

# 2.30 SPL

Automotive-Lift date: 12/2004

Manual date: 17.12.2004



## Operating instructions and documentation

Serial-number:.....

Retailer address / phone



# Nussbaum

Nußbaum Hebetchnik 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](mailto:nussbaum.lifts@t-online.de)//<http://www.nussbaum-lifts.de>

## Table of Content

Foreword .....	3
Record of installation .....	5
Record of handing over .....	6
1. Introduction .....	7
1.1 Installation and check of the automotive lift .....	7
1.2 Information of Warning .....	7
2. Master document of the automotive lift .....	8
2.1 Application .....	8
2.2 Changes at the construction .....	8
2.3 Displacement of the automotive-lift .....	8
3. Technical Information .....	10
3.1 Technical ratings .....	10
3.2 Safety device .....	10
3.3 Data sheet .....	11
3.4 Electrical diagram drawing .....	12
3.6 Hydraulic diagram drawing .....	14
4. Safety regulations .....	15
5. Operating Instructions .....	15
5.1 Lifting the vehicle .....	16
5.2 Lowering the vehicle .....	16
6. Troubleshooting .....	17
6.1 Lowering onto an obstacle .....	17
6.2 Emergency lowering .....	17
7. Inspection and Maintenance .....	18
7.1 Maintenance plan of the lift .....	18
7.2 Cleaning of the automotive lift .....	19
8 Security check .....	20
9. Installation and Initiation .....	21
9.1 Regulations for the installation .....	21
9.2 Erection and doweling the lift .....	21
9.3 Deaerate the hydraulic-system .....	24
9.4 Initiation .....	24
9.5 Changing the installation place .....	25
First security check before installation .....	29
Regular security check and Maintenance .....	30
Regular security check and Maintenance .....	31
Extraordinary security check .....	38

## Foreword

Nußbaum lifting systems are the result of over 25 years experience in the automotive lifting industry. The high quality and the superior concept ensure reliability, a long lift lifetime and above all and economic business solution.

To avoid unnecessary damage, injury or even death, read the operating instructions with care and observe the contents.

Nußbaum lifts is not responsible for incidents involving the use of Nußbaum lifting systems for applications other than those for which they were designed.

***Nußbaum Hebetchnik GmbH & Co.KG is not liable for any resulting damages. The user carries the risk alone.***

### Obligations of the user:

- To observe and adhere to the operating instructions.
- To follow the recommended inspection and maintenance procedures and carry out the prescribed tests.
- The operating instructions must be observed by all persons working with or around the lift.
- Above all chapter 4 "Safety Regulations" is very important and must be closely adhered to.
- In addition to the safety regulations stated in the operating instructions manual, the appropriate safety regulations and the operating procedures of the place of operation must also be considered.

### Obligations of the operator:

The operator is obliged to allow only those persons complying to the following requirements to work with or around the unit.

- Persons being familiar with the basic regulations concerning labour safety and accident prevention and being trained to operate the particular unit.
- Persons having read and understood the chapter concerning safety and warning symbols.
- Persons using the lift are required to confirm that they have read and understood the chapter on safety and warning symbols by signing the appropriate form.

### Dangers when operating the lift:

Nußbaum-Lifts are designed and built according to technical standards and the approved regulations for technical safety. The use of Nußbaum lifts for purposes other than those for which they were designed, may result in injury or even death.

### The lift must only be operated :

- For its appropriate use
- In faultless condition concerning technical security.

### Organisational Requirements:

- The instructions for use, are to be kept at the place of operation being easily access able 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 adhered to.

- The owner of the Nußbaum lifting system must ensure that operators and persons working with or around the lift occasionally conduct “refresher” courses to ensure that the appropriate operating procedures and safety precautions are known.
- Personal Protective Equipment (PPE) must be used according to the appropriate regulations.
- All safety- and danger signs on and around the lift are to be observed and followed!
- Spare parts must comply with the technical requirements specified by the manufacturer. This is only warranted with original parts.
- Observe and adhere to the specified time intervals between tests and inspections.

### **Maintenance works, repairing faults**

- Adjustments, maintenance, and inspections, are to be followed according to the time intervals specified. Details regarding the exchange of parts and components as mentioned in the operating instructions are to be adhered to.  
These works must only be carried out by expert personal.
- After maintenance- and repair works loose screws, nuts and bolts must always be firmly tightened!

### **Guarantee and liability**

- Our “General conditions of selling and delivering” are in force.  
There will be no guarantee or liability for incidents involving injuries or death or damage to equipment if these incidents are the result of one or more of the following reasons.
- Inappropriate use of the lift
- Inappropriate installation, initiation, operation and maintenance of the lift.
- Use of the lift while one or several security devices do not work, do not work correctly or are not installed correctly.
- Failure to follow the regulations of the operating instructions regarding transport, storage, installation, initiation, operation and maintenance of the lift.
- Unauthorized changes to the structure of the lift without first asking the producer.
- Unauthorized changes of adjustments of important components of the lift (e.g. driving elements, power rating, motor speed, etc)
- Wrong or incorrect maintenance practice.
- Catastrophes, acts of God or external reasons.



