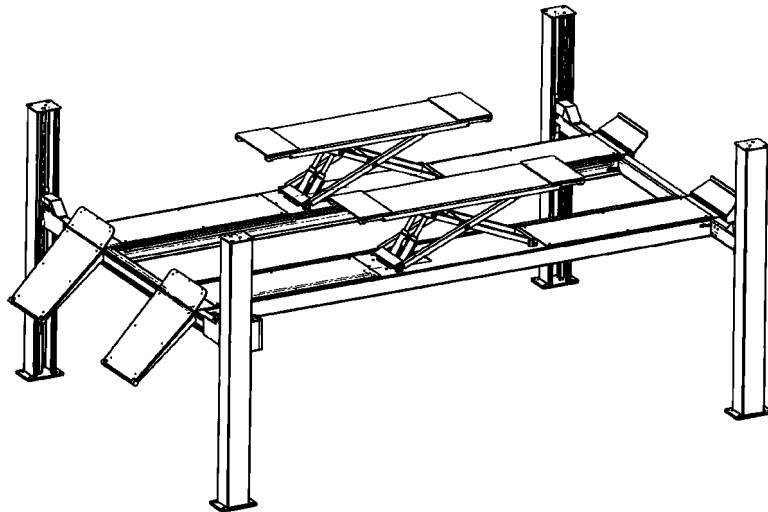


4.35 H 4.35 H Plus

date: April 1998



Instructions and Documentation

Serialno:.....

retailer/phone



NUSBAUM
HEBETECHNIK

Table of contents

Forword.....	3
Record of Installation.....	5
Record of Handing Over.....	6
1. Introduction.....	7
2. Master Document of the automotive Lift.....	8
CE-Zertificate.....	9
page for notice.....	11
3. Technical information.....	12
Data sheet 4.35 H.....	13
Data sheet 4.35 H with wheel free lift.....	14
Foundationplan.....	15
Electrical diagram drawing.....	17
Electrical parts list.....	18
Electrical diagram drawing with wheel free lift.....	19
Electrical parts list with wheel free lift.....	20
Hydraulic diagram drawing.....	21
Hydraulic parts list.....	21
Hydraulic-diagram drawing with wheel free lift.....	22
Hydraulic parts list with whell free lift.....	22
4. Safety regulations.....	23
5. Operating instructions.....	23
6. Troubleshooting.....	26
Emergency lowering in case of power failure and defective valves.....	26
Emergency lowering of the whell free lift.....	28
7. Maintenance.....	28
8. Security check.....	29
9. Installation and initiation.....	30
Installation of the lift.....	30
Erection and doweling of the lift.....	30
Initiation.....	33
Position of the column.....	34
Connect the operating unit.....	35
Appendix	
Document "First security check before Installation"	
Document "Regular security check"	
Document "Extraordinary security check"	

Forword

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 tightend!

 **Send this record, filled out and signed to Nußbaum after the installation !**

Otto Nußbaum GmbH & Co.KG

Korker Straße 24

77694 Kehl-Bodersweier

Germany

Record of installation

The automotive lift 4.35 H / 4.35 H Plus with the

serial number.: was installed on

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

the safety mechanism and operation were checked.

The installation was done by the operator / competent person (please delete as applicable)

The safety of the automotive lift was checked by the person before the initial operation

The operator attests, the correct installation of the automotive lift. The competent person attests the correct initial operation.

..... date name of the operator signature of the operator
---------------	-------------------------------	------------------------------------

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

Your Servicepartner:.....

1. Introduction

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

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

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

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

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 person 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 labour and accidents prevention regulations.

Competent person 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 Competents)

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 for an important function or other important notes.***

2. Master document of the automotive lift

Lift designation 4.35 H / 4.35 H Plus
Manufacturer Otto Nußbaum GmbH & Co.KG
 Korker Straße 24
 77694 Kehl-Bodersweier
 Germany

Application

The automotive lift 4.35 H / 4.35 H Plus 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 automotive lift is only designed for servicing vehicles.

The wheel free lift 0.25 RFH is a lifting mechanism for lifting motor vehicles with a laden weight of up to 2500 kg. The max. load distribution is 2:1 in or against drive-on direction. The automotive lift is only designed for servicing vehicles.

It's not allowed to install the standard-automotive lift in a hazardous location or washing bays.



Changes to construction, repairs and transposition of lift must be registered in this master document

Changes to the construction, expert checking, resumption of operation (date, kind of change, signature of the expert)

.....

.....
 .name, address of the expert

.....
 place, date

.....
 signature of the expert

Displacement of automotive-lift-place, expert checking, resumption of operation (date, address and signature of the competent)

.....
 .name, address of the competent

.....
 place, date

.....
 signature of the competent

CE-Certificate/attestation of conformity

The automotive lift 4.35 H/4.35 H Plus with the serial number.....
is in accordance with the tested lift (CE-Certificate-Number 04 205-259/97)

.....
place, date

.....
company stamp, signature

ZERTIFIKAT
CERTIFICATE

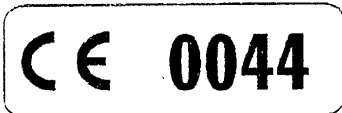


Registrier-Nr./Registered No.:
04 205 259/97

ES-Prüfung der RWTÜV-Anlage nach Anhang VI der EG-Richtlinie 89/392/EWG
EC-type approval according to appendix VI of the EC-directive 89/392/EEC

Zeichen des Antraggebers Reference of applicant	Antragdatum Date of application	Modellbezeichnung Type reference	Prüfbericht Nr. Test report No.	Ausstellungsdatum Date of issue	Gültigkeit bis Expiry date
Hr. Müller	06.11.96	7.2-1609/96	256/97 u. 257/97	10.02.1997	10.02.2002

Hiermit wird bestätigt, daß das hierunter genannte Produkt den grundlegenden Anforderungen der Richtlinie des Rates vom 14.06.89 zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Maschinen, sowie den Änderungen 91/368/EWG und 93/44/EEG entspricht.
We hereby certify that the product mentioned below meets the basic requirements of the council directive dated 14.06.89 on the approximation of the laws of the member states relating to machinery, as well as the amendments 91/368/EEC and 93/44 EEC.



Antragsteller: *Otto Nußbaum GmbH & Co. FG*
Applicant: *Korker Str. 24, D-77694 Kehl*

Fertigungsstätte: *s.o.*
Manufacturing plant:

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H..*
Product description: *Typenschlüssel siehe Anlage*

[Signature]

TÜV CERT - Zertifizierungsstelle
der RWTÜV Anlagentechnik
im Institut für Gerätesicherheit und
Medizintechnik, notifiziert bei der EG-
Kommission unter Nr. 0044

RWTÜV Anlagentechnik GmbH
Institut für Gerätesicherheit
und Medizintechnik
Langemarckstr. 20
D-45141 Essen
Tel.: (49) 201-525-3216
Fax: (49) 201-525-3209

ZERTIFIKAT

CERTIFICATE

RWTÜV

ANLAGENTECHNIK GMBH

Registrier-Nr./Registered No.:

04 205-259/97

Anlage 1, Blatt 1 von 1
Annex 1, page 1 of 1

Zeichen des Auftraggebers Reference of applicant	Auftragsdatum Date of application	Aktenzeichen File reference	Prüfbericht Nr. Test report No.	Ausstellungsdatum Date of issue	Revision revision:
Hr. Müller	06.11.97	7.2-1609/96	256/97 u. 257/97	10.02.1997	C

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-00*
Product description: *Schiene: 4400 mm und Fangstange*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-05*
Product description: *Schiene: 4800 mm und Fangstange*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-10*
Product description: *Schiene: 4400 mm, Fangstange und Achsmesseinrichtung*

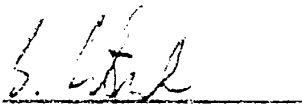
Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-15*
Product description: *Schiene: 4800 mm, Fangstange und Achsmesseinrichtung*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-20*
Product description: *Schiene: 4400 mm und Fangklinke*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-25*
Product description: *Schiene: 4800 mm und Fangklinke*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-30*
Product description: *Schiene: 4400 mm, Fangklinke und Achsmesseinrichtung*

Produktbeschreibung: *Kfz.-Hebebühne Typ: 4.35H-35*
Product description: *Schiene: 4800 mm, Fangklinke und Achsmesseinrichtung*



TÜV CERT - Zertifizierungsstelle
der RWTÜV Anlagentechnik
im Institut für Gerätesicherheit und
Medizintechnik, notifiziert bei der EC-
Kommission unter Nr. 0044

RWTÜV Anlagentechnik GmbH
Institut für Gerätesicherheit
und Medizintechnik
Langemarckstr. 20
D-45141 Essen
Tel.: (49) 201-625-3216
Fax: (49) 201-625-3209

