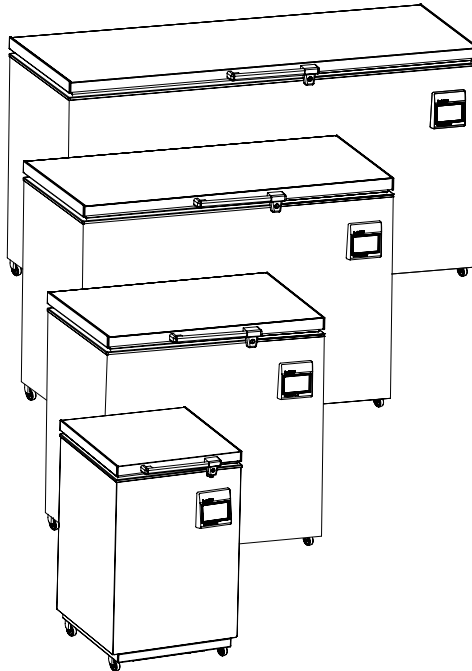


## SERVICEMANUAL - EN

MODEL - ULTF-C74i ULTF-C198i ULTF-C296i ULTF-C383i



BIOMEDICAL SOLUTIONS

**FREEZERS**



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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.**

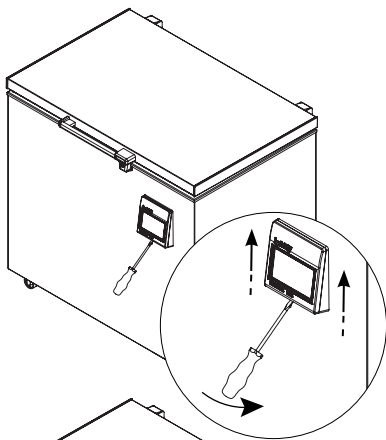
## MAINTENANCE SCHEDULE

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

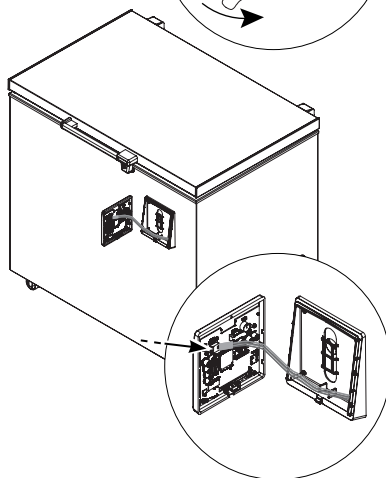
TASK	SCHEDULE
Cleaning of interior	Weekly
Cleaning of compressor compartment (including condenser and compressor)	Monthly
Cleaning of sealing in the lid	Quarterly
Replacement of battery for back up	Every third year

## REPLACEMENT OF PARTS

### Display - with integrated keyboard



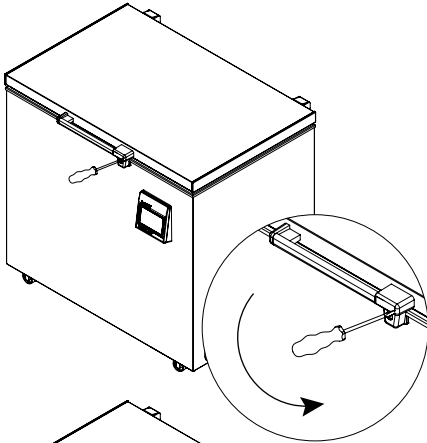
Release the display by pushing in the plastic lock (located under display) and lifting up the panel simultaneously



Carefully demount the plug/wire from the display back side

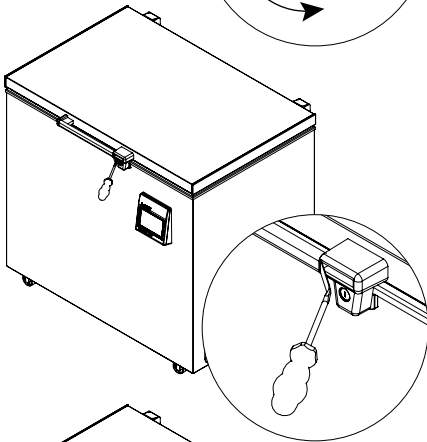
Mount display in reverse order

## Handle and inlay

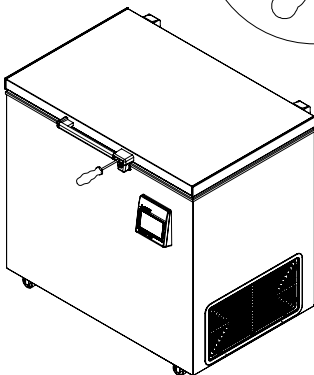


Use a small flat-blade screwdriver

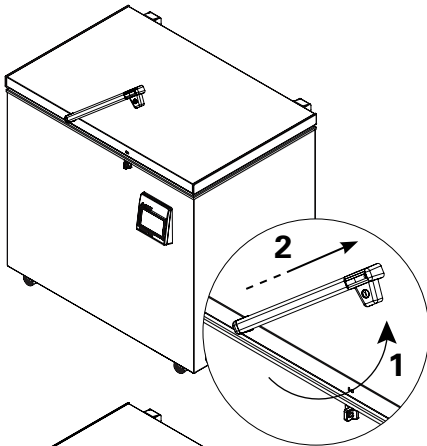
Place the screwdriver between the inlay and the handle



Tilt out the inlay

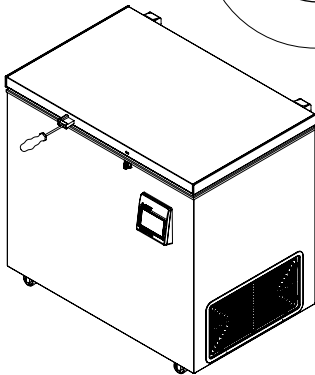


Use the Torx 20 screwdriver and remove the screw on the right side of the handle

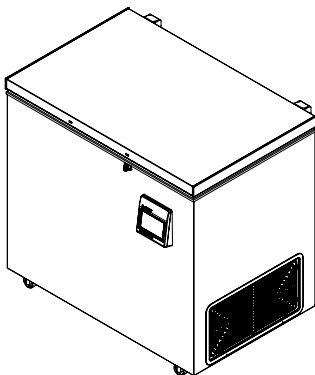


Turn the lever up (1)

