MANUAL



GLP 30

Scissor Lifts





EC Declaration of Conformity

according to Appendix II of the EC Machine Directive 98/37/EC

The manufacturer: BlitzRotary GmbH

Hüfinger Straße 55

78199 Bräunlingen, Germany

hereby declares that the following

Scissor lift platform

described product:

Machine type: GLP 30

fulfils the safety and health requirements of the following EC directives:

- Machine directive 98/37/EC,
- Electromagnetic compatibility 89/336/EEC
- Low voltage directive 73/23/EEC

Applied harmonised norms

DIN EN ISO 12100 Part 1 Safety of machinery - Basic concepts, general prin-

ciples for design - Part 1: Basic terminology, meth-

odology

DIN EN ISO 12100 Part 2 Safety of machinery - Basic concepts, general prin-

ciples for design - Part 2: Technical guidelines

DIN EN 294 Safety of machinery; safety distances to prevent

danger zones being reached by the upper limbs

DIN EN 349 Safety of machinery; minimum gaps to avoid crush-

ing of parts of the human body

DIN EN 1493 Vehicle lifting platforms

DIN EN 60204-1 Safety of machinery - Electrical equipment of

machines - Part 1: General requirements

DIN EN 61000-6-2 Electromagnetic compatibility (EMC) - Part 6-2:

generic standards; interference immunity for indus-

trial areas

DIN EN 61000-6-4 Electromagnetic compatibility (EMC) - Part 6-4:

generic standards; generic standard for interfer-

ence emission in industrial areas

Structural modifications having effects upon the technical data specified in the operating manual and upon proper usage render this declaration of conformity invalid!

Bräunlingen, Germany 2008-01-01

Carsten Rohde

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1 Identification and warranty

1.1 Manufacturer

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1.2 Product description

Machine type: GLP 30

Machine no.:

Year of construc- 2008

tion:

1.3 Operating manual

We reserve the right to make modifications as regards content. BlitzRotary GmbH is not liable for any errors in this documentation. Liability for secondary damages arising in connection with the delivery or use of this documentation is excluded to the extent that legal regulations permit.

Proprietary note

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1.4 Warranty

Every machine is covered under a 12-month warranty for material defects and faulty assembly, providing this assembly was performed by us. The warranty extends to all parts which are sent to us for inspection free of charge within twelve months after delivery. We will examine the parts in order to determine whether the damage has arisen under normal conditions of use. The warranty is void if the machine is overloaded, improperly handled, or spare parts have been improperly installed and thereby cause damage.

1.5 Transport damage

All deliveries are to be insured by the customer. We will not honor any claims related to transport responsibility. Our responsibility only extends to the transfer of the machine in new factory condition to the carrier. Should you find any damage on the machine, do not use it. Note the type of damage immediately on the bill of lading. Contact the carrier in order to review the claim.

1.6 Ordering of spare parts

Please specify the following data when ordering:

- Machine type
- Machine no.
- · Year of construction
- Part name

2 Product description

2.1 Mechanical design

The machine consists of the following main components:

- Two lifting units, each of which are made up of:
 - underframe
 - scissor assembly
 - running rails
- · Control column with integrated hydraulic unit

2.2 Functional description

By pressing the «Lift» control on the control device, the electric motor of the hydraulic unit is switched on. The oil pump of the hydraulic unit pumps hydraulic oil into the hydraulic cylinders. The hydraulic cylinders extend and the scissor assembly is pressed apart and lifts the running rails.

By pressing the «Lower» control on the control device, the electronically releasable check valve is opened and hydraulic oil flows back into the hydraulic tank. The platform lowers.

2.3 Technical data

Mechanical data

Load capacity: 3000 kg

Load type: distributed load

Construction height: 115 mm Usable stroke: 1805 mm

Platform length: 1500-2000 mm

Platform width: 625 mm
Platform surface: plain sheet

Electrical data

Connection: 3Ph400V/PE/50Hz/16A

Power: 3 kW
Current consumption: 7,3 A
Protection type: IP54
Operating voltage: 400 V
Control voltage: 24 V

Hydraulics

Oil fill quantity: 10 I

Sound emission

Sound pressure level: <70 dB (A)

3 Basic safety instructions

3.1 General safety information

The machine was designed and manufactured under consideration of a hazard analysis and on the basis of the relevant harmonised norms as well as additional technical specifications. It corresponds to the latest technological standards valid at the time of manufacture and the relevant safety regulations.

The machine is equipped with protective devices and was subject to a safety and acceptance test. However, incorrect operation or improper use can pose a threat to the lives and health of personnel. Damage to the machine itself, other equipment or to the environment cannot be ruled out.

All work on the machine may only be performed by qualified and authorised persons who have read the relevant sections in this operating manual and agree to observe them.

For transport

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 4 "Transport", page 18

For setup

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 4 "Transport", page 18
- Chap. 5 "Installation", page 19

For startup

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 6 "Starting up", page 24
- Chap. 7 "Operation", page 26

For operation

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 7 "Operation", page 26

For shutting down

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 7 "Operation", page 26
- · Chap. 8 "Shutting down", page 29

For maintenance and inspections

- Chap. 2 "Product description", page 6
- Chap. 3 "Basic safety instructions", page 8
- Chap. 7 "Operation", page 26
- Chap. 9 "Maintenance and inspections", page 30

3.2 Proper use

The machine lifts vehicles continuously to any ergonomically favourable height. The permissible load capacity may not be exceeded (see load capacity plate, type plate or *Chap. 2.3 "Technical data"*, page 7).

The machine may only be used as intended! Severe injuries or equipment damage can result from improper use! This is not the responsibility of the manufacturer of the machine, but of the operating company!

The machine is designed for the performance of work underneath the load-bearing equipment and the vehicle. It is not approved for supporting or transporting persons.

The following is especially prohibited:

- · Transport of persons.
- · Standing on the platform.
- · Operating in areas at risk of explosion.
- Operating in areas requiring a protection type for the electrical equipment higher than IP 54.

3.3 Warning and safety notices used

Warning and safety notices contain information designed to point out the unavoidable residual risks involved in handling the machine.

The hazards apply to the following:

- Persons
- Machine
- Equipment
- Environment

3.3.1 Structure of the warning notices

The warning notices of this operating manual have an identical basic structure.

Icon

Danger sign

Signal word





DANGER

Type and source of danger

Possible consequences of non-observance

Avoidance: measures / prohibitions

3.3.2 Explanation of the warning levels

Warning level	Consequences of non-observance
DANGER	Immediate danger of severe injuries or death
WARNING	Severe injuries or death are possible
CAUTION	Minor injuries are possible
NOTE	Equipment damage

3.3.3 Explanation of the icons

Warning and safety notices are supplemented by visual icons if possible. An icon cannot replace the text! The text must therefore always be read in its entirety! The following icons are examples.

Icon	Meaning
\triangle	Warning of a danger to persons
4	Warning of electrical shock
	Warning of points where crushing can occur
\triangle	Warning of health hazards posed by toxic substances
\triangle	Warning of environmental hazards
STOP	Warning of equipment damage
J - į	The following work may only be performed by qualified and authorised persons.
i	General information for better understanding and optimum handling of the machine

3.4 Technical condition of the equipment

Safe operation places particular demands on the technical condition of the machine.