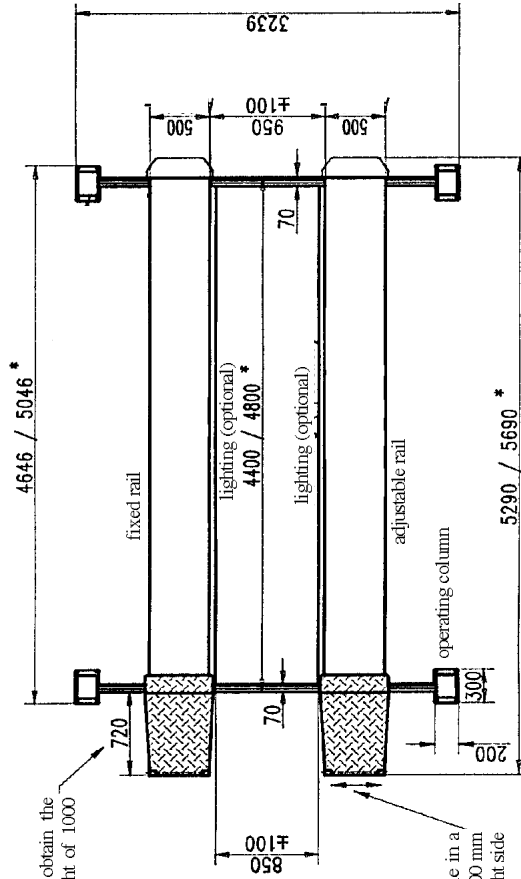
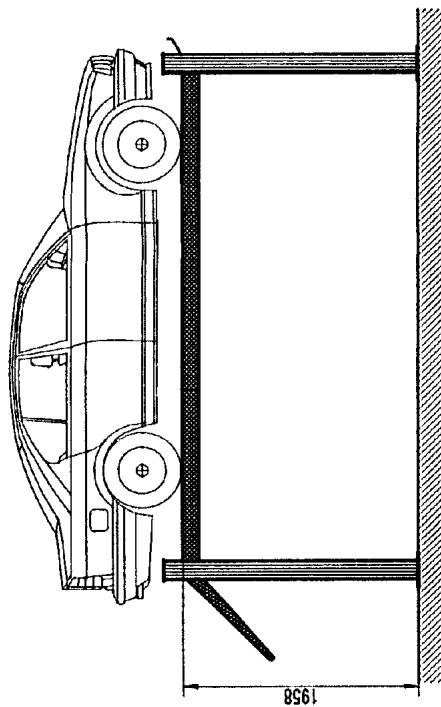
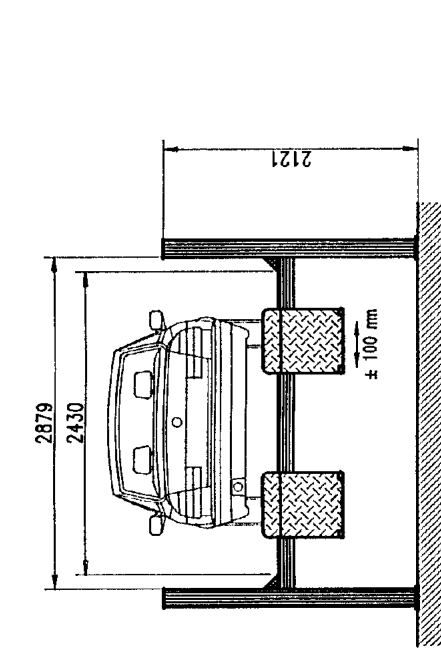
3. Technical information

Technical ratings:

Lifting capacity:	3500 kg
Load distribution:	max. 2:1 in or against drive-on direction
Lifting time automotive lift:	app. 30 sec
Lowering time automotive lift:	app. 25 sec
height of lifting (automotive lift):	1955 mm
capacity wheel free lift:	2500 kg
Load distribution:	max. 3:2 in or against drive-on direction
lifting time wheel free lift:	app. 5 sec
lowering time wheel free lift:	app. 12 sec
height of lifting wheel free lift:	450 mm
Line voltage:	400 V three phase current
driving voltage:	24 Volt
Power rating:	3,0 KW
Motor speed:	2800 revolution/minute
Output oil pump:	3 ccm/revolution
Hydraulic pressure:	240 - 250bar
Responsing pressure of the pressure relief valve:	275 bar
Hold-up oil-tank:	app. 10 litre
sound level (measured at operating panel)	75 dBA

Safety devices

1. safety ratchets
safety device of the load against unintentional lowering in case of leak hydraulic system
2. safety switch
If the rope tears the lift switched off.
3. pressure relief valve
Overpring-safety of the hydraulic system
4. CE-STOP
The automotive lift stops automatically 200 mm before the lowest position.
5. Roll-off safety at the runways
Safety device of the vehicle against falling down



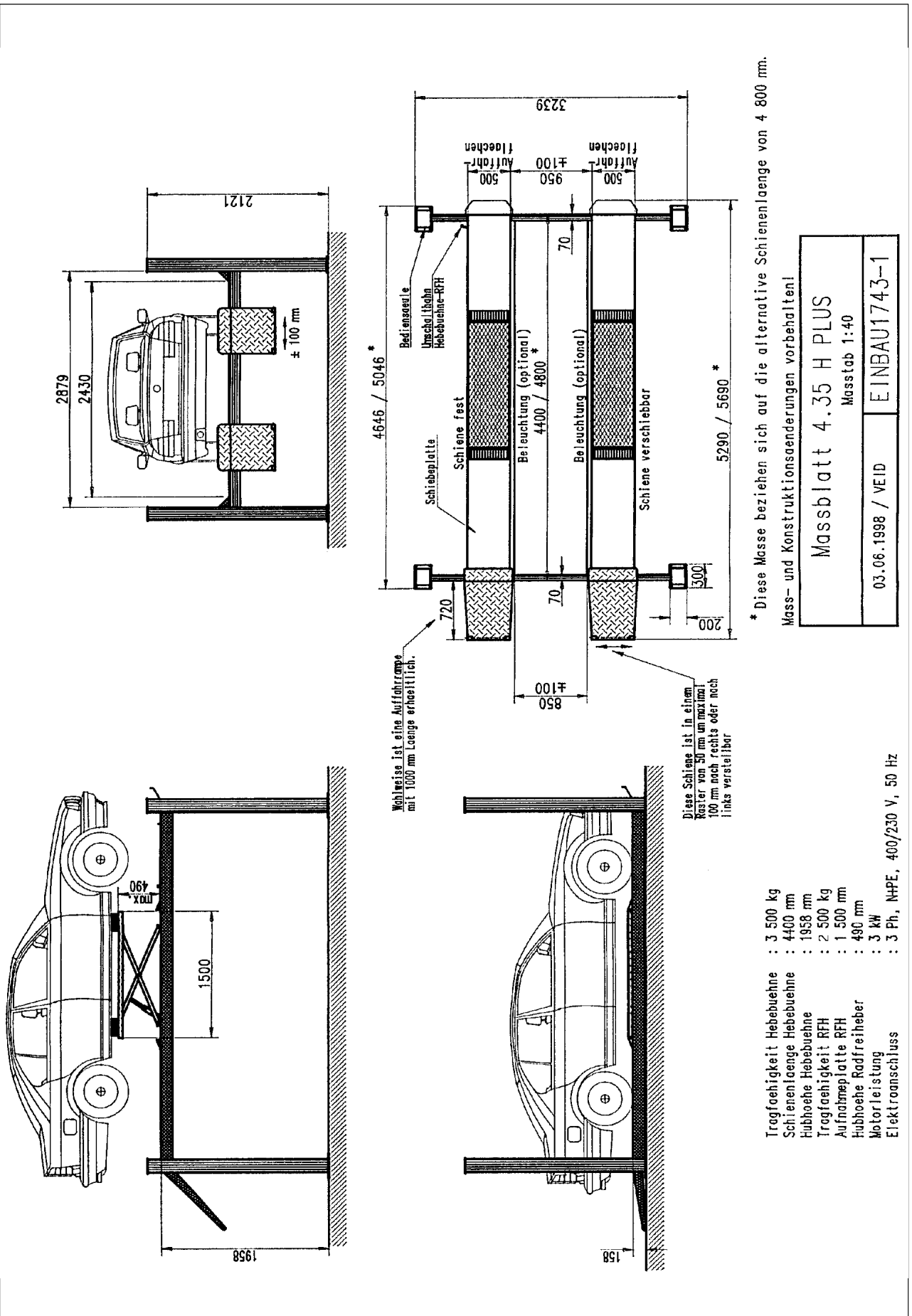
It is possible to obtain the ramp with a length of 1000 mm

the rail is adjustable in a grid of +/- 50 till 100 mm to the left or the right side

* This measure are for the railwith 4800 mm subject to alteration

capacity: 4000 kg
 lifting height: 1958 mm
 motor capacity: 3 kW
 electric supply: 3Ph, N+PE, 400/230, 50Hz

Massblatt 4.35 H PLUS Masstab 1:40	
03.06.1998 / VEID	EINBAU1743-2

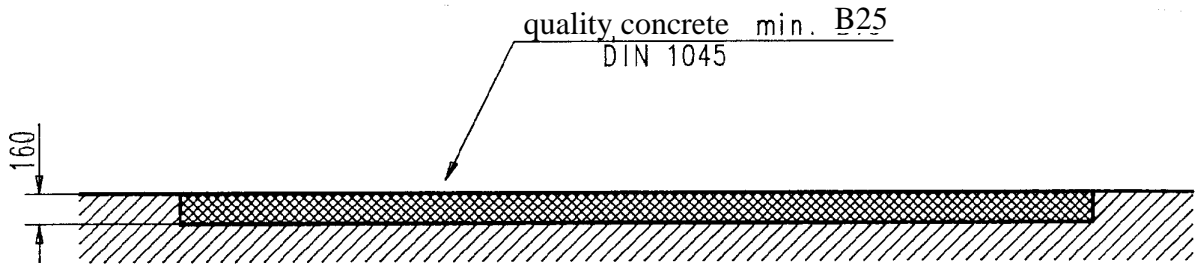


* Diese Masse beziehen sich auf die alternative Schienenlänge von 4 800 mm. Mass- und Konstruktionsänderungen vorbehalten!

