



Operating instruction

In ground truck lifts



Type

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Operating instruction

Foreword to the operating instructions

1 Foreword to the operating instructions

These operating instructions are designed to familiarize the user with the machine/plant and its designated use.

The instruction manual contains important information on how to operate the machine/plant safely, properly and most efficiently. Observing these instructions helps to avoid danger, to reduce repair costs and downtimes and to increase the reliability and life of the machine/plant.

The instruction manual is to be supplemented by the respective national rules and regulations for accident prevention and environmental protection.

The operating instructions must always be available wherever the machine/plant is in use.

These operating instructions must be read and applied by any person in charge of carrying out work with and on the machine/plant, such as

- operation including setting up, troubleshooting in the course of work, evacuation of production waste, care and disposal of fuels and consumables.
- maintenance (servicing, inspection, repair) and/or
- transport

In addition to the operating instructions and to the mandatory rules and regulations for accident prevention and environmental protection in the country and place of use of the machine/plant, the generally recognized technical rules for safe and proper working must also be observed.

2 Fundamental safety instructions

2.1 Warnings and symbols



Danger

Draws attention to the fact that disregard for these instructions could lead to serious or even deadly consequences.



Caution

Draws attention to the fact that disregard of these instructions could under certain circumstances lead to injuries.



Indicates that disregard of these instructions could lead to the damage of the machine or goods on the machine.

2.2 Basic operation and designated use of the machine/plant

- The machine/plant has been built in accordance with state of the art standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or of third parties, or cause damage to the machine and to other material property.
- The machine/plant must only be used in technically perfect condition in accordance with its designated use and the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine/plant. Any functional disorders, especially those affecting the safety of the machine/plant, should therefore be rectified immediately.
- The machine/plant is designed exclusively for the lifting of vehicles such as trucks and busses. Using the machine/plant for purposes other than those mentioned above (such as using the lifts as a working platform) is considered contrary to its designated use. The manufacturer/ supplier cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user. Operating the machine within the limits of its designated use also involves observing the instructions set out in the operating manual and complying with the inspection and maintenance directives.

Operating instruction

Fundamental safety instructions

2.3 Organizational measures

- The operating instructions must always be at hand at the place of use of the machine/plant, e.g. by stowing them in the tool compartment or toolbox provided for such purpose.
- In addition to the operating instructions, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection. These compulsory regulations may also deal with the handling of hazardous substances, issuing and/or wearing of personal protective equipment, or traffic regulations.
- The operating instructions must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features, such as job organization, working sequences or the personnel entrusted with the work.
- Personnel entrusted with work on the machine must have read the operating instructions and in particular the chapter on safety before beginning work. Reading the instructions after work has begun is too late. This applies especially to persons working only occasionally on the machine, e.g. during setting up or maintenance.
- Check - at least from time to time - whether the personnel is carrying out the work in compliance with the operating instructions and paying attention to risks and safety factors.
- Use protective equipment wherever required by the circumstances or by law.
- Observe all safety instructions and warnings attached to the machine/plant.
- See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible.
- In the event of safety-relevant modifications or changes in the behaviour of the machine/plant during operation, stop the machine/plant immediately and report the malfunction to the competent authority/person.
- Never make any modifications, additions or conversions which might affect safety without the supplier's approval. This also applies to the installation and adjustment of safety devices and valves as well as to welding work on load-bearing elements.
- Spare parts must comply with the technical requirements specified by the manufacturer. Spare parts from original equipment manufacturers can be relied to do so.
- Never modify the software of programmable control systems.
- Replace hydraulic hoses within stipulated and appropriate intervals even if no safety-relevant defects have been detected.
- Adhere to prescribed intervals or those specified in the operating instructions for routine checks and inspections.
- For the execution of maintenance work, tools and workshop equipment adapted to the task on hand are absolutely indispensable.

2.4 Selection and qualification of personnel - Basic responsibilities

- Any work on and with the machine/plant must be executed by reliable personnel only. Statutory minimum age limits must be observed.
- Employ only trained or instructed staff and set out clearly the individual responsibilities of the personnel for operation, setup, maintenance and repair.
- Make sure that only authorized personnel works on or with the machine.
- Define the machine operator's responsibilities - also with regard to observing traffic regulations - giving the operator the authority to refuse instructions by third parties that are contrary to safety.
- Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine/plant without being permanently supervised by an experienced person.
- Work on the electrical system and equipment of the machine/plant must be carried out only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and in accordance with electrical engineering rules and regulations.
- Work on the hydraulic system must be carried out only by personnel with special knowledge and experience of hydraulic equipment.

Operating instruction

Fundamental safety instructions

2.5 Safety instructions governing specific operational phases

Standard operation

- Avoid any operational mode that might be prejudicial to safety.
- Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state.
- Operate the machine only if all protective and safety-oriented devices, such as removable safety devices, emergency shut-off equipment, sound-proofing elements and exhausters, are in place and fully functional.
- Check the machine/plant at least once per working shift for obvious damage and defects. Report any changes (incl. changes in the machine's work-ing behaviour) to the competent organization/person immediately. If necessary, stop the machine immediately and lock it.
- In the event of malfunctions, stop the machine/plant immediately and lock it. Have any defects rectified immediately.
- During start-up and shutdown procedures always watch the indicators in accordance with the operating instructions.
- Before starting up or setting the machine/plant in motion, make sure that nobody is at risk.

Special work in conjunction with utilization of the machine/plant and maintenance and repairs during operation; disposal of parts and consumables

- Observe the adjusting, maintenance and inspection activities and intervals set out in the operating instructions, including information on the replacement of parts and equipment. These activities may be executed by skilled personnel only.
- Brief operating personnel before beginning special operations and maintenance work, and appoint a person to supervise the activities.
- In any work concerning the operation, conversion or adjustment of the machine and its safety oriented devices or any work related to maintenance, inspection and repair, always observe the startup and shutdown procedures set out in the operating instructions and the information on maintenance work.

