

# Rotating Fork Clamp

**3T451, 3T491, 4T451, 4T491, 4.8T451, 4.8T491**

**3T451/180, 3T491/180, 4T451/180, 4T491/180,  
4.8T451/180, 4.8T491/180**

**3T451A, 3T491A, 4T451A, 4T491A, 4.8T451A,  
4.8T491A**

**3T451D, 3T491D, 4T451D, 4T491D, 4.8T451D,  
4.8T491D**

# Pallet Turnover Clamp

**3T451W, 3T491W, 4T451W, 4T491W**

**3T451W/180, 3T491W/180**

<b>T451</b>	<b>Rotating Fork Clamp without sideshift</b>
<b>T491</b>	<b>Rotating Fork Clamp with sideshift</b>
<b>T451/180</b>	<b>Rotating fork clamp without sideshift, with additional fork tine pair</b>
<b>T491/180</b>	<b>Rotating fork clamp with sideshift, with additional fork tine pair</b>
<b>T451A</b>	<b>Rotating Fork Clamp without sideshift with screw-on forks</b>
<b>T491A</b>	<b>Rotating Fork Clamp with sideshift with screw-on forks</b>
<b>T451D</b>	<b>Rotating Fork Clamp without sideshift and turnable forks</b>
<b>T491D</b>	<b>Rotating Fork Clamp with sideshift and turnable forks</b>
<b>T451W</b>	<b>Pallet Turnover Clamp without sideshift</b>
<b>T491W</b>	<b>Pallet Turnover Clamp with sideshift</b>
<b>T451W/180</b>	<b>Pallet Turnover Clamp without sideshift with additional pair of forks</b>
<b>T491W/180</b>	<b>Pallet Turnover Clamp with sideshift with additional pair of forks</b>

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Our service department in Aschaffenburg will be happy to answer your technical questions and to provide additional support.

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## 1. Introduction

### 1.1 Working with this manual

This operating manual contains important information on how to operate the attachment properly, safely and efficiently.

The operating manual shall be read, understood and applied by all personnel working on or with the equipment, for example:

- ☐ Installation and operating the equipment
- ☐ Inspection, maintenance and repair
- ☐ Transport and disposal

The manual must be kept available for ready reference at the equipment's place of use.



**The illustrations in this operating manual may deviate from the actual version of the equipment.**

### 1.2 Warning notes and symbols

The following symbols are used in this operating manual to highlight details of special importance:



**Identifies details relating to do's and don'ts for the purpose of avoiding injury and property damage.**



Specific details relating to the efficient use of the attachment and other advice.



Lists are denoted by a shadowed box.



Steps to be performed by the operator are denoted by a black dot.

(1)

In illustrations, particular elements have numbered pointers. Numbers in brackets in the text refer to the corresponding elements.

### 1.3 Copyright

This documentation including all parts is copyrighted. Any use or change outside the narrow limits of copyright law without permission from KAUP GmbH & Co KG is forbidden and liable to prosecution. This applies, in particular, to reproduction, translation, microfilming as well as storage and processing in electronic systems.

## 1.4 CE-Mark

KAUP-Attachments carry the CE-mark. The EC Declaration of Conformity ensures that the attachment conforms to the EC machinery guideline.

## 1.5 Qualified and authorised personnel

Qualified and authorised personnel are equipped by way of their education and training to perform the tasks assigned to them in accordance with accepted practice and safety regulations. They are assigned tasks by the equipment owner.

## 1.6 Warranty claims based on defects

KAUP shall not be liable for any damage to the equipment resulting from:

- ☐ Improper use / operation.
- ☐ Modifications to components.
- ☐ Inappropriate installation, maintenance, inspection and servicing.
- ☐ Assignment of unqualified or non-authorised personnel.
- ☐ Claims raised by third parties.

## 1.7 Limits of applicable use



KAUP-attachments are intended for use under the following climatic conditions:

- ☐ Average ambient temperature for continuous operation: +25°C
- ☐ Allowable maximum ambient temperature, short term (up to 1h): +40°C
- ☐ Allowable minimum ambient temperature for attachments intended for indoor use: +5°C
- ☐ Allowable minimum ambient temperature for attachments intended for outdoor use: -20°C



Standard models of KAUP-attachments are NOT suitable for:

- ☐ Use in cold storage facilities.
- ☐ Use in explosive environments.
- ☐ Use in conjunction with hydraulic systems involving biological oils.
- ☐ Use in rough environmental conditions (e.g. seawater)
- ☐ The transport of acidic liquids.

## 2. Safety aspects



As the user, extend the safety instructions with generally applicable, legal and other measures that ensure a safe and environmentally friendly operation of the attachment.



Pay close attention to all safety- and danger-related signs on the attachment and in this operating manual. Failure to observe these can result in severe injury or even death.



Pay close attention to the operating manual provided by the manufacturer of the fork lift truck.



Keep a safe distance away from moving, reciprocating or rotating parts of the attachment to avoid danger of crushing, pinching or entanglement.



Notify the responsible department/person immediately of changes and faults in operation of the attachment that affect safety.  
The attachment shall be shut down.



Use aids to vision (e.g. mirrors, camera, etc.) where goods being transported obstruct vision.



Only allow work on the attachment to be carried out by qualified and authorised persons. Adhere to the legal minimum age in the country of operation!



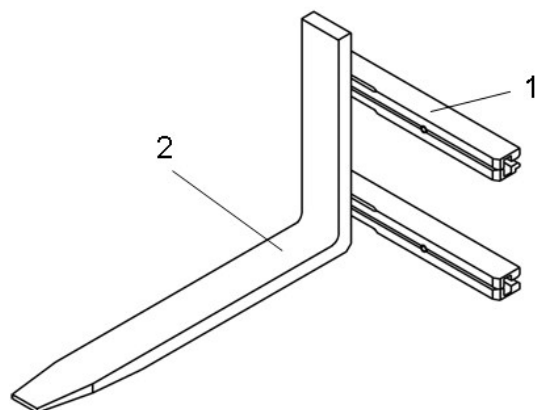
The attachment should only be used for the purpose intended.



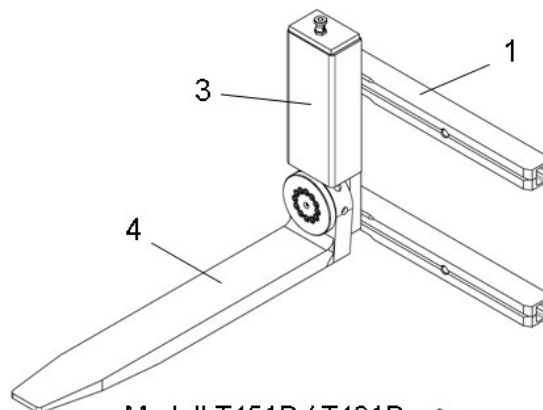
Never work on or with attachments while under the influence of drugs, alcohol or medicines which affect reaction time.

