



# Mounting and Operating Instructions

Shelter Lifting, Rolling and Loading System  
Type 1350.6,5.0.00 – 010  
Order no. 205270

Certified in accordance with DIN EN ISO 9001  
Member of the DWT

# Content

<b>A.</b>	<b>General Description of the system .....</b>	<b>4</b>
A.1	Description of the system .....	4
A.2	Technical data .....	5
<b>A.3</b>	<b>Technical information given on the system .....</b>	<b>6</b>
<b>B.</b>	<b>Basic structure of the system .....</b>	<b>7</b>
B.1	Basic structure (narrow-track) .....	7
B.1.1	Attaching the adaptors .....	7
B.1.1.2	Fitting with mounting thread.....	7
B.1.2	Attaching the outriggers .....	8
B.1.3	Attaching the racks .....	8
B.1.4	Attaching the castor unit .....	9
B.2	Changing from wide- to narrow-track .....	9
B.3	Attaching ancillary equipment.....	10
B.3.1	Drive shaft .....	10
B.3.2	Crank and crank handle extension.....	10
B.3.3	Ergonomic crank .....	11
B.3.4	Rack and rack extension .....	11
B.3.5	Locking unit for the racks .....	12
B.3.6	Castor unit and wheels .....	12
B.3.7	Tow bar.....	13
B.3.8	Locking unit to prevent racks from running down .....	14
B.3.9	Locking the castor units .....	14
<b>C.</b>	<b>Operating the system .....</b>	<b>15</b>
C.1	Loading and unloading the vehicle .....	15
C.1.1	Unloading onto ground level .....	15
C.1.2	Loading from ground level .....	15
C.2	Loading and unloading an aircraft over a horizontal ramp .....	16
C.2.1	Loading over a horizontal ramp .....	16
C.2.2	Unloading over a horizontal ramp .....	17
C.3	Loading and unloading up and down an inclined ramp .....	18
C.3.1	Loading up an inclined ramp .....	18
C.3.2	Unloading down an inclined ramp.....	22

<b>D.</b>	<b>Components, maintenance and repair .....</b>	<b>27</b>
D.1	List of components .....	27
D.2	Maintenance .....	27
D.3	On-the-spot trouble shooting .....	33
D.4	Workshop repair .....	33
D.4.1	How to recognize wear and tear .....	33
D.4.2	Repair .....	37
D.4.3	List of necessary tools.....	40
D.6	Spare parts list .....	41

## Information regarding working safety

Read and follow these mounting and operating instructions carefully before unpacking and operating the Lifting, Rolling and Loading System!

Only people who know the mounting and operating instructions well and who have had corresponding training are allowed to assemble, use and repair the system.

The Lifting, Rolling and Loading System may only be used for the operations ascribed to it. The operations ascribed to it are the loading and unloading of containers into and out of various types of aircraft, or the loading and unloading up and down from a vehicle without additional equipment, resp.

Before lifting, lowering or rolling the containers all safety installations and equipment have to be installed perfectly and it has to be ensured that no one is standing in an endangered area.

**Attention!**  
Do not fix anything with lashing straps on parts of the system!

## Inspection by an expert

The lifting, rolling and loading system must be inspected by an expert depending on the conditions under which it is used and the operational conditions, but at least once annually (annual operational safety inspection in accordance with the accident prevention regulations BGV D8, Section 23, Paragraph 2).

In all cases before the lifting, rolling and loading system is put back into operation, service the safety-relevant parts, e.g. the bar, gear unit, boom, rack and set of wheels.

Experts are persons who, by virtue of their specialist training and experience, have sufficient knowledge in the field of winches, lifting units and towing units and who are familiar with the relevant national work safety regulations, accident prevention regulations, directives and generally recognized technical regulations (e.g. DIN-EN standards) to the extent that they are able to assess the operational state of the lifting, rolling and loading system.

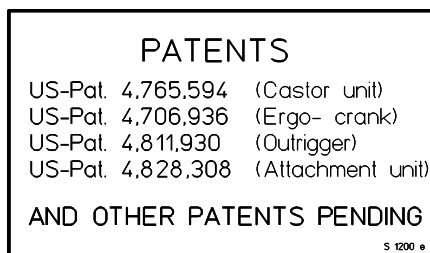
Laws and regulations regarding the prevention of accidents have to be adhered to.

