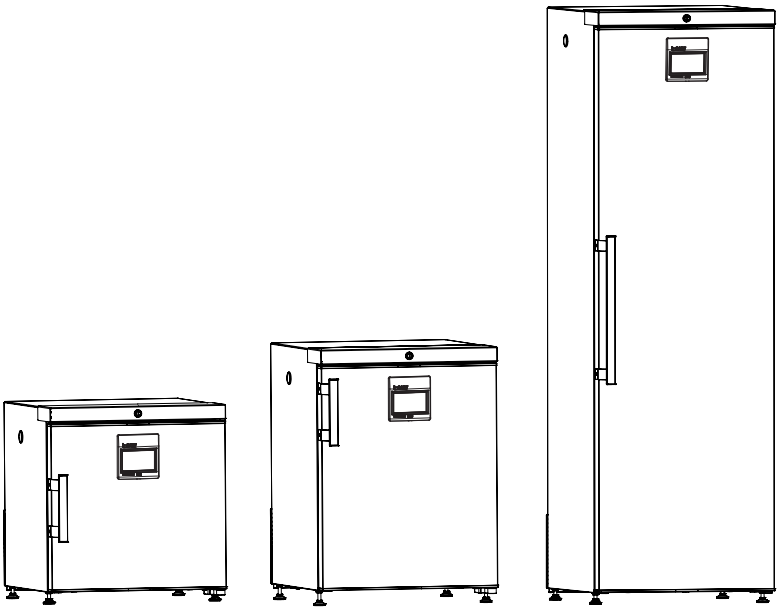
VESTFROST SOLUTIONS

SERVICEMANUAL - EN

MODELS - R-90I - R-138I - R-427I



BIOMEDICAL SOLUTIONS

REFRIGERATORS

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ATTENTION!

Before servicing or cleaning the appliance, unplug the appliance from the mains or disconnect the electrical power supply.

ATTENTION!
This service manual is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. The manufacturer cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this manual.

ATTENTION!
Bare pcbs are sensitive to ESD, so please take precautions to ensure that tools, persons and appliance is equalised.

ATTENTION!
Compressor and tubes can be hot, please allow the unit to cool down before repairing.

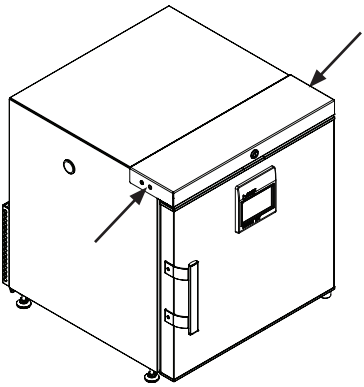
MAINTENANCE SCHEDULE

All below maintenance is recommended.
Please investigate the local legislation in your area.

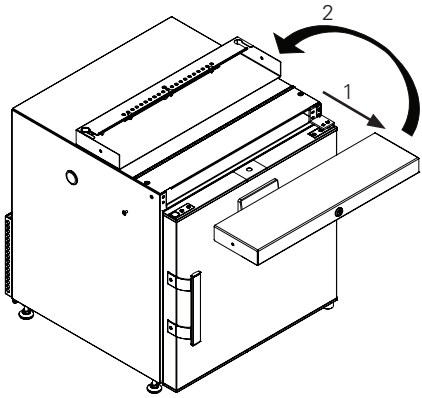
TASK	SCHEDULE
Cleaning of interior	Weekly
Cleaning of compressor compartment (including condenser and compressor)	Monthly
Cleaning of sealing in the door	Quarterly
Replacement of battery for back up	Every third year

ACCESS TO COMPONENTS

Top panel



1. Loosen the screws see picture



2. Pull the top panel straight out and place it on top of the unit.

3. Unplug the wires from connector

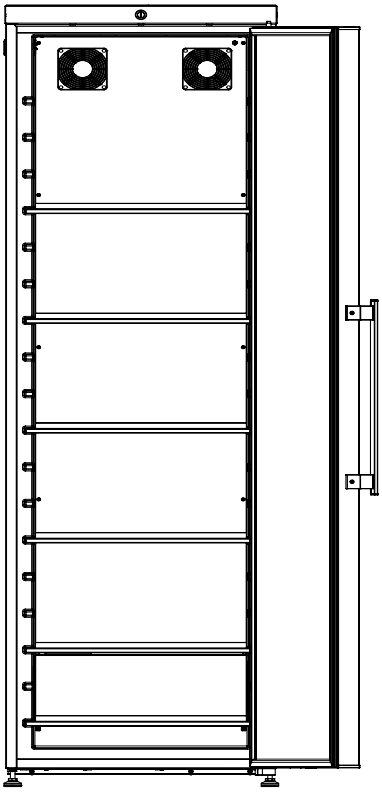
Note!

Be careful not to damage electric wires and not to scratch the unit when placing the top panel upside down.

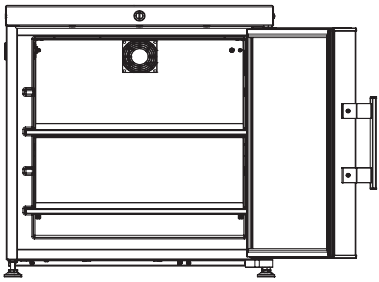
Fan

The location and number of fans may vary, but the procedure for access is identical, except for the number of screws to be removed.

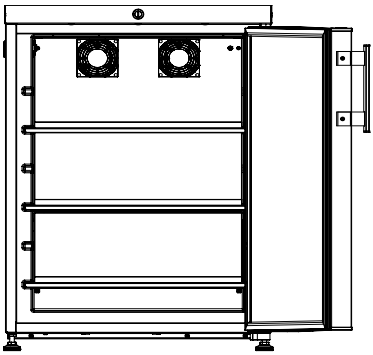
To access the plate with fans, start by removing all shelves and any drawers.