## 3. Design

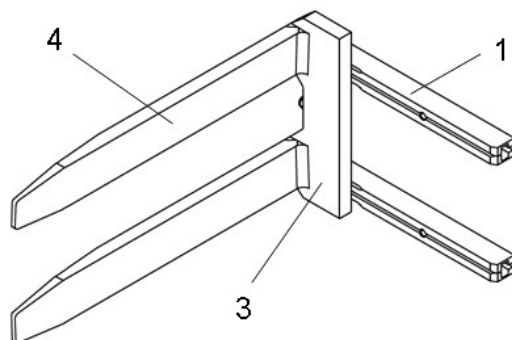
### 3.1 Clamp arms



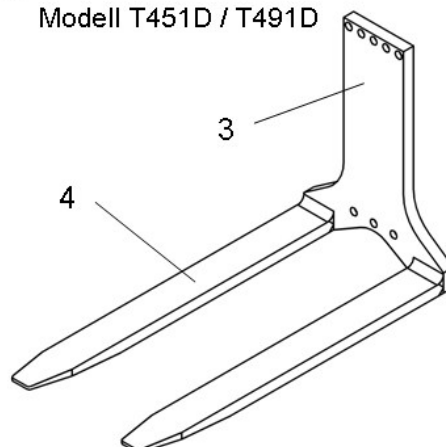
Modell T451 / T491



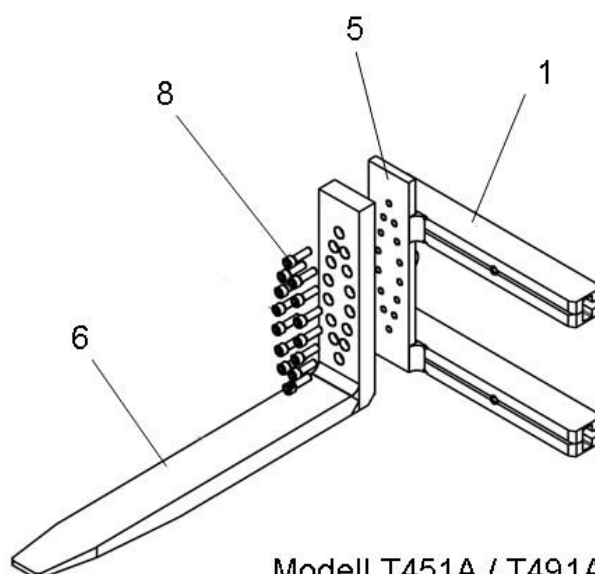
Modell T451D / T491D



Modell T451W / T491W



Modell T451W/180 / T491W/180  
Modell T451W/180 / T491/180



Modell T451A / T491A

Model **T451 / T491** consists of guide profiles (1) and a fork arm (2).

The **T451/180 / T491/180** models consist of conduits (1) and a fork tine (2).  
Additionally, a fork tine pair (4) with rear part is bolted to the clamp body.

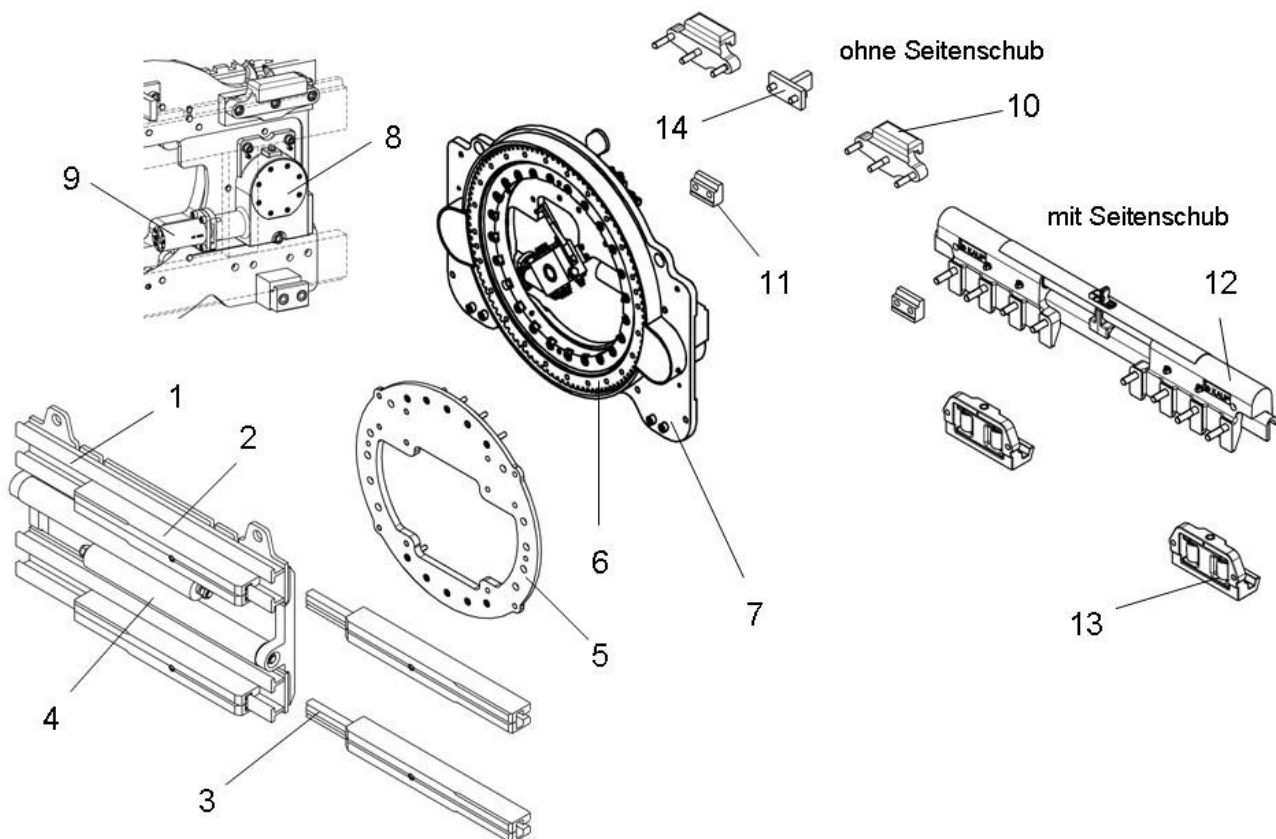
Model **T451A / T491A** consists of guide profiles (1) and a plate welded on (5). Forks (6) are bolted onto these welded plates (2).

Model **T451D / T491D** consists of guide profiles (1), a back part (3) and a fork arm (4).

Model **T451W / T491W** consists of guide profiles (1), a back part (3) and a fork arm pair (4).

Model **T451 W/180/T491 W/180** consists of guide profiles (1), a back part (3) and a fork arm (4).  
Additionally, a fork arm pair (4) with back part is bolted to the clamping body.

## 3.2 Rotating Clamp with mounting



A Rotating Clamp consists of a clamp body (1) on which conduits (2) are mounted. Cylinders (4) move the conduits (2), which are equipped with sliders (3). The clamp body (1) is mounted on a flange (5) that is bolted to a rotary joint (6). There is a drive (8) on the base plate (7) consisting of a bevel gear, gear box and hydraulic motor (9) attached. This combination is attached to the fork carriage of the lift truck with upper (10) and lower brackets (11).

A central catch (14) bolted to the base plate (7) prevents the rotator being deflected off the fork carriage of the lift truck

The optional side shift (12) is equipped with support rollers (13) and is bolted onto the base plate (7).



## 3.3 Efficient equipment settings on electric vehicles



Please use our reference values for setting the lift trucks and attachments. These are found at [www.kaup.de](http://www.kaup.de) in the **Services -> Product Support** section.

## 3.4 Proper use of the equipment

Rotating clamps are also designed to clamp, rotate and transport loads both on pallets and non-palleted goods such as bales, crates and boxes.

Proper use of the machine and/or equipment includes the following:

- ☐ Observance of the operating manual at all times.
- ☐ Observance of the technical data on the identification plate on the attachment.
- ☐ Adherence to the specified inspection and maintenance instructions.

## 3.5 Improper use

- ☐ Exceeding the allowable load capacity and load centre.
- ☐ Dragging or pushing loads with the attachment
- ☐ Transporting persons with the load or load handling devices
- ☐ Mounting auxiliary equipment on the attachment such that the original mode of usage is changed, (e.g. fork extensions) must be authorised by the manufacturer.