Pull the aluminum tube to the right (2)



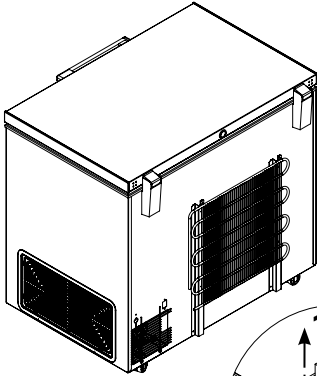
The right plastic part and the aluminum tube are now removed



Use the Torx 20 screwdriver and remove the screw on the left side of the handle

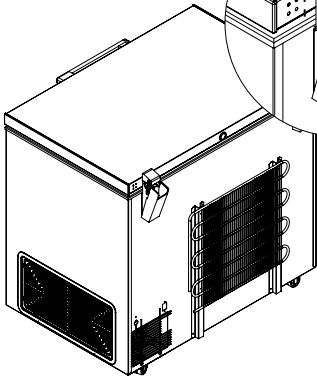
Mount the new handle in reverse order

## Hinge and lid



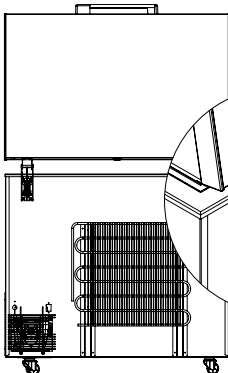
Remove hinge covers

Pull out the bottom hinge cover



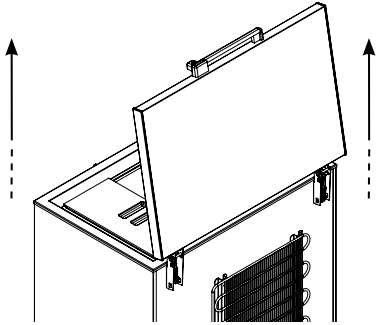
Pull up on the top hinge cover

Important The lid must be fully open before proceeding



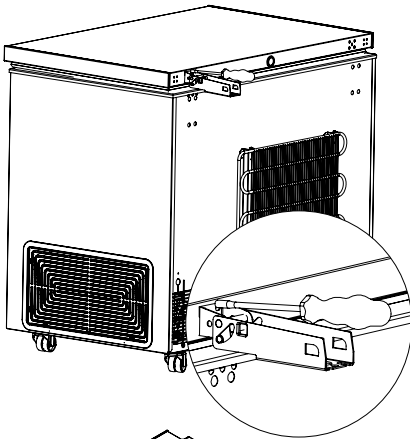
Use the Torx 20 screwdriver to loosen 4 screws in each hinge.



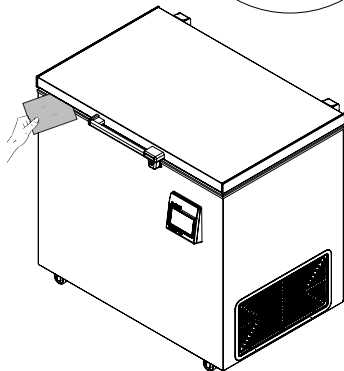


The lid is removed with a light lift.

Place the lid on top of the unit



Use the Torx 20 screwdriver to remove 4 screws in each hinge



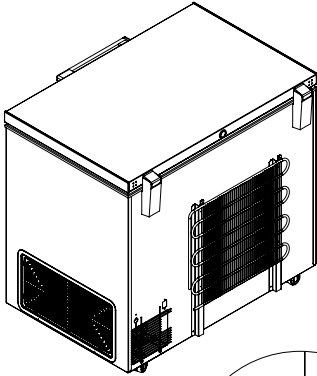
Mount the new hinde/lid in reverse order

**IMPORTANT** check that the lid flush with the cabinet (mounted straight) ...

... that the sealing strip closes tightly. Check with a piece of paper

## Fan, Battery, Transformer, Power board

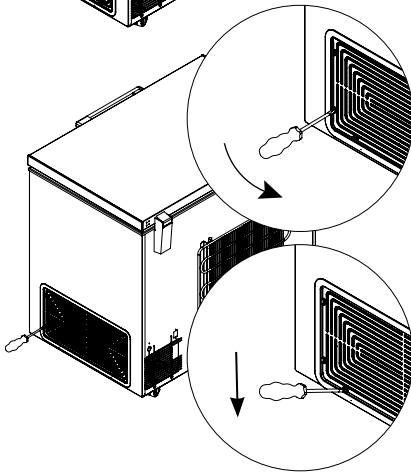
### ULTF-C198i, ULTF-C296i, ULTF-C383i



For access to the engine room compartment, remove engine room cover. Engine room cover is fixed with seven built-in clips

2 pcs at each side and 3 at the bottom

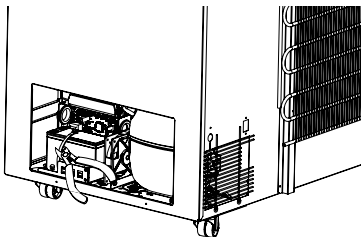
To release the clip function use a small flat-blade screwdriver

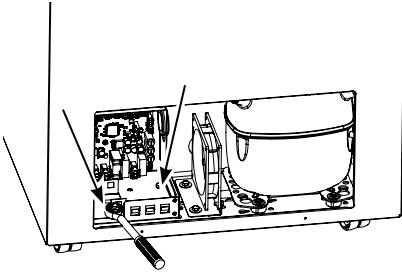


For each released clips, gently pull out the cover.

