

# Service Service Service



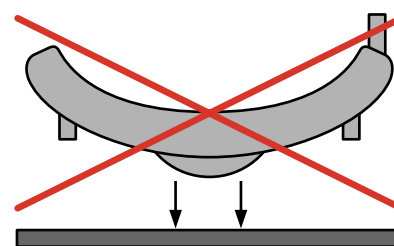
Philips Domestic Appliances and Personal Care

# Service Manual

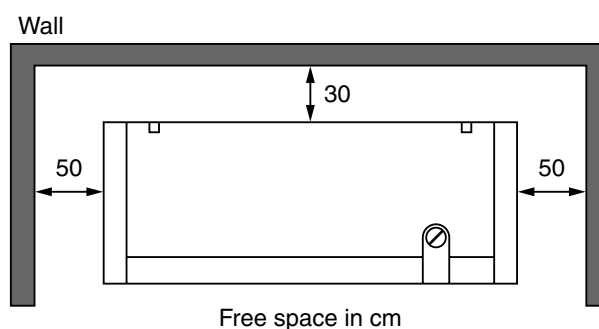
## PRODUCT INFORMATION

- THIS SOLARIUM HAS TO BE CONNECTED TO 3-PHASE MAINS!
- MOST REPAIRS HAVE TO BE DONE WITH HELP OF A SECOND PERSON.
- The acrylic sheets can be cleaned with a moist cloth and some washing-up liquid. Avoid the use of alcohol, alcohol based cleaners, petrol acetone or abrasives! These substances can cause irreparable damage to the sheets.
- Always use protecting goggles when looking in the direction of burning lamps.
- Interchange starters, lamps or ballasts to establish whether they are defective. If they are not defective, check the internal wiring, especially that connected to the lamp holders.
- An unusual early blackening of the end of the TL's points to a wiring fault or a defective starter.
- New HPA lamps may show colour differences. This is not a defect, but a characteristic phenomenon of lamps of this type. The discolorations disappear after a short period of use.
- When exchanging the HPA lamp, make sure you do not touch the new lamp with your bare hands, as finger prints could burn in and reduce the lamp's performance.
- After repair, always check whether the glass pane has been properly mounted.

- If the canopy and/or couch have to be placed on the floor, put them on the floor with the tube lamps facing downwards to avoid internal damage.

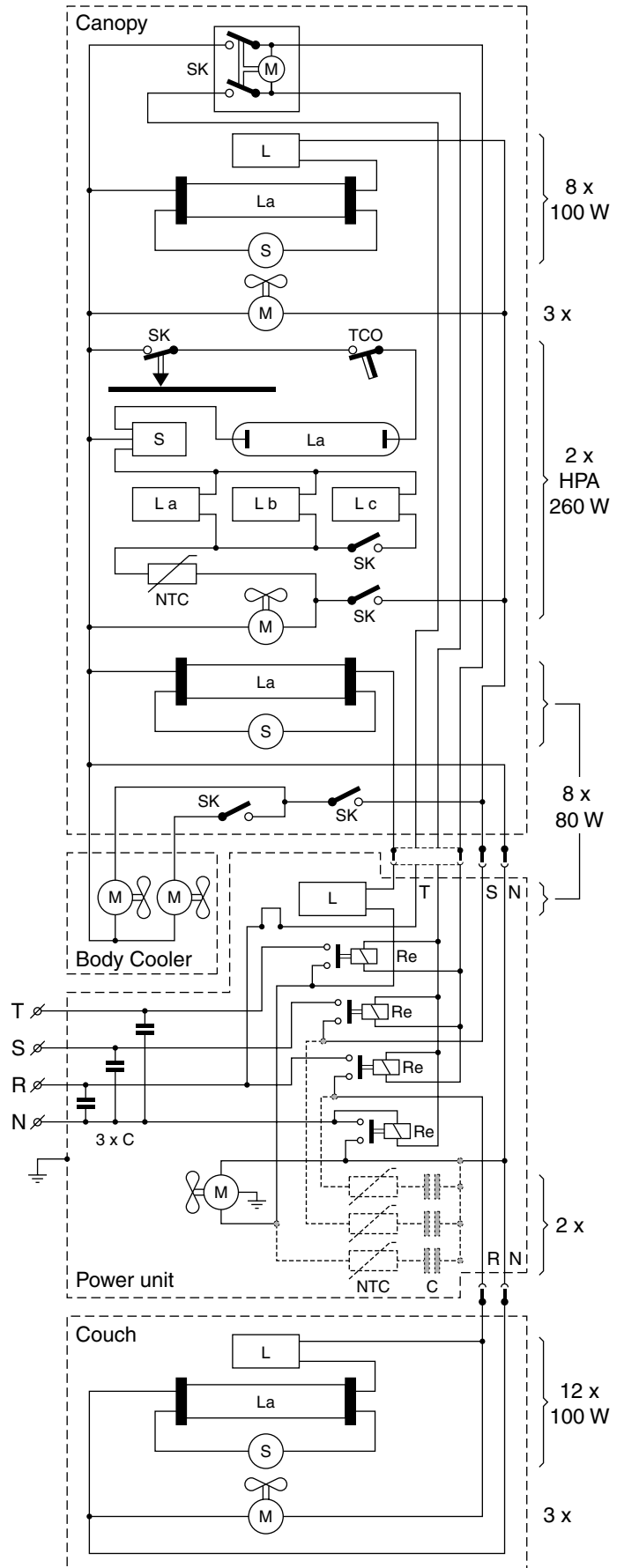


- Used-up or broken lamps are chemical waste and must be disposed of in the appropriate manner.



## TECHNICAL INFORMATION

- Operating voltage : 3 x 230 V, 50 Hz
- Power consumption : approx. 4050 W
- Lamp canopy : 8 x TL Cleo  
Performance 100 W-S-R  
: 8 x TL Cleo  
Performance 80 W-S-R  
: 2 x HPA HP400SH
- Lamp couch : 12 x TL Cleo  
Performance 100 W-S-R
- Ballast canopy : 8 x TL + 2 x HPA - 100 W  
: 4 x HPA - 80 W
- Ballast couch : 12 x 100 W
- Ballast power unit : 8 x 80 W
- Starter canopy : 16 x S12 / Cleo sunstarter  
: 2 x Magnetek ZG 4,5
- Starter couch : 12 x S12 / Cleo sunstarter
- Timer : 30 min. (motor driven)
- Safety : ☐, Cenelec, UV-type III
- Mains cord : 3 m, 5 x 1.5 mm<sup>2</sup>, class I plug
- Tanning field : 195 x 80 cm
- Dimensions : 214 x 100 x 92 cm (L x W x H)
- Weight canopy : approx. 70 kg
- Weight couch : approx. 65 kg
- Weight power unit : approx. 21 kg
- Protecting goggles : 2 x HB072



## DISASSEMBLY & REPAIR INSTRUCTION

- Remove the mains plug from the wall socket.