## 3.6 Hydraulic oil flow required



When the hydraulic oil flow is insufficient, the speed of rotation of the rotary units at the attachments will be reduced.



When the hydraulic oil flow is too high, the hydraulic oil temperature will raise which will reduce efficiency and increase wear.



Please refer to the following Specifications:

ISO Class, 2328	Model family,	Oil flow. l/min	
2	1T - 2,5T	20	± 5
3	2,5T - 4,8T	40	± 10
4	4,5T - 5T	50	± 20
	6T - 8T	60	± 15

## 4. Installation and checking out

### 4.1 Installation



Installation and commissioning should be performed by qualified and authorised personnel only.



Pay attention to a sufficient load-carrying capacity of the lifting means.



The following are examples of preferred lifting means:



Capacity  
Part-no.

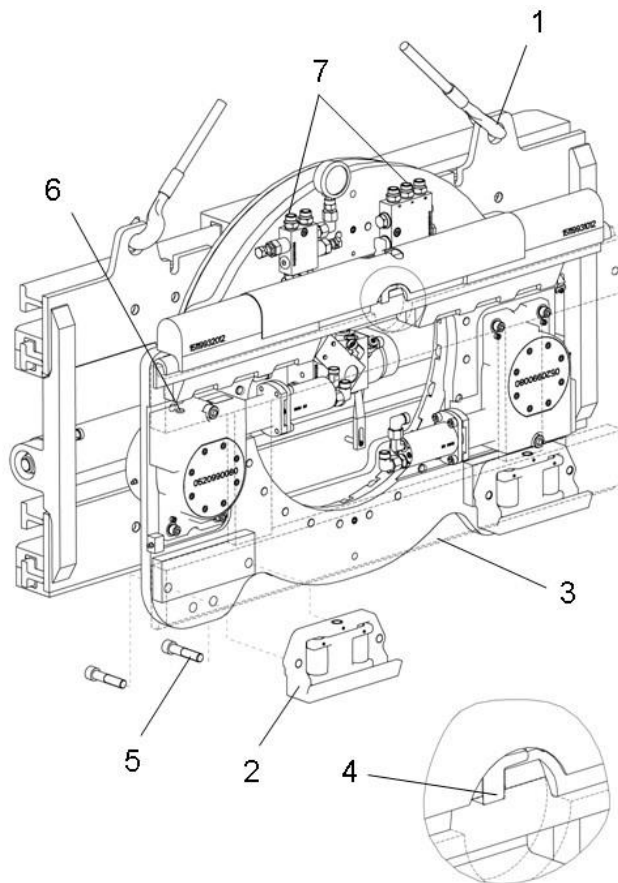
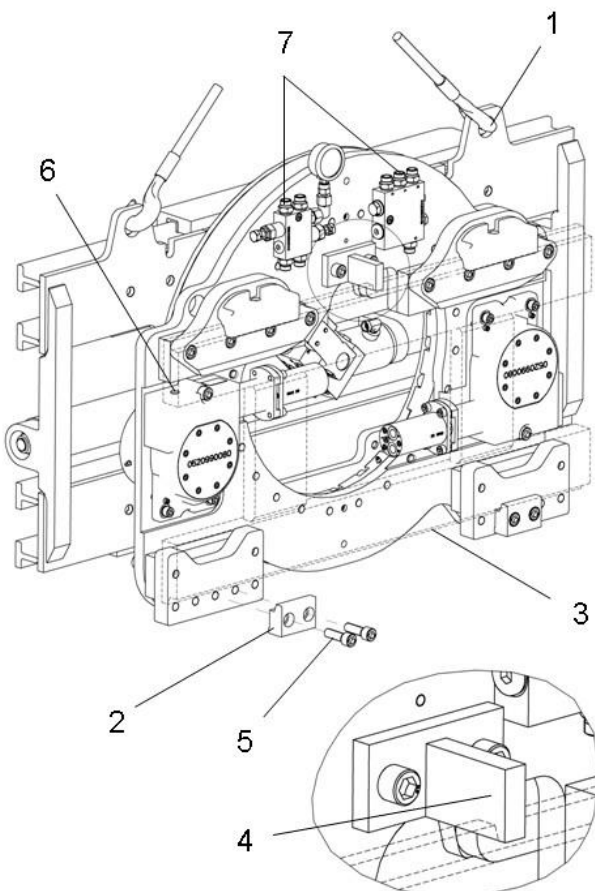
250 kg/M16  
9710160008



1200 kg/M16  
0360010201



2000 kg/M16  
0360010301



- Replace the plug screw (6) in the gear box with the vent screw supplied.



Ensure that no oil leaks out of the gear transmission.

- Using appropriate lifting means, lift the attachment at the positions indicated (1).
- Demount the lower hooks (2).
- Mount the attachment on the fork carriage of the lift truck (3).
- Check that the attachment is correctly seated in the centre lock (4).
- Mount the lower hooks (2), tightening the screws (5) with a torque of 190 Nm.
- Use pipes or hoses to connect the hydraulic ports (7) to the hydraulic ports of the lift truck.
- Trucks equipped with attachments which hold the load by power (e.g. paper clamp) shall feature control(s) with a secondary action to prevent unintentional release of the load. Also take note in this respect of the operating instruction of the lift truck.
- Before initial operation, check the functions and the identification of the attachment with the movement directions of the operating elements (operating lever, joystick, etc.).
- Mount the residual carrying capacity notice and identification of the operating elements (if not already present) of the combination of lift truck/attached equipment on the lift truck.

## 4.1.1 Installation / Uninstallation screw-on forks

- When installing or uninstalling the screw-on forks torque the screws as specified in Chapter 6.1 General.

## 4.2 Checking out



KAUP-attachments are delivered pre-lubricated. If the attachment has been in storage for a longer period, we recommend that it be lubricated again before being placed in service. See 6. Maintenance and onwards.



**Failure of the safety devices (e.g. the pressure relief valve and the non-return valve) and incorrect connection of the controls to the actuators can cause malfunctioning of the attachment and damage to it.**  
**After mounting and before initial operation, check the functions and the identification of the attached equipment with the movement directions of the operating elements (operating lever, joystick, etc.).**

## 4.2.1 Bleeding the hydraulic system

- Start the lift truck.
- Move the sideshifter repeatedly in both directions to maximum extent.
- Rotate the rotator left and right several times.
- Repeatedly cycle the clamp / fork positioner from the fully open to the fully closed position.
- Inspect the hydraulic connections for leakage.

## 4.2.2 Adjustment after putting into service



The hydraulic system is under pressure. During work on hydraulic components oil spurting out can cause injuries. Unload the system in accordance with the operating instructions of the lift truck manufacturer. In the case of injuries caused by high pressure oil, inform the works physician and seek out a specialist immediately.

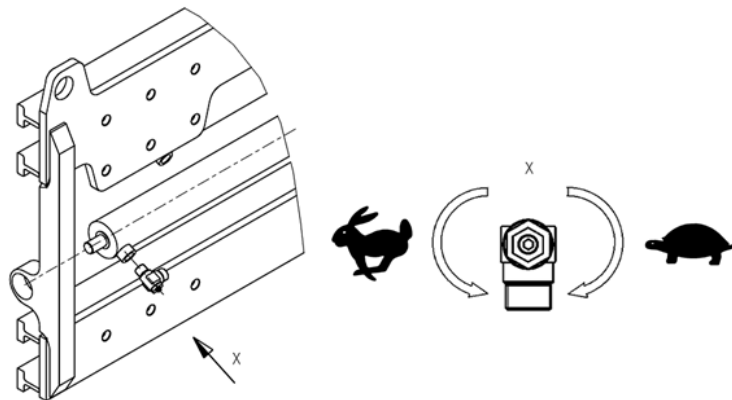


### Synchronising the arms



The synchronization of arms is adjusted ex-factory. This can alter for different friction conditions (wear), temperatures and volumes conveyed. Perform a readjustment. The recommended working temperature of the hydraulic fluid is approx. 35 °C.