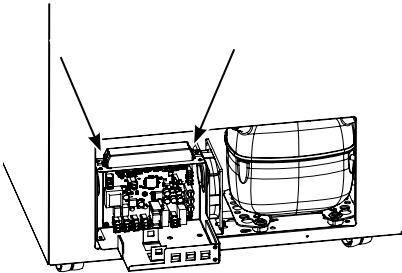
The battery is removed by removing the cable tie with eg cutter plier, and disconnect the red and black wire.

W

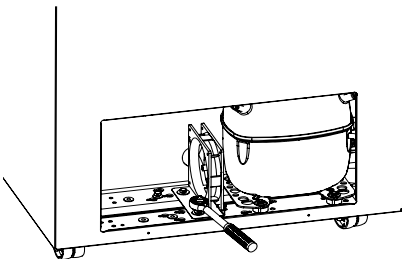




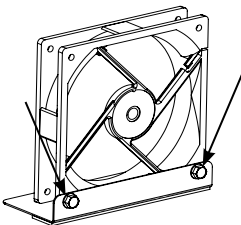
Remove the nuts and wire connectors and the box with transformer and power board holder can be pulled out of the compressor compartment



Remove the power board by removing the 5 screws (one in the middle and one in each corner of the power board). The transformer is removed from the holder by removing 2 screws.

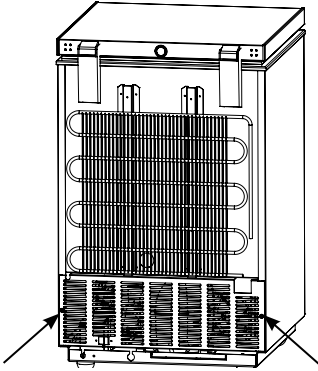


Unplug fan from power board and Remove the 2 bolts with hexagon head

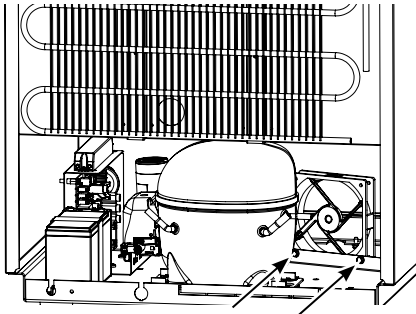


To remove the fan from the bracket, remove 2 bolts with hexagon head

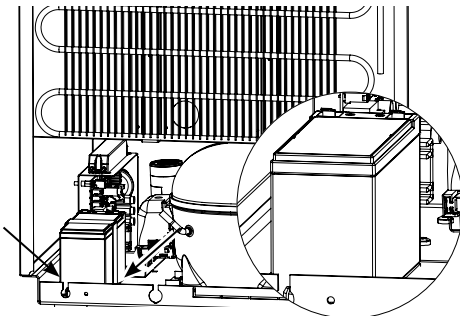
## Fan, Battery, Transformer, Electronic control unit ULTF-C74i



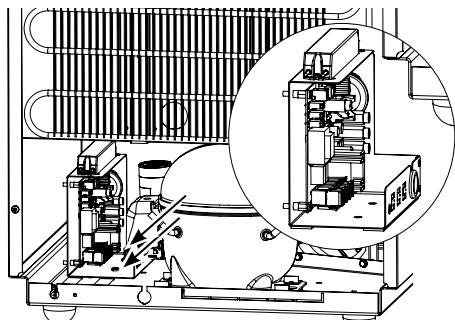
For access to the engine room compartment, remove engine room cover. Engine room cover is fixed with 2 screws



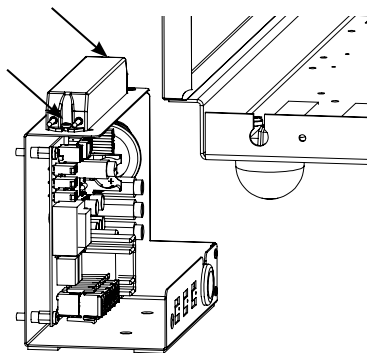
Unplug fan from power board and Remove the 2 bolts with hexagon head



The battery is removed by removing the bracket (2 screws), and disconnect the red and black wire.



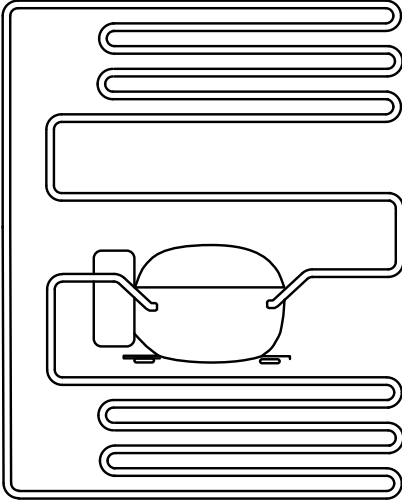
Remove 2 nuts and wire connectors and the box with transformer and power board holder can be pulled out of the compressor compartment



Remove the power board by removing the 5 screws (one in the middle and one in each corner of the pore board). The transformer is removed from the holder by removing 2 screws.

## COOLING SYSTEM

### Change compressor

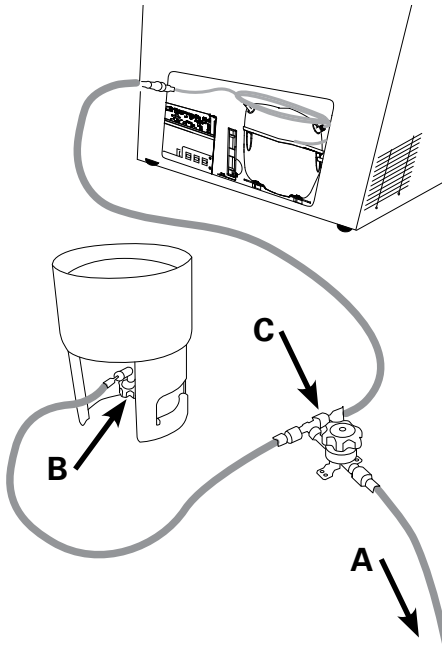


Repairs to the cooling system may only be carried out by trained professionals.