### Replacement of lamps/starters

- Remove the end cover at the head of the canopy by undoing the screws.
- First pull the acrylic sheet approx. 10 cm out of the appliance. Then undo the snap strip on the rear side of the canopy. Do the same with the snap strip on the front side.
- Remove the acrylic sheet.
- Now the tube lamps and starters can be removed.
- The lamps and starters of the couch can in principle be replaced in the same way.

### Check on internal wiring

- Remove the push rivets in the top cover with an appropriate knife or screwdriver.
- Remove the end cover at the head of the canopy by undoing the screws.
- Pull the top cover approx. 10 cm out of the appliance.
- Pull the top cover on both sides out of the groove of the side panel and place it on a soft surface.
- Now the ballasts, lamp holders and internal wiring can be checked.
- The internal wiring of the couch can be checked in the same way.
- However, the canopy must be removed first with help of a second person.
- Do not forget to pull the connecting cable out of the socket.

### Replacement of gas spring

- Remove the acrylic sheet as described under 'replacement of lamps/starters'.
- Remove the top cover as described under 'check on internal wiring'.
- Loosen the connecting wires of the body cooler and remove the end cover by undoing the screws.
- Fold the canopy up and have a second person lock it in this position.
- Now the gas springs can be removed.

### Replacement of timer

- Remove the end cover on the side where the timer is located.
- Pull the top cover on this side out of the groove of the side panel.
- Now the timer panel with timer can be taken out.

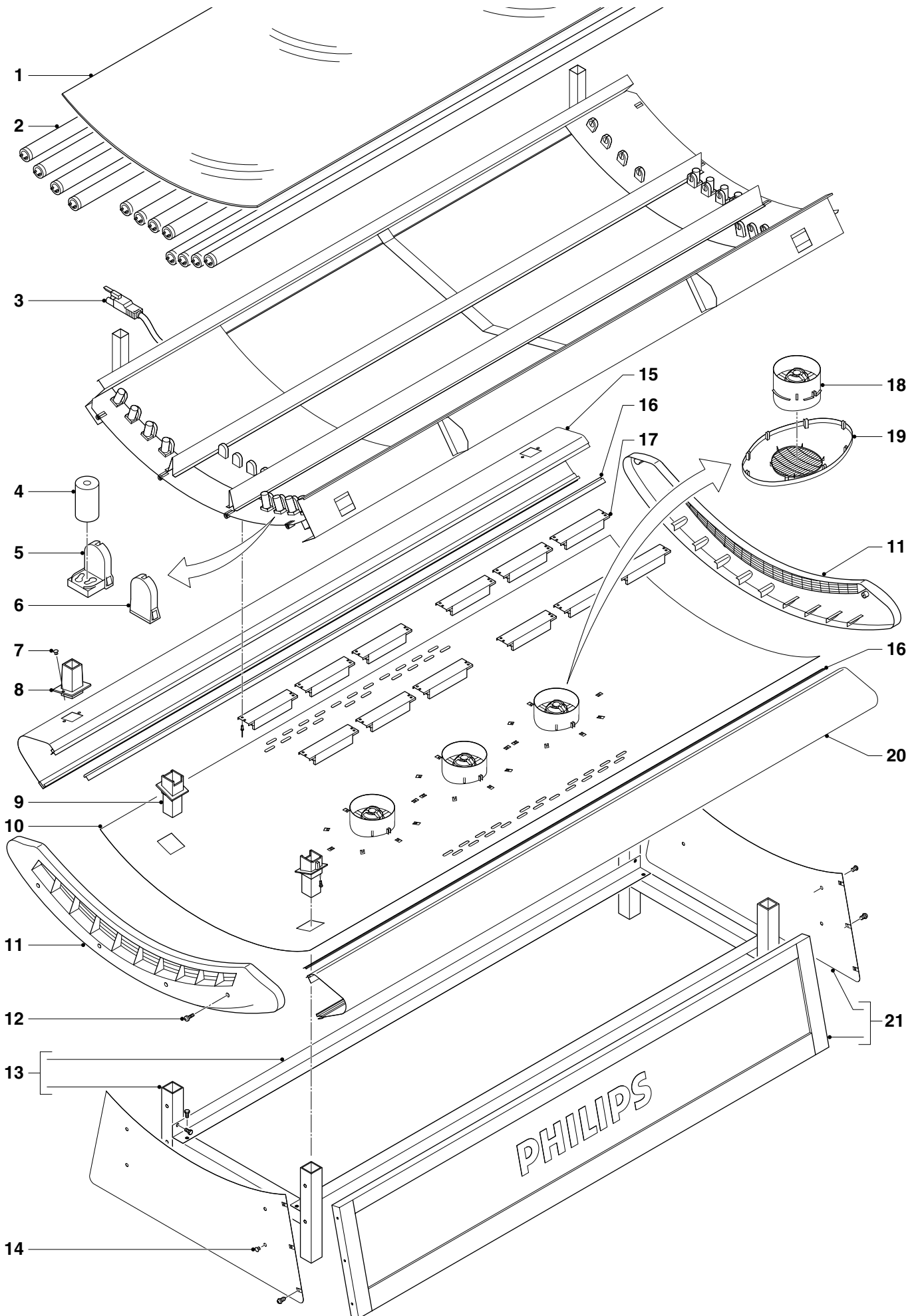
## TANNING MEASUREMENT

- The measuring data indicated below were established with help of an UVX 36 meter and may only be checked with this equipment, since the values measured are relative values.
- The measurements must be taken after approx. 5 minutes in the centre of the tanning field and at the distance indicated.
- The following aspects must be checked or the following preliminary measurements must be taken:
  - Mains voltage: 3 x 230 V, 50 Hz
  - Room temperature 22 - 28 °C
  - Check the fans for failure-free operation as optimal tanning is only guaranteed at the correct operating temperatures
  - Clean the lamps, the acrylic sheets and the glass pane.
- With regard to the minimum values indicated below, you should bear in mind that this is not an absolute value at which the lamps must be replaced.
- Depending on the skin type, the tanning session may also be extended so that the lamps can be used a little longer.