- Ensure that the maintenance area is adequately secured.
- If the machine/plant is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by:
 - locking the principal control elements and removing the ignition key and/or attaching a warning sign to the main switch.
 - To avoid the risk of accidents, individual parts and large assemblies being moved for replacement purposes should be carefully attached to lifting tackle and secured. Use only suitable and technically perfect lifting gear and suspension systems with adequate lifting capacity. Never work or stand under suspended loads.
 - The fastening of loads and the instructing of crane operators should be entrusted to experienced persons only. The marshaller giving the instructions must be within sight or sound of the operator.
 - For carrying out overhead assembly work always use specially designed or otherwise safety-oriented ladders and working platforms. Never use machine parts as a climbing aid. Wear a safety harness when carrying out maintenance work at greater heights.
 - Keep all handles, steps, handrails, platforms, landings and ladders free from dirt, snow and ice.
 - Clean the machine, especially connections and threaded unions, of any traces of oil, fuel or preservatives before carrying out maintenance/repair. Never use aggressive detergents. Use lint-free cleaning rags.
 - Before cleaning the machine with water, steam jet (high-pressure cleaning) or detergents, cover or tape up all openings which - for safety and functional reasons - must be protected against water, steam or detergent penetration. Special care must be taken with electric motors and switch-gear cabinets.
 - After cleaning, examine all fuel, lubricant and hydraulic fluid lines for leaks, loose connections, chafe marks and damage. Any defects found must be rectified without delay.
 - Always tighten any screwed connections that have been loosened during maintenance and repair.
 - Any safety devices removed for setup, maintenance or repair purposes must be refitted and checked immediately upon completion of the maintenance and repair work.
 - Ensure that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

Operating instruction

Fundamental safety instructions

2.6 Warning of special dangers

Electric energy

- Use only original fuses with the specified current rating. Switch off the machine/plant immediately if trouble occurs in the electrical system.
- Work on the electrical system or equipment may only be carried out by a skilled electrician himself or by specially instructed personnel under the control and supervision of such electrician and in accordance with the applicable electrical engineering rules.
- If provided for in the regulations, the power supply to parts of machines and plants, on which inspection, maintenance and repair work is to be carried out must be cut off. Before starting any work, check the de-energized parts for the presence of power and ground or short-circuit them in addition to insulating adjacent live parts and elements.
- The electrical equipment of machines/plants is to be inspected and checked at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.
- Necessary work on live parts and elements must be carried out only in the presence of a second person who can cut off the power supply in case of danger by actuating the emergency shut-off or main power switch. Secure the working area with a red-and-white safety chain and a warning sign. Use insulated tools only.

Gas, dust, steam and smoke

- Carry out welding, flame-cutting and grinding work on the machine/plant only if this has been expressly authorized, as there may be a risk of explosion and fire.
- Before carrying out welding, flame-cutting and grinding operations, clean the machine/plant and its surroundings from dust and other inflammable substances and make sure that the premises are adequately ventilated (risk of explosion).
- Observe any existing national regulations if work is to be carried out in narrow rooms.

Hydraulic and pneumatic equipment

- Work on hydraulic equipment may be carried out only by persons having special

knowledge and experience in hydraulic systems.

- Check all lines, hoses and screwed connections regularly for leaks and obvious damage. Repair damage immediately. Splashed oil may cause injury and fire.
- De-pressurize all system sections and pressure pipes (hydraulic system, compressed air system) to be removed in accordance with the specific instructions for the unit concerned before carrying out any repair work.
- Hydraulic and compressed air lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

Oil, grease and other chemical substances

- When handling oil, grease and other chemical substances, observe the product-related safety regulations.

Installation and inspection

Only trained personnel are allowed to do the work concerning safety and carry out safety checks. In this document, these are called experts and competent persons.

- **Experts** are persons (e.g. self employed engineers, TÜV-experts) who have been given instructions and have the experience to check and control the lift with the help of an expert's report. They are fully aware of the regulations for protection of labour and prevention of accidents.
- **Competent persons** are persons who have enough knowledge and training with truck lifts. They have taken part in training provided by the manufacturer (e.g., servicing/installation personnel and authorised dealers are regarded as competent persons).

Operating instruction

Operation

3 Operation

3.1 Operators

**Danger**

Sole operation of the lift must only be carried out by persons who

- Are 18 years old or above
- Have been instructed how to operate the lift and have proved their competency to do this within the company
- Have been explicitly authorised in writing, by the company, to operate the lift.

If more than one person is operating the lift at any one time, the company must determine which of these persons has overall responsibility.

3.2 Notes on Operation

- Only operate the lift when it is in a technically perfect condition.
- Observe lifting and lowering movements of the lift continuously.
- In case of signs of malfunction (operating malfunction, unusual noises, leakage, jerky movements of pistons etc.) inform the supervisor immediately. If operating security cannot be guaranteed, lower the vehicle immediately or secure it well (using trestles). The lift must not be used and the malfunction must be rectified by a competent person. The lift must not be used again until it has been serviced and approved by the supervisor.
- Keep the motion area of the lift free from objects and obstructions, especially trestles and additional lifts which are not in use.
- When lifting, only raise the vehicle so that it is clear of ground level. Check the safe support of the vehicle and then lift to the required height.
- Ensure that no person is in the danger area of the lift during lifting and lowering.
- It is forbidden ride or climb on the load or load carrying devices.
- Follow the summarised operating instructions on the lift.

3.3 Pit Covering

- No persons or objects must stand on the covering plates while the pistons are moving.
- The maximum load on the pit covering must not be exceeded. This refers especially to the application of trestles and lifting equipment, as well as working with heavy loads. The permitted load can be found in the technical data.
- During braking or starting up of the vehicle, a maximum thrust of 1000N on the covering elements is allowed.
- Check the safety of the covering before stepping on to it. It must be completely closed. There must be no visible gaps or deformities.

3.4 Selecting the lifting points on the vehicle

- Only use lifting points, with the required capacity, which are authorised by the vehicle manufacturer.
- Always use 2 lifting points on each axle. (No other parts of the vehicle must rest on the traverse)
- The distance between the lifting points should be as wide as possible to avoid tilting.

3.5 Selecting Accessories

- Do not lift a vehicle without suitable accessories.
- Only use original accessories.
- Choose carrying plates with large surface areas which fit the lifting points (carrying plates, forks, pegs.)
- Do not stack any extension pieces or supports.

3.6 Driving on to the lift

- Only when traverses are completely lowered.
- Only when the vehicle has sufficient ground clearance.
- Drive on centric to the lift axle.
- Stop in the wheel positioning rest on the fixed lifting cylinder, or when the selected lifting points are directly above the fixed lifting cylinder.
- Secure the vehicle against rolling away.

Operating instruction

Operation

3.7 Distributing the load

**Caution**

The admission of four-wheel vehicles (special Tandem trailers or similar with axle base < 1740 mm) is not permitted in principle. It threatens crash danger of the vehicle.

When the raising three-axis penalties (3rd axle as wake axle with smaller permissible axle load, than the drive axle) a faulty operation is by exclusive lowers the stamp under the drive axle under all circumstances to avoid. The substantial damage of the vehicle threatens!

