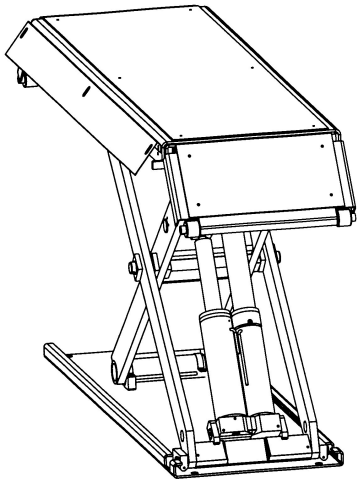
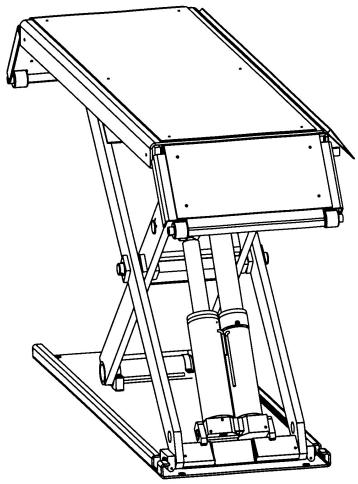
Sprinter NT

Automotive lift date: 12/99
Manual date: 20.12.99





Operating Instruction and Documentation

Serial number:.....

Retailer address / phone

Nussbaum Hebetechnik GmbH & Co.KG//Korker Straße 24//D-77694 Kehl-Bodersweier//Tel: +49(0)7853/8990
Fax: +49 (0) 78 53 / 87 87//E-mail: nussbaum.lifts@t-online.de//http://www.nussbaum-lifts.de

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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 alonely.

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.

Maintenanceworks, remedy of faults and disposal

- Fixed Adjusting-, maintenance- and inspectionworks 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!

☞ **Filling out and undersigned and copying this sheet and send the original to the lift manufacturer. The copy remains in the Manual.**

Otto Nussbaum Hebetechnik GmbH & Co.KG

Korker Strasse. 24

77694 Kehl-Bodersweier

Germany

Record of installation

The automotive lift Sprinter NT with the

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

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

the safety was checked and the lift was started.

The installation was effected from the operating authority/competent (please delete as applicable).

The safety of the automotive lift was checked from the competent before the initial operation.

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

.....	.....	.....
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 is the company:.....

.....

Automotive lift date: 12/99 / Manual date: 20.12.1999

Record of handing over

The automotive lift Sprinter NT 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 is the company:.....

.....

1. Introduction

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

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 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 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 for an important function or other important notes.

2. Master document of the automotive lift

2.1 Lift –manufacturer

Otto Nussbaum Hebetechnik GmbH & Co. KG
Korker Straße 24

D-77694 Kehl-Bodersweier

2.2 Application

The automotive lift Sprinter NT is a lifting mechanism for lifting motor vehicles with a laden weight of up to 3000 kg. The max. load distributation is 3:2 in or against drive-on direction. The automotive lift is only designed for servicing vehicles. It is not allowed to carry persons with the lift.
It's not allowed to install the standard-automotive lift in a hazardous location or washing bays.

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 competent)

.....

.....

name, address of the competent

....
place, date signature of the competent

2.5 CE-Certificate/attestation of conformity

The automotive lift Sprinter NT with the serial number.....
Is in accordance with the tested lift (CE-certificate-number 04-205-1440/00)

....
place, date company stamp, signature

ZERTIFIKAT
CERTIFICATE

RWTÜV

Registrier-Nr./*Registered No.:*
04 205-1440/00

EG-Baumusterprüfbescheinigung gemäß Anhang VI der EG-Richtlinie 98/37/EG
EC-type approval according to annex VI of the EC-Directive 98/37/EC

Zeichen des Auftraggebers *Reference of applicant*	Auftragsdatum *Date of application*	Aktenzeichen *File reference*	Prüfbericht Nr *Test report No*	Ausstellungsdatum *Date of issue*	Gültigkeit bis *Expiry date*
Hr. Müller	16.06.2000	3.1.1-365/00	1437/00 u. 1438/00	07.09.2000	07.09.2005

Hiermit wird bestätigt, daß das nachfolgend genannte Produkt den grundlegenden Anforderungen der Richtlinie des Rates vom 22.06.98 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Maschinen entspricht.
We hereby certify that the product mentioned below meets the basic requirements of the council directive dated 22.06.98 on the approximation of the laws, regulations and administrative provisions of the member states relating to machinery.

CE 0044

Antragsteller / ***Applicant:*** Otto Nußbaum Hebetechnik GmbH & Co. KG
Korker Straße 24, D-77694 Kehl

Fertigungsstätte: / ***Manufacturing plant:*** H.G. Nußbaum GmbH & Co. KG
Wanzlebener Straße 10, D-39365 Seehausen (Börde)

Produktbeschreibung: / ***Product description:*** Kfz.-Hebebühne *(car lifter)* Typ: Sprinter NT (030S SPB)
Nutzlast *(nominal load)*: 3000 kg

Zertifizierungsstelle des RWTÜV e.V.
für Gerätesicherheit, Aufzüge
und Medizintechnik, notifiziert bei der
EG-Kommission unter Nr. 0044

Rheinisch-Westfälischer
Technischer Überwachungs-
Verein e.V., Sitz: Essen
Langemarckstraße 20
D-45141 Essen
Postfach 10 32 61
D-45032 Essen
Telephone +49/201 8 25-0
Telefax +49/201 8 25-33 56