UVX 36 meter	distance in cm	output in mW/cm <sup>2</sup> NEW (approx.)	Output in mW/cm <sup>2</sup> MIN (approx.)
Couch	2.5 cm from acrylic sheet couch	10.0	7.0
Canopy	30 cm from acrylic sheet couch	11.5	8.0
Canopy beneath the facial tanner	2.5 cm from acrylic sheet couch, and on 27 cm from edge of the end cover	9	6.3

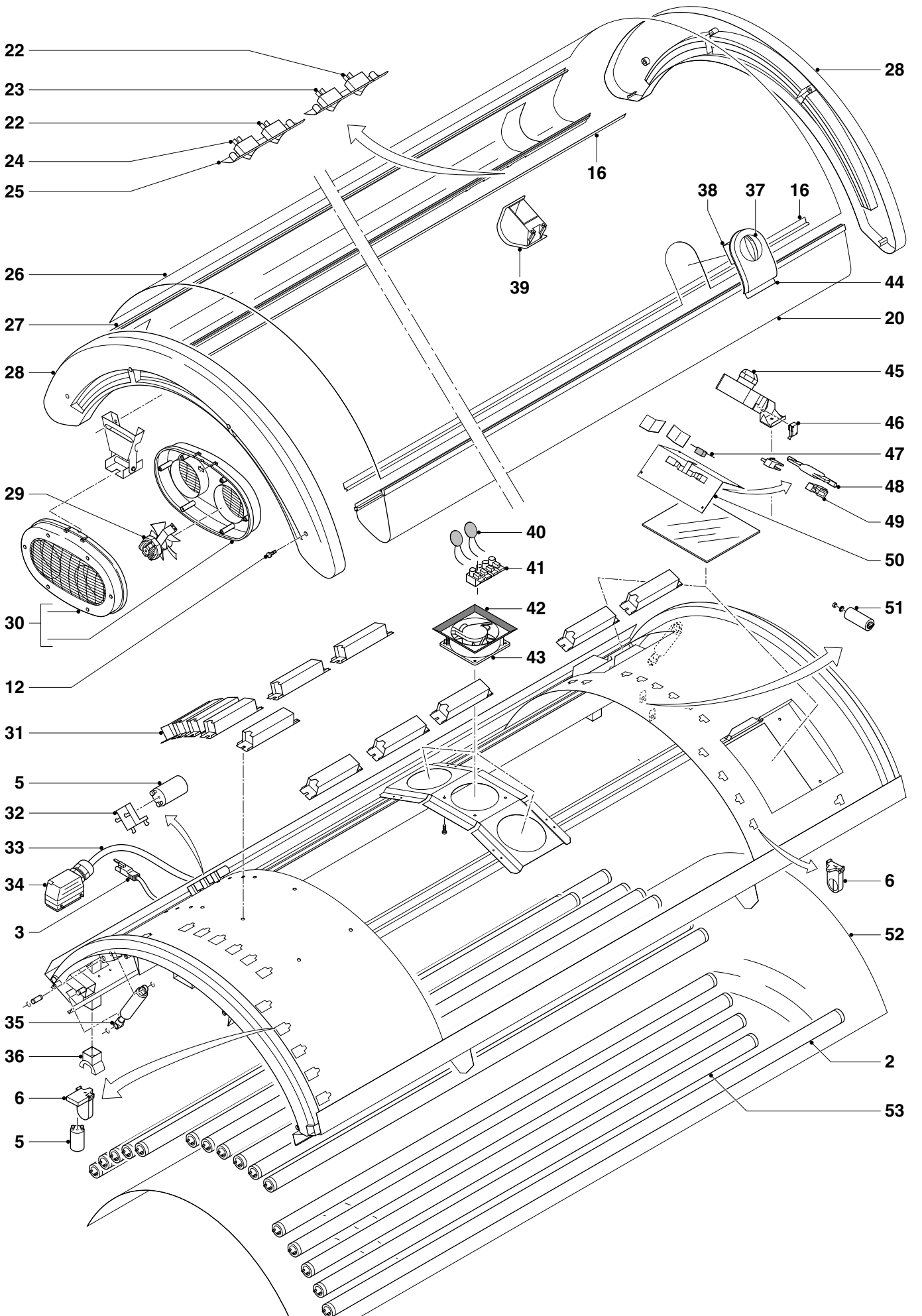
**Note:** Switch SK1 of facial tanner in position 'HIGH'.

