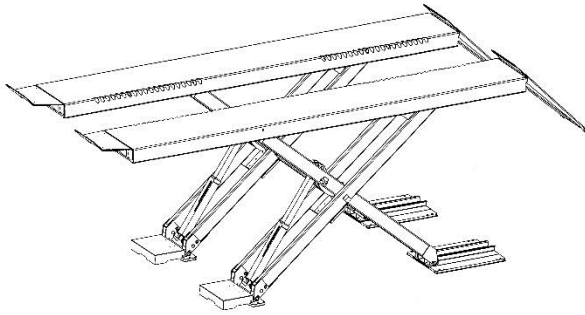


Operating instruction and documentation

Automotive lift date: 03/2017
Manual date: 01/2021 / Version: 3.0

Original Instructions

UNI LIFT 5000 NT / 5000 NT PLUS
HYMAX X 5000 PH / 5000 PH PLUS

Optional with SPID / AMS

Serial Nr.:

Art: 975402

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Foreword

Nussbaum-Lifts are a result of long-standing experiences.

The high quality and the superior concept guarantee them reliability, a long lift time and the economic business. To avoid unnecessary damages and dangers, read the operating instruction attentive and observe the contents. Another or the described purpose going out use is not valid when not as agreed. This is valid particularly for climb and go.

Company Nussbaum is not liable for damages arising from this. The user carries the risk alone.

For the use belonged:

- to observe all the notice in the operating instruction and
- the following of the inspection and maintenance work and the prescribed tests.
- The instruction for use have to be observed by all persons working with the lift.
- Especially the chapter "Safety/accident Prevention" has to be observed.
- In addition to the safety remarks of the instructions for use the regulations and instructions being valid at the place of operation have to be considered.

Obligations of the operator:

The operator is obliged to allow only those persons complying to the following requirement to work at the unit

- being well acquainted with the basic regulations concerning labour safety and accident prevention and being trained to operate the unit.
- having read and understood the chapter concerning safety and warning instructions and confirmed that by their signature.

Dangers when operating with the lift:

The Nussbaum-Lifts are designed and built according to technical standard and the approved regulations for technical security. Yet, danger for body and life of the operator may turn up when using the lift inexpertly.

The lift must only be operated :

- for its appropriate use
- in unobjectionable condition concerning technical security.

Organising requirements

- The instructions for use are constantly to be kept at the place of operation being at hand at any time.
- In addition to the instructions for use rules pertaining to other regulations i.e. accident prevention and environmental rules are to be observed and directed.
- Safety- and danger alert operation of personal is occasionally and by observing the instructions for use to be controlled.
- As far as required and ordered by regulations personal protective equipment is to be used
- All safety- and danger-hints at the lift are to be observed!
- Spare parts must comply with technical requirements laid down by the manufacturer. This is only warranted with original parts.
Consider time intervals given or fixed in instructions for use for repeated tests/inspections.

Maintenance works, remedy of faults and disposal

- Fixed Adjusting-, maintenance- and inspection works and time intervals including Details for exchange of parts/part components as mentioned in the instructions for use are to be adhered.
These works must only be carried out by expert personal.
- After maintenance- and repair works loose screw connections must always be firmly tightened!

Guarantee and liability

- Our „General conditions of selling and delivering“ are in force.
There will be no guarantee or liability for injuries of persons or things if these injuries are caused by one or by some of the following reasons.
- Inappropriate use of the lift
- Inappropriate installation, initiation, operation and maintenance of the lift.
- Use of the lift while one or several security devices do not work or do not work correctly or are not installed correctly.
- Not to follow the regulations of the operating instruction concerning transport, storing, installation, initiation, operation and maintenance of the lift.
- Changes of the construction of the lift without asking the producer.
- Changes of important adjustments of the lift (e.g. driving elements, power rating, motor speed, etc)
- Wrong or incorrect maintenance.
- Catastrophes, acts of God or external reasons.



Fill out, undersign and copy this sheet and send the original to the lift manufacturer. The copy remains in the Manual.

Nussbaum Custom Lifts GmbH

D-77694 Kehl - Sundheim

e-Mail: info@nussbaum-group.de

Fax: +49 (0) 7853 8787

Record of installation

The automotive lift with the

serial number:..... was installed on:.....

at the firm:..... at:.....

The initial safety check was carried out and the lift was started.

The installation was carried out by the operating authority/competent (please delete as applicable).

The initial safety check was carried out by a competent person before the initial operation.

The operating authority confirms the correct installation of the automotive lift, the competent person confirms the correct initial operation.

Used Dowels(*):.....(Type/Name)

Minimum anchorage depth (*) kept:mm ☐ ok

Starting torque (*) kept:NM ☐ ok

.....
date name of the operating authority signature of the operating authority

.....
date name of the competent person signature of the competent person

Your customer service:.....(stamp)

(*) see supplement of the dowel manufacturers

Record of handing over

The automotive lift with the

serial number:..... was installed on:.....

at the firm:..... at:.....

the safety was checked and the lift was started.

The persons below were introduced after the installation of the automotive lift. The introduction was carried out from an erector of the lift-manufacturer or from a franchised dealer (competent person).

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name	 signature
---------------	---------------	--------------------

..... date	 name of competent	 signature of the competent
---------------	----------------------------	-------------------------------------

Your customer service:.....

1. Introduction

The document "**Operating Instruction and Documentation**" contains important information about installation, operation and maintenance of the lift.

To furnish proof of the **installation of the automotive lift** the form "Record of Installation" must be signed and returned to the manufacturer.

To furnish proof of the singular, regular and extraordinary check this documentation contains forms. The forms should be used to document the checks. They should not be removed from this documentation.

Every **change of the construction** and **displacement** of the automotive lift has to be registered in the "**Master document**" of the lift.

1.1 Installation and check of the automotive lift

Only specialist staff is allowed to do work concerning safety and to do the safety checks of the lift. They are called experts and competent persons in this document.

Experts are persons (for example self-employed engineers, experts) which have received instruction and have experience to check and to test automotive lifts. They know the relevant regulations concerning both labour and accidents prevention.

Competent persons are persons who have acquired adequate knowledge and experience with automotive lifts. They took part in training from the lift-manufacturer (servicing technicians of the manufacturer or dealer are competent)

1.2 Information of Warning

To show danger and to show important information the three symbols below are used. Pay attention to those passages, which are marked with these symbols



Danger! This sign indicates danger to life. Inexpert handling of the described operation may be dangerous to life.



Caution! This sign cautions against possible damage to the automotive lift or other material defects in case of inexpert handling .



Attention! This sign indicates an important function or another important note.

2. Master document of the automotive lift

2.1 Lift–manufacturer

Nussbaum Custom Lifts GmbH
D-77694 Kehl - Sundheim
www.nussbaumlifts.com
e-Mail: info@nussbaum-group.de

2.2 Application

The automotive lift UNI-LIFT 5000 NT / Plus / Spid is a lifting mechanism for lifting motor vehicles with a laden weight of up to 5500 kg (the version with wheel free lift 5000 kg). The max. load distribution is 2:1 in or against drive-on direction.

The wheel free lift is a lifting mechanism for lifting motor vehicles with a laden weight of up to 3500 kg. The max. load distribution is 2:1 in or against drive-on direction.

The lift is equipped with a detector (called SPID) which is able to detect play in the axes and on single wheel suspensions. The detection is possible up to an axle load of 2300 kg.

The automotive lift is only designed for servicing vehicles. It is not allowed to carry persons with the lift. It is not allowed to climb on the lift or on the vehicle. It's not allowed to install the standard-automotive lift in a hazardous location or washing bays.

After changes of the construction after essential maintenance work on carrying parts and after changing the installation place, an expert has to check the lift and to confirm its correctness and security.

2.3 Changes at the construction

Changes at the construction, expert checking, resumption of work

(date, kind of change, signature of the expert)

.....
.....
.....

name, address of the expert

.....
place, date

.....
signature of the expert

2.4 Displacement of the automotive-lift

Displacement of the automotive-lift, expert checking, resumption of work

(date, kind of change, signature of the expert)

.....
.....
.....

name, address of the expert

.....
place, date

.....
signature of the expert

2.5 Declaration of conformity

EG- Konformitätserklärung



gemäß Maschinenrichtlinie Anhang II 1A

Declaration of Conformity according Machinery Directive 2006/42/EG ANNEX II 1A
Déclaration de conformité selon directive machines annexe II 1A
Declaración de conformidad según Directiva Maquinaria 2006/42/EG ANNEX II 1A
Dichiarazione di conformità in accordo alla direttiva 2006/42/EG ANNEX II 1A

Hiermit erklären wir, daß die Hebebühne, Modell:

Hereby we declare that the lift model:
Par la présente nous déclarons que le pont élévateur modèle
Por la presente declara, que el elevador modelo:
Con la presente si dichiara che il sollevatore:

UNI LIFT 5000 NT
UNI LIFT 5000 NT AMS
UNI LIFT 5000 NT PLUS
UNI LIFT 5000 NT PLUS AMS

allen einschlägigen Bestimmungen der folgenden Richtlinien entspricht:
fulfils all the relevant provisions of the following Directives:
correspond aux normes suivantes:
cumple todas las disposiciones pertinentes de las Directivas siguientes:
adempie a tutte le richieste delle seguenti direttive:

Maschinenrichtlinie / Machinery Directive
EMV Richtlinie / EMC Directive
Niederspannungsrichtlinie / Low Voltage Directive

2006/42/EG
2014/30/EU
2014/35/EU

in Übereinstimmung mit den folgenden harmonisierten Normen gefertigt wurde
was manufactured in conformity with the harmonized norms
fabriqué en conformité selon les normes harmonisées en vigueur.
producido de acuerdo a las siguientes normas armonizadas.
è stato fabbricato in conformità con le norme armonizzate

Fahrzeug- Hebebühnen / Vehicle lifts

EN 1493: 2010

Beauftragter für die Technische Dokumentation
Authorised to compile the technical file

Nussbaum Custom Lifts GmbH

Baujahr
Year of manufacture

20__

Seriennummer
Serial number

Seriennummer

Kehl- Sundheim, 15.01.2021


Steffen Nussbaum
Geschäftsführer



Nussbaum Custom Lifts GmbH | Hertzstraße 6 | 77694 Kehl-Sundheim |



DoC-NCL_UNILIFT_5000-NT-AMS-PLUS_2021-01

3. Technical information

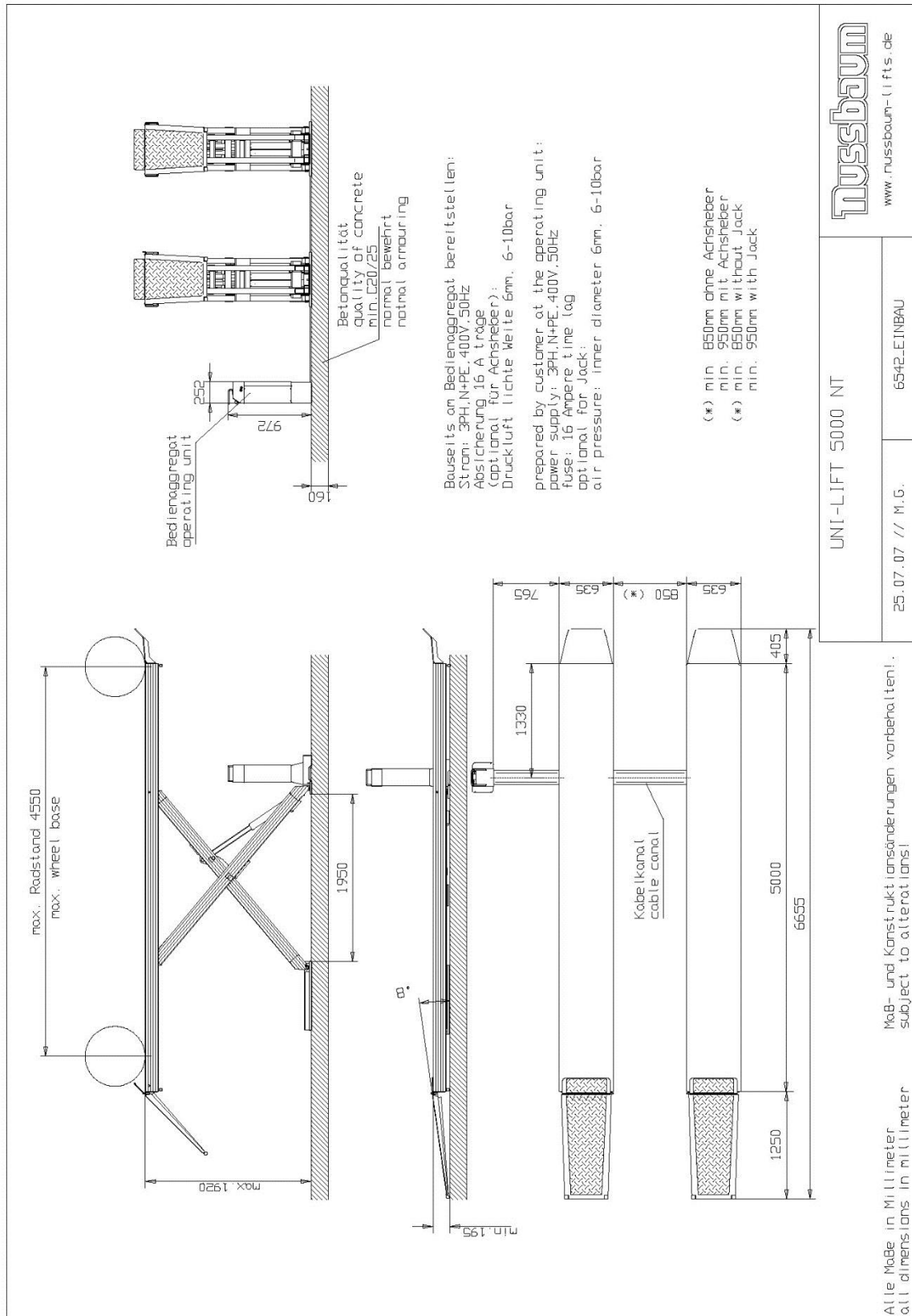
3.1 Technical ratings

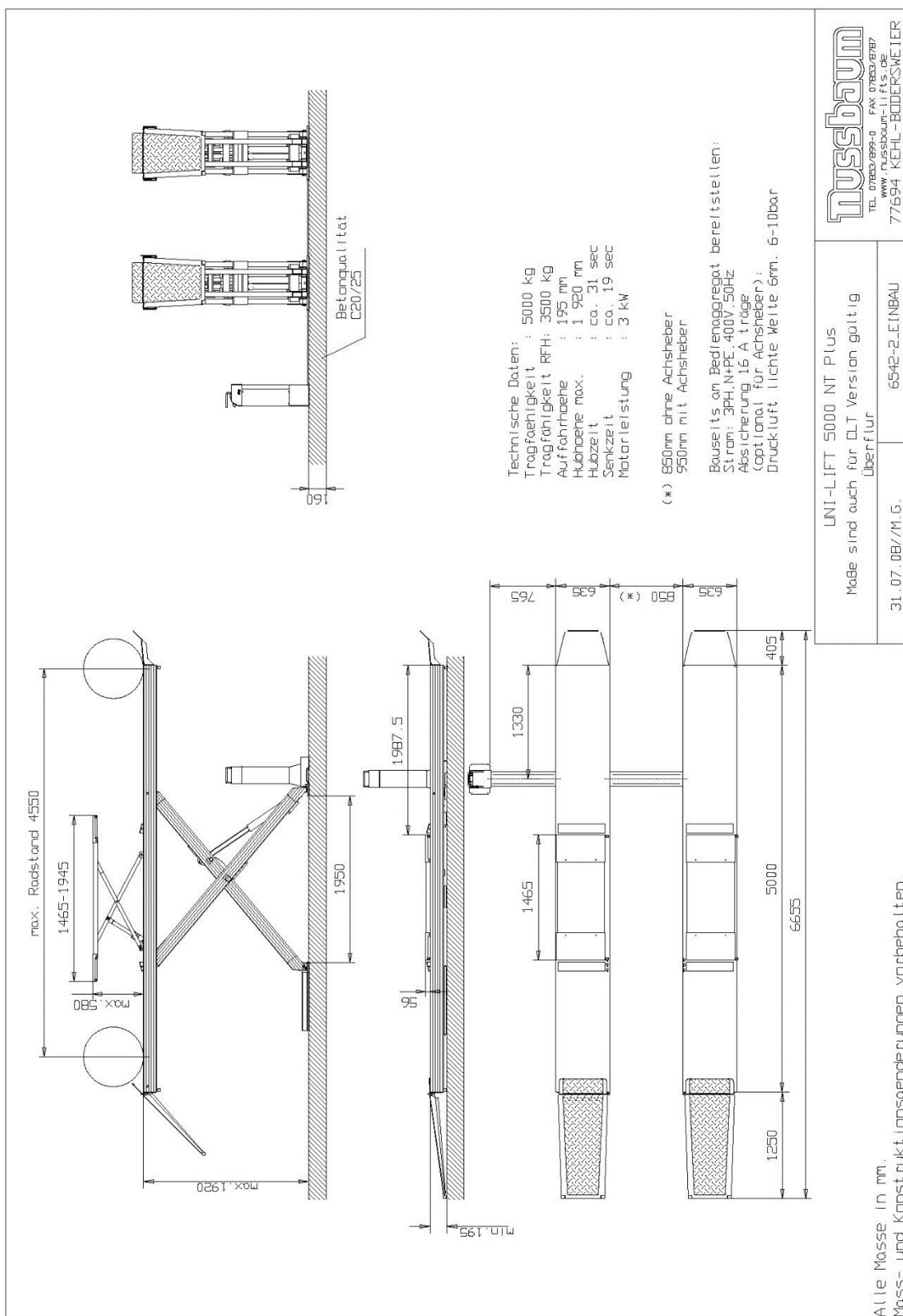
capacity without wheel free lift	5500 kg
capacity with wheel free lift	5000 kg
load distribution	max. 2:1 in or against drive-on direction
Lifting time (main lift)	approx. 30 sec. with load
Lowering time (main lift)	approx. 30 sec. with load
capacity wheel free lift	3500 kg
load distribution	max 2:1 in or against drive- in-direction
Lifting time (wheel free lift)	approx. 5 sec. with load
Lowering time (wheel free lift)	approx. 12 sec. with load
capacity detector „SPID“	max. axle load 2300 kg
Line Volthage	3 x 400 Volt , 50Hz
Power rating	3 kW
Motor speed	3000 rot./min.
Pump capacity	2,1 cm ³
Hydraulic pressure	ca. 270 bar
pressure relief valve	ca. 300 bar
Oil tank	approx. 14 Litre
Sound level L _{PA}	≤ 70 dB
Connection by customer	3~/N+PE, 400V, 50 Hz (standard version) with fuse T16A (Pay attention to the voltage of your country)

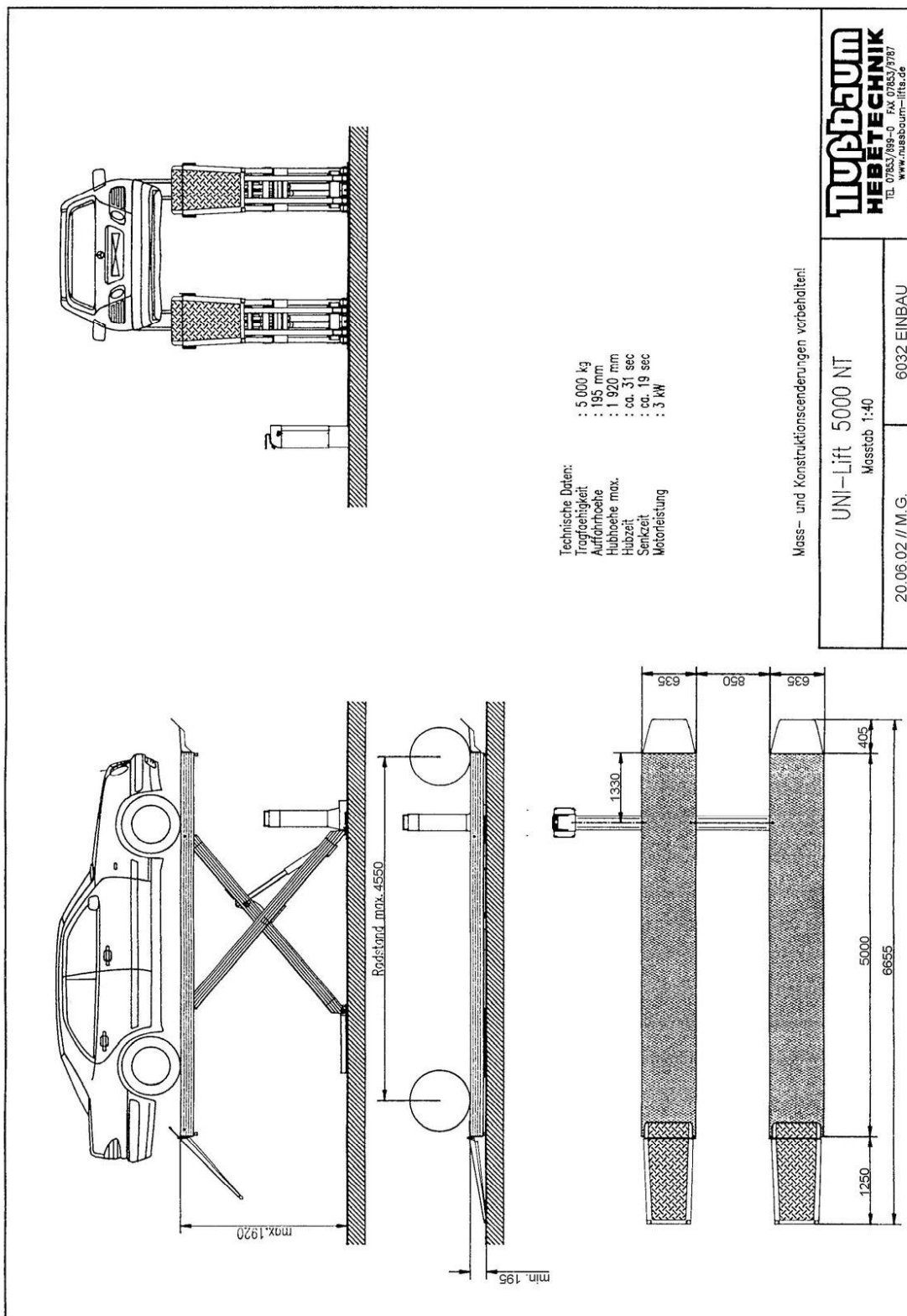
3.2 Safety devices

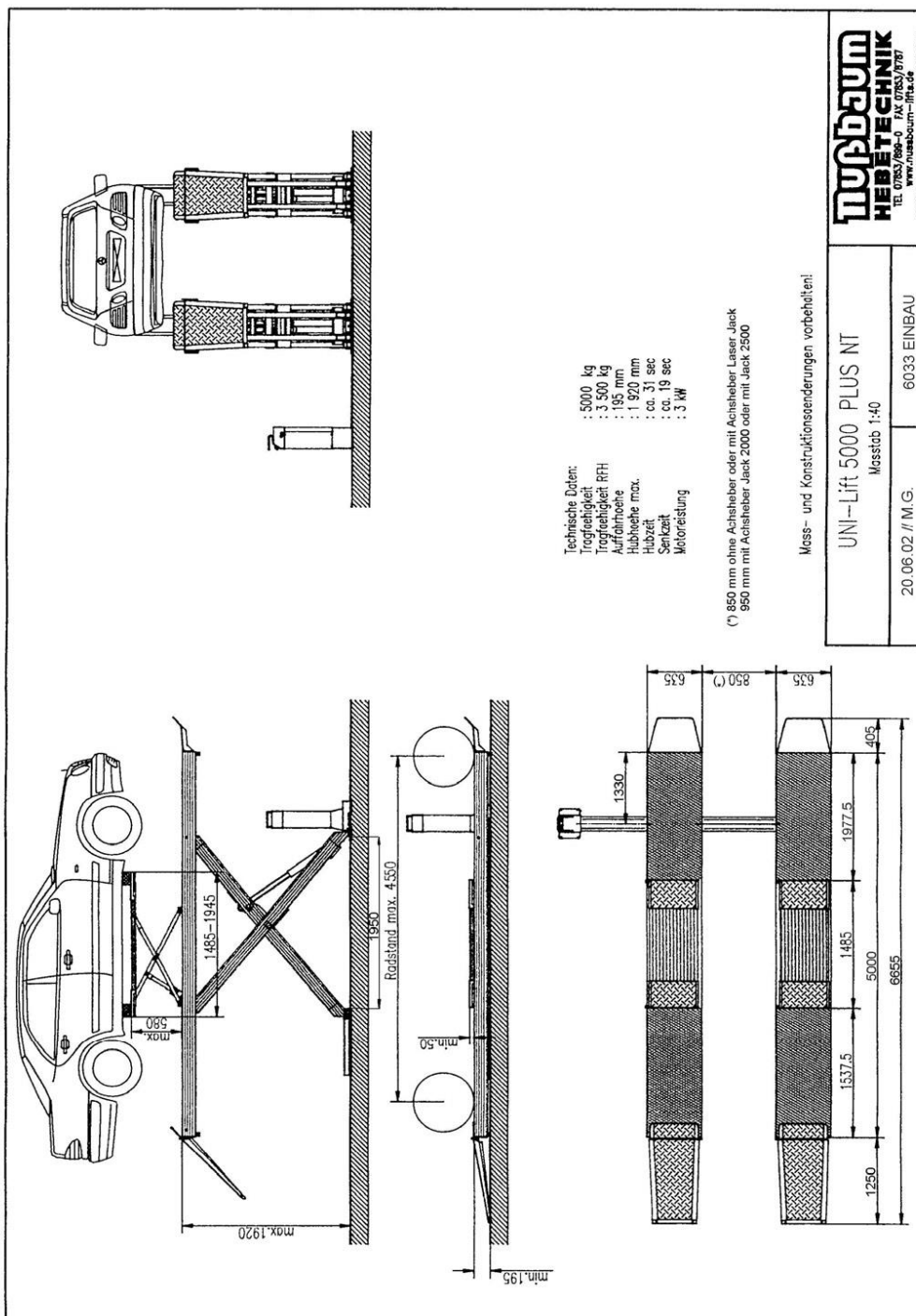
1. Pressure relief valve
Overprint-safety of the hydraulic system
2. Holding valve
safety device against unintentional lowering
3. Lockable main switch
safety device against unauthorised operation
4. Foot protection
safety device against bruises in the area of the feet
5. Two independent cylinders
(each side master- and slave-cylinder)
safety device against unintentional lowering
6. Seat valves at the cylinders of the wheel free lift
safety device against unintentional lowering of the wheel free lift
7. CE-STOP
safety device against squeeze