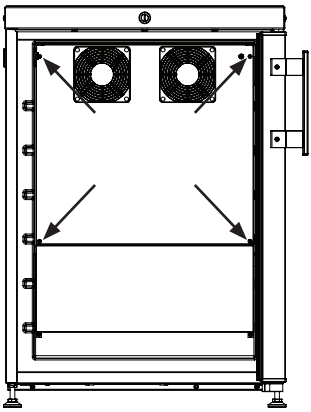
R-427i



R-90i

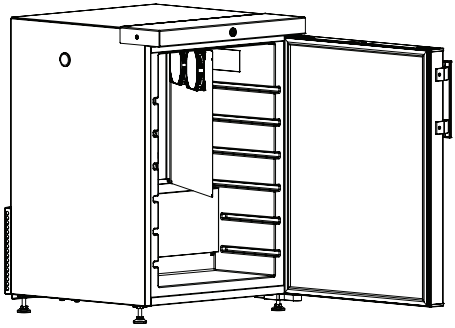


R-138i

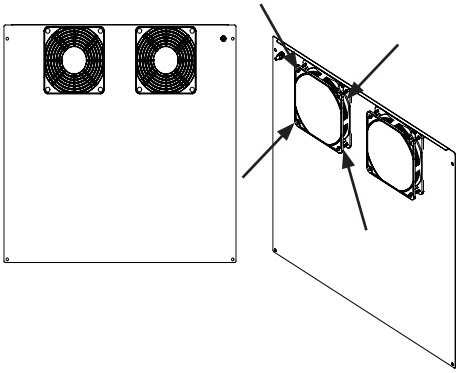


1. Remove the screws (4 in R-90i and R-138i, 10 in R-427i)

2. Flip out the fan sheet and disconnect the fan

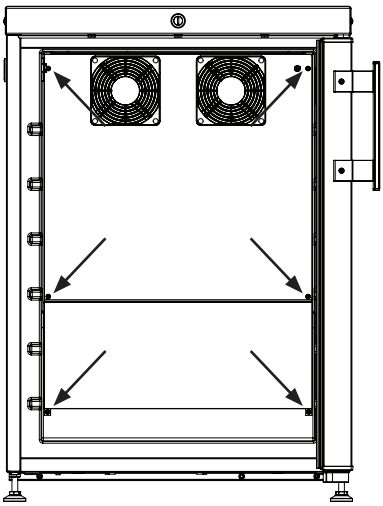


3. When replacing fan, fan grill must also be replaced

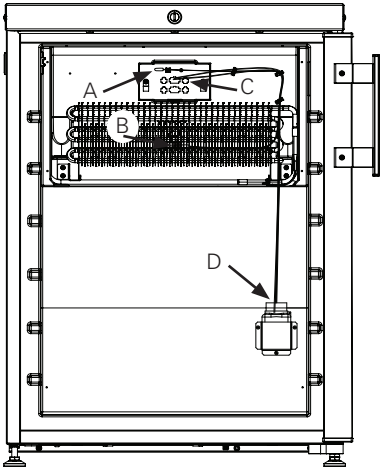


4. Press together 4 fan grill fasteners and push to release

Sensors



1. Remove the screws, 4- 10 in ventilator plate (4 in R-90i and R-138i, 10 in R-427i) and 2 in air guide step plate.



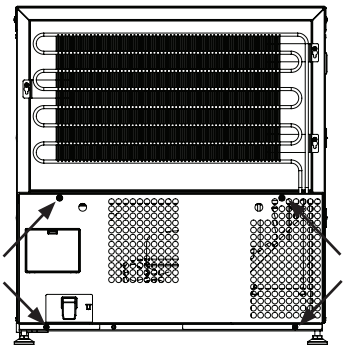
A. LCPRTD1, Main probe, showing in display, regulating the compressor.

B. P1 Evaporator probe

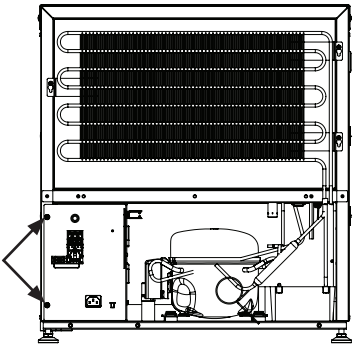
C. LCSRTD2 Security Probe (No frost)

D. P3 Reference Probe in bottle

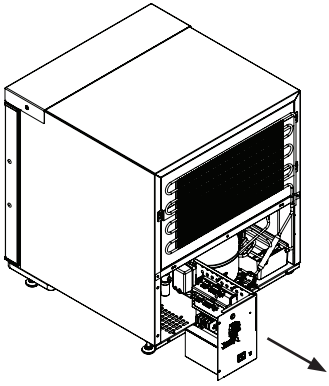
Engine room & electrical box



1. Remove 4 screws in the engine room cover

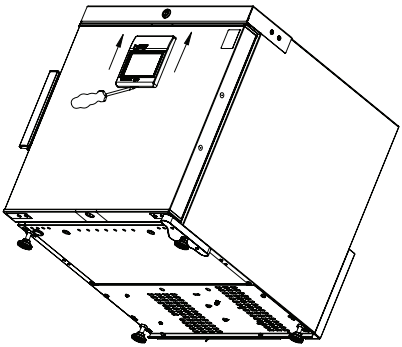


2. For access to the electrical box remove 2 screws

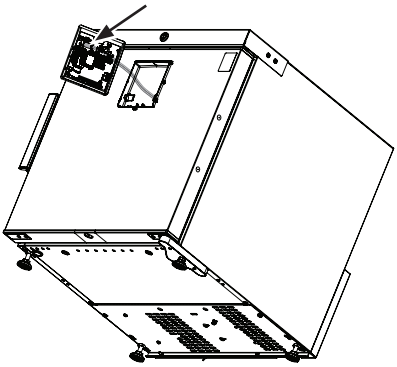


3. Slide out the electrical box

Display - with integrated keyboard

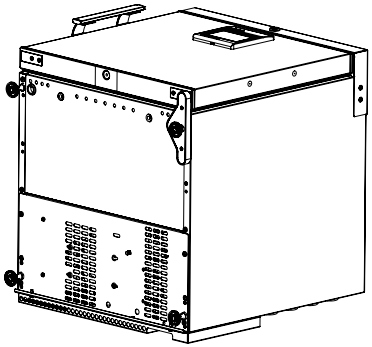


1. Tilt the appliance and release the touch panel by pushing in the plast lock and lifting up the panel simultanously



2. Carefully demount the plug/wire from the touch panels back side

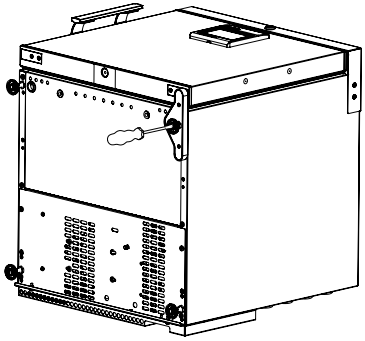
REPLACEMENT OF DOOR



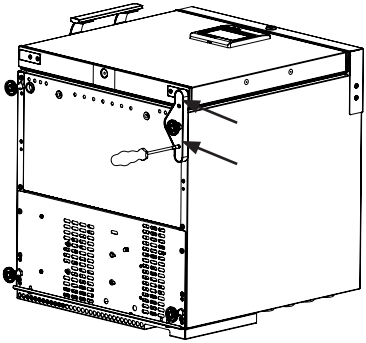
Start by disassembling the Display with integrated keyboard (see previous page)

Place the unit on its back (we recommend 2 people)

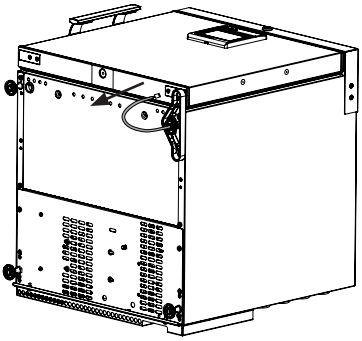
To avoid damage, place some soft padding under the unit.