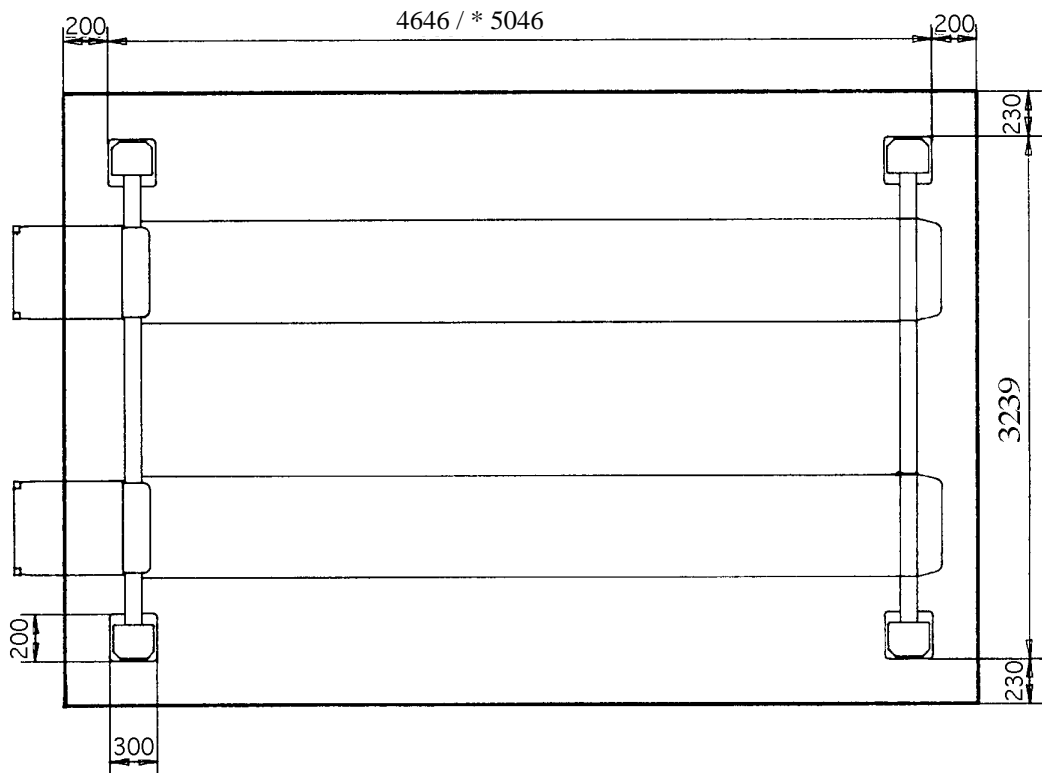
Massblatt 4.35 H PLUS Masstab 1:40	
03.06.1998 / VEID	EINBAU1743-1

- Tragfähigkeit Hebebühne : 3 500 kg
- Schienenlänge Hebebühne : 4400 mm
- Hubhöhe Hebebühne : 1958 mm
- Tragfähigkeit RFH : 2 500 kg
- Aufnahmeplatte RFH : 1 500 mm
- Hubhöhe Radfreibeber : 490 mm
- Motorleistung : 3 kW
- Elektronenschluss : 3 Ph, NPE, 400/230 V, 50 Hz

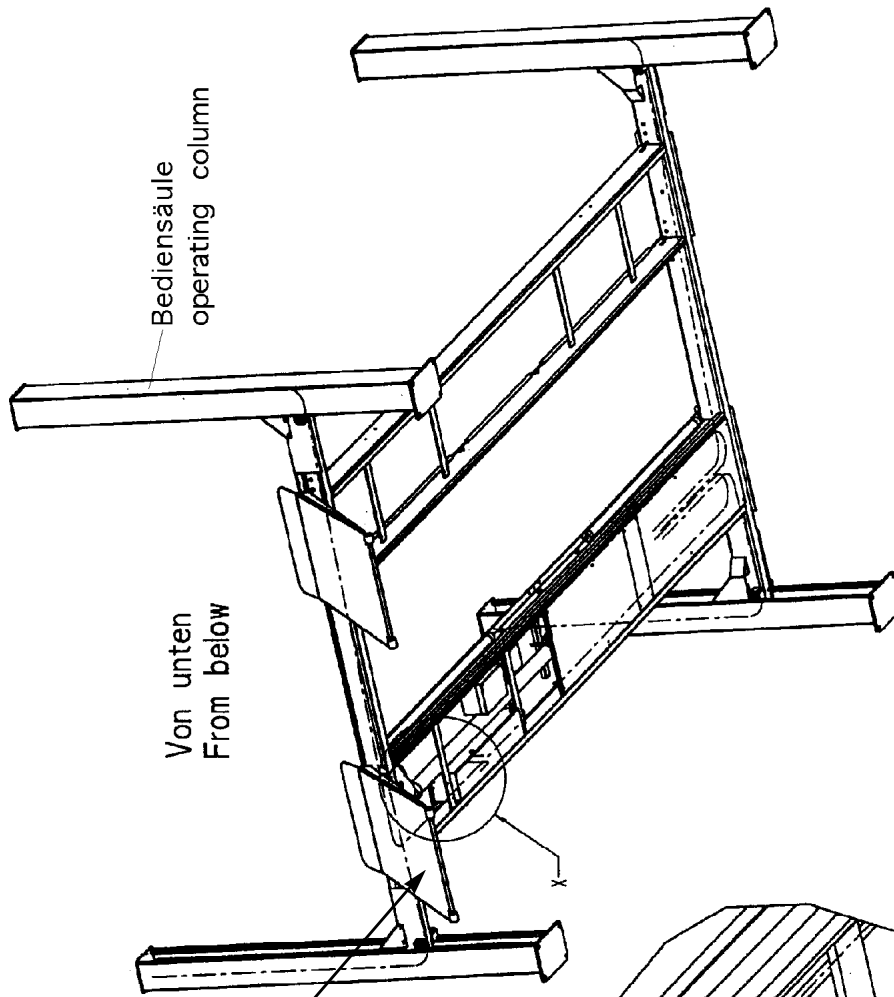
Foundationplan



These measure is for the rail 4400 mm
***These measure is for the rail 4800 mm**

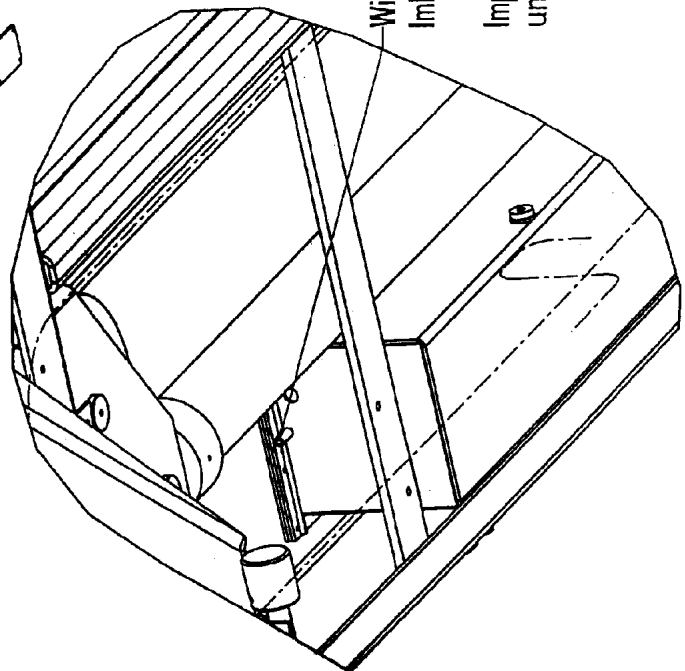


This is an example:
You can mounting the ramp on this side of the rails or on the other side of the rails