3. Technical Information

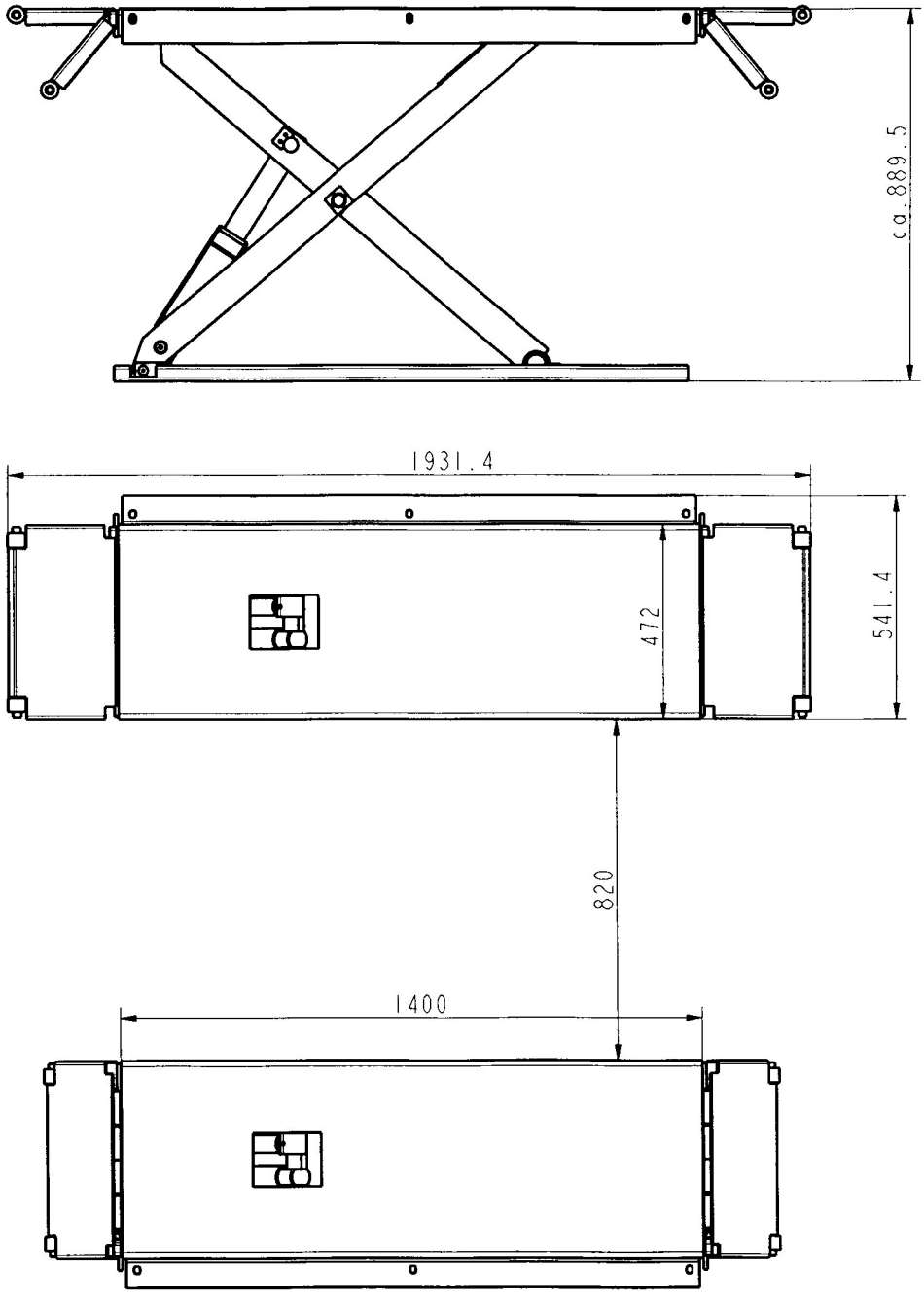
3.1 Technical ratings

Capacity:	3000 kg
Load distributation:	3:2 in or against drive-on direction
Lifting time:	approx. 7 sec.
Lowering time:	approx. 6 sec.
Line voltage:	3 x 400 Volt , 50Hz
Power rating:	3 kW
Motor speed:	3000 rotation/min
Pump capacity:	3 ccm/revolution
Hydraulic pressure:	approx. 270 bar
Pressure relief valve:	approx. 300 bar
Oiltank:	approx. 14 litre - viscosity 32 cst.
Sound level:	≤ 75 dBA
Connection by customer (standard)	3~/N+PE, 400V, 50 Hz with fuse T16A (Pay attention to the tension of your state)

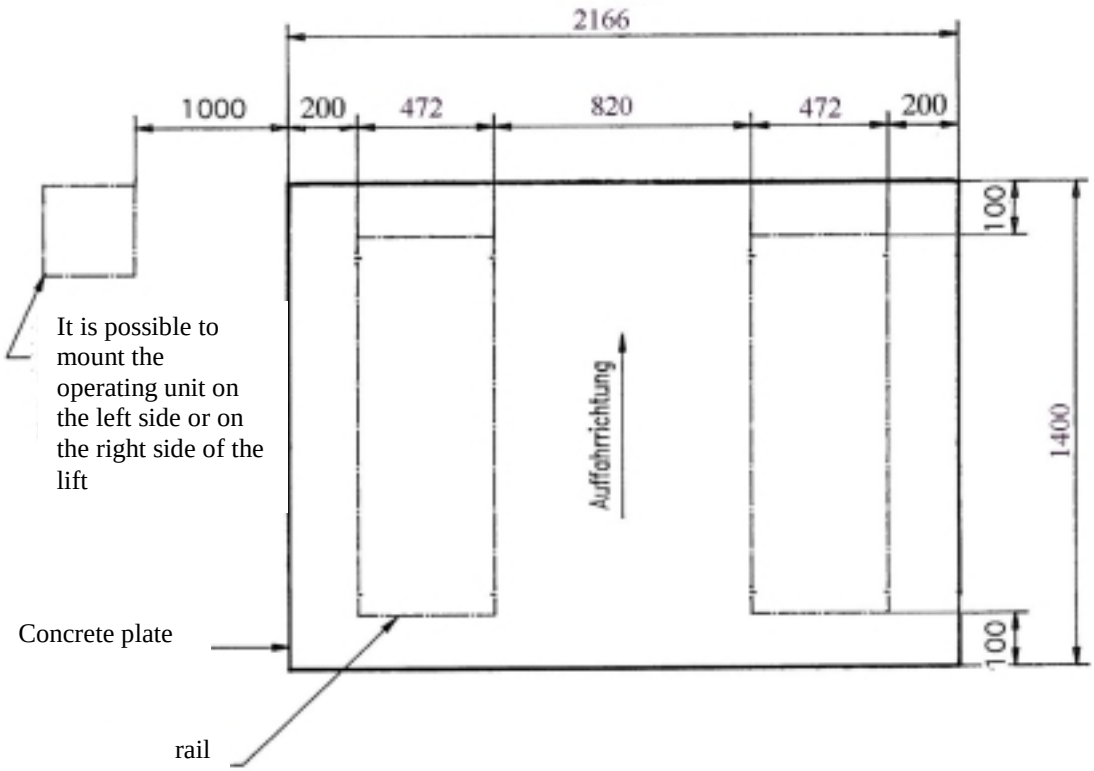
3.2 Safety device

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 unauthorized operation
4. Foot protector
   safety device against squeeze
5. Two independent cylinder system (master and slavesystem)
   Safety device against unintentional lowering

