIPS	1	1	1	
71	PANEL CONTROL	3014204810	ABS	1	1	1	
72	HARNNESS LAMP SW	3012717020		1	1	1	
73	SWITCH LAMP	3018111500	250V 0.25A	1	1	1	
74	CAP CONTROL PANEL A	3010902800	SILICON RUBBER	1	1	1	
75	SHELF R	3017813700	GPPS	2	3	3	
76	COVER CHILD CASE	3011433200	GPPS	1	1	1	
77	CASE CHILD *L	3011114700	GPPS	1	1	1	-OPTION
78	CASE CHILD *R	3011115800	GPPS	1	1	1	-OPTION
79	COVER VEGTB CASE (B)	3011434410	GPPS	1	1	1	
80	CASE VEGTB*L	3011115010	GPPS	1	1	1	
81	CASE VEGTB*R	3011115020	GPPS	1	1	1	
82	FRAME R SHELF A	3012200900	ABS	2	3	3	-OPTION
83	FRAME R SHELF B	3012201400	ABS	2	3	3	-OPTION
84	SHELF GLASS	3017813800	T4.0	3	4	4	-OPTION
85	FRAME C-CASE COVER A	3012201500	ABS	1	1	1	-OPTION
86	FRAME C-CASE COVER B	3012201600	ABS	1	1	1	-OPTION
87	COVER VEGTB CASE (A)	3011434400	GPPS	1	1	1	-OPTION
88	CASE VEGTB	3011115000	GPPS	1	1	1	-OPTION
89	CASE ICING	3011114900	PP	2	2	2	
90	CASE F D	3011115910	HIPS	1	1	1	
91	CASE F B	3011115300	GPPS	2	2	-	
	CASE F C	3011115400	GPPS	-	-	2	
92	CASE FA	3011115200	GPPS	1	1	1	
93	ASSY R DOOR URT	3010075200		1	-	-	
		3010075210		-	1	1	
94	ASSY F DOOR URT	3010075300		1	1	-	
		3010075310		-	-	1	
95	GASKET R DOOR AS	3012306600	PVC+MAGNET	1	-	-	
		3012306800	PVC+MAGNET	-	1	1	
96	GASKET F DOOR AS	3012306500	PVC+MAGNET	1	1	-	
		3012306700	PVC+MAGNET	-	-	1	
97	HANDLE *T	3012610200	PBT	1	1	1	
98	HANDLE (*U)	3012610100	PBT	1	1	1	
99	SPECIAL SCREW D	3016004810	T2 FLT 4x16 PAINTING	4	4	4	
100	CAP DOOR BUSHING	3010918300	PP	1	1	1	
101	CAP HANDLE	3010910000	HIPS	2	2	2	
102	COVER DOOR CAP *L	3011437000	ABS	1	1	1	
103	COVER DOOR CAP *R	3011437010	ABS	1	1	1	
104	COVER BUTTER CASE	3011433100	GPPS	1	1	1	
105	CASE BUTTER	3011114600	GPPS	1	1	1	
106	CASE EGG	3011114800	GPPS	2	2	2	
107	POCKER EGG	3019008700	HIPS	1	1	1	
108	SUPOT B-POCKET (B)	3015300400	HIPS	1	1	1	
109	GUIDE BOTTLE SUPOT (B)	3012508000	Ø5	1	1	1	
110	POCKET BOTTLE (B)	3019009500	HIPS	1	1	1	
111	GUIDE BOTTLE SUPOT C	3012508010	Ø5	1	1	1	
112	POCKET R DOOR	3019008710	HIPS	1	1	1	
	113 SUPOT B-POCKET (A)	3015303900	PE-LD	1	1	1	-OPTION
114	POCKET BOTTLE A	3019008600	HIPS	1	1	1	-OPTION
115	CAP POCKET	3010909900	SILICON RUBBER	2	2	2	-OPTION
116	POCKET BUTTE B	3019008720	HIPS	-	1	1	
117	SPECIAL SCREW C	3016004800		2	2	2	