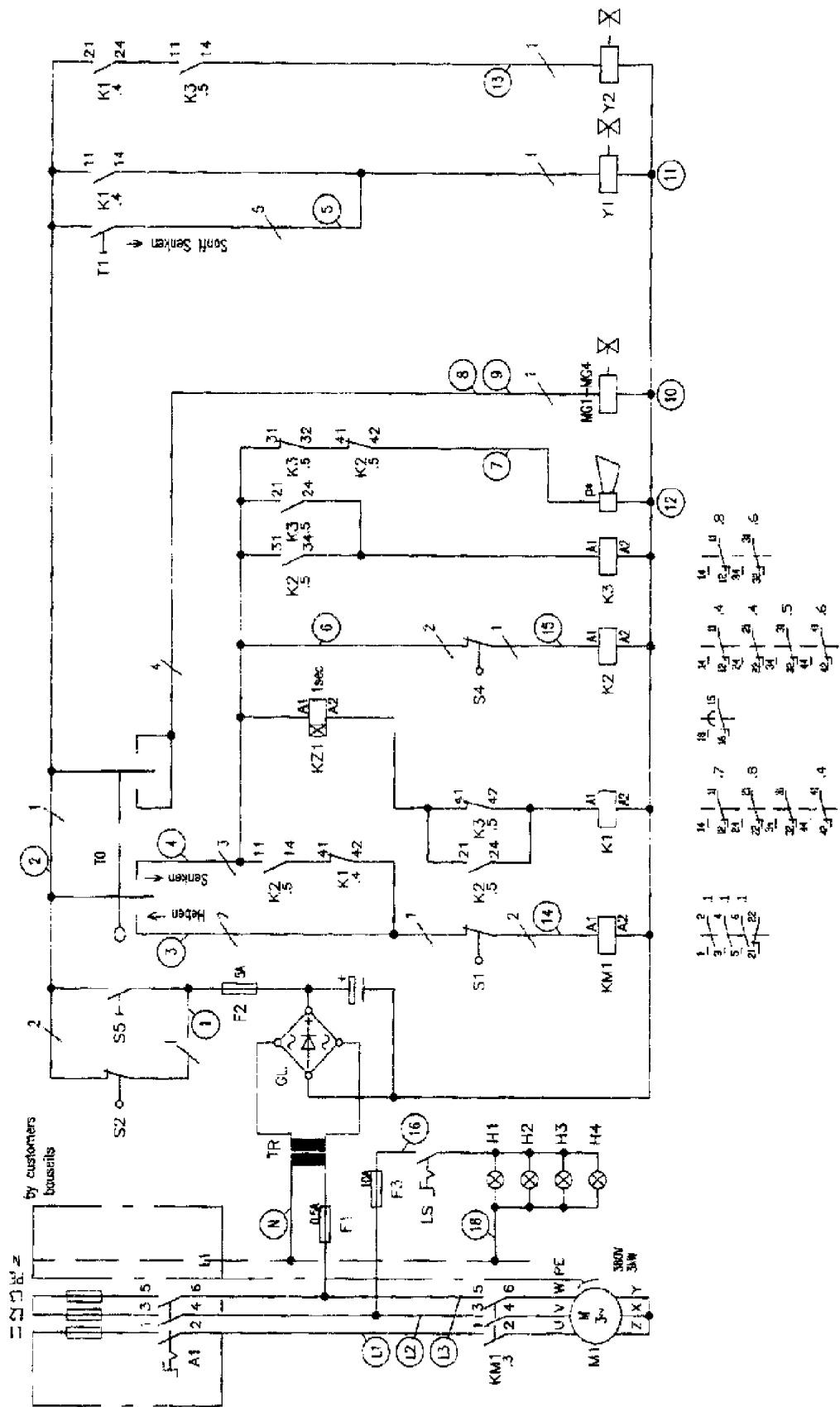


Wichtig: Vor Inbetriebnahme der 4-Säulenhebeuehne
Impusschraube M6x20 vollstaendig aus Hydraulik-Aggregat herausdrehen.

Important: Before the Lift is put into operation
unscrew the skrew M6x20 completely from hydraulic unit.



Electrical-diagram drawing without wheel free lift



Revision	Datum	Name	Datum	Name
0			12.06.38	Kg
1			gez.	
2			gepr.	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

4.35 H / 4.35 H Plus

Anheben beim Senken

Projektbez. 4-Säulen-Hebebrinne

Zeichnungsgr. 435H_3

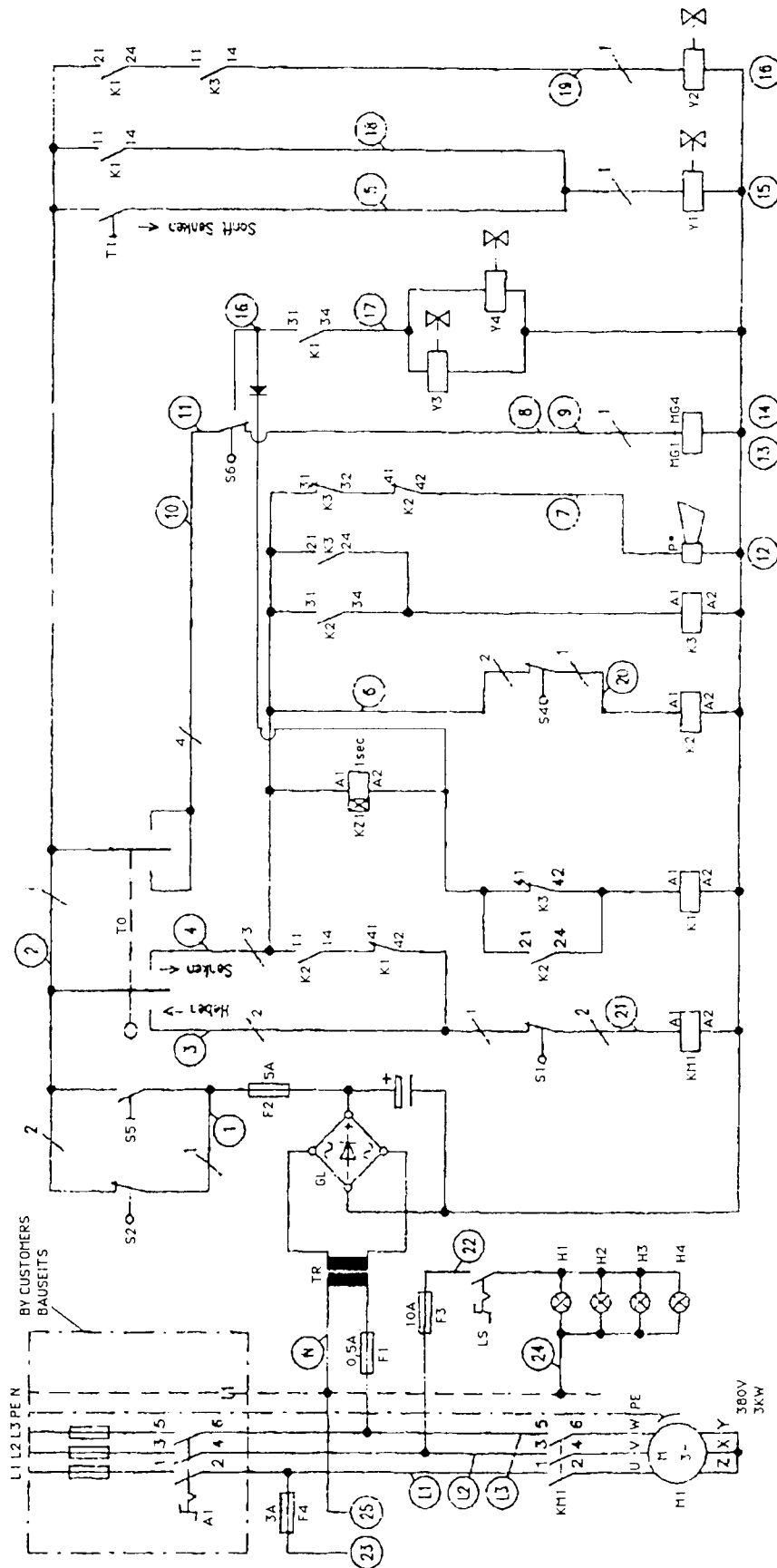
Blatt

B

Electrical part list

- A1: main switch 3-pole (by customer)
- M1: motor 3~, 400 V, 3,0 kW
- KM1: up contactor
- T0: key switch "lifting"
- T0: key switch "lowering"
- T1: button "soft lowering in the ratchets"(main lift)
- S1: "top limit switch" (main lift)
- S2: limit switch "the rope is torn"
- S4: limit switch "the main lift is 200 mm over the floor"
- S5: override switch
- K1-K3: relais 990267
- P*: loudspeaker
- MG1: electromagnetic (ratchet)
- MG2: electromagnetic (ratchet)
- MG3: electromagnetic (ratchet)
- MG4: electromagnetic (ratchet)
- Tr: Transformer 230V/24V
- GL: rectifier
- F1: fuse
- F2: control fuse
- F3: fuse
- Y1: override valve for the soft lowering
- Y2: valve(main lift)
- KZ1: timerelais 1sec.
- H1-H4: lighting
- LS: lighting switch

Electrical-diagram drawing with wheel free lift

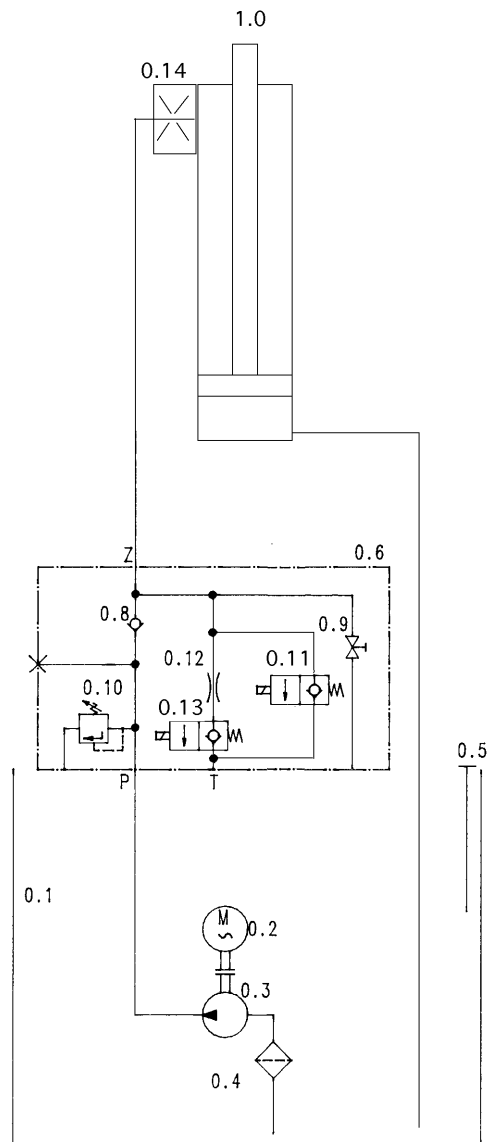


4.35H - mit Radfreiheber		Elektro-Schaltplan		Projekt: 4-Säulen-Hebebühne		Zeichner: 435H_2	
Datum	18.05.98	Maßstab	K0				
geändert am 25.03.99 Ka							

Electrical part list

A1:	main switch 3-pole (by customer)
M1:	motor 3~, 400 V, 3,0 kW
KM1:	up contactor
T0:	key switch "lifting"
T0:	key switch "lowering"
T1:	button "soft lowering in the ratchets"(main lift)
S1:	"top limit switch" (main lift)
S2:	limit switch "the rope is torn"
S4:	limit switch "the main lift is 200 mm over the floor"
S5:	override switch
S6:	switch Automotive lift / wheel free lift
d1-d3:	relais
P*:	loudspeaker
MG1:	electromagnetic (ratchet)
MG2:	electromagnetic (ratchet)
MG3:	electromagnetic (ratchet)
MG4:	electromagnetic (ratchet)
Tr:	Transformer 230V/24V
GL:	rectifier
F1:	fuse
F2:	control fuse
F3:	fuse
Y1:	override valve for the soft lowering
Y2:	valve(main lift)
Y3:	valve wheel free lift
Y4:	valve wheel free lift
KZ1:	time relais 1sec.
H1-H4:	lighting
LS:	lighting switch