3.3 Datasheet



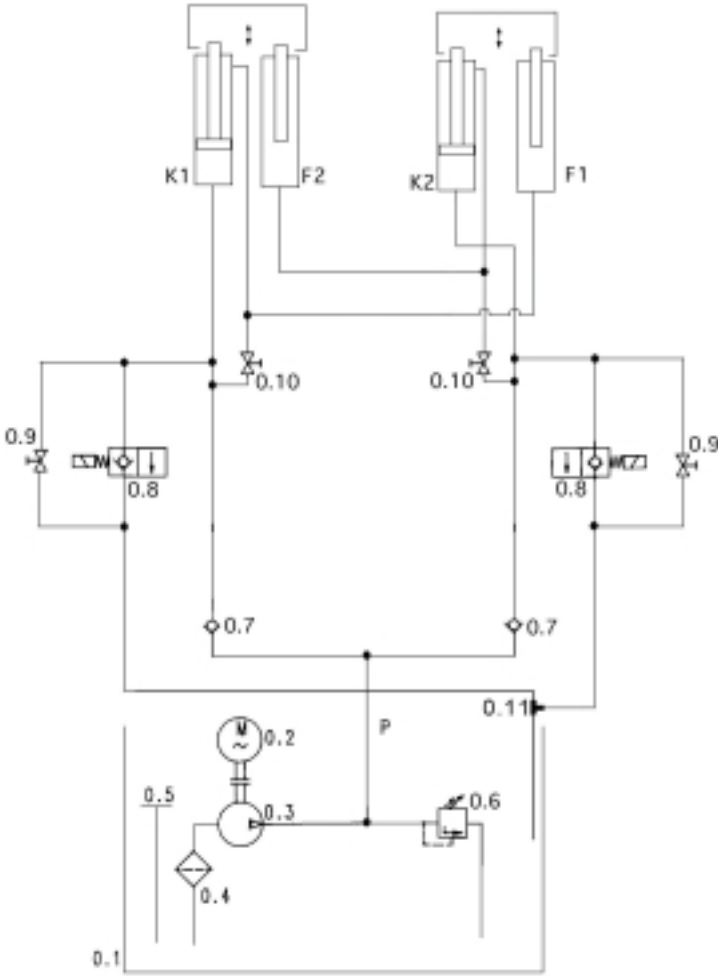
3.4 Foundationplan



Foundation plan: quality of the concrete minimum. B25
wide minimum 2166 mm
lenght minimum 1400 mm
thickness minimum 160 mm

If the concrete is available the quality B25 and the thickness minimum 160 mm must be guaranteed.

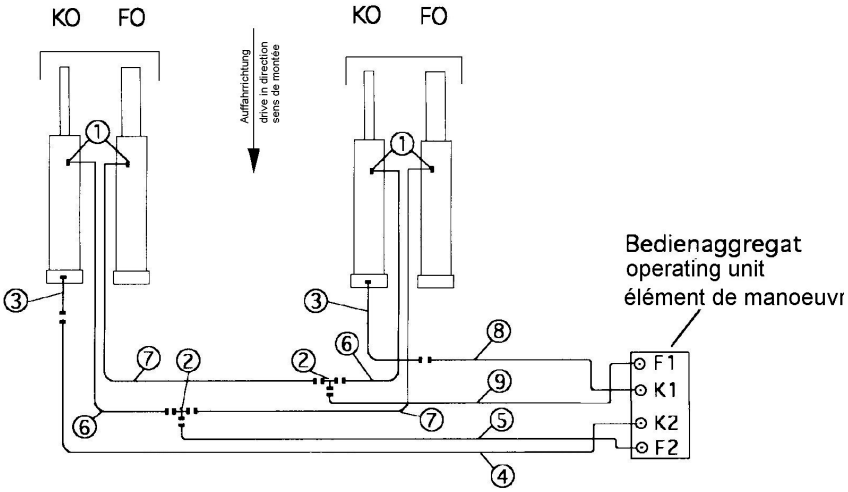
3.5 Hydraulic diagram

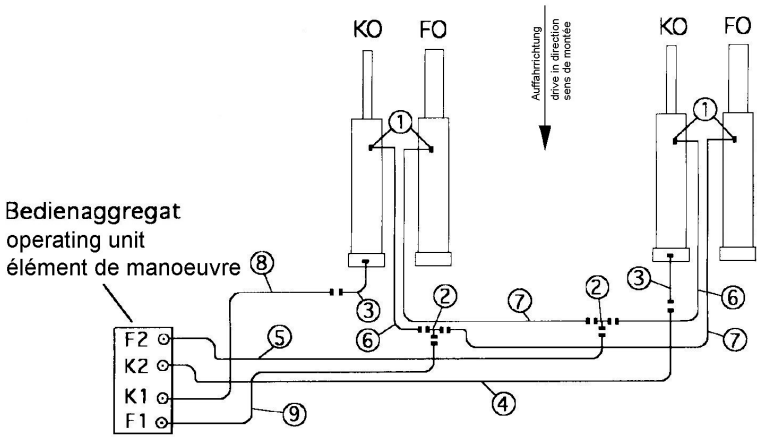


Hydraulic parts list

0.1	Oiltank
0.2	Suboilmotor
0.3	Gear pump
0.4	Filter
0.5	Oil level gauge
0.6	Pressure control valve
0.7	Holding valve
0.8	Electrical control valve
0.9	Emergency lowering screw
0.10	Equalisation screw
0.11	Flow control valve Ø1,5 mm
K1	commando cylinder 1
F1	slave cylinder 1
K2	commando cylinder 2
F2	slave cylinder 2