3.3 Datasheet

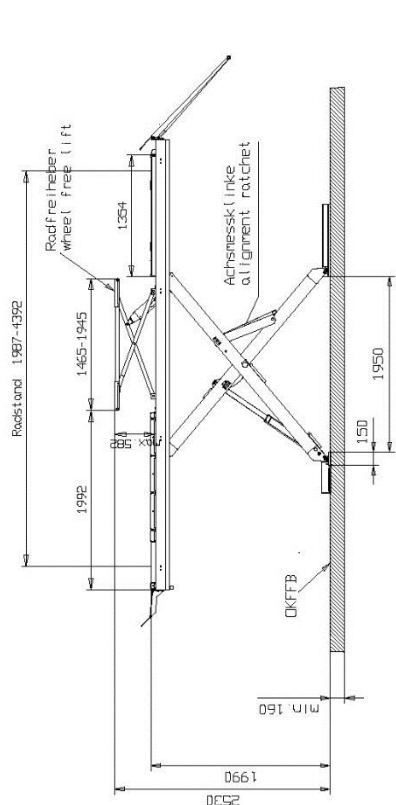




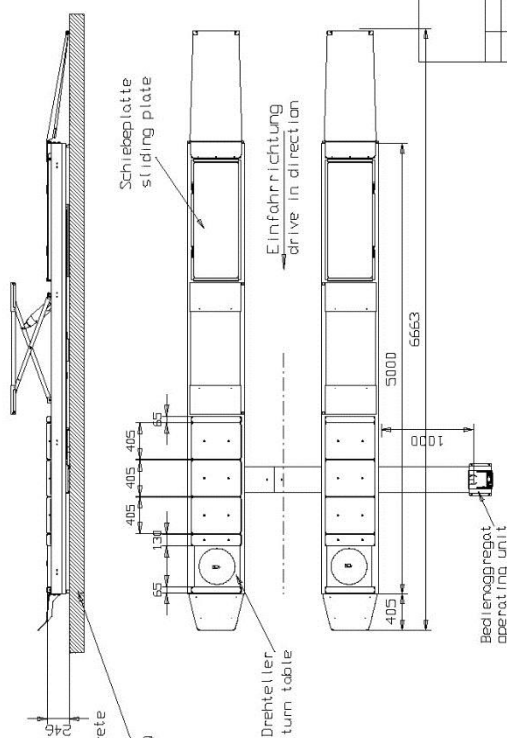




für Interne Zwecke
Schlifennummer
050UN1297000

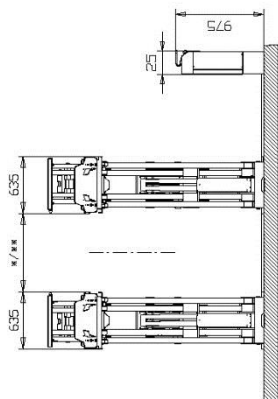


Betonqualität
quality of concrete
C20/25
normal bewehrt
normal arming



Tragfähigkeit:	5000kg
Hebebühne:	Radfreiheber: 3500kg

- (*) min. 850mm ohne Achsheber
min. 950mm mit Achsheber
- (**) PKW min. 850-950mm empfohlen/recommended
Transporter min. 950mm empfohlen/recommended



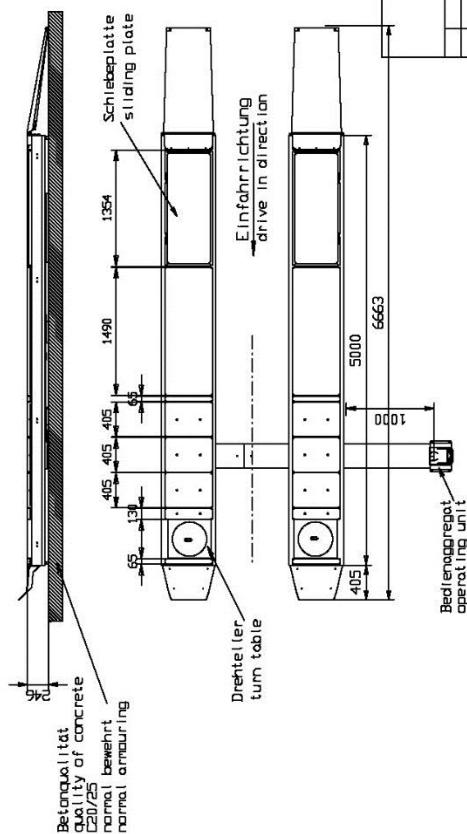
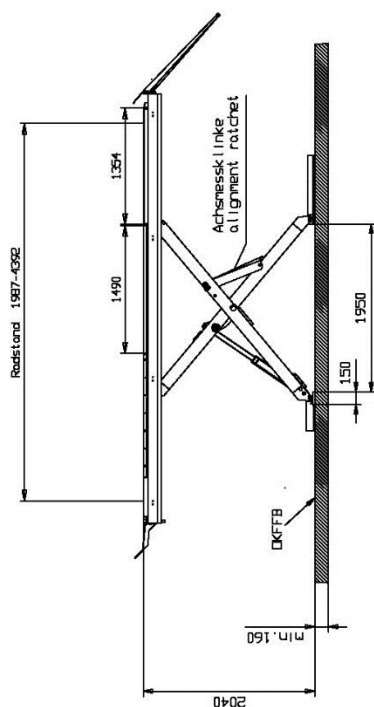
Bauseits am Bedienaggregat bereistellen:
Prepared by customer at the operating unit:
Ström. power supply: 3PH,N+PE, 400V, 50Hz
Absicherung, fuse: 16 Ampere träge
Druckluft, air pressure: Lichte Weite/diameter

Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin, jedoch den Zustand der örtlichen Gegebenheiten (z.B. Untergrund) abliegt nicht in unserer Verantwortung. Im Bedarfsfall ist ein Architekt, Statiker zu kontaktieren.

We point out the minimum requirement of the foundation in our plans. The condition of the local realities (for example: ground under the foundation) does not lie our responsibility. If necessary an architect must be consulted.

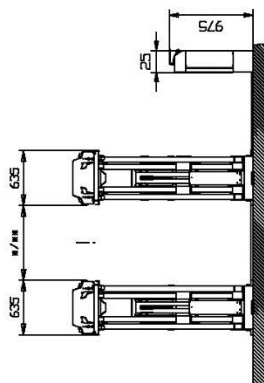
[illegible]

für Interne Zwecke
Schlüssenummer
050UN128500



Tragfähigkeit: 1 t Hebebühne: 5000 kg

- (*) min. 850mm ohne Achsheber oder mit Achsheber Jack 2000
min. 950mm mit Achsheber Jack 2000
- (**) PKW min. 850–950mm empfohlen/recommended
Transporter min. 950mm empfohlen/recommended
- (*) min. 850mm ohne Achsheber oder mit Achsheber Jack 2000
min. 950mm mit Achsheber Jack 2000



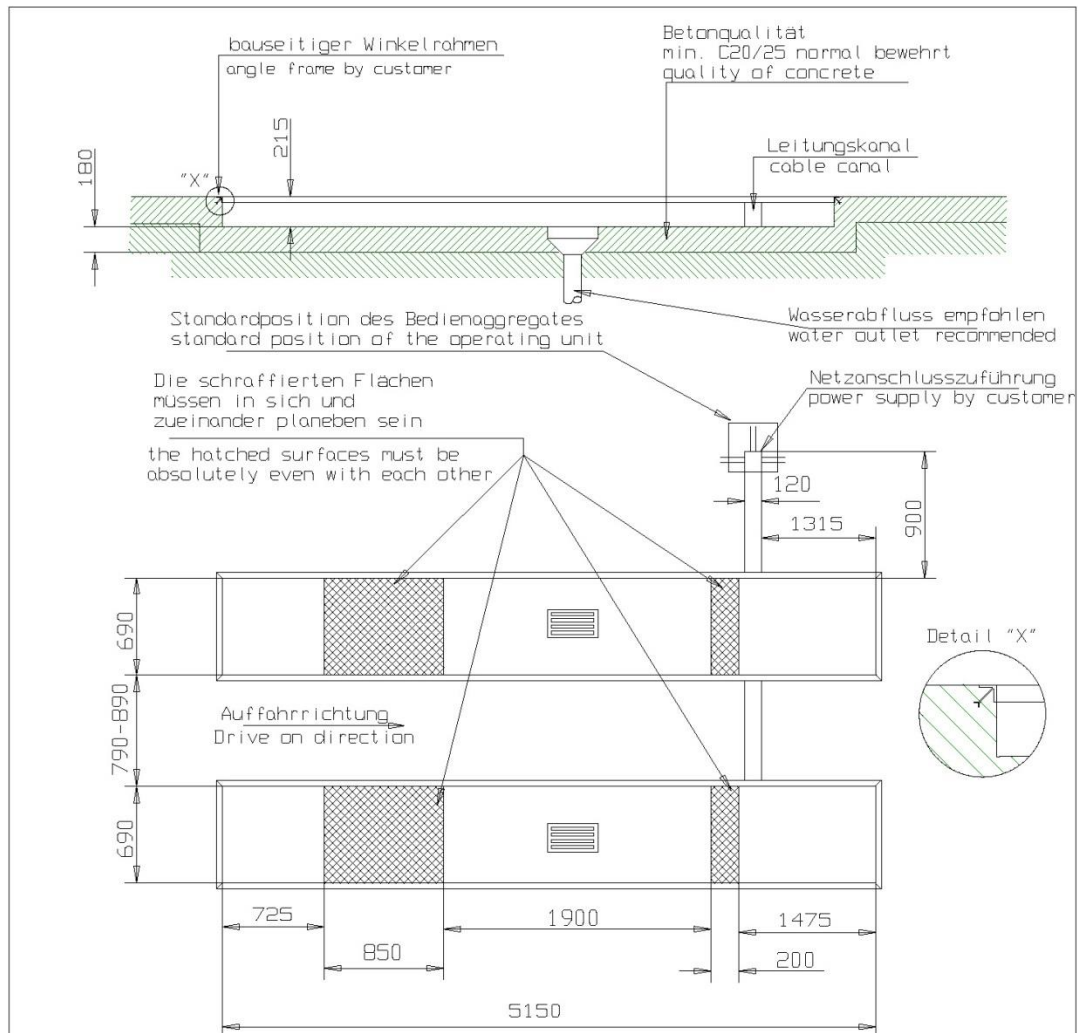
Bause It's on Bedienungsgang bereitstellen:
Prepared bay customer at the operating unit:
Strömung, power supply: 3PH, N+PE, 400V, 50Hz
Absicherung, fuse: 16 Ampere träge
Druckluft, air pressure: leichte Weite/diameters

Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin, jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund) obliegt nicht in unserer Verantwortung. Im Bedarfsfall ist ein Architekt, Statiker zu kontaktieren.

We point out the minimum requirement of the foundation in our plans. The condition at the local realities (for example: ground under the foundation) does not lie our responsibility. If necessary an architect must be consulted.

[illegible]

3.4 Foundation plan



Achtung: Gültig für die Serienausführung mit beidseitigen Auffahrklappen.
Anstelle des Leitungskanals kann auch ein Leerrohr DN100 verlegt werden.
Bauseits am Bedienaggregat bereitstellen: 3PH,N+PE,400V,50Hz
Absicherung 16A träge

Valid for inground version. Lift with rams at each end.
By customer: 3PH,N+PE,400V,50Hz (observe the power supply of your country)
fuse 16 Ampere time lag.
We recommend a wateroutlet in the pit.

Wir weisen in unseren Plänen
auf die Mindestanforderung
des Fundamentes hin.
Jedoch der Zustand der örtlichen
Gegebenheiten (z.B. Untergrund)
obliegt nicht unserer Verantwortung.
Im Bedarfsfall ist ein Architekt,
Statiker hinzuzuziehen.

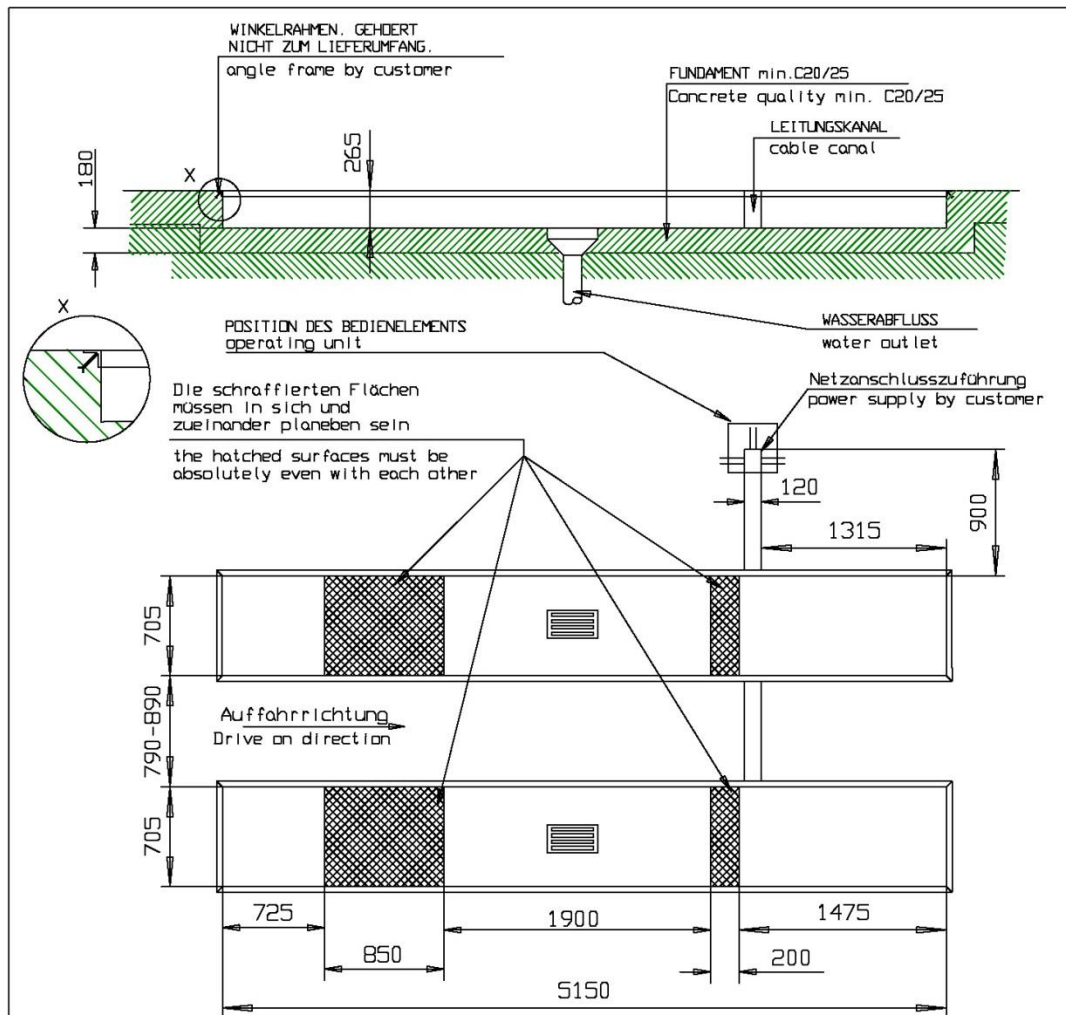
We point out the minimum requirement
of the foundation in our plans.
The condition of the local realities
(for example: ground under the foundation)
does not lie our responsibility.
If necessary an architect must be consulted.

Die Position des
Bedienaggregates
kann den örtlichen
Gegebenheiten
angepasst werden.
Ggf. sind die
Versorgungsleitungen
anzupassen.

The Position of
operating unit
can be changed.
If necessary
the feeding lines
must become extended.

Änderungen vorbehalten/ Subject to alterations!

UNI-LIFT 5000 CLT/NT Plus		 www.nussbaum-lifts.de
Schiene bodeneben Radfreiheber steht über Schielenlänge 5000mm	rail flush with floor wheel free lift over the floor rail 5000mm long	
13.03.02//M.G.	600B.EINBAU	



Achtung: Gilt nur für die Serienausführung mit Stellplatten und beidseitigen Auffahrklappen. Anstelle des Leitungskanals kann auch ein Leerrohr dm 100 verlegt werden.
Bauseits: ausreichende Stromversorgung und Absicherung bis zu Bedienaggregat
Wasserabfluss in der Vertiefung empfohlen

Valid for inground of the lift with ramps or safety device at each end of the platform.
By Customer: At the location of the power unit the following has to be prepared:
German standard power supply: 3/N+PE, 400V, 50Hz.
(observe the power supply of your state)
We recommend a water outlet in the pit.

Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin.
Jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund) obliegt nicht unserer Verantwortung.
Im Bedarfsfall ist ein Architekt, Statiker hinzuzuziehen.

We point out the minimum requirement of the foundation in our plans.
The condition of the local realities (for example: ground under the foundation) does not lie our responsibility.
If necessary an architect must be consulted.

Die Position des Bedienaggregates kann den örtlichen Gegebenheiten angepasst werden.
Ggf. sind die Versorgungsleitungen anzupassen.

The Position of operating unit can be changed.
If necessary the feeding lines must become extended.

Änderungen vorbehalten/ Subject to alterations!

UNI-LIFT 5000 NT/CLT PLUS AMS

Radfreiheber und
Achsmesset bodeneben
Schienenlänge 5000mm

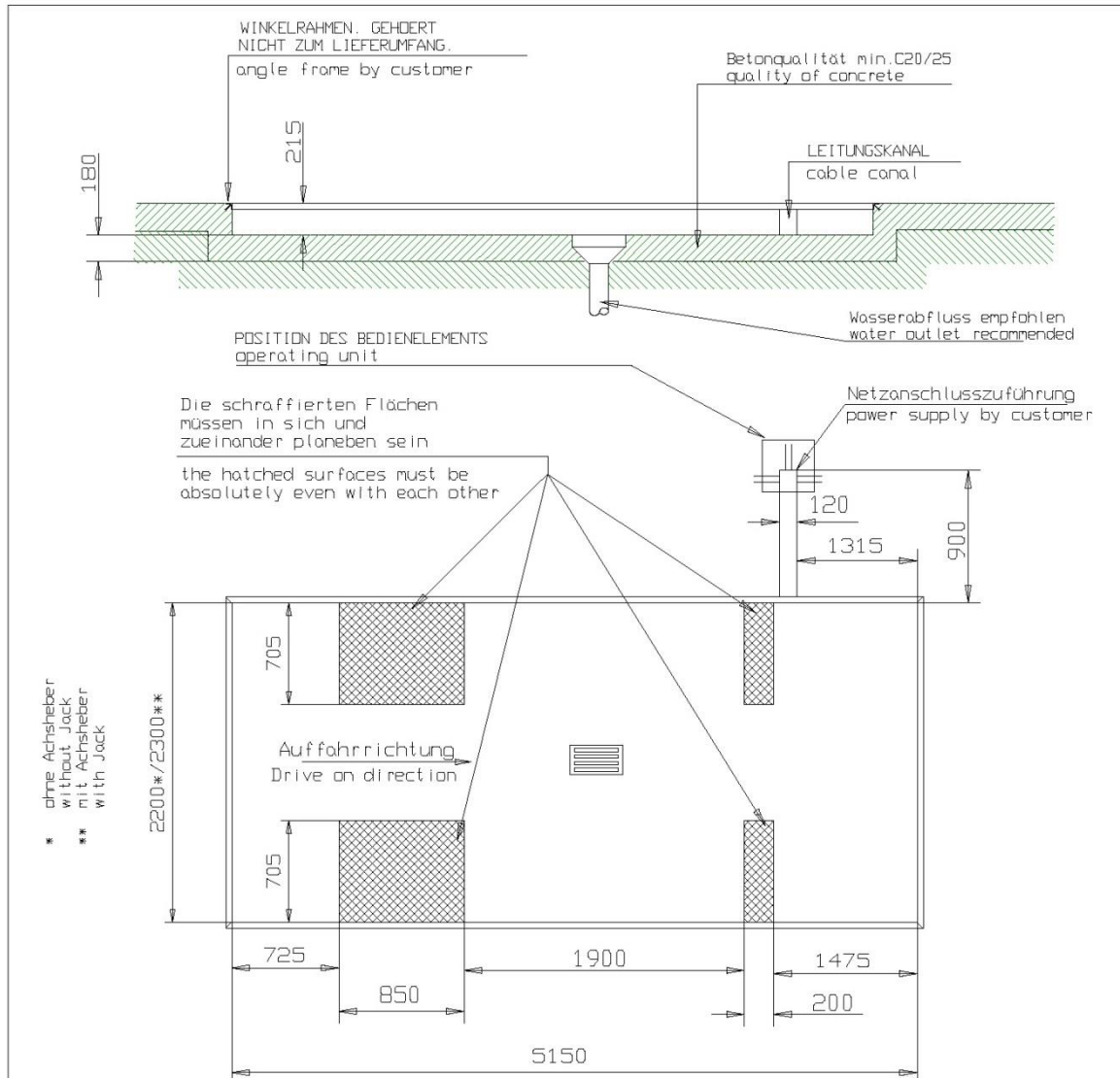
wheel free lift and
wheel alignment even with floor
Platform length 5000mm

04.02.05 // M.G.

