

**Maintenance manual for stair inclined lift Konstanz**  
**The work may only be performed by qualified technical personnel!**

The following work may only be performed **by qualified personnel**:

Assembly work

Adjustment and setup work

**Maintenance work**

Troubleshooting/rectification

Qualified personnel are persons who

- who are familiar with the machine function
- have been trained about the functioning
- have read and understood the operating, assembly and service manuals
- are clear about the hazards of the machine (and its components)
- recognize and understand the relationships of the mechanical components
- recognize and understand the relationships of the electrical components
- possess the appropriate tools/measurement devices and can use them
- have sufficient knowledge of German or English for understanding

During any work on the machine, please observe:

- Do not make the machine accessible to other persons with increased hazard potential (disassembled paneling parts, protective devices,...)
- Risk of tripping due to opened machine; avoid tools, power cables etc. lying around
- The hazard potential of the machine must not have been increased after work on the machine.
- Parts of the machine which are not firmly connected with the construction/rail must be secured against falling over.



**The safety notes in the operator manual must be observed!!**

Original parts and accessories are specially designed for our platform lift. We point out explicitly that parts and accessories which are not supplied by us have also not been tested and approved by us. The installation or use of such products can therefore possibly negatively change the constructional properties of the lift and thus actively or passively affect the travel safety. The manufacturer assumes no liability for damages resulting from the use of parts and accessories which are not the original parts and accessories.

## **Tools / operating and auxiliary materials / measurement and test devices**

Torque wrench 110Nm (10 to 24mm)  
Jaw-ring wrenches (7 / 8 / 10 / 13 / 14 / 17 / 30 / 40mm)  
Allen wrenches (2 / 3 / 4 / 5 / 6mm)  
Punch (4 / 6mm)  
Pliers  
Side cutter  
Spring-ring pliers A01, A11  
Phillips head screwdriver (PH1, PH2)  
Slotted screwdriver (1x6mm / 0.6x4.5mm)

Loctite 243  
Cable drum  
Lamp  
Voltage measurement device (230VAC / 30VDC)  
Ammeter 24 V DC min. 1A max. 50A  
Ohmmeter

9V block battery (1x)  
Battery 1.5V AA (2 for each external control device)  
Battery 1.5V AAA (2x for each UHF handheld transmitter)

### Lubricants:

OKS 469 NLGL 2 plastic and elastomir lubricant (-40°C to 150°C) (Further designation: S1)  
E-COLL NLGI 2 multi-use grease I emulsified with lithium (-30°C to 120°C) (Further designation: S2)  
E-COLL NLGI 2 multi-use grease I emulsified with lithium (-30°C to 120°C) (Further designation: S3)  
Fina Marson L2 (Further designation: S4)  
Eurotech Neoval Oil MTO 300 (Further designation: S5)  
Ultraclean Eurotech (Technical cleaner) (Further designation: R1)

### High mortality parts / Parts which should possibly be replaced

Batteries 6V (4 x)  
Batteries 12V (4 x)  
Roller lever switch (1x)  
Pusher switch (1x)  
Micro-switch  
Guide rolls including bearing (4x)  
Control unit on the spiral cable with bushing (1x)  
Charger (1x)  
Fuses: 6.3 A slow-blow micro-fuse / 2 A blade fuse / 10 A blade fuse / 25 A torpedo fuse

