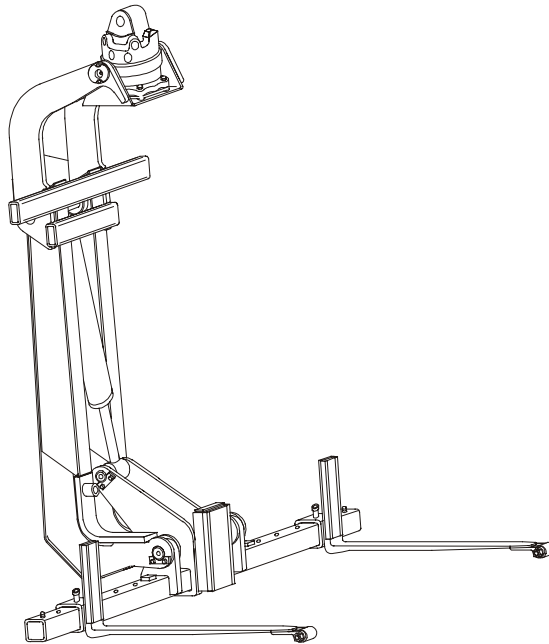




**Operating instructions / Mode d'emploi**

**for / pour**

**Wallboard fork / Fourche relevante  
KM 461-L**



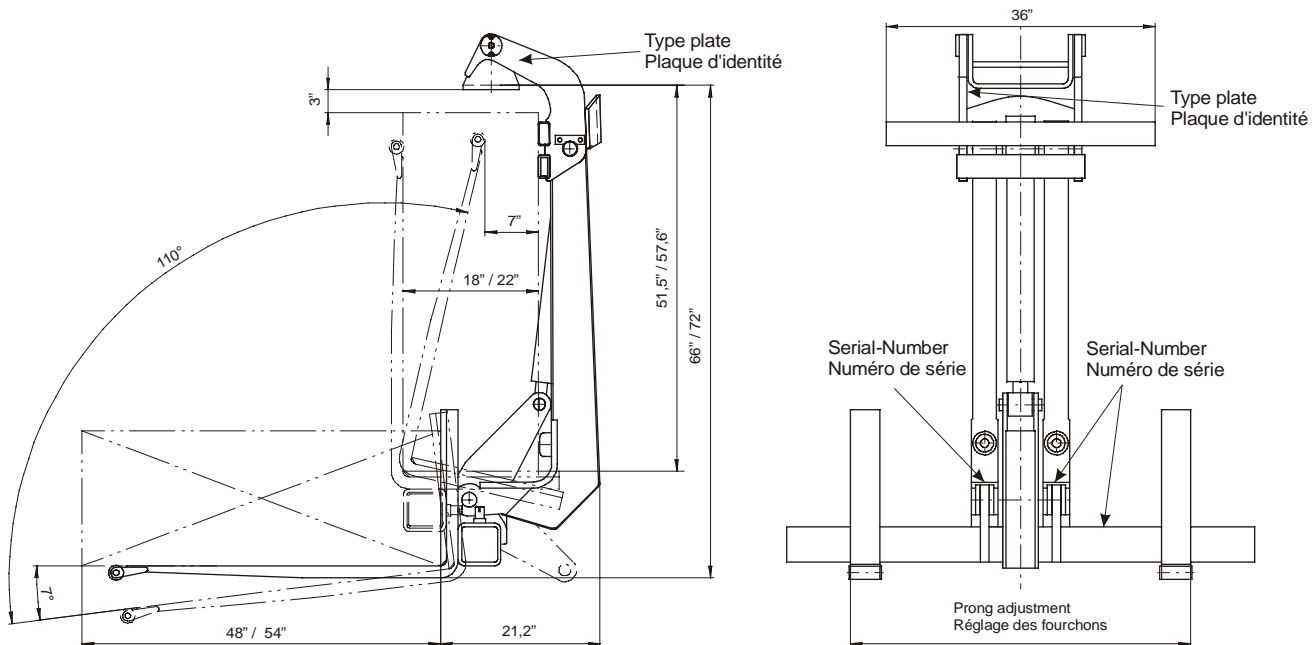
**Manufacturer / Constructeur**

**KINSHOFER LIFTALL INC.**

05 / 2004

**Brought to you by  
Robert's Diesel Works Inc.  
906 West Gore St.  
Orlando, Fl. 32805  
407 246-1597  
800 341-1370**

### Dimensional drawing / Feuille dimensionnelle



### Article No. / Article no.

Type KM 461-	Capacity Capacité lb	Prong adjustment Règlage des fourchons inch	Package height x package width Hauteur du paquet x largeur du paquet inch	Working pressure Pression de service psi	Weight (without rotator) Poids (sans rotator) lb
K61S60AA2A	6000	25 - 63	48 x 18	2350	814
K61S60AA2B	6000	25 - 63	54 x 18	2350	829
K61S60AB2A	6000	25 - 63	48 x 22	2350	824
K61S60AB2B	6000	25 - 63	54 x 22	2350	839
K61S60BA2A	6000	25 - 72	48 x 18	2350	825
K61S60BA2B	6000	25 - 72	54 x 18	2350	840
K61S60BB2A	6000	25 - 72	48 x 22	2350	835
K61S60BB2B	6000	25 - 72	54 x 22	2350	850
K61S60CA2A	6000	25 - 84	48 x 18	2350	842
K61S60CA2B	6000	25 - 84	54 x 18	2350	847
K61S60CB2A	6000	25 - 84	48 x 22	2350	857
K61S60CB2B	6000	25 - 84	54 x 22	2350	857



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## 1. General information

These instructions apply to load bearing devices in lifting areas and affects products by KINSHOFER GREIFTECHNIK GMBH & Co. KG.

The statutory safety and accident prevention regulations apply to load bearing devices.

Special mounting information, bearing capacities, permitted operating pressure and maintenance information along lists are provided in the operating instructions.

### 1.1 Use in accordance with regulations:

**Warning!**

Designates a possibly dangerous situation.

Instructions must be observed and followed.

Disregarding this information may result in serious injury.

**Disregarding the operating instructions may result in accidents, downtimes and the warranty becoming void.**

- All the equipment is generally designed for use near the ground (up to a lifting height of 1.8 m).
- It is not allowed to control the equipment by hand (except the crane forks).  
It is not allowed to conduct the equipment above people if no additional protection has been provided. See also UVV VBG [Accident Prevention Regulations, Regulations of the Trade Associations], 9a § 31!
- Using the crane fork without securing the load is generally prohibited.
- The transport of persons is prohibited!
- **Observe the operating instructions!**

**General information:**

Users must refer to the operating instructions to familiarize themselves with the machine before operating it.