6008-S EINBAU

Nussbaum

www.nussbaum-lifts.de



Achtung: Gilt nur für die Serienausführung mit Stellplatten und beidseitigen Auffahrklappen. Anstelle des Leitungskanals kann auch ein Leerrohr Øm 100 verlegt werden.
Bauseits: ausreichende Stromversorgung und Absicherung bis zu Bedienaggregat
Wasserabfluss in der Vertiefung empfohlen

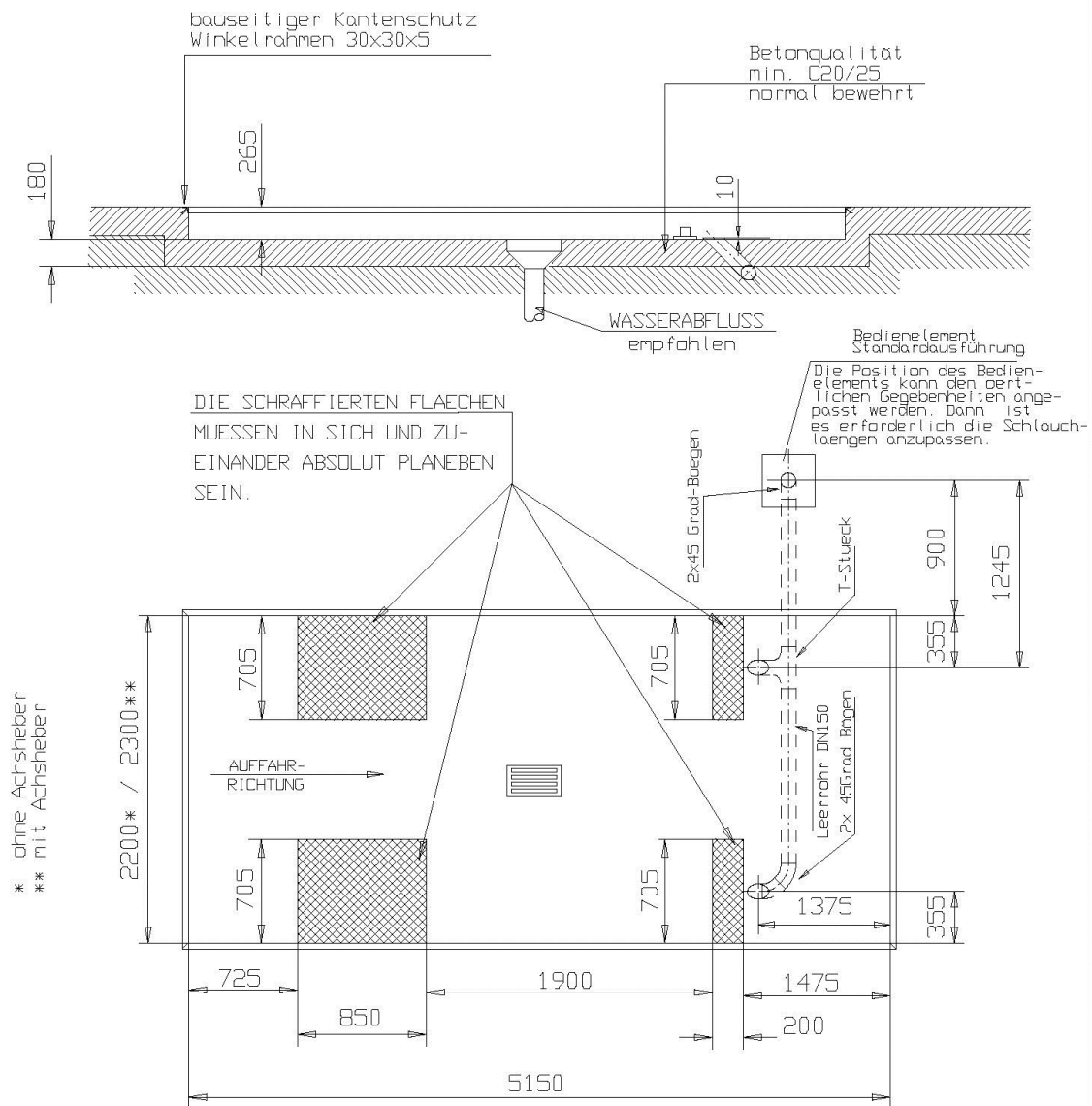
Valid for the inground of the lift with drive-on ramps at each end of the rails.
By Customer: At the location of the power unit the following has to be prepared:
German standard power supply: 3/N+PE, 400V, 50Hz.
(observe the power supply of your state)
We recommend a water outlet in the pit.

Wir weisen in unseren Plänen auf die Mindestanforderung des Fundamentes hin. Jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund) obliegt nicht unserer Verantwortung. Im Bedarfsfall ist ein Architekt, Statiker hinzuzuziehen.

We point out the minimum requirement of the foundation in our plans. The condition of the local realities (for example: ground under the foundation) does not lie our responsibility. If necessary an architect must be consulted.

Änderungen vorbehalten/ Subject to alterations!

UNI-LIFT 5000 CLT/NT Plus		
Schiene bodeneben Rodfreiheber steht über Schielenlänge 5000mm	rail flush with floor wheel free lift over the floor rail 5000mm long	 www.nussbaum-lifts.de
13.03.02 M.G.	6008-6 EINBAU	



ACHTUNG: GILT NUR FÜR DIE SERIENAUSFÜHRUNG MIT STELLPLATTEN UND
BEIDSEITIGEN AUFFAHRKLAPPEN.

BAUSEITS IST FOLGENDES ANZUBRINGEN: NETZANSCHLUSS 3 /N+PE, 400V, 50Hz, KABELLAENGE CA. 2m
WASSERABFLUSS IN DER VERTIEFUNG

Änderungen vorbehalten!

Wir weisen in unseren Fundamentplänen auf die Mindestanforderungen des Fundamentes hin, jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund) obliegt nicht in unserer Verantwortung. ggf. muss ein Architekt oder Statiker hinzugezogen werden.

Fundamentplan UNI-LIFT 5000 CLT/NT PLUS

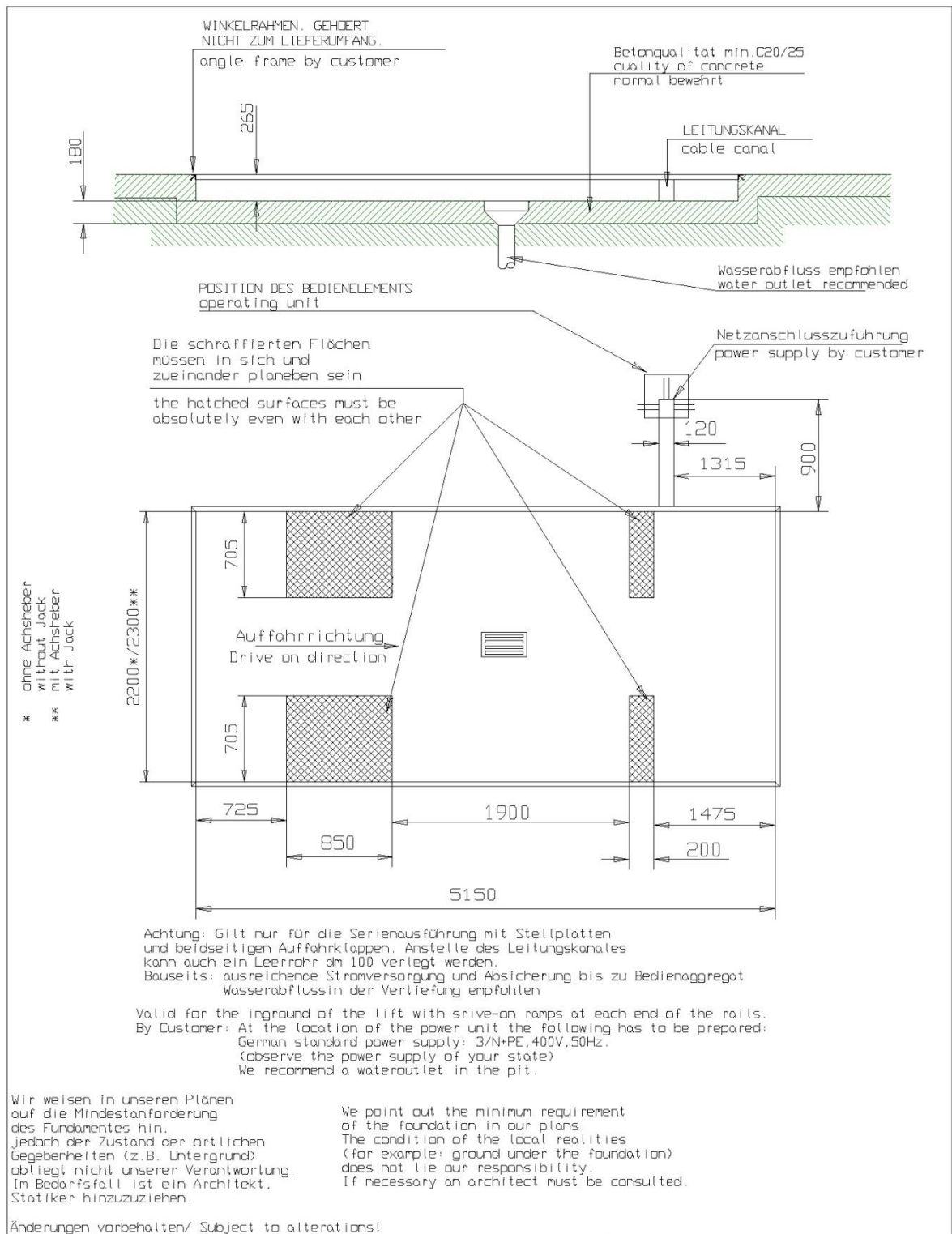
Achsmesset bodeneben, Schienenlänge 5000mm
Leerrohr unterflur, Komplettfundament für Jack

16.11.04 // M.G.

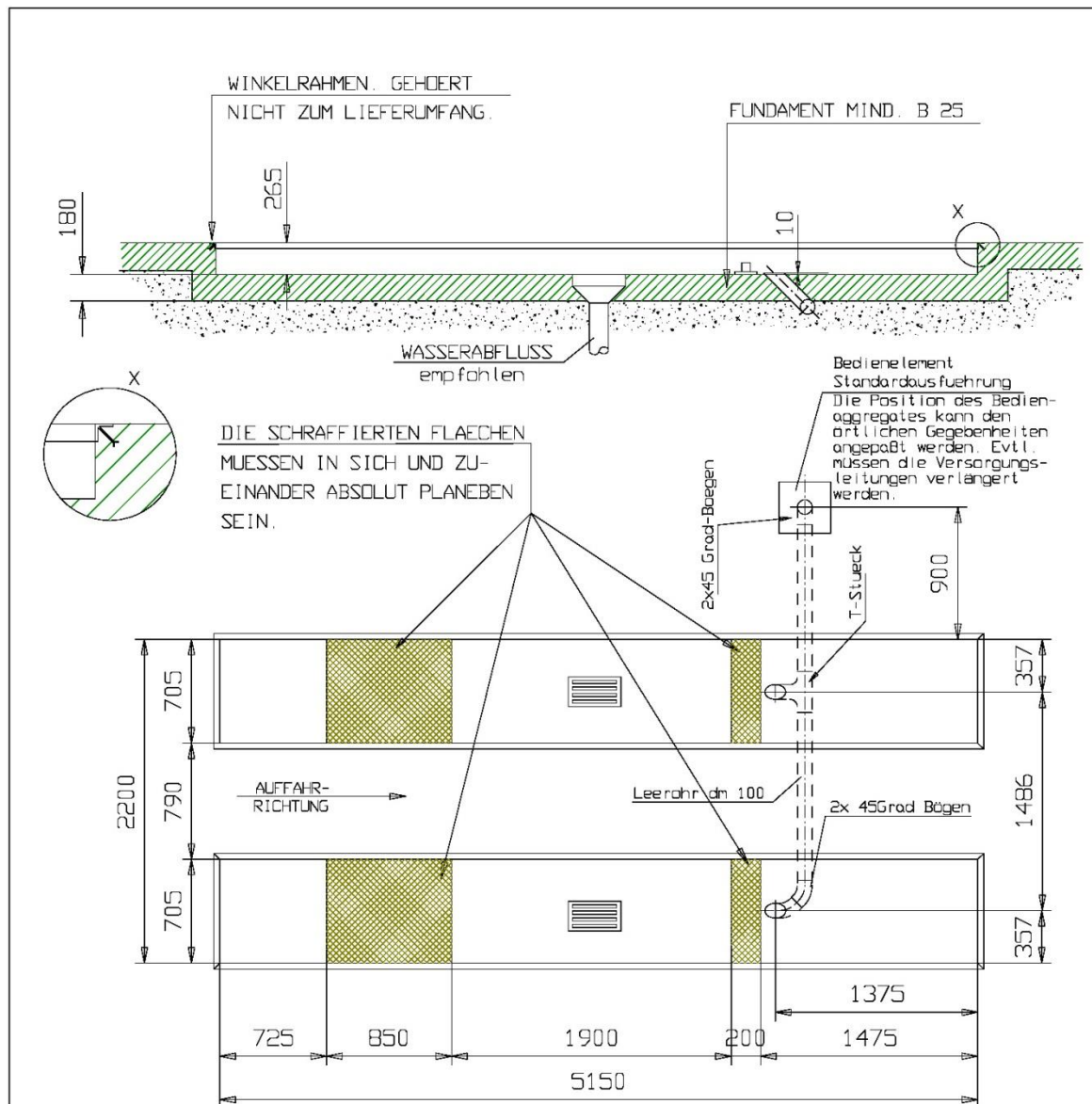
6010-2 EINBAU

nussbaum

www.nussbaum-group.de



UNI-LIFT 5000 CLT/NT Plus		 www.nussbaum-lifts.de
Rodfreiheber bodeneben Schienenlänge 5000mm	wheel free lift even with floor platform 5000mm length	
13.03.02 M.G.	6004-1_EINBAU	



ACHTUNG: GILT NUR FÜR DIE SERIENAUSFÜHRUNG MIT STELLPLATTEN UND BEIDSEITIGEN AUFFAHRKLAPPEN.

BAUSEITS IST FOLGENDES ANZUBRINGEN: NETZANSCHLUSS 3 /N+PE, 400V, 50Hz, KABELLAENGE CA. 2m
WASSERABFLUSS IN DER VERTIEFUNG

Wir weisen in unseren Fundamentplänen auf die Mindestanforderungen des Fundamentes hin, jedoch der Zustand der örtlichen Gegebenheiten (z.B. Untergrund) obliegt nicht in unserer Verantwortung. Ggf. muss ein Architekt oder Statiker hinzugezogen werden.

Änderungen vorbehalten!

Fundamentplan UNI-LIFT 5000 CLT/NT PLUS

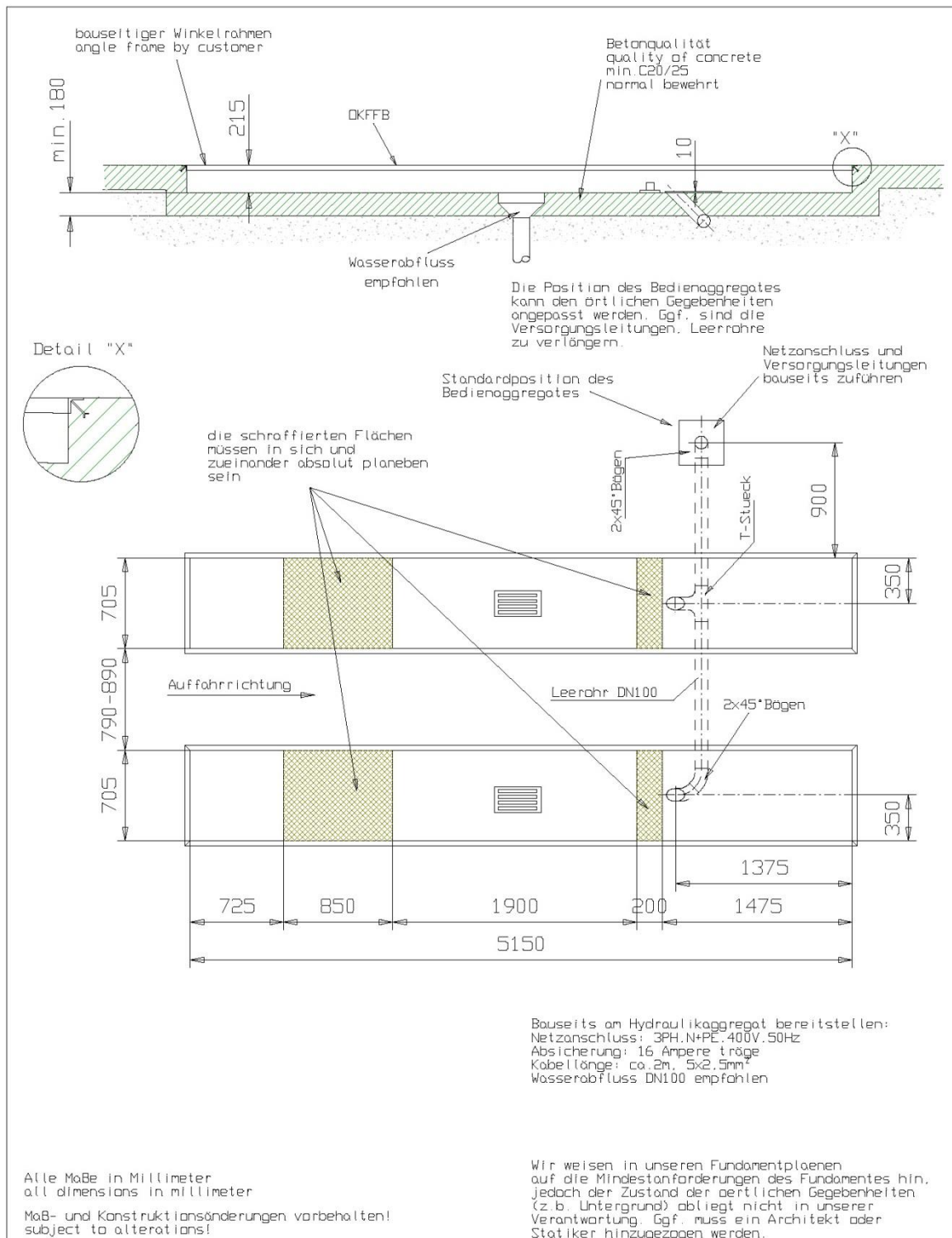
Radfreiheber und Achsmesset bodeneben
Schienenlänge 5000mm, Streifenfundament
ohne Jack, Leerrohr unterflur

16.11.04 // M.G.

6005-4 EINBAU

Nussbaum

TEL 07853/899-0 FAX 07853/8787
FERTIGUNGSTECHNIK + MASCHINENBAU
D-77694 Kehl-Badersweiler



Fundamentplan UNI-LIFT 5000 NT PLUS

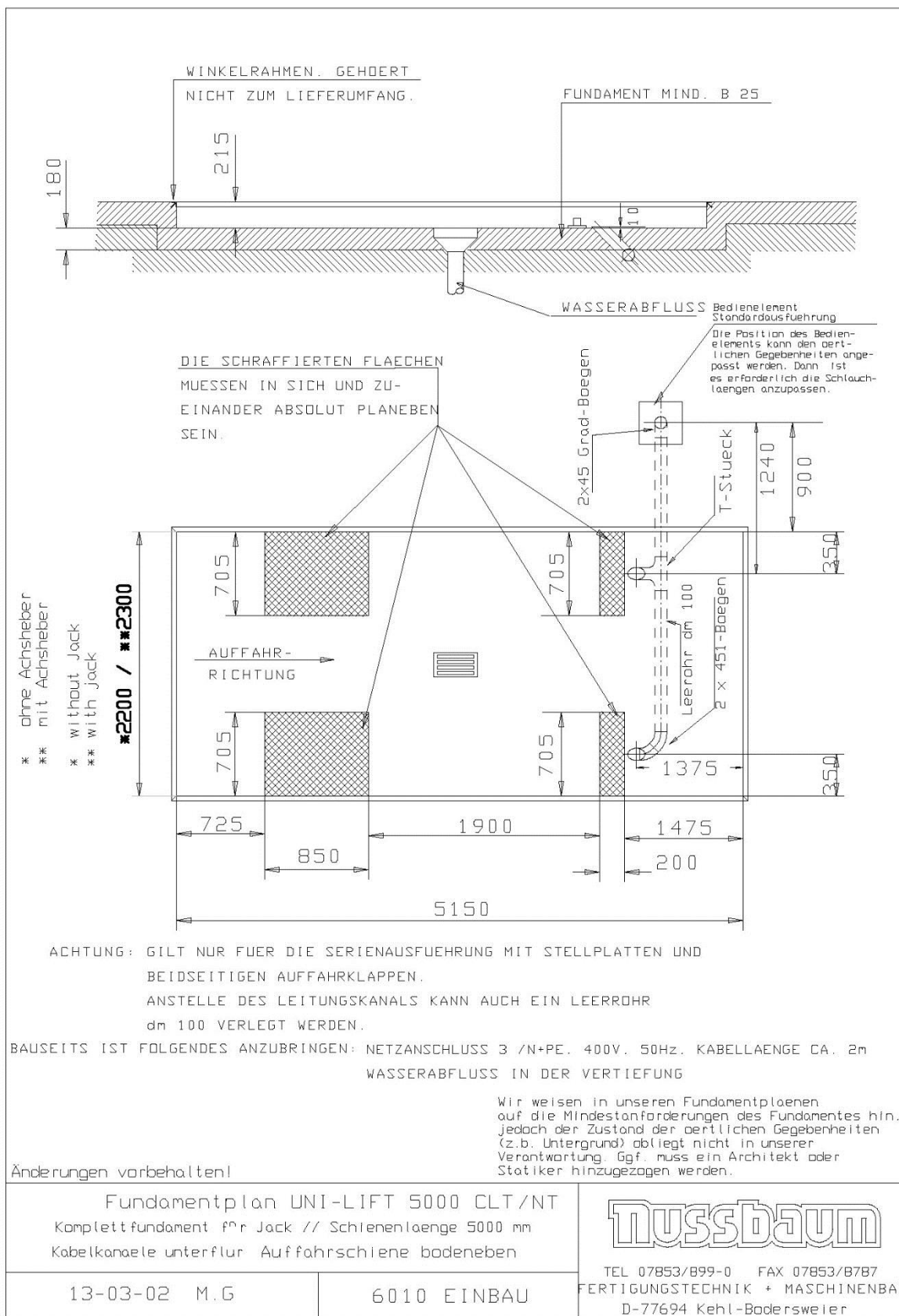
Rodfreiheber steht über, Schienenlänge 5000mm
Leerrohr unterflur

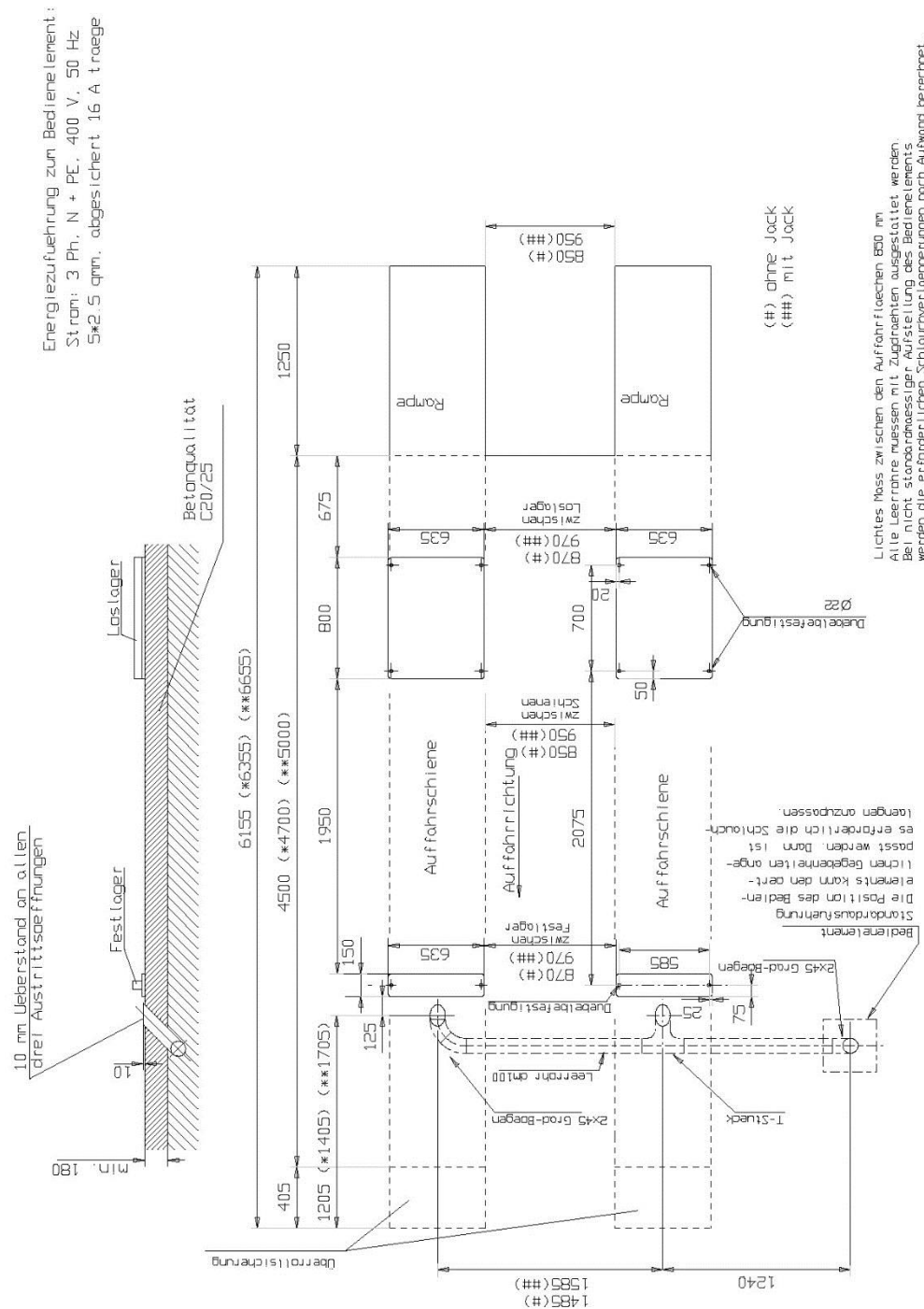
16.11.04 // M.G.