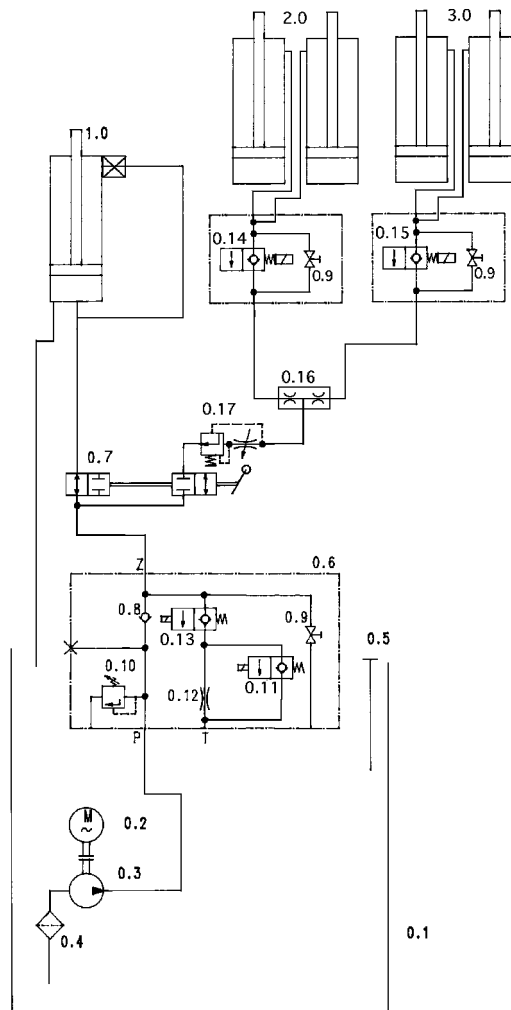
Hydraulic diagram drawing



hydraulic parts list

- 0.1 : oil tank
- 0.2 : motor
- 0.3 : gear pump
- 0.4 : oil-filter
- 0.5 : oil level gauge
- 0.6 : hydraulic block complet
- 0.8 : holding valve
- 0.9 : emergency lowering screw
- 0.10: pressure control valve
- 0.11: magnetic valve
- 0.12: screen (soft lowering)
- 0.13: magnetic valve
- 1.0: hydraulic cylinder

Hydraulic diagram drawing with wheel free lift



hydraulic parts list

- 0.1 : oil tank
- 0.2 : motor
- 0.3 : gear pump
- 0.4 : oil-filter
- 0.5 : oil level gauge
- 0.6 : hydraulic block complet
- 0.7 : ball valve (automotive lift /wheel free lift)
- 0.8 : holding valve
- 0.9 : emergency lowering screw
- 0.10: pressure control valve
- 0.11: magnetic valve
- 0.12: screen (soft lowering)
- 0.13: magnetic valve
- 0.14: safety valve (wheel free lift)
- 0.15: safety valve (wheel free lift)
- 0.16: rate control valve
- 0.17: lowering valve (wheel free lift)
- 1.0: hydraulic cylinder
- 2.0: cylinder wheel free lift
- 3.0: cylinder wheel free lift

4. Safety regulations

Using automotive lifts for working the Regulations of Accident Prevention (VBG1: General Regulations in Germany, VBG14: Automotive lifts) must be observed.

Especially the following regulations are very important

- The laden weight of the lifted vehicle mustn't be more than 3500 kg, the maximum load sharing is 2:1, in drive-on direction or against drive-on direction.
- The laden weight of the lifted vehicle mustn't be more than 2500 kg (wheel free lift), the maximum load sharing is 3:2, in drive-on direction or against drive-on direction.
- While the automotive lift is working the operating instructions must be followed
- Only trained personnel over the age of 18 years old are to operate this lift
- While the vehicle is lifted or lowered it must be observed from the operator.
- Do not transport passengers on the lift or in the vehicle
- Do not climb onto the lift during lifting or lowering or onto a lifted vehicle
- The Automotive Lift must be checked from an expert after changes in construction do not start with operations at the lift before the main switch is switched off
- Do not install the standard-automotive lift in hazardous location or in washing halls
- Keep key to a safe place during normal operation of the lift. The key must not be in the lock.

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!

The operating elements are shown in picture 1.

Lifting the vehicle with the automotive lift

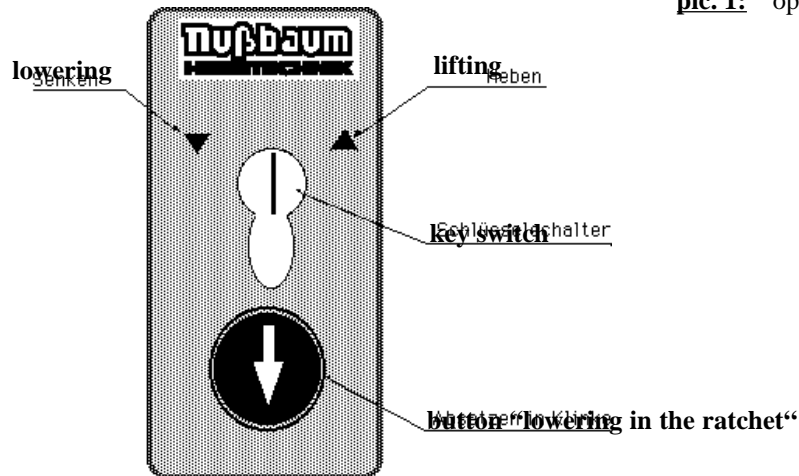
- Drive vehicle on the lift, longitudinal direction and transverse direction in centre



Each wheel must stand completely on the rail otherwise the vehicle might fall down

- Safe the vehicle against rolling away, switch into gear.
- Control 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.
- Turn the key switch on position '↑'
- Lift the vehicle on the working height. Observe the complete process.

pic. 1: operating unit



Lowering the vehicle with the automotive lift

- Control 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.
- Turn the key switch on position “ “.
- The lift raised a little bit before the lowering starts
- Lower the lift on the working height . Observe the complete process.

Comment!

If the main lift is in a height of 200 mm over the floor the electric switched off automatically. In this case turn the key in position “0“ and after in position “ “ again. You hear an accoustic warn signal until the lift is in the lowest position.

- Drive the vehicle from the lift if its in the lowest position.

Lowering into the ratchet strip

- Activate button „lowering in ratchet“ (see pic.1).
- Push button as long as all four ratchets are engaged and the lift does not move any more.

Lifting out of the ratchet strip

- Turn the key on position “ “ until the ratchets are free.

Driving on an obstacle

If the lift is running onto an obstacle during the lowering, it stops automatically. In this case push bypass switch on the operating column and turn the key on position “ “ simultaneous until the obstacle can be removed.

Lifting the vehicle with the wheel free lift

- Drive the vehicle over the wheel free lift, longitudinal direction and transverse direction in centre.
- Safe the vehicle against rolling away, switch into gear.



If the wheelbase is too short and the wheels are standing on the ramps, remove the ramps.



If its necessary fold out the extension ramps. (special version)




The complete vehicle must standing on the rail otherwise the vehicle might fall down.

- 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.
- Put the lever (on the side of the rail) on the position „wheel free lift“.
- Position the elastomer-supports under the pick-up points of the vehicle as prescribed by the vehicle-manufacturer.




The elastomer-supports must not be used on the high end to avoid overturning. They have be placed such that the support have the lowest height.




- Lift the vehicle until the wheels of the vehicle are free. Push button “”. Check that the vehicle is safety positioned.



The vehicle must be positioned on the elastomer supports in a safe way, otherwise there´s a danger that the vehicle might fall down.

- Lift vehicle to working height; turn the key on position “”.

Liting the vehicle with the wheel free lift

- 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.
- Turn the key switch on position “ ”.
- If the lift is in the ratchet; first: turn the key switch on position “” and after turn it on position “”.
- Lower the lift on the working height. Turn the key switch on position “”. Observe the complete process.

Equalisation of the wheel free lift rails

- Normally equalisation of the lift returns after a few minutes (cooling time of the hydraulic oil).

In the case the unequalisation of the rails remains you should perform as follows to regain the lifts function:

- Put the lever (on the side of the rail) on position wheel free lift.
- Turn the key on position "↑" or "↓" and hold it until the rails have the same height.
- Now the lift has the normal function mode.

Driving on an obstacle with the main lift

If the lift is running onto an obstacle during the lowerin, it stops automatically. In this case push the override switch (pic.2, pos.1) under the rail and turn the key on position "↑" simultaneous until the obstacle can be removed.

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.



Repairs at the lift' s security devices as well as repairs and examinations of the electrical fittings may only be performed by specialists.

Problem: Motor does not start!

**Potential causes
of trouble:**

- The main switch is not switched on
- Fuse is defective: replace fuse
- Feed line is cut
- power failure
- the rope is torn and the limit switch is pressed
(call the technical service)

Problem: The Lift does not lowered, but lifting !

**Potential causes
of trouble:**

- The coil of the magnetic valve is defective
- The ratchets are engaged, move up the lift before lowering


Problem: The Lift does not lifting, but lowering !


**Potential causes
of trouble**

- the top limit switch is pressed
- the direction of the motor is wrong


Emergency lowering (main lift)

In case of power failure or defective valves the hydraulic valve for lowering of the lift, there is the possibility to lower the lift by opening the hydraulic valve manually, so the car can be driven off.