## Record of handing over

The automotive lift 2.30 SPL with the

Serial number:..... was installed on:.....

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

the safety was checked and the lift was started.

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

.....  
date name signature

.....  
date name signature

.....  
date name signature

.....  
date name signature

.....  
date name signature

.....  
date name signature

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

Your customer service:.....

## 1. Introduction

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

### 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

Lift–manufacturer:

Otto Nußbaum GmbH & CO.KG  
Korker Straße 24  
D-77694 Kehl-Bodersweier

### 2.1 Application

The automotive lift 2.30 SPL E is a lifting mechanism for lifting motor vehicles with a laden weight of up to 3000 kg. The max. Load distribution is 2:3 or 3:2 in or against drive-on direction.

It is not allowed to put the load on one or two carrying arms. It is not allowed to install the standard-automotive lift in a hazardous location or washing bays.

After changing the construction and after repair, the lift has to be checked by an expert again. The operating instruction and the instruction for maintenance have to be observed.

### 2.2 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

### 2.3 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



Page for notice

## 3. Technical Information

### 3.1 Technical ratings

Capacity	3000 kg
Load distribution	max. 2:3 or 3:2 in or against the drive on direction
Lifting time	approx. 30 sec
Lowering time	according to the position of the lever
Lifting height	max. 1820 mm
Line voltage	3~/N+PE, 400V, 50 Hz
Control voltage	24 V
Power rating	1,5 kW (Bulgar)
Motor speed	2800 rotation/min
Hydraulic pump (Marzoochi)	5,7 cm <sup>3</sup> /rotation
Hydraulic pressure	approx. 230 bar
Pressure control valve	approx. 255 bar
Oil tank	approx. 10 Liter
Sound level	≤ 75 dB(A)
Connection by customer	3~/N+PE, 400V, 50 Hz fuse T16A (time-lag fuse) observe your state regulations

### 3.2 Safety device

1. Safety device at the carrying arms.  
Safety device against unintentional movement.
2. Equalization ropes  
Safety device against inequality of the load.
3. Lockable main switch  
Safety device against unauthorised operation
4. Foot-protection at the arms  
Safety device to avoid crushing
5. Top limit switch  
Safety against collision with the vehicle
6. Optional: additional top limit rope  
Safety against collision with the vehicle
7. Press button  
If not pressing the button any more, the lift stops the movement.
8. Safety ratchets  
Safety device against unintentional lowering

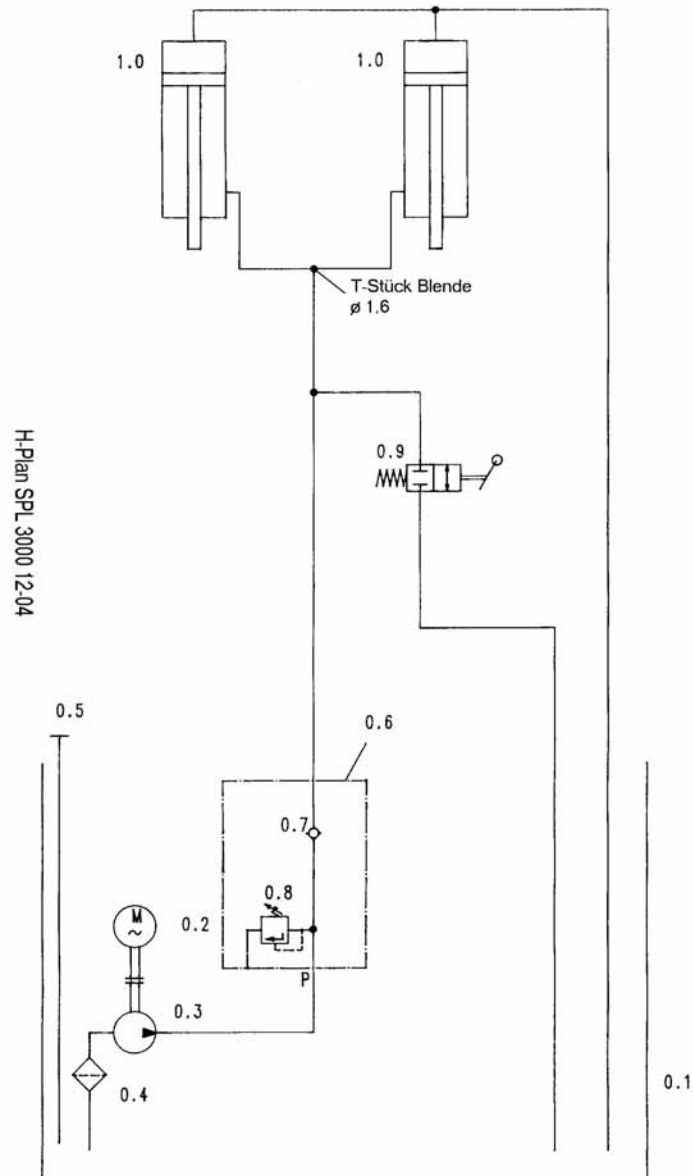




## **Electrical Parts List**

Q1	Main switch	990129
M1	Motor	991033
F1	Fuse	990299
F2	Fuse	990286
F3	Fuse	990299
S1	Button "lifting"	990334
S5	Button "lowering"	990300
K1	Up contactor	991002
T1	Transformer	991002
S1	Top limit switch	990003
Y1	Magnet coil	980654
Y2	Magnet coil	980654