Remove foot

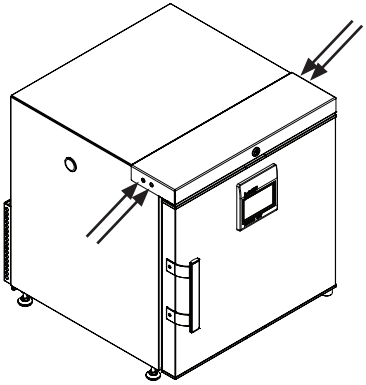


Remove base plate (2 screws)

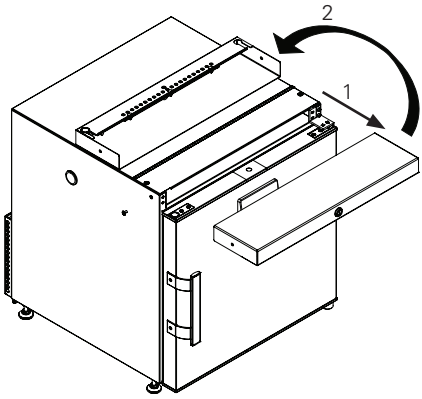


Pull out the wire

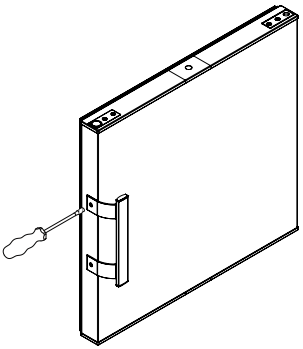
Place the unit in an upright position



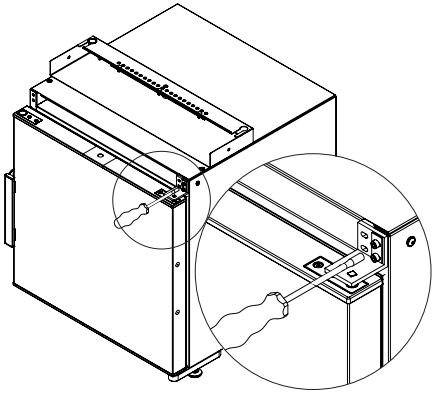
Loosen the 4 screws



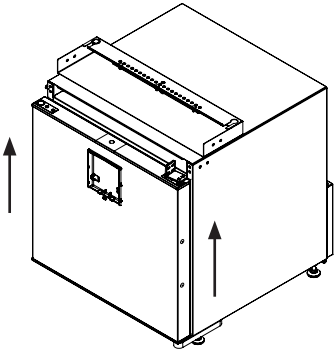
Pull the top panel straight out and place it on top of the unit.



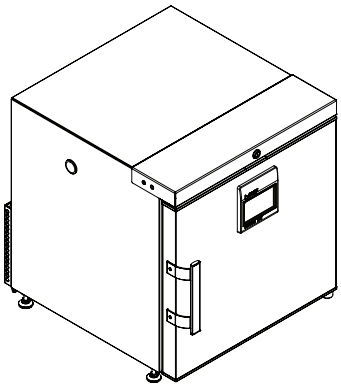
Remove the handle by removing the 2 screws.



Remove top hinge by removing the 2 screws.



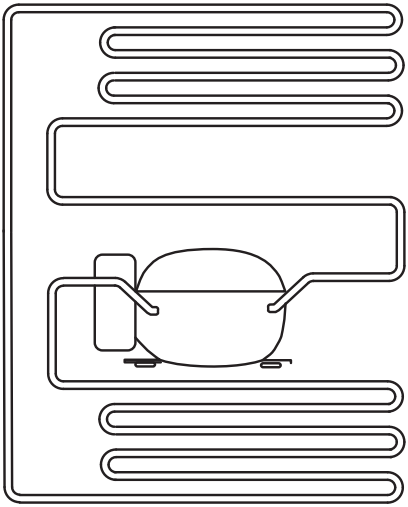
Change the door by lifting it up from the bottom hinge.



Follow the above steps in reverse order and the door change is complete.

COOLING SYSTEM

Change compressor



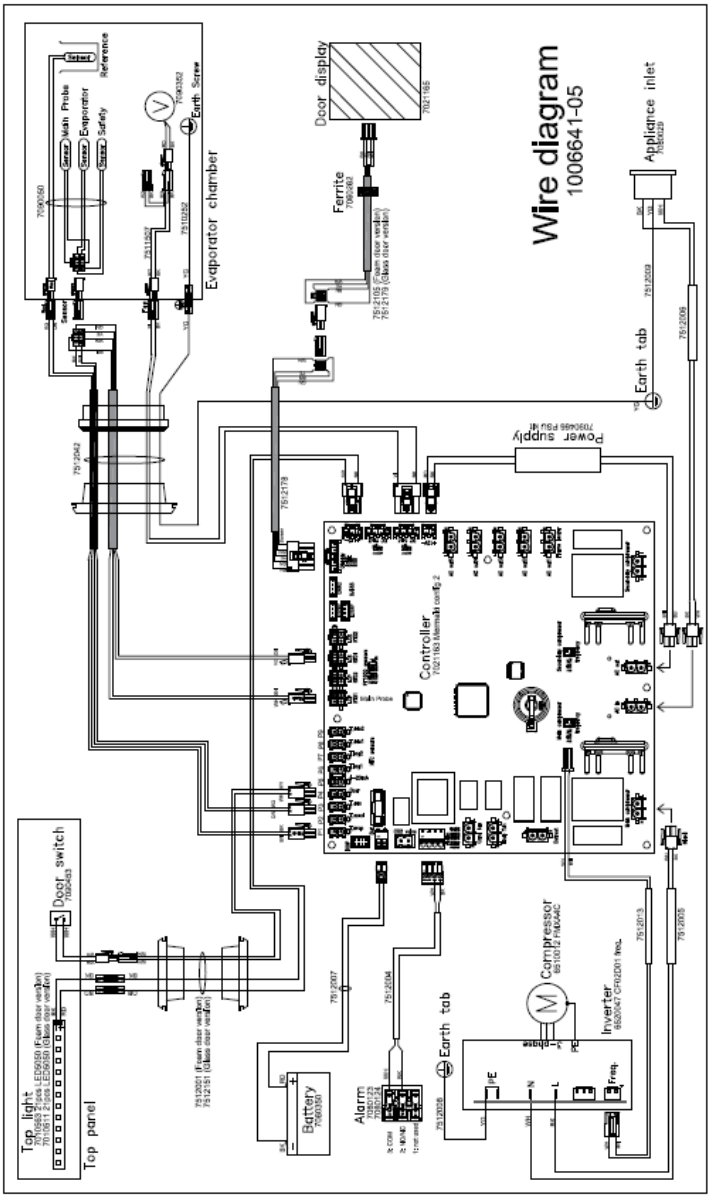
Repairs to the cooling system may only be carried out by trained professionals.

When changing the compressor, the filter drier must also be replaced.
Is is important to cut out the filter drier, as heating with solder flame will release moisture inside the dry filter. This will vaporize and drive moisture from filter drier back into system.
The quantity and type of the refrigerant used in your appliance is indicated on the rating plate.