3.6 Connection of the hydraulic tubes

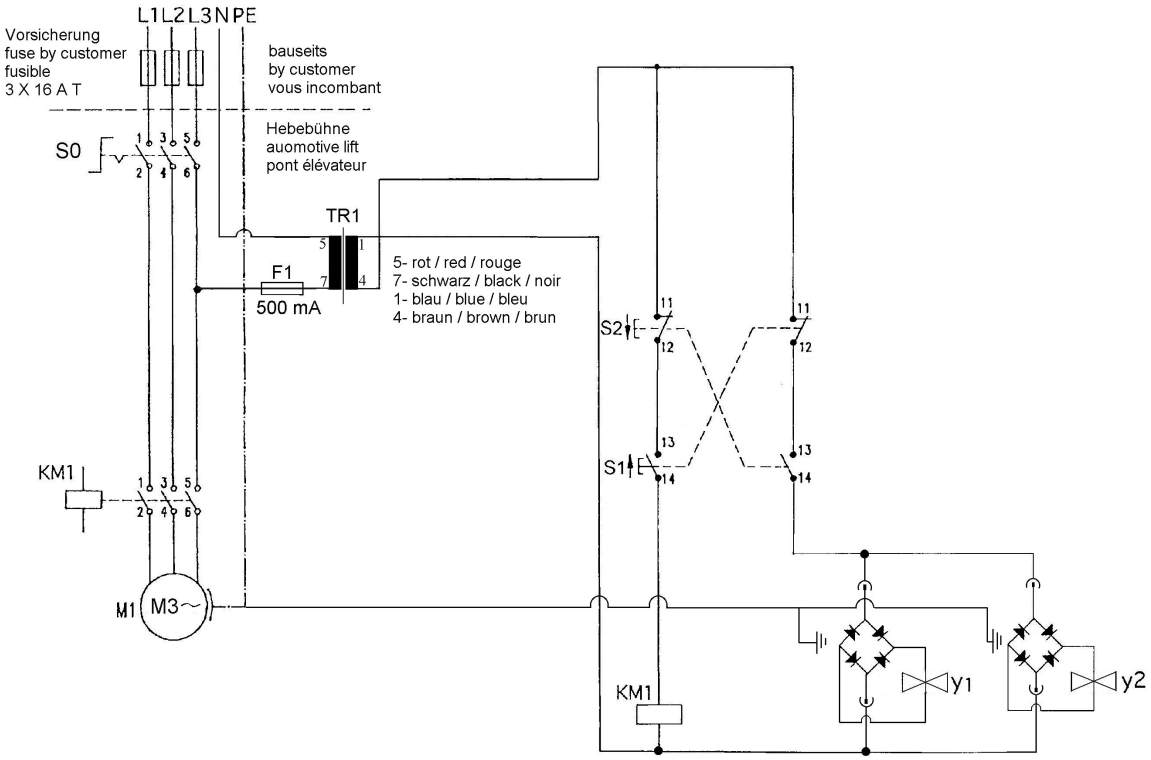




Pos:	**Description**		**piece/Lift**
1	reduction 8 – 6		4x
2	T-piece NW8		2x
3	hydraulic tube	450 mm	4x
4	hydraulic tube	3400 mm	1x
5	hydraulic tube	3400 mm	1x
6	hydraulic tube	850 mm	2x
7	hydraulic tube	1500 mm	2x
8	hydraulic tube	2100 mm	1x
9	hydraulic tube	2700 mm	1x
KO	master cylinder		
FO	slave cylinder		

☞ **It is possible to mount the operating unit on the left side or on the right side of the lift. Observe the cylinder pair, which is nearer to the operating unit, they have the designation K1 and F1. The designation of the tubes becomes taken over, indifferent where the operating unit stands.**

3.7 Electrical diagram drawing



Electrical part list

Pos.	designation	part number
A1	main switch	990129
KM1	up contactor	990214
T1	button „lifting“	990334
T2	button „lowering“	990334
y1	coil + plug	981393 + 981392
y2	coil + plug	981393 + 981392
F1	fuse 500 mA	990649
TR1	transformer	990659
M1	motor	990445

4. Safety regulations

Using automotive lifts for working the regulations of accident EN1493/Aug.98 (CEN/TC 98 „ Automotive lifts") must be observed.

Especially the following regulations are very important:

- During working with the lift the operating instructions must be followed.
- The laden weight of the lifted vehicle mustn't be more than 3000 kg for automotive lift
- Only trained personnel over the age of 18 years old are to operate this lift.
- During lifting or lowering the vehicle it must be observed from the operator.
- Position the polymer supports as described of the vehicle manufacturer under the vehicle.
- If necessary use the ramps.
- It's not allowed to stay under the lifted or lowered vehicle (except for the operator).
- 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.
- It's not allowed to install the standard-automotive lift in hazardous location.

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

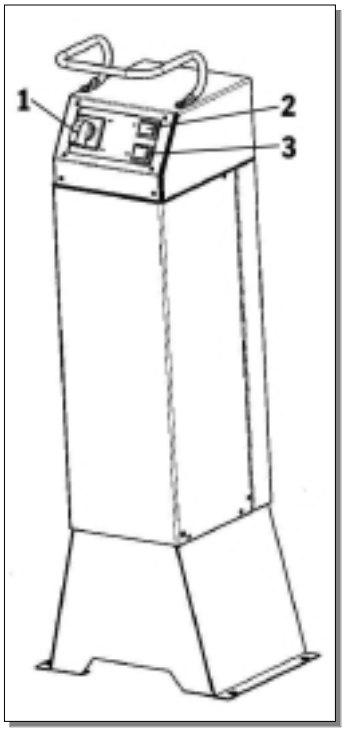
- Drive vehicle over the lift, longitudinal axes on line of the lift.

If necessary use the ramps for the safe position of the vehicle. If the wheelbase is too short and the wheels are standing on the ramps, remove the ramps.

- Block the vehicle against rolling, put into gear.
- Position elastomer-supports under the pick-up points of the vehicle as prescribed by the vehicle-manufacturer.

The vehicle must be positioned on the elastomer supports in a safe way, otherwise there's a danger that 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
- Switch on the control system; main switch on position "1" (see pic.1)
- Lift vehicle until the wheels are free. Press button "lifting". Check that the vehicle is safety positioned.
- Lift the vehicle on the working height. Press the button „lifting" .
- Observe the complete process.



Pic 1: Operating unit

1 main switch

2 button „lifting"

3 button „lowering"

5.2 Lowering the vehicle

- 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
- Lower the vehicle to the working height or until the platform reaches the lowest point; press the button "lowering"
- Observe the complete process.
- If the lift is in the lowest position, remove the polymer-supports.
- Drive the vehicle out of the lift.

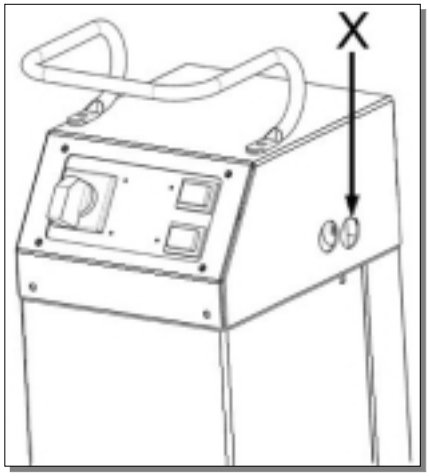
5.3 Deaerate the cylinder

- The automotive lift is complete assembled. The connection of the tubes and pipes are right associated. Only the right power supply , the right oil and the right portion of the oil and the closeness of the hydraulic parts have to be checked. If the hydraulic connections be open (prolongation the tubes), air can penetrate in the tubes.
- If you have an unequal run of the lift. You must check the lift. Check the coordination of the hoses.
- If necessary a dearing of the cylinder must be carried out at these symptoms: abruptly lifting from the lowest position, unequal platform with load, not complete lowering of a platform in the lowest position.

Right dearing:

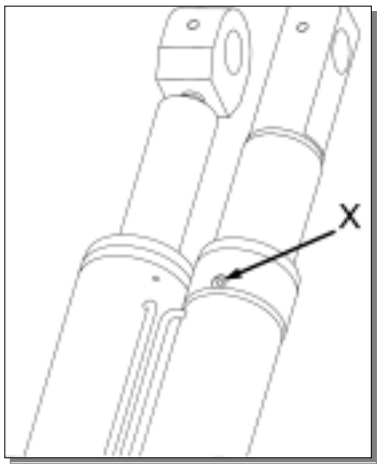
Checks whether 14 litres are in the oil tank. Oil level = between the upper and the lower marker.