- When lifting, only raise the vehicle so that it is clear of ground level. Check the safe support of the vehicle and then lift to the required height ("up" button).
- Before beginning any work on the lifted vehicle, the main switch must be off.

- The axle load of the vehicle must not exceed the capacity of the lifting cylinders. If in doubt, ask the supervisor.
- See vehicle registration document for the structural weight of the individual axles.
- For double axles consider the structural weight of both axles.
- Take the load capacity and additional load on top of and inside the vehicle into consideration.
- When heavy parts are installed or removed, or when other external forces are in action, the weight distribution on the lift is affected. In this case the load should be supported with trestles, for example.

3.8 Attaching the traverses

- Start with fixed lifting cylinder.
- Put the suitable support on the traverse.
- Position the support under the lifting points of the vehicle.
- Lift the vehicle slightly on the lifting points.
- Check the safe support of the vehicle.

As described in point 1 all axles are to be lifted slightly one after another, checking the safe vehicle support of each.

3.9 Lifting

- When lifting one axle only, encompassing supports should be used. In addition, the handbrake should be released and the vehicle put into neutral so that the wheels can roll.
- Activate all lifting cylinders (selection switch on).

Operating instruction

Operation

3.10 Lowering

- Switch the lift on (main switch).
- Make sure that the raised lifting cylinder is switched on. (switch 1,2,3 = on).
- Make sure that there are no persons or objects in the danger area of the lift.
- Lower the lift slowly, standing at a safe distance away ("down" button).
- As soon as a lifting cylinder has reached the lowest starting position it should be deactivated. Continue lowering until all lifting cylinders have reached the lowest position.

3.11 Driving the vehicle off the lift

- Before driving the vehicle off the lift check that all lifting points are free (if necessary, remove all distance pieces and carrying plates). Ensure that all lifting cylinders are completely lowered.
- Drive the vehicle slowly off the lift, taking care not to drive on the pit covering.
- Switch off lifts which are not in use and secure against unauthorised operation.

3.12 Electric controls/operating elements

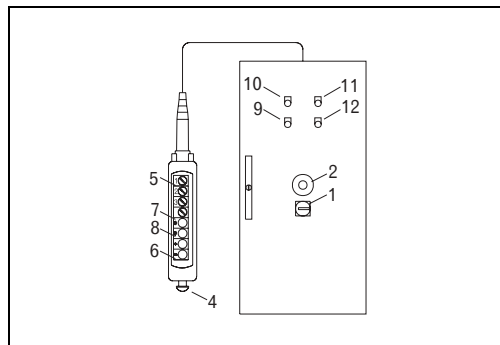


Abb. 1: Control 1-3 post lifts

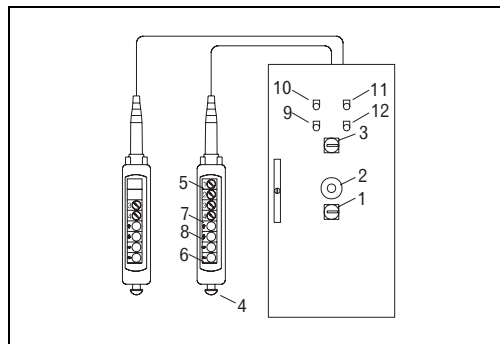


Abb. 2: Control for 4 post lift

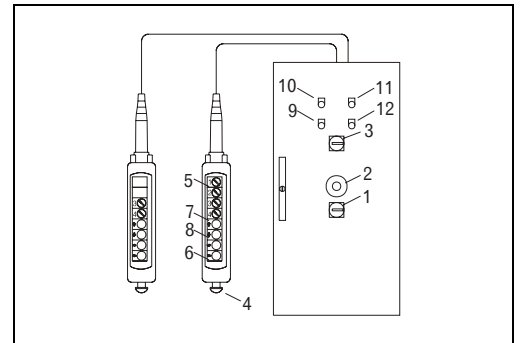


Abb. 3: Control for 5 post lift

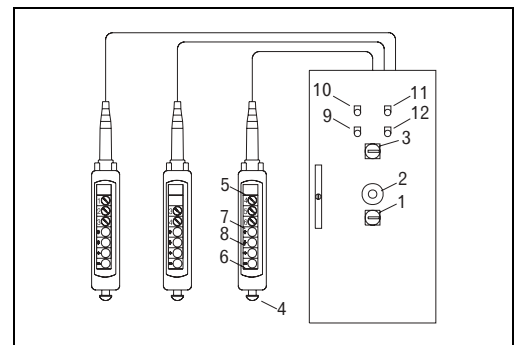


Abb. 4: Control for 6 post lift

Pos.	Description	Function
1	Main switch	Switches on the lift
2	Emergency stop button 1	Stops all electrically operated functions
3	Operating mode switch 5 post lift (option)	<p>Position 1: Hand-held control panel 1 for lifting cylinder 1,2,3,4; Hand-held control panel 2 disconnected.</p> <p>Position 2: Hand-held control panel 1 for cylinders 1,2; Hand-held control panel 2 for lifting cylinders 3,4.</p>
	Operating mode switch 5 post lift (option)	<p>Position 1: Hand-held control panel 1 for lifting cylinder 1,2,3,; Hand-held control panel 2 for lifting cylinder 4,5</p>

Operating instruction

Operation

		<p>Position 2: Hand-held control panel 1 for lifting cylinders 1,2; Hand-held control panel 2 for lifting cylinders 3,4,5.</p>
	Operating mode switch 6 post lift (option)	<p>Position 1: Hand-held control panel 1 for lifting cylinder 1,2,3,; Hand-held control panel 2 disconnected. Hand-held control panel 3 for lifting cylinders 4,5,6. Position 2: Hand-held control panel 1 for lifting cylinders 1,2; Hand-held control panel 2 for lifting cylinders 3,4. Hand-held control panel 3 for lifting cylinders 5,6.</p>
4	Emergency stop button 2	Stops all electrically operated functions.
5	Lifting cylinder selection switch	Control command (up, down, right left) valid for all selected lifting cylinders
6	Switch adjusting drive left/right	Adjusting drive lifting cylinder (only 1 cylinder allowed)
7	“Up“ button	Selected lifting cylinder up
8	„Down“ button	Selected lifting cylinder down
9	Ready for operation	Signals operative
10	Malfunction drive	Signals malfunction
11	Malfunction signal transmitter	Signals malfunction
12	Malfunction synchronisation	Signals malfunction

Tab. 1:

Operating instruction

Technical data

4 Technical data

Model	Duplex T	Duplex L
	2-15-1900	2-15-1900
	3-15-1900	3-15-1900
	4-15-1900	4-15-1900
	5-15-1900	5-15-1900
	6-15-1900	6-15-1900

Stroke	mm	1900	1900
Capacity/ cyl	t	15	15
Operating pressure	bar	100	60
Set pressure	bar	110	66
Safety valve			
Installation depth			
Frame	mm	1400	2350
Cassette	mm	1450	2450
Lifting time	s	85	85
Lowering time	1	52	52
Drive/cyl.	kW	3	3
ø Piston	mm	180/150	180
Oil filling /cyl.	l	60	60
Noise level	dBA	70	70
Traverse			
Height	mm		70
Extension	mm		650-1040

Tab. 2:

4.1 Safety devices

Safety device (second inner-lying safety cylinder)

Lowering brake valve to control the lowering speed.