The operating instructions are meant for the users. Please refer to the corresponding documents for descriptions, maintenance and so on for other machine components and the base machine.

### 1.2 Safety provisions:

**The following ordinances and regulations apply:**

**EG directives**

EG Directive Machines 98/37/EC

EN 13155 Cranes – Non-fixed load lifting attachments

**Accident prevention regulations - VBG**

VBG 1 General regulations

VBG 9A Load bearing devices operated with lifting gear

**ZH Schriftenreihe**

ZH 1/74 Safety regulations for hydraulic hose lines

ZH 1/215 Safety regulations for hydraulic fluids

ZH 1/283 Safely using cranes on trucks



## Ordinances

Old oil ordinance  
Highway code  
Road traffic ordinance

## 1.3 Machine assembly

An upper suspension that permits suspension by gimbals is used to mount the corresponding hydraulic rotator or the add-on unit to the base machine's extension arm (exception: sorting grippers and manipulators may be mounted without suspension by gimbals).

- The machine may only be mounted by authorized personnel.
- Do not exceed the vehicle's total permitted weight when mounting the machine.
- The machine may only be fitted to suitable base machines.

### Attaching the hydraulic rotator:

Rotators are mounted either with a reducer (motors with shaft) or directly to the bottom flange on the add-on unit.

The add-on unit may only be attached to suitable hydraulic rotators.

The hydraulic hoses should be kept as short as possible.

When assembly has been completed, check that the machine functions properly and that the hydraulic hoses don't leak.

## 1.4 Warranty

On exclusion of further claims and rights of the customer, irrespective of the legal reason, we will be liable for material and processing defects for only 12 months from the day the product leaves our premises.

A liability period of 12 months applies for rotary motors.

Complaints about defects must be made immediately in writing within a time limit of two weeks after the delivery was received at its destination.

The two week time limit also applies to defects that are not apparent even to careful inspection on receipt. In such events the time limit commences with the day the defect is discovered.

Warranty claims can only be made if the customer has fulfilled his duties and has followed the operating instructions.

No liability will be assumed for incorrect or negligent treatment or excessive loads.

Liability will also not be assumed when defects have been caused by preliminary or other work that has not been carried out on our premises.

If a complaint is founded and made within the specified time limit, we are entitled at our discretion to repair existing defects or to replace the original delivery free of charge or to issue a credit note to the calculated value or partial value.

Where products delivered or processed by third parties are concerned, we will only be liable to the extent that our sub-contractor fulfils warranty claims.

Once a complaint has been made, we must be given unrestricted access to the defective item so that we can both check the complaint and correct it.

If a defect can only be repaired on our premises, the defective item must be put at our disposal.

If the complaint concerns a disattachable component, then it must be sent to us on request.

If the customer demands the correction of a defect which we do not recognize as a warranty defect we are entitled to make the repair dependent on the advance payment of the foreseeable costs.

## 2. Operative conditions

The attachment is intended for use on truck-mounted cranes .

The attachment is designed for its intended purpose.

When load is suspended in mid-air it must be sufficiently secured (chain or trellis).

All other applications used with this attachment will be at the owner's full risk.

Please check with your dealer for special attachments for other uses.

The usual environmental conditions for construction machinery apply.

Ambient temperature range: - 15°C to + 40°C



### Warning!

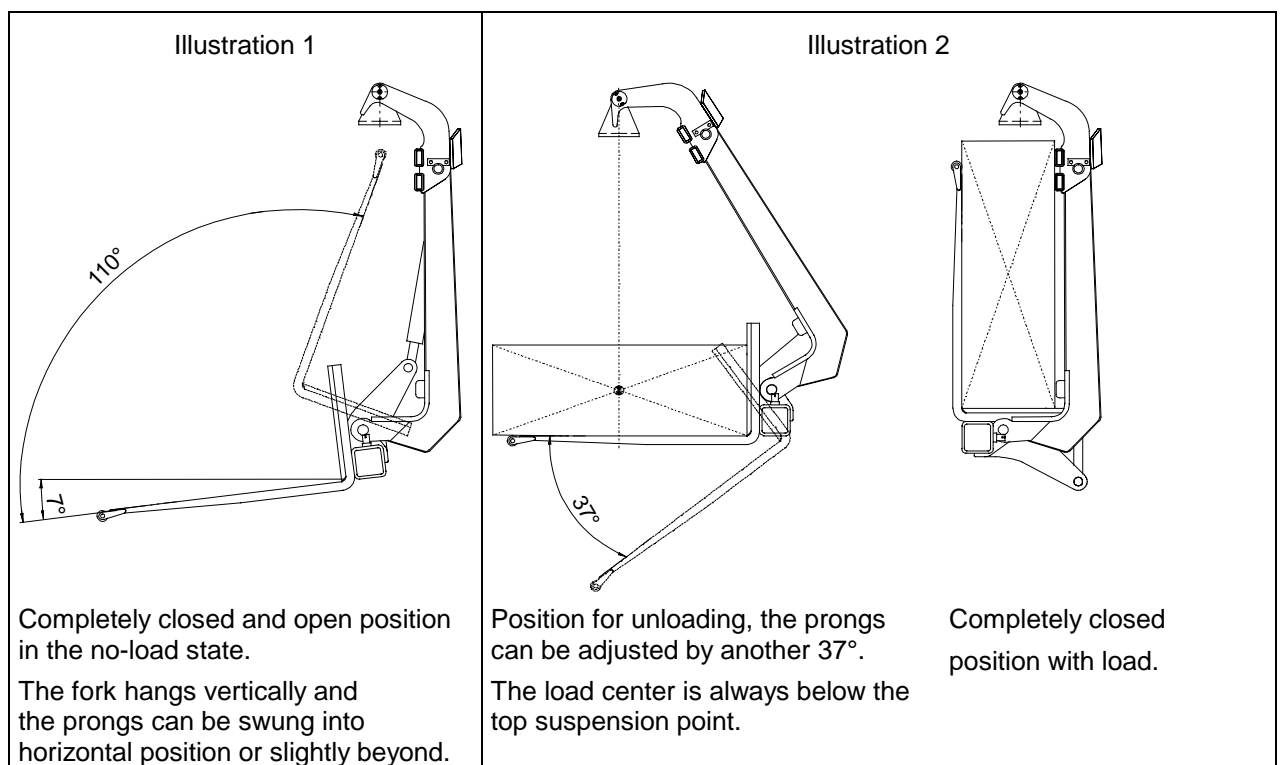
Using it in any other way is not suitable.