The synchronization is adjustable by means of two throttles on the bottom of the cylinders.



### Setting the clamping pressure with a pressure limiting valve

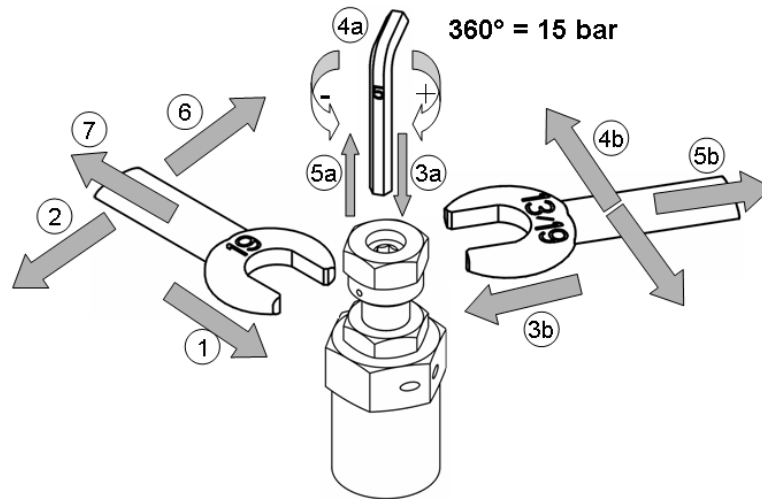


Attachments are adjusted ex-factory to a pressure of 160 bar.

A change in pressure is necessary only, if the load

- ☐ slips or
- ☐ is damaged.

Make the settings in the numerical sequence and in the direction of the arrows.



The pressure indication on the manometer gauge drops after clamping. This is **not** a malfunction of the attachment, being caused by the installation of a transmission

## 5. Operation

### 5.1 General



At least once per working shift, the machine and equipment must be inspected for visible damage and defects. Repeat faults to your superior and have them rectified without delay.



Be aware of persons present in the area where you are working or driving and ensure that they are not endangered.



Do not transport any load exceeding that specified on the residual load plate for the particular combination of lift truck and attachment.



Note the load-bearing capacity of the attachment as stated on the rating plate. This figure always represents the load carried by two or more fork arms.









The nominal capacity of the forks must exceed the load.







Ensure that fork arms and arms that clamp a load are closer together at the tips than at the back. As a result you need a larger clearance for moving in.

## 5.2 Load handling

-  Set the forks as wide apart as possible for the load to be carried.
-  Position the mast vertically and take up the load parallel to the floor.
-  Always transport pallets, boxes and containers using both forks.
-  Drive the attachment up to the load to maximum extent.
-  Raise the load about 300 mm and tilt the mast backwards.
-  Centre the load to the middle of the lift truck during take-up and transport.

## 5.3 Driving

-  Ensure that pallets, boxes, containers and packaging are in good condition.
-  Do not drive with the mast tilted forward.
-  Take care when driving that neither the attachment nor the load comes into contact with the ground.
-  Ensure that multiple items stacked on top of one another are securely fastened.





## 5.4 Rotate



**Rotation can cause damage to the load and the attachment.  
Ensure sufficient distance of the load to the floor, the ceiling, to shelves, etc.**



**If higher torque than specified is generated by the load, the rotation device rotates uncontrolled or not at all. This can lead to damage to the load and the attachment. Note the torque given on the type plate of the attachment.**

-  The torque given on the type plate refers to the pressure difference of 125 bar at the hydraulic motor.
-  Only rotate loads parallel to the floor (set lifting frame vertically).
-  Do not rotate loads if there are people in the working area.
-  Rotate raised loads slowly.  
Fast rotating can influence the stability of the lift truck.



Ensure that carrying equipment, e.g. pallets, crates, containers are not tipped off during rotating.

## 6. Maintenance and servicing

### 6.1 General

Regular maintenance is essential to ensure reliable operation and long service life of the KAUP attachment.



Ensure that maintenance and servicing are performed by qualified and authorised personnel only.



Lubrication and cleaning work on the attachment may also be performed by the lift truck operator.



Perform maintenance and servicing work only when the attachment is parked securely on a stable, level foundation. For installing and removing, it is recommended to use a pallet to take the attachment. The attachment can thus be securely placed and transported.



Pay attention to a sufficient load-carrying capacity of the lifting means.



Replace missing or defective warning signs on the attachment.



**Do not use third party spare parts. Through poor quality or incorrect matching they can result in a risk of accident. The EC Declaration of Conformity by the manufacturer becomes invalid and you assume full responsibility in the case of accident.**

**Use only original spare parts from the manufacturer.**



**The hydraulic system is under pressure. During work on hydraulic components oil spurting out can cause injuries. Unload the system in accordance with the operating instructions of the lift truck manufacturer. In the case of injuries caused by high pressure oil, inform the works physician and seek out a specialist immediately.**



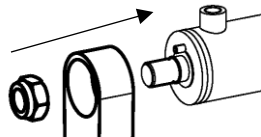
**Screw connections can loosen due to vibration of the attachment. During routine maintenance check that screw connections are correctly torqued and replace screws which are visibly damaged.**

Note the following tightening torques which are valid for screws with connecting surfaces according to ISO 4762, ISO 4014, ISO 4032 etc.:

Screw/bolt rating	8.8	10.9	12.9
M6 thread	9,3Nm	14Nm	16Nm
M8 thread	23Nm	33Nm	39Nm
M10 thread	45Nm	66Nm	77Nm
M12 thread	77Nm	115Nm	135Nm
M16 thread	190Nm	280Nm	330Nm
M20 thread	385Nm	550Nm	640Nm



During any disassembly operations, be sure that parts to be disassembled can easily be removed. For removing parts, use the clearance between bolts and the parts to be removed.



Our service videos available at [www.kaup.de](http://www.kaup.de) in the **Online Services** section may be used for assistance as necessary.



**Failure of the safety devices (e.g. the pressure relief valve and the non-return valve) and incorrect connection of the controls to the actuators can cause malfunctioning of the attachment and damage to it.**  
**After mounting and before initial operation, check the functions and the identification of the attached equipment with the movement directions of the operating elements (operating lever, joystick, etc.).**

## 6.2 Significant modification

Significant modifications are, for example, those which affect the stability, performance, speed and strength of components.

The EC Declaration of Conformity is invalidated by a significant modification of the attachment.

Modifications to the attachment may only be made with prior approval by the manufacturer.

## 6.3 Schedule for routine maintenance and lubricants



Lubricants approved and recommended by KAUP		
Greases		Note
Lithium soap grease NLGI Class 2	e.g. Avialith 2	Designation DIN51825: K 2 K-30
Complex soap grease NLGI Class 2	e.g. Turmogrease Gel M 5	Foundry quality
Teflon spray	e.g. Wieds or Rivolta	Only for plastic sections

Hydraulic oil			
gear box 80	0520990036	e.g. Avia Gear RSX 680, DIN 51517	Filling capacity 0,5 l
	0520990080		
	0520990019		
gear box 125	0520990037	e.g. Avia Gear RSX 680, DIN 51517	Filling capacity 2,0 l
	0520990075	e.g. Klüber Syntheso D 460 EP	
	0520990085	e.g. Avia Gear RSX 680, DIN 51517	
gear box 200	0520990070	e.g. Klüber Syntheso D 460 EP	Filling capacity 9,5 l
	0520990071		

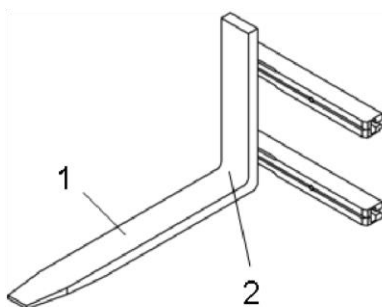


The specified maintenance schedules can change as a result of the operating conditions such as extreme cold, heat and dust or poor ground conditions and this must be taken into account by the owner.