When changing the compressor, the filter drier must also be replaced. It 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 angles on the pipes. The distance between the pipes must be at least 12 millimetres.

## Recharging refrigerant from a service bottle



The recharging shall take place in a room where the ambient temperature is between 20 and 25 °C.

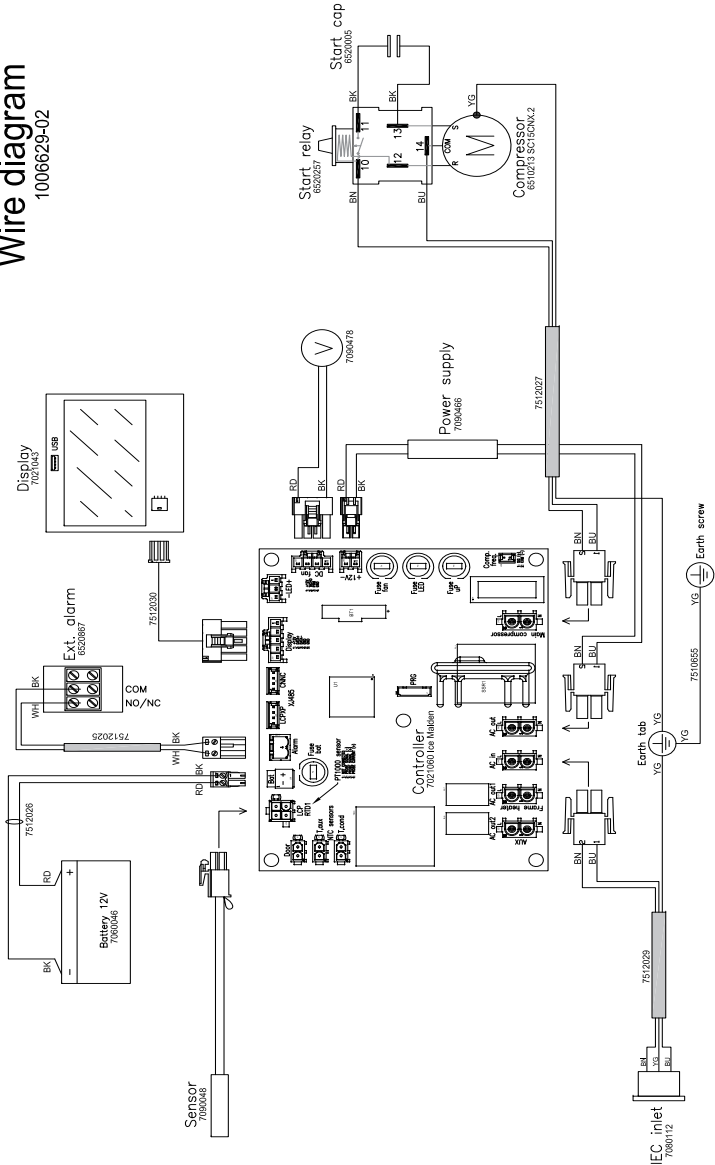
1. Connect service bottle, compressor and vacuum pump (A) to a T
2. Open valve (C) and let vacuum pump run for minimum 30 min
3. Close valve (C)
4. Place the bottle on a scale if possible.
5. Open valve (B) slowly
6. When the refrigerant stops flowing into the system, start the compressor.
7. Let the compressor run for 5 min
8. Check amount of refrigerant charged on the scale, should be approx. the same as on the rating plate
9. Repeat from 5 if necessary

Note! If you start the compressor at point 8 with the valve open then you can ruin the compressor.