6005-5-NB

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www.nussbaum-lifts.de





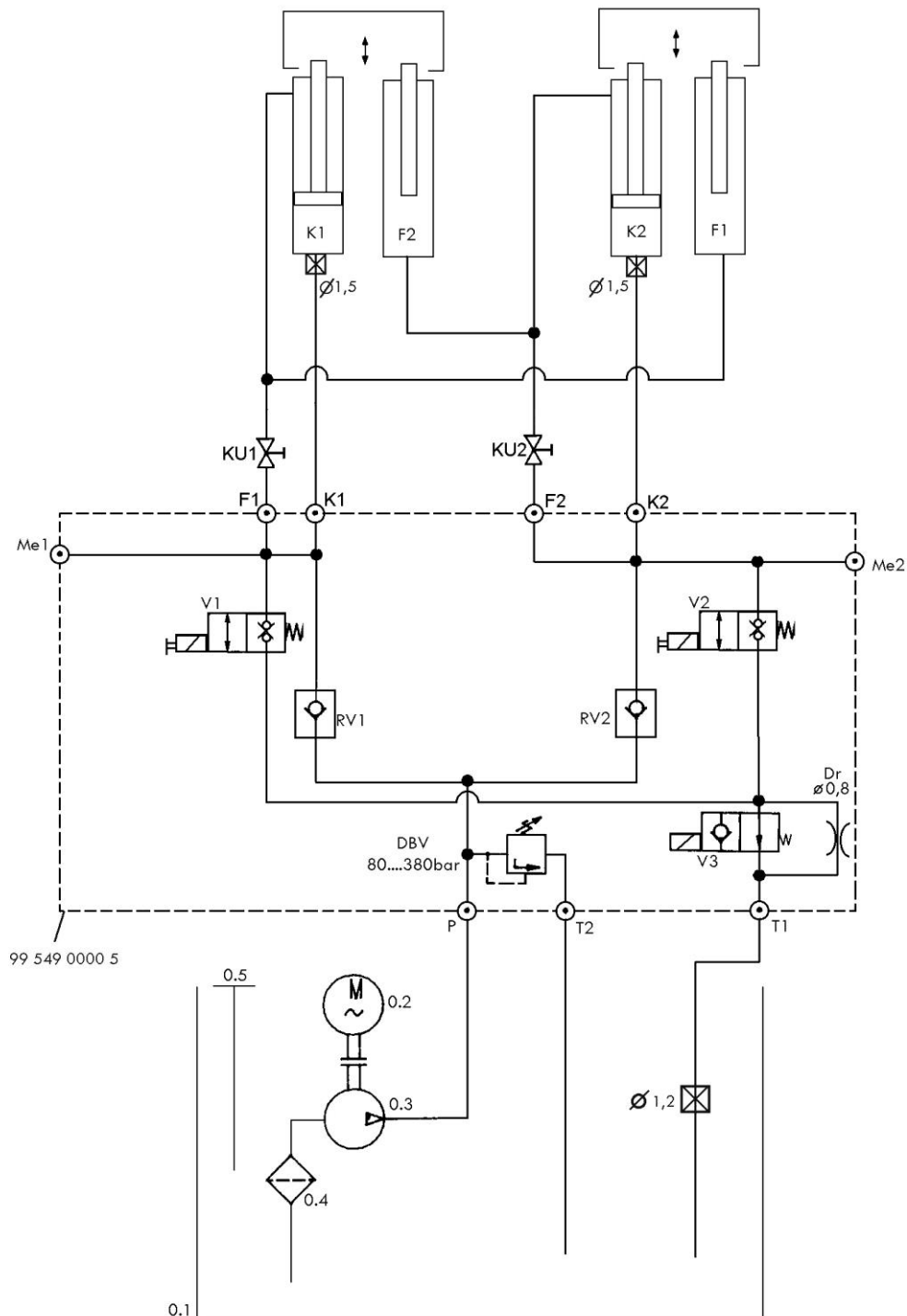
Lichtes Mass zwischen den Auffahrfloechen 850 mm

TUPFBAUM
HEBETECHNIK
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www.nussbaum-llf's.de
77694 KEHL-BODERSWEIER

Dabei befestigen	
UNI-LIFT 3500 NT/CLT // UNI-LIFT 5000 NT/CLT	
Schienenlänge 4500 (*700)(*5000)	
12.05.03 // M.G.	6112 EINBAU

Alle Masse in mm. Alle Masse beziehen sich auf das auszuführende Fundament.
Beachten Sie die Hinweise auf der Einbauwanne bzw. die separaten Einbauhinweise.

3.5 Hydraulic diagram (without wheel free lift)

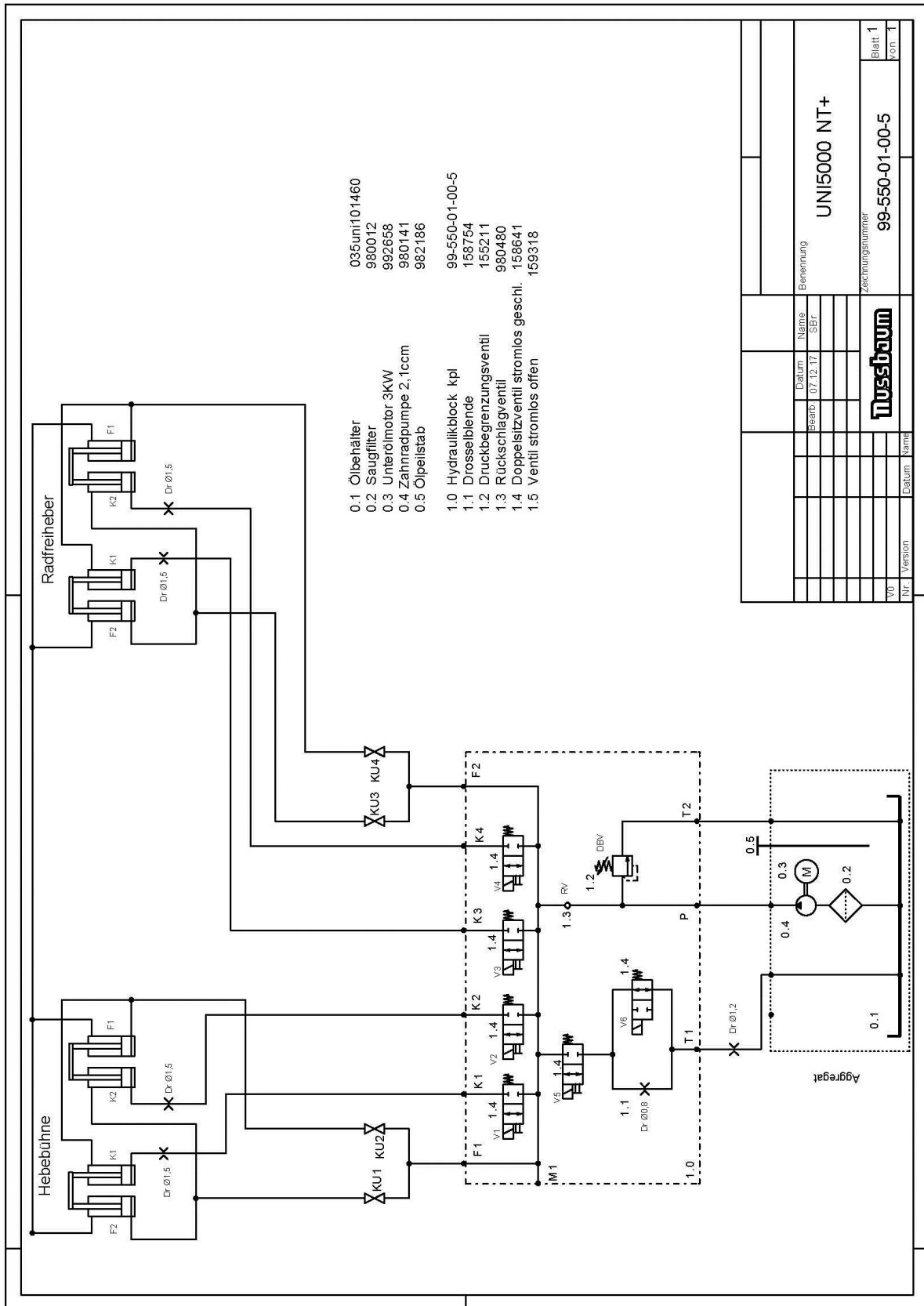


Stand 04-01
H-Plan UNI NT 04-01.jpg

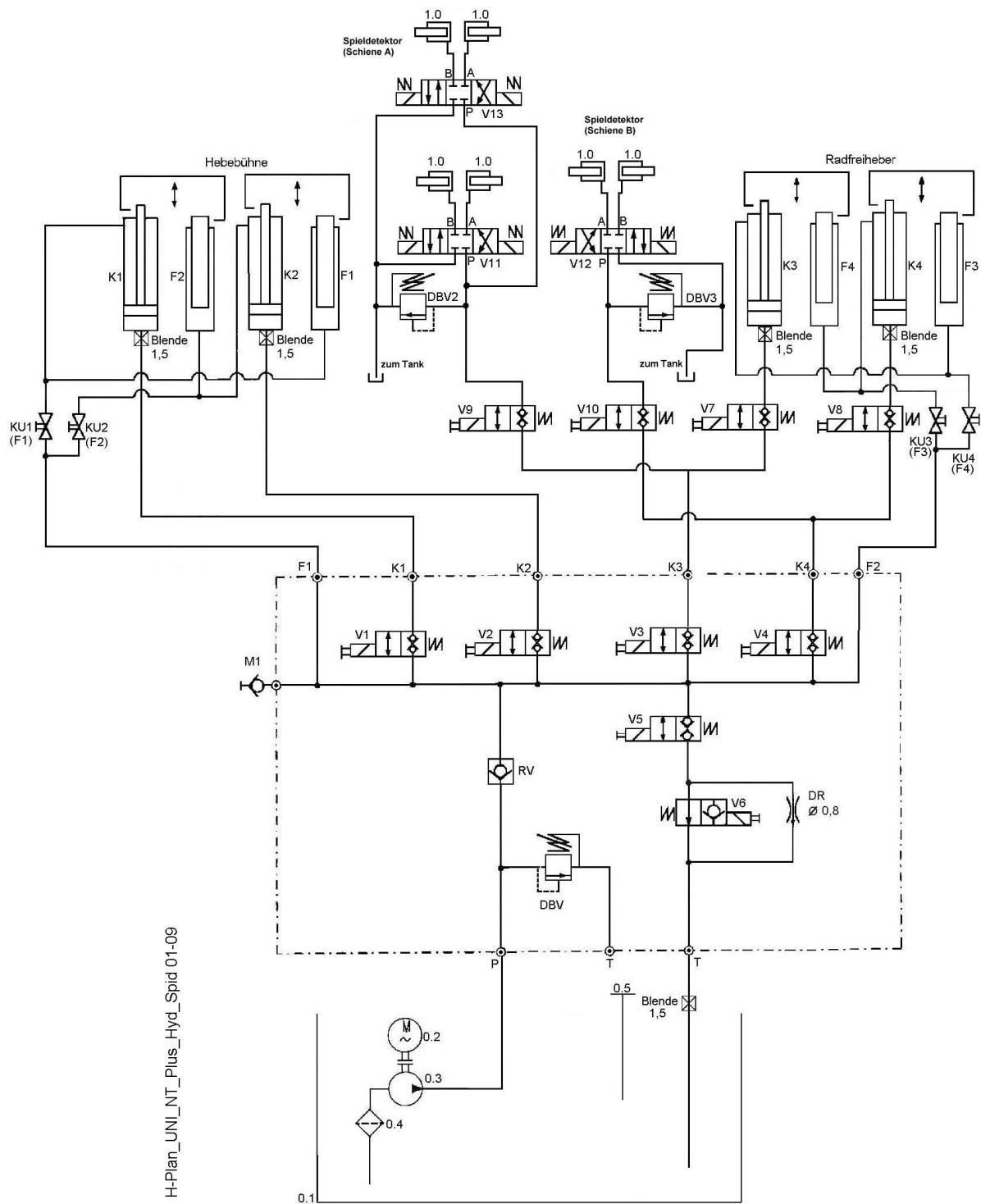
Hydraulic parts list

Nr.	description	order number
0.1	oil tank	
0.2	motor	992856
0.3	gear pump	980340
0.4	sub oil filter	980012
0.5	oil level gauge	980098
RV1	holding valve	980480
RV2	holding valve	980480
DBV	pressure control valve	155211
V1	double seat valve (manual unlocking)	600001
V2	double seat valve (manual unlocking)	600001
V3	seat valve (manual unlocking)	159318
DR	regulating valve Ø 0,8	
Me1	measuring connection	155470
Me2	measuring connection	155470
KU1	ball valve	980513
KU2	ball valve	980513
K1	master cylinder 1	pair of cylinders complete 050UNI02200
F1	slave cylinder 1	
K2	master cylinder 2	pair of cylinders complete 050UNI02200
F2	slave cylinder 2	

3.6 Hydraulic diagram (with wheel free lift)



3.7 Hydraulic diagram (with wheel free lift and play detector)



H-Plan_UNI_NT_Plus_Hyd_Spid 01-09

Hydraulic parts list

Nr.	description	order number
0.6	oil tank	
0.7	sub oil motor	992856
0.8	gear pump	980340
0.9	oil filter	980012
0.10	oil level gauge	980098
RV	holding valve	980480
DBV	pressure control valve	155211
V1	double seat valve (manual unlocking)	600001
V2	double seat valve (manual unlocking)	600001
V3	double seat valve (manual unlocking)	600001
V4	double seat valve (manual unlocking)	600001
V5	double seat valve (manual unlocking)	600001
V6	double seat valve (manual unlocking)	159318
DR	regulating valve Ø 0,8	
M1	measuring connection	155470
KU1	ball valve	980513
KU2	ball valve	980513
KU3	ball valve	980513
KU4	ball valve	980513
K1	master cylinder 1	pair of cylinders complete 050UNI02200
F1	slave cylinder 1	
K2	master cylinder 2	pair of cylinders complete 050UNI02200
F2	slave cylinder 2	
K3	master cylinder wheel free lift	
K4	master cylinder wheel free lift	
F3	slave cylinder wheel free lift	
F4	slave cylinder wheel free lift	

3.8 Electrical diagram drawing (without wheel free lift)

0	1	2	3	4	5	6	7	8	9
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SCHALTPLAN

Nussbaum Hebeteknik
GmbH & Co. KG
Korker Straße 24
D-77694 Kehl Bodersweier
Tel.: +49(0)7853/899-0

OBJEKT : Unilift NT
ANLAGE :
KUNDE :
SCHALTPLANNR: Unilift NT 11/12/001

1.) Schaltpläne und Schaltunterlagen

Die Schaltpläne werden von uns nach bestem Geissen angefertigt. Für beigestellte Schaltpläne und Schaltunterlagen wird von uns keine Gewähr für die Richtigkeit dieser Unterlagen übernommen. Dies trifft insbesondere für Schaltungen zu, die von uns nach fremden Plänen angefertigt werden. Diese werden von uns nur nach den vom Hürtaggeber überlassenen Unterlagen des Herstellers ausgeführt.

2.) Funktionsprüfung der Schaltanlagen

Schaltanlagen sind keine Serienanfertigung. Bei der Prüfung des Schaltkreises im Werk können Feldgeräte wie Fühler, Thermostate und Motoren nicht einbezogen werden. Auch bei sorgfältiger Prüfung lassen sich deshalb Funktions- und Schaltungsfehler nicht immer vermeiden. Die Verantwortung für die Richtigkeit der Schaltpläne liegt bei der Inbetriebnahme. Bei Inbetriebnahme ohne Hinzuziehung unseres Service wird deshalb keine Mängel-Haftung übernommen. Nachbesserungen an Schaltanlagen werden nur auf Veranlassung des Kunden durchgeführt. Kosten für Nachbesserungen durch Dritte können wir nicht anerkennen.

3.) Sicherheitsprüfung und Schutzmaßnahmen

Der Schaltschrank wurde unter Beachtung der anerkannten Regeln der Technik nach VDE0100/0113 sowie der Unfallverhütungsvorschrift VBG6 (elektrische Anlagen und Betriebsmittel) gefertigt bzw. errichtet und geprüft.

1. Spannungsprüfung und/oder Isolationsprüfung des Schaltkreises nach VDE0100/5:73.
2. Prüfung der Wirksamkeit der angewandten Schutzmaßnahmen bei indirektem Berühren
3. Funktionsprüfung und Stückprüfung nach VDE560/11:87.

An Schutzmaßnahmen wurden getroffen: VDE0100/5:73, Par. 4.
2. Schutz bei indirektem Berühren nach VDE0100/5:73, Par. 5.

Erdung nach örtlichen Vorschriften

Vor Inbetriebnahme prüfen, ob Motorenstrom mit Motorschutzrelais übereinstimmt. Alle Klemmstellen auf Ordnungsgemäße Verbindung und alle Kontaktschrauben auf festen Sitz prüfen.

Vor Inbetriebnahme Verdrahtung und Steuerung auf richtige Funktion überprüfen. Keine Inbetriebnahme von unbefugter Seite vornehmen lassen. Änderungen vorbehalten

Diese Schaltpläne sind unser geistiges Eigentum. Sie dürfen ohne unsere Genehmigung weder vervielfältigt noch Dritten weitergegeben werden!

1.) Datum: , Bearb.: B0E, Gepr.: 20.03.17

2.) Datum: , Bearb.: , Gepr.:

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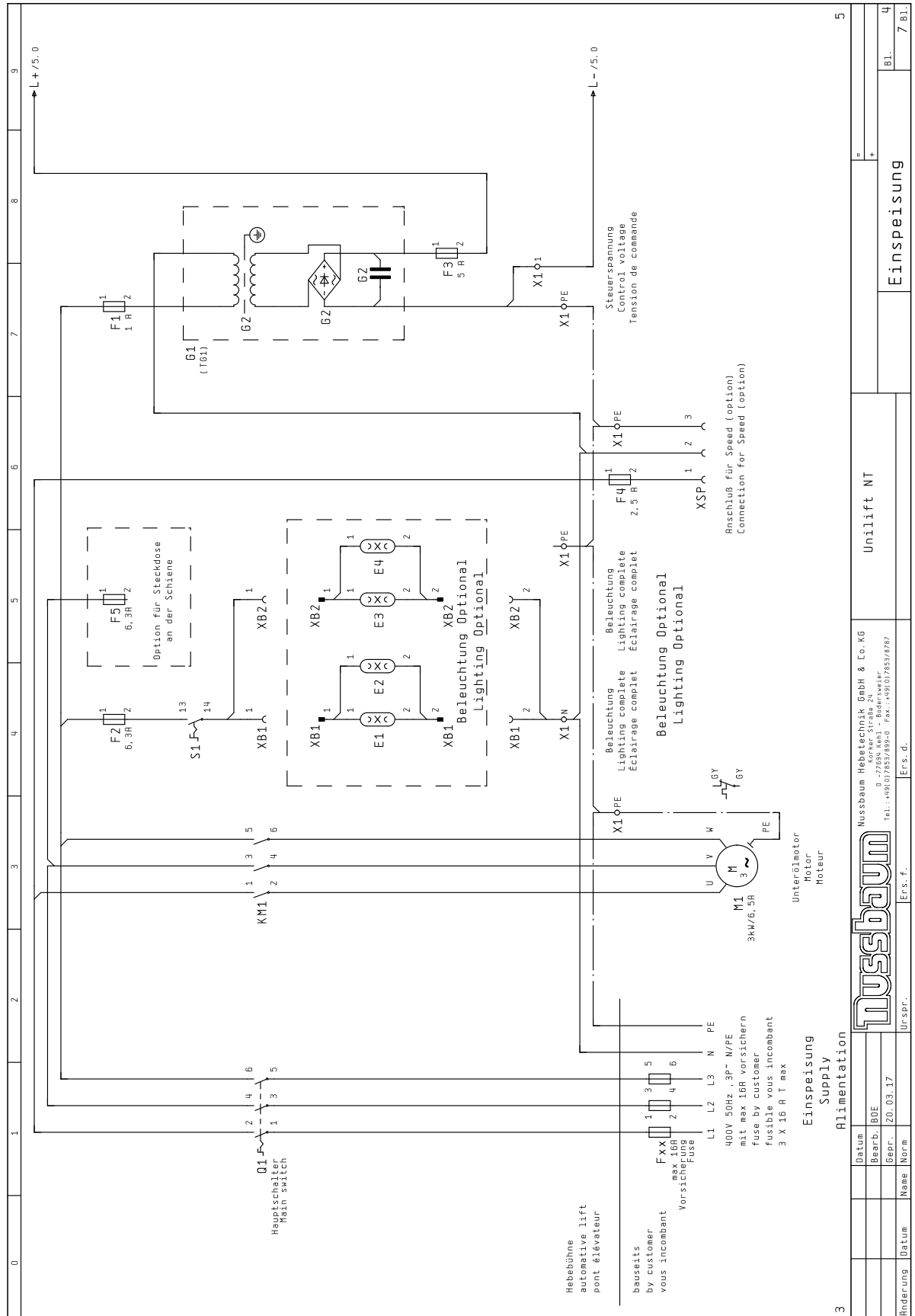
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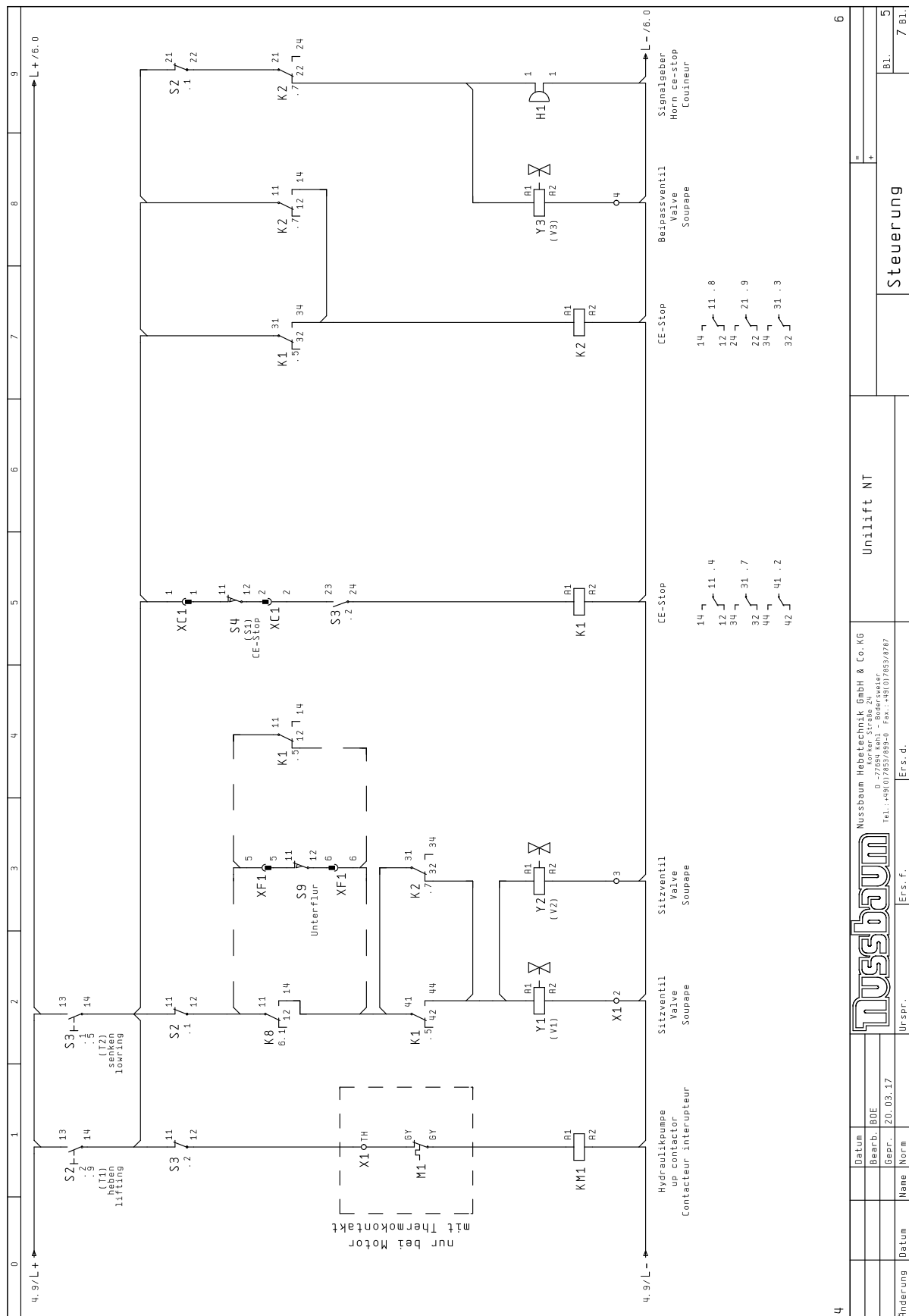
Unilift NT