Part List

2. Parts list (A TYPE)

NO	PART NAME	PART CODE	DESCRIPTION	310	340	370	REMARK
1	ASSY CAB URT	3010071000		1	-	-	
		3010071010		-	1	-	
		3010071020		-	-	1	
2	BASE COMP	3010310500	SBHG T1.2	1	1	1	
3	CASTER	3016500500	PA-6	2	2	2	
4	SHAFT CASTER	3014903100	Ø6xL40 SWRM10	2	2	2	
5	SPECIAL SCREW A	3016004300	M6.5xL20	4	4	4	
6	ABSORBER COMP	3010101 700	NR	4	4	4	- D/W COMP
7	FIXTURE COMP	3012005300	SK5+ZN5-C T0.8	4	4	4	- D/W COMP
8	COMPRESSOR	395611251151	HPL25YG1-5	1	1	-	- D/W COMP
		395611271151	HPL27YG1-5	-	-	1	- D/W COMP
		3016802200	15Gr		1	1	1
	10 EVA AS	3017003200		1	1	-	
		3017004600				1	
11	FUSE TEMPERATURE	3017200700	250V	1	1	1	
12	SENSOR D AS	3014801700		1	1	1	
13	HEATER D AS	3012803600	230V 230W	1	1	1	
14	PIPE SUC AS	3014418700	DCUT1-0	1	1	1	
15	WI-CON ASSY	3010056000		1	1	-	
		3010056100		-	-	1	
16	ABSORBER PIPE C	3010102000	EPDM	2	2	2	
17	SPECIAL WASHER	3016004700	Ø4.3 STAR	7	7	7	
18	ABSORBER PIPE B	3010101900	IIR	1	1	1	
19	SWITCH P RELAY OL	3817911200	4TM213NHB	1	1	-	- D/W COMP
		3817911300	4TM265NHB	-	-	1	- D/W COMP
20	SWITCH P RELAY PTC	3817907000	33 (MURADTA)	1	1	1	- D/W COMP
21	RELAY BOX	3810506400		1	1	1	- D/W COMP
22	CABLE CLAMP	3818200300		1	1	1	- D/W COMP
23	HARNESS RELAY	3012717030		1	1	1	
24	RELAY BOX COVER	3811401300		1	1	1	- D/W COMP
25	RELAY BAND	3816100400		1	1	1	- D/W COMP
26	BOX POWER	3010517201	HIPS	1	1	1	
27	CAPACITOR RUNNING	3016400800	4 µF/350VAC	1	1	-	
		3016400810	5 µF/350VAC	-	-	1	
28	CABLE TIE			2	2	2	
29	CORD POWER AS	3011303200	CP-2 PIN	1	1	1	3011303210: 5-1363 (U.K.)
30	HARNESS EARTH	3012717010		1	1	1	
31	SCREW MACHINE	7051401065	PAN 4x10 BSNI	1	1	1	
32	PIPE CHARGE	3014418200	DCUT1-0, Ø6xT0.6x100	1	1	1	- D/W COMP
33	CAP DRAIN HOSE	3010919700	NBR	1	1	1	
34	ABSORBER VAPORI CASE	3010102700	IIR	2	2	2	
35	CASE VAPORI (A)	3011115100	AL T0.6	1	1	1	- D/W COMP
36	HINGE *U	3012908200	P/O+ZN T4.0	2	2	2	
37	FOOT ADJUSTING AS	3012101800	PP+SPECIAL BOLT	2	2	2	
38	SPECIAL WASHER HINGE	3016005500	S20C T1.0 13/7	2	2	2	
39	SHAFT HI	3014903200		2	2	2	
40	SPECIAL BOLT C	3016004900	M5xP0.89xL16 SWCH22A	12	12	12	
41	HINGE *M	3012908000	DIE CASTING	1	1	1	
42	HINGE *T	3012908100	P/O+ZN T3.2	2	2	2	
43	CAP SCREW	3010920200	PE-LD	1	1	1	
44	CAP SCREW HOLE	3010920300	HIPS	1	1	1	
45	COVER RETURN DUCT	3011433700	HIPS	1	1	1	
46	INSU DAMPER B	301 3325400	F-PS	1	1	1	
47	INSU DAMPER A	3013324500	F-PS	1	1	1	
48	COVER DAMPER	3011433500	HIPS	1	1	1	
49	HARNESS LAMP SOCKET	3012719800		1	1	1	
50	INSU MULTI DUCT	301 3326800	F-PS	1	-	-	
		30133 26900	F-PS	-	1	1	
51	SENSOR R AS	3014801800		1	1	1	
52	COVER MULTI DUCT	3011434100	HIPS	1	-	-	
		3011434200	HIPS	-	1	1	
53	SOCKET LAMP AS	301 7903100		1	1	1	
54	LAMP	3013600700	230V 15W	1	1	1	
55	WINDOW LAMP	3015503300	GP	1	1	1	
56	CAP M-DUCT COVER	3010924700	PP	2	2	2	- WITHOUT C-CASE
57	BRACKET FAN MOTOR	3010615600	PP	1	1	1	
58	BUSHING FAN MOTOR	3010901800	NR	2	2	2	
59	MOTOR FAN AS	3015903700	IS-2321 DWBFH	1	1	1	