- Raise the lift – without load – in the highest endposition.
- Open the both equalisation screw A1 and A2 at the hydraulic block. Remove before the plastic covers.



Pic.4
Position X = the bore hole is for the equalisation screw

- Loose the locknut of the equalisation screws A1 and A2 with a suitable tool. Unscrew one turn the equalisation screws with a suitable tool.
- Press the button “lifting” approx. 1 sec. The automotive lift can incline.
- Open the vent screw at one cylinder. (easily opening)



Pic.5
Position X = the vent screw at the cylinder

Attention: The lift sinks constantly to below. You can interrupt this process if you close the vent screw.

- Open the vent screw so long, until only oil comes out of the bore hole. After this close the screw.
- After this, open the vent screw from the other cylinder and deaerate as described.

Close the vent screw, o*therwise a malfunction of the lift may occur.*

- Raise the lift in the upper endposition. Press the button „lifting“ . If necessary repeat the aeration.
- Check the vent screw. These must be closed.
- Lower the lift in the lowest position. Press the button „lowering“and hold it.
- If the lift reached the lowest position, close the equalisation screws (A1 and A2) and secure it with the locknuts.
- Raise and lower the lift several times without load.
- Check the cylinder lever at the scissor again. (see pic.3)
- To ensure the equalisation of the lift, the chapter 5.4 must be observed

5.4 Equalisation the platforms

- During the normal work of the automotive lift it is almost impossible to get an unequal run of the platform, by the two independent hydraulic systems.
- If you have an unequal run of the lift. Check the lift.
- If it is sure there is no leak in the hydraulics system and no other external fault, a compensation may be carried out
- Lower the lift in the lowest position.
- Drive the vehicle from the lift.
- If necessary a compensation must be carried out at these symptoms:

abruptly lifting from the lowest position, unequal platform with load, not complete lowering of a platform in the lowest position.

Right equalisation:

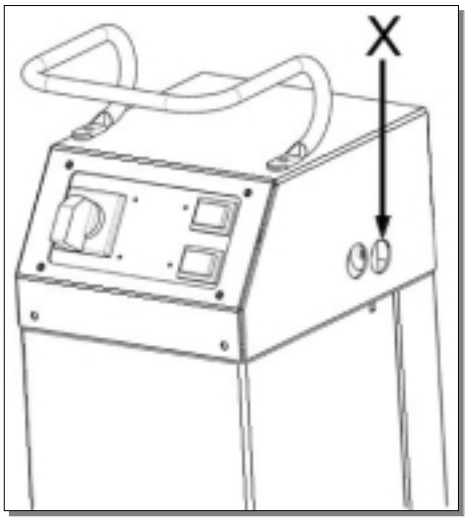
Assumption: One platform is higher than the other platform.

Measure:

- Lower the lift in the lowest position. Press the button “lowering”.

⚠ ***Equalize the lift without load, otherwise the vehicle can mighty fall down.***

- Remove on the right side and the left side the covers of the operating unit.



pic. 2
Position X =
The bore hole in the cover is for the equalisation screw.

- Loose the locknuts (SW17) of the equalisation screws A1 and A2 with a suitable tool.
- Open **slowly** the screw A1 and A2. Press the button “lowering” until both platforms are on the lowest position.
- During this process both platforms get balanced.

Further measure:

- Close the equalisation screw A1 and A2 and safe it with the locknut.

⚠ *Close after equalisation the screws A1 and A2 and the locknuts. Otherwise a malfunction of the lift may occur.*

- Raise the lift in the upper end position. Press the button “lifting”
- Open the screws A1 and A2.
- Press the button "lowering". Lower the lift approx. 50 mm

- Close the screws A1 and A2.
- Mount the plastic cover.

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!

Potential causes:
- *Main switch is not engaged*
- *The feed line is cut*
- *Power failure*
- *Thermofuse in the motor is activ (let it cool down approx. 10 min)*

Problem: Motor starts, lift does not lifting!

Potential causes:
- *The vehicle is too heavy*
- *Level of the oil is too low*
- *The emergency lowering screws are not closed*
- *The hydraulic hoses are dirty*
- *The cylinder jams*

Problem: The lift does not lowered!

Potential causes:
- *The lift is standing on a obstacle*
- *The hydraulic valve is defective*
- *The button „lowering“ is not pressed*

6.1 Driving on an obstacle

If the lift is driven on an obstacle the lift stopps mechanically. Press the button „lifting“ until the obstacle can be removed.

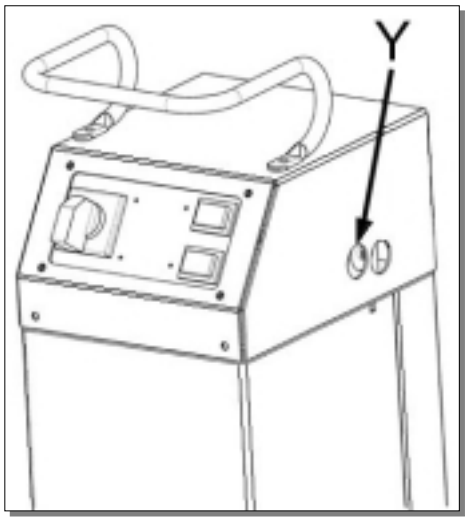
6.2 Emergency lowering in case of power failure or defective valve

In this case of power failure or defective valve, the hydraulic valve of the lift will not open any more. Therefore the lift can not be lowered. In this case there is the possibility to open the hydraulic valve manually and to lower the lift to it´s lowest position, so the vehicle can be driven off.

The emergency lowering can only be performed by persons instructed to use the lift. Please refer to the regulation „Lowering the vehicle“.

Every kind of external leakage must be removed.This is necessary particular before emergency lowering.
The emergency lowering must be carried in this order. Ohterwise a malfunction can lead it to damages or lead to danger for body and lives.

- 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.
- Before the emergency lowering process loose the electrical power supply.
- Loose and remove the plastic cover of the operating unit. (see pic.6)
- Loose the locknut of the **emergency lowering screws** (N1 & N2).



pic 6:
Position Y =
bore hole for the emergency lowering screw

- Open slowly ¼ turn the emergency lowering screw N1with a suitable tool.
  Do not unscrew the screw!
- 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.

Attention: One platform will be lower approx. 5 cm. The lowering process stoped if the screw is closed.

- Afterwards open a slowly little the emergency lowering screw N2.
  Do not unscrew it.
- The emergency lowering starts. You can influence the lowering speed with this emergency lowering screw.
- Lower the lift in the lowest position.
- Observe the complete process.

- If the lift reached the lowest position, remove the polymer-supports and drive the vehicle out of the lift.
- After the emergency lowering close the screws N1 and N2 and the locknuts.
- Do not work with the lift until the faulty parts are exchanged. Call the service-partner.

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

7. Maintenance

A regular service has to be performed every three months by the lifts 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 the technical service of the retailer has to be in formed.