- Rebuilding, manipulation or making modifications to the machine is not permitted. This also applies to the use of replacement parts that are not supplied by us.
- Care and maintenance should be performed at the specified intervals.
- Regular inspections are to be carried out.
- Complete and proper functioning of the safety devices during operation must be ensured at all times.
- Connection and setting values must correspond to the specifications.
- Load specifications must be observed.

3.5 Obligations of the operating company

The highest possible level of safety can only be achieved in operating practice if all measures required for it have been taken. It is the responsibility of the operating company to plan these measures and monitor their implementation.

The operating company must ensure the following in particular:

- The machine is only used as intended (Chap. 3.2 "Proper use", page 9).
- The machine is only operated in technically flawless and functional condition.
- The safety devices are regularly checked for proper functioning. The safety devices may not be disabled or have their functions restricted.
- The maintenance and inspection intervals specified in this operating manual are observed (*Chap. 9 "Maintenance and inspections"*, page 30).
- All safety and warning notices attached to the machine are present and in legible condition. Notices on the machine that have become damaged or illegible are to be replaced immediately.
- Only qualified and authorised personnel may operate, service and inspect the machine.
- These persons must be regularly instructed in all applicable aspects of work safety and environmental protection, as well as be familiar with and follow the operating manual and the safety instructions contained within it.
- The required personal protective equipment for operating, maintenance and inspection personnel must be made available and used.
- The operating manual should be complete and in legible condition and readily accessible where the machine is in use.
- Further risks must be determined in a risk assessment and the respective danger zone must be identified under consideration of the special work conditions where the machine is in use.
- All additional instructions and safety notices must be summarised in a company directive based on the risk assessment of the workstations on the machine.

3.6 General work safety

When the machine is used, dangers due to incorrect operation or misuse may pose a hazard to persons, equipment or the environment.

- The machine may only be operated, serviced and inspected by qualified and authorised personnel who have read the operating manual and perform their work accordingly.
- Only operate the machine in technically flawless and functional condition.
- If damage is detected, immediately switch off the machine, attach a sign informing others that switching back on is prohibited and then inform your supervisor.
- Maintain the cleanliness of the machine and its surroundings.
- Wear personal protective equipment.

3.7 Safety instructions in regard to specific energy systems

3.7.1 Electrical system

The machine is equipped with an electrical system that operates with high voltage.

- Prior to beginning work, inspect the electrical system for visible signs of damage. Immediately replace damaged components.
- Before performing maintenance work, switch off the current to the electrical system and prevent it from being accidentally switched back on.
- · Always keep the control boxes closed.
- Lay lines so that they do not pose a stumbling hazard and so that damage due to falling objects, pinching or abrasion is avoided.
- Do not lay lines around moving components and ensure that the lines cannot catch on any moving components.
- Protect the electrical system from penetration by water or other liquids.
- Regularly inspect lines, especially after maintenance work, for secure fit.

3.7.2 Hydraulic system

Hydraulic oil, lubricants and other substances, such as solvents or cleansers, can lead to irritation of the skin, eyes or respiratory tract. These also pose a hazard to the environment.

- · Observe the safety instructions of the manufacturer.
- Use personal protective equipment.
- Use a breathing protection mask if necessary.
- Avoid contact with the skin. Should contact with skin arise, wash thoroughly.
- In the event of contact with eyes, rinse and consult a physician.
- Ensure that no substances contaminate the ground or enter the sewer system.
- Dispose of hydraulic oil, lubricants and cleansers in accordance with environmental regulations.

3.7.3 Mechanical system

When using and working on the machine, mechanical hazards are present. These hazards arise in the area of the mechanics under the platform or from incorrect placement of the load.

- Do not reach or step into the danger zone.
- Avoid standing in the danger zone. Should it be necessary to stand in the danger zone, the machine support for servicing work must be used.
- Remove any foreign objects from the danger zone. Employ the machine support for servicing.
- Place the load appropriately on the platform and secure it from unintended changes of position.
- The load may not protrude beyond the platform.



Fig. 3-1 Mechanical danger zones

3.7.4 Surface temperature

Due to friction, certain components (particularly of the hydraulic system) can have high surface temperatures.

- Before inspections and maintenance work, allow the machine to cool down.
- · Use personal protective equipment.
- Check the oil level (*Chap. 9.5.1 "Checking the hydraulic oil level", page 33*). If the oil level is too low, the temperature of the hydraulic system will be additionally increased. This can lead to higher wear.

3.7.5 Noise

Operation of the machine creates a sound pressure level of <70 dB(A). This can impair verbal communication and the perception of acoustical signals.

- · Wear hearing protection.
- · Pay attention to warning signals and symbols.
- · Likewise warn other employees.

3.8 Safety devices on the machine

3.8.1 Deadman control

The deadman control of the machine ensures that the function is only carried out as long as the operator holds the respective control pressed on the control device.

3.8.2 Independent hydraulic circuits

Two hydraulic circuits independent of one another prevent the unintended lowering of the platform. In the event of a break in a hydraulic line in one of the hydraulic circuits, the other hydraulic circuit holds the platform.

3.8.3 Euro Stop

When lowering the platform, the Euro Stop feature stops the lowering process in order to prevent crushing and other hazards. The sensor for the Euro Stop must be set at the time of initial commissioning (*Chap. 6.3.2 "Euro Stop sensor", page 25*).

3.8.4 Main switch

The main switch turns the current supply to the machine on and off.

The main switch is also an emergency off switch. In the event of an emergency, set the switch to the "0" position.

3.8.5 Pressure limiting valve

The pressure limiting valve prevents overloading of the hydraulic system. It is factory preset and may not be adjusted by the operating company. When overloaded, the platform can no longer be raised.

3.8.6 Line breakage protection in the cylinder connection

The line-break safety device in the cylinder connection interrupts the flow if a break occurs in the hydraulic lines.

3.9 Safety and warning notices

The machine is labelled with various notices. The notices should always be present and in legible condition.



Note!

Maximum load capacity.

3.10 Safety instructions for personnel

3.10.1 Personnel and qualifications



All persons working with the machine must read the operating manual prior to beginning the work and confirm with their signature that they have understood what they have read and agree to observe it.

- Only persons of at least 18 years of age who have been instructed in the machine's operation, and have demonstrated their ability in this regard to the employer, may be delegated with operation of the machine.
- The assignment to the task of operating the machine must be given in writing.
- · The respective authorisations of the person must be defined.
- Trainees must receive instruction. The instruction may only be performed by experienced persons authorised to do so and using this operating manual as a basis.
- Instructed persons confirm in writing the scope of instruction received and their successful completion of it.

3.11 Safety instructions for auxiliary materials and consumables

3.11.1 Hydraulic oils, lubricants and cleansers

Hydraulic oil, lubricants and other substances, such as solvents or cleansers, can lead to irritation of the skin, eyes or respiratory tract. These also pose a hazard to the environment.