<b>Maintenance plan</b> based on EN 13015		Manufacturer: <b>LIPPE Lift GmbH</b> <b>Weststrasse 48, 32657 Lemgo</b>	<b>Location:</b>	
<b>Page 1 of 5</b>		Designation of the lift: <b>Stair inclined lift Konstanz</b>		<b>Brand no.</b>
running No.	Work to be performed (Only by qualified technical personnel)	Measurement and testing devices, Operating and auxiliary materials		Comments
<b>1.</b>	<b>Supports</b>			If available
1.1	<i>Check stability</i>		A	
1.2	<i>Look for corrosion, break-outs and deformations</i>		A	
<b>2.</b>	<b>Track</b>			
2.1	fastening		A	
2.1.1	<i>Look for corrosion, break-outs and deformation</i>		A	
2.1.2	<i>Check stability</i>		A	
2.2	Overdrive protection		B	
2.2.1	<i>Check position and stability</i>		B	
2.3	Limit switch graphs		A	
2.3.1	<i>Search for corrosion</i>		A	
2.3.2	<i>Check position, function and stability</i>		A	
2.4	Unlocking graphs		A	
2.4.1	<i>Search for corrosion and break-outs</i>		A	Possibly replace plastic
2.4.2	<i>Check position, function and stability</i>		A	
2.5	Bar for bypass switch		A	
2.5.1	<i>Check position, function and stability</i>		A	
2.6	Loading station		A	
2.6.1	<i>Search for break-outs, deformation, corrosion and wear</i>		A	
2.6.2	<i>Check contact, function, setting and fastening</i>	Voltage measurement device / Ammeter	A	Voltage on the loading station must be between 25.5 Volt and 29.5 Volt
2.7	Track pipes: Look for corrosion, break-outs and deformations		A	
Intervals: A = 1x per year      B = every two years				