Operating authority is liable for any danger and damages resulting in the misuse of this equipment.

## 3. Assembly instructions

### 3.1 Operating the unit

**A:** There are two positions for the swivel fork in suspended state (see illustration 1 and 2).

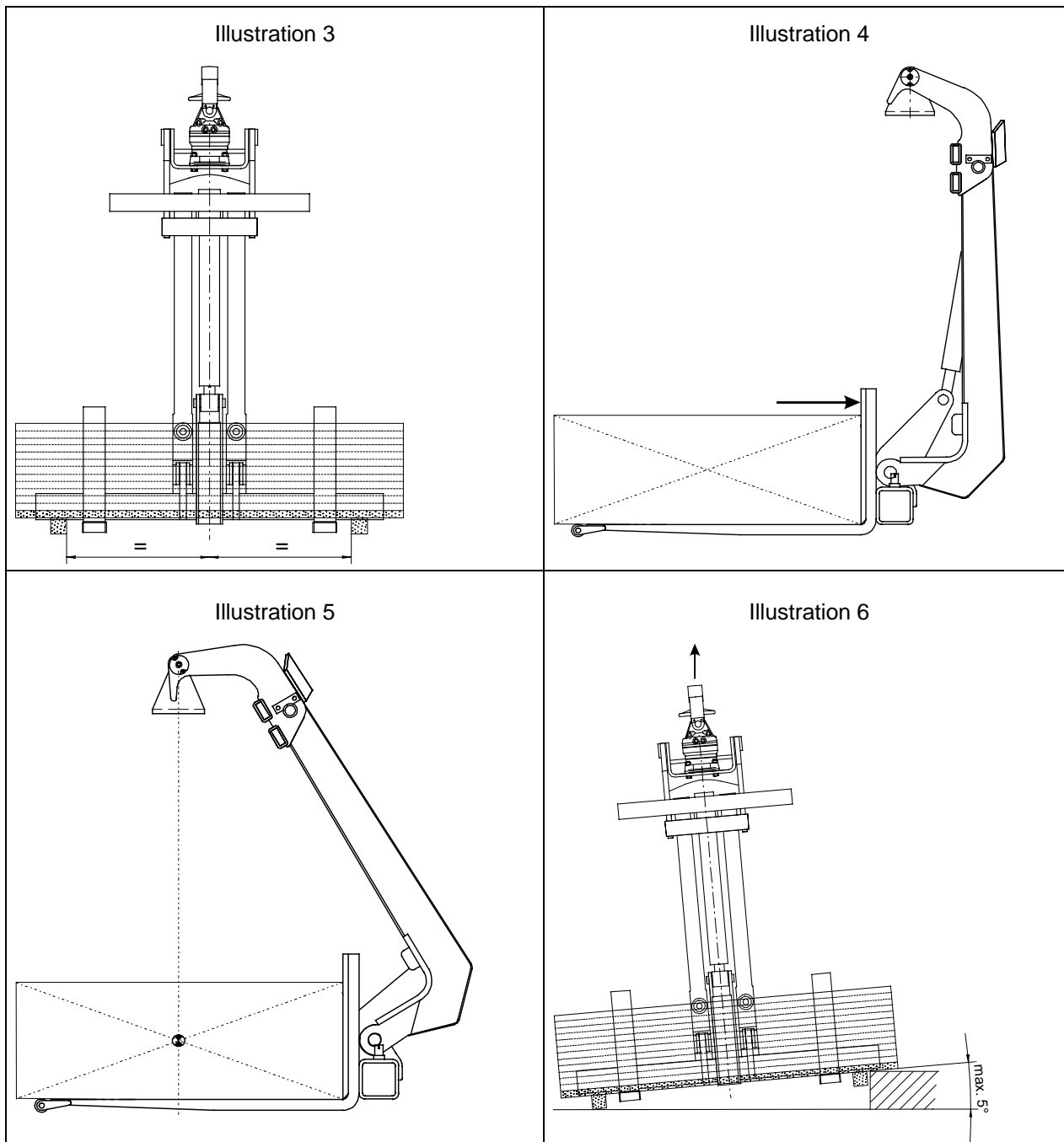


**B:** For loading open the fork prongs to horizontal position.  
Make sure the prongs are centered under the load (see illustration 3).  
The plastic supports of the fork must closely fit the plate pack to avoid damage to the plates (see illustration 4).

Before lifting, shift the tip of the crane to above the load center (swivel fork could otherwise lose load), (see illustration 5).

A slanting load must not unilaterally weigh down the fork prongs when lifting (see illustration 6).

Close the swivel fork completely as soon as it reaches a distance of approx. 40 cm from the ground.

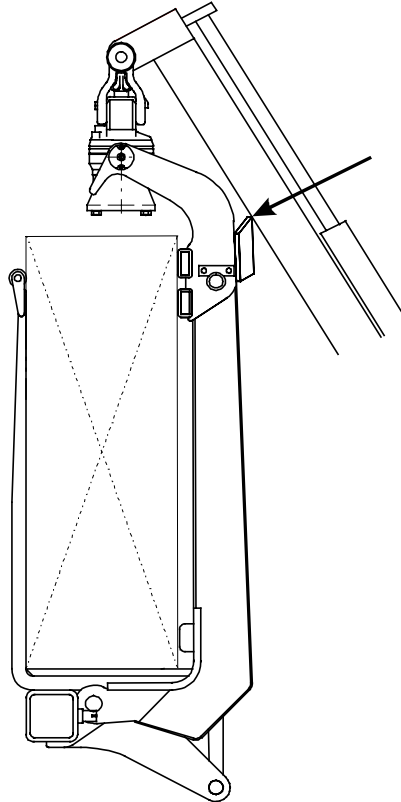


**C:** There are two possibilities for unloading the swivel fork:

1. Open the swivel fork to a small extent so that the plates can be moved freely and pull them out.
2. Open the swivel fork to horizontal position and take out the load.



Do not open the fork too far as plates could slip out.  
The swivel fork must always be able to float freely and never be resting against the crane boom.