- Observe the safety instructions of the manufacturer.
- · Use personal protective equipment.
- Use a breathing protection mask if necessary.
- Avoid contact with the skin. Should contact with skin arise, wash thoroughly.
- In the event of contact with eyes, rinse and consult a physician.
- Ensure that no substances contaminate the ground or enter the sewer system.
- Dispose of hydraulic oil, lubricants and cleansers in accordance with environmental regulations.

4 Transport

4.1 Basic safety instructions





Suspended or falling loads

Severe injuries or death

- The permitted loads of the load hoisting equipment must at least correspond to the dead weight of the machine (see load capacity plate, type plate or Chap. 2.3 "Technical data", page 7).
- Wear a protective helmet.
- · Do not step under suspended loads.

4.2 Transport to the installation location

The transport can be performed with a forklift or a crane. When transporting with a crane, ensure that the machine does not sway too heavily.



Fig. 4-1 Transport

5 Installation

5.1 Basic safety instructions





Scissors and castors

Crushing or amputation of limbs

• Do not reach or step into the danger zone (Fig. 3-1, page 14).

Before setting up the machine

- ▶ Inspect the machine for visible signs of damage.
- ▶ Remove materials and objects from the work area if they are not required.
- ▶ Observe the location requirements for setup (*Chap. 5.2 "Location requirements for setup"*, page 19).
- ▶ Observe the proper procedure for transport (*Chap. 4 "Transport", page 18*). The preparations are completed.

5.2 Location requirements for setup

- Avoid points of crushing and shearing between the machine and its surroundings.
- The machine may not be operated in areas at risk of explosion, nor in places where the electrical equipment requires a protection type higher than IP 54.
- The ambient temperature must lie between -10 °C and +40 °C.
- The installation site must provide a sufficiently load-bearing and level foundation
- The flooring at the installation site must be of permissible floor loading strength, calculated as follows: (weight of machine + load capacity) + 50 %.
- When selecting the installation site, ensure that any noise emitted from the machine (due to design) is not further amplified.
- Place the controls in a location ensuring the operator has a clear view of the load and the machine, particularly including the danger zone (Fig. 3-1, page 14).
 - Ensure that the operator has avenues of escape if a danger arises.
- An electrical connection conforming to Chap. 2.3 "Technical data", page 7 is to be made available for the operation of the machine.
- Observe any local regulations and rules for buildings.

5.3 Assembly at the installation site

5.3.1 Setting up



NOTICE

Incorrect setup or assembly

Incorrect setup or assembly of the machine can lead to equipment damage and increased wear.

· Follow the instructions for setup and assembly.

Mechanical assembly work

- ▶ Measure the underframe of the machine and transfer the measurements to the installation site.
- ▶ Measure the height differences at the designated corners.
- ► Compensate for the differences at the corners with base plates laid underneath.
- ▶ Erect the machine at the installation site.
- Check the machine with a water level and employ additional base plates if necessary.
- ► Lay the control and supply lines.
- ► Grout the underframe with fine-grained concrete.

The mechanical installation work is complete.



Fig. 5-1 Fixed bearing area (x) and castor area (y) of the underframe

5.4 Electrical installation





High electrical voltage

Severe injury or death from electrical shock

• Only trained electricians may work on the electrical system.





Laying of cables

Injury

- Avoid creating stumbling hazards with cables.
- Do not lay control and supply lines around mechanical components.

Proceed as follows:

- ▶ Insert the plug for the electrical connection.
- ▶ Check that the motor's rotary field is turning to the right.
- ▶ Change the rotary field if necessary by exchanging two phases in the plug.

The machine is now operationally ready.

5.5 Hydraulic system

Prior to starting up, the hydraulic system must be filled with hydraulic oil and bled afterward.



Recommended hydraulic oils:

- Total Biohydran TMP 46
- BP Biohyd SE 46
- Fuchs Plantohyd 46S
- · Esso hydraulic oil HE 46
- Total Equivis UVS 46
- Shell Naturelle HF-E 46

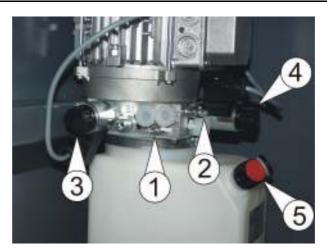




Fig. 5-2 Hydraulik

Filling hydraulic oil

- ▶ Remove the bleeder screw (5) from the tank.
- Fill the hydraulic oil.
- ► Screw the bleeder screw (5) on the tank.

The filling of the hydraulic oil is completed.

Bleeding the hydraulic system

▶ Raise the platform to its furthest height.

- ▶ Open the bleeder screw on the hydraulic cylinder (6) by approx. one half revolution.
- ► Allow the air to escape.
- ► Tighten the bleeder screw (6) on the hydraulic cylinder.
- ► Lower the platform slightly.
- ▶ Open valves (1) and (2) by one half revolution.
- ▶ Repeat the following steps until no more air escapes at the bleeder screws on the hydraulic cylinders.
 - ► Raise the platform.
 - ▶ Open the bleeder screw on the hydraulic cylinder (6) by approx. one half revolution.
 - ► Allow the air to escape.
 - ► Tighten the bleeder screw (6) on the hydraulic cylinder.
 - ► Lower the platform slightly.
- ► Tighten valves (1) and (2).
- ► Top up the hydraulic oil if required.

The bleeding of the hydraulic system is completed.

6 Starting up

6.1 Basic safety instructions



Prior to the initial commissioning, a safety inspection must be performed by a qualified and authorised person. This person must confirm and document the technically flawless functioning of the machine.

The following is to be checked:

- correct installation
- · proper functioning of safety devices
- · operational readiness

6.2 Initial commissioning

Prior to initial commissioning

▶ Inspect the machine for visible signs of damage.

If damage is detected:

- ▶ Do not switch on the machine.
- ▶ Attach or erect a notice sign prohibiting switching on the machine.
- Notify your supervisor of the detected damage.
- ▶ Only use the machine if all damage has been repaired.
- ▶ Remove any foreign objects from the danger zone (Fig. 3-1, page 14).
- ▶ Remove materials and objects from the work area if they are not required.
- Check and ensure that all safety devices are functioning flawlessly.

The preparations are completed.

Before starting the machine, check and ensure the following:

- Only authorised persons are in the work area of the machine.
- No one will be endangered by the starting up of the machine.
- Measures have been taken to prevent unintended changes in the position of the load.
- A clear view is available of the load, the machine and particularly the danger zone (*Fig. 3-1, page 14*).
- Avenues of escape are available in the event of danger.

Starting

- ► Turn the main switch to "1"
- Press the «Lift» control

Check the following after the first startup:

All hydraulic hoses for airtightness.

6.3 Settings

6.3.1 Top position sensor

The top position sensor is located on one of the two lifting units. It must be adjusted so that the lift platform stops *before* the hydraulic cylinders reach the upper limit of travel.



Fig. 6-1 Sensor for top position

6.3.2 Euro Stop sensor

The sensors for the Euro Stop are located on both lifting units. They are to be adjusted so that the lift platform stops if the distance between the upper edge of the underframe and the lower edge of the upper frame (h) amounts to at least 120 mm to max. 250 mm.