# ELECTRICAL SYSTEM

## Wire diagram ULTF-C198i ULTF-C296i, ULTF-C383i

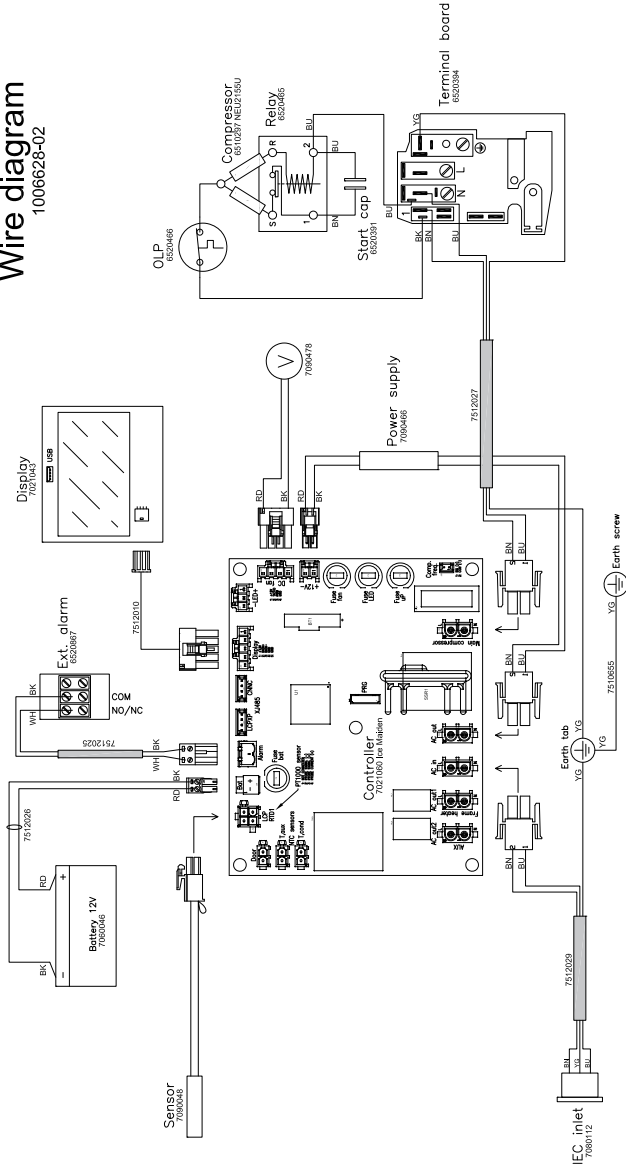
### Wire diagram 1006629-02





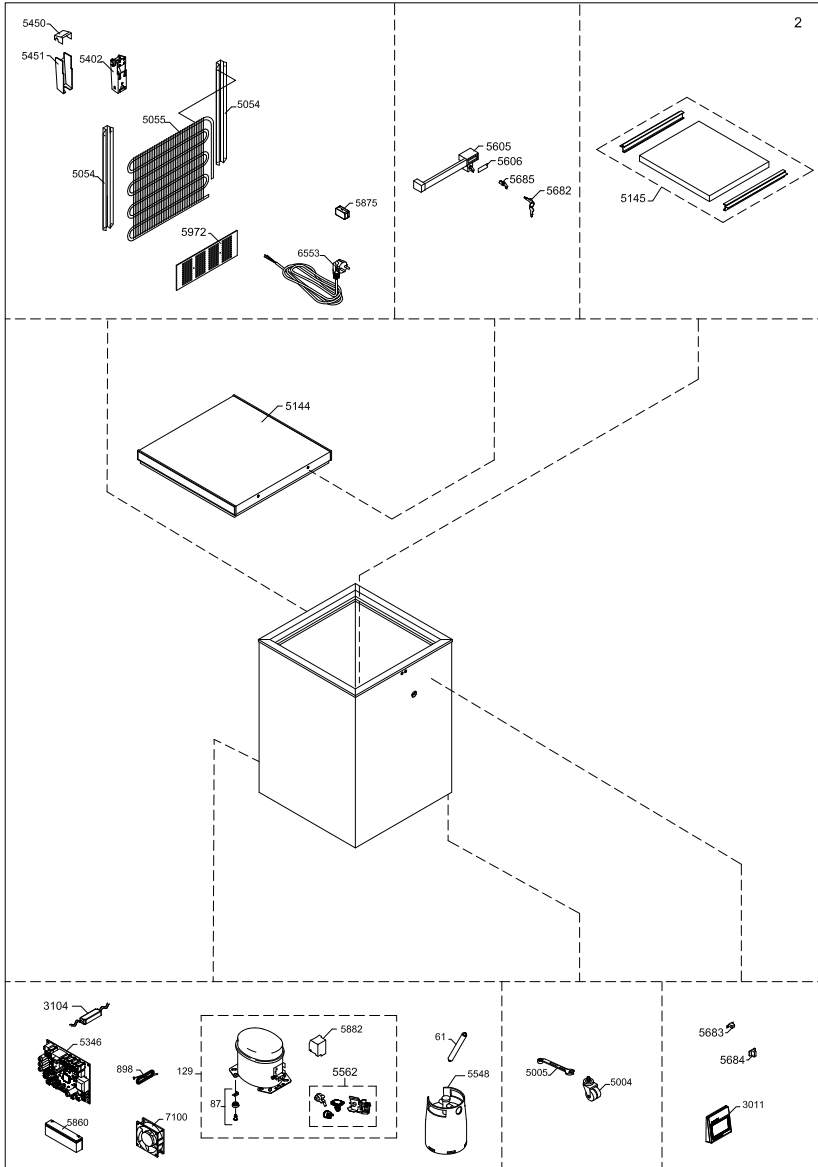
# Wire diagram ULTF-C74i

## Wire diagram 1006628-02



# SPARE PARTS

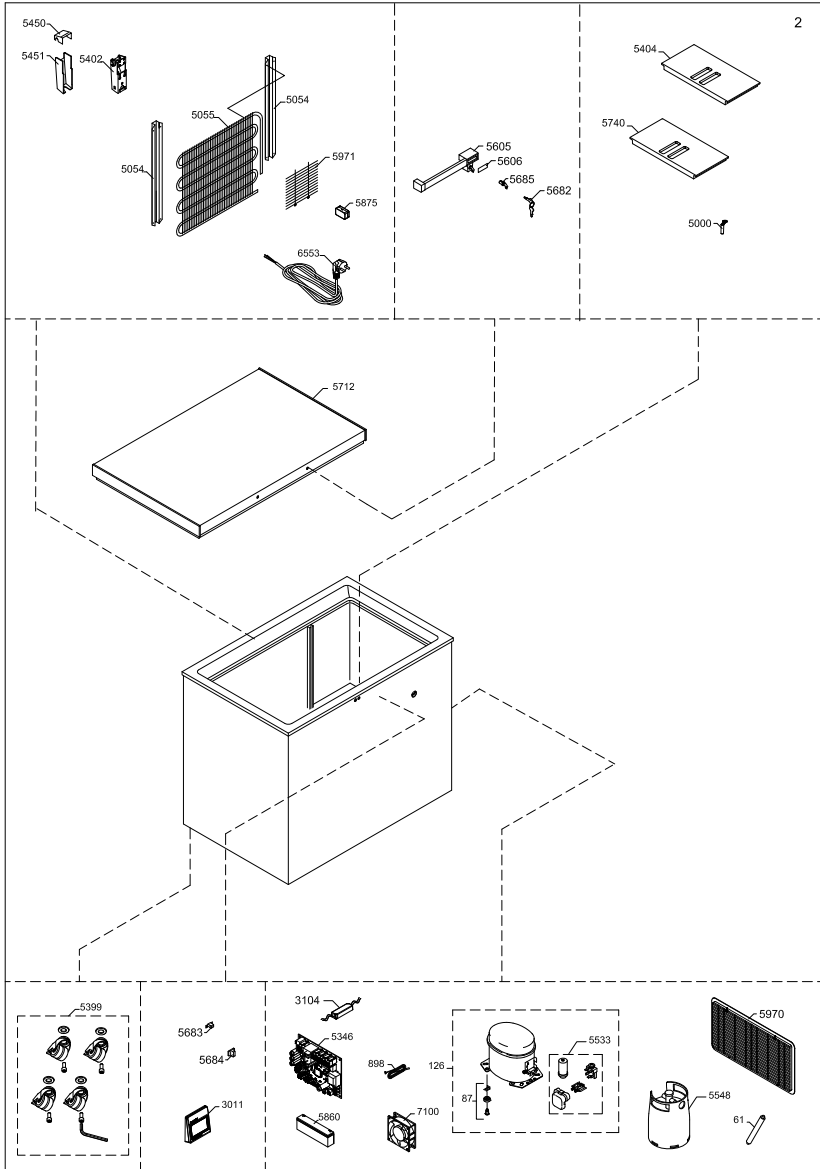
## Spare parts exploded view ULTF-C74i



## Spare parts list ULTF-C74i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0129	8-036510297	Compressor - Complete NEU2155U Embraco
0898	7090048	Sensor
3011	8471472	Display
3104	7090466	Transformer
5054	2040229	Fittings for condenser
5055	6010135	Condenser
5144	5200908640002	Lid foamed without handle/hinges
5145	6000986	Lid, lower 380 x 380 x 27
5346	7095666	Electronic control unit
5399	8471798	Wheels with break
5402	1510059	Hinge
5450	30111135-01	Top part for hinge cover
5451	3010032-01	Bottom part for hinge cover
5548	7-049954504	Nature-R - refilling with filter
5562	6520467	Terminal Board Complet
5605	304090501	Handle with lock (push and turn)
5606	8090314	Inlay for handle,
5682	1510231	Key, set - 2pc.
5683	2040145	Catch for handle
5684	3010265-01	Cover for catch
5685	600098801	Lock with keys,(push and turn)
5860	7060046	Battery
5875	6520867	Dry contact for Alarm complete / Terminal box 3 pol