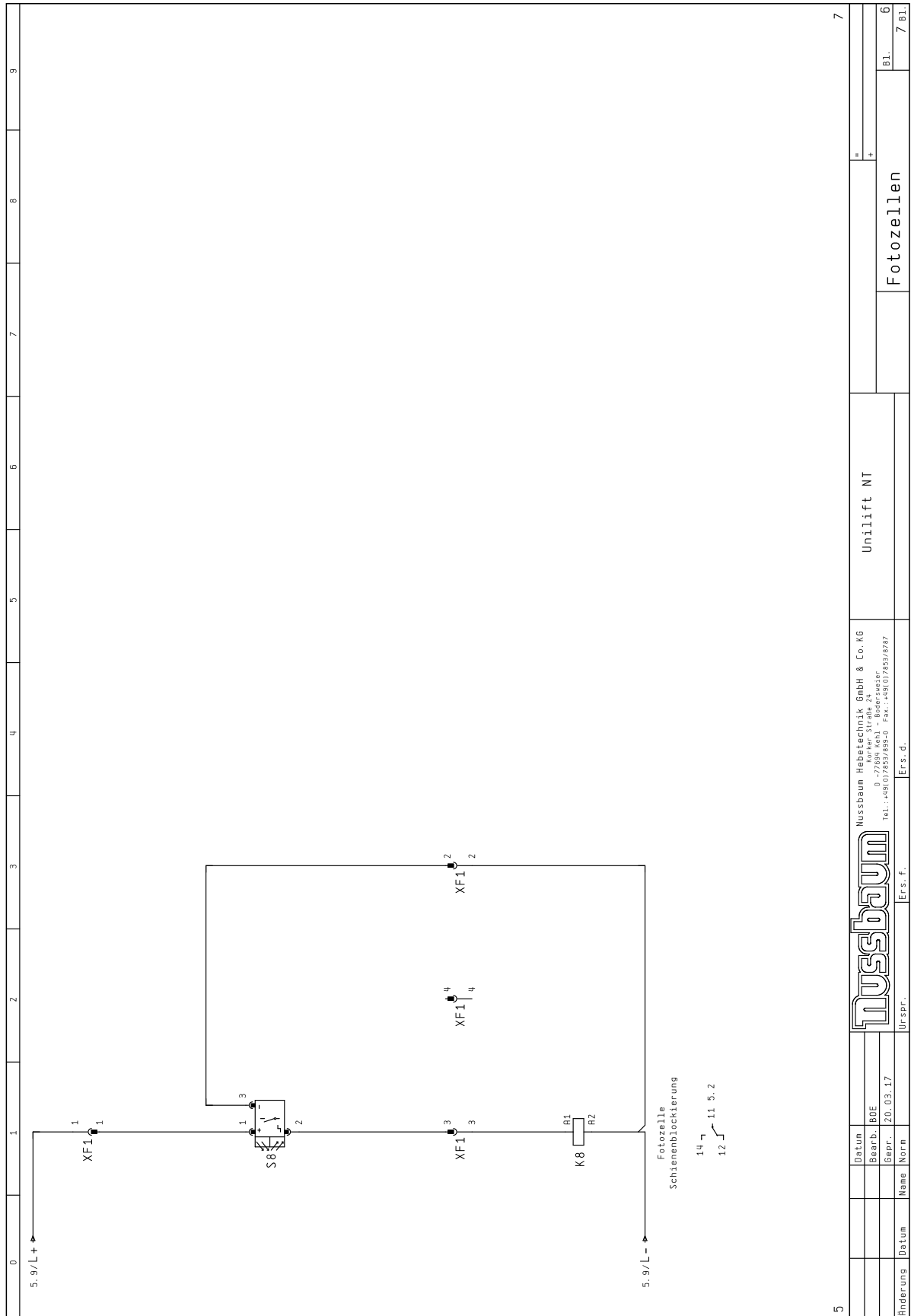
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Nussbaum

Nussbaum Hebe- und Transporttechnik GmbH & Co. KG
D-72634 Heilbronn - Bademühlweg 24
Tel.: +49 (0) 7141 7953-0 Fax: +49 (0) 7141 7953-6787

Unilift NT

Fotозellen

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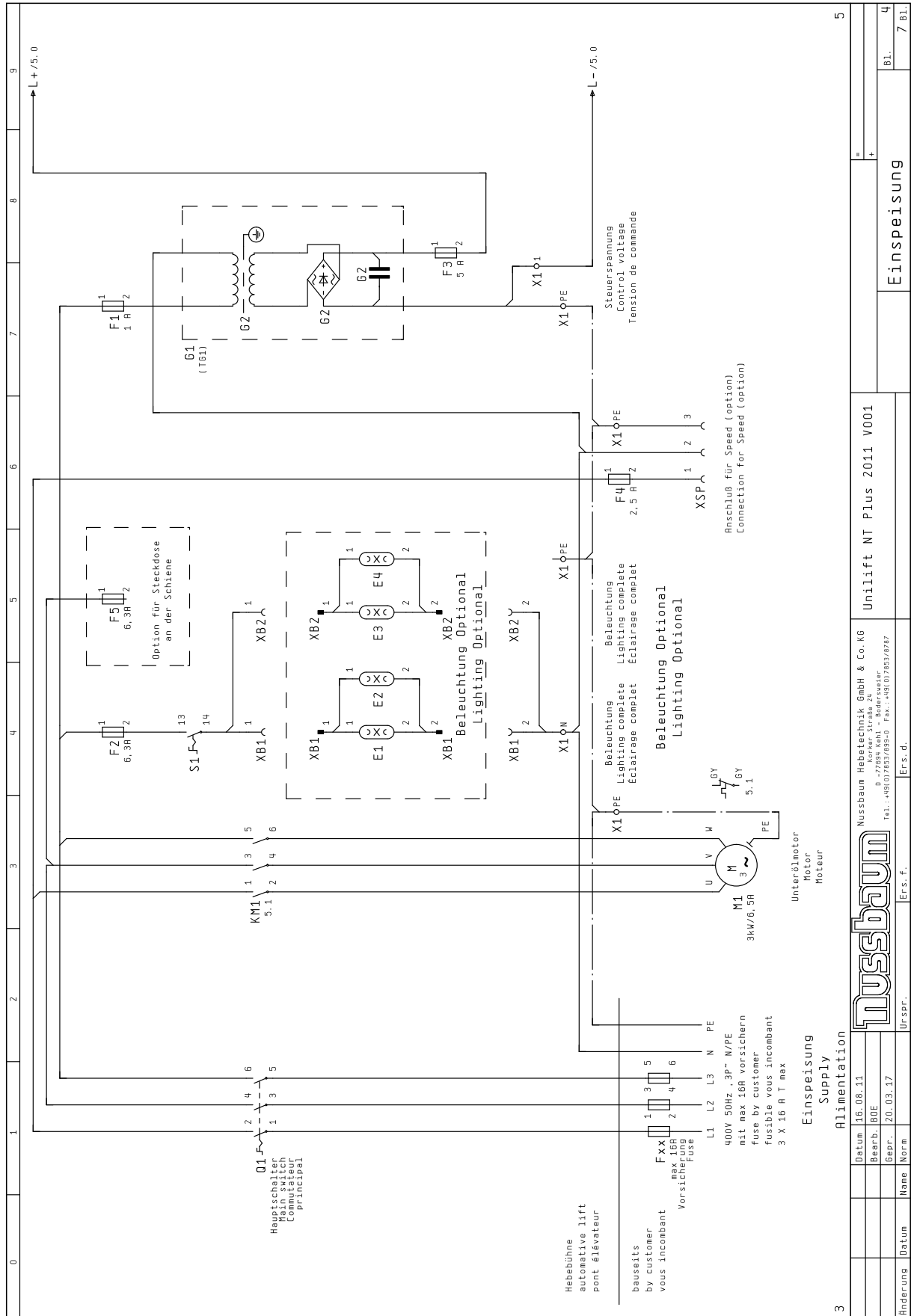
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WUP00030 24.02.1994									
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E3	1	2 * Stableuchte, 1x Klemmkasten	BELEUCHUNG UNILIFT	Nussbaum	030ULN03302				
F1	1	Sicherungsklemme Trenner 5x20 mm	M4/8 SF	Entelec	990661				
F2	1	Feinsicherung	FEINSICHERUNG	GIF	990662				
F3	1	Sicherungsklemme Trenner 5x20 mm	M4/8 SF	Entelec	990661				
F4	1	Feinsicherung	FEINSICHERUNG	GIF	990662				
G1	1	Sicherungsklemme Trenner 5x20 mm	M4/8 SF	Entelec	990661				
G2	1	Feinsicherung	FEINSICHERUNG	GIF	990662				
G3	1	Sicherungsklemme Trenner 5x20 mm	M4/8 SF	Entelec	990661				
G4	1	Feinsicherung	FEINSICHERUNG	GIF	990662				
H1	1	Trafo + Gleichrichter + Kondensator	TRAFO 1-PH	Schmelzer	990124				
H2	1	Diagisond akustischer Signalgeber	B/P 228	Delttron Components	990331				
K1	1	INDUSTRIERELAIS 24V 4 Wechsler	2741	BTR	990267				
K2	1	INDUSTRIERELAIS 24V 4 Wechsler	110178	BTR	990381				
K3	1	INDUSTRIERELAIS 24V 4 Wechsler	2741	BTR	990267				
K4	1	INDUSTRIERELAIS 24V 4 Wechsler	110178	BTR	990381				
K5	1	Leistungsschutz 5,7 kW 24 V DC	118612.01 D 24V DC	Lovato electric	990842				
K6	1	Unterölmotor 3kW/6,5A 50Hz 400V 2750min-1	D25/T	Leroy Somer	990445				
K7	1	Hauptsch. Not-Aus 3p 16A 5,9kW	A 105/3. 0200-EV/S0	Merz GmbH	990403				
K8	1	Mahltaste 2St.Drehkn. I.0 rast. (M22)	M22-WR	Moeller	990446				
K9	1	Kontakblock 1S (M22)	M22-AK10	Moeller	990142				
K10	1	Drucktaste schwarz 2S 20 Marquardt	1663 0101	Marquardt GmbH	990334				
K11	1	PVC-KAPPE für Schalter Marquardt	203-201-011	Marquardt GmbH	990321				
K12	1	Drucktaste schwarz 2S 20 Marquardt	1663 0101	Marquardt GmbH	990334				
K13	1	PVC-KAPPE für Schalter Marquardt	203-201-011	Marquardt GmbH	990321				
K14	1	TI-U1 RD 90	GRENZTASTER 10 1S KLEIN STANGE	Bernstein	990003				
K15	1	DR05PS-DRTP-04 0-30E: 0-4m	SPIEGELREFLEXLICHTTASTER	Bernstein	990901				
K16	1	TI-U1 RD 90	GRENZTASTER 10 1S KLEIN STANGE	Bernstein	990003				

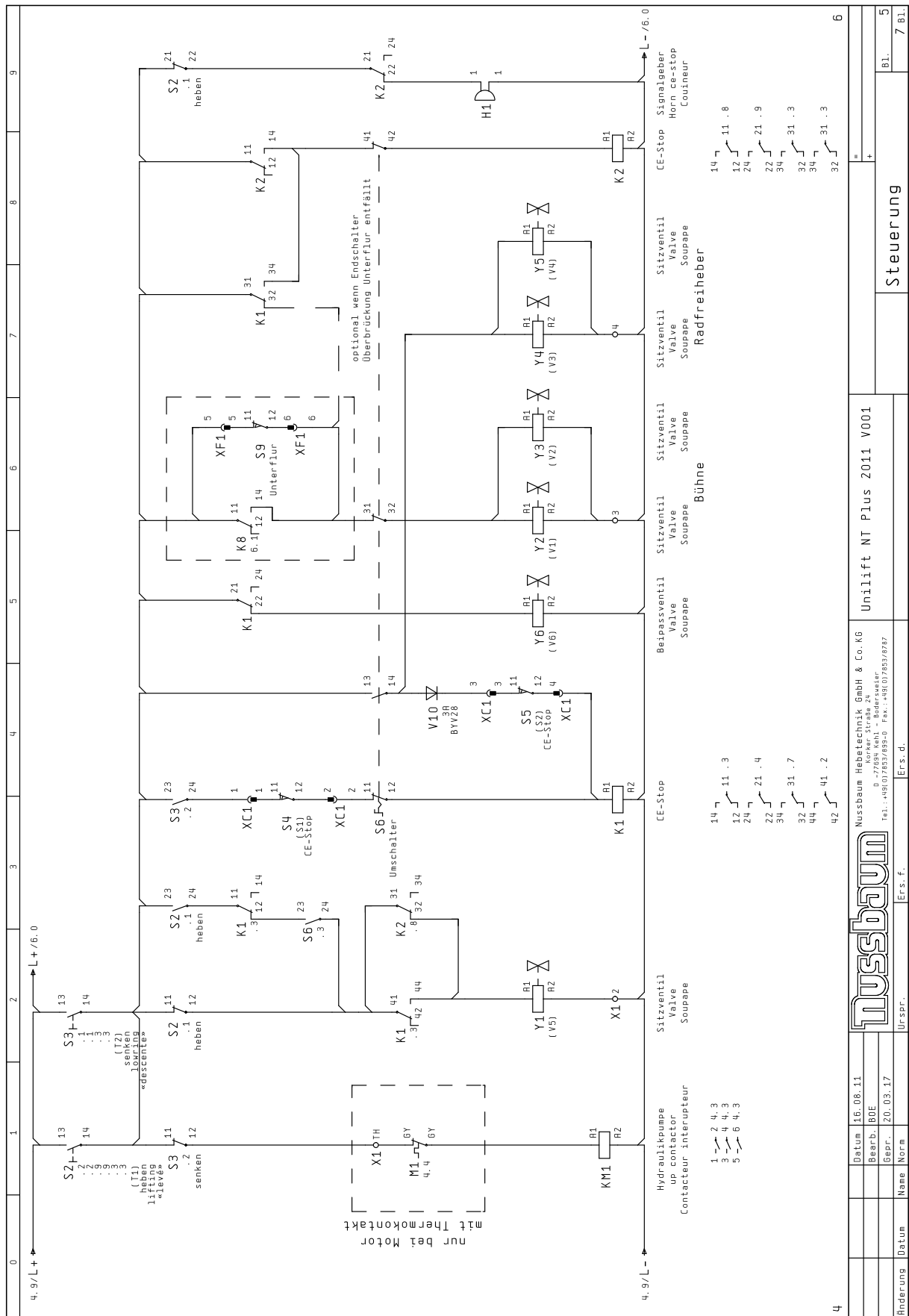
3.9 Electrical diagram drawing (with wheel free lift)

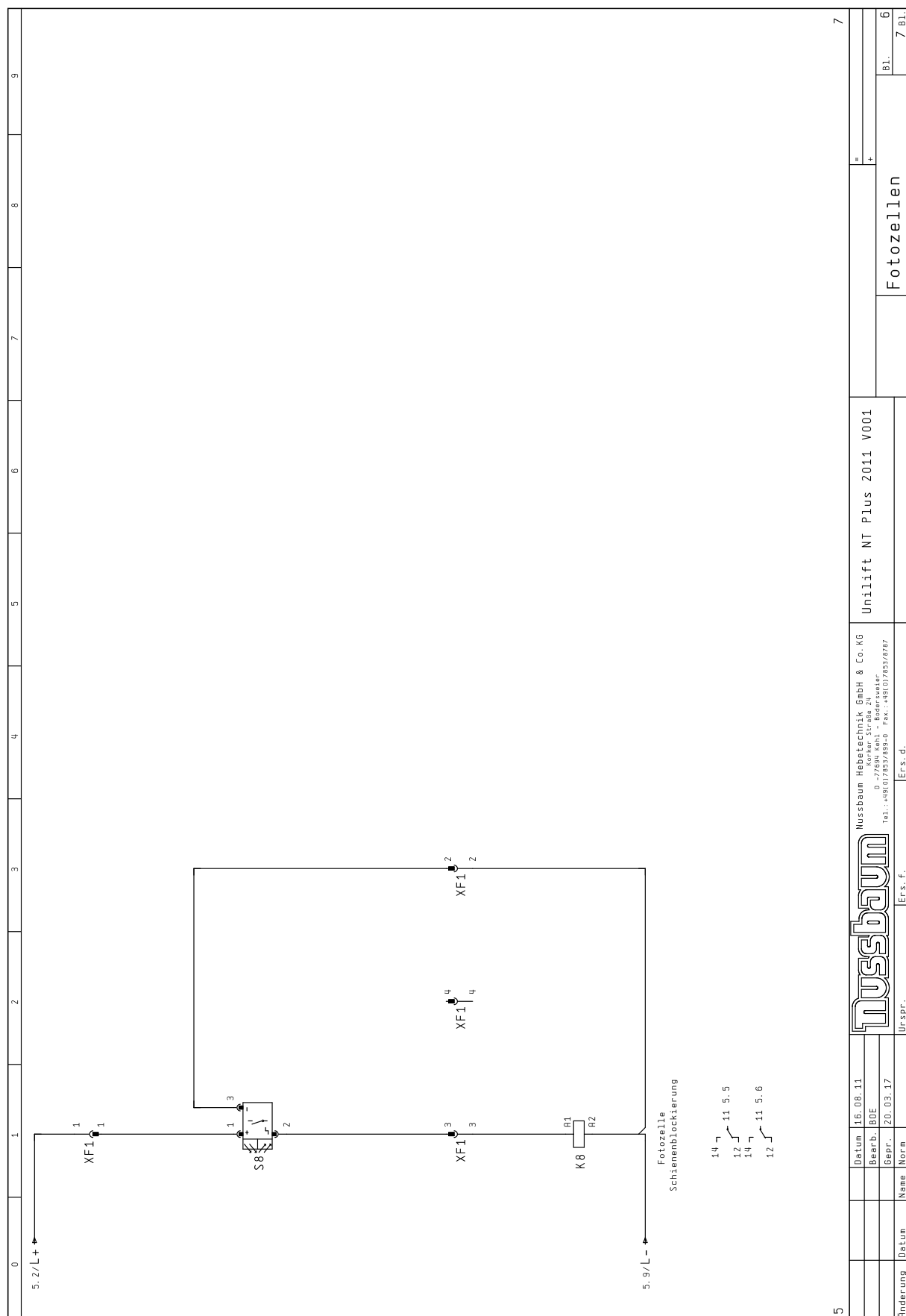
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Inhaltsverzeichnis

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3.10 Electrical diagram drawing SPID

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SCHALTPLAN

OBJEKT : SPID FUNK Canbox
ANLAGE :
KUNDE :
SCHALTPLANNR: SPID FUNK Canbox 03/17/001

3.) Sicherheitsprüfung und Schutzmaßnahmen

Der Schaltschrank wurde unter Beachtung der anerkannten Regeln der Technik nach VDE 0100/5.73 (Schaltschrank) und VDE 0100/5.73 (Schaltschrank) geprüft. Folgende Prüfungen wurden durchgeführt:

1. Funktionsprüfung und Stückprüfung nach VDE 0100/5.73.
2. Schutz gegen direktes Berühren nach VDE 0100/5.73.
3. Schutz gegen indirektes Berühren nach VDE 0100/5.73.

1.) Schaltpläne und Schaltunterlagen

Die Schaltpläne werden von uns nach bestem Gewissen angefertigt. Für beigezeichnete Schaltpläne und Schaltunterlagen übernehmen wir keine Haftung. Die Schaltpläne werden von uns nach den vom Auftraggeber überlassenen Unterlagen des Herstellers ausgeführt.

2.) Funktionsprüfung der Schaltanlagen

Schaltpläne sind keine Serienerzeugnisse. Bei der Prüfung des Schaltschranks im Werk können Fehler, wie Fühler, Thermistoren und Motoren nicht entzogen werden. Auch bei sorgfältiger Prüfung der Schaltpläne und Schaltunterlagen ist ein Grundzustand des Schaltpläns zu erwarten. Im Falle einer Inbetriebnahme besichtigt unser Servicepersonal die Schaltpläne und Schaltunterlagen. Nach der Inbetriebnahme übernimmt unser Servicepersonal die Verantwortung für die Schaltpläne. Nach der Inbetriebnahme werden die Schaltpläne von uns nach den vom Auftraggeber überlassenen Unterlagen des Herstellers ausgeführt. Kosten für Nachbesserungen durch Dritte können wir nicht anerkennen.