Fig. 6-2 Euro Stop sensor

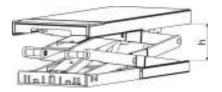


Fig. 6-3 Euro Stop distance (h)

7 Operation

7.1 Basic safety instructions





Scissors and castors

Crushing or amputation of limbs

• Do not reach or step into the danger zone (Fig. 3-1, page 14).





Improper placement of the load

Death or severe injuries from falling loads

- Observe the permissible load capacity of the machine (see load capacity plate, type plate or *Chap. 2.3 "Technical data"*, page 7).
- Only place loads of the permissible type on the machine.
- The load may not protrude beyond the platform.
- · Prevent unintended changes in the position of the load.



NOTICE

Incorrect operation

Severe damage to the machine

Avoid repeated, sudden jolts when lifting and lowering the platform.

Before beginning each work shift

▶ Inspect the machine for visible signs of damage.

If damage is detected:

- ▶ Do not switch on the machine.
- ▶ Attach or erect a notice sign prohibiting switching on the machine.
- Notify your supervisor of the detected damage.
- ▶ Only use the machine if all damage has been repaired.
- ▶ Remove any foreign objects from the danger zone (*Fig. 3-1, page 14*).
- ▶ Remove materials and objects from the work area if they are not required.
- Check and ensure that all safety devices are functioning flawlessly.

The preparations are completed.

Before operating the machine each time, check and ensure the following:

- Only authorised persons are in the work area of the machine.
- No one will be endangered by the starting up of the machine.
- Measures have been taken to prevent unintended changes in the position of the load.
- A clear view is available of the load, the machine and particularly the danger zone (Fig. 3-1, page 14).
- · Avenues of escape are available in the event of danger.

7.2 Description of the controls

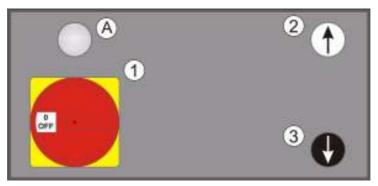


Fig. 7-1 Control device

1) Control: «Main switch»

Setting the switch to "1" switches on the power supply - control lamp (A) lights up.

Setting the switch to "0" switches off the power supply - control lamp (A) goes dark.

The «main switch» can be locked with a padlock. This secures the machine against unintentional operation.

2) Control: «Lift»

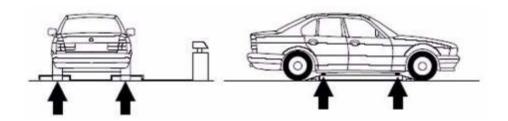
The movement stops as soon as the control is no longer held pressed (dead-man control).

3) Control: «Lower»

The movement stops as soon as the control is no longer held pressed (deadman control).

When the Euro Stop is reached, the lowering motion stops in order to prevent crushing and other hazards. If the lowering procedure is to be continued, the «Lower» control must be pressed again. The platform continues to lower at a slower speed and a warning signal sounds.

7.3 Permissible load types



7.4 Manual lowering of the platform



↑ WARNING

Improper manual lowering of the platform can result in injuries or equipment damage.

- Manual lowering of the platform is only permitted in the event of a power failure.
- The manual lowering of the platform may only be performed by qualified and authorised persons.
- During the lowering, no persons are allowed within the danger zone.
- The load and the machine are to be continually monitored.

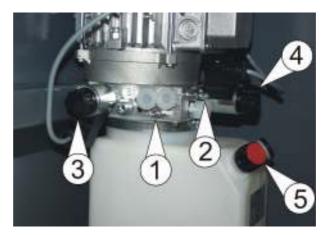




Fig. 7-2 Hydraulic system

Manual lowering of the platform

- ▶ Remove the protective caps (3) and (4).
- ► Carefully and uniformly open the valves (7) and (8).
- ▶ After the platform is completely lowered, close valves (7) and (8) again.
- ► Replace the protective caps (3) and (4).

The platform is lowered.

8 Shutting down





WARNING

High electrical voltage

Severe injury or death from electrical shock

• Only trained electricians may work on the electrical system.

8.1 Temporary shutdown

Shutting down at the end of a work shift

- Lower the platform completely.
- ► Turn the main switch to "0".

Shutting down for storage

- ► Lower the platform completely.
- Remove the load.
- Disconnect the machine from the mains electricity supply.
- ▶ Clean the machine (Chap. 9.3 "Cleaning the machine", page 31).
- ► Transport it to the storage site (Chap. 4, page 18).
- ► Carry out corrosion protection measures appropriate for the storage conditions and length of time to be stored.

8.2 Permanent shutdown



The handling and disposal of mineral-based oils is subject to legal regulations. Bring used oil to an authorised collection point. For more information, contact the responsible administrative offices. Take care not to spill any hydraulic oil. Take measures to prevent spills of hydraulic oil (oil-tight tarp, catch pan).

Proceed as follows:

- Remove the load.
- ► Clean the machine of coarse dirt.
- Lower the platform completely.
- ▶ Disconnect the machine from the mains electricity supply.

The machine can now be transported (Chap. 4, page 18).

9 Maintenance and inspections

9.1 Basic safety instructions



<u>↑</u> CAUTION

Hydraulic oils, lubricants and cleansers

Irritation or chemical burning of eyes, skin or respiratory tract

- Observe the safety instructions of the manufacturer.
- · Use personal protective equipment.
- Use a breathing protection mask if necessary.
- Avoid contact with the skin. Should contact with skin arise, wash thoroughly.
- In the event of contact with eyes, rinse and consult a physician.



NOTICE

Foreign objects in the danger zone (Fig. 3-1, page 14)

Damage to the machine

Remove any foreign objects from the danger zone.

Before any maintenance work or inspections

- ► Chap. 3 "Basic safety instructions", page 8 should be read.
- ▶ Block unauthorised persons from accessing the work area of the machine.
- ▶ Attach or erect a notice sign prohibiting switching on the machine and informing that the machine is undergoing maintenance.
- Remove the load.
- Secure the machine against unintended switching on.
- ► Have collection containers and oil-bonding agent ready to ensure that no hydraulic oils, lubricants or cleansers contaminate the floor or enter the sewer system.

The preparations are completed.

After any maintenance work or inspections

- ▶ Remove all used materials, tools or other objects from the danger zone (Fig. 3-1, page 14).
- ► Check the machine according to the inspection list (*Chap. 9.6.1 "Inspection list"*, page 35).
- ► Ensure that all safety devices are functioning flawlessly and without restriction (*Chap. 3.8 "Safety devices on the machine"*, page 14).
- ▶ Dispose of hydraulic oil, lubricants and cleansers in accordance with environmental regulations.

The work is completed.

9.2 Maintenance schedule

What?	When?	Description
Clean the machine	as needed, at least 1x yearly	Chap. 9.3, page 31
Inspect the sliding bearings	every 250 hours of operation	Chap. 9.4, page 32
Check hydraulic oil level, fill up	at the yearly accident prevention inspection	Chap. 9.5.1, page 33
Change hydraulic oil	initially after 50 hours of operation; thereafter every 500 hours of oper- ation or every 2 years	Chap. 9.5.2, page 33
Bleed hydraulic system	as needed	Chap. 5.5, page 22
Check hydraulic hoses	yearly	Chap. 9.5.3, page 33

9.3 Cleaning the machine





Electrical shock

Injury from electrical shock

- Protect the electrical system from penetration by water or other liquids.
- Ensure that no electrical cables become detached or damaged during work.