## 3.6 Hydraulic diagram drawing



### Hydraulik parts list

0.1	Oil tank	
0.2	motor	991033
0.3	gear pump	1BK7D9,2Q
0.4	Oil filter	980012
0.5	Oil level gauge	980098
0.6	Hydraulic block	230SPL01053
0.7	Holding valve	980480
0.8	Pressure relief valve	232NSTL02082
0.9	Ball valve	1BKHDN8/10L
1.0	Hydraulic cylinder	230SPL02200tg

## 4. Safety regulations

When using automotive lifts the safety regulation EN1493/Aug.98 (CEN/TC 98 „Automotive lifts”) must be observe adhered to.

**Especially the following regulations are very important:**

- The laden weight of the lifted vehicle must not exceed 6500 kg for the automotive lift.
- The automotive lift must be in its lowest position (fully collapsed), before the vehicle can be driving on to the lift. Only then can the vehicle be lifted.
- While working with the lift the operating instructions must be followed.
- Vehicles with low clearance or vehicles that are specially equipped should be pre tested to ensure that they clear the lift ramp to avoid damage.
- Only trained personnel over the age of 18 years old are to operate this lift.
- No one is to stand within the working area (danger area) during lifting and lowering
- No one is to be raised or lowed either directly or in a vehicle by the automotive lift.
- No one is to climb onto the automotive lift or onto an already raised vehicle.
- The automotive column lift must be checked by an expert after changes in the construction have been made.
- The main switch must be switched off and locked before work on the vehicle can commence. This is a safety precaution to ensure that the lift does not move during work.
- The main switch must be switched off and locked before any maintenance or repair work on the automotive lift itself can be carried out.
- During lifting or lowering the operator must observe the vehicle to ensure that the vehicle and the lift are functioning correctly.
- Installation of the standard-mobile column lift in hazardous or dangerous locations such as washing bays is dangerous and is not allowed.
- Check the centre of gravity of the vehicle if heavy parts (eg the motor) are removed.
- If heavy parts must be removed (motor) the centre of gravity will change. Secure the vehicle before removing parts to avoid the possibility of the vehicle becoming insecure.

## 5. Operating Instructions



**The Safety Regulations must be observed and adhered to while working with the automotive lift. Read the safety regulations in chapter 4 carefully before working with the lift!**

*Pic. 1: Operational control*



A button "lifting"  
B lever "lowering" + button "unlocking the ratchets"  
C main switch

## 5.1 Lifting the vehicle

- Drive the vehicle onto the middle of the lift.
- Secure the vehicle from rolling, put into gear, apply the hand brake.
- Before positioning the arms under the vehicle, press the button; “unlocking the arms” and the pneumatic safety device will open.  
Slew the carrying arms under the vehicle and position the pads at the points specified by the vehicle-manufacturer. The arms will lock, if the button “lifting” is pressed.
- Determine the centre of gravity. This point must be located in the middle of the lift. If necessary, adjust the lifting-pads until the vehicle is in the raising condition, that is horizontally level.
- Check all the danger points of the lift and ensure that there are no objects or people in the working area around the lift or on the lift.
- Switch on the main switch.
- Raise the vehicle. Press the button “lifting” until the wheels are free. Once the wheels are free, check the safety position of the vehicle on the pads again.



***Closely observe how the vehicle is positioned on the lifting pads. If the vehicle is not correctly positioned on the pads the vehicle is not secure and the risk exists that the vehicle may fall.***

- Raise the vehicle to the required working height. Press the button “lifting”.
- Observe the complete process.

## 5.2 Lowering the vehicle

- Check all danger points of the lift and be sure that there are no objects or people in the working area (danger area) around the lift or on the lift.
- Lower the lift to the required working height or to its lowest (or fully collapsed) position. Press the button “lowering”. The lift will rise approx. 1 mm (safety function) before it starts to lower.
- Before the lift reaches its lowest position, the lift stops automatically (CE-Stop). After the lift has stopped, check the danger areas around the lift. Press the button “lowering” again. A warning signal will sound as the lift is further lowered. This is to warn against the risk of crushing as the lift is lowered to its lowest (fully collapsed) position.
- Observe the complete lowering process.
- Once the arms are in the lowest position, press the button “unlocking the arms” and remove the arms from under the vehicle.
- Drive the vehicle off the lift.