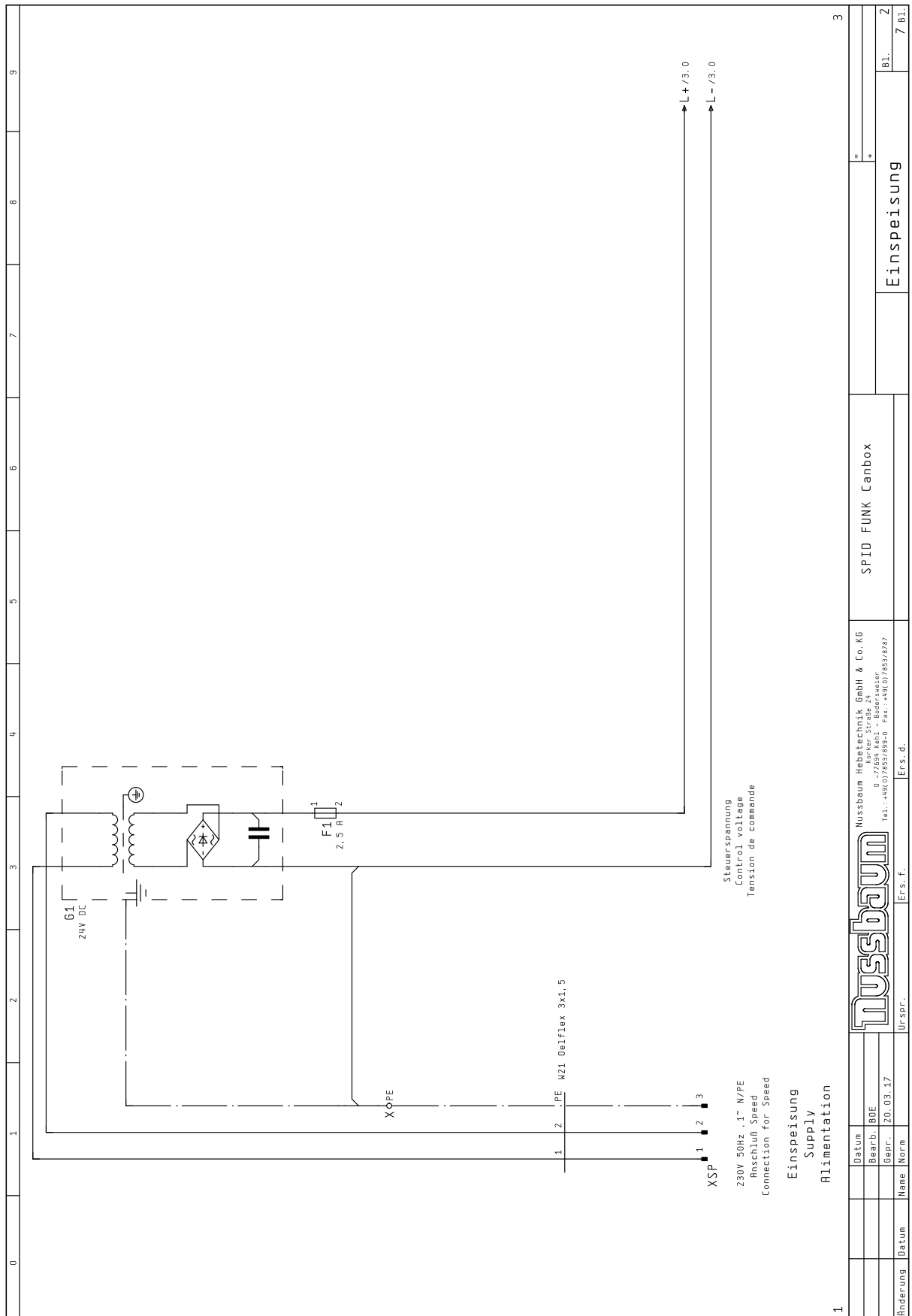
Erdung nach örtlichen Vorschriften

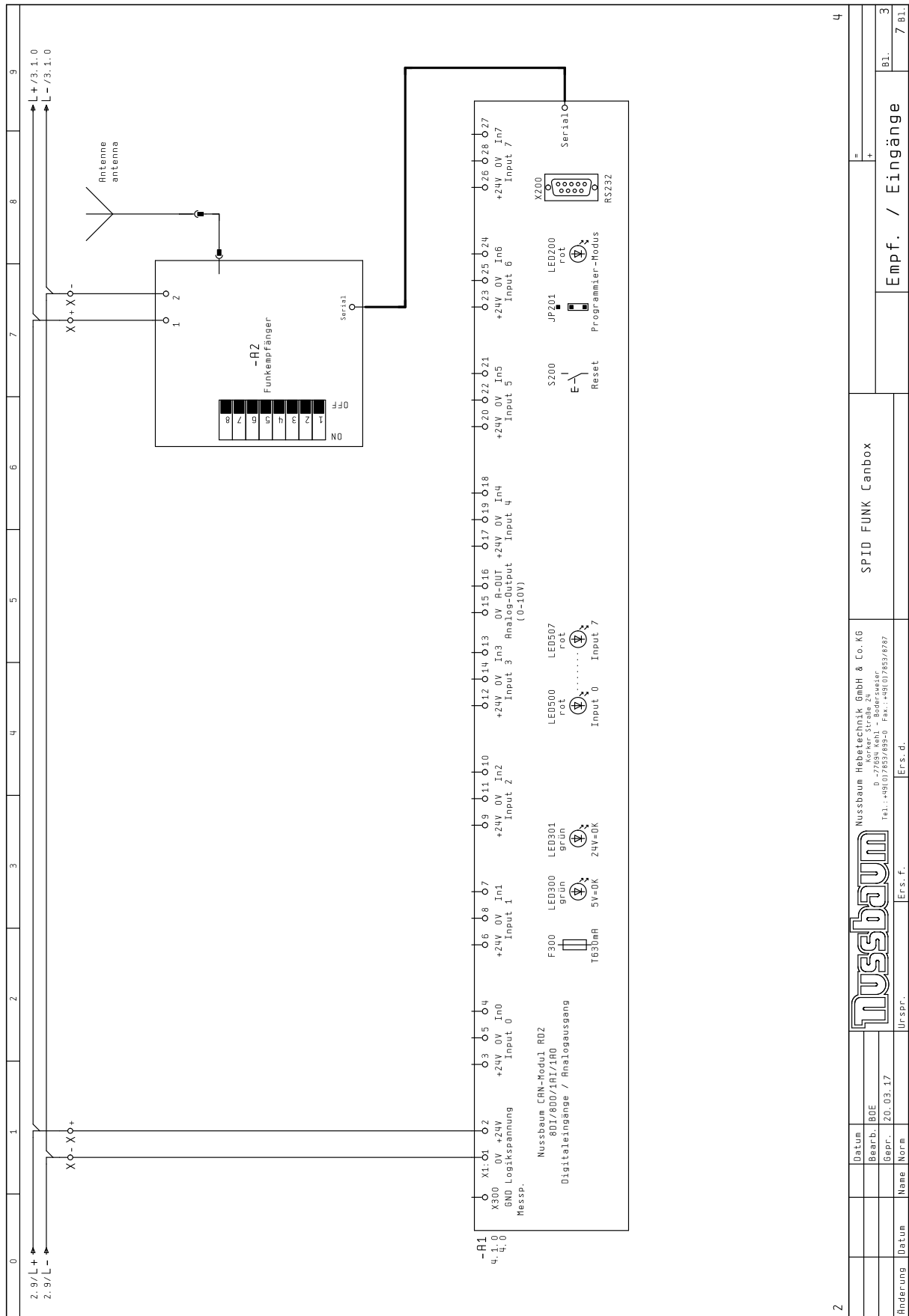
Vor Inbetriebnahme prüfen, ob Motorenstrom mit Motorschutzrelais übereinstimmt. Alle Klemmstellen auf Ordnungsgemäße Verbindung und alle Kontaktschrauben auf festen Sitz prüfen.

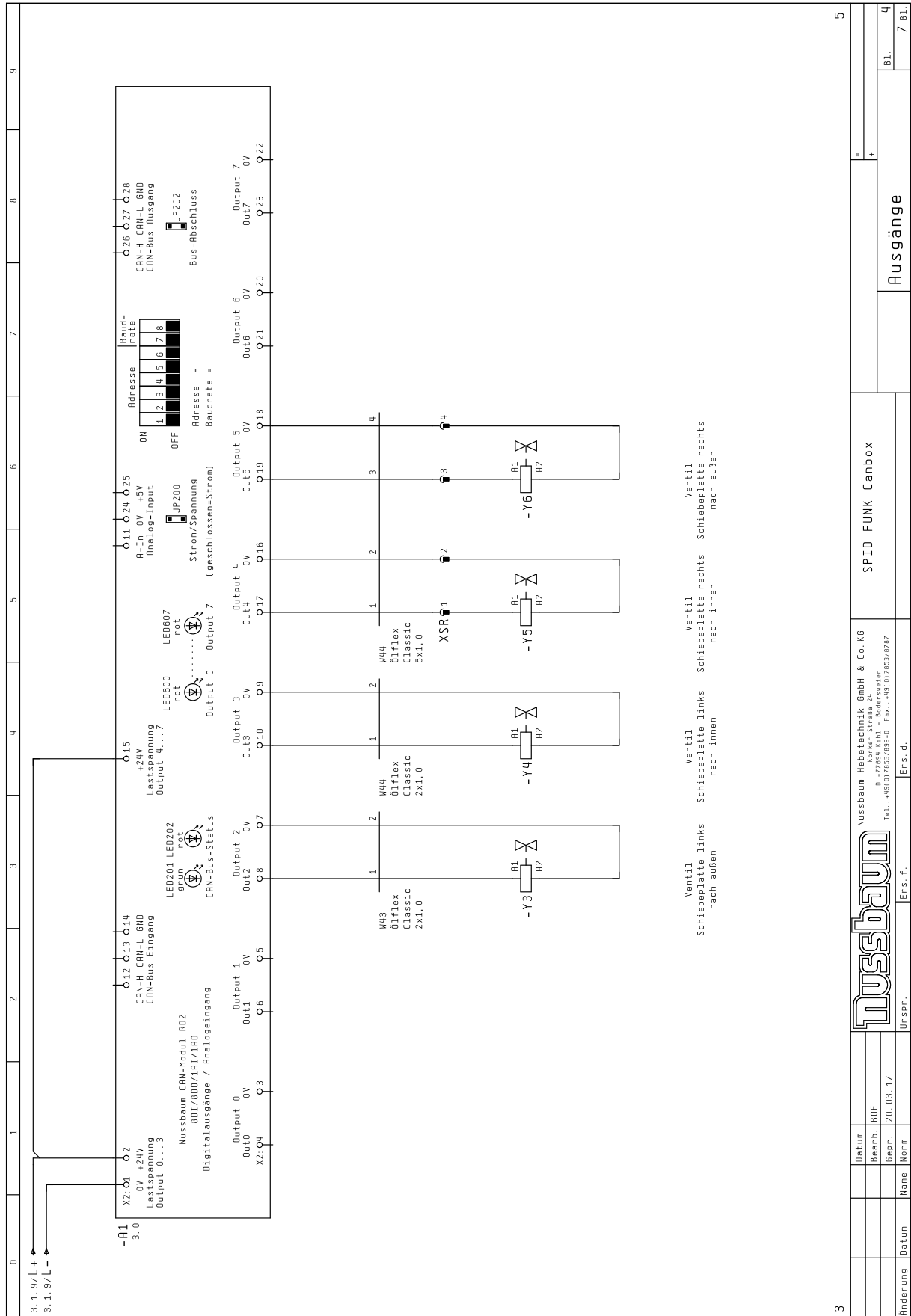
Vor Inbetriebnahme Verdrahtung und Steuerung auf richtige Funktion überprüfen. Keine Inbetriebnahme von unbefugter Seite vornehmen lassen. Änderungen vorbehalten

Diese Schaltpläne sind unser geistiges Eigentum. Sie dürfen ohne unsere Genehmigung weder vervielfältigt noch Dritten weitergegeben werden!

Datum	BOE	Name	Norm	Urspr.	Ers. f.	Ers. d.	2
Bearb.	20.03.17						1
Deckblatt							7 Bl.









1987009P6K

Funktionen und Einstellung
siehe Bedienungsanleitung Funklampe

Functions and Adjustment

		Datum	02.02.17	Nussbaum Hebertechnik GmbH & Co.KG Körner Straße 24 D-27168 Osterholz-Scharmbeck Tel.: +49(0)7833/6950 Fax: +49(0)7833/6977	SPIID FUNK Canbox				7
Bearb.	Roe	Gepir.	20.03.17				=	+>	
Name	Norm	Datum		Ers.f.	Ers.d.	Lampe	B1.	5	7 B1.

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4. Safety regulations

If you use the automotive lift, the German following regulations are to be considered:
BGG945: Examine of automotive-lifts; BGR500 Using automotive-lifts; (VBG14).

Especially the following regulations are very important:

- The laden weight of the lifted vehicle mustn't be more than 5000 kg for the automotive lift.
- The laden weight of the lifted vehicle must not be more than 3500 kg for the wheel free lift.
- The maximal axle load must not be more than 2300 kg for the SPID.
- The automotive lift must be lowered completely, before the vehicle is driving, in the provided direction, on the lift.
- During working with the lift the operating instruction has to be followed.
- At vehicles with low sub-ground clearance or with optional equipment (sport equipment) or sport-vehicles, it is to be tested previously whether damages can appear.
- Only trained personnel over the age of 18 years old are to operate this lift.
- Position the polymer supports as described of the vehicle manufacturer under the vehicle. (Version with wheel free lift)
- The correct position of the polymer pads has to be checked after the vehicle has been lifted a little bit.
- It's not allowed to stay under the lifted or lowered vehicle (except for the operator).
- Check the center of gravity of the vehicle if heavy parts are removed. (Version with wheel free lift)
- It's not allowed to transport passengers on the lift or in the vehicle.
- It's not allowed to climb onto the lift or onto a lifted vehicle.
- The automotive lift must be checked from an expert after changes in construction or after repairing carrying pads.
- It's not allowed to start with operations at the lift before the main switch is switched off.
- During lifting or lowering the vehicle it must be observed from the operator.
- It's not allowed to install the standard-automotive lift in hazardous location or in washing bays.

5. Operating instructions



The Safety Regulations must be observed during working with the automotive lift. Read the safety regulations in chapter 4 carefully before working with the lift!

5.1 Lifting the vehicle

- Drive vehicle over the lift, longitudinal axes on line of the lift.



(Wheel free lift): If necessary use the ramps to secure the safety ness of the vehicle.

- Block the vehicle against rolling, put into gear, use the parking brake.
- Check the dangerous places of the lift and be sure that there are no objects or people in the immediate area of the lift or on the lift.
- Switch on the control system; main switch on position "1" (see pic.1)
- Choose between main lift/ wheel free lift (see pic.1, 4)
- (wheel free lift) Position the polymer supports under the pick-up points which are described by the vehicle manufacturer. Do not lay them on edge! The vehicle might fall down!
- Raise the lift. Press the button „lifting“.
- (wheel free lift): Stop the lifting when the wheels are free to check the safe position of the vehicle on the polymer pads.
- Lift the vehicle on the working height. Press the button „lifting“ .



pic. 1: operation unit

1 main switch

2 button „lifting“

3 button „lowering“

4 reversing switch main lift/wheel free lift

5.2 Lowering the vehicle

- Check the dangerous places of the lift and be sure that there are no objects or people in the immediate area of the lift or on the lift.
- Choose between main lift/ wheel free lift (see pic.1, 4)
- Lower the vehicle to the working height or until the platform reaches the lowest point; press the button „lowering“ .
- Observe the complete process.
- Before the lift reaches the lowest position, it stops (approx. 150 mm).
Let off the „lowering“. Control the dangerous places. Press the button again. You hear an acoustic signal until the lift reaches the lowest position.
- When the lift is in its lowest position, remove the polymer supports (wheel free lift)
- Drive the vehicle out of the lift if the lift (main lift) is in the lowest position.

5.3 Equalization of the platforms

Because there are two independent hydraulic systems, differences between the two rails should normally not appear when you operate the lift correctly.

Check possible mistakes before you equalize the two platforms (for instance a leakage of the hydraulic system or another external mistake)



Equalize the rails only without load!

Before an equalization you have to remove any kind of load of the lift!

An equalization could be necessary when one side isn't let down completely into the lowest position or if the loads of the two rails are very different of each other, for example.

Correct equalization:

Situation: One rail is higher than the other.

preparations/measures:

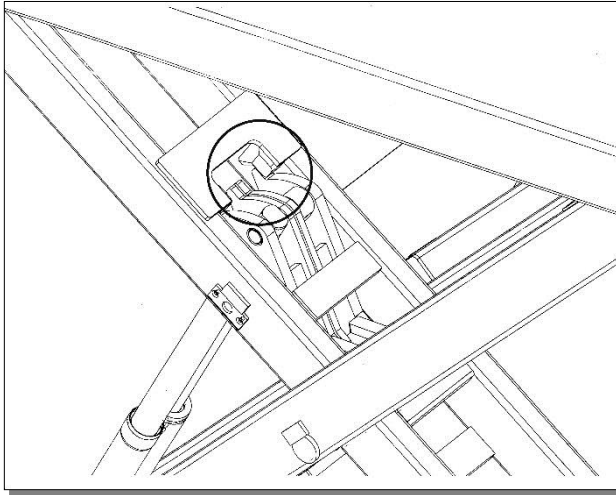
- Lower the lift as far as possible into the lowest position. Press button „lowering“.



pic. 2: ball valves for the equalization of the lift.

- Remove the covers of the operation unit (back side)

- Pull ball valve KU1 and press button „lowering“. One rail lowers. Put button and ball valve in normal (original) position again.
Pull ball valve KU2 and press button „lowering“. The second rail lowers also. Put button and ball valve in normal position again.
- Repeat this process for the wheel free lift with the ball valves KU3 and KU4.
- Lift the rails 1500 mm.
- Check now the position of the cylinder levers. All four cylinder levers have to sit close to the limit stops of the scissors. (compare to pic 3)



pic. 3

cylinder levers (circle)

2 x each side of the lift

- If the cylinder levers do not sit absolutely close to the limit stops then the rails have to be equalised still one time with the ball valves, according to the following description.
- **Equalization of the main lift:**
Choose the main lift at the reversing switch (see pic.1, 4)
Press button „lifting“ and pull the ball valve KU1. Observe if the cylinder levers move to the limit stops. If no cylinder lever moves, put KU1 in his original position. Pull ball valve KU2 and press button „lifting“.
- **Equalization of the wheel free lift:**
Choose the wheel free lift („RFH“) at the reversing switch (see pic.1, 4)
Lift the wheel free lift in the highest position. Check the rails for torsion.
Pull ball valve KU3 and press button „lowering“.
Observe the rails if one of them lowers. If no rail lowers, put KU3 in his original position and pull ball valve KU4. Push button „lowering“. The torsion should have disappeared.
If the rails have different heights, push the button „lowering“ until the rails of the wheel free lift have reached their lowest position. Hold the button „lowering“ pushed and pull the ball valves KU3 and KU4 until both rails are on the same level.
- Put the ball valves in their original position again.

6. Troubleshooting

If the lift does not work properly, the reason for this might be quite simple. Please check the lift for the potential reasons mentioned on the following pages. If the cause of trouble cannot be found, please call the technical service.

Problem: Motor does not start!	
possible causes:	solution:
<i>no power supply</i>	<i>let the power supply check</i>
<i>main switch is not engaged or defective</i>	<i>Check the main switch</i>
<i>The fee line is cut</i>	<i>Check the feed line and repair it</i>
<i>fuse defective</i>	<i>check fuse and replace it if necessary</i>
<i>thermal switch in the motor is active</i>	<i>let it cool down</i>
<i>Motor defective</i>	<i>Call the service partner</i>

Problem: Motor starts, lift does not lifting!	
possible causes:	solution:
<i>The vehicle is too heavy</i>	<i>Unload it</i>
<i>Level of the oil is too low</i>	<i>Fill new oil in</i>
<i>leakage of the hydraulic system</i>	<i>Check the hydraulic lines and repair it</i>
<i>gear pump does not work</i>	<i>call your service partner</i>

Problem: The lift does not lower!	
possible causes:	solution:
<i>The lift is standing on a obstacle</i>	<i>Push button „lifting“</i>
<i>hydraulic valve defect</i>	<i>call your service partner</i>
<i>fuse defective</i>	<i>check fuse and replace it if necessary</i>
<i>Button „lowering“ not pushed or defective</i>	<i>Push the correct button!</i>
<i>Seat valves cannot be unlocked</i>	<i>emergency lowering</i>

6.1 Driving on an obstacle

If the lift drives on an obstacle, the hydraulic system has got no more pressure and the lift stops. To remove the obstacle the lift has to rails have to be lifted a little. Therefore push button „lifting“ until the obstacle can be removed.

6.2 Emergency lowering of the main lift/ wheel free lift



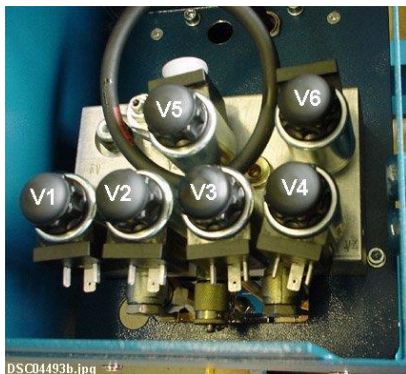
A emergency lowering is an intervention into the control of the lift and can be done only by experienced expert. The emergency lowering must be carried in this order. Otherwise a malfunction can lead it to damages or lead to danger for body and lives.



Every kind of external leakage must be removed. This is necessary particular before an emergency lowering.

Reasons which provoke an emergency lowering are e.g. disturbances of the valves or a breakdown of the power supply.

1. Disconnect the lift from the power supply before starting the emergency lowering.
2. Open the covers of the aggregate. You have to be able to reach the seat valves of the hydraulic bloc. (pic. 4)
3. Check the dangerous places of the lift and be sure that there are no objects or people in the immediate area of the lift or on the lift.
4. Emergency lowering of the main lift: press simultaneously the valves V1, V2.
5. Emergency lowering of the wheel free lift: press simultaneously the valves V3, V4.
6. The lowering starts immediately. If there is any danger, let off the valves and stop the emergency lowering!!



pic. 4
Valves with buttons for emergency lowering

7. Lower the lift or the wheel free lift in his lowest position.
8. Observe the complete process.
9. Change the defect parts of the lift, before you initiate the lift again, if it is necessary. Therefore call your service partner.



Switch off the main switch and lock it. Do not work with the lift until the faulty parts are exchanged.

7. Inspection and Maintenance



Before conducting maintenance work, preparations must be made to ensure that during maintenance and repair work there is no risk to the safety of people working on or around the lift and also that there is no risk of damage to equipment being used on or around the lift.

To guarantee the utmost availability and to ensure that the lift remains functional, maintenance work contracts are organised between our clients and their local retailers.

A service must be performed at regular intervals of 3 months through the operator in accordance with following service manual. If the lift is in continuous operation or in a dirty environment, the maintenance rate must be increased.

During daily operation the lift must be closely observed to ensure that it is functioning correctly.

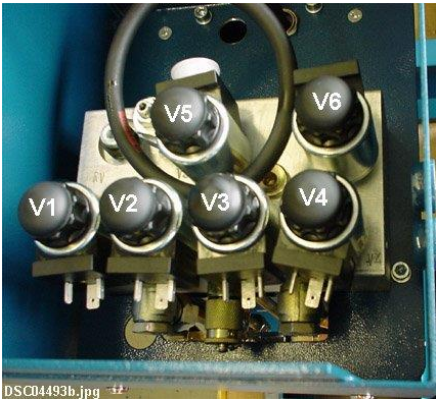
In the case of malfunction or leakage the technical service must be informed.

7.1 Maintenance plan of the lift



Before beginning any maintenance work isolate the power supply. Secure the main switch (lock it). Secure the danger area around the automotive lift and secure the lift against unintentional lowering.

Maintenance plan	Period
Clean the piston rods of the hydraulic cylinders from sand and dirt. Clean and check the stripper of the cylinder. Grease the piston rods with a high capacity lipid (approx. 5 g of S2 DIN51503 KE2G of the Renolit Company).	min. once in a year
Clean and lubricate the moving parts of the lift (hinge bolts, sliding pieces, sliding surfaces) grease with a multipurpose lipid (example: Auto Top 2000 LTD. Agip).	min. once in a year
Grease all lubricate nipples with a multipurpose lipid. (example: Auto Top 2000 LTD. Agip).	min. once in a year
Check the hydraulics-hoses for leakage. Check the hydraulic hoses and fitting screws	min. once in a year
Check the oil level. Fill in a clean, high quality oil (32 cst) in the oil tank.	min. once in a year
The hydraulic oil has to be changed at least once a year. To change the oil, lower the lift into the lowest position. Empty the tank and replaced clean oil, approx. 14 litres are needed. A high quality hydraulic oil is recommended, it should be 32 cst. (e.g. HLP 32 LTD. OEST Company) Use a ATF-Suffix hydraulic-oil (OEST Company) if the ambient temperature is under 5 degree centigrade. After the fill up, the hydraulic oil must be between the upper and low marking of the oil level gauge.	min. once in a year

Check the Polymer supports and replace them if its necessary.	min. once in a year
Check the condition and function of the safety devices of the lift. (CE-Stop + acoustic signal, ramps, roll over safety device, roll back safety device)	min. once in a year
Check all welded joints for cracks on the automotive-lift. If any cracks are found on the lift cease use immediately. Switch-off and secure the main switch (lock) and call the service partner.	min. once in a year
The valves (cartridges) have to be tightened with approx. 30 – 35 Nm in regular intervals. (see attachment) With intensive utilization of the lifting platform, the maintenance interval has to be curtailed. Before the cartridges with the demanded turning moment can be tightened, the coils have to be removed through releasing the black turn-lock fastener. 	min. once in a year
Damage to external surfaces, must be immediately repaired. If theses repairs are not made immediately, permanent damage to the powder-coated surface may result. Repair and clean damaged areas with an abrasive paper (grain 120). After this is complete, use a suitable paint (observe the RAL Number).	min. once in a year
Check the zinc surface and repair it with a suitable tool. Use abrasive paper (grain 280). White rust can result from moisture laying in certain areas for long periods of time. Poor aerating can also result in rust formation. Rust may result from mechanical damage, wear, aggressive sediments (de-icing salt, liquids) or insufficient cleaning. Repair and clean these areas with abrasive paper (grain 280). After this is complete, use a suitable paint (observe the RAL Number).	min. once in a year
Durability of the hydraulic hoses: The use duration of the hose lines should not exceed six years,	min. every sixth year

including a storage time of at most two years.	
Check the function and condition of all electrical parts. (cables, buttons)	
Check that all screws and bolts are correctly torque (turning moments, see the list)	min. once in a year

Turning moment for screws
property class 8.8

	0,10*	0,15**	0,20***
M8	20	25	30
M10	40	50	60
M12	69	87	105
M16	170	220	260
M20	340	430	520
M24	590	740	890

Drehmomenttabelle 8.8-10.9 E

property class 10.9

	0,10*	0,15**	0,20***
M8	30	37	44
M10	59	73	87
M12	100	125	151
M16	250	315	380
M20	490	615	740
M24	840	1050	1250

- * sliding friction 0,10 for very good surfaces, lubricated
- ** sliding friction 0,15 for good surfaces, lubricated oder dry
- *** sliding friction 0,20 surface black or phosphatized, dry

7.2 Cleaning of the automotive lift

A regular and appropriate maintenance practice will aid the preservation of the lift.