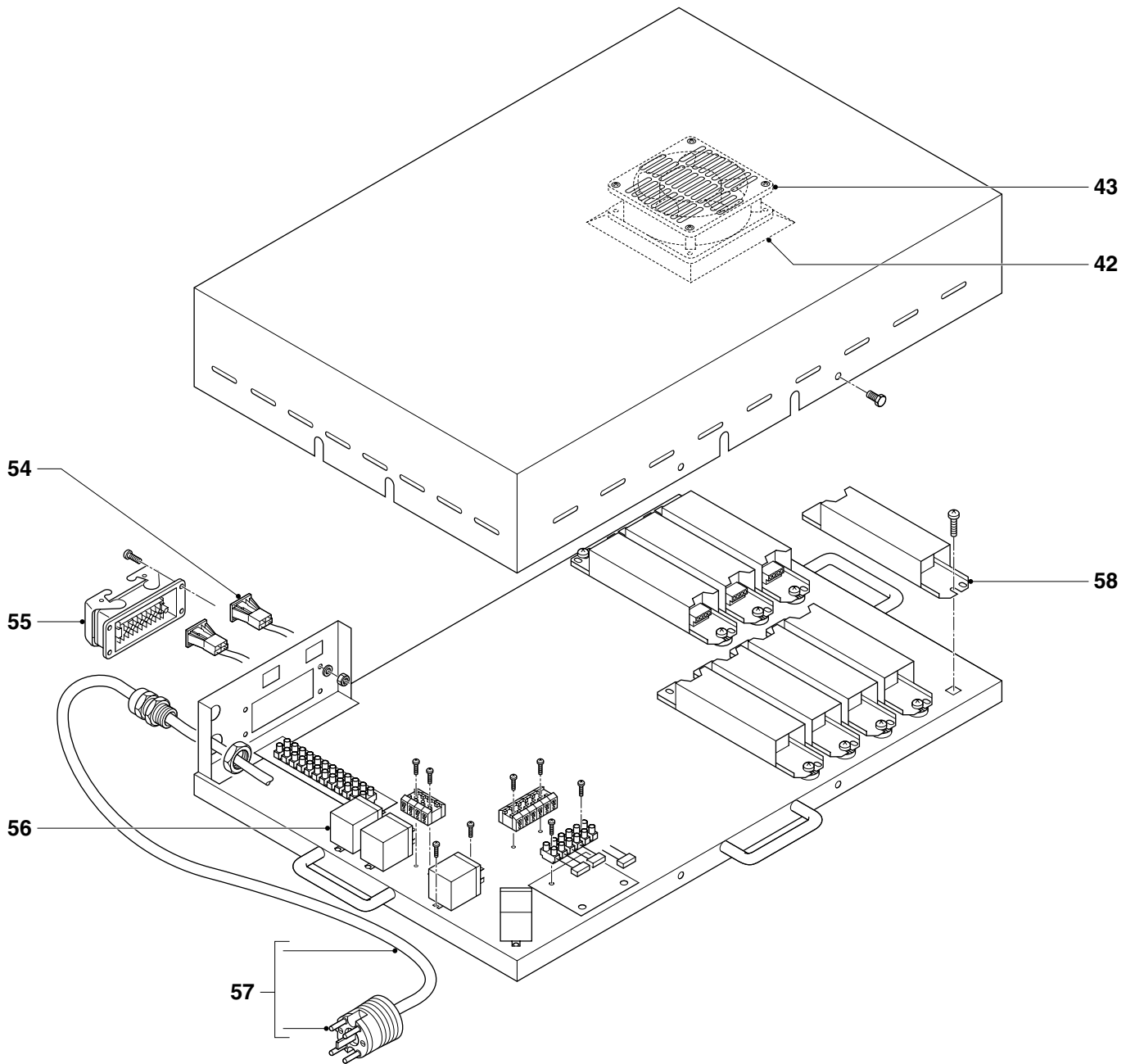
Item	Service code	Description	Item	Service code	Description
1	9965 000 19730	Acrylic sheet couch	31	4822 146 10792	Ballast 80 W
2	9280 057 21920	TL Cleo Performance 100 W-S-R		4822 146 10791	Ballast 100 W
3	4822 320 11909	Connecting cable	32	9965 000 19745	Starter holder
4	4822 219 80258	Starter S12/Cleo sunstarter	33	9965 000 19775	18-c cable
5	4822 255 10374	Lamp/starter holder	34	9965 000 07779	16p. connector male
6	4822 255 10375	Lamp holder	35	9965 000 19746	Gas spring 1500 N
7	4822 532 12791	Push rivet	36	9965 000 19747	Insulating cover
8	9965 000 19733	Insulating cover	37	9965 000 20301	Timer knob
9	9965 000 19735	Insulating prop	38	4222 062 95570	2p-timer 30 mins
10	9965 000 19736	Bottom cover couch	39	9965 000 19748	Insulating cover
11	9965 000 19737	End cover couch	40	4222 062 94580	NTC resistor 22 W
12	4822 502 14539	S.t. screw 4.8 x 19	41	4222 062 94570	Connector 8S
13	9965 000 19753	Set of legs	42	9965 000 01935	Rubber sealing
14	9965 000 19765	Rivet 6 mm	43	4822 361 10966	Fan
15	9965 000 19772	Side cover back couch	44	9965 000 19749	Timer housing
16	9965 000 19739	Click strip	45	9965 000 19773	Fan HPA complete
17	4822 146 10791	Ballast 100 W	46	4822 271 30619	Micro switch
18	9965 000 11520	Fan complete	47	4822 252 11301	Aut. cutout 75 °C
19	9965 000 11521	Fan cover	48	9965 000 16185	HP400SH UVA lamp
20	9965 000 19741	Side cover front couch/canopy	49	4822 325 20102	Lamp holder HPA
21	9965 000 19767	Set of decorative covers	50	9965 000 19774	Reflector unit
22	9965 000 01946	On/off switch	51	4822 214 12272	Starter HPA
23	9965 000 01948	Switch HPA	52	9965 000 20802	Acrylic sheet canopy
24	9965 000 01947	Switch body blower	53	9280 047 21920	TL Cleo Performance 80 W-S-R
25	9965 000 19742	Switch housing	54	4822 265 10944	2-p socket
26	9965 000 19743	Cover canopy	55	9965 000 07763	16p. connector female
27	9965 000 20441	Side cover back canopy	56	4822 280 60513	Relay
28	9965 000 19744	End cover canopy	57	9965 000 16366	Mains flex complete periflex 3 m
29	9965 000 19768	Fan complete	58	4822 146 10792	Ballast 80 W
30	9965 000 19769	fan housing		9965 000 19776	Mounting set HB590/HB591