Part List

NO	PART NAME	PART CODE	DESCRIPTION				REMARK
				310	340	370	
60	LOUVER F B	3018905500	HIPS	1	1	-	
		3018905600	HIPS	-	-	1	
61	FAN	3011801400	ABS	1	1	1	
62	FIXTURE FAN RING	3012005400	SUS304 T0.5	1	1	1	
63	FLAP CONTROL	301 7100300	HIPS	1	1	1	
64	LOUVER F A	3018905300	HIPS	1	1	-	
		3018905400	HIPS	-	-	1	
65	FLAP LINK	3017100400	HIPS	1	1	1	
66	MAGNET CONTROL	301 7500300		2	2	2	
67	HARNESS HALL PCB	3012717040		1	1		
68	BOX CONTROL	3010516100	HIPS	1	1	1	
69	KNOB CONTROL	3013401400	HIPS	1	1	1	
70	COVER CAB BRACKET	3011433300	HIPS	1	1	1	
71	PCB MAIN AS	3014372030		1	1	1	
72	TRANS DOWN	5EPK041009		1	1	1	
73	BASE CONTROL PANEL	3010312900	HIPS	1	1	1	
74	PCB HALL S/W AS	3014372230		1	1	1	
75	PANEL CONTROL	3014204800	ABS	1	1	1	
76	WINDOW LED	3015503400	SILICON RUBBER	1	1	1	
77	PCB F AS	3014372130		1	1	1	
78	HARNESS LAMP SW	3012717020		7	1	1	
79	SWITCH LAMP	3018111500	250V 0.25A	1	1	1	
80	CAP CONTROL PANEL A	3010902800	SILICON RUBBER	1	1	1	
81	SHELF R	3017813700	GPPS	2	3	3	
82	COVER CHILD CASE	3011433200	GPPS	1	1	1	
83	CASE CHILD *L	3011114700	GPPS	1	1	1	
84	CASE CHILD *R	3011115800	GPPS	1	1	1	
85	COVER VEGTB CASE (B)	3011434410	GPPS	1	1	1	
86	CASE VEGTB*L	3011115010	GPPS	1	1	1	
87	CASEVEGTB*R	3011115020	GPPS	1	1	1	
88	FRAME R SHELF A	3012200900	ABS	2	3	3	- OPTION
89	FRAME R SHELF B	3012201400	ABS	2	3	3	- OPTION
90	SHELF GLASS	3017813800	T4.0	3	4	4	- OPTION
91	FRAME C-CASE COVER A	3012201500	ABS	1	1	1	- OPTION
92	FRAME C-CASE COVER B	3012201600	ABS	1	1	1	- OPTION
93	COVER VEGTB CASE (A)	3011434400	GPPS	1	1	1	- OPTION
94	CASE VEGTB	3011115000	GPPS	1	1	1	- OPTION
95	CASE ICING	3011114900	PP	2	2	2	
96	CASE F D	3011115900	HIPS	1	1	1	
97	CASE F B	3011115300	GPPS	2	2	-	
	CASE FC	3011115400	GPPS	-	-	2	
98	CASE FA	3011115200	GPPS	1	1	1	
99	ASSY R DOOR URT	3010075200		1	-	-	
		3010075210		-	1	1	
100	ASSY F DOOR URT	3010075300		1	1	-	
		3010075310		-	-	1	
101	GASKET R DOOR AS	3012306600	PVC+MAGNET	1	-	-	
		3012306800	PVC+MAGNET	-	1	1	
102	GASKET F DOOR AS	3012306500	PVC+MAGNET	1	1	-	
		3012306700	PVC+MAGNET	-	-	1	
103	HANDLE *T	3012610200	PBT	1	1	1	
104	HANDLE *U	3012610100	PBT	1	1	1	
105	SPECIAL SCREW D	3016004810	T2 FLT 4x16 SUS COATING	4	4	4	
106	CAP DOOR BUSHING	3010918300	PP	1	1	1	
107	CAP HANDLE	3010910000	HIPS	2	2	2	
108	COVER DOOR CAP *L	3011437000	ABS	1	1	1	
109	COVER DOOR CAP *R	3011437010	ABS	1	1	1	
110	COVER BUTTER CASE	3011433100	GPPS	1	1	1	
111	CASE	3011114600	GPPS	1	1	1	
112	CASE EGG	3011114800	GPPS	2	2	2	
113	POCKET EGG	3019008700	HIPS	1	1	1	
114	SUPOT B-POCKET (B)	3015300400	HIPS	1	1	1	
115	GUIDE BOTTLE SUPOT B	3012508000	Ø5	1	1	1	
116	POCKET BOTTLE (B)	3019009500	HIPS	1	1	1	
117	GUIDE BOTTLE SUPOT C	3012508010	Ø5	1	1	1	
118	POCKET R DOOR	3019008710	HIPS	1	1	1	
119	SUPOT B-POCKET A	3015303900	PE-LD	1	1	1	- OPTION
120	POCKET BOTTLE (A)	3019008600	HIPS	1	1	1	- OPTION
121	CAP POCKET	3010909900	SILICON RUBBER	2	2	2	- OPTION
122	POCKET BUTTER	3019008720	HIPS	-	1	1	
123	SPECIAL SCREW C	3016004800		2	2	2	