No guarantees can be given when damage (egg rust or fading colour) is the direct result of poor maintenance and cleaning practice.

Regular cleaning of all kinds of dirt is the best protection against wear and the formation of rust and will prolong the life of the lift

- Dirty deposits that can cause rust include:

- de-icing salt
- sand, pebble stone, natural soil
- all types of industrial dust
- water; also in connection with other environmental influences
- all types of aggressive deposits
- constant humidity caused by insufficient ventilation

Obviously this is dependent on the type of work being done with the lift, the degree of cleanliness of the workshop and location of the lift. The degree and amount of dirt is dependent on the season, on the weather conditions and the ventilation of the workshop.

During poor conditions it may be necessary to clean the lift once week, but cleaning once a month will suffice.

Clean the lift and the floor with a non-aggressive and non-abrasive detergent. Use a gentle detergent to clean the parts. Use an standard washing-up liquid and lukewarm water.

- Do not use steam jet cleaners.
- Remove all dirt carefully with a sponge or if necessary with a brush.
- Ensure that no washing-up liquid is left on the lift after cleaning.

- Do not use aggressive means for cleaning the workshop floor and the automotive lift.
- A permanent contact with any kind of liquid is not allowed. Do not use high pressure devices for cleaning the lift.
- After cleaning dry the automotive-lift with a suitable type of cloth and inject it with a wax spray or an oil spray.

7.3 Cleaning and care of galvanised surfaces

Excerpt from DIN EN ISO 1461: "Zinc coatings on steel using hot-dip galvanising"

"The main purpose of the zinc coating is to protect the iron and steel material lying underneath from corrosion. Considerations of aesthetics and decorative properties should take second priority. . . . It should be observed that "roughness" and "smooth" are relative terms and the roughness of piece galvanised coatings can differ from continuous hot-dipped galvanised products, as for example continuous hot-dipped galvanised sheet metal, pipe and wire.

In practice it is not possible to specify a definition for the uniformity and the surface qualities of zinc coatings.

The occurrence of dark or light areas (e.g. lattice pattern or dark-grey areas) or a slight surface unevenness is no reason for rejection. The formation of (white or dark) corrosion products, mainly consisting of zinc oxide (occurring from storage in damp conditions after the hot-dip galvanising), is no reason for rejection as long as the required minimum thickness value of the zinc coating is still present.

For touch-up work:

"The sum of the areas without coating that must be touched-up must not exceed 0.5% of the total surface of a single part. A single area without coating must not exceed an area of 10 cm²... The touch-up work should be done through thermal spraying with zinc (e.g. ISO 2063) or through a suitable zinc powder coating, where the zinc dust pigment must comply with ISO 3549 within the practical limits of such systems, or using suitable zinc-flake coating or zinc paste. .. A sufficient corrosion protection must be ensured on the touched-up areas." The touch-up work must always be at least 100 µm thick.

Excerpt from GSB ST 663: Visual assessment of the surface:

Source: [Quality and inspection regulations for industrial hot-dip galvanising, part 663: "International quality guidelines for part coating on steel and hot-dipped galvanised steel"](#)

"The assessment of the decorative appearance of the surface in regards to uniformity of colour and structure must be done without auxiliary aids; for external parts at a distance of at least 5 m, for interior parts at a distance such as at least 3 m vertical with diffused lighting. All parts must basically match in gloss, colour and structure. Foundation unevenness, for example scratches, grinding marks, corrosion scars and welding seams have no significance in the assessment of the coating quality."

Influence factors for discolourations of the surface

Source: [Hot-dipped galvanised: Newsletter for users no. 5](#)

The protective effect of the durable hot-dipped galvanising is based on the formation of cover layers which, due to weathering influences in the course of weeks or months, occur on the galvanised surface. The cover layers mainly occur from basic zinc carbonate. If the zinc surface is sprayed with water over an extended period or if the air access and thus the presence of CO₂ is insufficient, then the occurrence of protective cover layers is prevented. Instead, so-called "white rust" forms on the surface of galvanised parts.

White rust consists mainly of zinc hydroxide and slight proportions of zinc oxide and zinc carbonate. In practice white rust can only become a problem with freshly hot-dipped galvanised parts. The formation of white rust has no connection with the galvanising process and is not a measure for the quality of the galvanisation. The probability for possible white rust formation fluctuates depending on the weather in the course of a year. White rust occurs more frequently

in autumn and winter. Frequent precipitation in the form of rain and snow, fog and dropping below the dew point due to low temperatures promotes possible white rust formation.

Aggressive liquids, for example salts, brake fluids, chemical additives or acids have a negative effect on the zinc layer. If they come in contact with the zinc galvanised surface they must be removed immediately and the area cleaned (see the chapter Cleaning and Care)

Touch-up after incidence of white rust:

- With only a slight incidence, the removal of white rust is not absolutely necessary.
- With a strong incidence, smaller areas can be removed with a special brush (e.g. made of soft bronze wire, brass or a plastic brush). Be careful, if brushed too intensively the surface can become dark.
- If necessary, zinc and stainless steel cleaner (e.g. Leraclen ZNR) can be used.

Traces of usage due to tyre wear

Traces of usage due to tyre wear result in an unattractive surface on the drive rail. These have nothing to do with the quality of the galvanising. (see point Cleaning and Care)

Spotting due to spilling liquids

See point Cleaning and Care

Cleaning and care

- Regularly clean the galvanised parts (and immediately after contact with aggressive substances) with plenty of clean water.
- If necessary the surface must be brushed off with a special brush and with slight pressure
- Let the surface dry well!
The drive rail must be free during this, there must be no vehicle on the lift.
- Seal the surface with a temporary corrosion protection against recurrence of the white rust.
For this use acid-free oils, greases or waxes

8. Security check

The security check is necessary to guarantee the safety of the lifting during use. It has to be performed in the following cases:

1. Before the initial operation, after the first installation
Use the form "First security check before initiation"
2. In regular intervals after the initial operation, at least annually.
Use the form "Regular security check at least annually"
3. Every time the construction of that particular lift has been changed.
Use the form "Extraordinary security check"



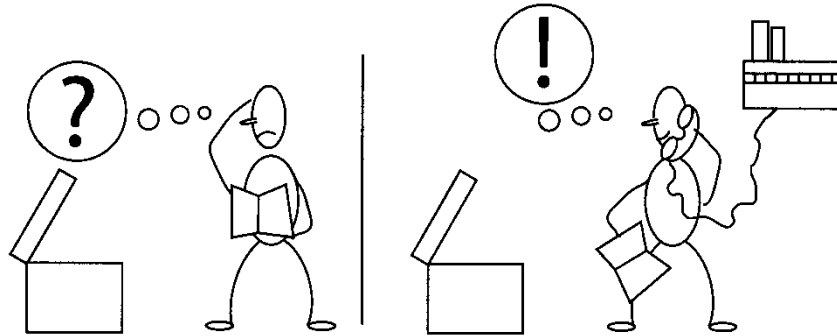
The first and the regular security check must be performed by a competent person. It is recommended to service the lift at this occasion.



After the construction of the lift has been changed (changing the lifting height or capacity for example) and after serious maintenance works (welding on carrying parts) an extraordinary security check must be performed by an expert.

This manual contains form with a schedule for the security checks. Please use the adequate form for the security checks. The form should remain in this manual after they have been filled out. In the following there is a short description about special safety devices.

9. Installation and Initiation



9.1 Regulations for the installation

- The installation of the lift is performed by trained technicians of the manufacturer or one of its distribution partners. If the operator can provide trained mechanics, he or she can install the lift by him or herself. The installation has to be done according to this regulation.
- Installing the standard-automotive lift in a hazardous location or a washing bay is not allowed.
- Before installation a sufficient foundation must be constructed. If the foundation is already constructed then proof that the foundation conforms to the standard is required.
A level foundation for the installation is required. The foundations must be based in a frost resistance depth, both outdoors and indoors in a position where the installer believes there is no chance of frost.
- An electrical supply 3~/N+PE, 400 V, 50 Hz must be provided.
The supply line must be protected with a time-lag fuse T16A (VDE0100 German regulation).
The minimum diameter amounts to 2.5 mm².
- All cable ducts must be equipped with protective coverings to prevent accidents.
- After assembly of the lift, the protective grounding of the lift must be examined after International Electronical Commission (IEC) guidelines (60364-6-61) before first start-up by operators. Also an insulation resistance examination is recommended.

9.2 Erection and doweling of the lift

- Install the lift according to the data sheet and the foundation plan.
- Install the operating unit at its designed place. Connect the power supply.
- Connect the hydraulic. All hoses are marked.
- Fill in the hydraulic oil, approx. 14 litres are needed. A high quality hydraulic oil is recommended, it should be 32 cst. (e.g. HLP 32 LTD. OEST Company) After the fill up, the hydraulic oil must be between the upper and low marking of the oil level gauge.
- Push button „lifting“ until the vent screws (on the top of the slave cylinders, see pic. 5) can be reached. Execute a deaerate according to chapter 9.6, if necessary.
- Adjust the lift: first one base plate, than the second base plate. If there is an uneven floor even it with metal sheets. A continuous contact between the floor and the base plate must be guaranteed to avoid hollow spaces. Dowel the lift:
Nussbaum Company recommended Liebig, Fischer, Hilti safety dowels (german dowel manufacturer) or equivalent dowels of other manufacturer but: observe their regulations.
Before doweling check the concrete floor (with quality min. C20/25) if the concrete floor goes

to the top edge of the floor. For an existing concrete floor the dowels have to be chosen according to pic. 8. If floor tiles are on the concrete floor, the dowels have to be chosen according to pic. 9. It's important for the trouble-free working that the base plates are clean and the guides of the sliding block are clean and greased.

Check the adjustment of the base plates and dowel the lift: Bore the holes to fix the dowels through the borings of the base plates. Clean the holes with pressure air. Put in the safety dowels.

- Dowel the aggregate in the floor.
- Tighten the dowels with the dynamometric key.



Each dowel must be tightened with the demanded torque. Otherwise the normal and secure function of the lift can not be guaranteed. Observe the regulations of the other dowel-manufacturer.

- Raise and lower the lift several times with load. Check the torque of the dowels and check the hydraulic hoses' tightness.
- Equalize the lift, if this is necessary.
- Mount the covers: Do not damage the cables.

9.3 Deaerate the hydraulic system (main lift)

- The correct power supply, the correct hydraulic oil and the closeness of the hydraulic system have to be controlled after the installation of the lift.

By connecting the hydraulic hoses, air might enter the hydraulic system and provoke problems of ganging. In consequence a deaerating is necessary.

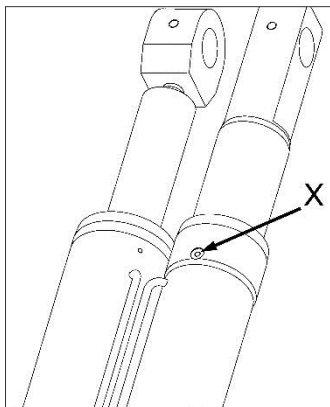
Check again the correct installation of the hydraulic hoses!

Effects, which make a deaerating necessary are e.g. a sudden lifting out of the lowest position or unequal rails.

Correct deaerating:

There have to be 14 litres of hydraulic oil filled in the oil tank.

- Choose the main lift at the reversing switch (see pic.1, 4)
- Open the vent screws on the top of the slave cylinders (see pic. 5) a little bit. Do not open them completely.
- Push button „lifting“. The air streams out of the borings on the slave cylinders. Keep the screws open until only hydraulic oil comes out of the borings. Close the vent screws afterwards.



pic. 5. pos. X = vent screw on the top of the slave cylinders



If you do not close the vent screws, trouble and disturbances of the lift will occur!

- Push button „lifting“ and drive the lift into the highest position. Repeat the procedure of deaerating, if necessary.
- Check if the vent screws are closed
- Push button „lowering“ and drive the lift into the lowest position. (While you lower the lift it is possible that the oil-air mix makes sounds)
- Lift the rails on 1500 mm without load. Check up the holding time.
- Check again the position of the cylinder levers.

9.4 Initiation



Before the initiation a security check must be performed. Therefore use form: First security check.

If the lift is installed by a competent person, he will perform this security check. If the operator installs the lift by himself, he has to instruct a competent person to perform the security check.

The competent confirms the faultless function of the lift in the installation record and form for the security check and allows the lift to be used.



Please send the filled installation record to the manufacturer after the installation.

9.5 Changing the installation place

If the place of installation shall be changed, the new place has to be prepared in according to the regulations of the first installation. The changing should be performed in accordance with the following points:

- Raise the lift on approx. 1000 mm.
- Remove the cover of the hydraulic tubes.
- Loose the dowels.
- Lower the lift in the lowest position.
- Loose the plug of the power supply.
- If necessary loose the hydraulic hoses only on the operating unit.
- If necessary use blind plugs to close the hoses.
- Disconnect the power supply.
- Transport the lift to its new place.
- Install the lift in accordance with chapter 9 “Installation and Initiation”.
- Equalize and deaerate the lift!

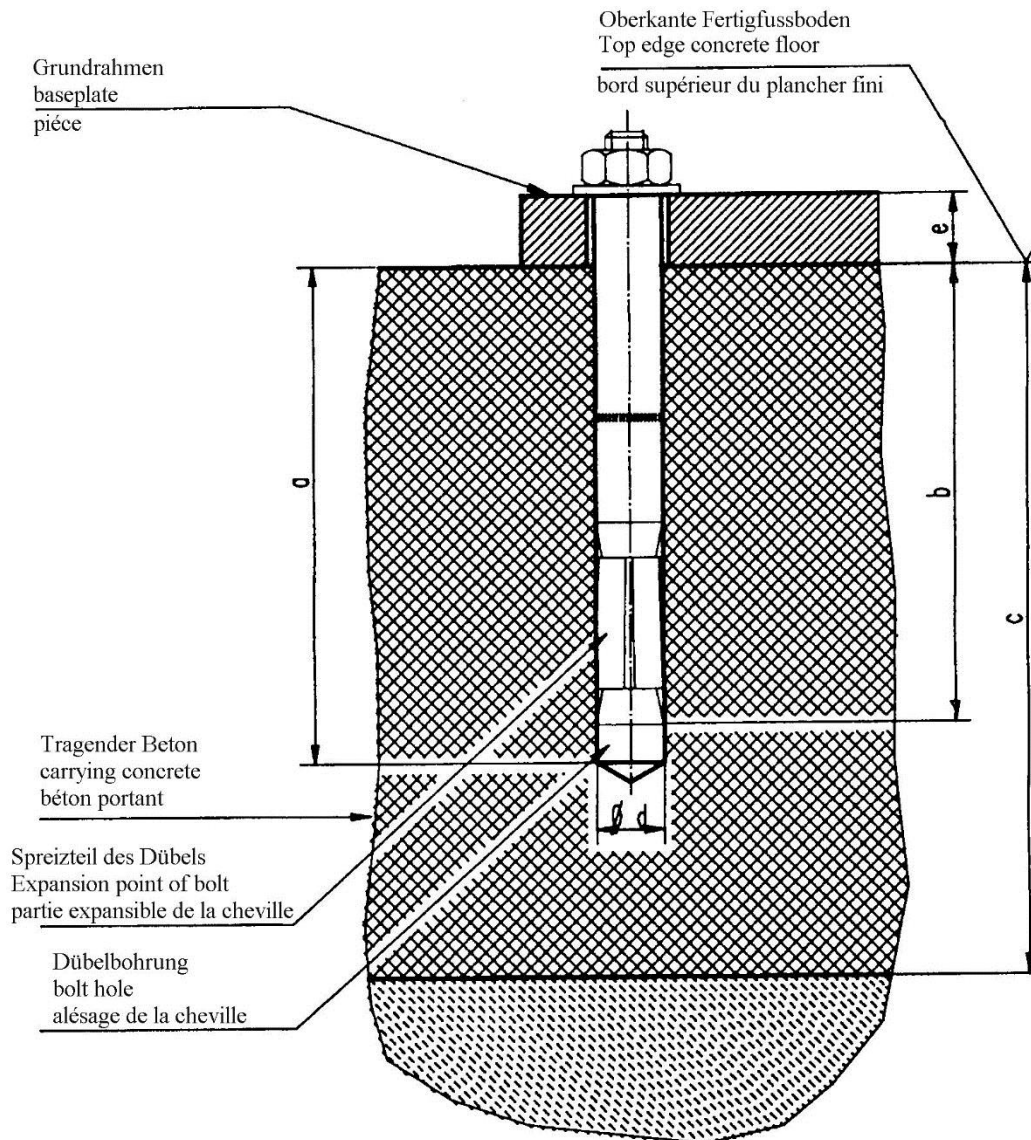


Use new dowels, the used dowels can not be used anymore.



A security check must be performed before reinitiation by a competent person. Use form “Regular security check”

Pic. 8: choice of the dowel length without floor pavement or tile surface



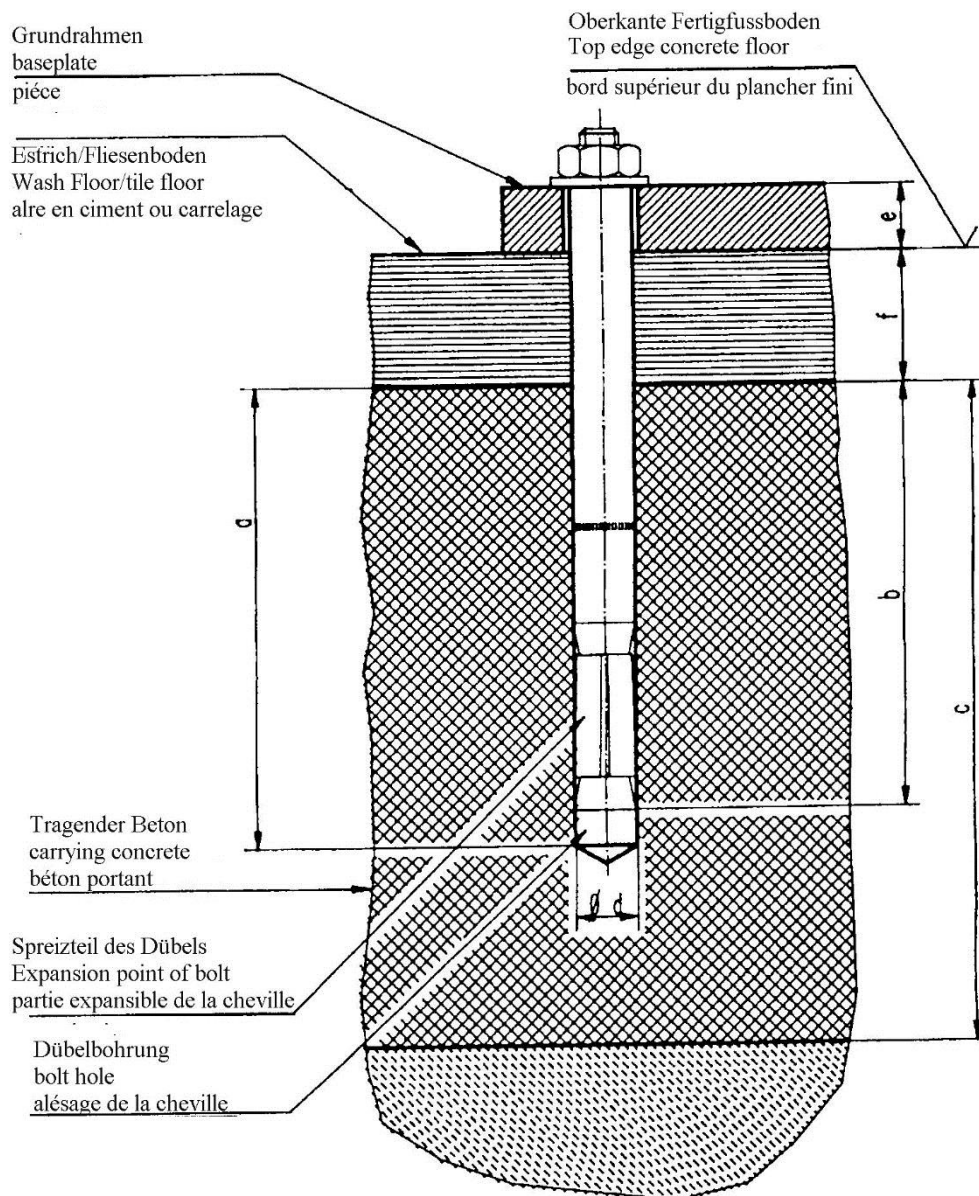
Liebig-dowels

Dowel type	BM12-20/80/40
Drilling depth	a 100
Min. anchorage depth	b 80
Thickness of concrete	c min.160(*)
Diameter of bore	d 20
Thickness of the lift-pieces	e 0-40
Number of dowels	16
Starting torque	70Nm

(*) minimum thickness of concrete by using the mentioned dowels. Otherwise, observe the regulation of the foundation plan.

You can use equivalent dowels from another dowel manufacturer (with license) but observe their regulation.

Pic 9: choice of the dowel lengths (without floor pavement or tile surface)

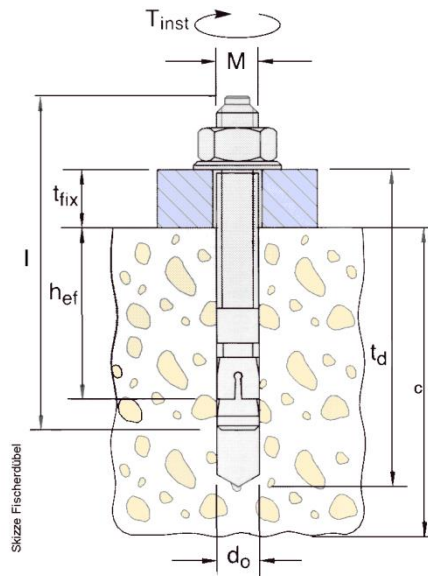


Liebig-dowels

Dowel type		BM12-20/80/65	BM12-25/80/100	BM12-20/80/140
Drilling depth	a	100	100	100
Min. anchorage depth	b	80	80	80
Thickness of concrete	c	min.160(*)	min.160(*)	min.160(*)
Diameter of bore	d	20	20	20
Thickness of the lift-pieces	e+f	40-65	65-100	100-140
Number of dowels		16	16	16
Starting torque		70 Nm	70Nm	70Nm

(*) minimum thickness of concrete by using the mentioned dowels. Otherwise, observe the regulation of the foundation plan.

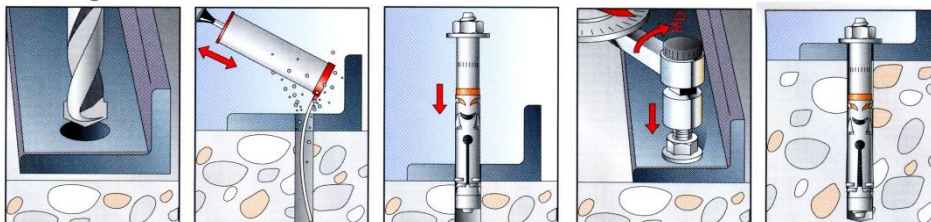
You can use equivalent dowels from another dowel manufacturer (with license) but observe their regulation.



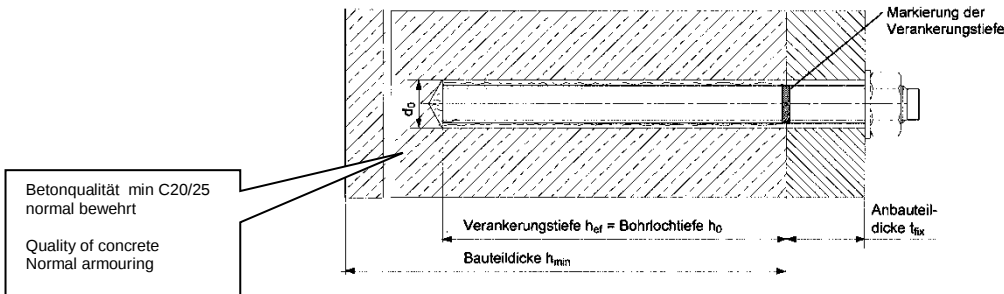
Änderungen vorbehalten!
subject to alterations!
sous réserve des modifications!

fischer-Dübel		UNI-LIFT 5000 ^d		
Dübel typ of dowel type de cheville		FH 15/50 B	FH 18 x 100/100 B	FH 24/100 B
Bohrtiefe drilling depth Profondeur de l'alésage	t _d	145	230	255
Mindestverankerungstiefe min. anchorage depth Profondeur minimale d'ancrage	h _{ef}	70	100	125
Betonstärke thickness of concrete Épaisseur du béton	c	siehe den aktuellen Fundamentplan see current foundation-diagram drawing vois le plan de fondation actuel		
Bohrerdurchmesser diameter of bore Diamètre de l'alésage	d _o	15	18	24
Bauteildicke thickness of the lift-piece Épaisseur de la pièce	t _{fix}	0-50	0-100	0-100
Anzugsdrehmoment Nm turning moment moment d'une force	M _d	40	80	120
Stückzahl piece number nombre des pièces	a	4		
	b	8		
	c	10		
	d	12		
	e	16		
	f	20		
	g	14		

Montage



Es können auch gleichwertige Sicherheitsdübel anderer Hersteller (mit Zulassung) unter Beachtung deren Bestimmungen verwendet werden.
It is possible to use equivalent safety-dowels (with license) of other manufacturer but observe their regulations.
Des chevilles des autres marques (autorisées) peuvent aussi être choisies en respectant les directives du fabricant.