## 6. Troubleshooting

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

<b>Problem: Motor does not start!</b>	
Potential causes:	Repair failures:
<i>No power supply The main switch is not switch on Defective fuse The feed line is cut Thermo fuse is active Motor is defective Top limit switch is pressed or defective</i>	<i>Check the power supply Switch on the main switch Change the fuse Check it Let it cool down Call the technical service Check top limit switch</i>

<b>Problem: Motor starts, lift does not lift!</b>	
Potential causes:	Repair failures:
<i>The vehicle is too heavy The oil level is too low Defective hydraulic valve Gear pump is defective Leakage in the hydraulic system</i>	<i>Unload the vehicle Refills Call the technical service Call the technical service Check if leakage is present Call the technical service</i>

<b>Problem: the lift does not lower!</b>	
Potential causes:	Repair failures:
<i>An obstacle is restricting the lift from being lowered  Ball valve is defective Button „lowering“ is defective</i>	<i>Press button „Lifting“ until the obstacle is removed Call the technical service Check the button</i>

<b>Problem: the lift is lowering without handling!</b>	
Potential causes:	Repair failures:
<i>Ball valve is defective</i>	<i>Call the technical service</i>

### 6.1 Lowering onto an obstacle

If the carrying arms are lowered on a object, the lift stops the lowering process. Press the button „lifting“ and raise the lift until the object can be removed.

### 6.2 Emergency lowering



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



**The emergency-lowering can only carry out, if the ratchets are not locked.**

- Press the button „ Lifting “ until the ratchets are free.
- Remove the cover of the safety ratchets.
- Pull back the ratchets manually and fix it with suitable object (example: wire).
- 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.
- Pull the lever slowly down. The lowering process starts.
- Observe the complete process.
- Lower the lift in the lowest position.
- After the emergency lowering, the lift must shut down until the defective parts has been changed.

## 7. Inspection and Maintenance



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

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

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

During daily operation the lift must be closely observed to ensure that it is functioning correctly. In the case of malfunction or leakage the technical service must be informed.

### 7.1 Maintenance plan of the lift

- Before beginning any maintenance work isolate the power supply. Secure the main switch (lock it). Secure the danger area around the automotive lift and secure the lift against unintentional lowering.
- Clean the piston-rod using compressed air.
- Check the condition of ropes. If torn wires are discovered, the complete rope-set must be changed.
- Grease the piston rods with a high capacity lipid (approx. 5 g of S2 DIN51503 KE2G available from the Renolit Company).
- Grease the lubricate nipples with a multipurpose lipid. (example: Auto Top 2000 LTD. Agip).
- Clean and lubricate the moving parts of the lift (hinge bolts, sliding pieces, sliding surfaces) grease with a multipurpose lipid (example: Auto Top 2000 LTD. Agip).
- Check the hydraulic tubes for leakage.
- Check the oil level. Fill the tank with a clean, high quality oil (32 cst) (e.g.g. HLP 32 LTD. OEST Company)

- The hydraulic oil has to be changed at least once a year. To change the oil, lower the lift into its lowest position. Empty all tanks and refill with clean oil, approx. 17 litres per hydraulic unit are needed.  
Use an ATF-Suffix hydraulic-oil (OEST Company ) if the ambient temperature is under 5 degrees centigrade. After filling, the hydraulic oil must be between the upper and lower markings of the oil level gauge.  
Remove the old oil according to the appropriate regulations.
- Check all welded joints for cracks on the automotive-lift.  
If any cracks are found on the lift cease use immediately. Switch-off and secure the main switch (lock) and call the service partner.
- Ensure that the rubber-pads on the arms remain in good condition.  
Check the lockable pneumatic safety device to ensure that it is functioning correctly.
- Check all surfaces and repair if necessary.
- Damage to external surfaces, must be immediately repaired.  
If these repairs are not made immediately, permanent damage to the powder-coated surface may result.  
Repair and clean damaged areas with an abrasive paper (grain 120). After this is complete, use a suitable paint (observe the RAL Number).
- Check the zinc surface and repair it with a suitable tool. Use abrasive paper (grain 280).  
White rust can result from moisture laying in certain areas for long periods of time. Poor aerating can also result in rust formation.  
Rust may result from mechanical damage, wear, aggressive sediments (de-icing salt, liquids) or insufficient cleaning.  
Repair and clean these areas with abrasive paper (grain 280).  
After this is complete, use a suitable paint (observe the RAL Number).
- Check all the safety devices of the lift.
- Check the controller Battery (ASC). The Battery has a working life (at normal operation) between 4 ½ - 5 Years (manufacturers statement). To avoid permanent data-loss because of a flat battery, the ASC must be sent to Nussbaum headquarters after 4 years of use. Please contact your service partner for details.
- Check the electric cable and channels for Damage.
- Check that all screws and bolts are correctly torque (turning moments, see the list)

Anzugsdrehmoment (Nm) für Schachtschrauben  
Festigkeitsklasse 8.8

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

Festigkeitsklasse 10.9

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

- \* Gleitreibungszahl 0,10 für sehr gute Oberfläche, geschmiert
- \*\* Gleitreibungszahl 0,15 für gute Oberfläche, geschmiert oder trocken
- \*\*\* Gleitreibungszahl 0,20 Oberfläche schwarz oder phosphatiert, trocken

pic. 2:

## 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, natural 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"**



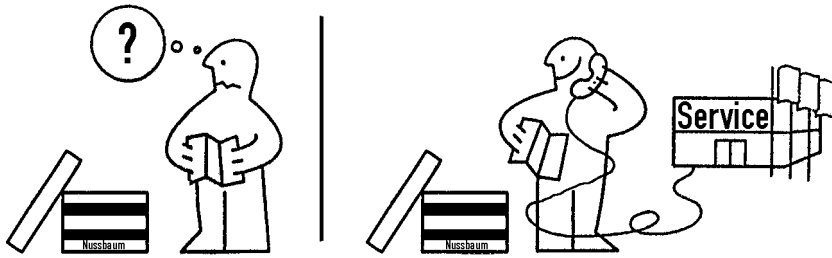
***The first and the regular security check must be performed by a competent person. It is recommended to service the lift at this occasion.***



***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 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 must be provided. The supply line must be protected with T16A (VDE0100 German regulation). The minimum diameter amounts to 2,5 mm<sup>2</sup>. (Pay attention to the tension of your state)
- All cable ducts have to be equipped with protective coverings to prevent accidents.

### 9.2 Erection and doweling the lift

Before the installation of the lift, secure the installation area to prevent access to unauthorised persons. Use devices such as cranes, fork lift trucks and supports to manoeuvre the lift and avoid accidents.

- Remove Carefully the lift from its wooden crate. Check the lift for damage.
- Fasten the optional column elongation only at the long version.
- Lay the column on a support.
- Roll out both ropes. (length of ropes 12450 mm)
- Losen the headplate and pull it with the cylinder to the top.
- Fasten the elongation at the column. Check the Geometrie of the elongation to the column.
- Fasten the head plate at the column elongation pieces.



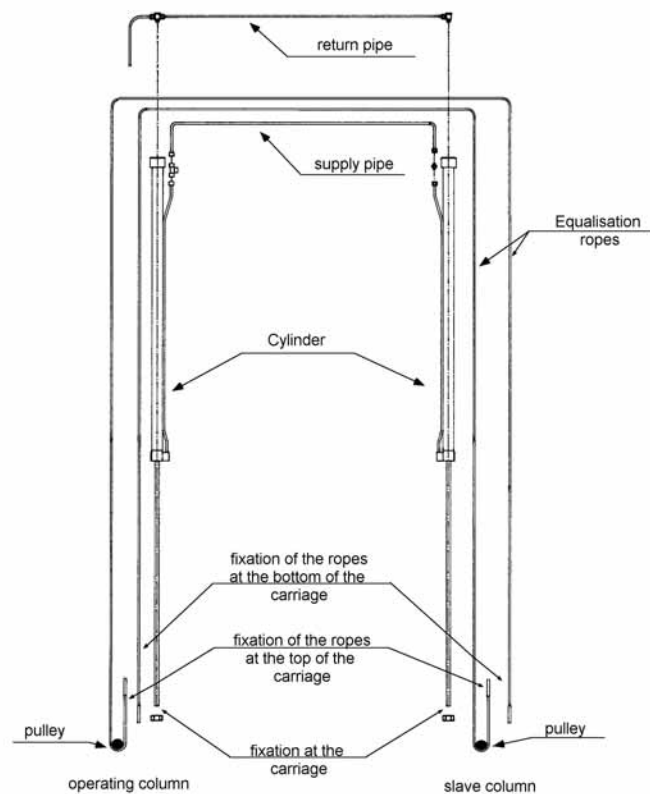
pic 4: fastened column elongation pieces

- Fasten the Stopp-limit rope and the top-limit switch on the operating column.
- Fasten the cover of the cylinder.
- Position the columns as described in the foundation diagram drawing.
- Hang on the hydraulic aggregate at the screws at the column. Fasten the screws. Connect the marked supply cables (ratchet magnet, top-limit switch, etc.).



Connect the hydraulic pipe of the cylinder with the screw fitting. If necessary, you have to adjust the hydraulic pipe.

- To avoid damages, save the electrical cable (to supply the electrical magnet) with cable clips at the hydraulic pipe.
- Put on the cross beam at the top of the columns and fasten it. Connect the hydraulic pipes and connect the oil-return line (synthetic material) afterwards at both columns.
- Put both synchronising ropes over the rolls at the top and insert them from the upper side in column. (see pic. 5). Attention: The ropes must not be crossed!
- Connect the equalization ropes but do not secure.



pic 5: course of the ropes

- Check the positions of the columns again.
- 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 20 or equal dowels of another manufacturer but pay-attention their regulation.
- 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 6. If the ground is covered with floor tiles, the dowels have to be chosen according to picture 7.
- Check line-up of the columns and look if they are vertical. If they aren't vertical correct with suitable bases (thin metal sheets). In case of vibration of the columns, position the suitable bases (thin metal sheet) under the middle of the base plate, too.
- Tighten the Dowels with a dynamometric key (according to the demand of the manufacturer). Pay attention to the regulation of the dowel manufacturer.