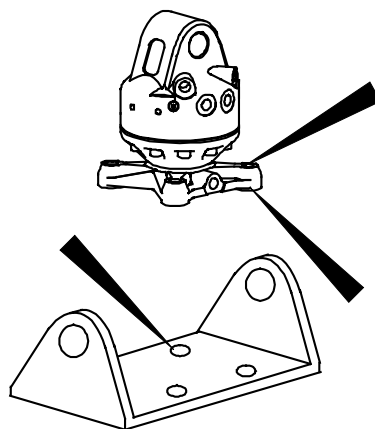


### 3.2 Instructions for installation

#### 3.2.1 Fitting rotator with flange connection to the swivel fork (see Fig. page 10)

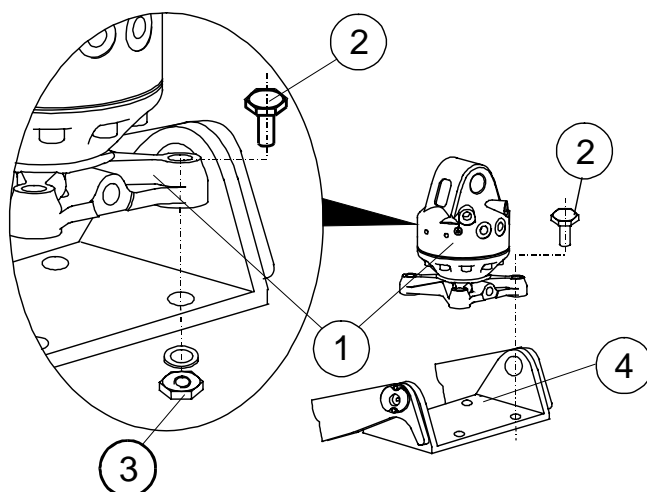


Clean all contact points of lacquer before fitting the rotator.



Place rotator (1) onto supporting plate (4) and fasten with four screws (2) (M16, at least 8.8, tightening torque 210 Nm), plain washers and nuts M16 (3).




**Note**


Clean hydraulic connections.

Connect the hoses for "Open" and "Close" that come from the rotator to the provided connections on the rotator flange.

Activate the functions "Open equipment" and "Close equipment" one after the other and hold briefly.

No oil should exude from connections; re-tighten connections, if necessary.

### 3.2.2 Dismantling the rotator with flange connection from the swivel fork

Set down swivel fork on suitable ground.

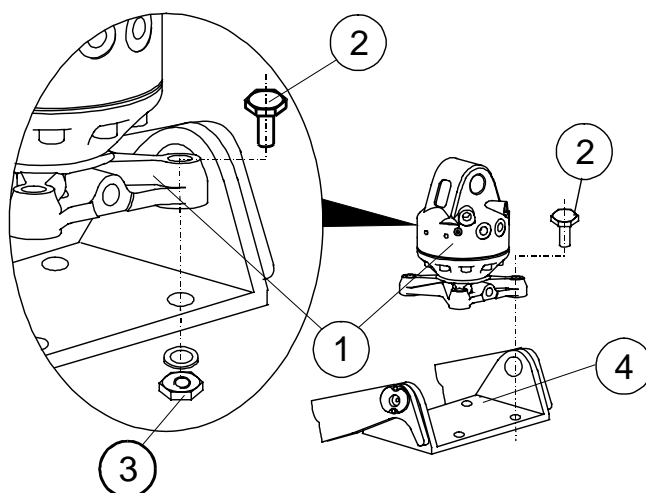
Switch off hydraulic system and actuate operating lever on the control block several times in both directions (pressure reduction).

Clean hydraulic connections on motor flange, unscrew and close connections.

Collect leaking oil.

Undo screws (2) and nuts (3).

Remove rotator (1) from the supporting plate (4).



### 3.2.3 Installing and dismantling the hydraulic cylinder (see Fig. page 11)

#### Dismantling

Set down swivel fork on suitable ground.

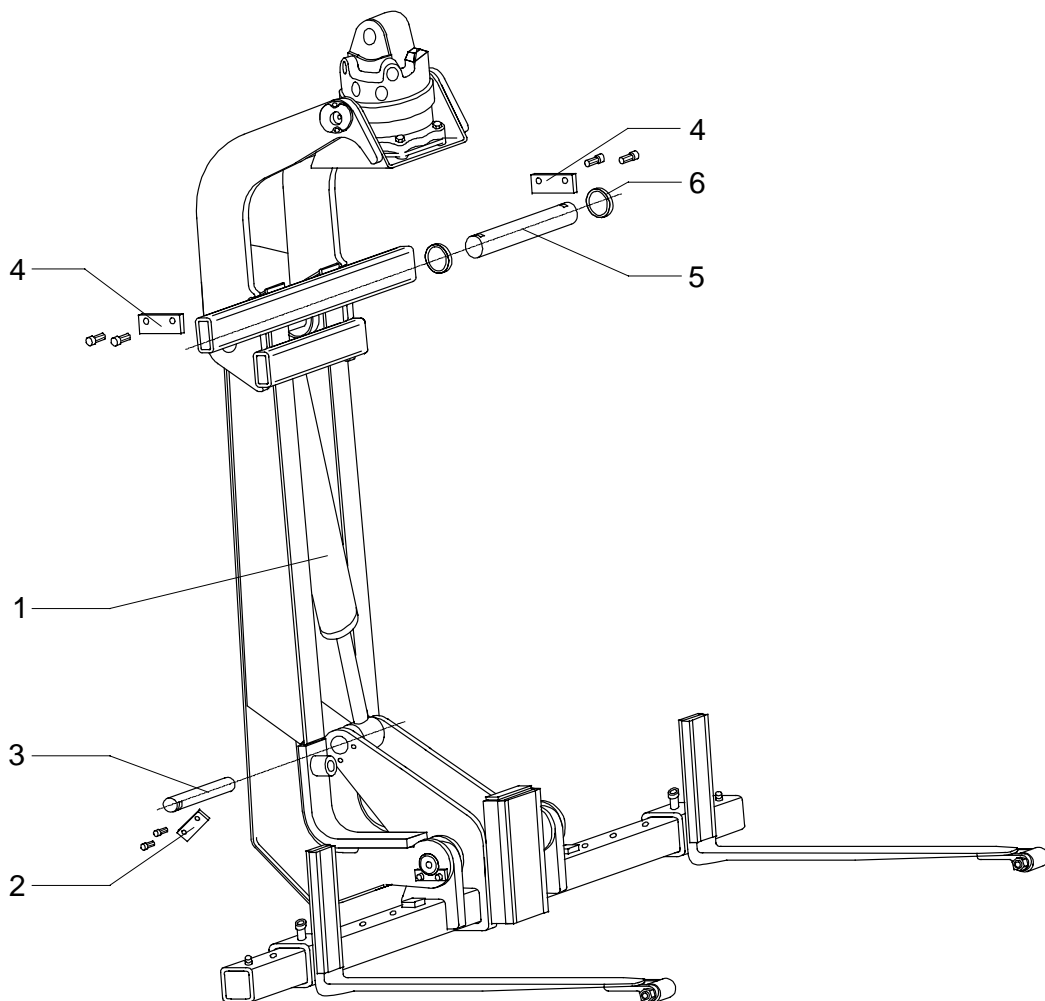
Open equipment entirely and prevent it from falling shut.