Änderungen vorbehalten!
subject to alterations!
sous réserve des modifications!

Hilti-Injektionsdübel			UNI-LIFT 3500 NT/CLT ^d	
Betonboden / concrete floor		ohne Bodenbelag / without floor pavement (tiles)		
Dübel type of dowel type de cheville		HIT-V-5.8 M10x130	HIT-V-5.8 M12x150 Art.Nr.387061	HIT-V-5.8 M16x200 Art.Nr.956437
Bohrtiefe (mm) drilling depth Profondeur de l'alésage	h_o	90	108	144
Mindestverankerungstiefe (mm) min.anchorage depth Profondeur minimale d'ancrage	h_{ef}	90	108	144
Betonstärke (mm) thickness of concrete Epaisseur du béton	H_{min}	min.120	min.138	min.180
Bohrerdurchmesser (mm) diameter of bore Diamètre de l'alésage	d_o	12	14	18
Bauteildicke (mm) thickness of the lift-piece Epaisseur de la pièce	t_{fix}	max.17	max.19	23
Anzugsdrehmoment (Nm) turning moment moment d'une force	T_{inst}	20	40	80
Gesamtlänge (mm) Total length Longueur totale	l	130	150	200
Gewinde Thread fil	M	10	12	16
Stückzahl piece number nombre des pièces	a	4		
	b	8		
	c	10		
	d	12		
	e	14		
	f	16		
	g	28		
Die Montageanweisung des Dübelherstellers ist Folge zu leisten. Bei Bodenbelag (Estrich/Fliesen) sind längere Dübel zu verwenden. Observe necessarily the installation description of the dowel manufacturer. Use longer dowels with version with floor pavement and tiles				
Es können auch gleichwertige Injektionsdübel anderer Hersteller (mit Zulassung) unter Beachtung deren Bestimmungen verwendet werden. It is possible to use equivalent injections dowels (with license) of other manufacturer but observe their regulations. Des chevilles des autres marques (autorisées) peuvent aussi être choisies en respectant les directives du fabricant.				

First security check before installation



Filling out and leave in this manual

Serial number: _____

kind of check	all right	defect missing	veri- fication	remark
Short Operating instruction.....	☐	☐	☐	
Type plate.....	☐	☐	☐	
Warning designation, sticker.....	☐	☐	☐	
Function button "lifting/lowering".....	☐	☐	☐	
Function lever „main lift/wheel free lift“.....	☐	☐	☐	
Condition / Function ramp.....	☐	☐	☐	
Function play-detector (optional).....	☐	☐	☐	
Condition/Function pocket-lamp (optional).....	☐	☐	☐	
Security of the bolts.....	☐	☐	☐	
Condition bolts and bearings.....	☐	☐	☐	
Condition sliding blocks.....	☐	☐	☐	
Condition colour.....	☐	☐	☐	
Construction (deformation, cracking).....	☐	☐	☐	
Condition quality of concrete (cracking).....	☐	☐	☐	
Torque moment of the dowels.....	☐	☐	☐	
Fixed seat of the screws.....	☐	☐	☐	
Condition operating unit.....	☐	☐	☐	
Condition piston rod and stripper.....	☐	☐	☐	
Condition of the covers.....	☐	☐	☐	
Condition of hydraulic system and screw fittings.....	☐	☐	☐	
Level of hydraulic oil	☐	☐	☐	
Condition hydraulic hoses	☐	☐	☐	
Condition electrical cables, switches	☐	☐	☐	
Function test with vehicle.....	☐	☐	☐	
Function test wheel free lift with vehicle.....	☐	☐	☐	
Condition Polymer supports.....	☐	☐	☐	
Condition welding.....	☐	☐	☐	
Function CE-Stop + warning signal.....	☐	☐	☐	

(mark here applicable, in case of verification mark in addition to the first mark!)

Security check carried out:.....

Carried out the company:.....

Name, address of the competent:.....

Result of the Check:

- ☐ Initiation not permitted, verification necessary
☐ Initiation possible, repair failures until.....
☐ No failings, Initiation possible

.....
signature of the expert

.....
signature of the operator

If failures must be repaired:

Failures repaired at:
 (Use another form for verification!)

.....
signature of the operator

Regular security check



Filling out and leave in this manual

Serial number: _____

kind of check	all right	defect missing	veri- fication	remark
Short Operating instruction.....	☐	☐	☐	
Type plate.....	☐	☐	☐	
Warning designation, sticker.....	☐	☐	☐	
Function button "lifting/lowering".....	☐	☐	☐	
Function lever „main lift/wheel free lift“.....	☐	☐	☐	
Condition / Function ramp.....	☐	☐	☐	
Function play-detector (optional).....	☐	☐	☐	
Condition/Function pocket-lamp (optional).....	☐	☐	☐	
Security of the bolts.....	☐	☐	☐	
Condition bolts and bearings.....	☐	☐	☐	
Condition sliding blocks.....	☐	☐	☐	
Condition colour.....	☐	☐	☐	
Construction (deformation, cracking).....	☐	☐	☐	
Condition quality of concrete (cracking).....	☐	☐	☐	
Torque moment of the dowels.....	☐	☐	☐	
Fixed seat of the screws.....	☐	☐	☐	
Condition operating unit.....	☐	☐	☐	
Condition piston rod and stripper.....	☐	☐	☐	
Condition of the covers.....	☐	☐	☐	
Condition of hydraulic system and screw fittings...	☐	☐	☐	
Level of hydraulic oil	☐	☐	☐	
Condition hydraulic hoses	☐	☐	☐	
Condition electrical cables, switches	☐	☐	☐	
Function test with vehicle.....	☐	☐	☐	
Function test wheel free lift with vehicle.....	☐	☐	☐	
Condition Polymer supports.....	☐	☐	☐	
Condition welding.....	☐	☐	☐	
Function CE-Stop + warning signal.....	☐	☐	☐	

(mark here applicable, in case of verification mark in addition to the first mark!)

Security check carried out:.....

Carried out the company:.....

Name, address of the competent:.....

Result of the Check:

- ☐ Initiation not permitted, verification necessary
☐ Initiation possible, repair failures until.....
☐ No failings, Initiation possible

.....
signature of the expert

.....
signature of the operator

If failures must be repaired:

Failures repaired at:
(Use another form for verification!)

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signature of the operator

Regular security check



Filling out and leave in this manual

Serial number: _____

kind of check	all right	defect missing	veri- fication	remark
Short Operating instruction.....	☐	☐	☐	
Type plate.....	☐	☐	☐	
Warning designation, sticker.....	☐	☐	☐	
Function button "lifting/lowering".....	☐	☐	☐	
Function lever „main lift/wheel free lift“.....	☐	☐	☐	
Condition / Function ramp.....	☐	☐	☐	
Function play-detector (optional).....	☐	☐	☐	
Condition/Function pocket-lamp (optional).....	☐	☐	☐	
Security of the bolts.....	☐	☐	☐	
Condition bolts and bearings.....	☐	☐	☐	
Condition sliding blocks.....	☐	☐	☐	
Condition colour.....	☐	☐	☐	
Construction (deformation, cracking).....	☐	☐	☐	
Condition quality of concrete (cracking).....	☐	☐	☐	
Torque moment of the dowels.....	☐	☐	☐	
Fixed seat of the screws.....	☐	☐	☐	
Condition operating unit.....	☐	☐	☐	
Condition piston rod and stripper.....	☐	☐	☐	
Condition of the covers.....	☐	☐	☐	
Condition of hydraulic system and screw fittings.....	☐	☐	☐	
Level of hydraulic oil	☐	☐	☐	
Condition hydraulic hoses	☐	☐	☐	
Condition electrical cables, switches	☐	☐	☐	
Function test with vehicle.....	☐	☐	☐	
Function test wheel free lift with vehicle.....	☐	☐	☐	
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Extraordinary security check



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signature of the expert

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signature of the expert

.....
signature of the operator

If failures must be repaired:

Failures repaired at:

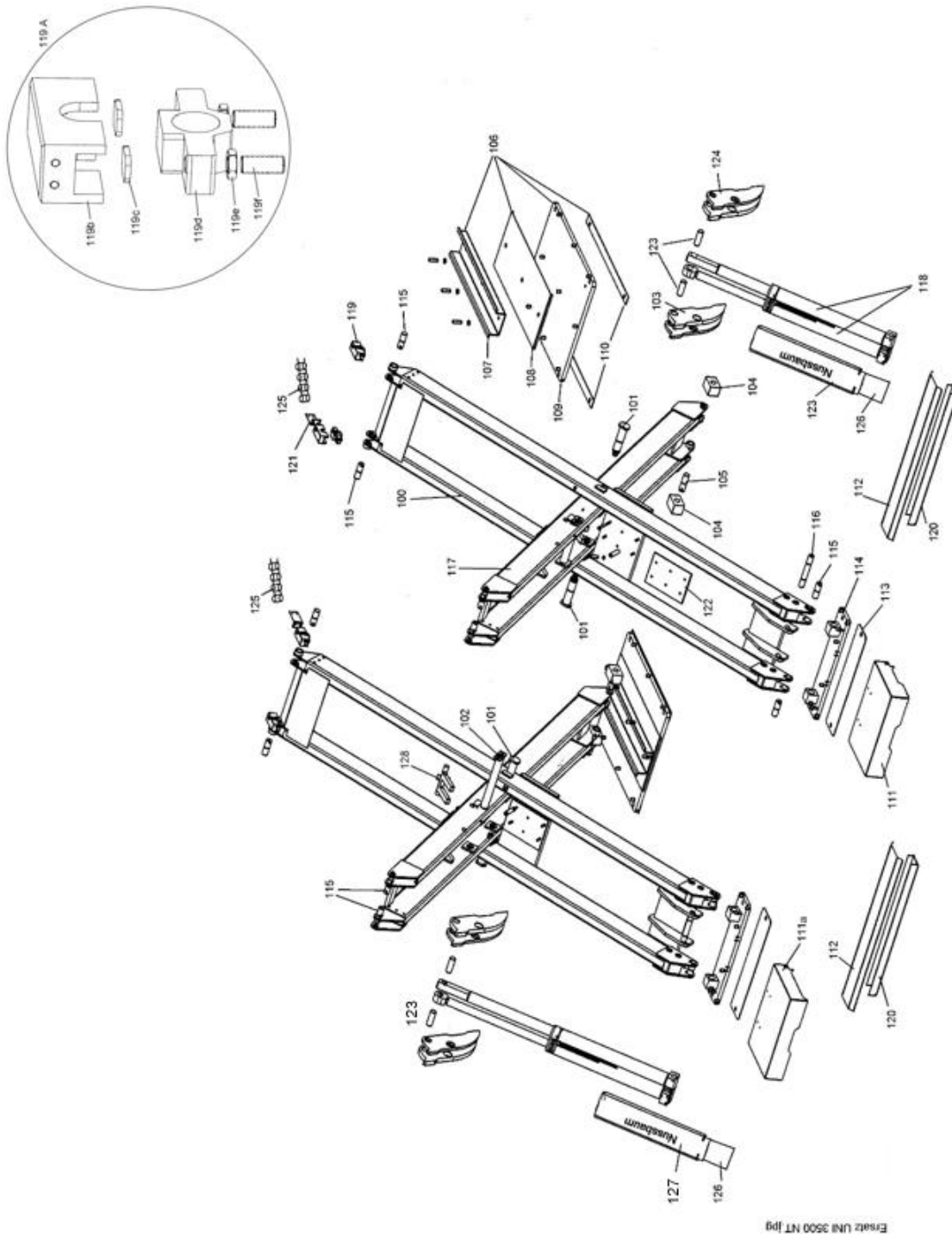
(Use another form for verification!)

.....
signature of the operator

10. Spare parts list



Spare parts must correspond to the technical standards set by the manufacturer. Only original parts fall under our warranty conditions. We deny every claim to non-original parts or damages caused by their use. Unqualified repairs to the lift nullifies any claim to the replaced parts and resulting damages.



Ersatz UNI 3500 NT.jpg

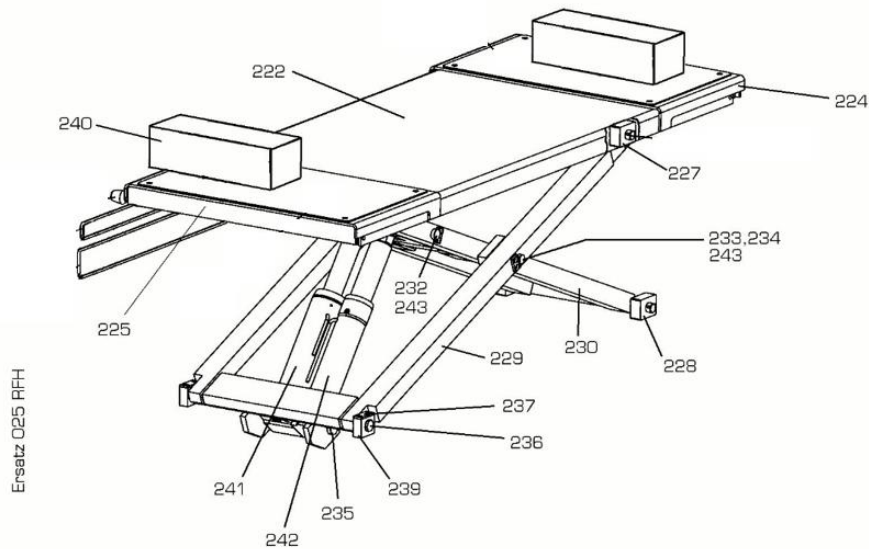
No.	Description	order number	piece/Lift	supplier	article
	Schmiernippel lubricating nipples raccord fileté de graissage	970020	12		
100	Außenschere scissor complete ciseaux	050UNI06203	2		
101	Bolzen bolt axe	035UNI06042	4		
+	Unterlagscheibe washer rondelle	9SC125M26ZN	4		
+	Kronenmutter hexagon castle nut écrou crénelé	9MU937M27X1,5ZN	4		
102	ZH-Bolzen bolt axe	035UNI06309	4		
103	Zylindereinhängung cylinder lever levier cylindre	035UNI26279	2		
+	DU-Bundbuchse plain bearing bush cousinet lisse	9PAF40260P10	2		
+	DU-Bundbuchse plain bearing bush cousinet lisse	9PAF30240P10	2		
+	DU-Bundbuchse plain bearing bush cousinet lisse	9PAF40160P10	2		
+	DU-Bundbuchse plain bearing bush cousinet lisse	9PAF30140P10	2		
104	Gleitstück sliding block bloc à coulisse	035UNI06021	4		
105	Bolzen bolt axe	035UNI06030	4		
106	Loslager komplett support complete support complet	035UNI05012	2		
107	Radlaufblech guide guidage	035UNI05020	2		
108	Gleitbahn crosshead guide guidage de glissement	035UNI05022	2		

109	Stellplatte base plate plaque de base	035UNI05017	2	
+	Gewindestift set screw vis sans tête	9GS913M16X050ZN	14	
+	Sechskantmutter hexagon nut écrou	9MU439M16ZN	14	
+	U-Scheibe washer rondelle	9SC125M16ZN	8	
110	Abdrückblech support support	035UNI05015	4	
111	Abdeckkasten cover couverture	035UNI39305	2	
112	Schlauchabdeckung cover couverture	035UNI09317	2	
113	Abdrückplatte support support	035UNI05007	2	
114	Festlager komplett support complete support complet	035UNI05001	2	
+	DU-Lager plain bearing bush cousinet lisse	970069	4	Glacier-Ihg PAP3025P10
+	Gewindestift set screw vis sans tête	9GS913M16X050ZN	12	
+	Sechskantmutter hexagon nut écrou	9MU439M16ZN	12	
+	U-Scheibe washer rondelle	9SC125M16ZN	12	
115	Bolzen bolt axe	035UNI06033	12	
116	Bolzen bolt axe	030JL62021	2	
117	Innenschere inside scissor ciseaux	050UNI06303	2	
118	Hubzylinder NT komplett cylinder complete cylindre complet	050UNI02200K	2 Satz	

118a	Zylinder Kommando kpl. cylinder master side cylindre côte commande	9050UNI02300	2
118b	Zylinder Folgeseite kpl. cylinder slave side cylindre côte sortie	905UNI02350	2
119A	Gleitstück komplett sliding block complete bloc à coulisse complet	035UNI26020	4
119b	Gleitstück sliding block bloc à coulisse	035UNI26022	4
119c	Flach sheet metal tôle	035UNI26023	8
119d	Gleitstückhalter holding device fixation	035UNI26021	4
119e	Sechskantmutter hexagon nut écrou	9MU439M12ZN	8
119f	Gewindestift set screw vis sans tête	9GS913M12x30ZN	8
120	Schlauchwanne hose guiding guidage tuyau	035UNI09316	1
121	Energiekett.befestigung chain holding device fixation (chaîne)	035UNI06124	2
122	Abdruckplatte support support	035UNI06039	2
+	Kegelkerbstift split pin goupille fendue	9KKS147110X024ZN	4
122a	Rohr Pipe tûbe	035UNI66010 20X4X75lg	2
	Zylinderschraube socket haed cap screw vis à tête cylindrique	9Z912M10X100ZN	2
123	Zylinderbolzen oben bolt axe	030JL66087	4
	- Distanz distance distance	035UNI06036	8
124	Zylindereinhängung cylinder lever levier cylindre	035UNI26288	2

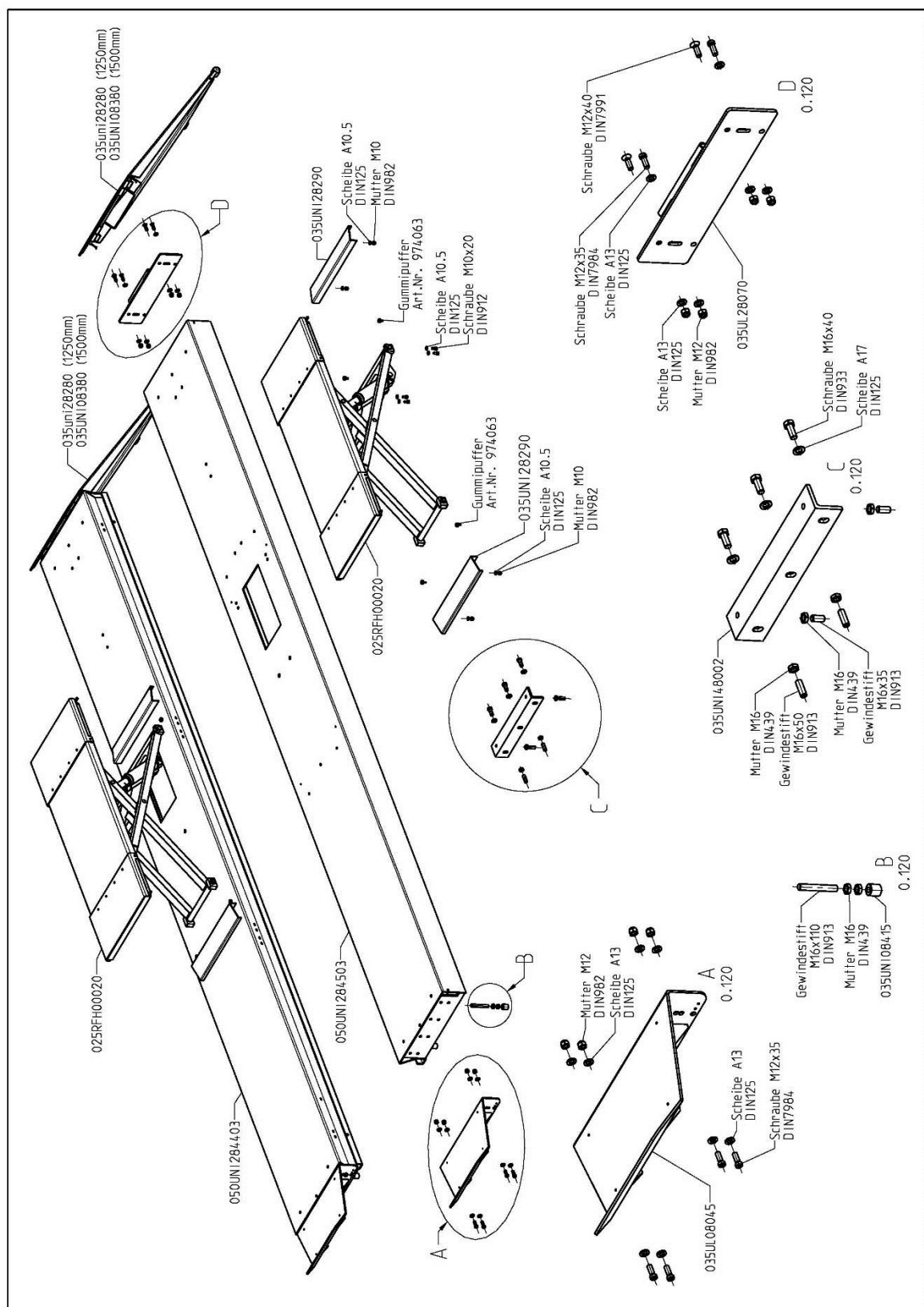
	+ DU-Bundbuchse plain bearing bush cousinet lisse	9PAF40260P10	2	
	+ DU-Bundbuchse plain bearing bush cousinet lisse	9PAF30240P10	2	
	+ DU-Bundbuchse plain bearing bush cousinet lisse	9PAF40160P10	2	
	+ DU-Bundbuchse plain bearing bush cousinet lisse	9PAF30140P10	2	
125	Energiekette energy chain chaîne énergétique	971117		bis 4 St. je Ausführung 31 Glieder
	+ mit Anschlußelement with connection avec connexion	971118		bis 4 St. je Ausführung mit Bolzen
	+ mit Anschlußelement with connection avec connexion	971119		bis 4 St. je Ausführung ohne Bolzen
126	Gummischürze rubber cover couverture caoutchouc	030JL62076	2	
127	Schlauchabdeckung cover couverture	030JL62072	2	
	+ Klemmstück fixation device fixation	030JL62074	2	
128	Arretierung fixing device dispositif d'arrêt	035UNI06350	2	

025RFH00020



No.	Description	order number	piece/Lift
222	Schiene platform plateforme	025RFH28101	2
*	DU_Buchse plain bearing bush cousinet lisse	972272	4
224	Schiebestück sliding piece plateforme roulante	025RFH28150	2
225	Schiebestück sliding piece plateforme roulante	025RFH28165	2
226	entfällt		
227	Gleitstück oben sliding block bloc à coulisse	025RFH06038	4
228	Gleitstück sliding block bloc à coulisse	025RFH06044	4
229	Aussenschere scissor ciseaux	025RFH26013	2
230	Innenschere scissor ciseaux	025RFH26023	2
*	DU_lager plain bearing bush cousinet lisse	970457	4
231	entfällt		
232	Bolzen bolt	025RFH26062	2

	axe		
233	Bolzen Mittelgelenk bolt axe	025RFH26054	2
234	Rohr tube tûbe	030JL01020S1	2
235	Bolzen Zylinder bolt axe	025RFH26070	4
236	Festlagerbolzen bolt axe	025RFH25018	4
237	Gleitstück sliding block bloc à coulisse	025RFH05020	4
239	Festlager stationary bearing point fixe	025RFH05012	4
+	DU-Bundbuchse plain bearing bush cousinet lisse	974904	4
240	Polymeraufgabe polymer support support polymer	973852	4
241	Zylinder Radfreiheber Kommandoseite Cylinder wheel free lift cylindre levage auxiliaire	025RFH22002	2
242	Zylinder Radfreiheber Folgesseite Cylinder wheel free lift cylindre levage auxiliaire	025RFH22051	2
243	Sicherungsblech guard plate tôle de sûreté	030JL02023	12
244	entfällt		
245	entfällt		
246	entfällt		



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