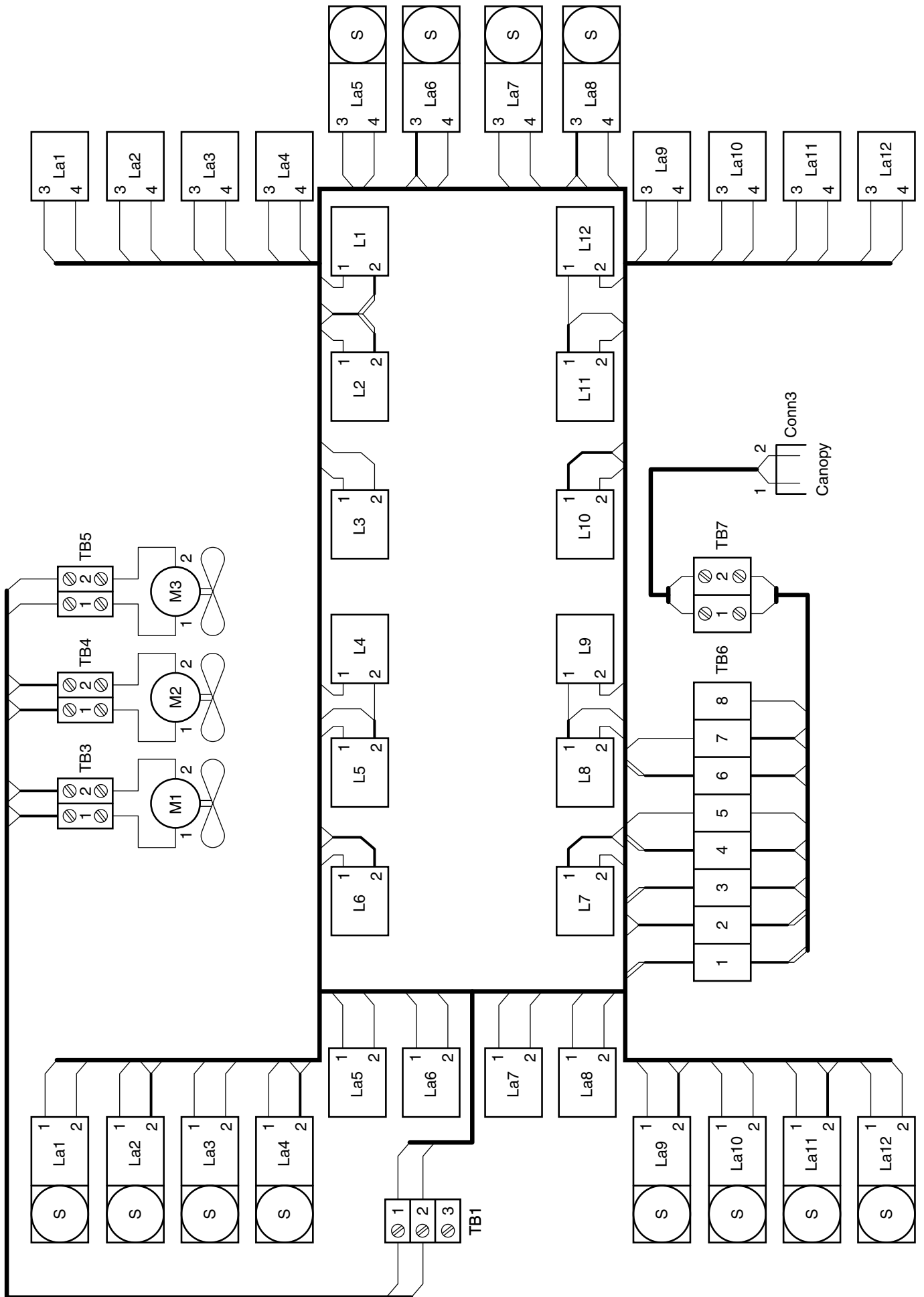


EXPLODED VIEW CANOPY

HB590





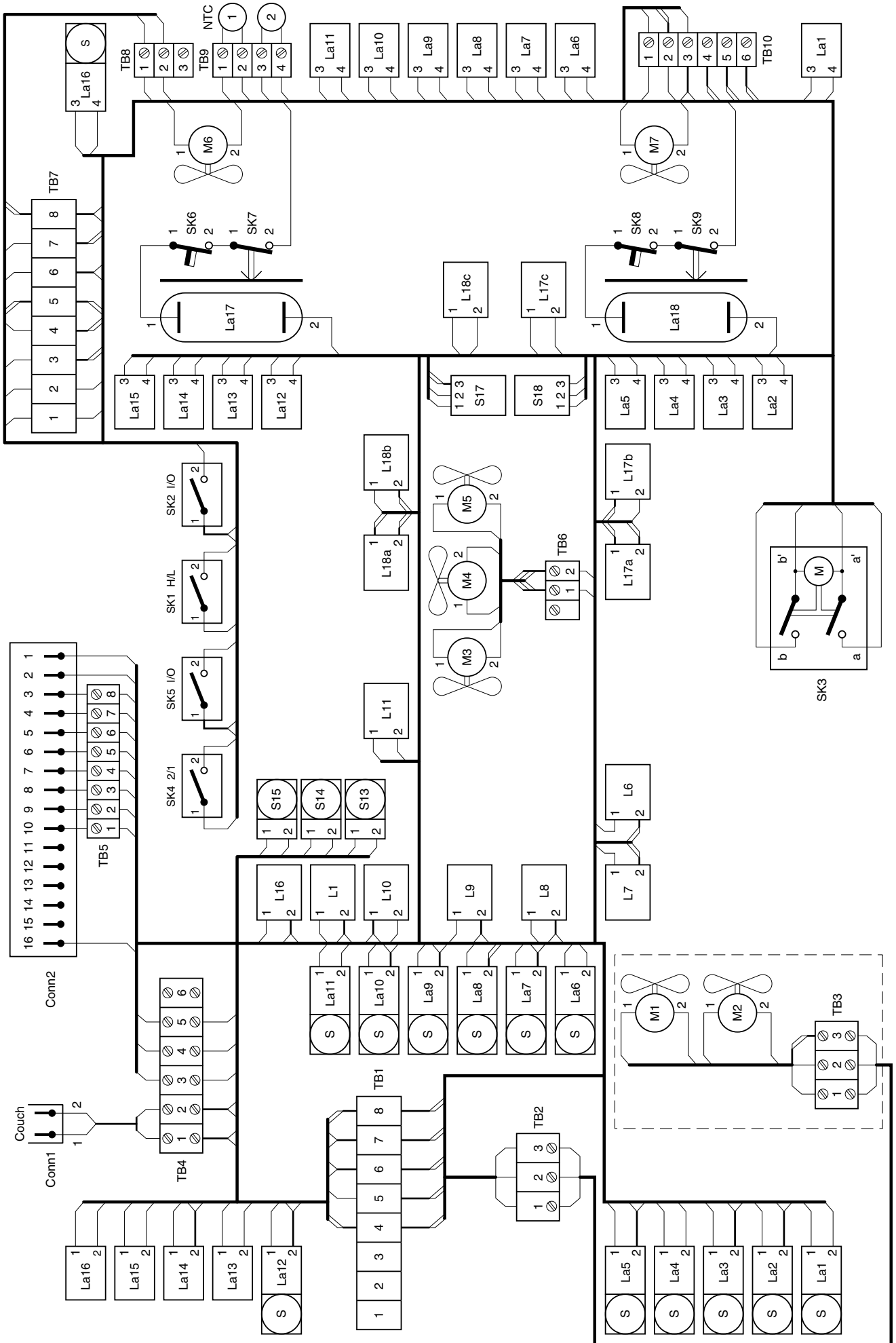




From	To
TB1.1	TB6.5
TB1.1	TB3.2
TB1.2	TB6.7
TB1.2	TB3.1
TB3.1	TB1.2
TB3.1	TB4.1
TB3.2	TB1.1
TB3.2	TB4.2
TB4.1	TB3.1
TB4.1	TB5.1
TB4.2	TB3.2
TB4.2	TB5.2
TB5.1	TB4.1
TB5.2	TB4.2
TB6.1	TB7.1
TB6.1	TB6.3
TB6.1	La9.2
TB6.1	La11.2
TB6.2	TB7.2
TB6.2	TB6.6
TB6.2	L7.1
TB6.2	L6.2
TB6.3	TB6.1
TB6.3	TB6.4
TB6.3	La4.2
TB6.3	La2.2
TB6.4	TB6.3
TB6.4	TB6.5
TB6.4	La8.3
TB6.4	La6.3
TB6.5	TB6.4
TB6.5	TB1.1
TB6.6	TB6.2
TB6.6	TB6.7
TB6.6	L10.1
TB6.6	L1.2
TB6.7	TB6.6
TB6.7	TB6.8
TB6.7	TB1.2
TB6.8	TB6.7
TB7.1	TB6.1
TB7.1	Conn3.2
TB7.2	TB6.2
TB7.2	Conn3.1
Conn3.1	TB7.2
Conn3.2	TB7.1