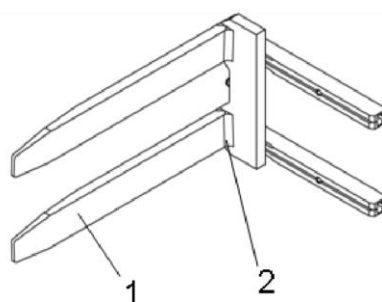


With other loads, such as fork arms with a length of over 2,400 mm or raised load centres, amended/shorter maintenance intervals should be agreed by the user with the manufacturer.

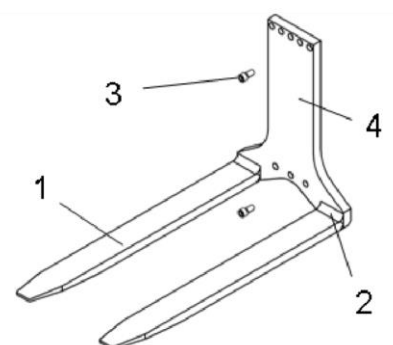
## 6.3.1 Clamp arms



Modell T451 / T491

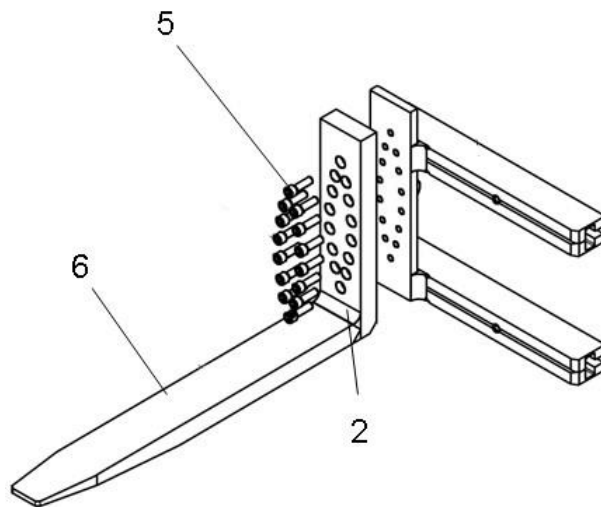


Modell T451W / T491W

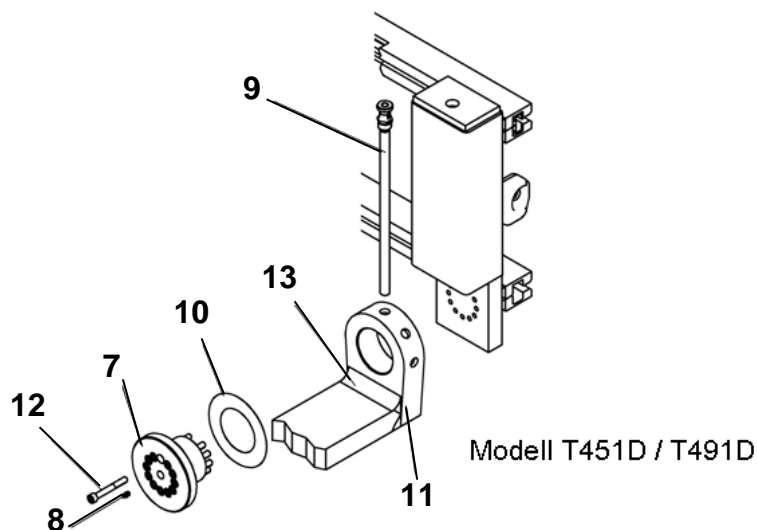


Modell T451W/180 / T491W/180

Modell T451/180 / T491/180



Modell T451A / T 491A



Modell T451D / T491D

## After 50h / every 500h thereafter

Check screws:



- ☐ (3) on the back part (4) of the fork arm pair (1).
- ☐ (5) of the fork (6).
- ☐ (12) in the pivot bearing (7).

Replace loose or damaged screws. Torque the screws as specified in Chapter 6.1 General.

## Weekly



Grease:

- ☐ Pivot bearing (7) by way of the greasing nipples (8).

## Every 200h

Check wear on:



- ☐ Spacer plate (103).
- ☐ Pivot bearing (7).
- ☐ Bar (9).

## As necessary



### T 451D / T 491D:

Renew the spacer plate (10), pivot bearing (7) and fork arms (11) by removing the screws (12). Replace the defective parts. Refit all parts again in the reverse order.



Renew a worn rod (9) by rotating it upward and out. Replace the rod (7).

## Yearly



Inspect the heel of the fork (2, 13) for wear and cracks.



Remove forks from service when wear exceeds 10 % of the thickness of the fork.



Bent forks are not safe to operate and their continued use should be prevented.

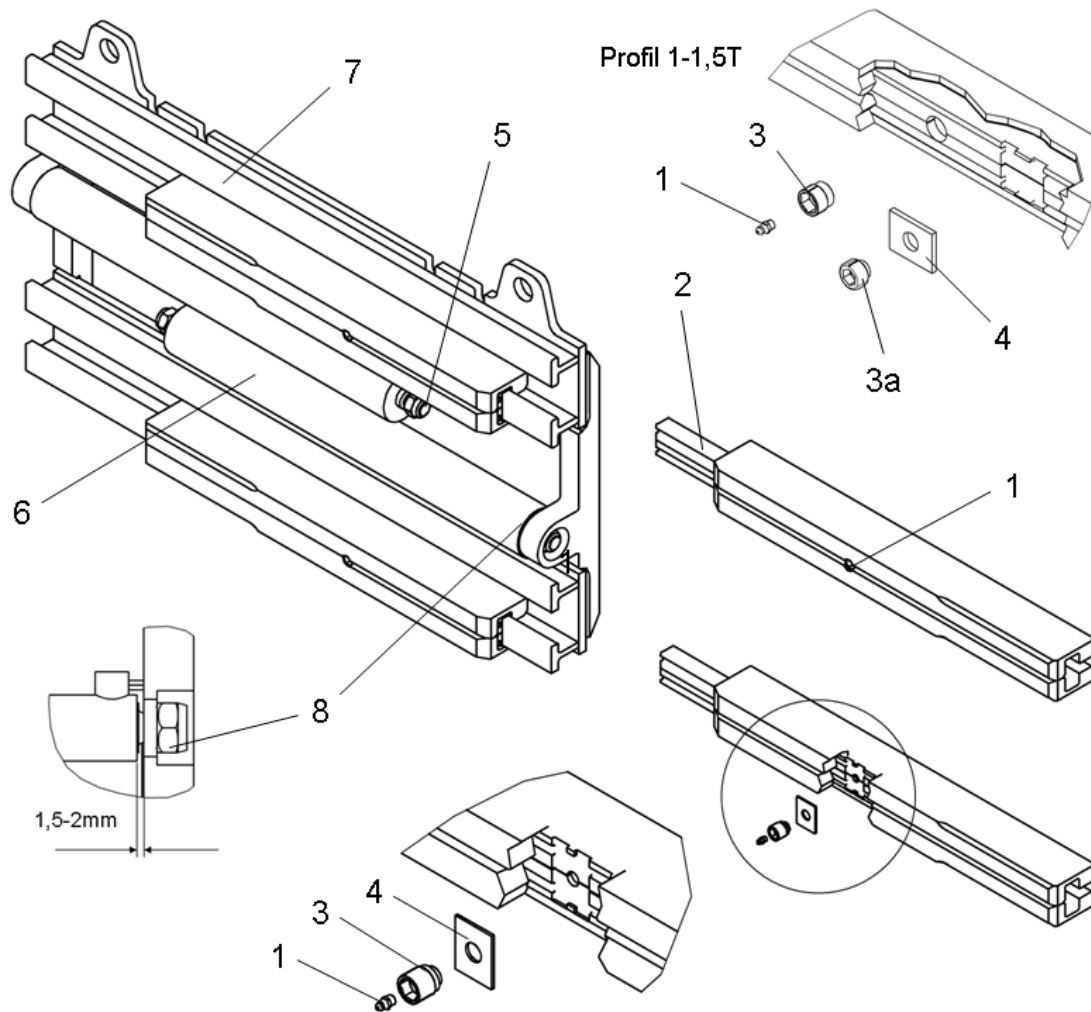


Straightening of forks may only be performed by the manufacturer of the fork or by one of his authorised workshops.