Part List

Part list of colour components (ERF-310A/M,ERF-340A/M,ERF-370A/M)

WHITE

NO	PART NAME	PART CODE	MODEL			DESCRIPTION	REMARK
			310	340	370		
1	CONTROL PANEL A	3014204800	1	1	1	ABS	electronic
2	CONTROL PANEL M	3014204950	1	1	1	ABS	mechanical
3	BASE CONTROL PANEL	3010312900	1	1	1	HIPS	
4	REFRIGERATOR DOOR (310)	3010075201	1			URT FORMING (CO-LAMINAR)	
5	REFRIGERATOR DOOR (340-370)	3010075213		1	1	URT FORMING (CO-LAMINAR)	
6	FREEZER DOOR (310-340)	3010075303	1	1		URT FORMING (CO-LAMINAR)	
7	FREEZER DOOR (370)	3010075313			1	URT FORMING (CO-LAMINAR)	
8	HANDLE *F	3012610100	1	1	1	PBT	
9	HANDLE *R	3012610200	1	1	1	PBT	
10	COVER DOOR CAP *L	3011437000	2	2	2	ABS	
11	COVER DOOR CAP *R	3011437010	2	2	2	ABS	
12	CAP HANDLE	3010910010	4	4	4	HIPS	
13	CAP SCREW	3010920200	1	1	1	HIPS	
14	CAP DOOR BUSHING	3010918300	1	1	1	PP	
15	CAP CONTROL PANEL	3010902810	1	1	1	SILICON RUBBER	
16	COVER CAB BRACKET	3011433320	1	1	1	HIPS	

SILVER

NO	PART NAME	PART CODE	MODEL			DESCRIPTION	REMARK
			310	340	370		
1	CONTROL PANEL A	3014204940	1	1	1	ABS	electronic
2	CONTROL PANEL M	3014204970	1	1	1	ABS	mechanical
3	BASE CONTROL PANEL	3010312910	1	1	1	HIPS	
4	REFRIGERATOR DOOR (310)	3010074601	1			URT FORMING (CO-LAMINAR)	
5	REFRIGERATOR DOOR (340-370)	3010075211		1	1	URT FORMING (CO-LAMINAR)	
6	FREEZER DOOR (310-340)	3010075301	1	1		URT FORMING (CO-LAMINAR)	
7	FREEZER DOOR (370)	3010075311			1	URT FORMING (CO-LAMINAR)	
8	HANDLE *F	3012610120	1	1	1	PBT	
9	HANDLE *R	3012610220	1	1	1	PBT	
10	COVER DOOR CAP *L	3011437040	2	2	2	ABS	
11	COVER DOOR CAP *R	3011437050	2	2	2	ABS	
12	CAP HANDLE	3010910010	4	4	4	HIPS	
13	CAP SCREW	3010920210	1	1	1	HIPS	
14	CAP DOOR BUSHING	3010918310	1	1	1	PP	
15	CAP CONTROL PANEL	3010902810	1	1	1	SILICON RUBBER	
16	COVER CAB BRACKET	3011433320	1	1	1	HIPS	