**Each masonry bolt must be tightened to the specified torque. Otherwise the normal function of the lift can not be guaranteed.**

**Observe the regulations of other masonry-bolt manufacturers.**

- Mount optional safety device (rope).
- Connect the power supply. The cable entry is at the bottom side of the operation column (standard).
- Fill oil-tank with oil: viscosity 32 cst, hold-up: approx. 10 litre. Remove the cover of the



aggregate for doing that.

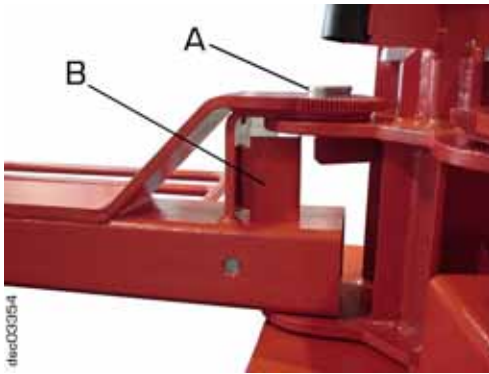
After the fill in, the level of the oil must be between the lowest and the highest marking of the oil level gauge.

- Switch on the main witch.
- Press the button „lifting“.
- Lower automotive lift to lowest position and lift it afterwards 500 - 600 mm. Both ropes must be tightened lightly. In any other case the self-locking nuts at the upper side on both carriages must be adjusted again.



**Pay attention that each of the two ropes is tightened regularly and that it is not too slack, otherwise exactly synchronisation can not be guaranteed. Pay attention that the ropes are not too tight, otherwise there is the possibility that the lift jerks, or that the lift is too slow while lowering. The ropes don't carry load. They must regulate an exactly synchronisation of the lift.**

- Install carrying arms (refer to data sheet), lubricate bolts and secure them with enclosed circlips at both ends.  
Mount a safety plate (Pos. B) in addition, to prevent that the bracket while lowering to an obstacle will be withdrawn from the bolt. (see picture)



- Raise and lower the automotive lift a couple of times without load in the end positions. Afterwards raise and lower a couple of times with load in the end positions

### 9.3 Deaerate the hydraulic-system

- Raise and lower the lift several times in the end positions.

### 9.4 Initiation



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

If the lift is installed by a competent person, he will perform this security check. If the operator installs the lift by himself, he has to instruct a competent person to perform the security check. The competent confirms the faultless function of the lift in the installation record and form for the security check and allows the lift to be used.



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



## 9.5 Changing the installation place

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

- Remove the safety sheet and the circlips of the bolts. Remove the carrying arms.
- Lower the lift to its lowest position.
- Switch off the main switch and lock it.
- Loose and remove the plug of the power supply.
- Remove the cover of the tank.
- Remove the oil from tank..
- Loose the equalization ropes at the top of the cross beam.
- Loose pressure and leakage pipe.
- Loose and remove the crossbeam.
- Loosen the dowels at the base plate.
- Transport the automotive-lift to its new location.
- Install the lift in accordance with chapter 9 " Installation and Initiation".