From	To
La1.1	La1.4
La1.2	La2.2
La1.3	L1.1
La1.4	La1.1
La2.1	La2.4
La2.2	TB6.3
La2.2	La1.2
La2.3	L2.1
La2.4	La2.1
La3.1	La3.4
La3.2	La4.2
La3.3	L3.1
La3.4	La3.1
La4.1	La4.4
La4.2	TB6.3
La4.2	La3.2
La4.3	L4.1
La4.4	La4.1
La5.1	La5.4
La5.2	L5.1
La5.3	La6.3
La5.4	La5.1
La6.1	La6.4
La6.2	L6.1
La6.3	TB6.4
La6.3	La5.3
La6.4	La6.1
La7.1	La7.4
La7.2	L7.2
La7.3	La8.3
La7.4	La7.1
La8.1	La8.4
La8.2	L8.2
La8.3	TB6.4
La8.3	La7.3
La8.4	La8.1
La9.1	La9.4
La9.2	TB6.1
La9.2	La10.2
La9.3	L9.2
La9.4	La9.1
La10.1	La10.4
La10.2	La9.2
La10.3	L10.2
La10.4	La10.1

From	To
La11.1	La11.4
La11.2	TB6.1
La11.2	La12.2
La11.3	L11.2
La11.4	La11.1
La12.1	La12.4
La12.2	La11.2
La12.3	L12.2
La12.4	La12.1
L1.1	La1.3
L1.2	TB6.6
L1.2	L2.2
L2.1	La2.3
L2.2	L1.2
L2.2	L3.2
L3.1	La3.3
L3.2	L2.2
L4.1	La4.3
L4.2	L5.2
L5.1	La5.2
L5.2	L6.2
L5.2	L4.2
L6.1	La6.2
L6.2	TB6.2
L6.2	L5.2
L7.1	TB6.2
L7.1	L8.1
L7.2	La7.2
L8.1	L7.1
L8.1	L9.1
L8.2	La8.2
L9.1	L8.1
L9.2	La9.3
L10.1	TB6.6
L10.1	L11.1
L10.2	La10.3
L11.1	L10.1
L11.1	L12.1
L11.2	La11.3
L12.1	L11.1
L12.2	La12.3



**WIRE CONNECTIONS CANOPY (PART 1)**

**HB590**

From	To
TB1.4	TB4.1
TB1.4	L16.2
TB1.4	L8.2
TB1.4	L7.2
TB1.5	TB1.6
TB1.5	TB2.3
TB1.5	TB6.2
TB1.6	TB1.7
TB1.6	TB1.5
TB1.6	La5.2
TB1.6	La3.2
TB1.7	TB1.8
TB1.7	TB1.6
TB1.7	La9.2
TB1.7	La8.2
TB1.8	TB4.2
TB1.8	TB1.7
TB1.8	La12.2
TB1.8	La14.2
TB2.1	TB7.2
TB2.1	TB3.1
TB2.2	TB7.1
TB2.2	TB3.2
TB2.3	TB1.5
TB2.3	TB3.3
TB3.1	TB2.1
TB3.1	M1.1
TB3.2	TB2.2
TB3.2	M2.1
TB3.3	TB2.3
TB3.3	M1.2
TB3.3	M2.2
TB4.1	TB1.4
TB4.1	TB7.6
TB4.1	Conn1.1
TB4.2	TB1.8
TB4.2	TB7.8
TB4.2	Conn1.2
TB4.3	TB10.6
TB4.3	Conn2.2
TB4.4	TB10.5
TB4.4	Conn2.1
TB4.5	TB10.4
TB4.5	Conn2.16

From	To
TB5.1	La15.4
TB5.1	Conn2.10
TB5.2	La14.4
TB5.2	Conn2.9
TB5.3	La13.4
TB5.3	Conn2.8
TB5.4	La12.4
TB5.4	Conn2.7
TB5.5	La5.4
TB5.5	Conn2.6
TB5.6	La4.4
TB5.6	Conn2.5
TB5.7	La3.4
TB5.7	Conn2.4
TB5.8	La2.4
TB5.8	Conn2.3
TB6.1	L6.2
TB6.1	M3.1
TB6.1	M4.1
TB6.1	M5.1
TB6.2	TB1.5
TB6.2	M3.2
TB6.2	M4.2
TB6.2	M5.2
TB7.1	TB2.2
TB7.1	SK5.1
TB7.2	TB2.1
TB7.2	SK4.2
TB7.3	L17c.1
TB7.3	L18c.1
TB7.3	SK1.2
TB7.4	TB8.1
TB7.4	TB10.1
TB7.4	TB7.5
TB7.5	L18a.1
TB7.5	L17a.2
TB7.5	SK2.1
TB7.5	TB7.4
TB7.6	TB4.1
TB7.6	SK2.2
TB7.6	SK5.2
TB7.7	TB7.8
TB7.7	S17.3
TB7.7	La16.4
TB7.8	TB4.2
TB7.8	TB7.7
TB7.8	TB8.2
TB7.8	TB10.3
TB8.1	TB7.4
TB8.1	M6.1
TB8.2	SK7.2
TB8.2	M6.2
TB8.2	TB7.8

From	To
TB9.1	S18.3
TB9.2	L18a.2
TB9.3	S17.1
TB9.4	L17a.1
TB10.1	TB7.4
TB10.1	M7.1
TB10.2	SK9.2
TB10.2	TB10.3
TB10.2	M7.2
TB10.3	TB7.8
TB10.3	SK3.b
TB10.3	TB10.2
TB10.4	SK3.a'
TB10.4	TB4.5
TB10.5	TB4.4
TB10.5	SK3.a
TB10.6	TB4.3
TB10.6	SK3.b'
La1.1	La1.3
La1.2	La2.2
La1.3	La1.1
La1.4	L1.1
La2.1	La2.3
La2.2	La3.2
La2.2	La1.2
La2.3	La2.1
La2.4	TB5.8
La3.1	La3.3
La3.2	TB1.6
La3.2	La2.2
La3.3	La3.1
La3.4	TB5.7
La4.1	La4.3
La4.2	La5.2
La4.3	La4.1
La4.4	TB5.6
La5.1	La5.3
La5.2	TB1.6
La5.2	La4.2
La5.3	La5.1
La5.4	TB5.5
La6.1	La6.3
La6.2	La7.2
La6.3	La6.1
La6.4	L6.1
La7.1	La7.3
La7.2	La8.2
La7.2	La6.2
La7.3	La7.1
La7.4	L7.1