Cleaning the machine

- ▶ Clean the machine.
- ▶ Maintain the notices on the machine in clean and legible condition. Replace them if necessary.
- ► Clean the running surfaces of the castors.

The cleaning is completed.

9.4 Inspecting the sliding bearings

Inspecting the sliding bearings

▶ Perform a visual check for wear (Fig. 9-1, page 32).

The inspection is completed.

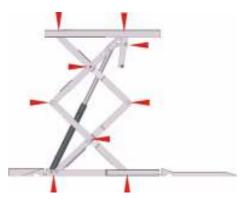


Fig. 9-1 Bearing locations on the machine

9.5 Servicing the hydraulic system



The handling and disposal of mineral-based oils is subject to legal regulations. Bring used oil to an authorised collection point. For more information, contact the responsible administrative offices. Take care not to spill any hydraulic oil. Take measures to prevent spills of hydraulic oil (oil-tight tarp, catch pan).



Recommended hydraulic oils:

- · Total Biohydran TMP 46
- BP Biohyd SE 46
- Fuchs Plantohyd 46S
- · Esso hydraulic oil HE 46
- Total Equivis UVS 46
- Shell Naturelle HF-E 46

9.5.1 Checking the hydraulic oil level

Checking the hydraulic oil level

- Lower the platform completely.
- ▶ The oil level should lie approximately 2 cm under the fill opening.
- ► Top up the oil if needed.

The check of the hydraulic oil level is completed.

9.5.2 Changing the hydraulic oil

Changing the hydraulic oil

- Raise the platform and secure it.
- ▶ Place oil collection containers under the hydraulic cylinders.
- ▶ Detach the hydraulic hoses on the hydraulic cylinders and place the open ends in the oil collection continers.
- ▶ Press the «Lift» control on the control device (Fig. 7-1, page 27) until no more hydraulic oil runs out of the hoses.
- ▶ Reattach the hydraulic hoses to the hydraulic cylinders.
- ▶ Remove the bleeder screw from the tank.
- ▶ Fill up the hydraulic oil. Fill quantity: Chap. 2.3 "Technical data", page 7.
- ▶ Screw the bleeder screw on the tank.
- ▶ Bleed the hydraulic system (*Chap. 5.5 "Hydraulic system"*, page 22).

The hydraulic oil change is completed.

9.5.3 Checking the hydraulic hoses



For hydraulic hoses, a yearly inspection of operationally safe condition is prescribed. The inspection must be performed by a qualified and authorised specialist!

Hydraulic hoses conforming to DIN EN 853/2SN or DIN EN 856/4SP are built into the machine.

Checking the hydraulic hoses

- ▶ Perform a visual check of the hydraulic hoses:
 - ▶ Is any damage on the exterior, such as cracks, kinks, cuts, stripped points, areas of abrasion, brittleness, etc., detectable?
 - Are there any deformations of the hose in either depressurised or pressurised condition?
 - ► Are there any leaks between hose and fittings?
 - Does the hose become detached from the fittings?
- ▶ Replace hydraulic hoses if damage is detected, but after every 6 years at the latest

The inspection is completed.

9.6 Regular inspections

Regular inspections of the machine are to be performed by a qualified and authorised specialist at intervals of a year at the longest.

Performing the inspection

- ▶ Copy the inspection list (Chap. 9.6.1 "Inspection list", page 35).
- ► Inspect every item and check it off if OK.
- ▶ Only put the machine back into operation if all points have been checked off.
- ▶ After completing the inspection, file the inspection list behind the appendix in this operating manual.

The inspection is completed.

9.6.1 Inspection list

Sequential no.:	
Machine type:	
Machine no.:	
Inspector:	

Mechanical system	
	Cylinder studs secured
	Scissors bolts secured
	Machine in clean condition
	Notices present and legible
	Welded points undamaged
	Machine holds load at least 10 minutes in the highest position
	All screw connections are tight

Hydra	Hydraulic system	
	No leaks in the hydraulic system	
	Oil level is sufficient (Chap. 9.5.1, page 33)	
	No damage of the hoses	
	Hydraulic hoses not more than 6 years old	

Electrical system	
	Cables and cable grips tight
	Cables are secured
	No damage of the cables
	Contact strip functional

All functions tested with no problems
Date, Signature

10 Help for malfunctions



Please contact our customer service department. This prevents damage due to improperly performed work, saves time and avoids unnecessary costs.

10.1 Machine does not lift

Cause	Solution
Machine overloaded	Reduce the load
Leak in hydraulic system	Tighten screw connections
	Reseal hydraulic cylinders
	Replace hydraulic cylinders
	Replace hydraulic hoses
Pump does not build up any pressure	Replace hydraulic unit
Motor turning in wrong direction	Check the rotational direction of the voltage supply (only for rotary current)
	Factory supplies a right-rotating field
Top sensor position was reached	Lower platform
Switching valve defective	Replace switching valve
No neutral conductor in the voltage supply	Make sure voltage supply is correct
Solenoid on lowering valve defective	Replace the solenoid
Lowering valve defective	Replace lowering valve
Solenoid valve plug defective	Replace solenoid valve plug
Controller fuse defective	Replace controller fuse

10.2 Machine does not reach the full lift height

Cause	Solution	
Oil level too low	Top up oil	
Sensor not correctly set	Adjust sensor	

10.3 Electric motor does not run

Cause	Solution	
Current supply interrupted	Check supply line	
	Check fuse	
	Check motor protection switch	
Motor defective	Replace hydraulic unit	

10.4 Machine does not lower (completely down)

Cause	Solution
Obstacle (dirt) in the area of the roller bearings	Clean the area of the roller bearings
Solenoid on lowering valve defective	Replace the solenoid
Lowering valve defective	Replace lowering valve
Solenoid valve plug defective	Replace solenoid valve plug
No neutral conductor in the voltage supply	Make sure voltage supply is correct
Controller fuse defective	Replace controller fuse
Line-break safety device triggered	Identify and replace the defective component

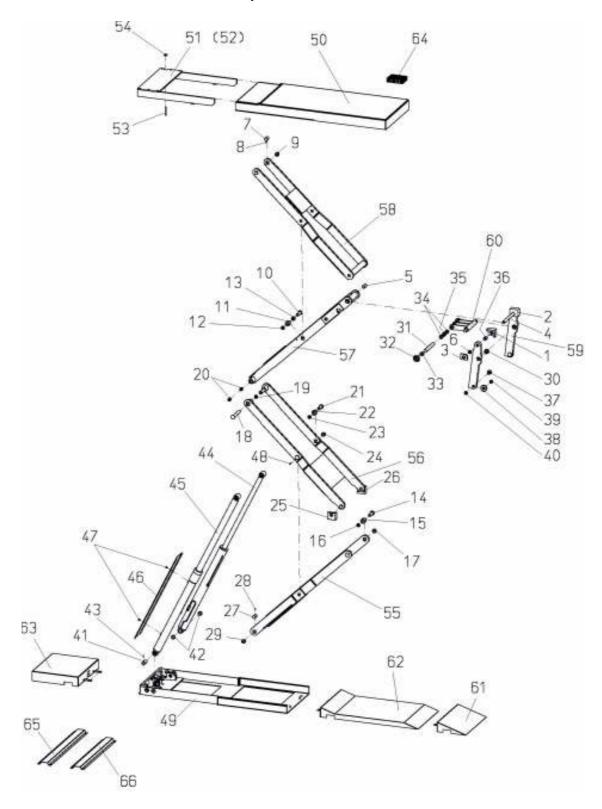
10.5 Oil leak

Cause	Solution	
Leak in hydraulic system	Tighten screw connections	
	Reseal hydraulic cylinders	
	Replace hydraulic cylinders	
	Replace hydraulic hoses	