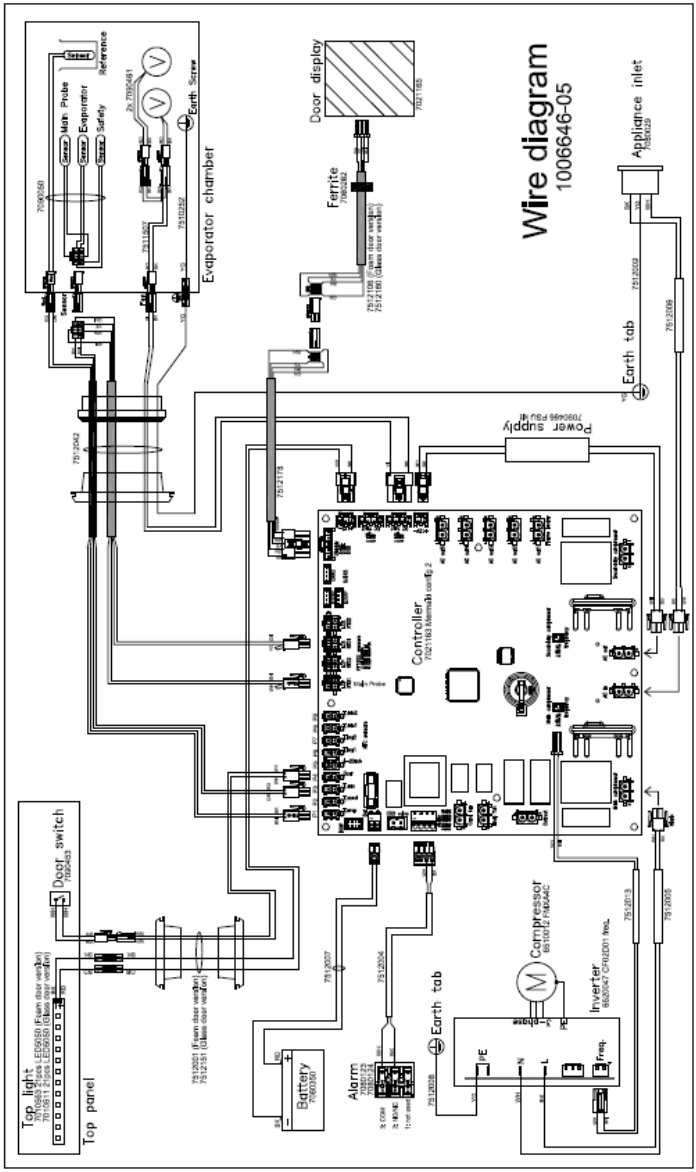
Do not make sharp bending angels on the pipes.
The distance between the pipes must be at least 12 millimetres.