From	To
La8.1	La8.3
La8.2	TB1.7
La8.2	La7.2
La8.3	La8.1
La8.4	L8.1
La9.1	La9.3
La9.2	TB1.7
La9.2	La10.2
La9.3	La9.1
La9.4	L9.1
La10.1	La10.3
La10.2	La9.2
La10.2	La11.2
La10.3	La10.1
La10.4	L10.1
La11.1	La11.3
La11.2	La10.2
La11.3	La11.1
La11.4	L11.2
La12.1	La12.3
La12.2	TB1.8
La12.2	La13.2
La12.3	La12.1
La12.4	TB5.4
La13.1	S13.1
La13.2	La12.2
La13.3	S13.2
La13.4	TB5.3
La14.1	S14.1
La14.2	TB1.8
La14.2	La15.2
La14.3	S14.2
La14.4	TB5.2
La15.1	S15.1
La15.2	La14.2
La15.3	S15.2
La15.4	TB5.1
La16.1	La16.3
La16.2	L16.1
La16.3	La16.1
La16.4	TB7.7
La17.1	SK6.1
La17.2	S17.2
La18.1	SK8.1
La18.2	S18.2

**WIRE CONNECTIONS CANOPY (PART 2)**

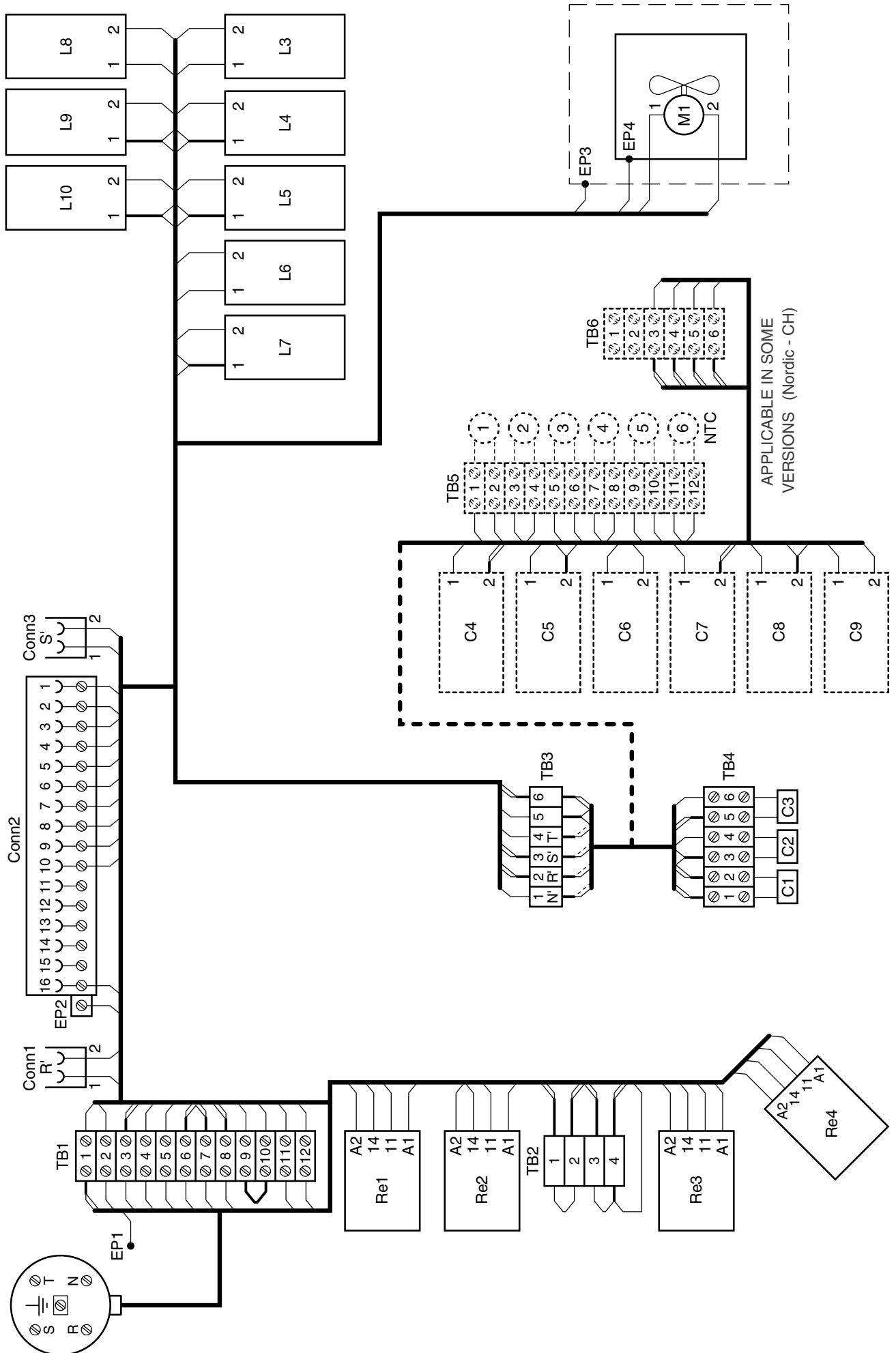
**HB590**

From	To
Conn1.1	TB4.1
Conn1.2	TB4.2
Conn2.1	TB4.4
Conn2.2	TB4.3
Conn2.3	TB5.8
Conn2.4	TB5.7
Conn2.5	TB5.6
Conn2.6	TB5.5
Conn2.7	TB5.4
Conn2.8	TB5.3
Conn2.9	TB5.2
Conn2.10	TB5.1
Conn2.16	TB4.5
L1.1	La1.4
L1.2	L16.2
L1.2	L10.2
L6.1	La6.4
L6.2	L7.2
L6.2	TB6.1
L7.1	La7.4
L7.2	TB1.4
L7.2	L6.2
L8.1	La8.4
L8.2	TB1.4
L8.2	L9.2
L9.1	La9.4
L9.2	L8.2
L9.2	L11.1
L10.1	La10.4
L10.2	L1.2
L11.1	L9.2
L11.2	La11.4
L16.1	La16.2
L16.2	TB1.4
L16.2	L1.2
L17a.1	TB9.4
L17a.1	L17b.1
L17a.2	TB7.5
L17a.2	L17b.2
L17b.1	L17c.2
L17b.1	L17a1
L17b.2	L17a.2
L17c.1	TB7.3
L17c.2	L17b.2
L18a.1	TB7.5
L18a.1	L18b.1
L18a.2	TB9.2
L18a.2	L18b.2
L18b.1	L18a.1
L18b.2	L18c.2
L18b.2	L18a.2
L18c.1	TB7.3
L18c.2	L18b.2