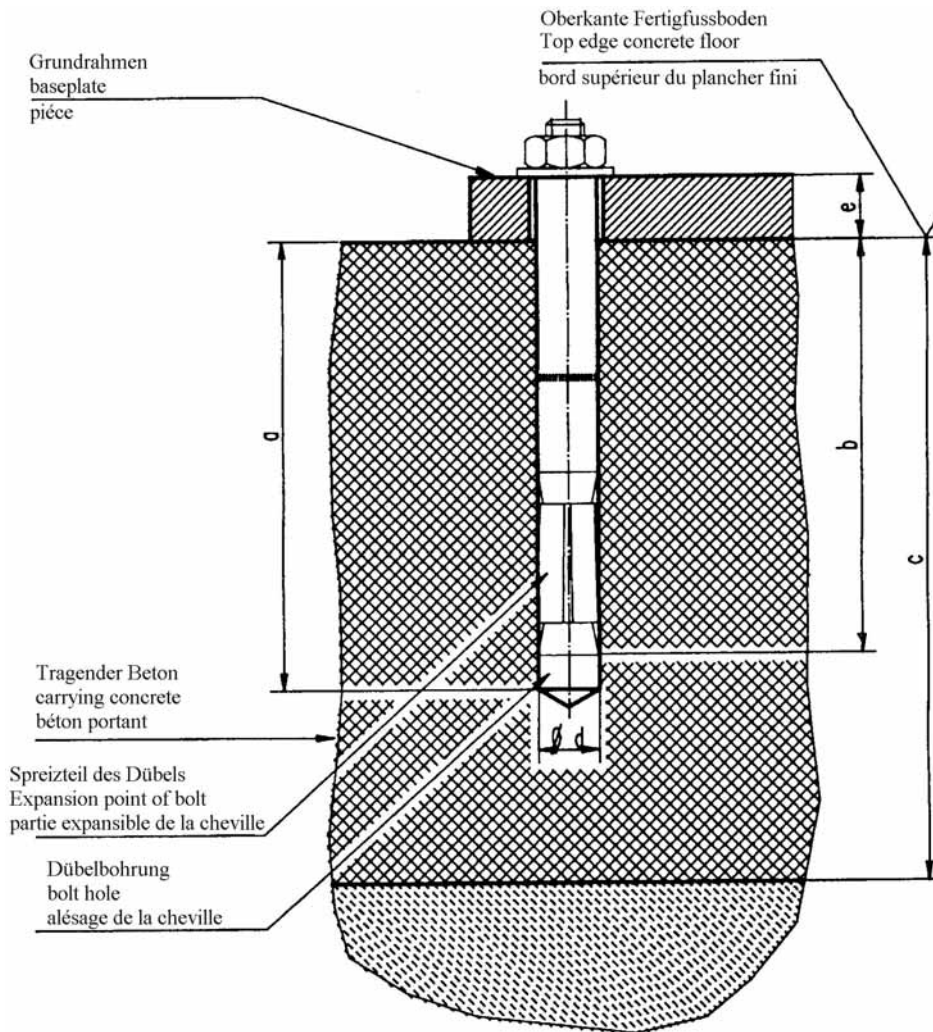


***Use new dowels, the used dowels can not be used anymore.***



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

pic 6: choice of the dowel length without floor pavement or tile surface

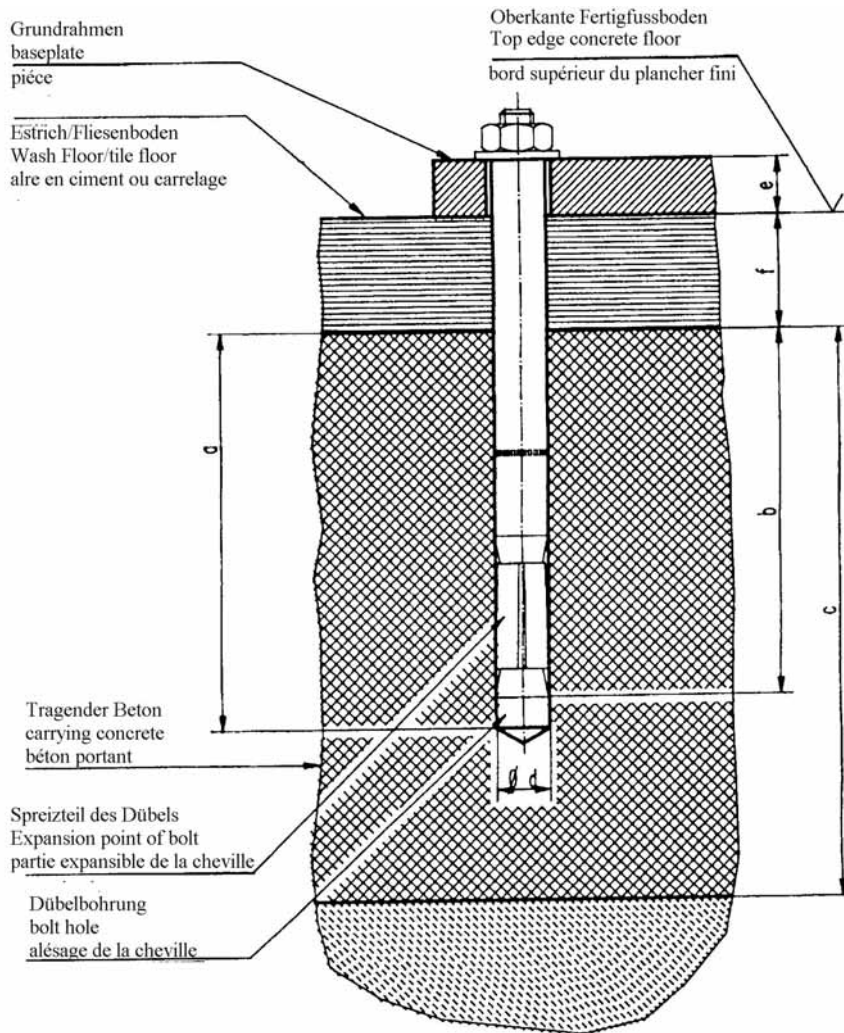


**Liebig-dowels**

Dowel type		B20/75	B20/100
Drilling depth	a	115	140
min. Anchorage depth	b	85	85
Thickness of concrete	c	see the foundation diagram	
Diameter of bore	d	20	20
Thickness of lift-pieces	e	0-40	40-65
Number of dowels		12	12
Starting torque		according to dowel manufacturer	

**Nußbaum Company demands LIEBIG safety dowels (german dowel manufacturer) or equivalent dowels of other manufacturer but observe the regulations.**