5882	6520393	Cover
5972	2042987	Motor screen
6553	7535084	Mains lead
7100	7090478	Fan

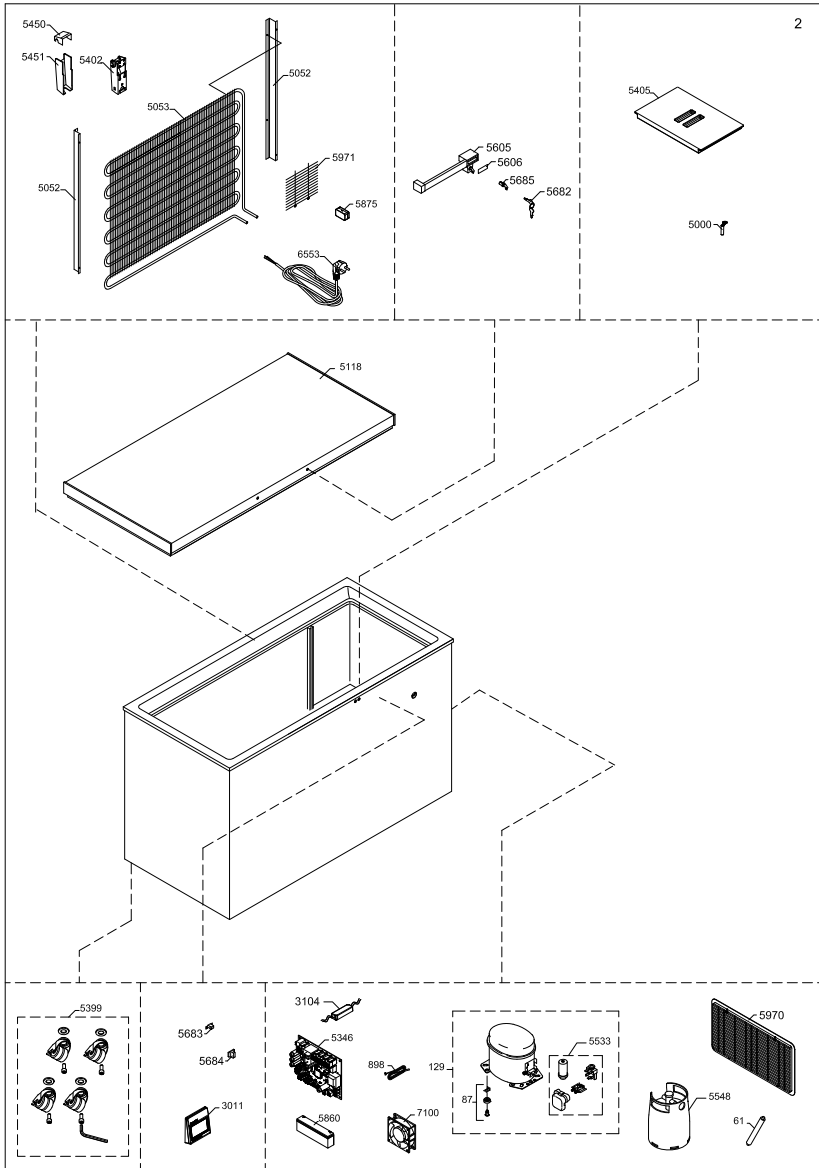
# Spare parts exploded view ULTF-C198i



## Spare parts list ULTF-C198i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0126	8-036510213	Compressor -SC15CNX.2
0898	7090048	Sensor
3011	8471472	Display
3104	7090466	Transformer
5000	3010049	Drain plug
5054	2040467	Fittings for condenser
5055	6010135	Condenser
5112	5000905206651	Lid foamed without handle/hinges
5346	7095667	Electronic control unit
5399	8471797	Wheels with break
5402	1510135	Hinge with spring
5404	5020211	Foam lid/Inner lid 463x300x29,5 mm
5450	30111135-01	Top part for hinge cover
5451	3010032-01	Bottom part for hinge cover
5533	A921052	Electrical parts for compressor SC15CNX.2
5548	7-049954505	Nature-R - refilling with filter
5605	304090501	Handle with lock (push and turn)
5606	8090054	Inlay for handle,
5682	1510238	Nikel-plated Key
5683	2040145	Catch for handle
5684	3010265-01	Cover for catch
5685	600098801	Lock with keys.(push and turn)
5740	5020287	Lid for ice bank
5860	7060046	Battery
5875	6520867	Dry contact for Alarm complete / Terminal box 3 pol
5970	3010308-01	Motor screen
5971	3520001	Motor screen
6553	7535084	Mains lead
7100	7090478	Fan