Switch off hydraulic system and actuate operating lever on the control block several times in both directions (pressure reduction).

- Undo hydraulic connections on the screw connections of the cylinder.
- Collect leaking oil.
- Unscrew axle bracket (2) and remove bolt (3).
- Unscrew axle bracket (4), remove bolt (5) and distance plates (6).
- Take out hydraulic cylinder (1).

### Installation

- To install the hydraulic cylinder proceed in reverse order.
- Connect hydraulic connections and check functioning of the equipment.
- Do leak test on hydraulic connections.
- Lubricate bearings.



### 3.2.4 Replacing the washers (see Fig. page 12)

- Screw out rod guidance (3).
- Pull piston rod (4) out of the cylinder.
- Unscrew piston (2) from piston rod (4).
- The piston is secured with thread glue. It will need to be heated to **300 - 400 °C** in order to separate it from the piston rod.
- Then clean thread of remaining glue.

Replace all washers (5) and O-rings (lubricate slightly) while taking great care not to damage the new ones.

Push rod guidance (3) onto piston rod (4).

Paint thread of piston rod with securing agent (Loctite 638) and screw piston (2) onto piston rod (4) (tightening torque 350 Nm).

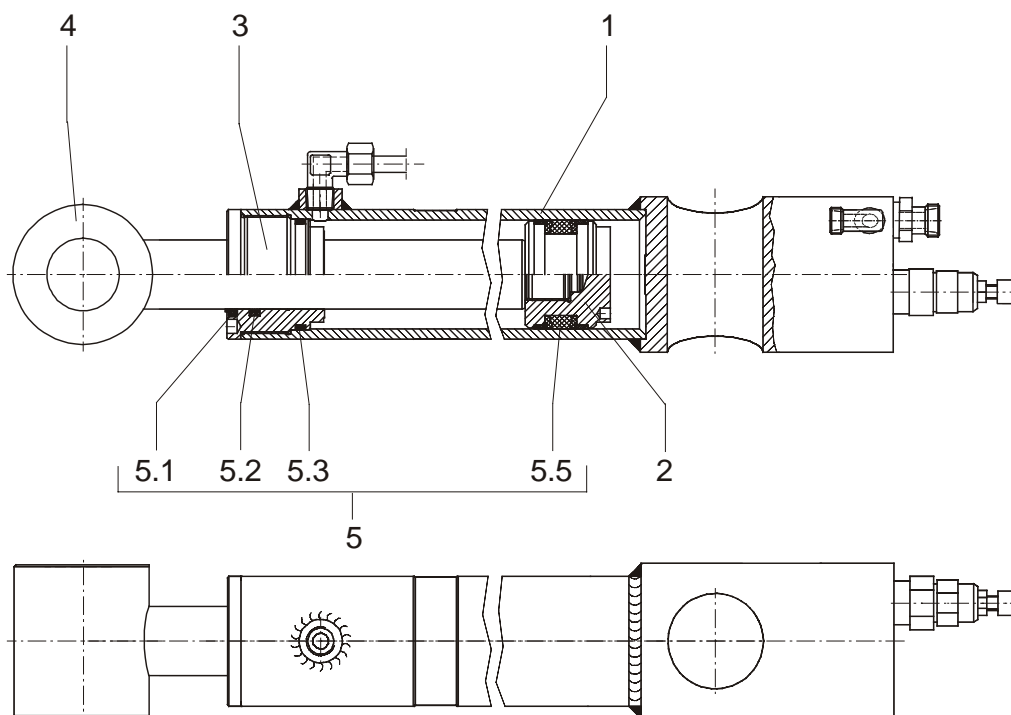


**Die thread securing needs approx. 8 hours to harden.**

**During this time the hydraulic cylinder must not be impinged on with oil pressure.**

Insert piston rod (4) including piston (2) and rod guidance (3) into the cylinder pipe (1).

Screw rod guidance (3) into the cylinder pipe (1) (tightening torque 560 Nm).



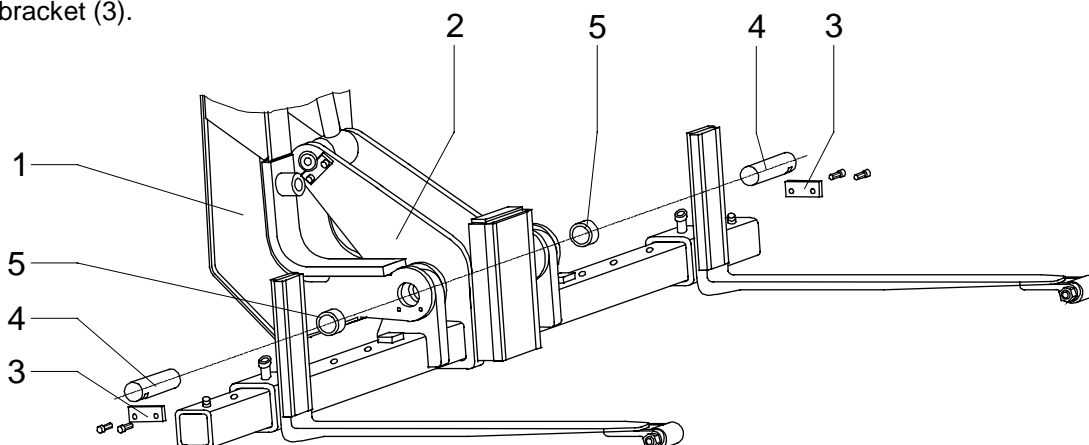
### 3.2.5 Replacing the set of bearings on the bottom part

Secure upper part of the swivel fork in suspended position.

Screw off axle bracket (3) and remove bolt (4).

Exchange bearing shells (5).

Carefully reposition the middle part (1) to the bottom part (2) and connect with bolt (4) and axle bracket (3).