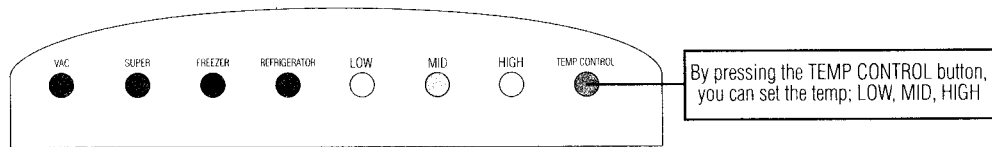
INOX (DARK GRAY)

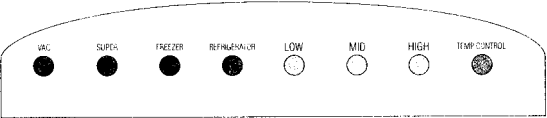
NO	PART NAME	PART CODE	APPLY MODEL			DESCRIPTION	REMARK
			310	340	370		
1	CONTROL PANEL A	3014204960	1	1	1	ABS	electronic
2	CONTROL PANEL M	3014204990	1	1	1	ABS	mechanical
3	BASE CONTROL PANEL	3010312910	1	1	1	HIPS	
4	REFRIGERATOR DOOR (310)	3010074602	1			URT FORMING (INOX)	
5	REFRIGERATOR DOOR (340-370)	3010075212		1	1	URT FORMING (INOX)	
6	FREEZER DOOR (310-340)	3010075302	1	1		URT FORMING (INOX)	
7	FREEZER DOOR (370)	3010075312			1	URT FORMING (INOX)	
8	HANDLE *F	3012610110	1	1	1	PBT	
9	HANDLE *R	3012610210	1	1	1	PBT	
10	COVER DOOR CAP *L	3011437020	2	2	2	ABS	
11	COVER DOOR CAP *R	3011437030	2	2	2	ABS	
12	CAP HANDLE	3010910010	4	4	4	HIPS	
13	CAP SCREW	3010920210	1	1	1	HIPS	
14	CAP DOOR BUSHING	3010918310	1	1	1	PP	
15	CAP CONTROL PANEL	3010902810	1	1	1	SILICON RUBBER	
16	COVER CAB BRACKET	3011433310	1	1	1	HIPS	

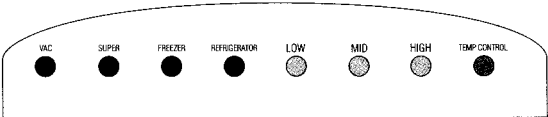
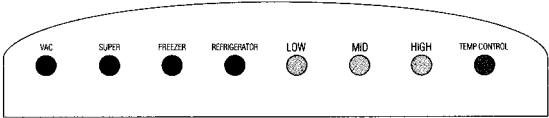
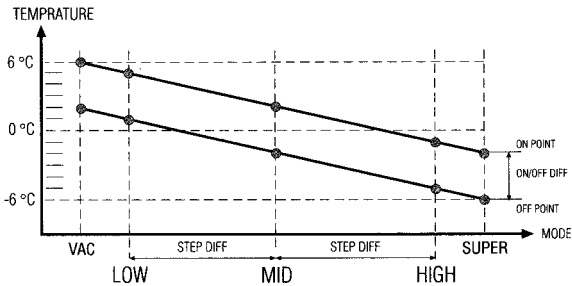
12. PCB CONTROL FUNCTIONS