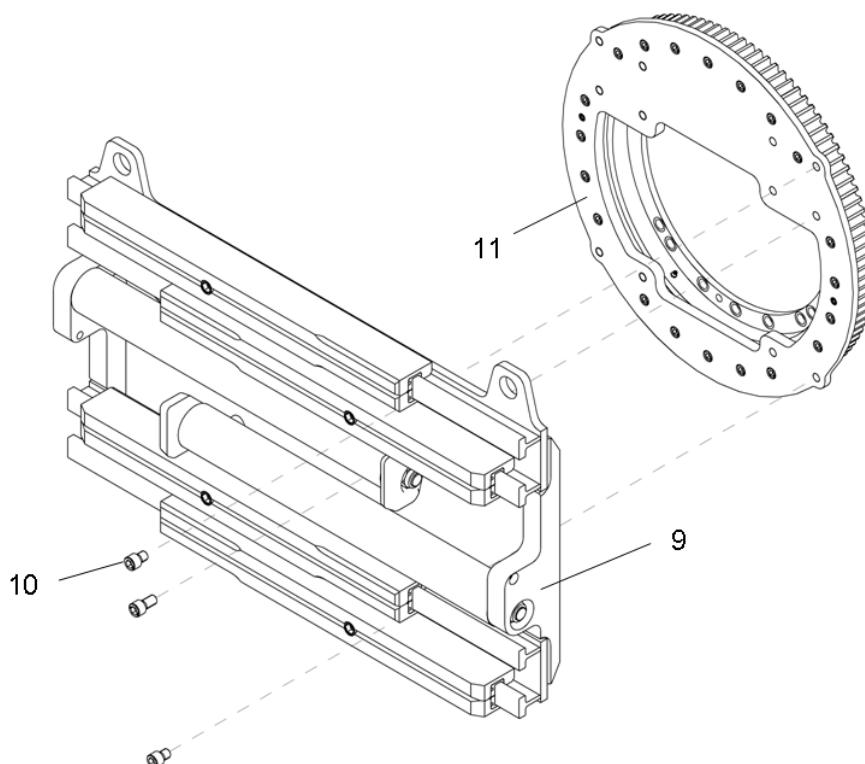


You can increase the service life of forks by using forks especially protected against wear.

## 6.3.2 Clamp



## 6.3.3 Clamp and flange



### Daily



Check all lines, hoses and connections for leakage and damage.

### After 50h / every 500h thereafter

Check:



☐ Screws (10) on the clamp body (7, 9) / flange (11).

Replace loose or damaged screws. Torque the screws as specified in Chapter 6.1 General.

### Weekly

Grease:



☐ Sliding pieces (2) by way of the greasing nipples (1).

### Every 200h



Check wear on:

☐ Sliding pieces (2).

## As necessary

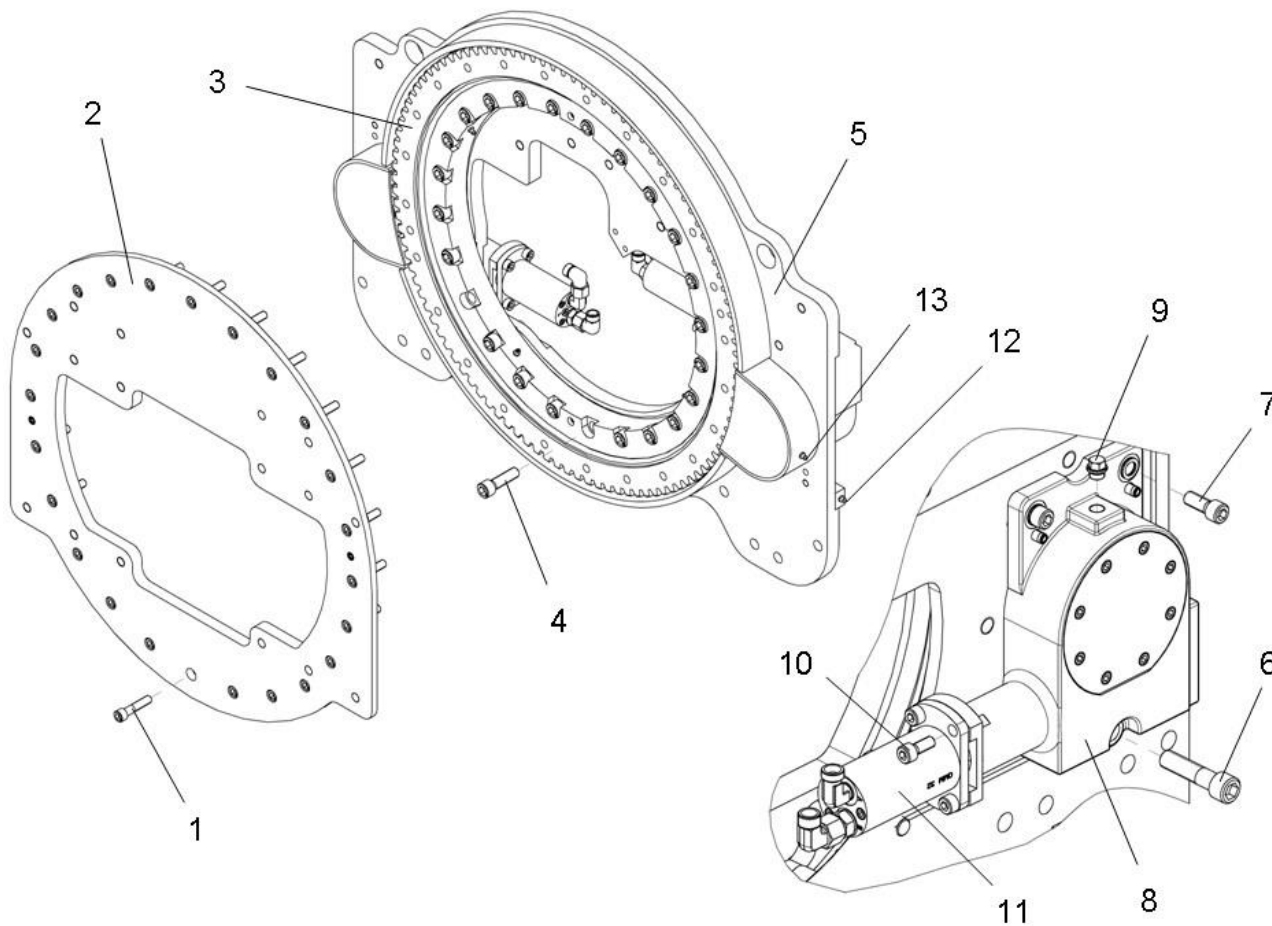


Replace worn sliding pieces (2) by removing nut (5) from each cylinder (6). Pull the arms to the side to remove (see Chapter 3.1). Remove the greasing nipple (1) and the screw/s (3, 3a). Replace the sliding pieces (2). When installing the new sliders, make sure that the axial stops (4) are correctly seated (8). Refit the screw (3, 3a) and the greasing nipple (1). Push the arms into clamp body and reinstall nuts (5) of cylinders (6).