7.1 Inspection and Maintenance of Nussbaum lifts

Nussbaum lifts have been designed and manufactured for longevity and safe operation. Proper installation and operation, regulär inspections and ensuing preventative maintenance by authorized personnel and product care, are the key to operators safety, product reliability, low overall repair costs, qualified warranty claims and finally, longevity of the lift. Our lifts are German TÜV and European CE certified and meet or surpass the safety standards of the countries in which we seil. European regulations for instance, oblige inspection by qualified personnel, every 12 months during the life span of the lift.

Whatever the regulations are in a given country, the following are the minimum, requirements regarding the maintenance of Nussbaum lifts.

1. Product care. On an daily/weekly basis by lift operator

Always contact qualified service personnel whenever there is a safety issue. Check for anomalies at all times in particular after electrical power failure or flooding of the shop floor (check sealing of the canister of in-ground TOP lifts). Execute equalization procedure of lifts with master/slave system (SPRINTER- and UNI-LIFTS). Check for leaky and kinked pipes and hoses. Clean the lift and the floor with a non-aggressive detergent. Prevent corrosion by oiling metallic parts or paint retouch. Check filters, grease/lubrication needs and air pressure. Check condition of lifting pads/polymer supports.

2.Inspection. At least once a year by qualified technician

Safety related:

- Check the proper functioning of all mechanical, electrical, hydraulic and pneumatic safety locking functions

- Check for proper anchoring of the lift to the floor and floor cracks
- Check for potential structural failures, in particular of welded parts
- Check for bending or distortion of mechanical parts

Maintenance related:

- Check for hydraulic/air leaks and condition of pipes/hoses
- Check electrical connections, switches and fuses
- Check for wear of all bearings, hinge points and shafts
- Check condition of lifting pads
- Check for leakage to the in-ground lift canister
- Check for corrosion building

3.Preventative maintenance by qualified technician

- Replace **hydraulic oil** once every year
- Replace **hydraulic hoses** at least once every 6 years
- Take proper **Product care** as recommended in Point 1
- Replace **Safety related** parts whenever there is the slightest doubt
- Replace or repair worn or improper functioning **Maintenance related** parts, before they break down. This avoids costly repairs at a later date

Inspection, repair and maintenance may be done by technicians from Nussbaum, Nussbaum's distributor or end-user. This personnel must be trained on the particular models of lift which they service. They must be able to make a judgment as to the repair or maintenance that needs to be done in order to ensure full safety, operational reliability and structural integrity during the life time of the lift. Proper maintenance records should be kept to back up possible warranty claims.

7.2 Cleaning of the automotive lift

A regular and appropriate maintenance served the preservation of the lift.

It can be a prerequisite for claims at possible corrosion.

The best protection for the lift is the regular cleaning of dirt of all manner.

- Including this:

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

How often must the lift be cleaned ?

This is dependent on the use, of the working with the lift, of the cleanness of the workshop and location of the lift. The degree of the dirt is dependent on the season, of the weather conditions and the ventilation of the workshop.

Under bad circumstances it is necessary to clean the lift every week, but a cleaning every month can suffice.

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

- Do not use for cleaning a steam jet cleaning
- Remove all dirt careful with a sponge if necessary with a brush.
- Pay attention that are no remains of the washing-up liquids on the lift after cleaning.
- Do not use aggressive means for cleaning the workshop floor and the automotive lift.
- A permanent contact with every kind of liquid is forbidden. Do not use any high pressure device for cleaning the lift.

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 us 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 Installation of the automotive lift

You can choose between two installation places of the operating unit: The position of the operating unit is in drive-in direction right or in drive-in direction left.

9.2 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.
- Before installation a sufficient foundation must be proved or constructed.
- An even installation place has to be provided. The foundations must be based in a frost resistance depth, both outside and indoors, where you must reckon with frost.
- An electrical supply 3~/N+PE, 400 V, 50 Hz has to be provided. The supply line must be protected with T16A (VDE0100 German regulation). The minimum diameter amounts to 2,5 mm^2.
- All cable ducts have to be eqquipped with protective coverings to prevent accidents.

9.3 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.
- Fill in hydraulic oil, approx. 14 litre. A high quality hydraulic oil is recommended, its viscosity should be 32 cst. The level of the oil is between of upper marking and the lower marking of the oil level gauge.
- Connect the power supply.
- If necessary deaerate the cylinder. (read the chapter 5.4)
- Raise the lift on a height of approx. 1500.
- Check the position of the base plates again before doweling. Adjust first one base plate, than adjust the second base plate. If there is an uneven floor even it out with washers. A continuos contact between floor and base plate must be guaranteed to avoid hollow spaces.
- Dowel the lift on the floor.
- Before doweling check the concrete floor with quality B25 if the concrete floor goes to the top egde of the floor. In this case the dowels have to be choosen according to pic. 17. If the ground is covered with floor tiles, the dowels have to be choosen according to pic. 18.

Its important for the troublefree working that the base plate are clean and the guides of the sliding block are clean and greased.

- Bore holes to fix the dowels through the borings of the base plate. Clean the holes with pressure air. Put in the dowels.
  Nussbaum Company demands LIEBIG safety dowels (german dowel manufacturer) or equivalent dowels of other manufacturer but observe the regulations.
- Dowel the lift on the ground.
- Tighten the Liebig-dowels with the dynamometric key (M = 50Nm)
  Each dowel must be tightened with the demanded torque. Otherwise the normal function of the lift can not guaranteed.
  Observe the regualtions of the other dowel-manufacturer.
- Raise and lower the lift several times with load. Check the torque of the dowels and check the hydraulic parts for tightness.
- If necessary equalize the lift again. (read the chapter 5.5)
- Mount the covers.
- Dowel the foot protection on the floor. Lower the lift in the lowest position. Position the protection. The distance between the platform and the protection is approx. 10 mm. The protection must not touch the platform.

9.4 Extension of the hydraulic-hoses

- The hydraulics-hoses must be extended if necessary, must be tested afterwards, whether the hoses were also assigned right.

Control:

Assumption: the hoses was connected right:
Raise the lift on approx. 500 mm.
After it open the screw A1 (equalisation) and the screw N1 (emergency lowering) of the operating unit.

Effect: no side of that lift subsides.

Assumption: the hoses became connected not right:
Raise the lift on approx. 500 mm.
After it open the screw A1 (equalisation) and the screw N1 (emergency lowering) of the operating unit.

Effect: one side that lift subsides.
The assignment of the hydraulics-hoses is to be checked again.

- Close the crew A1 and the crew N1again.