ELECTRICAL SYSTEM

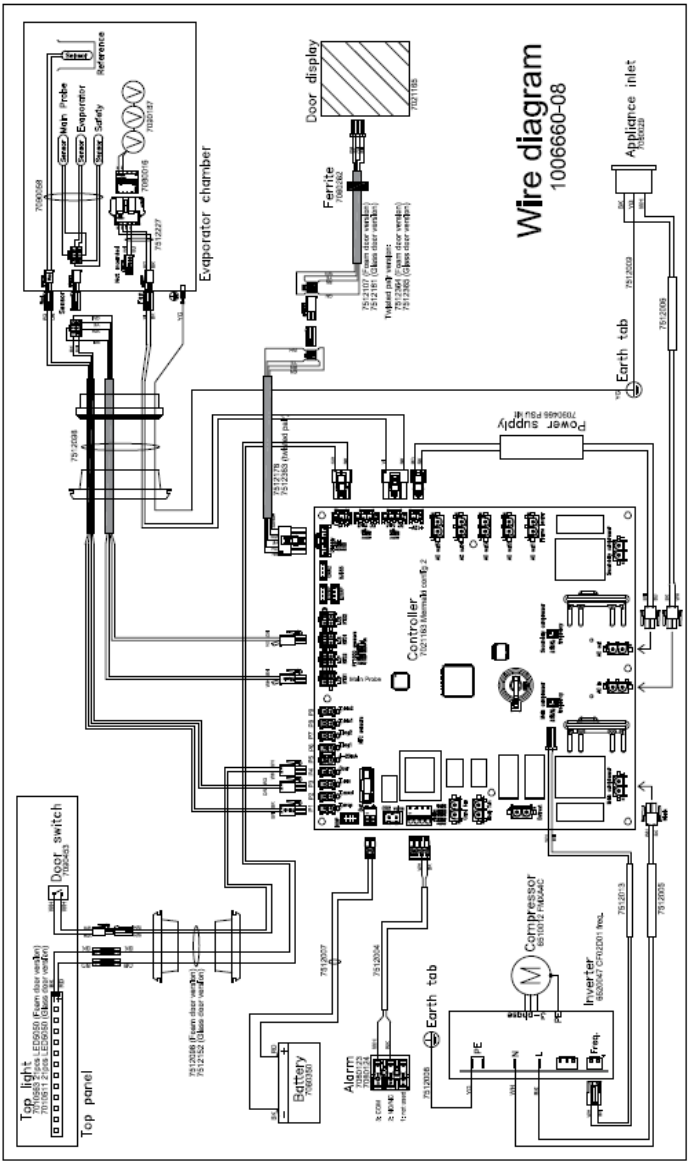
Wire diagram R-90i



Wire diagram R-138i

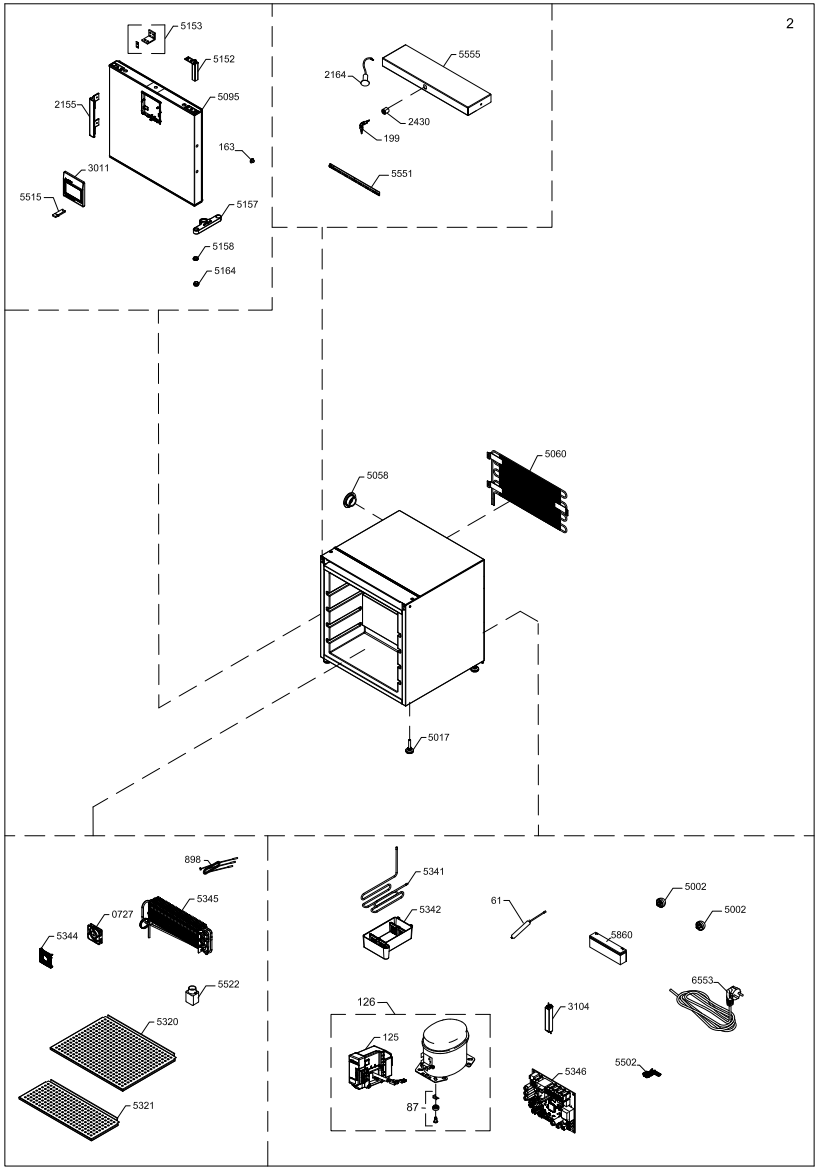


Wire diagram R-427i



SPARE PARTS

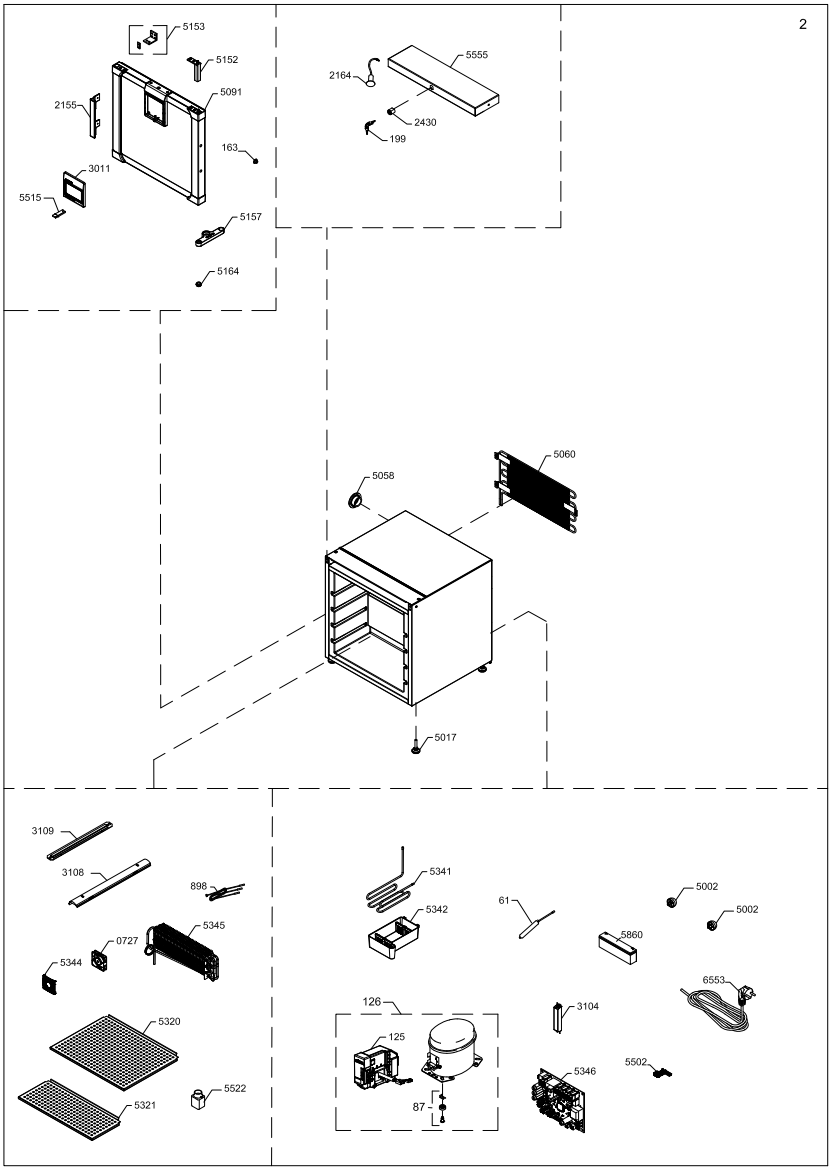
Spare parts exploded view R-90i



Spare parts list R-90i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	0-4838236	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727	7090352	Fan
0898	7090050	Sensor kit
2155	8471477	Handle
2164	7090453	Door switch
2430	A915008	Lock complete
3011	8471472	Display
3104	7090466	Transformer
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5058	3011127-03	Rubber plug for porthole
5060	6010190	WOT condenser
5095	8471485	Door
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5158	3011187	Door Pivot bottom POM
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5344	3011201	Ventilator cover 80x80 RAL9005 BSH/UC
5345	6020587	Evaporator
5346	7021063	PCB, Controller
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5551	7010563	LED light strip
5555	7095597	Toppanel complete
5860	7060046	Battery
6553	7535084	Mains lead

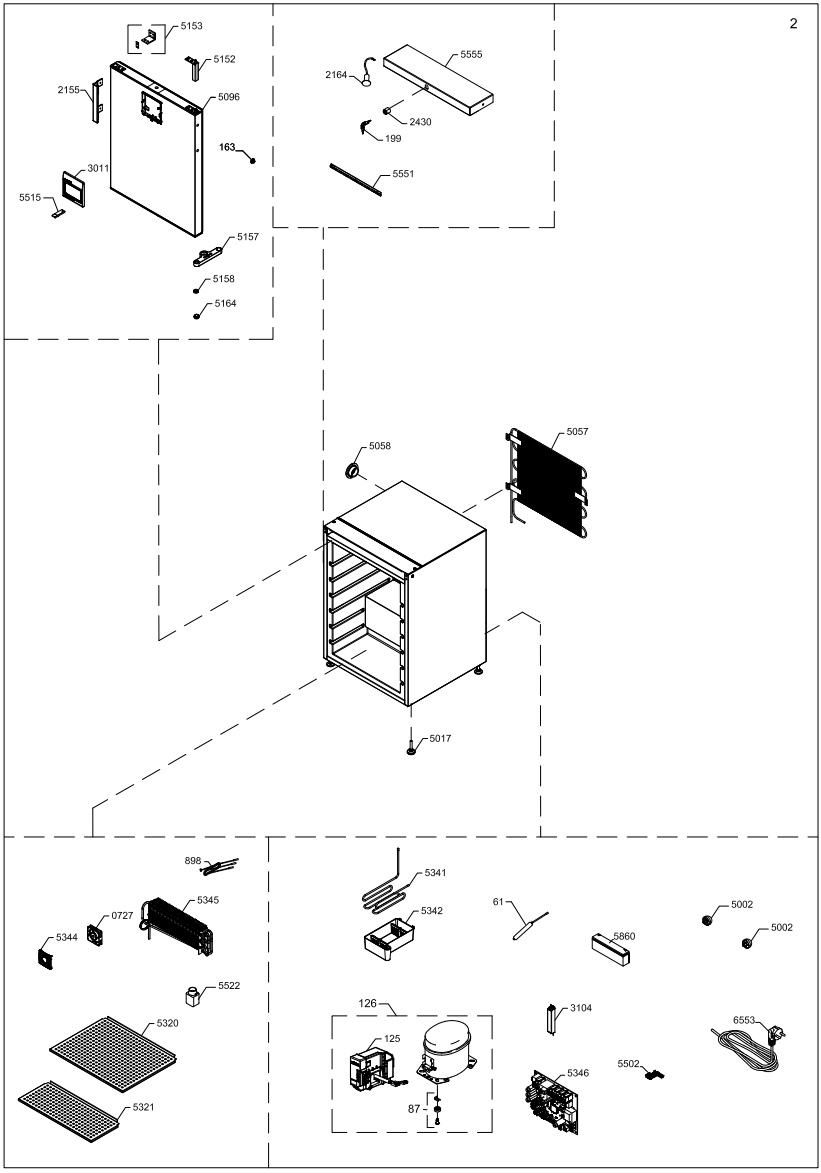
Spare parts exploded view R-90i Glass door