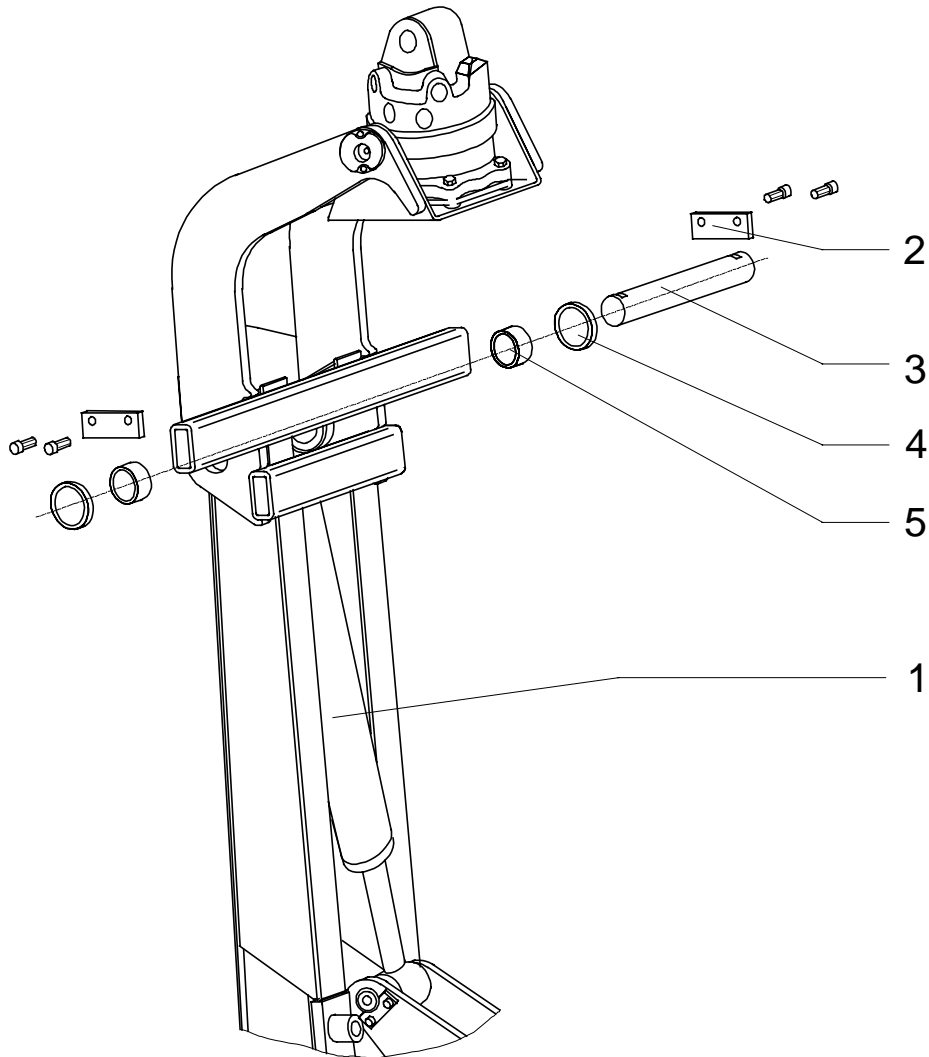
### 3.2.6 Replacing the set of bearings on the hydraulic cylinder

Unscrew axle bracket (3) and remove bolt (4).

Take out distance plates (5) and remove the top part (1).

Swivel out hydraulic cylinder (2) and exchange bearing shells (6).

Reinstall cylinder (2) and distance plates (5) and connect with bolt (4) and axle bracket (3).



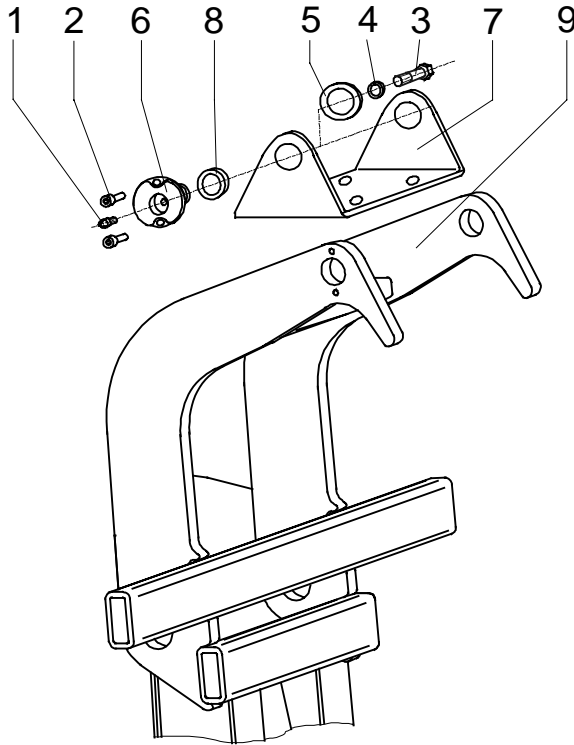
### 3.2.7 Replacing the set of bearings for the supporting plate (see Fig. page 14)

Remove safety screws (2), lubricating nipple (1) and hexagon head cap screw (3) including plates (4, 5).

Knock out both bolts (6).

Take supporting plate (7) out of the top part (9) and exchange bearing shells (8).

Refit supporting plate (7) in reverse order.