Emergency stop (hanging control)

Independent working devices to avoid the unintentional movement of the load carrying devices.

4.2 Description of the hydraulics

Hydraulic plan

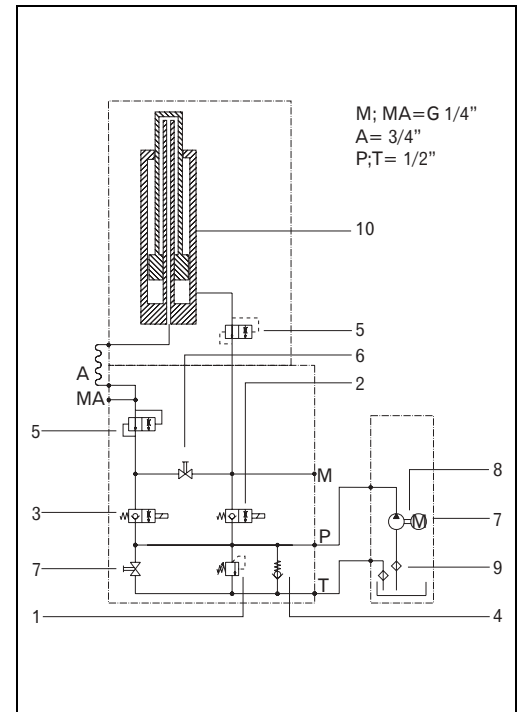


Abb. 5:

Pos.	Description
------	-------------

1	Pressure control valve
2	Solenoid valve
3	Solenoid valve
4	Check valve
5	Lowering brake valve
6	Emergency release
7	Emergency release
8	Pump
9	Filter
10	Duplex cylinder
M	Manometer connection
MA	Manometer connection

Tab. 3:

Operating instruction

Technical data

Safety Cylinder

Each lifting cylinder consists of 2 independently functioning hydraulic systems.

- **Cylinder 1**
The outer visible cylinder is the working cylinder. Normally, this cylinder carries the complete load during lifting and lowering.
- **Cylinder 2**
Inside is a second cylinder. If cylinder 1 fails, the safety cylinder carries the complete load.

Lifting

By operating the “up” button, the motor (7) starts and the pump (8) delivers oil through both solenoid valves (2,3) to the double cylinder (10). The pressure control valve (1) limits the pressure to the set maximum value.

Lowering



To lower, both solenoid valves must be open! The hydraulic pump must run in reverse!

By operating the “down” button, the two solenoid valves (2, 3) open, the hydraulic motor runs in reverse, the pump sucks the oil out and the lifting cylinder lowers. The lowering speed is limited by the lowering brake valve.

4.3 Description of the control

Switching on

- Main switch on
- Unlock emergency stop
- Light is on, control is ready for operation

Emergency stop

- Press emergency stop button on hand-held control panel

Switching off after end of operation

- Main switch off

Pre-selection

The relation between the lifting cylinder to the single hand-held control panels occurs by selection switch pos.3.

Quantity lifting cylinder	Position selection switch	Relation to the lifting cylinder to		

1,2,3	-----	1,2,3		
4	Position 1 Position 2	1,2,3,4 1,2	- 3,4	
5	Position 1 Position 2	1,2,3 1,2	4,5 3,4,5	
6	Position 1 Position 2	1,2 1,2,3	3,4	5,6 3,4,5

Tab. 4:

Activating the lifting cylinder

Each lifting cylinder is individually operated by the selection switch 1,2,3..... Control commands only reach active lifting cylinders.

Setting axle distances

It is possible for all or just some of the lifting cylinders to have an adjusting drive. The adjusting drive is only operative if:

- the relevant lifting cylinder is switched on (if more than 1 lifting cylinder is active then all adjusting drives are locked)

Lifting/lowering in synchronisation

The lifting /lowering buttons are valid for all active lifting cylinders at the same time.

- Activate the lifting cylinder required (any combination)
- Operate lifting/lowering button

Synchronisation control

Every lifting cylinder has a cable pull for altimetry, which sends an impulse to the control every 50 mm. By operating the up/down button the cylinders travel from stage signal to stage signal in the chosen direction. At each stage signal the cylinders wait for each other.

Operating instruction

Technical data

- If only one single lifting cylinder has been chosen, then the synchronisation control is not active.
- By lifting/lowering a cylinder can be switched off at any time.
- As soon as a lifting cylinder has reached the final position it must be switched off. All other cylinders must continue to lower until every cylinder has reached the final position.

Test mode



Caution

This function must only be used by an competent person!

In the control cabinet are 2 buttons. With button 1 the pressure in all working cylinders is switched off. The safety cylinders carry the full load. With button 2 the pressure in all safety cylinders is switched off. The working cylinders carry the full load.

- Lift up a heavy vehicle approximately 500 mm.
- Press button 1 approximately 2 min. First of all the load sinks about 150 mm. Then the load must come to a standstill.
- Press button 2 approximately 2 min. First of all the load sinks about 150 mm. Then the load must come to a standstill.

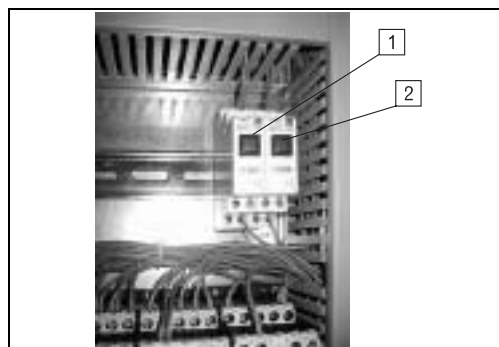


Abb. 6:

Malfunction

Three malfunction messages on the control will be shown by lights:

Malfunction of drive, malfunction of signal transmitter synchronisation, malfunction of synchronisation monitoring. When a malfunction occurs the corresponding light will blink. When a synchronisation malfunction occurs the light blinks quickly. Indications of mal-

functions are stopped by switching off the control.