Spare parts list R-90i Glass door

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	1510251	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727	7090352	Fan
0898	7090050	Sensor kit
2155	8471477	Handle
2164	7090453	Door switch
2430	A915008	Lock complete
3011	8471472	Display
3104	7090466	Transformer
3108	8471875	Light screen
3109	7010511	LED light
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5058	3011127-03	Rubber plug for porthole
5060	6010190	WOT condenser
5091	8471575	Door, glass
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5344	3011201	Ventilator cover 80x80 RAL9005 BSH/UC
5345	6020587	Evaporator
5346	7095656	Electronic control unit
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5555	7095689	Toppanel complete
5860	7060046	Battery
6553	7535084	Mains lead

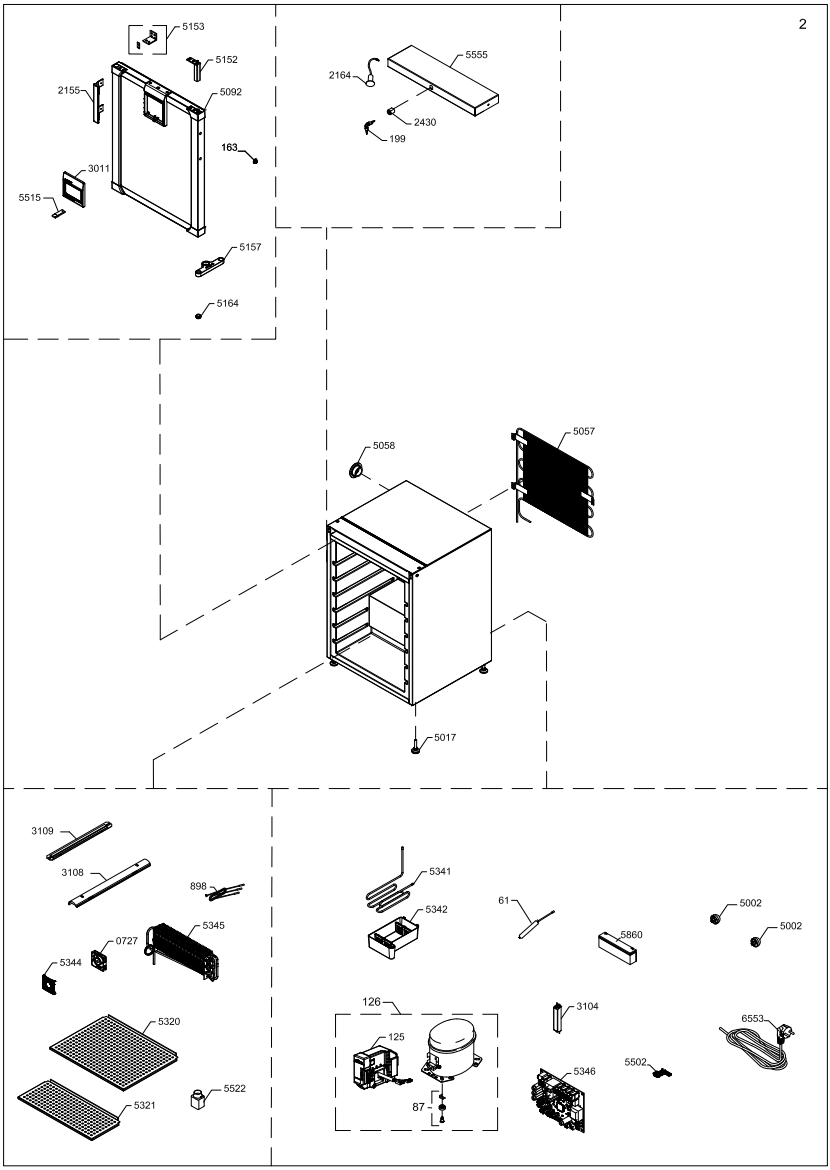
Spare parts exploded view R-138i



Spare parts list R-138i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	0-4838236	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727	7090461	Fan
0898	7090050	Sensor kit
2155	8471477	Handle
2164	7090453	Door switch
2430	A915008	Lock complete
3011	8471472	Display
3104	7090466	Transformer
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5057	6010182	WOT condenser
5058	3011127-03	Rubber plug for porthole
5096	8471673	Door
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5158	3011187	Door Pivot bottom POM
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5344	3010506-03	Ventilation grid 120x120 mm black
5345	6020589	Evaporator
5346	7021063	PCB, Controller
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5551	7010563	LED light strip
5555	7095597	Toppanel complete
5860	7060046	Battery
6553	7535084	Mains lead

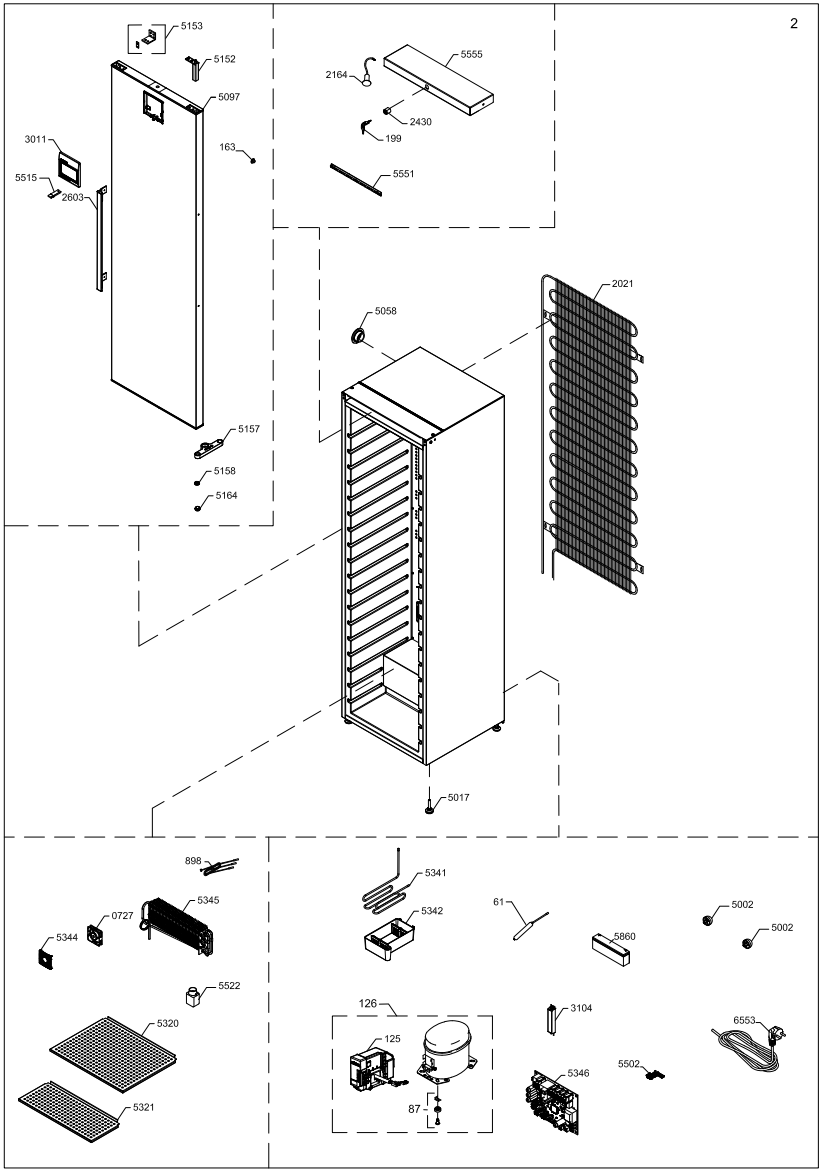
Spare parts exploded view R-138i Glass door