 ***In case of power failure emergency lowering can only be performed when the ratchets are not engaged (when the ratchets can be pulled back manually). In case of defective valve the lift can be lifted a little bit by turning key to lifting position (to right side) So there is the possibility of pulling back the ratchets manually.***

 ***The emergency lowering must only be performed by persons instructed to use the lift. Please refer to the regulation "Lowering".***

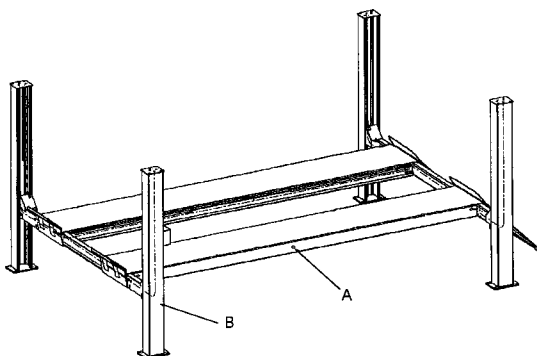
- Pull back the ratchet manually and lay a suitable support (wedge, cloth) between the ratchet-strip and the ratchet or fix the pulled-back ratchet with the help of a wire. So the ratchet tooth of the ratchet can not engage in ratchet-strip any more. This step should be taken at all of the four columns.
- Loosen emergency lowering screw (set screw) for one turn to start the lowering (the emergency lowering screw is on the side of the rail); with a hexagon socket screw key . (see pic.2)
- Fasten emergency lowering screw and safe it with the red coloured security nut when the lift is at lowest position.

 ***After finishing the emergency lowering, the emergency lowering screw and the security nut (coloured red) must be brought into the position they have had before. Otherwise a malfunction of the lift can occur.***

- Remove support or wire of the ratchets.

 ***To guarantee the safe running of the lift the supports must be removed from the ratchet to bring the ratchet in its normal function.***

- Drive the vehicle from the lift.



pic 2:
the emergency lowering screw at the side of the rail.

- A. the screw for the emergency lowering
- B. operating column

Emergency lowering (wheel free lift)

In case of power failure or defective magnetic for lowering the wheel free lift it is possible to lower the lift by opening the valves manually, so the wheel free lift can be lowered in the lowest position.



The emergency lowering must only be performed by persons instructed to use the lift. Please refer to the regulation "Lowering".

- Put the lever on the position "wheel free lift".
- Unscrew the red locknut at the hydraulic block of the wheel free lift cylinder. Turn the set screw with the hexagon socket screw key one direction anticlockwise.
- Unscrew the red locknut (on the side of rail (main lift)) and turn the set screw with a hexagon socket screw key one direction anticlockwise.
- The emergency lowering starts.
- If the wheel free lift is in the lowest position. Close and safe the emergency lowering screws.



After finishing the emergency lowering, the emergency lowering screw and the security nut (coloured red) must be brought into the position they have had before. Otherwise a malfunction of the lift can occur.

7. Maintenance

A regular service has to be performed every three months by the lift's operator according to the following schedule. If the lift is in continuous operation or dirty environment, the maintenance rate has to be increased.

During daily operation the lift has to be watched carefully for its correct function. In case of any malfunction or leakage the technical service has to be informed.

Maintenance schedule for the lift

- Clean piston rods of hydraulic cylinder from sand and dirt.
- Clean and lubricate running pieces of the lift (hinge bolts, sliding pieces, sliding surfaces) (multipurpose lipid).
- Grease all the lubricating nipples (multipurpose lipid).
- Check ratchets if they engage smoothly and grease striking surfaces.
- Check level of hydraulic oil.
- Condition of carrying rope: If torn wires can be discovered the complete rope-set must be changed.
- Clean the drip pan for waste oil (under the cylinder).

- Check the white Polymer blocks and replace them if its necessary.
- It´s prescribed (VBG 14, § 52-3 German regulation) to exchange the hydraulic tubes if its necessary, but latest after 6 years.
- When cleaning the shopfloor or the lift, do not use aggressive detergents that may damage the paint or cause rust. Regulary retouch damaged paint work so that no rust will develop. Regulary clean lift from dust and dirty.
- If the lift is equipped with Aluminium planking. Check it. If necessary remove the planking and clean the surface of the platform and the planking .
- The hydraulic oil has to be changed at least once a year. To change the oil lower the lift into its lowest position. Empty the tank and replace the oil, approximately 10 litres are needed. A high quality hydraulic oil is recommended, its viscosity should be 32 cst (e.g. HLP 32 LTD. OEST).
- Check the welding.
- Check the colour.

8. Security check

The security check is necessary to guarantee the safety of the lift 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".

2. In regular intervals after the initial operation, at least annually.

Use the form "Regular security check".

3. Every time the construction of that particular lift has been changed.

Use the form "Extraordinary security check".



The first and regular security checks must be performed by a competent. 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 forms 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.

9. Installation and Initiation

Regulations for the installation

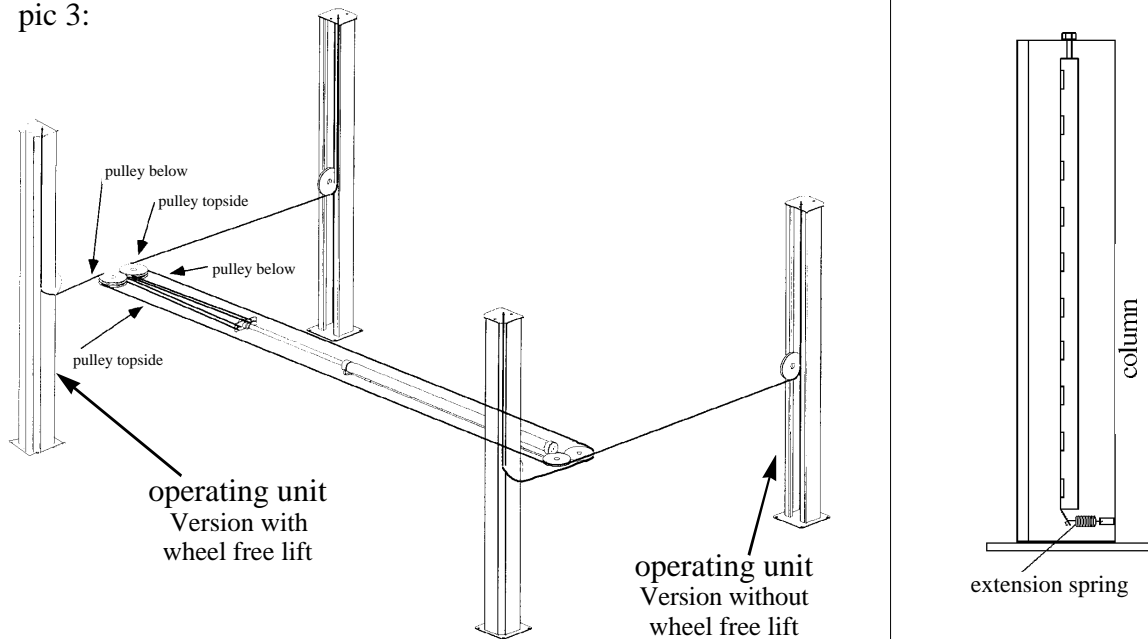
- The installation of the lift is performed by trained technicians of the manufacturer or its distribution partner. If the operator can provide trained mechanics, he can install the lift by himself. The installation has to be done according to this regulation.
- The standard lift must not be installed in hazardous locations or washing areas.
- An **electric supply** 3~/N+ PE, 400 V, 50 Hz and the main switch has to be provided. The supply must be protected by customers (fuses). The electrical connection is located in command column top side.
- All cable ducts have to be equipped with protective coverings to prevent accidents.

Erection and doweling of the lift

Normally a special foundation for the lift 4.35 H is not necessary. But it is necessary to dowel the columns at 4 points and to safe the lift against slipping. For this a concrete floor without reinforcement, thickness of 160 mm and quality B 25 is needed. In case of doubt a test drill is necessary and a dowel is to put in. Afterwards the Liebig-dowel (German Dowelmanufacturer) is to fasten with a torque of 50 Nm. If the necessary torque is too low or if there are cracks in the concrete floor, a foundation in accordance with the sheet "foundation plan" is to erected. As well it must be paid attention that the installation place is even to guarantee a horizontal erection of the lift.

- Put runways on two erection trestles at installation place, pay attention of exactly difference between the runways (refer to data sheet)
- Position the Traverses on the face of the runways, and put the plugs together.
- Mount the ropes (see **pic. 3**)
- Position columns at ends of traverses
- Line up the operating column (with bubble level) and drill holes for dowel-fixing through four bore-holes of base plates. Clean bore-holes with pressure air. Put in safety dowels with washers in borings.
- Take carrying ropes through columns to upper side and fix them in the head plate.
- Check the position of the lift and the position of the operating columns again.

pic 3:

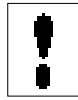


- Bore holes to fix the dowels through the borings of the base plates. Clean holes with pressure air. Put in safety dowels with washers in borings. The manufacturer demands LIEBIG safety dowels type B 15 or equal dowels of another manufacturer (with allowance) but observe their regulations! Before doweling check concrete floor with quality B 25 if the concrete floor goes to the top edge of the floor. In this case the dowels have to be chosen according to **picture 10**. If the ground is covered with floor tiles, the dowels have to be chosen according to **picture 11**.
- The Liebig Company is a German dowel manufacturer.
- Tighten the dowels a little bit.
- Connect power supply:
Pull the **electrical cable** (5 x 1,5 cable) from the hydraulic-unit rail via the traverse and through the energy chain to the top of the operating column.
Pull the **control line** (7x1 cable) (see pic. connect the operating unit) as well via traverse through the energy chain to the top of operating column and afterwards from topside through the cable channel to key switch.
- Tighten the screws at traverse again.
- Fill in oil-tank, approximately 10 litres.