9.5 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 installation.***

9.6 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 covers of the hydraulic tube.
- Loose the dowels.
- Lower the lift in the lowest position
- If necessary loose the hydraulic hoses only on the operating unit.
- Disconnect the power supply
- Install the lift in accordance with chapter 9 “ Installation and Initiation”

⚠ ***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. 17: choice of the dowel length without floor pavement or tile surface

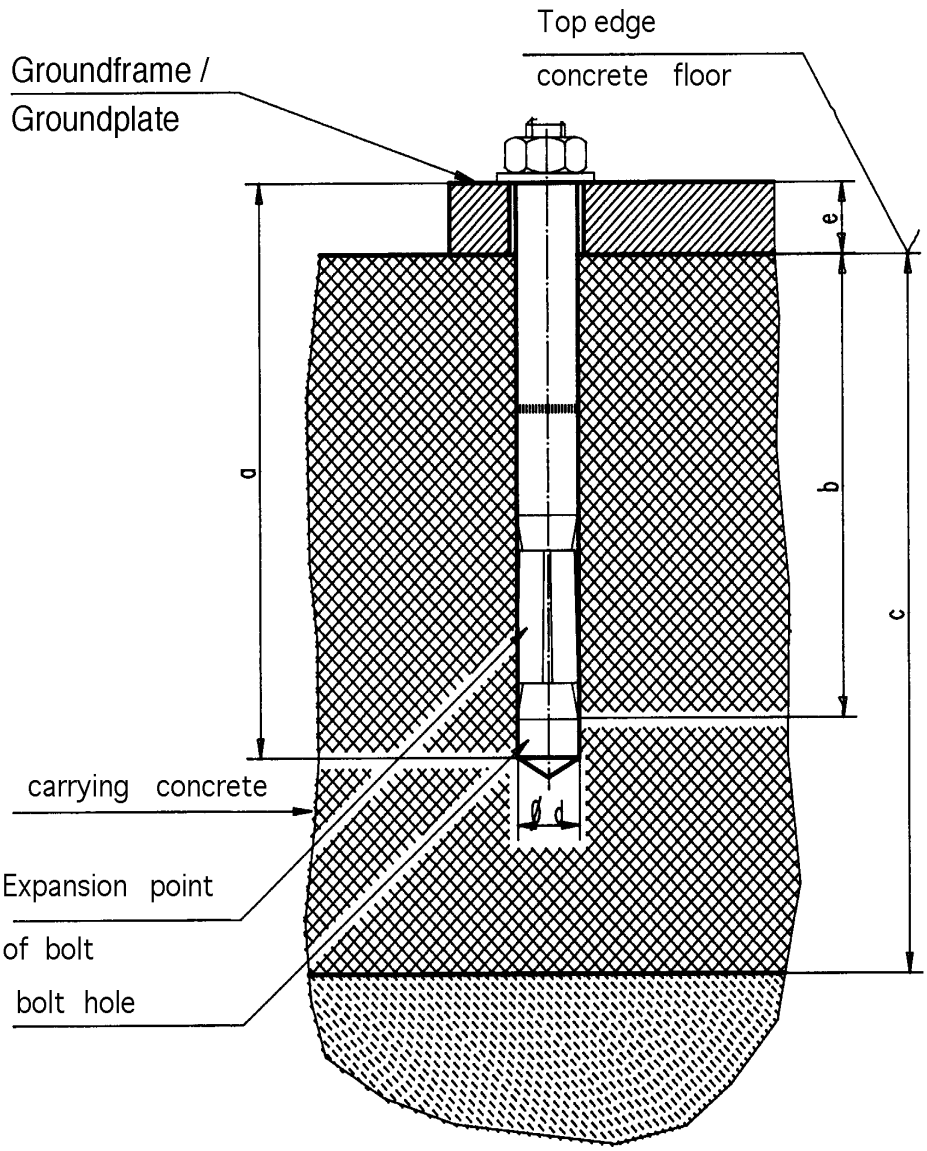


Table to pic. 17

Liebig-dowels

Dowel type		B15/75	B15/95
Drilling depth	a	112	112
Min. anchorage depth	b	72	72
Thickness of concrete	c	160	160
Diameter of bore	d	15	15
Thickness of the lift-pieces	e	0-40	40-65
Number of dowels		8	8
Starting torque		according to dowel manufacturer	

Pic. 18: choice of the dowel length with floor pavement or tile surface

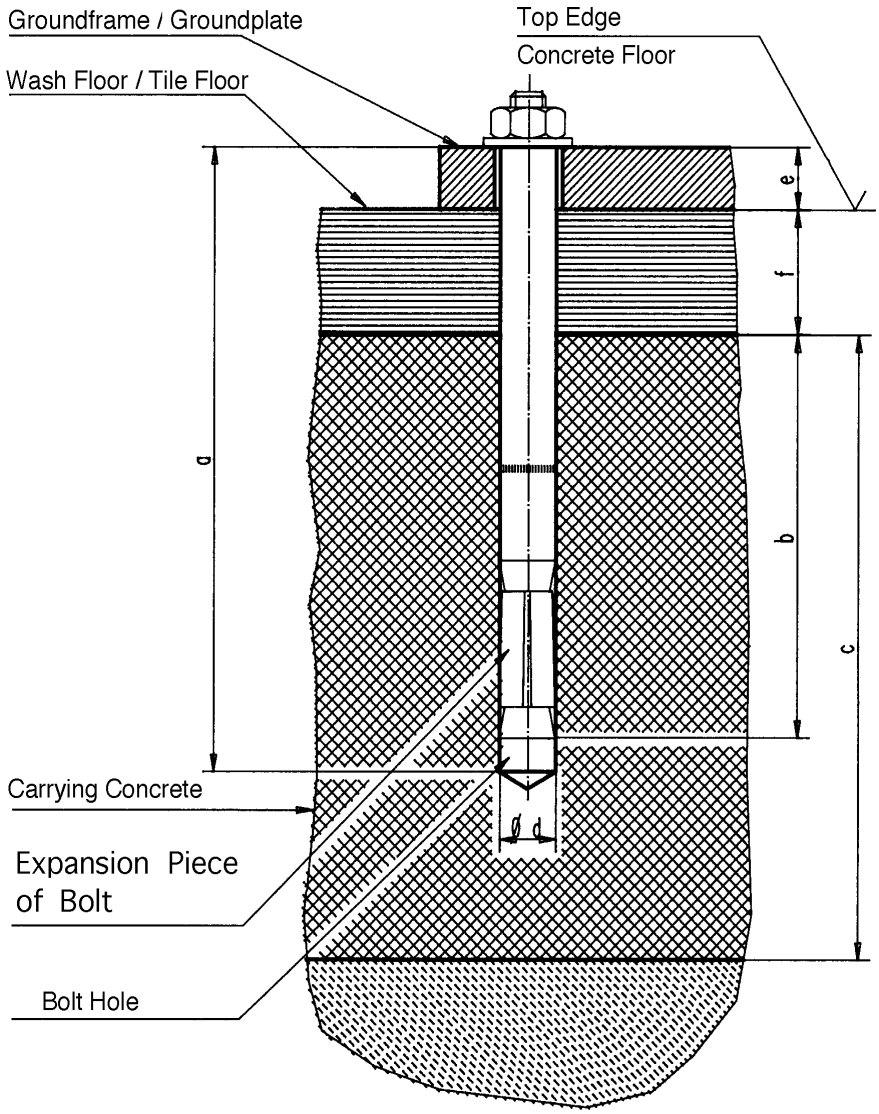


Table to pic. 18

Liebig-dowels

Doweltyp		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-pieces	e	0-40	40-65	65-90	90-115
Number of dowels		8	8	8	8
Starting torque		according to dowel manufacturer			