10.6 Machine deflects heavily when load is changed

Cause	Solution
Air in hydraulic system	Bleed hydraulic system

11 Appendix

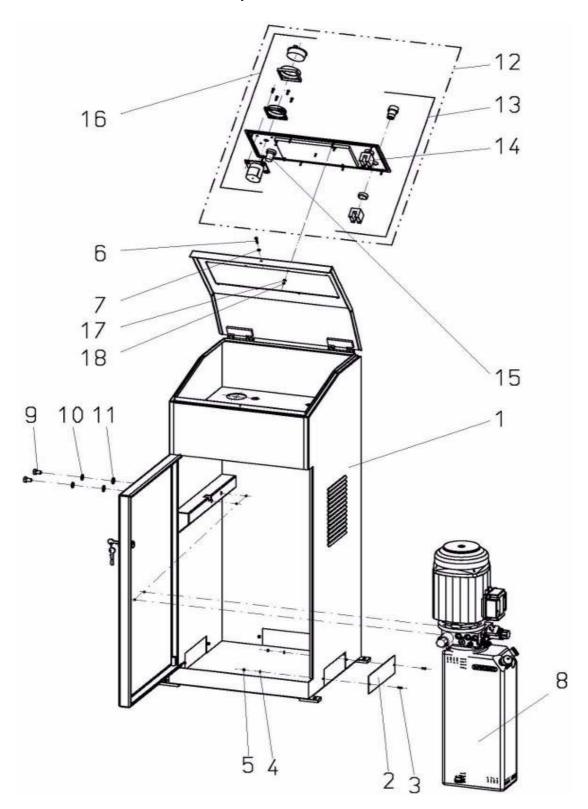


Pos.	Qty	Description	Art. no.	Note
1	2	Floating bearing, top right	10.28.683	
2	2	Floating bearing, top left	10.28.682	
3	4	Bearing plate	10.28.684	55x12x83
4	2	Bolt	10.16.733	DIN 671-40NICrMo7- 25x324
5	4	Bearing sleeve	10.16.094	D=30x2,5x42-C45
6	4	Groove nut	12.55.150	M20x1
7	4	Bolt	12.16.741	DIN 671-C45K-30x43
8	4	Threaded pin	12.54.131	DIN 914-M6x10-10.9
9	4	Bushing	10.02.236	GSM 30-34-20
10	4	Bolt	12.16.731	DIN 668-40NICrMo7- 40x85
11	4	Spacer sleeve	12.16.738	DIN 668-40NICrMo7- 40x45.1
12	4	Groove nut	12.55.150	M20x1
13	4	Bushing	10.02.236	GSM 30-34-20
14	4	Bolt	12.16.731	DIN 668-40NICrMo7- 40x85
15	4	Spacer sleeve	12.16.738	DIN 668-40NICrMo7- 40x50.1
16	4	Groove nut	12.55.150	M20x1
17	4	Bushing	10.02.236	GSM 30-34-20
18	4	Bolt	12.16.732	DIN 668-40NICrMo7- 40x182
19	4	Groove nut	12.55.150	M20x1
20	4	Bushing	10.02.271	GSM 25-28-20
21	4	Bolt	12.16.730	DIN 668-40NICrMo7- 40x80
22	4	Spacer sleeve	12.16.737	DIN 668-40NICrMo7- 40x45.1
23	4	Groove nut	12.55.150	M20x1
24	4	Bushing	10.02.236	GSM 30-34-20
25	2	Floating bearing, bottom right	10.28.681	
26	2	Floating bearing, bottom left	10.28.680	
27	4	Bolt	12.16.741	DIN 671-C45K-30x43
28	4	Threaded pin	12.54.131	DIN 914-M6x10-10.9
29	4	Bushing	10.02.236	GSM 30-34-20
30	4	Bushing	10.02.351	GFM 30-34-26

Pos.	Qty	Description	Art. no.	Note
31	2	Cylinder stud	10.16.743	DIN 671-40NICrMo7- 30x215
32	4	Flanged wheel	12.16.739	
33	4	Bushing	10.02.288	GSM 30-34-25
34	4	Bushing	10.02.362	GSM 30-34-10
35	4	Bushing	10.02.236	GSM 30-34-20
36	4	Bushing, rolled	10.02.340	MBZ 25-28-30
37	4	Bolt	12.16.729	DIN 668-40NICrMo7- 40x43
38	4	Castor	12.16.740	DIN 668-C45K-60x15
39	4	Bushing	10.02.361	GSM 25-28-15
40	4	Groove nut	12.55.150	M20x1
41	4	Bolt	12.16.742	DIN 671-C45K-30x65
42	16	Bushing	10.02.236	GSM 30-34-20
43	4	Threaded pin	12.54.131	DIN 914-M6x10-10.9
44	2	Hydraulic cylinder (Master)	11.19.767	Ø 70 x 841 mm lift
45	2	Hydraulic cylinder (Slave)	11.19.766 Ø 56 x 841 mm	
46	2	Cylinder cover	57.91.337	
47	4	Flat head screw	12.54.114	DIN 921-M5x8-5.8
48	1	Dowel pin	10.24.120	ISO 8752-6x40-St
49	2	Underframe	51.02.814	
50	2	Upper frame	51.02.820	
51	1	Pullout, left	51.55.064	
52	1	Pullout, right	51.55.065	
53	2	Cylinder screw	12.54.666	M8x75-8.8
54	2	Circular blank	12.16.746	
Pos.	Qty	Description	Art. no.	Note
55	2	Inner scissors, bottom	51.11.443	
56	2	Outer scissors, bottom	51.11.493	
57	2	Inner scissors, top	51.11.444	
58	2	Outer scissors, top	51.11.494	
Pos.	Qty	Description	Art. no.	Note
59	4	Lever arm	57.80.133	
60	2	Cylinder lever	52.34.105	