From	To
M1.1	TB3.1
M1.2	TB3.3
M2.1	TB3.2
M2.2	TB3.3
M3.1	TB6.1
M3.2	TB6.2
M4.1	TB6.1
M4.2	TB6.2
M5.1	TB6.1
M5.2	TB6.2
M6.1	TB8.1
M6.2	TB8.2
M7.1	TB10.1
M7.2	TB10.2
SK1.1	SK2.1
SK1.2	TB7.3
SK2.1	TB7.5
SK2.1	SK1.1
SK2.2	TB7.6
SK3.a	TB10.5
SK3.a'	TB10.4
SK3.b	TB10.3
SK3.b'	TB10.6
SK4.1	SK5.1
SK4.2	TB7.2
SK5.1	TB7.1
SK5.1	SK4.1
SK5.2	TB7.6
SK6.1	La17.1
SK6.2	SK7.1
SK7.1	SK6.2
SK7.2	TB8.2
SK8.1	La18.1
SK8.2	SK9.1
SK9.1	SK8.2
SK9.2	TB10.2
S13.1	La13.1
S13.2	La13.3
S14.1	La14.1
S14.2	La14.3
S15.1	La15.1
S15.2	La15.3
S17.1	TB9.3
S17.2	La17.2
S17.3	TB7.7
S17.3	S18.1
S18.1	S17.3
S18.2	La18.2
S18.3	TB9.1

WIRING DIAGRAM POWER UNIT

HB590



From	To
TB1.1	EP1
TB1.1	EP2
TB1.1	EP4
TB1.1	TB1.2
TB1.2	TB1.1
TB1.2	EP3
TB1.2	Earth
TB1.3	Re2.14
TB1.3	TB1.9
TB1.3	R
TB1.4	Re3.14
TB1.4	S
TB1.5	Re4.14
TB1.5	T
TB1.6	Re1.11
TB1.6	TB1.8
TB1.6	N
TB1.7	Conn1.1
TB1.7	Conn3.1
TB1.7	Re1.14
TB1.8	TB3.1
TB1.8	TB1.6
TB1.8	Re1.A2
TB1.9	TB1.3
TB1.9	TB1.10
TB1.10	TB1.9
TB1.10	Conn2.1
TB1.11	TB2.4
TB1.11	Conn2.16
TB1.12	TB2.1
TB1.12	Conn2.2
TB2.1	TB1.12
TB2.1	Re2.A2
TB2.1	TB2.2
TB2.2	Re3.A2
TB2.2	Re4.A2
TB2.2	TB2.1
TB2.3	Re1.A1
TB2.3	Re2.A1
TB2.3	TB2.4
TB2.4	TB1.11
TB2.4	Re3.A1
TB2.4	Re4.A1
TB2.4	TB2.3

From	To
TB3.1	TB1.8
TB3.1	TB4.1
TB3.2	Conn1.2
TB3.2	Re2.11
TB3.2	TB4.2
TB3.3	Conn3.2
TB3.3	Re3.11
TB3.3	TB4.4
TB3.4	TB3.5
TB3.4	Re4.11
TB3.5	TB3.6
TB3.5	TB3.4
TB3.5	L7.1
TB3.6	TB3.5
TB3.6	TB4.6
TB3.6	L5.1
TB3.6	L10.1
TB4.1	TB3.1
TB4.1	TB4.3
TB4.2	TB3.2
TB4.2	M1.2
TB4.3	TB4.5
TB4.3	TB4.1
TB4.4	TB3.3
TB4.5	TB4.3
TB4.5	M1.1
TB4.6	TB3.6
Re1.A2	TB1.8
Re1.14	TB1.7
Re1.11	TB1.6
Re1.A1	TB2.3
Re2.A2	TB2.1
Re2.14	TB1.3
Re2.11	TB3.2
Re2.A1	TB2.3
Re3.A2	TB2.2
Re3.14	TB1.4
Re3.11	TB3.3
Re3.A1	TB2.4
Re4.A2	TB2.2
Re4.14	TB1.5
Re4.11	TB3.4
Re4.A1	TB2.4
Earth	TB1.2
R	TB1.3
S	TB1.4
T	TB1.5
N	TB1.6

From	To
Conn1.1	TB1.7
Conn1.2	TB3.2
Conn2.1	TB1.10
Conn2.2	TB1.12
Conn2.3	L3.2
Conn2.4	L4.2
Conn2.5	L5.2
Conn2.6	L6.2
Conn2.7	L7.2
Conn2.8	L8.2
Conn2.9	L9.2
Conn2.10	L10.2
Conn2.16	TB1.11
Conn3.1	TB1.7
Conn3.2	TB3.3
L3.1	L4.1
L3.2	Conn2.3
L4.1	L3.1
L4.1	L5.1
L4.2	Conn2.4
L5.1	L4.1
L5.1	TB3.6
L5.2	Conn2.5
L6.1	L7.1
L6.2	Conn2.6
L7.1	L6.1
L7.1	TB3.5
L7.2	Conn2.7
L8.1	L9.1
L8.2	Conn2.8
L9.1	L8.1
L9.1	L10.1
L9.2	Conn2.9
L10.1	L9.1
L10.1	TB3.6
L10.2	Conn2.10
EP1	TB1.1
EP2	TB1.1
EP3	TB1.2
EP4	TB1.1
M1.1	TB4.5
M1.2	TB4.2

From	To
TB3.1	TB6.6
TB3.2	TB6.5
TB3.3	TB6.4
TB3.4	TB6.3
TB5.1	TB6.3
TB5.2	C7.1
TB5.3	TB6.3
TB5.4	C4.1
TB5.5	TB6.4
TB5.6	C8.1
TB5.7	TB6.4
TB5.8	C5.1
TB5.9	TB6.5
TB5.10	C9.1
TB5.11	TB6.5
TB5.12	C6.1
TB6.3	TB5.1
TB6.3	TB5.3
TB6.3	TB3.4
TB6.4	TB5.5
TB6.4	TB5.7
TB6.4	TB3.3
TB6.5	TB5.9
TB6.5	TB5.11
TB6.5	TB3.2
TB6.6	C4.2
TB6.6	C7.2
TB6.6	TB3.1
C4.1	TB5.4
C4.2	TB6.6
C4.2	C5.2
C5.1	TB5.8
C5.2	C4.2
C5.2	C6.2
C6.1	TB5.12
C6.2	C5.2
C7.1	TB5.2
C7.2	TB6.6
C7.2	C8.2
C8.1	TB5.6
C8.2	C7.2
C8.2	C9.2
C9.1	TB5.10
C9.2	C8.2