PCB SERVICE MANUAL OF ELECTRONIC CONTROL TYPE
Model: ERF-310A/340A/370A

1. How to use the panel



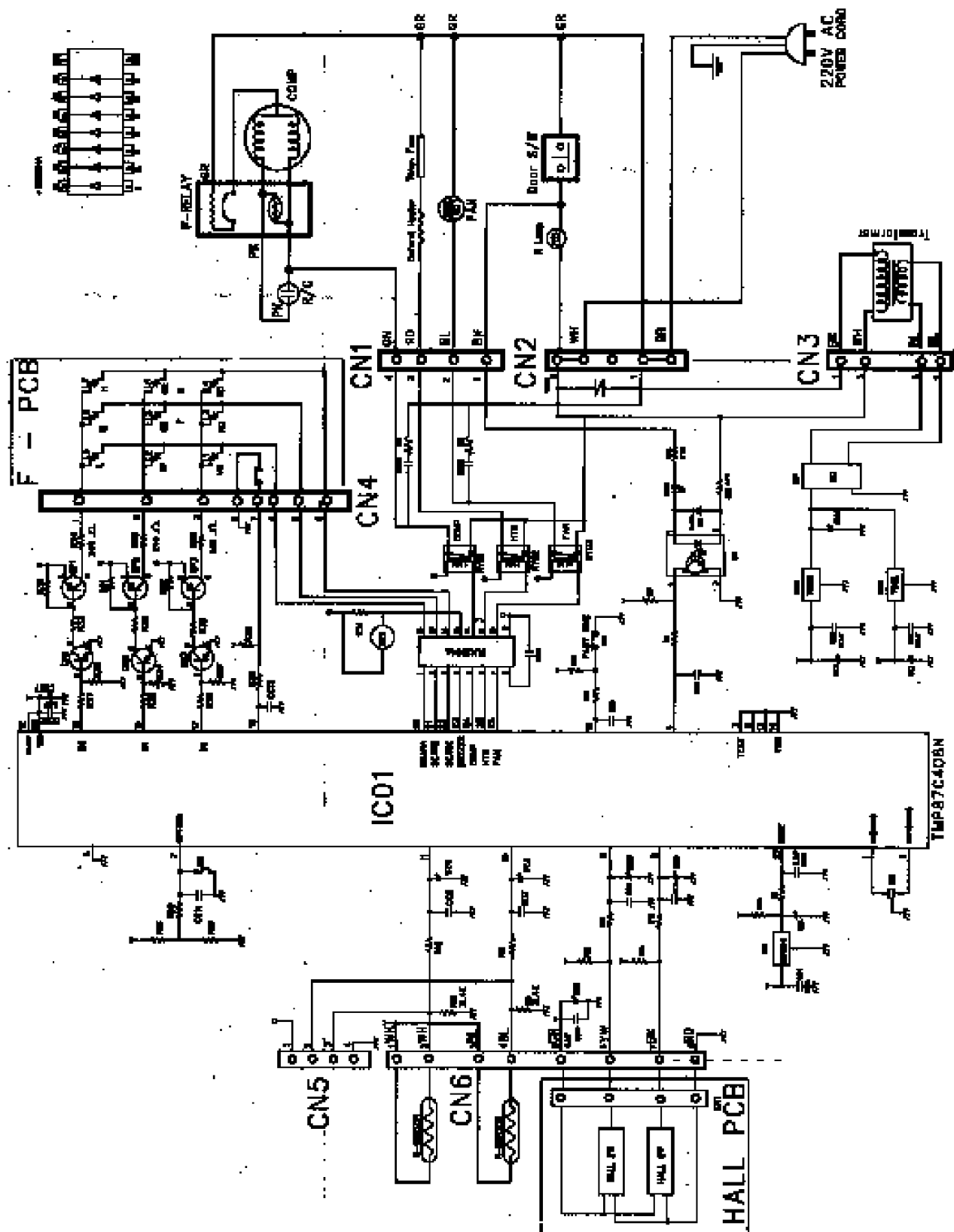
NO	CONTROL FUNCTION	CONTENTS
1.	Initial Operation	1) In the Initial Operation, the Temperature of Refrigerator set MID Position. 2) Freezer and Refrigerator LED is ON with Red color. 3) Vacation or Super Freezing LED depends on Position of Freezer Control knob. 
2.	Panel Display	1) VAC ON: When the Control Knob in the freezer is located Vacation position. 2) SUPER ON: When the Control knob in the freezer is located Freezing position. 3) FREEZER LED GREEN ON: When the freezer temp. is OK (less than -5 deg at D sensor) RED ON: When the freezer temp. is not good. NG condition (1 OR 2) 1- More than -5 deg at D-sensor when comp. off 2- More than -5 deg when comp is running for 120 min. cf. ERROR DISPLAY RED LED ON/OFF one times: D1 ERROR It is D sensor error for open or short RED LED ON/OFF two times: D2 ERROR Defrost Error is occurred that heater off by timer for 80 min. 4) REFRIGERATOR LED GREEN ON: When the refrigerator temp. is OK, (-7~10 deg) RED ON : When the refrigerator temp. is not good. NG condition (1 and 2) 1- More than 10 deg OR Less than -7 deg at R-sensor 2- More than 120 min. cf. ERROR DISPLAY RED LED ON/OFF one times: R1 ERROR It is R sensor error for open or short 5) LOW ON: When the comp is controled by Low on/off condition 6) MID ON: When the comp is controled by Mid on/off condition