- Malfunction of drive
Check the built in motor protection switch in the control cabinet.
- Malfunction of signal transmitter synchronisation
Three possible reasons:
1. Wire cable breakage in one of the cables for the signal transmitter synchronisation.
2. Running time monitor (no signal change of the signal transmitter synchronisation within 25 sec.)
3. Monitoring the counter difference of the selected cylinder
- Malfunction of Synchronisation monitoring
Important electronic parts of the electronic monitor each other.

4.4 Transport

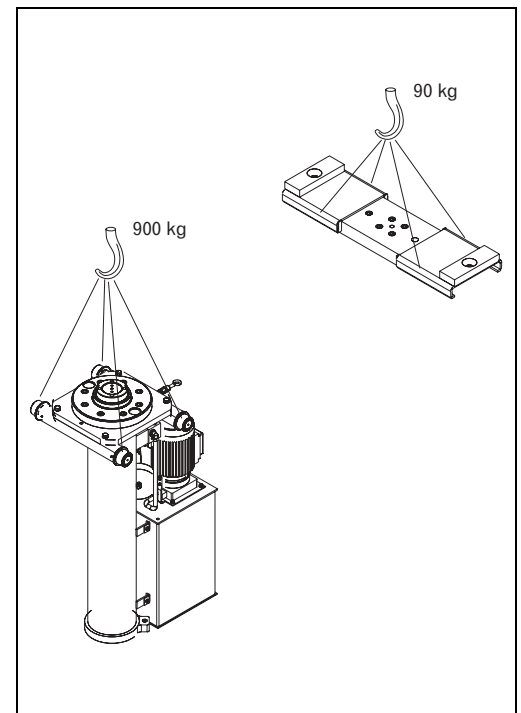


Abb. 7:

Operating instruction

Maintenance

5 Maintenance

! Danger
Only personnel who are familiar with the VGB 14, and are qualified to carry out repair and servicing reliably, can be authorised to service the truck lift.

! Caution
Secure the lift against unintentional operation before all servicing and repair work (switch off main switch and lock).

During servicing and repair work the pit should be completely open – care for sufficient ventilation. There is danger of fire, explosion and suffocation!

Avoid injuries caused by slipping. Keep the floor and other parts of the lift clean from oil and grease.

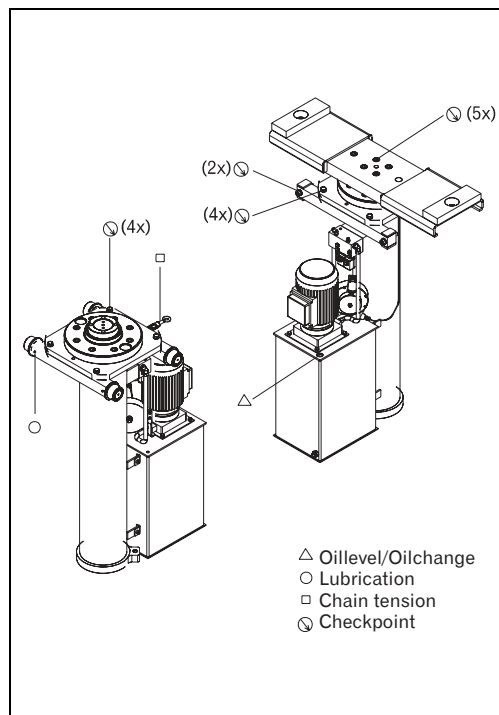


Abb. 8:

Maintenance work	Description	Daily	Monthly	Every 5 years
Control	Proper working order of the lift is to be checked prior to every operation. The fixing screws should be checked.	●	●	●
Cleaning	The rails and covering plates only function when they are in a clean condition. Clean the lift daily or at least once a week, depending on the degree of dirt. Clean sliding surfaces should be greased.	●	●	●
Oil level	The oil level is to be controlled monthly with the oil stick when the cylinder is in the lowest position. To carry out this check the covering should be open.		●	●
Tension of chain	Control the tension of chain monthly and read-just tension if necessary. Chains which do not have enough tension can be identified by jerky movements of the lifting cylinders.		●	●

Operating instruction

Maintenance

Greasing	The needle bearings of the rollers (Fig.2) must be greased regularly. The rollers must be made mobile.		●	●
Oil change	According to the place of operation an oil change is necessary every 5 years. The required quantity of oil is stated in the technical data (chapter 3). Type of oil: Viscosity-class: ISO VG 22 DIN 51519 Viscosity: 22 cST/40°C Quality: HLP DIN 5			●
Measuring Cable	Check function (pull out and in), abrasion and fixing on the traverse. 1524 T2		●	

Tab. 5:

Operating instruction

Trouble-shooting

6 Trouble-shooting



Caution

Repair work on the lift's safety devices must only be carried out by a competent person.

Oil leaks from piston

Possible cause	Remedy
Piston is damaged	Change rod ring and oil ring. In minor cases polish piston rod (abrasive cloth), otherwise a specialist should replace the piston rod.
Rod seal is defect	

Lifting cylinder moves up/down in fits and starts

Possible cause	Remedy
Air in hydraulic circuit	De-aerate

Hydraulic motor runs, lifting cylinders do not go up.

Possible cause	Remedy
Wrong direction of motor	Reverse poles
Oil defect	Fill up and de-aerate
Hydraulic line or screwing between pump and valve block are defect or loose.	Replace

Load lowers whilst checking the safety device

Possible cause	Remedy
Check valve or solenoid valve is defect	Exchange valves, de-aerate

Lifting cylinders move along in fits and starts

Possible cause	Remedy
Tension of the chain is too loose	Re-tension



Operating instruction

Trouble-shooting

Covering plate is de-formed

Possible cause	Remedy
Too much load	Exchange

Too much load	Exchange
---------------	----------

Gaps between the covering plates are too big

Possible cause	Remedy
Expansion of connection cable	Re-tension connection cables

Expansion of connection cable	Re-tension connection cables
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Electric control

Malfunction end switch

Possible cause	Remedy
Defect measuring cable	Check, replace

Defect measuring cable	Check, replace
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Malfunction synchronisation

Possible cause	Remedy
End switch on measuring cable is wrongly set/ defect	Check, replace

End switch on measuring cable is wrongly set/ defect	Check, replace
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Malfunction drive

Possible cause	Remedy
Motor is overloaded	Contact customer service

Motor is overloaded	Contact customer service
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Operating instruction

Repair work

7 Repair work



Caution

The test running of telescopic lifts should only be carried out when the traverses are mounted. During servicing and repair work the pit should be completely open – care for sufficient ventilation. There is danger of fire, explosion and suffocation!