### 3.2.8 Replacing the prong locking device

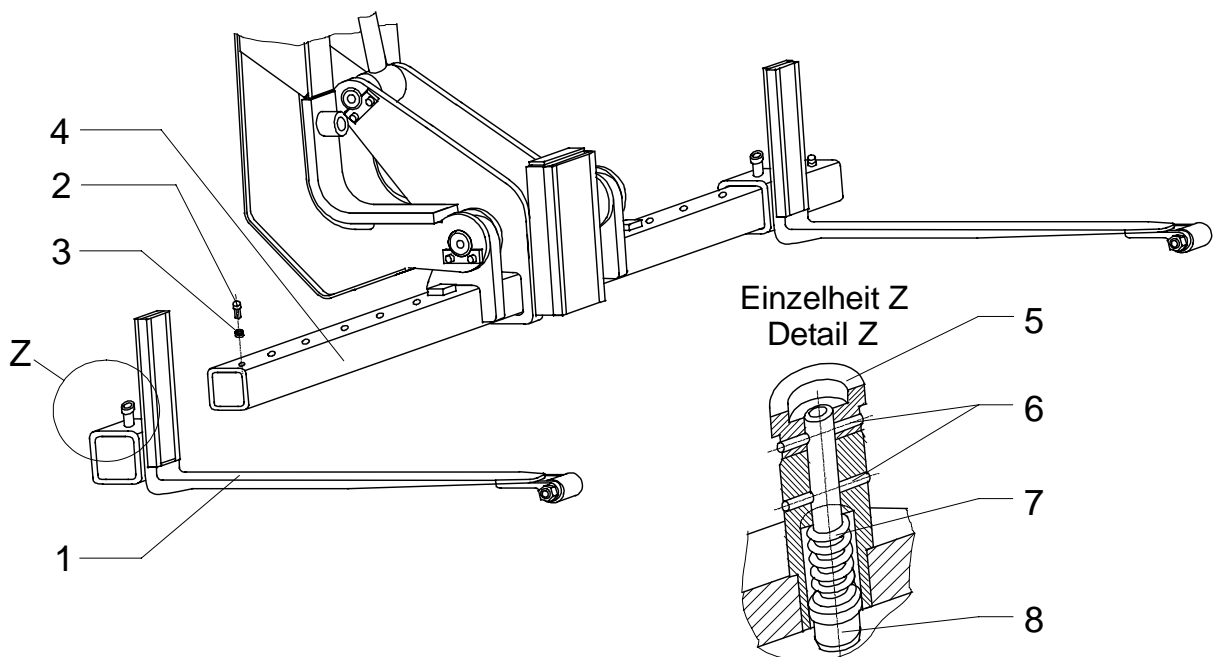
Remove countersunk screw (2) and plate (3) and take the prong (1) from the bottom part (4).

Knock clamping sleeves (6) out of knurled nut (5) and pin (8).

Take out knurled nut (5), spring (7) and pin (8).

Insert new pin (8) and spring (7) and secure with clamping sleeve (6).

Replace knurled nut (5) and secure with second clamping sleeve (6).



### 3.2.9 Exchanging the centre section

Open wallboard fork completely and secure against falling shut.

Screw off axle holder (3) and remove bolt (4).

Swivel out hydraulic cylinder (3), take out distance washers (7) and remove the centre section (1).

Take carrier plate (4) out of the centre section (1). To do so remove locking screws (14), grease nipple (15) and hexagon head cap screw (16) with washers (17, 18).

Knock out both bolts (13).

Insert carrier plate (4) into the new centre section.

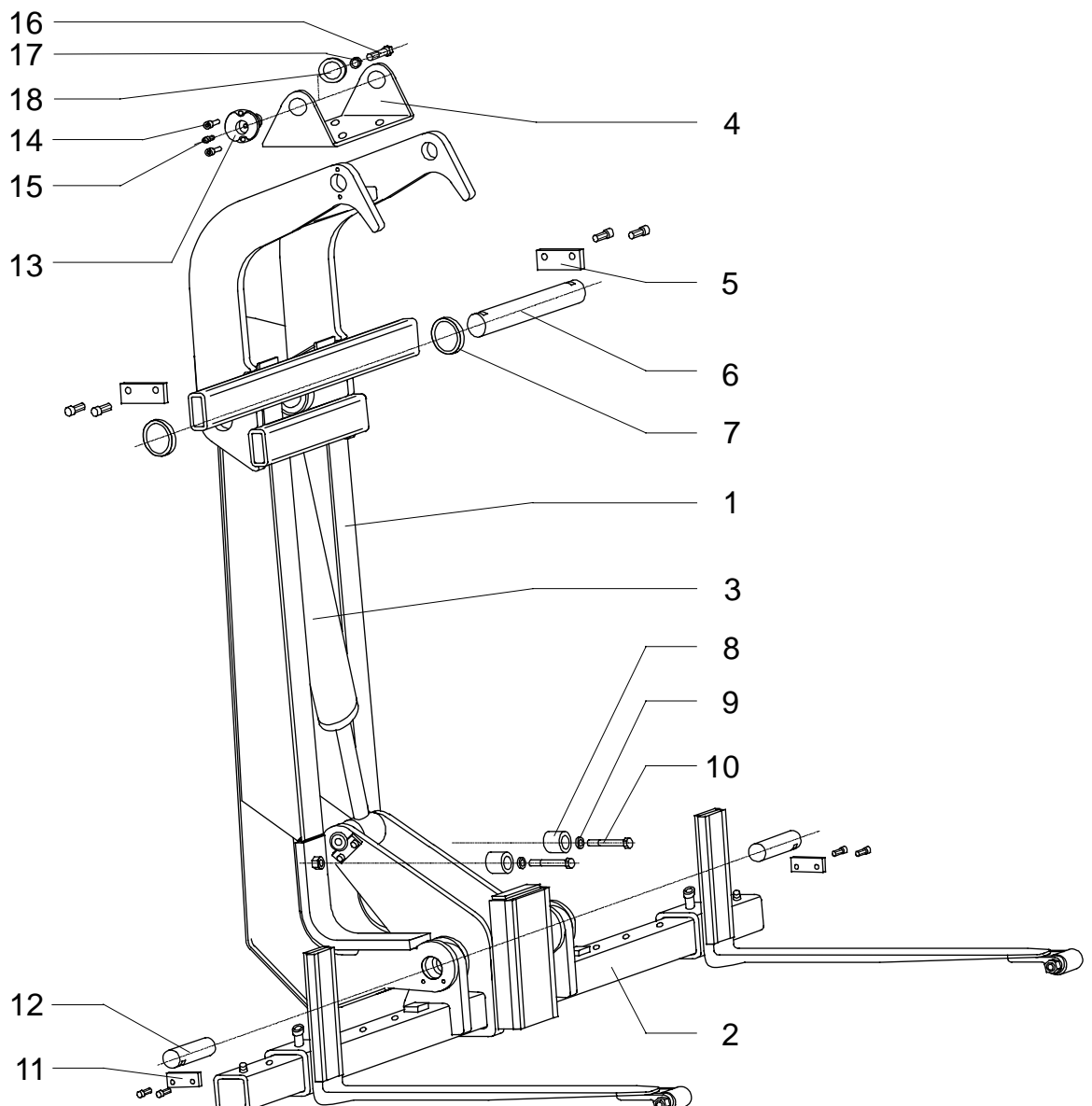
Remove parts 8, 9, 10 and fit on the new centre section.

Remove axle holder (11) and bolt (12) and take lower section (2).