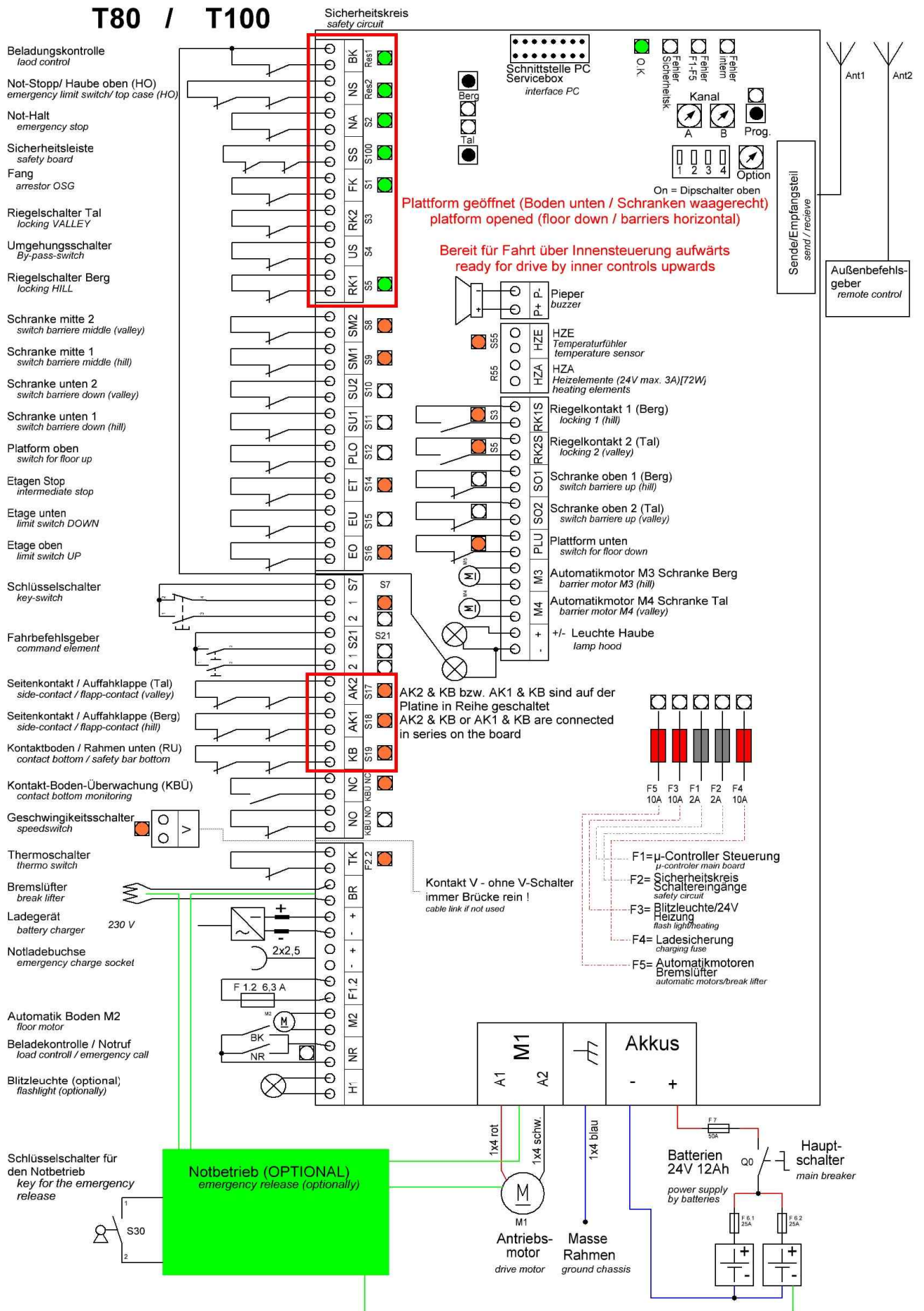
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Page 2 of 5		Designation of the lift: <b>Stair inclined lift Konstanz</b>		Brand no.
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<b>3.</b>	<b>Load carrying equipment</b>			
3.1	Roller set		A	
3.1.1	<i>Look for corrosion, break-outs and deformations</i>		A	
3.1.2	<i>Check stability of the lower and <u>upper</u> roller set</i>		A	
3.1.3	<i>Check function, setting and clearance</i>		A	
3.1.4	<i>Look for noises, deformation, wear and contamination</i>		A	
3.2	Drive		A	
3.2.1	<i>Check radial clearance of the rollers and roller bolts in the drive sprocket</i>		A	Clearance as minimal as possible (max 0.3mm)
3.2.2	<i>Check stability of the screw connection between the drive sprocket and the hub</i>		A	
3.2.3	<i>Check the fit of the safety ring for the drive sprocket on the drive shaft</i>		A	
3.2.3.1	<i>Check setting, clearance, lubrication</i>	Grease: S2	A	
3.2.4	<i>Check stability of the switch fastening bracket</i>		A	
3.3	Safety gear		A	
3.3.1	<i>Look for noises, deformation, wear and contamination</i>		A	
3.3.2	<i>Check function, setting and lubrication</i>	Grease: S5 / Cleaner: R1	A	During downwards travel, engage the safety catch carefully with a longer object. Use cleaner and grease again
3.4	Control: <i>Check stability</i>		B	
3.4.1	Replace battery (for acoustic signals)	9V block battery	A	
3.5	Gates		A	
3.5.1	<i>Check position, function, clearance, lubrication (bearing and rod).</i>	Grease: S4	A	
3.5.2	<i>Check function and wear of the locking device</i>		A	
3.5.3	<i>Look for corrosion and contamination</i>		A	
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3.6	Contact floor (Only carry out when the floor is folded up)		A		
3.6.1	<i>Look for deformation and contamination</i>		A		
3.6.2	<i>Check function, fastening and clearance</i>		A		
3.7	Internal control system		A		
3.7.1	<i>Check function, fastening</i>		A		
3.8.2	<i>Look for break-outs and missing labeling</i>		A		
3.8	External control system		A		
3.8.1	<i>Check function, fastening</i>		A		
3.8.2	<i>Look for break-outs and missing labeling</i>		A		
3.8.3	Replace battery	2x 1.5V AA	A		
3.9	Motor: <i>Check fastening</i>		A		
3.10	All switches		A		
3.10.1	<i>Look for break-outs, wear and contamination</i>		A		
3.10.2	<i>Check function, setting, fastening and clearance</i>		A		
3.11	Main switch		A		
3.11.1	<i>Look for break-outs, wear and contamination</i>		B		
3.11.2	<i>Check function and fastening</i>		A		
3.12	Worm gear: <i>look for break-outs and leaks</i>		B		
3.13	Back wall: Check fastening		B		
3.14	Batteries (6V and/or 12V)		A		
3.14.1	<i>Look for corrosion and contamination</i>		B		
3.14.2	<i>Check stability, function and voltage</i>	Voltage measurement device	A	The voltage of each individual battery: min. 6.3V (12.3V) Difference between the individual batteries max. 0.2 Volt (Only change complete blocks !)	