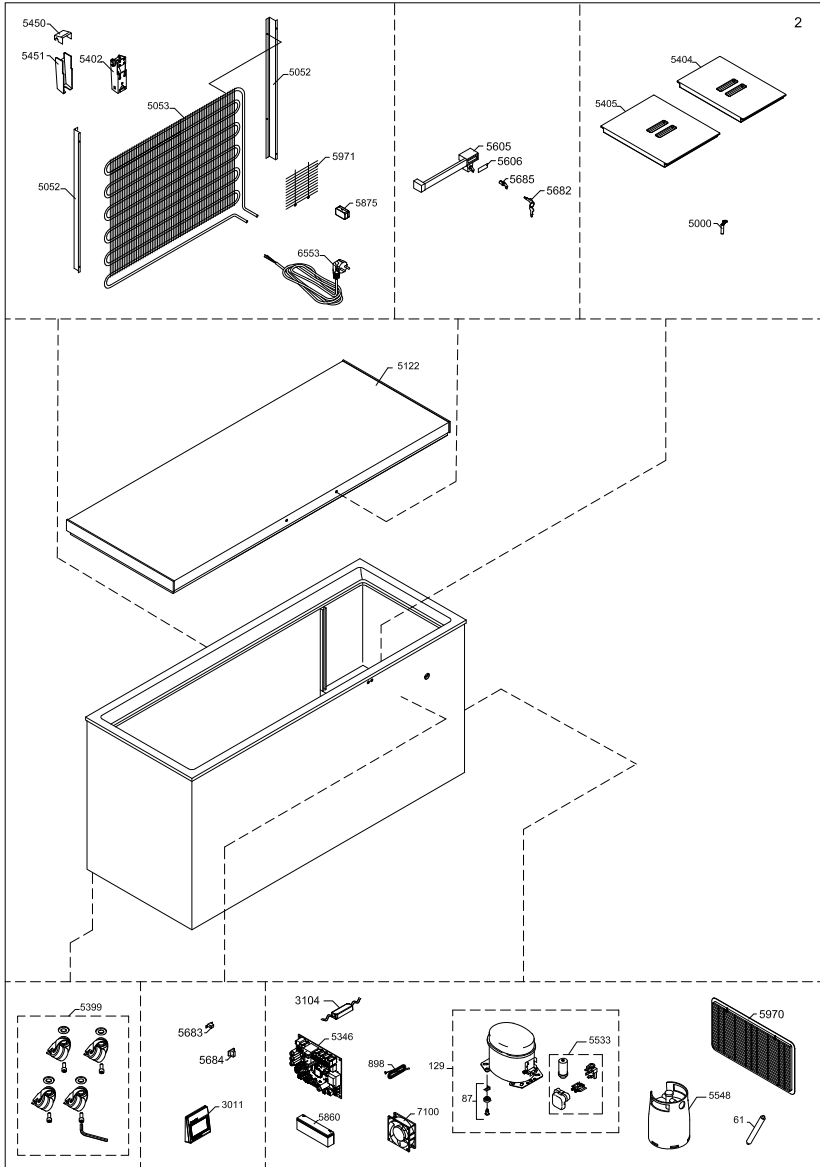
# Spare parts exploded view ULTF-C296i



## Spare parts list ULTF-C296i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0129	8-036510002	Compressor complet SC21CNX.2 - 104H8166
0898	7090048	Sensor
3011	8471472	Display
3104	7090466	Transformer
5000	3010049	Drain plug
5052	2040504	Fittings for condenser
5053	6010068	WOT condenser
5118	500090465101	Lid foamed without handle/hinges
5346	7095668	Electronic control unit
5399	8471797	Wheels with break
5402	1510135	Hinge with spring
5405	5020212	Foam lid/Inner lid 463x363x29,5 mm
5450	3011135-01	Top part for hinge cover
5451	3010032-01	Bottom part for hinge cover
5533	A921053	Electrical parts for compressor SC15CNX.2
5548	7-049954508	Nature-R - refilling with filter
5605	304090501	Handle with lock (push and turn)
5606	8090054	Inlay for handle,
5682	1510238	Nikel-plated Key
5683	2040145	Catch for handle
5684	3010265-01	Cover for catch
5685	600098801	Lock with keys.(push and turn)
5860	7060046	Battery
5875	6520867	Dry contact for Alarm complete / Terminal box 3 pol
5970	3010308-01	Motor screen
5971	3520001	Motor screen
6553	7535084	Mains lead
7100	7090478	Fan

# Spare parts exploded view ULTF-C383i





## Spare parts list ULTF-C383i

Position	Item number	Item name
0061	0-6538001	Filter drier,
0087	0-6038175	Base plate fittings, complete
0129	8-036510002	Compressor complet SC21CNX.2 - 104H8166
0898	7090048	Sensor
3011	8471472	Display
3104	7090466	Transformer
5000	3010049	Drain plug
5052	2040504	Fittings for condenser
5053	6010068	WOT condenser
5122	500090365101	Lid foamed without handle/hinges
5346	7095669	Electronic control unit
5399	8471797	Wheels with break
5402	1510136	Hinge with spring
5404	5020211	Foam lid/Inner lid 463x300x29,5 mm
5405	5020212	Foam lid/Inner lid 463x363x29,5 mm
5450	3011135-01	Top part for hinge cover
5451	3010032-01	Bottom part for hinge cover
5533	A921053	Electrical parts for compressor SC15CNX.2
5548	7-049954509	Nature-R - refilling with filter
5605	304090501	Handle with lock (push and turn)
5606	8090054	Inlay for handle,
5682	1510238	Nikel-plated Key
5683	2040145	Catch for handle
5684	3010265-01	Cover for catch
5685	600098801	Lock with keys,(push and turn)
5860	7060046	Battery
5875	6520867	Dry contact for Alarm complete / Terminal box 3 pol
5970	3010308-01	Motor screen
5971	3520001	Motor screen
6553	7535084	Mains lead
7100	7090478	Fan