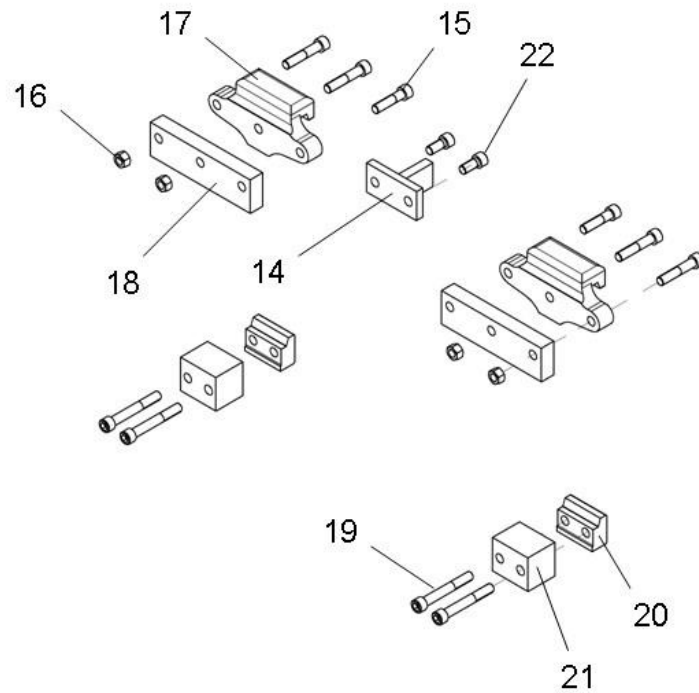


After installing or removing a cylinder (6), always check the clearance between the cylinder mount and nut of the cylinder (8). Cylinders are installed with axial clearance of 1.5 to 2 mm.

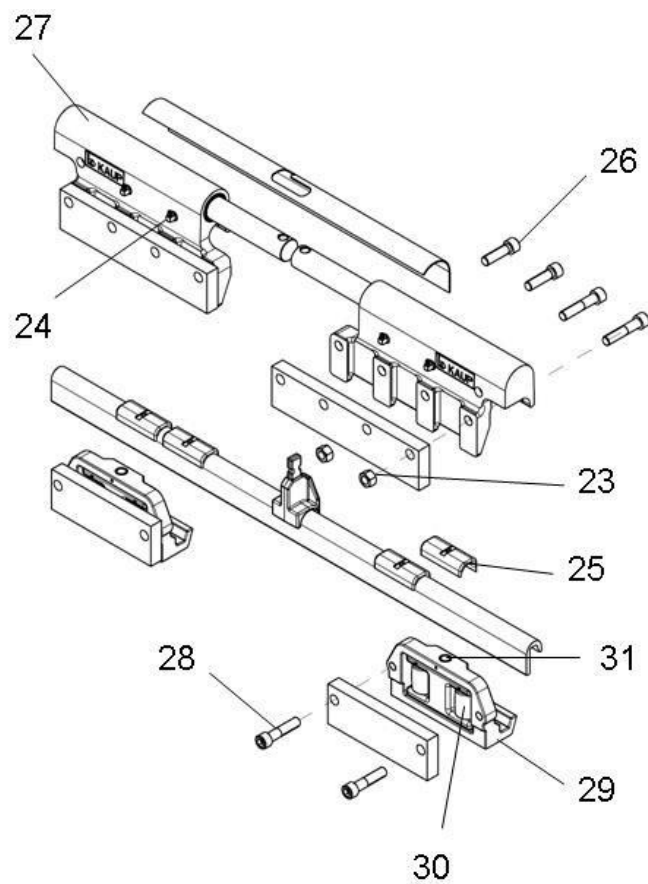
### 6.3.4 Rotator and flange



## 6.3.5 Rotator mounting (without sideshift)



## 6.3.6 Rotator mounting (with sideshift)



## Daily



Check all lines, hoses and connections for leakage and damage.

## After 50h / every 500h thereafter

Check:



- ☐ Screws (1) on the slewing ring (3) / flange (2).
- ☐ Screws (4) on the slewing ring (3) / base plate (5).
- ☐ Screws (6, 7, 9) on the gear (8).
- ☐ Screws (10) on the oil motor (11).
- ☐ Screws (15), nut (16) on the spacer (18) and upper hooks.
- ☐ Screws (19) on the spacer (21) and lower hooks (20).
- ☐ Screws (22) on the central catch (14).
- ☐ Screws (26), nut (23) on the sideshifter housing (27).
- ☐ Screws (28) on the lower hooks (29).

Replace loose or damaged screws. Torque the screws as specified in Chapter 6.1 General.

## Weekly

Grease:



- ☐ Sliding pieces (25) by way of the greasing nipples (24).
- ☐ Supporting rollers (30) on the lower hooks (29) as necessary.

## Every 200h

Check wear on:



- ☐ Sliding pieces (25).
- ☐ Supporting rollers (30).

Prevent entry of dirt, water or moisture into the slewing ring.



Grease:

- ☐ Slewing ring (3) by way of the greasing nipples (12).
- ☐ Gearing of the rotary joint (3) by way of the greasing nipples (13).

## Every 500h



Check the oil level of the gear box (8).



## After 2500h / every 2000h thereafter



Change the gear box oil (Information KAUP customer service).

## Yearly



Check the clearance in the rotary joint (3). (Information KAUP customer service)