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running No.	Work to be performed (Only by qualified technical personnel)	Measurement and testing devices, Operating and auxiliary materials		Comments	
3.15	Loading device		A		
3.15.1	<i>Look for break-outs, and contamination</i>		A		
3.15.2	<i>Check function and fastening</i>		A		
3.16	Securing device		A		
3.16.1	<i>Look for break-outs, and contamination</i>		A		
3.16.2	<i>Check function and fastening</i>		A		
3.17	Loading brushes		A		
3.17.1	<i>Search for break-outs, deformation, and wear</i>		A		
3.17.2	<i>Check function, setting and fastening</i>		A		
3.18	Switch for ramp		A		
3.18.1	<i>Look for corrosion, deformation and contamination</i>		A		
3.18.2	<i>Check fastening, setting (folded up and down), function and lubrication</i>	Grease: S4	A	Possibly Use excentric to readjust; possibly reset tensile spring; angle folded up at least 45°	
3.19	Safety bar		A	If available	
3.19.1	<i>Look for deformation and contamination</i>		A		
3.19.2	<i>Check function, setting and clearance</i>		A		
3.20	Side Switch for ramp		A	If available	
3.20.1	<i>Look for deformation, wear and contamination</i>		A		
3.20.2	<i>Check function, fastening and lubrication</i>	Grease: S4	A		
3.21	Automatic gears		A	If available	
3.21.1	<i>Search for break-outs, deformation, and wear</i>		A		
3.21.2	<i>Check chain stretching, function, fastening and fixation with a cotter pin</i>		A		
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3.22	Couplings		A	If available
3.22.1	<i>Look for break-outs, deformations, noise and wear</i>		A	
3.22.2	<i>Check function, setting and fixation with a cotter pin</i>		A	
3.23	Folding seat / safety belt		A	If available
3.23.1	<i>Look for corrosion, cracks and deformation</i>		A	
3.23.2	<i>Check function and fastening</i>		A	
3.24	Unlocking cam		A	
3.24.1	<i>Search for deformation and wear</i>		A	
3.24.2	<i>Check function, setting and lubrication</i>	Grease: S4	A	
3.25	Emergency unlocking: check function and marking		A	
3.26	Hand wheel: Check fastening and labeling		A	
3.27	Emergency call: check function		A	Check batteries if available
3.28	Side contact switch		A	
3.28.1	<i>Check function, setting and clearance</i>		A	
3.29	Contact switch on underside of frame		A	
3.29.1	<i>Check function, setting and clearance</i>		A	
3.30	Contact switch on top side of cover		A	
3.30.1	<i>Check function, setting and clearance</i>		A	
3.31	Overload protection		A	
3.31.1	<i>Check function, setting and clearance</i>		A	
<b>4.</b>	<b>Miscellaneous</b>			
4.1	Test drive: <i>Check all functions and driving behavior</i>		A	
4.2	Labeling (stickers, warning signs,..): complete		A	<i>Possibly not supplemented by customer request?</i>
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Anzeige der Dioden vor Fahrtantritt über Innensteuerung  
 Indication of LED's before drive by inner controls