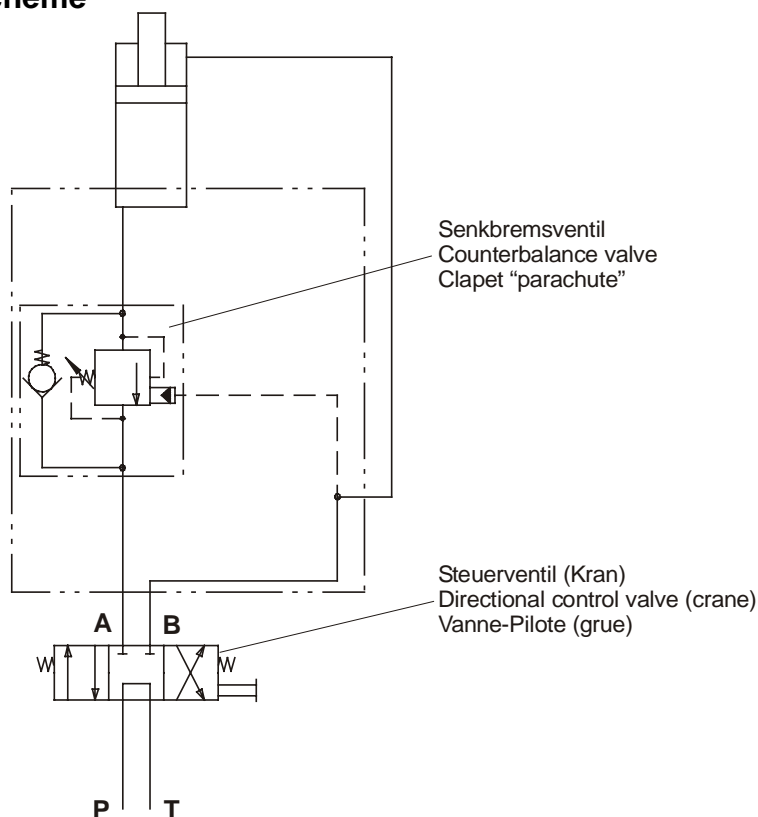
Place new centre section onto lower section and insert bolt (12) and axle holder (11).

Place distance washer (7) onto bolt (6) and push bolt (6) through the hydraulic cylinder (3).

Insert second distance washer (7), push bolt (6) right through and secure with axle holder (3).



### 3.3 Hydraulic-scheme



### 3.4 Operating safety notes

All persons using the equipment should be familiar with the operation of the swivel fork before commissioning the machine.



**It is prohibited to wield the equipment by hand. Danger of injury!**

The operator is legally obliged by the government regulations for the prevention of accidents to have an expert inspect the equipment for fissures, wear, corrosion and functional safety at least once a year or more often, depending on the operating conditions.



**Replace the hydraulic hoses every two years.**

Observe the permitted total weight when loading vehicles and trailers (vehicle documents).

### 3.5 Transporting the swivel fork

During transport the swivel fork must be placed on the vehicle or trailer in such a way that it cannot slew out by itself.

## 4. Maintenance, repair

### 4.1 General notes

Thorough regular maintenance is essential if the 'down' time of the wallboard fork is to be kept as low as possible, and to prolong its life.

Strict cleanliness must be observed in all maintenance operations.

Before uncoupling hydraulic connectors, the surrounding area must be cleaned.

Clean grease nipples before greasing.

The maintenance intervals must be reduced if the equipment operates under severe conditions (e.g. on a building site with excessive dust)



## 4.2 Oil and grease

### Hydraulic fluid

Esso NUTO 32.

Any hydraulic oil in accordance with ISO V632 or DIN 51519.

### Grease

Esso Cazar K2

Any multi-purpose high-melting-point lithium-based grease of consistency category 2 in accordance with DIN 51818.

## 4.3 Disposing of used oil and grease

Most countries have strict regulations for disposing of used oils without harming the environment.

### Hydraulic fluid

Disposal in approved containers.

Do not mix with used engine oil.

The approved fluids are free of PCB (polychlorinated biphenylene) and halogens.

### Grease

See above.

## 4.4 Maintenance intervals

Maintenance operation	50 operating hours	yearly
Lubricate grease nipples	X	
Check screw connections, tighten if necessary	X	
Check hydraulic lines and hoses for damage	X	
Check hydraulic components and connectors for leaks. Tighten leaky connectors. Have leaking components repaired	X	
Check for cracks, wear, corrosion and functional safety (to be carried out by specialist)		X

## 4.5 Welding

Before carrying out welding operations on the wallboard fork, consult with the manufacturer who will advise on the choice of materials.

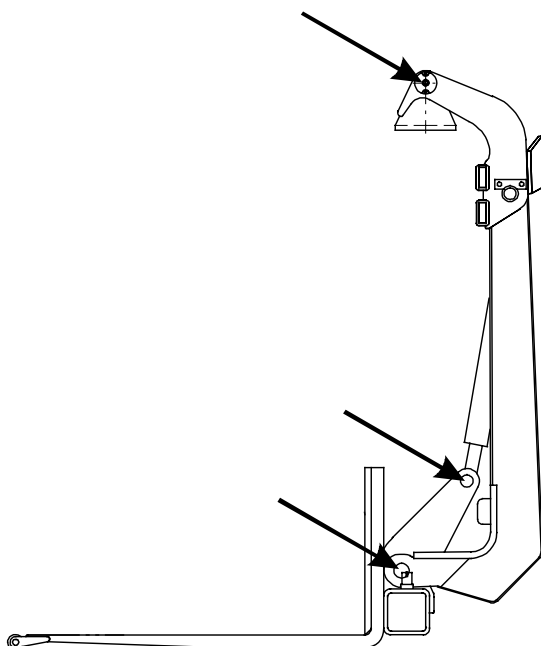
## 4.6 Repairs

If the equipment is found to be faulty, it must be repaired without delay, or suitable measures must be taken to comply with the safety regulations.

Hydraulic hoses must be replaced every two years, taking the operating conditions into account.



#### 4.7 Greasing points



### 5. Troubleshooting chart

Malfunction	Cause	Remedy
Prongs open independently	Load higher than permitted loading capacity	Check weight
	Lowering brake valve soiled, leaky or defective	Check valve and replace, if necessary
	Piston packing defective	Replace piston packing, check inside edge of cylinder pipe for damage
Fork not lifting the load	Crane pressure too low	Measure crane pressure and adjust, if necessary
	Piston packing defective	Replace piston packing
	Lowering brake valve defective	Replace valve