Spare parts list R-138i Glass door

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	1510251	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727	7090461	Fan
0898	7090050	Sensor kit
2155	8471477	Handle
2164	7090453	Door switch
2430	A915008	Lock complete
3011	8471472	Display
3104	7090466	Transformer
3108	8471875	Light screen
3109	7010511	LED light
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5057	6010182	WOT condenser
5058	3011127-03	Rubber plug for porthole
5092	8471576	Door, glass
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5344	3010506-03	Ventilation grid 120x120 mm black
5345	6020589	Evaporator
5346	7095658	Electronic control unit
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5555	7095689	Toppanel complete
5860	7060046	Battery
6553	7535084	Mains lead

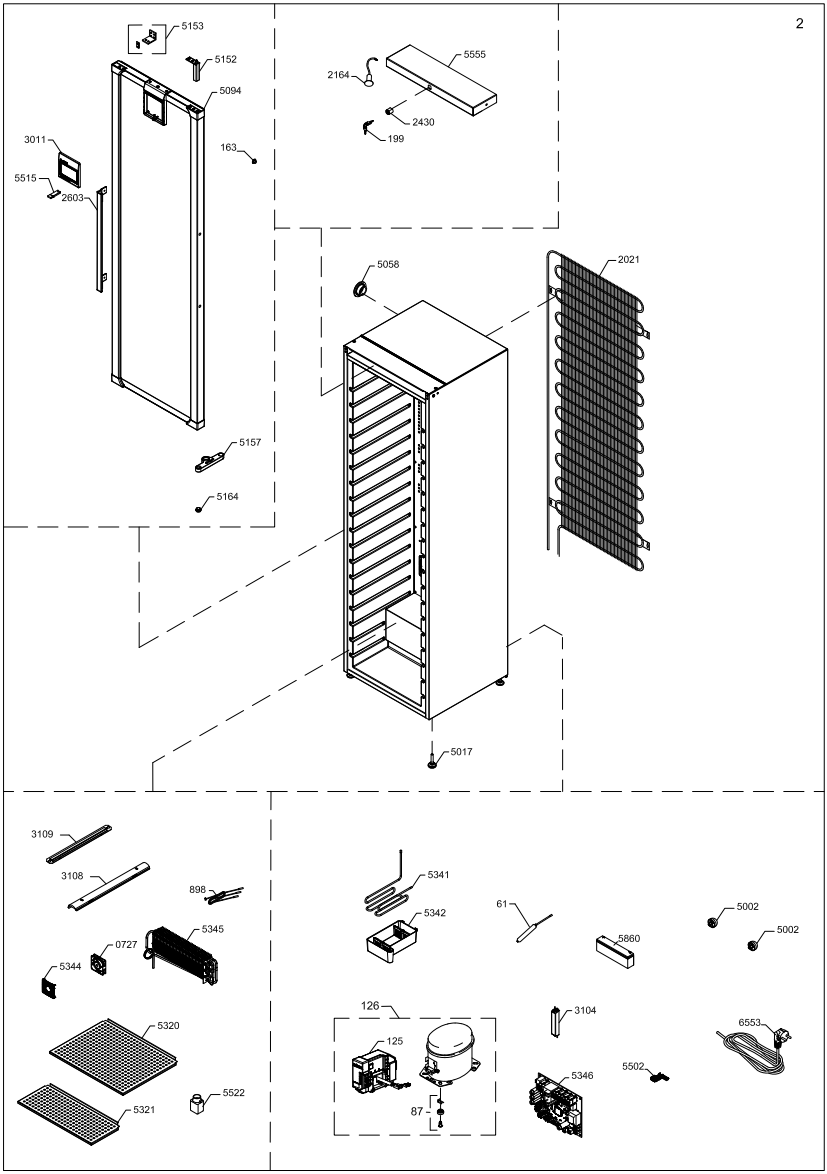
Spare parts exploded view R-427i



Spare parts list R-427i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	1510251	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727B	7090461	Fan
0898	7090058	Sensor kit
2021	6010437	WOT condenser
2164	7090453	Door switch
2430	A915008	Lock complete
2603	8470449	Hand lever
3011	8471472	Display
3104	7090466	Transformer
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5058	3011127-03	Rubber plug for porthole
5097	8471740	Door
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5158	3011187	Door Pivot bottom POM
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5345	6020589	Evaporator
5346	7095660	Electronic control unit
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5551	7010563	LED light strip
5555	7095597	Toppanel complete
5703	3010506-03	Ventilation grid 120x120 mm black
5860	7060046	Battery
6553	7535084	Mains lead

Spare parts exploded view R-427i Glass door



Spare parts list R-427i Glass door

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0125	6520047	Inverter CF02D01 freq. 230V 50-60Hz
0126	8-036510012	Compressor - Complete FMXA4C, 230V 43-134Hz
0163	0-52381660201	Covering - white
0199	1510251	Key set 2 pcs EUROLOCKS / Kulcs szett (2 kulcs / szett)
0727	7090461	Fan
0898	7090058	Sensor kit
2021	6010437	WOT condenser
2164	7090453	Door switch
2430	A915008	Lock complete
2603	8470449	Hand lever
3011	8471472	Display
3104	7090466	Transformer
3108	8471875	Light screen
3109	7010511	LED light
5002	6000959	Foot with pin/distance pieces
5017	A9101510074	Feet Ø38, M10x50 mm/Ø38 Base
5058	3011127-03	Rubber plug for porthole
5094	8471578	Door, glass
5152	2043055	Door closer
5153	A9102042588	Top hinge & Washer
5157	2043370-01	Hinge, bottom
5164	2043220	Door Pivot bottom
5320	2540605	BIOCHILL SHELF (MODEL R/F-90, F-138)
5321	2540606	BIO CHILL BOTTOM SHELF (MODEL R/F-90, F-138)
5341	6040930	Heat tubing
5342	3011210	Evaporating tray
5344	3010506-03	Ventilation grid 120x120 mm black
5345	6020589	Evaporator
5346	7095660	Electronic control unit
5502	A903056	Dry contact for Alarm complete
5515	A9167020004	USB key incl plug
5522	3040289	Reference container
5555	7095689	Toppanel complete
5860	7060046	Battery
6553	7535084	Mains lead