## Legende Dokumentation

### Platine

Mainboard	Connectors	Anschluß	Connection
RES1	(leer) BK	Beladungskontrolle	<i>weight-control</i>
RES2	NS	Not-Stopp	<i>emergency limit switch</i>
S2	NA	NOT-HALT	<i>emergency off</i>
S100	SS	Sicherheitsleiste (optional)	<i>switch for safetyboard (optionally)</i>
S1	FK	Fangschalter	<i>switch at arrestor OSG</i>
S3	RK2	Riegelschalter TAL	<i>switch for locking (valley)</i>
S4	US	Umgehungsschalter	<i>by-pass-switch</i>
S5	RK1	Riegelschalter BERG	<i>switch for locking (hill)</i>
S8	SM2	Schranke TAL Mitte	<i>switch for barrier (valley) middle</i>
S9	SM1	Schranke BERG Mitte	<i>switch for barrier (hill) middle</i>
S10	SU2	Schranke TAL Unten	<i>switch for barrier (valley) down</i>
S11	SU1	Schranke BERG Unten	<i>switch for barrier (hill) down</i>
S12	PLO	Plattformboden Oben	<i>floor switch, floor UP (optionally)</i>
S14	ET	Etagenschalter	<i>switch for intermediate stop (optionally)</i>
S15	EU	Endschalter Unten	<i>limit switch DOWN</i>
S16	EO	Endschalter Oben	<i>limit switch UP</i>
S7	S7 / 1 / 2	Schlüsselschalter an Lift	<i>key switch at carriage</i>
S21	S21 / 1 / 2	Befehlsgeber an Lift	<i>somand element at carriage</i>
S17	AK2	Auffahrklappe TAL	<i>switch for ramp (valley)</i>
S18	AK1	Auffahrklappe BERG	<i>switch for ramp (hill)</i>
S19	KB	Kontaktboden (Serie)	<i>switch for contact bottom (series)</i>
KBÜ NC	NC	Kontaktbodenüberwachung (optional)	<i>switch for contact bottom monitoring (optionally)</i>
KBÜ NO	NO	Kontaktbodenüberwachung (optional)	<i>switch for contact bottom monitoring (optionally)</i>
V	V	Geschwindigkeit (optional)	<i>switch for speed (optionally)</i>
F2.2	TK	Thermokontakt M1	<i>thermo switch drive motor</i>
Y1	BR	Bremslüfter M1	<i>brake lifter</i>
1X20	+ / -	Ladegerät	<i>battery charger</i>
1X30	+ / -	Notladebuchse	<i>emergency battery charging socket</i>
F1.2	F1.2	Ladesicherung 6,3A	<i>short circuit - charge contacts</i>
M2	M2	Automatikmotor Boden (optional)	<i>automatic motor (optionally)</i>
S50	NR	Notruftaster (optional)	<i>emergency call switch (optionally)</i>
H1	H1	Blitzleuchte (optional)	<i>flash light (optionally)</i>
Pieper	P+ P-	Pieper	<i>buzzer</i>
Heizung (72/73)	HZE	Fühler Heizung	<i>temperature sensor</i>
Heizung (74/75)	HZA	Heizelemente	<i>heating elements</i>
(76/77)	RK1S	Riegelschalter BERG (Schliesser)	<i>switch for locking (hill)</i>
(78/79)	RK2S	Riegelschalter TAL (Schliesser)	<i>switch for locking (valley)</i>
(80/81)	SO1	Schranke BERG oben	<i>switch for barrier (hill) up</i>
(82/83)	SO2	Schranke TAL oben	<i>switch for barrier (valley) up</i>
(84/85)	PLU	Plattformboden unten	<i>floor switch, floor down</i>
M3 (86/87)	M3	Automatikmotor Schranke BERG	<i>automatic motor barrier (hill)</i>
M4 (88/89)	M4	Automatikmotor Schranke TAL	<i>automatic motor barrier (valley)</i>
24V	+ -	24V	<i>24 V</i>
M1 (A1 / A2)	A1 / A2	Antriebsmotor	<i>drive motor</i>
AKKU 24V	AKKU + -	Akkus 24V 9Ah	<i>power supply by batteries</i>
Rahmen Masse	GND	Masse Rahmen	<i>ground chassis</i>

zusätzliche, nicht in der Steuerung aufgeführten Schalter und Sicherungen			
<b>additional switches and fuse, not mentioned on the control board</b>			
	Q0	Hauptschalter	<i>main breaker</i>
	F4	Ladesicherung extern	<i>external charging fuse</i>
	F6.1/F6.2	Sicherungen Akku´s	<i>accumulator fuses</i>
	F7	Hauptsicherung	<i>main fuse</i>
	SK1	Seitenkontakt BERG	<i>side contact (hill)</i>
	SK2	Seitenkontakt TAL	<i>side contact (valley)</i>
	RU 1/2	Kontakt Rahmen Unterseite	<i>contact frame bottom side</i>
	HO	Kontakt Haube oben	<i>contact hood top</i>
	S30	Notbetrieb (optional)	<i>emergency release (optionally)</i>