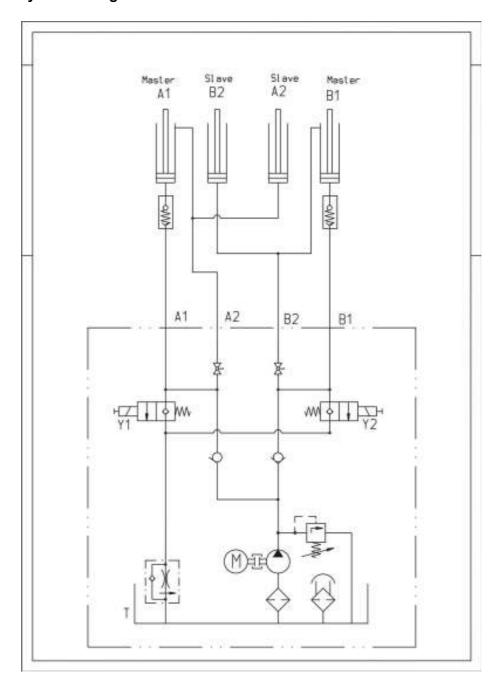
Accessories

Pos.	Qty	Description	Art. no.	Note
61	4	Ramp 300	51.55.060	
62	4	Ramp 1000	51.55.061	
63	2	Underfloor box	51.55.070	
Pos.	Qty	Description	Art. no.	Note
Pos. 64	Qty 4	Description Rubber block with diamond pattern	Art. no. 10.27.239	Note
	_	Rubber block with dia-		Note 1000 mm



Pos.	Qty	Description	Art. no.	Note
1	1	Control column	11.34.191	consisting of
				Pos. 2-7
2	3	Cover	56.81.029	
3	6	Cylinder head screw	12.54.014	DIN 7984-M4x10-8.8
4	6	Disc	12.40.021	ISO 7093-4-100HV
5	6	Hexagonal nut	12.55.011	DIN 985-M4-8
6	1	Cylinder head screw	12.54.184	DIN 912-M6x30-8.8
7	1	Disc	12.40.040	ISO 7093-6-100HV
8	1	Hydraulic unit	11.18.260	3 kW / 400 V
9	2	Bolt	12.51.021	ISO 4017-M10x16-8.8
10	2	Lock washer	12.40.425	DIN 127-A10-FSt
11	2	Disc	12.40.088	ISO 7089-10-200HV
12	1	Desk plate	58.70.006	consisting of
				Pos. 13-16
13	1	Button Lift	10.30.572	
14	1	Button Lower	10.30.573	
15	1	Indicator lights	10.30.576	
16	1	Main switch	10.30.574	
17	8	Disc	12.40.017	ISO 7093-3-100HV
18	8	Lock nut	12.55.006	DIN 985-M3-8

Hydraulic diagram



Hydraulic parts list

Qty	Description	Art. no.	Note
1	Hydraulic unit	11.18.260	3 kW / 400 V
4	Straight screw-in sup- ports	12.19.563	M14x1.5
2	T-piece	12.18.910	M14x1.5
1	Hydraulic hose	10.18.903	L=4800 mm
			Designation "A"
1	Hydraulic hose	10.18.904	L=3500 mm
			Designation "B"
1	Hydraulic hose	10.18.905	L=3150 mm
			Designation "C"
1	Hydraulic hose	10.18.906	L=3150 mm
			Designation "D"
1	Hydraulic hose	10.18.907	L=680 mm
			Designation "E"
1	Hydraulic hose	10.18.908	L=2000 mm
			Designation "F"
1	Hydraulic hose	10.18.909	L=800 mm
			Designation "G"
1	Hydraulic hose	10.18.911	L=2120 mm
			Designation "H"

Hydraulic parts list

Hydraulic hose extension 2000 mm (optional)

Qty	Description	Art. no.	Note
1	Hydraulic hose	10.18.961	L=2000 mm
			Designation "A"
1	Hydraulic hose	10.18.962	L=2000 mm
			Designation "B"
1	Hydraulic hose	10.18.963	L=2000 mm
			Designation "C"
1	Hydraulic hose	10.18.964	L=2000 mm
			Designation "D"
4	Straight screw connection	12.19.299	M14x1.5

Hydraulic hose extension 3000 mm (optional)

Qty	Description	Art. no.	Note
1	Hydraulic hose	10.18.971	L=3000 mm
			Designation "A"
1	Hydraulic hose	10.18.972	L=3000 mm
			Designation "B"
1	Hydraulic hose	10.18.973	L=3000 mm
			Designation "C"
1	Hydraulic hose	10.18.974	L=3000 mm
			Designation "D"
4	Straight screw connection	12.19.299	M14x1.5

Hydraulic hose extension 4000 mm (optional)

Qty	Description	Art. no.	Note
1	Hydraulic hose	10.18.981	L=4000 mm
			Designation "A"
1	Hydraulic hose	10.18.982	L=4000 mm
			Designation "B"
1	Hydraulic hose	10.18.983	L=4000 mm
			Designation "C"
1	Hydraulic hose	10.18.984	L=4000 mm
			Designation "D"
4	Straight screw connection	12.19.299	M14x1.5

3~ PH 400V / N / PE 1,5mm²24 VDC 3,0 KW 50 Hz : 7,3 A IP 54 24 V 16 A Zuleitungsquerschnitt supply line Betriebsspannung Steuerspannung control voltage Signalspannung Anschluß electric terminal box Netzfrequenz commercial freqency Nennleistung nominal power working voltage Nennstrom rated current protection class Sicherung fuse Schutzart

Elektro-Schaltpläne

VDE 0113

Geprüft nach

Schutzvermerk nach DIN 34 beachten!