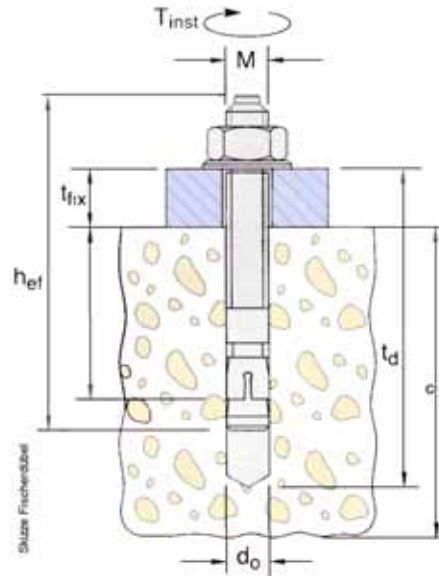
pic 7: choice of the dowel lenght with floor pavement or tile surface



**Liebig-dowels**

Doweltyp		B20/100	B20/125	B20/135	B20/175
Drilling depth	a	140	165	175	215
min. Anchorage depth	b	85	85	85	85
Thickness of concrete	c	see the foundation diagram			
Diameter of bore	d	20	20	20	20
Thickness of lift-pieces	e+f	40-65	65-90	90-100	100-140
Number of dowels		12	12	12	12
Starting torque		according to dowel manufacturer			

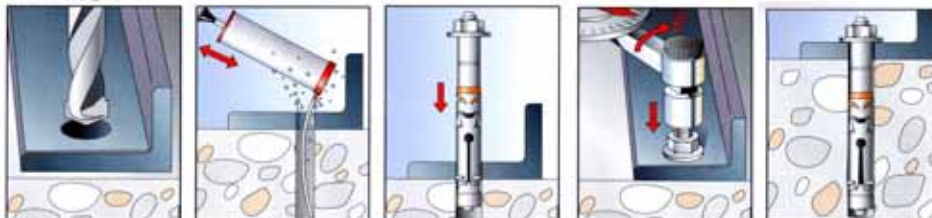
**Nußbaum Company demands LIEBIG safety dowels (german dowel manufacturer) or equivalent dowels of other manufacturer but observe the regulations.**



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


<b>fischer-Dübel</b>		Jumbo <sup>b</sup> , Sprinter <sup>b</sup> , 4.32H <sup>a</sup> -4.300H <sup>a</sup> , 1.25 SH-1.35SH <sup>a</sup> , 2.30 TLS <sup>a</sup> , 2.35 TS/TSA/TSK <sup>a</sup> , 2.32TSAP <sup>a</sup> , 2.35TSAPH <sup>a</sup> ,	2.25SL <sup>d</sup> , 2.32SL <sup>e</sup> -2.35 SL <sup>e</sup> , SPL <sup>b</sup> /Power-Lift <sup>b</sup> , 1.20 SE <sup>b</sup> 2.30/2.32 HL <sup>d</sup> , UNI-LIFT 3500 NT/CLT <sup>d</sup> , 2.32TTL <sup>a</sup>	HDL5000 <sup>c</sup> , HDL6500 <sup>c</sup> , 250SE <sup>f</sup> ,
Dübel typ of dowel type de cheville		FH 15/50 B	FH 18 x 100/100 B	FH 24/100 B
Bohrteife drilling depth Profondeur de l'alsage	t <sub>d</sub>	145	230	255
Mindestverankerungstiefe min.anchorage depth Profondeur minimale d'ancrage	h <sub>ef</sub>	70	100	125
Betonstärke thickness of concrete Epaisseur du béton	c	siehe den aktuellen Fundamentplan see current foundation-diagram drawing vois le plan de fondation actuel		
Bohrerdurchmesser diameter of bore Diamètre de l'alsage	d <sub>o</sub>	15	18	24
Bauteildicke thickness of the lift-piece Epaisseur de la pièce	t <sub>fix</sub>	0-50	0-100	0-100
Anzugsdrehmoment Nm turning moment moment d'une force	M <sub>D</sub>	40	80	120
Stückzahl piece number nombre des pièces	a	4		
	b	8		
	c	10		
	d	12		
	e	16		
	f	20		

### Montage



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

## First security check before installation

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	ver-ification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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 and Maintenance

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	verification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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

 Complete and leave in this manual

Serial number:.....

kind of check	all right	defect missing	ver-ification	remark
Type plate.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Short operating instruction .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Sticker "max. capacity".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition automotive-lift.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „lifting“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function „Lowering Lever“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Button „unlocking the ratchet“.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Optional rope-Stop limit switch.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function carrying arm safety device.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition Safety metal sheet at the arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition and securing of the bolts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Construction (deformation, cracking).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the concrete.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Torque of the dowels (bolts).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
torque moments of the screws.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic unit .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition surface piston rod .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the covers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition welding.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Closeness of the hydraulic system .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Level of the hydraulic oil .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the hydraulic hoses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the Electrical cable.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the colour.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the ropes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rope-pulleys .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition carrying arms.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Condition of the rubber pads.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
Function Test with vehicle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....

**( 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!)