LIST OF PARAMETERS

List of default parameters R-90i, R-138i, R-427i

Profile name PROFILE 1
Description Temperature range: +2C to +20C Set point: +5C

INDEX	PAR NAME	VALUE	UNIT
1	ADR	***	***
2	ALL	30	Tenth of°C/F
3	ALH	30	Tenth of°C/F
4	AAL	-100	Tenth of°C/F
5	AAH	300	Tenth of°C/F
6	ALD	***	***
7	ADD	***	***
8	DTX	***	***
9	DTD	***	***
10	BOD	***	***
11	VOP	***	***
12	ISP	***	***
13	OSP	***	***
14	DIN	***	***
15	DOO	***	***
16	OF1	***	***
17	OF2	***	***
18	SET	50	Tenth of°C/F
19	HYH	***	***
20	HYL	***	***
21	SLL	20	Tenth of°C/F
22	SLH	200	Tenth of°C/F
23	CCD	***	***
24	ADS	***	***
25	ADL	***	***
26	CON	***	***
27	COF	***	***
28	CPH	***	***
29	COP	***	***
30	CSP	***	***
31	TCO	***	***
32	BCO	***	***
33	PTD	***	***
34	FCE	***	***
35	MCT	***	***
36	FOP	***	***
37	FAS	0	Tenth of°C/F
38	FAD	***	***
39	FSD	***	***
40	LET	***	***
41	DOP	***	***
42	DCM	***	***
43	DRP	***	***
44	ITD	***	***
45	DTE	***	***
46	DTO	***	***
47	DEO	***	***
48	P30	***	***
49	AD1	***	***
50	AD2	***	***
51	AD3	***	***
52	AD4	***	***
53	CDT	***	***
54	FCN	***	***
55	FCX	***	***
56	EDT	***	***
57	FEN	***	***
58	FEX	***	***
59	HPO	***	***
60	HUM	***	***
61	HRH	***	***
62	HRL	***	***
63	VBH	***	***
64	VBL	***	***
65	VBX	***	***
66	VBY	***	***
67	CSO	***	***
68	CSH	***	***
69	CSD	***	***
70	CNS	***	***
71	CXS	***	***
72	DCS	***	***
73	FSC	***	***
74	FSA	***	***
75	FSB	***	***
76	TPD	***	***
77	TMI	***	***
78	HYA	***	***
79	OFS	***	***
80	LBO	***	***
81	LBC	***	***
82	LFU	***	***
83	LFD	***	***
84	LOD	***	***
85	PO1	***	***
86	PO2	***	***
87	PO3	***	***
88	PI1	***	***
89	PI2	***	***
90	OP1	***	***
91	OP2	***	***
92	OP3	***	***
93	OP4	***	***
94	OP5	***	***

List of LCP parameters R90-i, R-138i, R-427i

INDEX	PAR NAME	VALUE	UNIT
1	ADR	1	Unit
2	ALL	30	Tenth of°C/F
3	ALH	30	Tenth of°C/F
4	AAL	-100	Tenth of°C/F
5	AAH	300	Tenth of°C/F
6	ALD	10	Min
7	ADD	120	Min
8	DTX	200	Tenth of°C/F
9	DTD	10	Min
10	BOD	1	Min
11	VOP	328	Bit flag
12	ISP	21	Bit flag
13	OSP	101	Bit flag
14	DIN	2	Unit
15	DOO	180	Sec
16	OF1	0	Tenth of°C/F
17	OF2	0	Tenth of°C/F
18	SET	50	Tenth of°C/F
19	HYH	10	Tenth of°C/F
20	HYL	0	Tenth of°C/F
21	SLL	20	Tenth of°C/F
22	SLH	200	Tenth of°C/F
23	CCD	5	Sec
24	ADS	15	Sec
25	ADL	1	Min
26	CON	5	Min
27	COF	3	Min
28	CPH	100	%
29	COP	0	Bit flag
30	CSP	255	Tenth of°C/F
31	TCO	8000	Millisec
32	BCO	1	Sec
33	PTD	60	Tenth of°C/F
34	FCE	95	Tenth of°C/F
35	MCT	195	Tenth of°C/F
36	FOP	261	Bit flag
37	FAS	350	Tenth of°C/F
38	FAD	0	Sec
39	FSD	50	Tenth of°C/F
40	LET	-200	Tenth of°C/F
41	DOP	8	Bit flag
42	DCM	0	Min
43	DRP	60	Sec
44	ITD	6	Hour
45	DTE	50	Tenth of°C/F
46	DTO	30	Min
47	DEO	0	Min
48	DDT	0	Tenth of°C/F
49	DDP	24	Min
50	AD1	24	Time hour, .
54	FCN	35	%
55	FCX	100	%
56	EDT	150	Tenth of°C/F
57	FEN	35	%
58	FEX	100	%
59	HPO	0	%
60	HUM	35	%
61	HRH	0	%
62	HRL	0	%
63	VBH	14000	mV
64	VBL	12500	mV
65	IBC	50	mA
66	VBY	0	Unit
67	CSO	30	Min
68	CSH	5	Min
69	CSD	5	Min
70	CNS	44	Hz
71	CXS	133	Hz
72	DCS	3	Hz
73	FSC	50	Tenth of°C/F
74	FSA	3	Thousandth of unit
75	FSB	32	Tenth of unit
76	TPD	30	Sec
77	TMI	30	Tenth of°C/F
78	HYA	0	Tenth of°C/F
79	OFS	0	Tenth of°C/F
80	LBO	100	%
81	LBC	0	%
82	LFU	2000	Millisec
83	LFD	2000	Millisec
84	LOD	0	Sec
85	PO1	0	Unit
86	PO2	0	Unit
87	PO3	0	Unit
88	PI1	0	Unit
89	PI2	0	Unit
90	OP1	0	Tenth of°C/F
91	OP2	0	Tenth of°C/F
92	OP3	0	Tenth of°C/F
93	OP4	0	Tenth of°C/F
94	SPX	0	Tenth of°C/F

List of LCS parameters R-90i, R-138i, R-427i

INDEX	PAR NAME	VALUE	UNIT
1	PCT	-10	Tenth of°C/F
2	PHT	500	Tenth of°C/F
3	PCH	0	Tenth of°C/F
4	PHH	0	Tenth of°C/F
5	PCD	0	Sec
6	PHD	0	Sec
7	PCN	0	Unit
8	PCW	2	Min
9	PHN	0	Unit
10	PHW	2	Min
11	CS1	1	Bit flag
12	CS2	1	Bit flag
13	CS3	1	Bit flag
14	OR1	0	Tenth of°C/F
15	OR2	0	Tenth of°C/F
16	OP1	0	Tenth of°C/F
17	OP2	0	Tenth of°C/F
18	OP3	0	Tenth of°C/F
19	OP4	0	Tenth of°C/F
20	OP5	0	%
21	OP6	0	Tenth of°C/F
22	OP7	0	Tenth of°C/F
23	OP8	0	Tenth of°C/F
24	OP9	0	Tenth of°C/F
25	SAP	2	Unit



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