7.1 Roll covering

The roll covering consists of 2 chains which are fixed right and left on the moving cylinder and close the pit like a roller blind. The chains consist of tubes strung on to wire cables.

Type of roll covering	Weight
4,4 m chain, width 950 mm	approx. 800 kg
4,4 m chain, width 510 mm	approx. 300 kg

Tab. 6:



Before releasing the chain at the lifting cylinder it should be secured against sliding into the pit.

To avoid damages to the connection cables the chain should never be bent against its elastic line or folded together.

When changing the connection cables it is necessary to have approximately 50 mm extra each end, so that the chain does not jam in operation.

7.2 De-aerate the lifting cylinder

The bleeder valve consists of a ball, which is pressed on to a bore by a screw. To de-aerate, open screw 1-2 turns until oil comes out without bubbles. Then close screw. See installation plan for the points where de-aeration is to be carried out.

7.3 Replacing the seals and oil scraper rings

Lifting cylinder Ø 180 mm

- Lower the lifting cylinder completely and remove traverse.
- Remove screws (1) in flange (2) and detach flange.
- Mount flange. Remove screw with torque spanner. Starting torque: $M_a = 600 \text{ Nm}$.
- Replace seals, oil scraper rings and o-ring in flange.

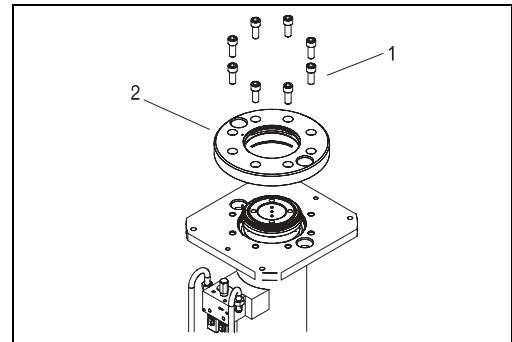


Abb. 9:

Lifting cylinder ø 150 mm

- Raise the lifting cylinder and traverse exactly 50 mm (operating button "up")
- Remove the traverse
- Lower and hammer lightly (plastic hammer) at the same time.
- Hammer piston rod ø 150 mm downwards. Seal and oil scraper ring become free.
- Replace seal and oil scraper ring
- Put on the traverse, and fix on to the piston with fixing screws. Starting torque: $M_a = 600 \text{ Nm}$.

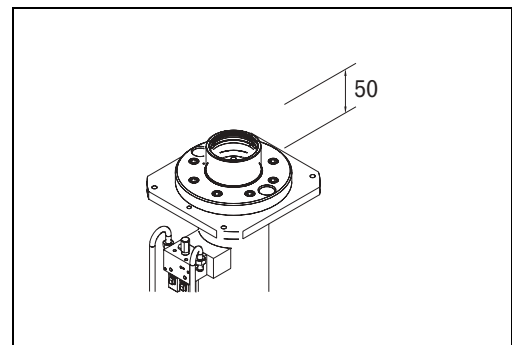


Abb. 10:

Operating instruction

Repair work

7.4 Emergency lowering of lifted vehicle

Emergency lowering of the lifted vehicle must be carried out in the following cases: No power supply and/or solenoid valve/control fault.

- Firstly, open the pit covering of all lifting cylinders so that the hydraulic parts are easily accessible.
- Unscrew the locking screws No 6 and 7 by two turns on all lifting cylinders. The load will not lower when doing this.

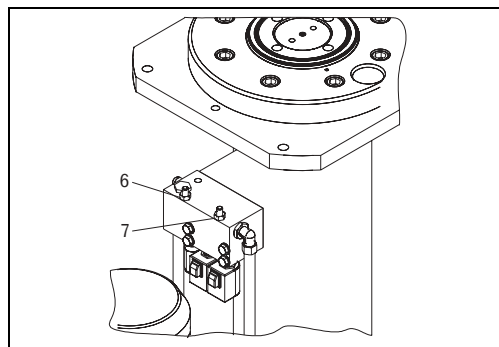


Abb. 11:

- Connect the external voltage 24 VDC in the control cabinet (e.g. truck or forklift battery).
- Operate both switches (1,2) in the control cabinet simultaneously and lower the vehicle.

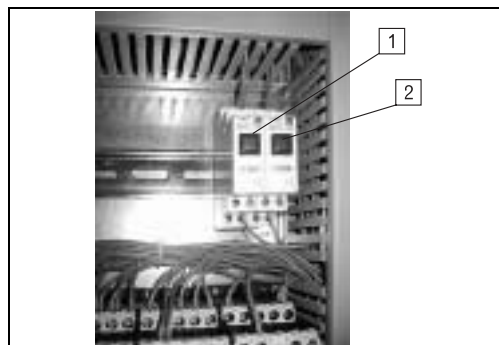


Abb. 12:

- Drive the vehicle off the lift.
- Tighten screws No. 6 and 7 and secure them with a nut.
- Close the pit covering.