## As necessary

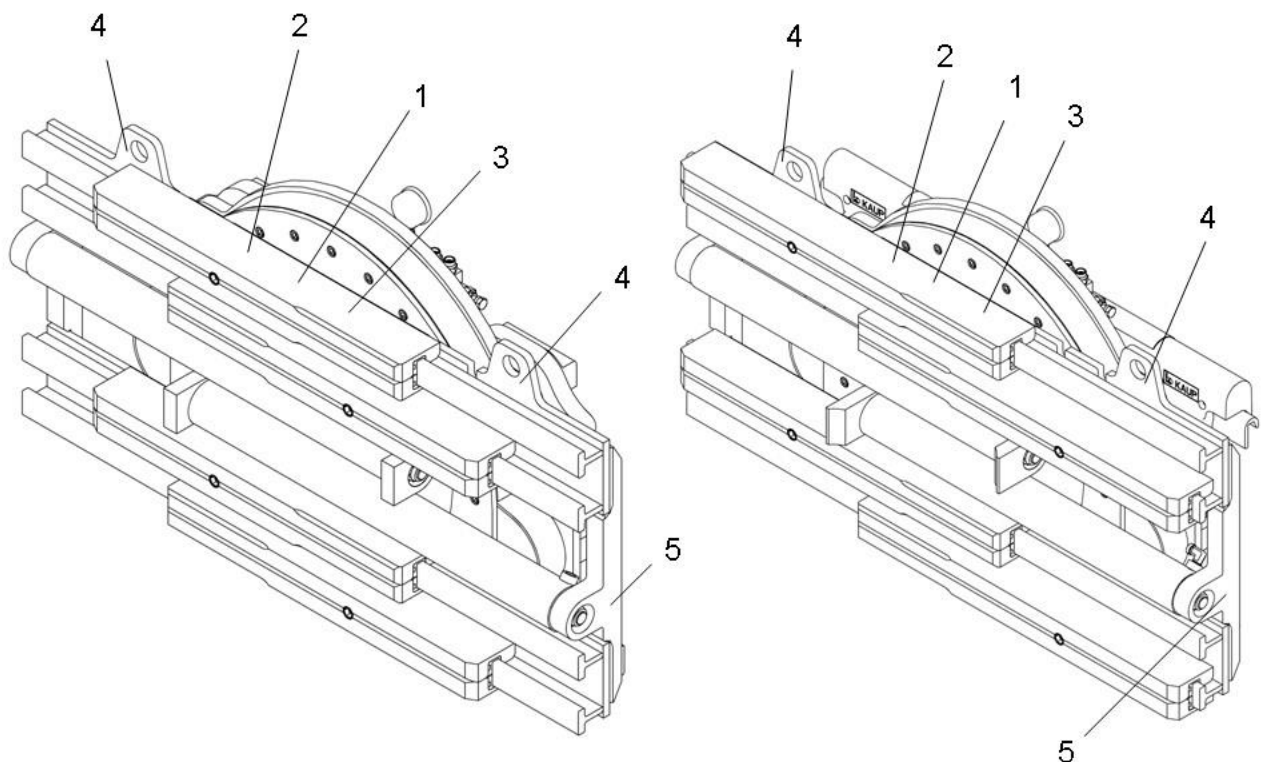








Renew worn sliders (25) by removing the hooks (29). Remove the complete rotating clamp in the reverse order to that described in section 4.1. Replace the sliders (25). During installation pay close attention that the sliders (25) are seated correctly. Then fit the complete rotating clamp as described in section 4.1.



Replace defective supporting rollers (30) in the hooks (29) by removing the screws (28). Using suitable hoisting gear tilt the complete rotating clamp forwards away from the fork carriage on the lift truck. Remove the bolts (31) in the hooks (29), remove the defective supporting rollers (30) and replace them with new ones. Remount the complete rotating clamp in the reverse order.

### 6.3.7 Identification plate and caution board



Number		Description	KAUP order number
1		Identification plate	only by quality department
2	 	Before putting into operation carefully read and take note of the operating and security instructions.	0100016401
3	 	Never reach into the unit as long as parts could still be moving due to the danger of squashing or shearing.	0100016601
4		Use suspension point!	0100015001
5	ko xxxxxx	KAUP – order number	without, engraved in the material

## 7. Troubleshooting



Troubleshooting should only be performed by qualified and authorised personnel.

Fault	Possible cause	Correction
<b>Clamp</b>		
<b>Opening and closing</b>		
<input type="checkbox"/> No synchronism	WE throttles on the cylinder unequally adjusted	Adjust the WE throttles on the cylinder
<input type="checkbox"/> Movement too slow	Insufficient fluid flow from truck's hydraulics	Increase flow rate of truck's hydraulics
<input type="checkbox"/> Load not holding	Pressure too low	Increase the pressure from the lift truck
	Pressure too low on pressure relief valve	Increase pressure on the pressure relief valve
	Cylinders have internal leaks	Replace sealing kits

Fault	Possible cause	Correction
<b>Clearance</b>		
<input type="checkbox"/> Carriage has too much clearance	Slider is worn	Replace sliders
<input type="checkbox"/> Carriage tilts at outer limit	Slider is worn	Replace sliders
<input type="checkbox"/> Carriage rubbing against guide section	Slider is worn	Replace sliders
<input type="checkbox"/> Fork arm has radial play (T451D/T491D)	Locking rod worn	Change locking rod
<b>Oil leakage</b>		
<input type="checkbox"/> At cylinder	WE throttle leaky	Replace the WE throttle
	Sealing kit defective	Replace sealing kit
	Screw fitting is leaking	Tighten / seal screw fitting
<b><u>Sideshifter</u></b>		
<b>When shifting</b>		
<input type="checkbox"/> Too slow	Pressure supplied by the FFZ too low	Increase pressure at the FFZ
	Bore of the throttle valve is too small	Re-bore the throttle valve or replace it with a larger one
<input type="checkbox"/> Jerky shifting action	Supporting roller defective	Replace supporting roller
	Sliders not properly lubricated	Lubricate sliders
<input type="checkbox"/> Supporting roller does not rotate	Supporting roller defective	Replace supporting roller
<input type="checkbox"/> Housing scrapes on the conduit	Slider is worn	Replace sliders
<input type="checkbox"/> No cushion for backward position	Cushion for backward position defective	Replace piston rod
<b>Oil leakage</b>		
<input type="checkbox"/> Leaking	Screw fitting is leaking	Tighten / seal screw fitting
	Sealing kit defective	Replace sealing kit
	Piston rod scored	Replace piston rod and sealing kit

Fault	Possible cause	Correction
<b>Rotator</b>		
<b>When rotating</b>		
<input type="checkbox"/> Rotates too slowly	Oil flow from LT too low	Increase oil flow at LT
<input type="checkbox"/> Vibration when rotating	Bolts on device loose	Tighten bolts
	Bolts on hydraulic motor loose	Tighten bolts
<input type="checkbox"/> Jerky rotation	Oil flow stalling	Increase oil flow at LT
<input type="checkbox"/> No rotation	Couplings are not engaged	Check couplings and engage
	Hydraulic motor defective	Change hydraulic motor
	is overloaded	Check weight and torque required
<input type="checkbox"/> Slips	is overloaded	Check weight and torque required
<input type="checkbox"/> Slides move downwards	Load not clamped	Clamp load
<b>Clearance</b>		
<input type="checkbox"/> Clearance too large	Bevel gear defective	Replace bevel gear
	RJ defective	Replace RJ
<input type="checkbox"/> Flange tip forwards	Bolts loose	Tighten bolts or replace if necessary
<b>Oil leakage</b>		
<input type="checkbox"/> On motor	Hydraulic motor leaks	Change hydraulic motor
	Bolt loose	Tighten bolt
	Shaft seal defective	Renew shaft seal
<input type="checkbox"/> On gear box	Filling level too high	Check and correct filling level
	Seal defective	Change seal
<b>Solenoid valve</b>		
<input type="checkbox"/> Not functioning	Solenoid coil defective	Replace solenoid coil
	No power to the magnet	Inspect power cable and connections

**Legend:**

LT = lift truck, DBV = Pressure relief valve, WE-Drossel = elbow-type screwed throttle, RJ = rotary joint

## 8. Disposal

Prevent environmental damage by disposing of the following items properly in accordance with relevant national regulations:



☐ Hydraulic fluids, greases, lubricants and soiled working materials (Cleaning rags, etc.)

☐ Packaging material (Pallets, straps, cartons and plastic sheeting)



After decommissioning, the attachment should be disposed of in accordance with local legislation and regulations.

## 9. Transport

During transport of the attachment, care should be given to using appropriate means of support (e.g. pallets). These must not be damaged. The attachment must be secured against slipping or tipping over on the support.

## 10. Decommissioning and storage

If the attachment is to be stored for an extended period, all hydraulic connectors must be sealed against contamination and damage. Store the attachment in a clean, dry environment.

## 11. Spare parts list (not part of the Operating Manual)

## 12. EC Declaration of Conformity (Summary)

**KAUP GMBH & Co. KG •  
Braunstraße 17 •  
D-63741 Aschaffenburg**

we hereby declare that the machinery

<b>Model:</b>	<b>Rotating Fork Clamp, Pallet Turnover Clamp</b>
<b>Type:</b>	<b>T 451, T451A, T 491, T 491A, T 451D, T 491D, T 451W, T 491W, T 451W/180, T 491W/180</b>

conforms to the latest valid version of the Machinery Directive 2006/42/EG.

The person authorised to compile the technical documents:

see EC-Declaration of Conformity

**KAUP GmbH & Co. KG**