NO	CONTROL FUNCTION	CONTENTS
2.	Panel Display	7) HIGH ON: When the comp is controled by High on/off condition. cf. LOW / MID / HIGH LED ALL ON: This is Continuty MODE that Comp/ Fan is ON without Sensor temp. 
3.	Refrigerator Temperature Control	1) Temperature can be controled by 3 steps with the Refrigerator temperature button. LOW → MID → HIGH → LOW  2) Refrigerator Control ON/OFF temperature 1- MID OFF point: -2 deg 2- ON/ OFF DIFF: 4 deg 3- STEP DIFF: 3 deg  3) Delay time of Fan is 1 MIN after compressor on/off
4.	Determination of Defrost	1) Detemination of Defrost mode 1- Accumulated running time of compressor 2- Accumulated Open Times of R-door 3- Total time (On time of compressor + Off time of compressor) 2) Starting condition of Defrost mode I. When Accumulated Running Time of compressor (1) is 10 hours II. When Accumulated Open Times of R-door (2) is more than 3 times III. Check After (I) condition, if the (II) condition is more than 3 times then Star Defrost mode. IV. When Accumulated Running Time of compressor (1) is 15 hours, Star Defrost mode. V. Finally, when Total time (3) is more than 60 hours, Star Defrost mode.

NO	CONTROL FUNCTION	CONTENTS
5.	Flow chart for Determination of Defrost	<pre> graph TD Start([Start]) --> D1{Total time ≥ 60 hours} D1 -- Yes --> SDF[Starting Defrost mode] D1 -- no --> D2{Running time of compressor ≥ 15 hours} D2 -- Yes --> SDF D2 -- no --> D3{Running time of compressor ≥ 14 hours} D3 -- Yes --> SDF D3 -- no --> D4{Running time of compressor ≥ 13 hours} D4 -- Yes --> SDF D4 -- no --> D5{Running time of compressor ≥ 12 hours} D5 -- Yes --> SDF D5 -- no --> D6{Running time of compressor ≥ 11 hours} D6 -- Yes --> SDF D6 -- no --> D7{Running time of compressor ≥ 10 hours} D7 -- Yes --> SDF D7 -- no --> D8{Open times of R-door ≥ 3 times} D8 -- Yes --> SDF D8 -- no --> End([End]) </pre>
6.	Defrost Mode	• General Defrost 1) START: By determination defrost condition Accumulated running time of compressor 2) FLOW HEATER → PAUSE(4min.) → FAN DELAY(4 min.) → CONTROL 1- HEATER *On - When defrost condition mode is started. *Off - When D-sensor is more than 10 deg. - If D1 ERROR is existance, Heater off by Time * LIMIT TIME -80min (D2 ERROR) Case of Heater/Temp Fuse Open - If D1 ERROR is existance, Heater off by 30 min. * HTR 30 SEC ON: To check DEFROST CURRENT (HEATER) in the mass production line 2- PAUSE * Time - 4 min. * All devices are off 3- FAN DELAY * Time - 4 min. * Only compressor is on in the R-sensor on condition

NO	CONTROL FUNCTION	CONTENTS																										
6.	Defrost Mode	• Forced Defrost 1) START: Temp Control SW is pushed for 5 sec continuously 2) FLOW 1- Buzzer for 1 sec. 2. Same of the general Defrost Flow																										
7.	Initial Defrost	1) When Power is on, Check the D-SENSOR Temp. 2) Start Condition: Less than 3.5 deg for D-SENSOR																										
8.	COMP Restart prevent	1) The COMP. cannot be on within 6min. after COMP off. 2) During Pre-cool step in defrost mode. 6 min. dellay is unavailable																										
9.	Alarm function	1) DOOR OPEN: 3 sec. in times every minute 2) TEMP SW: When it is clicked 3) POWER ON 4) FORCED DEFROST																										
10.	Control in R1 Error	5) FAST TIME SW * In R SENSOR Open/Short error, Compress/Fan are controled by time as following Comp/Fan ON TIME: 20 min. Comp/Fan OFF TIME: 30 min.																										
11.	Error Code	1) D1 Error * Display: FREEZER RED LED on/off one times. * Condition: It is occured when D sensor is open or short. 2) D2 Error * Display: FREEZER RED LED on/off two times. * Condition: D2 Error is occured that heater off by timer for 80 min. 3) R1 Error * Display: REFRIGERATOR RED LED on/off one times. * Condition: It is occured when R sensor is open or short <table><tr><th>Display contents</th><th>LED on/off Output</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></table>	Display contents	LED on/off Output	D1 ERROR		D2 ERROR		R1 ERROR																			
Display contents	LED on/off Output																											
D1 ERROR																												
D2 ERROR																												
R1 ERROR																												
12.	OPTION	Protection of OVER-COOL in CRISP MICOM <table><tr><th rowspan="2">NO</th><th colspan="2">CONTROL</th><th rowspan="2">APPLICATION (MAIN PCB)</th><th rowspan="2">MICOM INPUT VOLTAGE(6PIN)</th><th rowspan="2"></th></tr><tr><th>ON</th><th>OFF</th></tr><tr><td>1</td><td>2°C</td><td>-2°C</td><td>-</td><td>0 V</td><td>MP option</td></tr><tr><td>2</td><td>3°C</td><td>-1°C</td><td>J15 open</td><td>2.5 V</td><td></td></tr><tr><td>3</td><td>4°C</td><td>0°C</td><td>J15,R19 open</td><td>5V</td><td></td></tr></table>	NO	CONTROL		APPLICATION (MAIN PCB)	MICOM INPUT VOLTAGE(6PIN)		ON	OFF	1	2°C	-2°C	-	0 V	MP option	2	3°C	-1°C	J15 open	2.5 V		3	4°C	0°C	J15,R19 open	5V	
NO	CONTROL			APPLICATION (MAIN PCB)	MICOM INPUT VOLTAGE(6PIN)																							
	ON	OFF																										
1	2°C	-2°C	-	0 V	MP option																							
2	3°C	-1°C	J15 open	2.5 V																								
3	4°C	0°C	J15,R19 open	5V																								