8 Mounting instructions

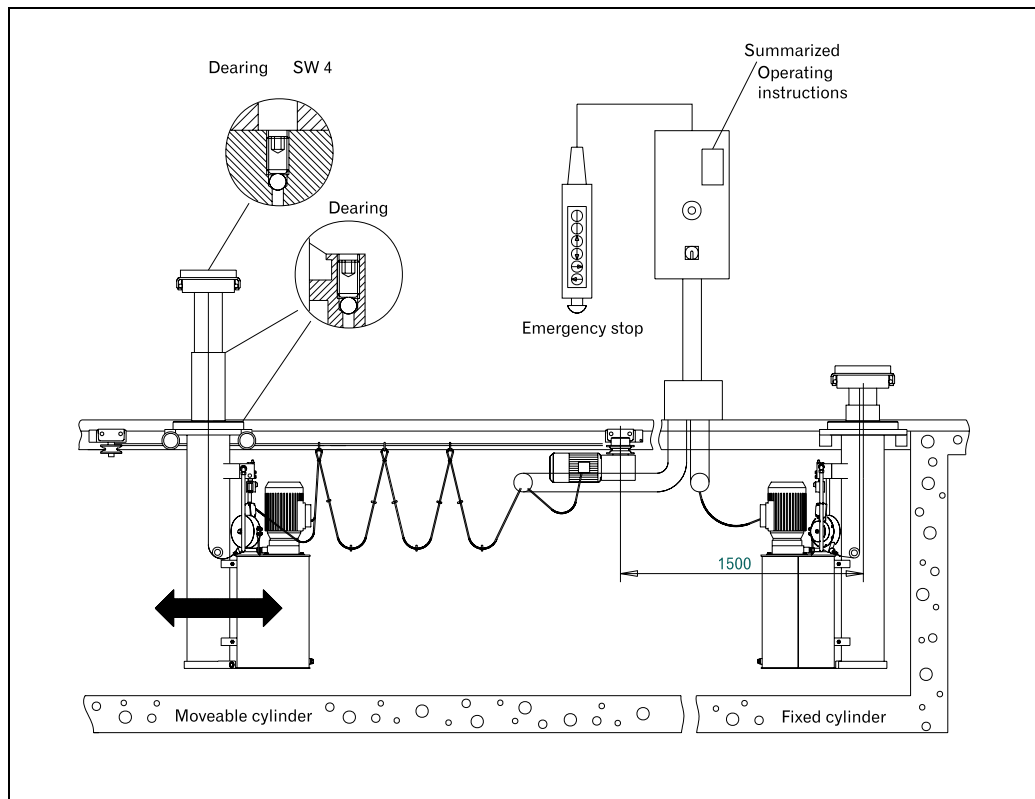


Abb. 13:

8.1 Inspection and check

- Determine the position of the pit in the hall
- Determine the dimensions of the pit: length, depth, width
- Provide empty tubes for cables according to the installation plan
- Concrete the inside of the pit so that it is smooth and according to measurement
- Smooth out any unevenness on the side walls
- A wire pull must be inserted in the empty tubes to pull the electric cable through

8.2 Remove distance tubes from the frame

- Cut off the distance tubes in the middle with a cutting-off wheel and remove

8.3 Inserting the elements in the frame

- Insert the fixed cylinder, moveable cylinder, reversing console and drive console in the frame (according to the individual installation plan)
- Starting torque of the screws, to fix the axles on the lifting cylinder, M16*60 $M_a=290\text{Nm}$
- Clamp the drive console and reversing console (weld if necessary)
- Lay the pull chain according to the drawing and tension



Caution

The chain must not be twisted!

Operating instruction

Mounting instructions

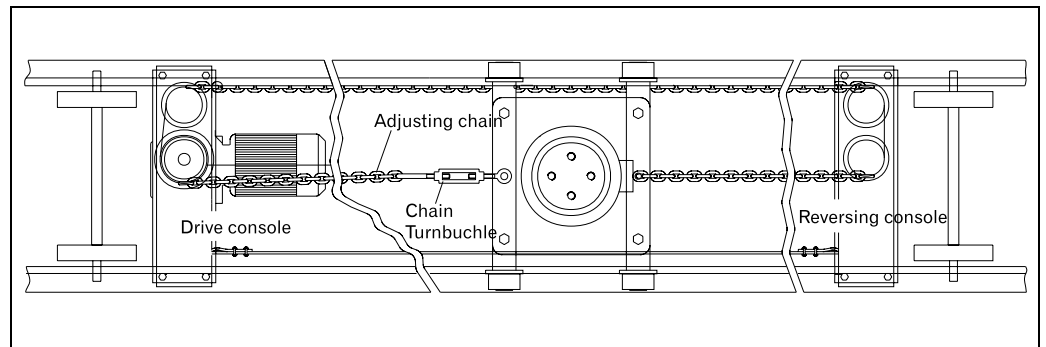


Abb. 14:

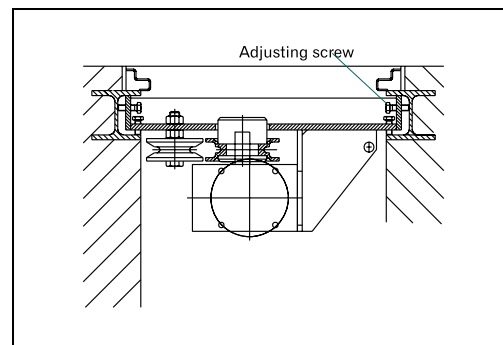


Abb. 15:

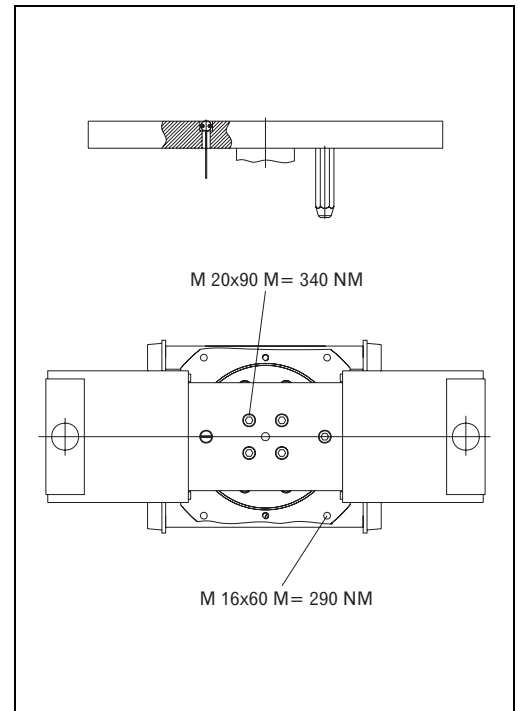


Abb. 16:

8.4 Electric installation

- Dowel electric control on the wall (position it as near to the middle of the lift as possible)
- Pull the electric cable through the empty tubes
- Electric supply of the lifting cylinders
- Electric supply of the adjusting drives
- Electric supply of the complete control on the network (to be executed on site)



Danger

Follow the electric circuit diagram and installation drawing!

8.5 Mounting the traverses on the lifting cylinders

- Install the lifting cylinder completely
- Screw the traverse on the lifting cylinder (Starting torque of the fixing screws $M_a=340\text{Nm}$)
- Screw on the anti-turning device (Starting torque of the fixing screws for the anti-turning device: $M_a=340\text{Nm}$)
- Fix the cable pull for measuring the distance to the anti-turning device (Fix the cable with clamping screws)

8.6 Test run



Danger

Only carry out the test run when the traverses are mounted!

8.7 Installing the channel covering

- According to the installation drawing

8.8 Certificate confirming the correct installation of the lift

- Please see Record of Installation in the appendix

Operating instruction

Electrical connection

9 Electrical connection

The electrical connection and the protection measures are to be carried out by an authorised specialist in accordance with VDE (according to the valid regulations in your country and the additional regulations of the respective electric power companies).



The main safety device is to be connected in series on site.



Gefahr

Check the direction of rotation during the first run (the cylinder must raise up when the "up" button is operated). Change poles if necessary.