First security check before installation

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
Type plate	☐	☐	☐	.....
Short operating instruction	☐	☐	☐	.....
Warning designation	☐	☐	☐	.....
Designation lifting/lowering	☐	☐	☐	.....
Detailed operating instruction	☐	☐	☐	.....
Main switch lockable	☐	☐	☐	.....
Condition/Function foot protection	☐	☐	☐	.....
Function button “Lifting/Lowering”	☐	☐	☐	.....
Condition/Function Ramps	☐	☐	☐	.....
Condition automotive lift	☐	☐	☐	.....
Securing of bolts	☐	☐	☐	.....
Condition bolts and bearings	☐	☐	☐	.....
Construction (deformation,cracking)	☐	☐	☐	.....
Torque of the dowels	☐	☐	☐	.....
Fixed seat of the screws	☐	☐	☐	.....
Condition operating unit	☐	☐	☐	.....
Condition surface piston rod	☐	☐	☐	.....
Condition coverings	☐	☐	☐	.....
Condition electrical wires	☐	☐	☐	.....
Level of hydraulic oil	☐	☐	☐	.....
Condition of the hydraulic system	☐	☐	☐	.....
Condition hydraulic hoses	☐	☐	☐	.....
Function test with vehicle	☐	☐	☐	.....
Function equalisation of the lift	☐	☐	☐	.....
Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)

Regular security check

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
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Condition polymer-supports	☐	☐	☐	.....

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signature of the expert signature of the operator

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Failures repaired at: ....signature of the operator

(Use another form for verification!)

Regular security check

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(Use another form for verification!)

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Carried out the company:.....

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

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☐ Initiation possible, repair failures until.....

☐ No failings, Initiation possible

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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

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kind of check	all right	defect missing	veri-fication	remark
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Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)

Regular security check

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
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Securing of bolts	☐	☐	☐	.....
Condition bolts and bearings	☐	☐	☐	.....
Construction (deformation, cracking)	☐	☐	☐	.....
Torque of the dowels	☐	☐	☐	.....
Fixed seat of the screws	☐	☐	☐	.....
Condition operating unit	☐	☐	☐	.....
Condition surface piston rod	☐	☐	☐	.....
Condition coverings	☐	☐	☐	.....
Condition electrical wires	☐	☐	☐	.....
Level of hydraulic oil	☐	☐	☐	.....
Condition of the hydraulic system	☐	☐	☐	.....
Condition hydraulic hoses	☐	☐	☐	.....
Function test with vehicle	☐	☐	☐	.....
Function equalisation of the lift	☐	☐	☐	.....
Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)

Regular security check

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
Type plate	☐	☐	☐	.....
Short operating instruction	☐	☐	☐	.....
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Designation lifting/lowering	☐	☐	☐	.....
Detailed operating instruction	☐	☐	☐	.....
Main switch lockable	☐	☐	☐	.....
Condition/Function foot protection	☐	☐	☐	.....
Function button “Lifting/Lowering”	☐	☐	☐	.....
Condition/Function Ramps	☐	☐	☐	.....
Condition automotive lift	☐	☐	☐	.....
Securing of bolts	☐	☐	☐	.....
Condition bolts and bearings	☐	☐	☐	.....
Construction (deformation,cracking)	☐	☐	☐	.....
Torque of the dowels	☐	☐	☐	.....
Fixed seat of the screws	☐	☐	☐	.....
Condition operating unit	☐	☐	☐	.....
Condition surface piston rod	☐	☐	☐	.....
Condition coverings	☐	☐	☐	.....
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Level of hydraulic oil	☐	☐	☐	.....
Condition of the hydraulic system	☐	☐	☐	.....
Condition hydraulic hoses	☐	☐	☐	.....
Function test with vehicle	☐	☐	☐	.....
Function equalisation of the lift	☐	☐	☐	.....
Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)

Regular security check

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
Type plate	☐	☐	☐	.....
Short operating instruction	☐	☐	☐	.....
Warning designation	☐	☐	☐	.....
Designation lifting/lowering	☐	☐	☐	.....
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Construction (deformation,cracking)	☐	☐	☐	.....
Torque of the dowels	☐	☐	☐	.....
Fixed seat of the screws	☐	☐	☐	.....
Condition operating unit	☐	☐	☐	.....
Condition surface piston rod	☐	☐	☐	.....
Condition coverings	☐	☐	☐	.....
Condition electrical wires	☐	☐	☐	.....
Level of hydraulic oil	☐	☐	☐	.....
Condition of the hydraulic system	☐	☐	☐	.....
Condition hydraulic hoses	☐	☐	☐	.....
Function test with vehicle	☐	☐	☐	.....
Function equalisation of the lift	☐	☐	☐	.....
Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)

Extraordinary security check

☞ ***Filling out and leave in this manual***

kind of check	all right	defect missing	veri-fication	remark
Type plate	☐	☐	☐	.....
Short operating instruction	☐	☐	☐	.....
Warning designation	☐	☐	☐	.....
Designation lifting/lowering	☐	☐	☐	.....
Detailed operating instruction	☐	☐	☐	.....
Main switch lockable	☐	☐	☐	.....
Condition/Function foot protection	☐	☐	☐	.....
Function button “Lifting/Lowering”	☐	☐	☐	.....
Condition/Function Ramps	☐	☐	☐	.....
Condition automotive lift	☐	☐	☐	.....
Securing of bolts	☐	☐	☐	.....
Condition bolts and bearings	☐	☐	☐	.....
Construction (deformation,cracking)	☐	☐	☐	.....
Torque of the dowels	☐	☐	☐	.....
Fixed seat of the screws	☐	☐	☐	.....
Condition operating unit	☐	☐	☐	.....
Condition surface piston rod	☐	☐	☐	.....
Condition coverings	☐	☐	☐	.....
Condition electrical wires	☐	☐	☐	.....
Level of hydraulic oil	☐	☐	☐	.....
Condition of the hydraulic system	☐	☐	☐	.....
Condition hydraulic hoses	☐	☐	☐	.....
Function test with vehicle	☐	☐	☐	.....
Function equalisation of the lift	☐	☐	☐	.....
Condition polymer-supports	☐	☐	☐	.....

(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: ....signature of the operator

(Use another form for verification!)