13. MAIN PCB DIA -



14. TROUBLE SHOOTING

1. TROUBLE SHOOTING PROCEDURE OF THE BREAKDOWN

SYMPTOM	CHECK POINT	CAUSE	ACTION
LAMP OFF COMP OFF	Power receptable	Power failure	
	power plug	Connection is not good	Adjust
	connectors	Housing connector bad assy, with URT, terminals bent	Adjust
FAN ON COMP OFF	Comp	Short circuit on coil	Replace comp
	PTC relay	Bad connection, bad assembled	Adjust
	running capacitor (R/C)	Bad connection, bad assembled	Adjust
LAMP OFF COMP ON	Component	Lamp broken or bad assy	replace it
	Door switch	Door switch broken or bad assy	Adjust
FAN OFF COMP ON	Component	Fan motor broken, fan obstruction replace it	
	connectors	Housing connector bad assy, with URT, terminals bent	Adjust
DEFROST PROBLEMS	Heater	Component broken	replace it
	fuse	broken (find broke down reason)	replace it
	d-sensor/bi-metal	incorrect open/close temperature	replace it
	connectors	Housing connectors bad assy, with URT, terminals bent	adjust
	M-pcb	htr relay broken	replace it
	Timer	timer broken or bad connection	Adjust
UNDERCOOLING	Temperature control	The control button setting is not proper	set temp
	closing/opening door	Closing/opening door is too frequent, or door is open	close door
	Food storage conditions	Excesive storage	Arrange
		Hot food has been stored	Prevent this
	Food location	Food close outlet air ducts	Reorganizate food
	Location setting	Ref is located under direct sun light or heat.	Move it
		Surrounding is blocked (no gap between walls)	Move it
	Electric problems	Compressor, sensor, thermostat problems	General inspection
	Air circulation	Air ducts obstruction	Clean and repair
	Fan	Fan broken or obstructed	Replace it
	Refrigerant	Low charge	Recharge
		Gas leak	Repair/recharge
	Lamp	Lamp always on because door switch problems	Adjust
OVER COOLING	Temperature control	The control button setting is not proper	set temp
	Food location	The wet food is placed in front of the outlet of the duct	Reorganizate food
	R-sensor, thermostat	Componet broken or disadjusted	replace
	Chilled case	(Chilled case has 0°C under specification)	

CONFIRMATION PROCEDURE ON REFRIGERANT INSUFFICIENT

SYMPTOM	DECISION	REPAIRS
Complete leaking	Remove louver a and b. No frost will be produced at the inlet of evaporator after	- Check for a
	passing approximately 4 minute operation of the comp	leakage after
		vacuumming
Refrigerant insuficient	1) Frost condition: frost condition in the inlet pipe is extremely different from the	- Inject proper
	outlet pipe.	amount of
	2) Measurement of the temperature: When the inside temperature is stable, a	refrigerant
	5°C temperature difference occurs between the inlet pipe and the outlet pipe.	