9.1 Electrical connection of the electric control to the network

Number of lifting cylinders	3 / N / PE / 50Hz / 400V			
	Nominal power	Rated current	Fuse	Line
	kW	A	A	mm ²

1	4,5	10	16	5G2,5
2	9	20	35	5G6
3	13,5	30	35	5G10
4	18	40	50	5G10
5	22,5	45	63	5G16
6	27	60	63	5G25

The electrical connection is to be carried out by a specialist. The local conditions are decisive in choosing the protection measures. The cross sections indicated are guidelines for a maximum cable length of 50m at a temperature of 30°C. They are taken from VDE 0100 group 2. If conditions deviate, choose from the cross sections in accordance with DIN VDE 0298. The electrical safety must be executed by using „slow“ or „standard“ fuses according to DIN VDE 0636.

Tab. 7:

Operating instruction

Electrical connection

9.2 Electrical connection of the lift at the electric control

Consumer	Nominal power	Nominal voltage	Rated current	Line	Length of cable at no. of cylinders		
					1,2	3	4
		V	A	mm ²	m	m	m

Hydraulic motor	3 KW	400 AC	7,1	4G1,5	2 x 20	3 x 25	4 x 30
Adjusting motor	0,95 KW	400 AC	4,8	4G1,5	1 x 20	2 x 25	3 x 30
Solenoid valve	22 W	24 DC	0,9	3G1,5	4 x 20	6 x 25	8 x 30
Limit switch "synchronisation"	o/f	230 AC	-	4G1,5	2 x 20	3 x 25	4 x 30
Hanging control panel 2,3,4 cylinder		230 V	-	12G1	1 x 10	1 x 15	1 x 18

Tab. 8:

Operating instruction

Safety checks

10 Safety checks

Safety checks are necessary in order to guaranty the safety of the truck lift in operation. Safety checks should be carried out in the following cases:

- Before initial operation, after installation. Use the form "First safety checks before installation".
- After the initial operation in regular intervals, at least once a year. Use the form "Regular safety checks".
- After every constructive modification of parts of the lift. Use the form "Special checks".



The first safety checks, as well as regular safety checks, must be carried out by a competent person. We recommend that servicing is carried out at the same time.

Special checks are necessary after constructive modifications of the lift (installation of additional components) and special servicing. The safety checks must be carried out by an expert.

The handbook supplied includes the forms with lists explaining how to carry out the safety checks. Please use the respective form and file it in the handbook after completion.

11 Regular testing by a competent person

11.1 Indications on the lift / operating instructions

- Are the nameplate, capacity plate, numbering of the lifting cylinders, summarised operating instructions and detailed operating instructions available and legible?

11.2 Safety against unauthorised operation

- Lockable main switch

11.3 Control instruments

- Condition, function and clear labelling of the operating elements
- Protection against unintentional operation
- Locking of control instruments, in the case of various control places
- EMERGENCY STOP switch

11.4 Electric equipment

Check all cables for damage. Connections should be inspected at both ends and searched for leakage. Special attention should be paid to:

- Cable between hand control and control cabinet
- Moving hanging cable to the moveable lifting cylinders
- The earthed wires

11.5 Load carrying devices

- Check sliding pieces and accessories for damage, wear and function.
- Check traverses for deformities and cracks, and check that they are firmly mounted. Tighten the screws with a torque spanner $M_a=600Nm$.
- Check whether the sliding pieces stop where they intended to stop.

Operating instruction

Regular testing by a competent person

11.6 Pit

- Open the covering and check its condition. If there is water, oil or other pollution visible, arrange for the pit to be cleaned.
- If an exhaust suction unit is available, check its function
- Attention! The load sinks a little at first (max. 100mm), but must then come to a standstill.
- After one minute, stop pressing the button and check the change of height.
- Testing interval: max. 1 year

11.7 Lifting cylinder (hydraulic, supporting structure, function, tightness)

- Check the lifting cylinder and hydraulic parts for leakage. If they are very dirty, arrange for them to be cleaned
- Examine the lifting cylinders for grooves and damages
- Retighten the fixing screws on the flange $M_a=600$ Nm
- Retighten the fixing screws on the axles / carrying plates $M_a=315$ Nm
- Check lead seal pressure control valve
- Grease the rollers of the axles and check mobility
- Check oil level

11.8 Pit covering

- Check whether the channel covering and covering plates are in working condition, whether they show any deformations and are safe against sliding

11.9 Control of proper operation with vehicle

- Check the safe operation of the lift during all movements of the lifting cylinders.
- Lift up a heavy vehicle and, after about 5 min, watch whether one of the lifting cylinders sinks
- The lifting cylinders must go up and down within a general difference of 50 mm

11.10 Check the hydraulic safety device

- Lift the vehicle 500 mm and measure the exit height
- Open the control cabinet and press the button "Test" for about 1 min.
- The pressure in all cylinders is thereby switched off and the hydraulic safety device carries the complete load.

Operating instruction

Master document

12 Master document

Lift manufacturer	BLITZ M. Schneider Werkzeug- u. Maschinenfabrik GmbH Hüfinger Straße 55 D-78199 Bräunlingen
Description	Duplex
Type	Serial No.
Capacity t	Stroke mm
Maximum lowering speed mm/s	Operating pressure bar
Admitted load distribution	Permitted bending moment on piston Nm
Year of manufacture	Date of initial operation
Load carrying devices	

Electrical connection

Operating voltage	380 V/50 Hz	Mode of protection	24 VDC
Control voltage	220 V	Solenoid valve	IP 55

The lift is set for:

Staying under the load carrying device	<input type="checkbox"/> Yes <input type="checkbox"/> No	Riding on the load carrying device	<input type="checkbox"/> Yes <input type="checkbox"/> No
Walking on the load carrying device	<input type="checkbox"/> Yes <input type="checkbox"/> Nein	Use as a working platform	<input type="checkbox"/> Yes <input type="checkbox"/> No

The control is suitable for application:

Outside	<input type="checkbox"/> Yes <input type="checkbox"/> No	In working areas with fire hazard	<input type="checkbox"/> Yes <input type="checkbox"/> No
In wet and damp rooms	<input type="checkbox"/> Yes <input type="checkbox"/> No	In rooms with a danger of explosion	<input type="checkbox"/> Yes <input type="checkbox"/> No

Enclosures

Installation plan no.	Electric circuit diagram
<input type="checkbox"/> Hydraulic plan	<input type="checkbox"/> Design test certificate
<input type="checkbox"/> Spare parts list	<input type="checkbox"/> CE-certificate of conformity



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