VZ

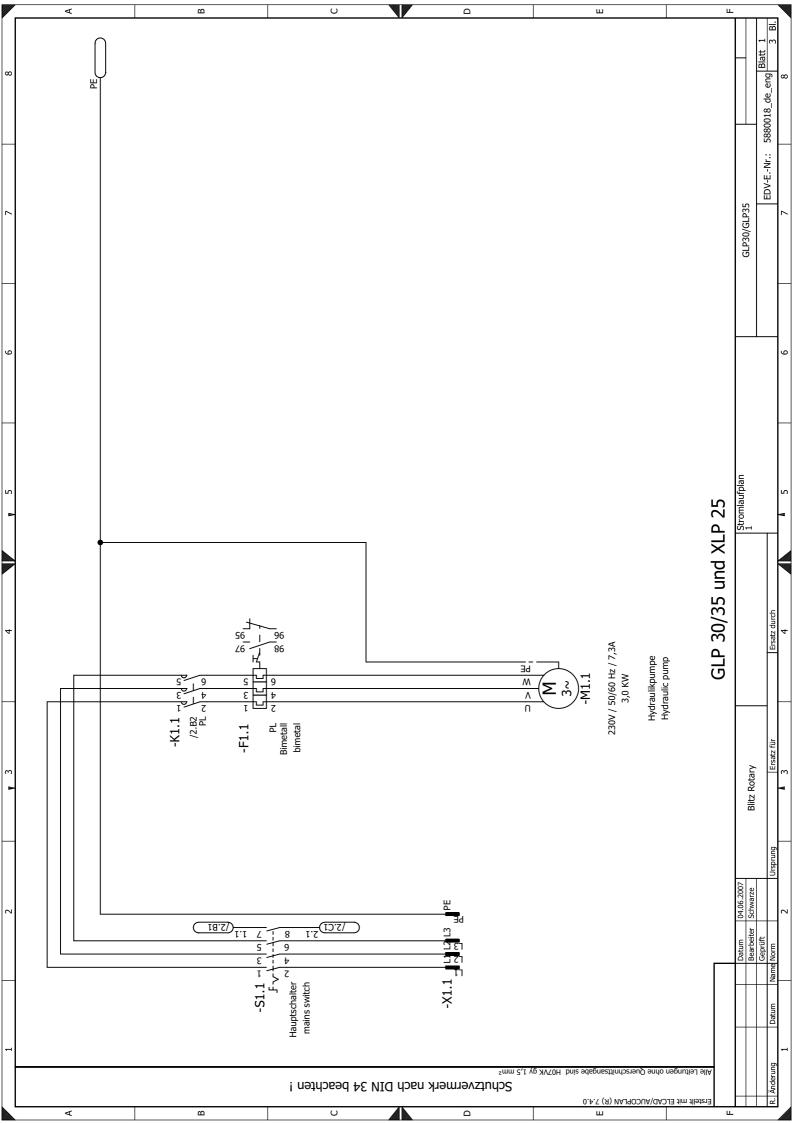
Electrical circuit diagram

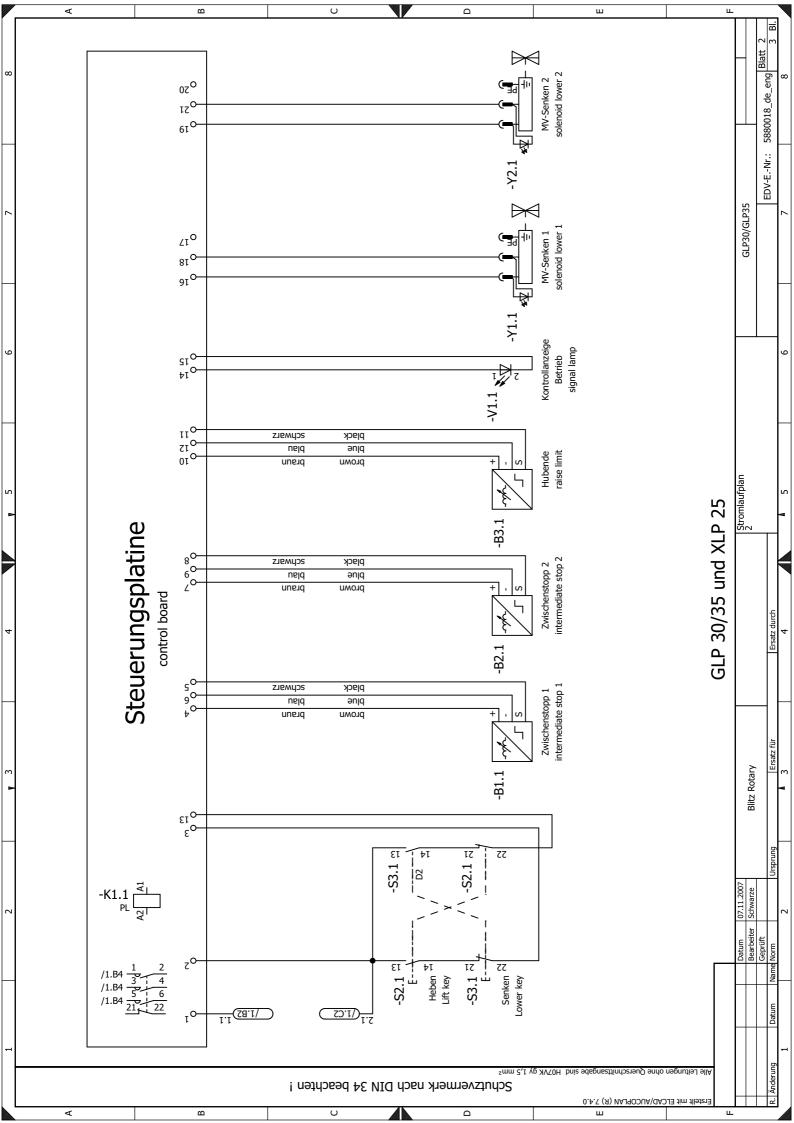
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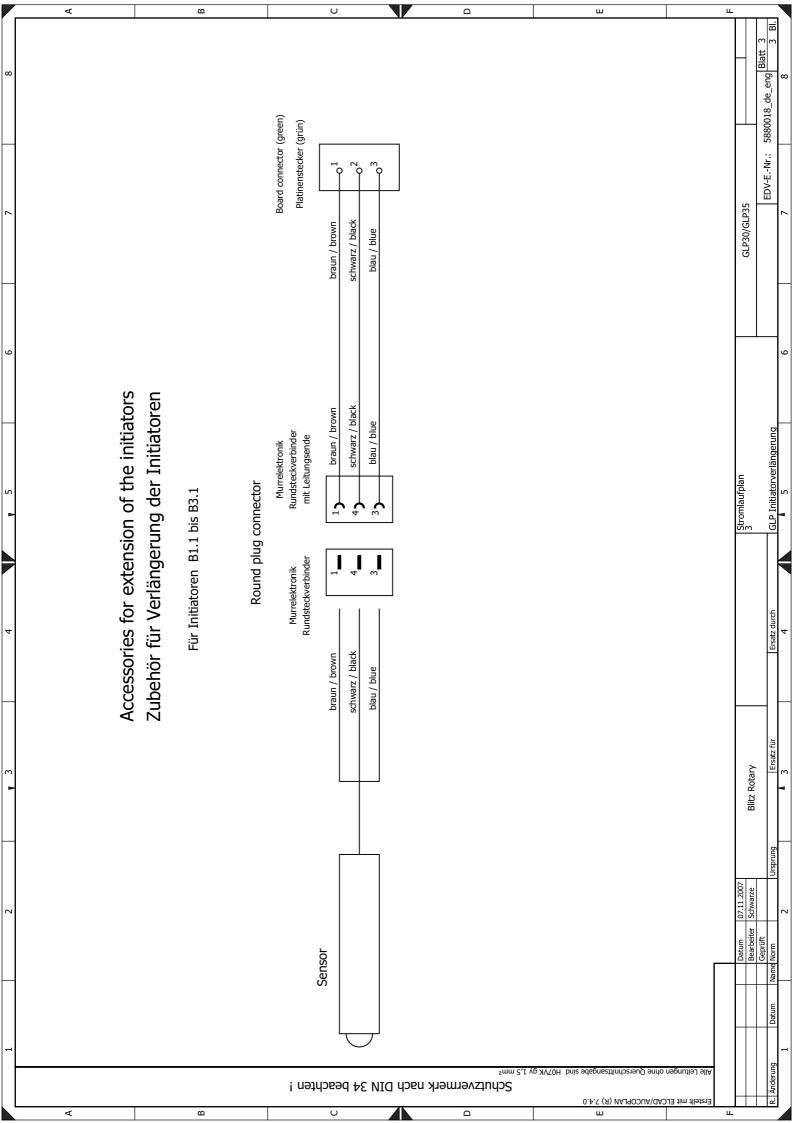
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Trained Operators and Regular Maintenance Ensures Satisfactory Performance of Your Rotary Lift.

Replacement Parts: See installers package for parts breakdown sheet. Order Genuine Rotary replacement parts from your nearest Authorized Parts Distributor.

Maintenance Assistance: Contact your local Rotary distributor.

Should further assistance be required, contact Rotary Lift, at one of the phone numbers listed below.

World Headquarters:
Rotary Lift

A DOVER COMPANY
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