# LIST OF PARAMETERS

## List of Ultra low parameters

Profile name	PROFILE 1	Ultra low			
Description	Temperature range: -86C to -20C Set point: -82C				
INDEX	PAR NAME	VALUE	UNIT		
1	ADR	***	***		
2	ALL		50 Tenth of°C/F	49	AD1
3	ALH		50 Tenth of°C/F	50	AD2
4	AAL		-999 Tenth of°C/F	51	AD3
5	AAH		-500 Tenth of°C/F	52	AD4
6	ALD	***	***	53	CDT
7	ADD	***	***	54	FCN
8	DTX	***	***	55	FCX
9	DTD	***	***	56	EDT
10	BOD	***	***	57	FEN
11	VOP	***	***	58	FEX
12	ISP	***	***	59	HPO
13	OSP	***	***	60	HUM
14	DIN	***	***	61	HRH
15	DOO	***	***	62	HRL
16	OF1	***	***	63	VBH
17	OF2	***	***	64	VBL
18	SET		-820 Tenth of°C/F	65	VBX
19	HYH	***	***	66	VBY
20	HYL	***	***	67	CSO
21	SLL		-860 Tenth of°C/F	68	CSH
22	SLH		-200 Tenth of°C/F	69	CSD
23	CCD	***	***	70	CNS
24	ADS	***	***	71	CXS
25	ADL	***	***	72	DCS
26	CON	***	***	73	FSC
27	COF	***	***	74	FSA
28	CPH	***	***	75	FSB
29	COP	***	***	76	TPD
30	CSP	***	***	77	TMI
31	TCO	***	***	78	HYA
32	BCO	***	***	79	OFS
33	PTD	***	***	80	LBO
34	FCE	***	***	81	LBC
35	MCT	***	***	82	LFU
36	FOP	***	***	83	LFD
37	FAS		500 Tenth of°C/F	84	LOD
38	FAD	***	***	85	PO1
39	FSD	***	***	86	PO2
40	LET	***	***	87	PO3
41	DOP	***	***	88	PI1
42	DCM	***	***	89	PI2
43	DRP	***	***	90	OP1
44	ITD	***	***	91	OP2
45	DTE	***	***	92	OP3
46	DTO	***	***	93	OP4
47	DEO	***	***	94	OP5
48	P30	***	***		

## List of LCP parameters

INDEX	PAR NAME	VALUE	UNIT
1	ADR	1	Unit
2	ALL	50	Tenth of?C/F
3	ALH	50	Tenth of?C/F
4	AAL	-999	Tenth of?C/F
5	AAH	999	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	10	Min
11	VOP	0	Bit flag
12	ISP	129	Bit flag
13	OSP	33	Bit flag
14	DIN	0	Unit
15	DOO	120	Sec
16	OF1	0	Tenth of?C/F
17	OF2	0	Tenth of?C/F
18	SET	-820	Tenth of?C/F
19	HYH	10	Tenth of?C/F
20	HYL	0	Tenth of?C/F
21	SLL	-860	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	-550	Tenth of?C/F
31	TCO	10000	Millisec
32	BCO	3	Sec
33	PTD	0	Tenth of?C/F
34	FCE	350	Tenth of?C/F
35	MCT	580	Tenth of?C/F
36	FOP	544	Bit flag
37	FAS	500	Tenth of?C/F
38	FAD	60	Sec
39	FSD	500	Tenth of?C/F
40	LET	-250	Tenth of?C/F
41	DOP	0	Bit flag
42	DCM	0	Min
43	DRP	60	Sec
44	ITD	8	Hour
45	DTE	500	Tenth of?C/F
46	DTO	30	Min
47	DEO	0	Min
48	DDT	-250	Tenth of?C/F
49	DDP	30	Min
50	AD1	24	Time hour
51	AD2	24	Time hour
52	AD3	24	Time hour
53	CDT	100	Tenth of?C/F
54	FCN	30	%
55	FCX	100	%
56	EDT	100	Tenth of?C/F
57	FEN	35	%
58	FEX	100	%
59	HPO	0	%
60	HUM	20	%
61	HRH	0	%
62	HRL	0	%
63	VBH	14700	mV
64	VBL	12800	mV
65	IBC	50	mA
66	VBY	0	Unit
67	CSO	60	Min
68	CSH	10	Min
69	CSD	10	Min
70	CNS	66	Hz
71	CXS	150	Hz
72	DCS	3	Hz
73	F3C	50	Tenth of?C/F
74	FSA	3	Thousandth of unit
75	FSB	20	Tenth of unit
76	TPD	30	Sec
77	TMI	-250	Tenth of?C/F
78	HYA	0	Tenth of?C/F
79	OFS	0	Tenth of?C/F
80	LBO	50	%
81	LBC	10	%
82	LFU	1000	Millisec
83	LFD	1000	Millisec
84	LOD	5	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

INDEX	PAR NAME	VALUE	UNIT
1	PCT	-1000	Tenth of°C/F
2	PHT	500	Tenth of°C/F
3	PCH	50	Tenth of°C/F
4	PHH	50	Tenth of°C/F
5	PCD	10	Sec
6	PHD	10	Sec
7	PCN	5	Unit
8	PCW	60	Min
9	PHN	5	Unit
10	PHW	60	Min
11	CS1	1	Bit flag
12	CS2	0	Bit flag
13	CS3	0	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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