Before operating the lift pay attention to sections "safety regulations" and "operating instruction".

- Lift the lift a little bit with key switch and press the override button (at the side of the rail)
- Remove erection trestles.
- Mount the ratchets in the columns - if necessary lower the lift.
- Lower lift down in the ratchets.
- Line up columns with the help of a bubble level.
- Tighten the Liebig-dowels with a dynamometric key (M = 50 Nm)



Each Liebig-dowel must be tightened with a torque of 50 Nm. Otherwise the normal function of the lift cannot be guaranteed.

- Mount the ramps and the loading ramp.
- Adjust sliding guidance at traverse (ca. 4-5 mm reciprocating movement between sliding guidance and column)
- Adjust regular height of the rails at all of the four columns by moving the nuts, which fix the carrying ropes in the head plate. For demanded measuring accuracy of all important vehicle manufacturer it is necessary to install the lift very exactly and to line it up. For this to the following points should be paid attention.
- Lift the automotive lift to eye level and set it down in ratchet (refer to operating instructions).
- Position each of the measuring scales on the traverse and check niveau of the two rails (if they have got the same level) with land leveler.
- Adjust the rails with the screw of the ratchet-rod (on the “head-plate“ at the top of the column).


Adjustable the rail

The standard measure between the rails are 950 mm. Its possible to adjust the rails +/- 100 mm (see the datasheet).

Lower the lift in the ratchtes until there is no tractive power on the ropes werden.


- Lower the main lift in the ratchet
- Remove the ramp and the roll-off of the rail (only the adjustable rail)
- Remove both cover of the traverse.
- Remove the screws and if necessary position supports under the rail
- Adjust the rail.
- Tighten the screw .
- Mount the cover.
- Mount the ramp and the roll-off saftey
- Raise the lift out of the ratchets.

Initiation

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

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

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

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

Changing of the installation place

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

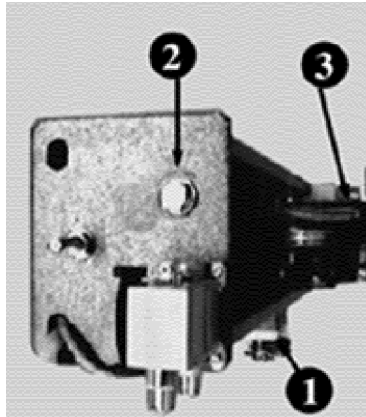
- Position two erection trestles under the rails.
- Lower the lift until the rails are lay on the erection trestles.
- Disconnect electrical current supply from lift.
- Loosen fixing nuts of the carrying ropes on the head plate and removethem.
- Loosen traverse from runways and pull carrying ropes out of traverses.
- Loosen the plugs
- Transport lift to new installation place
- Install lift in accordance with chapter "Installation and Initiation" of the lift.



Use new dowels, The used dowels cannot be used any more.

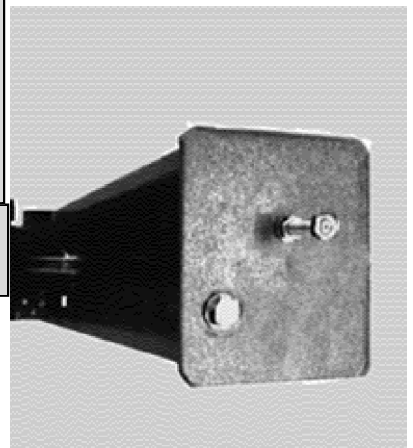
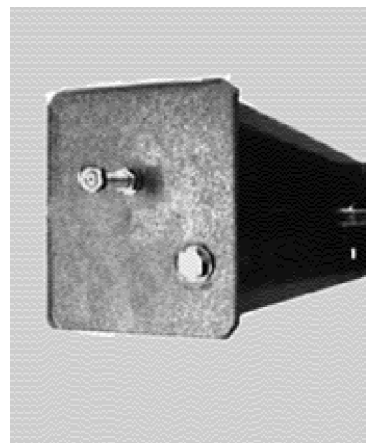
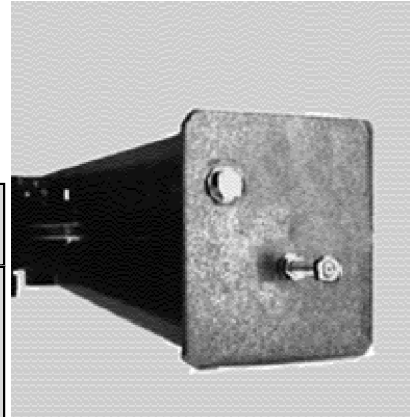
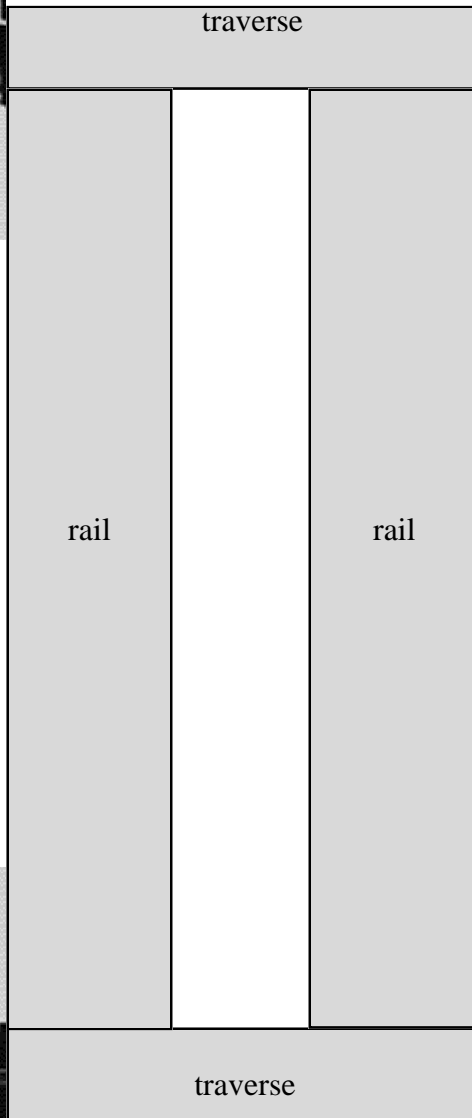
 ***A security check must be performed before reinitiation by a competent. Use form "Regular security check".***

Position of the column (look from the top)

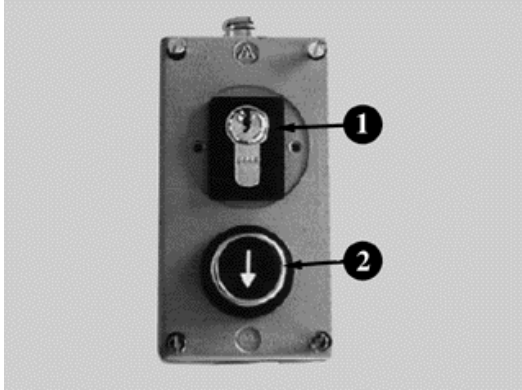


operating column:

- 1 operating unit
- 2 column
- 3 traverse



Connect the operating unit



operating unit

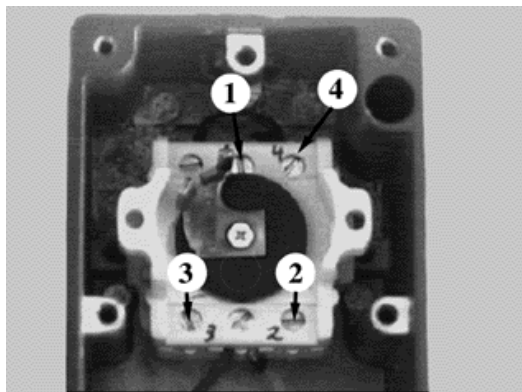
- 1 key switch
- 2 press button for the soft lowering in the ratchet.

The control unit is not connected by the delivery.

Open the control unit.

The 7-conductor bunch is coming from the rail. Put the cable into the bolt connection at the top of the control unit.

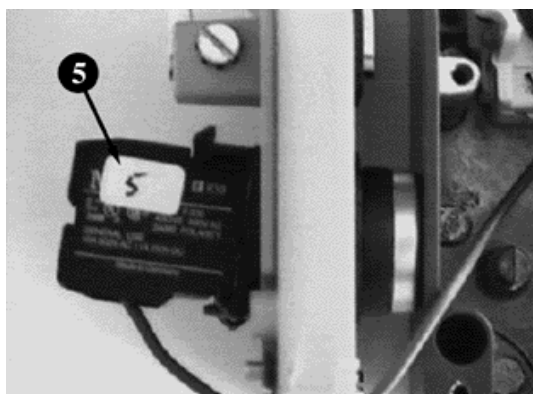
pic: the control unit is open



Every lead of a cable has a Number on the side. Put the cable in the numbered part and fasten the cable.

The lead Nr. 6 and Nr.7 are out of function.

pic : the control unit is open



Put the cable Nr.5 in the electric unit Nr. 5 and fasten the cable.

Pic. 10: Choice of dowel lengths (without floor pavement or tile surface)

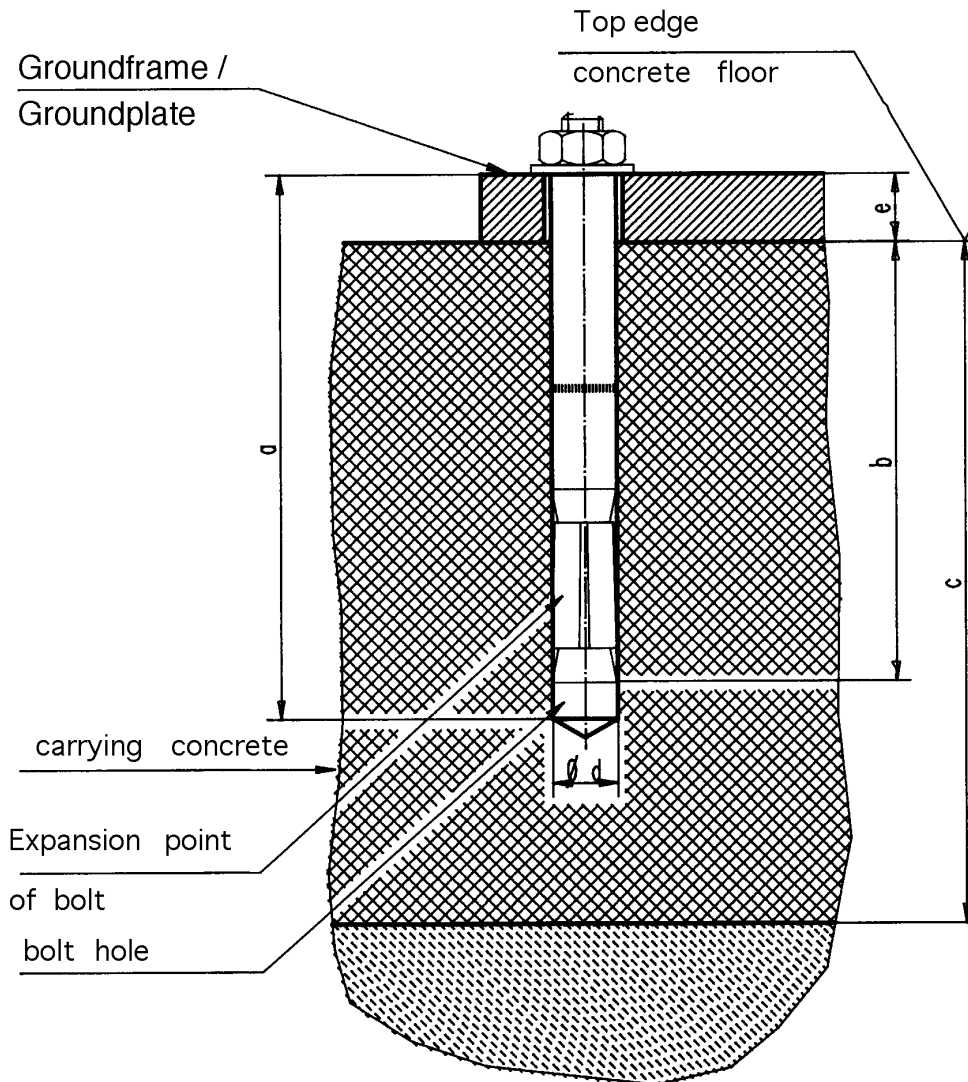



table to picture 10:

Liebig-safety dowels:

typ of dowel		B15/70	B15/95
drilling depth	a	112	137
min. anchorage depth	b	72	72
thickness of concrete	c	160	160
diameter of bore	d	15	15
thickness of the lift-piece	e	0-40	40-65
Amount of the dowels		16	16
turning moment of the dowels		instruction by the dowel manufacturer	

 **You can use equivalent characteristics dowels another dowel manufacturer (with licensing) but observe their regulation !**

pic 11: Choice of dowel length (with floor pavement or tilesurface)

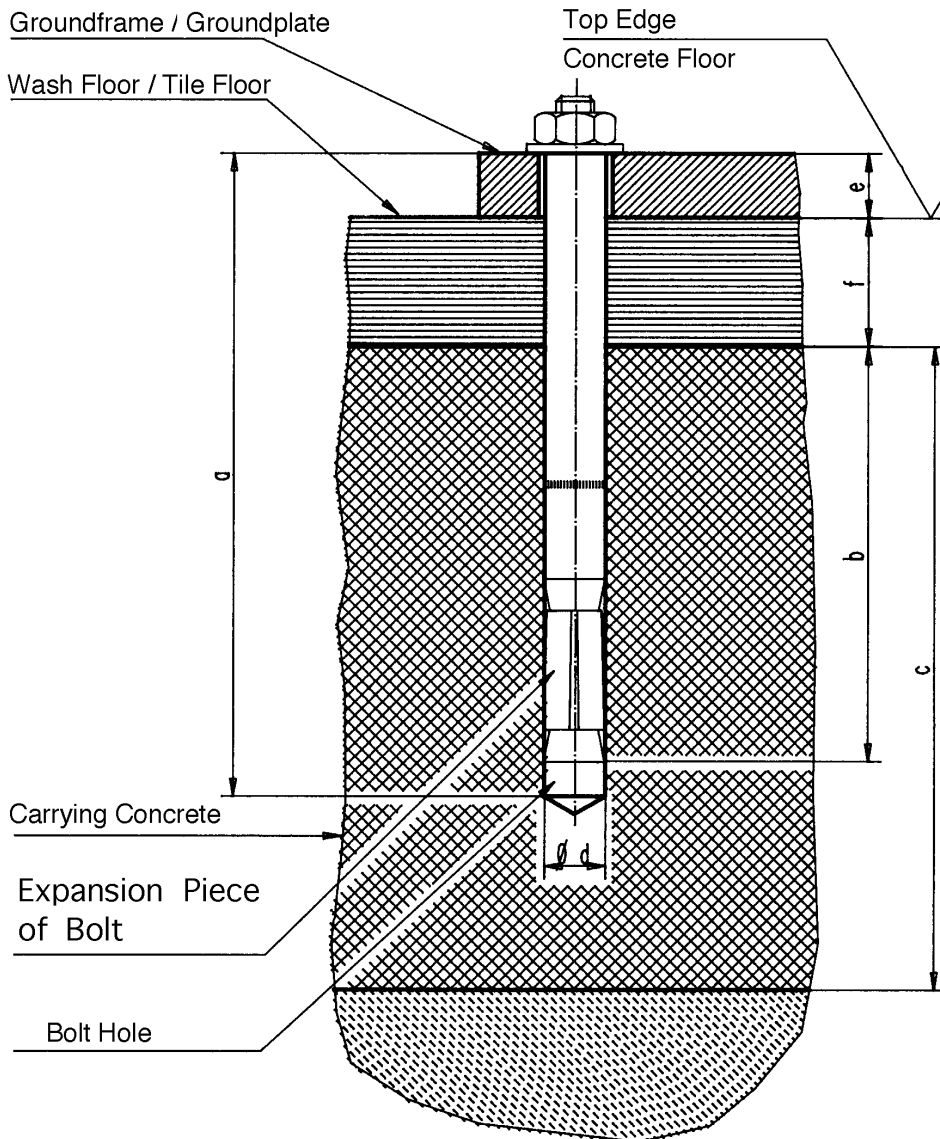



table to picture 11:

Liebig-safety-dowels

type of dowel		B15/70	B15/95	B15/120	B15/145
drilling depth	a	112	137	162	187
min. anchorage depth	b	72	72	72	72
thickness of concrete	c	160	160	160	160
diameter of bore	d	15	15	15	15
thickness of the lift-piece + thickness of floor pavement	e+f	0-40	40-65	65-90	90-115
Amount of the dowels		16	16	16	16
turning moment of the dowels		instruction by the dowel manufacturer			

 **You can use equivalent characteristics dowels another dowel manufacturer (with licensing) but observe their regulation !**

First security check before installation



to fill in and to leave in this document

kind of check	all right	defect lacking	verification	Remark
Type plate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warning designation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detailed operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designation Lifting/Lowering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function key switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function CE-STOP.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety device of hinge bolt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction (deformation, cracking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fixed seat of the carrying screws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition roll-off safety /ramps.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition slide-guidance traverse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition carrying rope and hang-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition pulleys and carrying rope.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition coverings.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition ratchets.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition surface piston rod.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition electrical wires.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of hydraulic oil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closeness of hydraulic system.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function torn rope switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function override switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function test main lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition of concrete floor (cracks).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function acoustic warning sign.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function limit switches.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function wheel free lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition white polymer supports.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

security check carried out:

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:

Signature of the operator:.....

(Use another form for verification!)

Regular security check



to fill in and to leave in this document

kind of check	all right	defect lacking	verification	Remark
Type plate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warning designation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detailed operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designation Lifting/Lowering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function key switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function CE-STOP.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety device of hinge bolt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction (deformation, cracking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fixed seat of the carrying screws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition roll-off safety /ramps.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition slide-guidance traverse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition carrying rope and hang-up.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition pulleys and carrying rope.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition coverings.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition ratchets.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition surface piston rod.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition electrical wires.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of hydraulic oil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closeness of hydraulic system.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function torn rope switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function override switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function test main lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition of concrete floor (cracks).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function acoustic warning sign.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function limit switches.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function wheel free lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition white polymer supports.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

security check carried out:

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:

Signature of the operator:.....

(Use another form for verification!)

Extraordinary security check



to fill in and to leave in this document

kind of check	all right	defect lacking	verification	Remark
Type plate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Warning designation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detailed operating instructions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designation Lifting/Lowering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function key switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function CE-STOP.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety device of hinge bolt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction (deformation, cracking)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fixed seat of the carrying screws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition roll-off safety /ramps.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition slide-guidance traverse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition carrying rope and hang-up.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition pulleys and carrying rope.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition coverings.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition ratchets.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition surface piston rod.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition electrical wires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of hydraulic oil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closeness of hydraulic system.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function torn rope switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function override switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function test main lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition of concrete floor (cracks).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function acoustic warning sign.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function limit switches.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Function wheel free lift with vehicle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Condition white polymer supports.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

security check carried out:

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:

Signature of the operator:.....

(Use another form for verification!)