## Manufacturer's and after sales service address:

haacon-hebetechnik gmbh  
Josef-Haamann-Straße 6  
D-97896 Freudenberg/Main  
Telefon (09375) 84-0  
Fax (09375) 8466

## When ordering spare parts please quote:

Type 1350.6,5.0.00 patents:  
Year of construction:  
Serial numbers:  
Reference (as per spare parts list):  
Number of spare parts required:

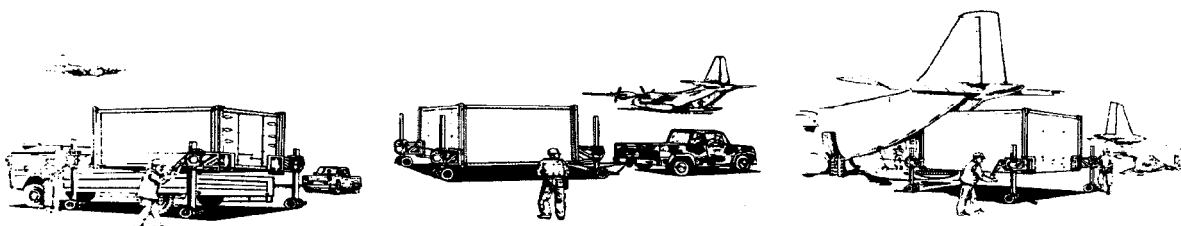


S1200e on tow bar (centre piece).

## A. General Description of the system

### A.1 Description of the system

The Lifting, Rolling and Loading System 1350.6,5 will allow the loading and unloading of containers into and out of various types of aircraft and the loading and unloading of containers onto and down from vehicles without additional equipment.



The system has four corner posts attached to the container's corner castings, which consists of adaptor with outrigger (gearbox) and castor unit. Each corner post will be actuated individually to level the container, a drive shaft will allow simultaneous actuation of two corner posts.

The system can be used anywhere on firm and even surfaces with or without additional energy.

 **Attention! Do not overload the system.**  
**Do not overload any component by operating the system incorrectly, e. g. excessive crankforce.**

## A.2 Technical data

### Basic system

Lifting capacity per set (4 jacks)		65	kN
Lifting capacity per jack on ground plate		32,5	kN
Lifting capacity per jack on wheels		21,5	kN
Lifting stroke	max.	1750	mm
Slope	max.	2°	
Crankforce per pair of jacks with crank handle	approx.	150	N
Crankforce per pair of jacks with ergo. crank	approx.	150	N
Lift per crank turn	approx.	4,3	mm
Lift per turn of the ergonomic crank	approx.	4,3	mm
Operation range		- 33 – + 50°	C

Weight (system and accessories)	approx.	1082,0	kg
Individual weights:			
Adapter*	approx.	79,0	kg
Outrigger and gearbox*	approx.	36,0	kg
Rack*	approx.	41,0	kg
Main pin	approx.	1,5	kg
castor unit*	approx.	57,0	kg
Crank handle	approx.	1,5	kg
Crank extension	approx.	1,0	kg
Ergonomic crank	approx.	6,0	kg
Drive shaft*	approx.	7,5	kg
	approx.	14,5	kg
Tow bar*	approx.	93,0	kg
Ground plate	approx.	6,0	kg
Drag link	approx.	5,0	kg
Track rod	approx.	7,0	kg
Extension	approx.	5,5	kg
* These parts can be dissembled further.			

### A.3 Technical information given on the system

There are stickers and plates on the system which must be adhered to in order to prevent accidents and damage to the system.

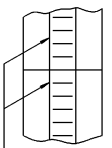
**WARNING**  
Do not attach and operate the system before you have read and understood the operating instructions.

**ATTENTION**

- Do not raise the container above 20° when winds exceed 40 mph.
- Max. inclination of the container 2°.
- Personnel are not allowed neither on, nor in, nor under the container when it is raised or when it is being lowered or raised.
- Do not fix anything with lashing straps on parts of the system.

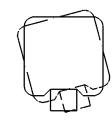
S 1205 e

**Attention**



Take care that racks are in line

Not this way




S 1184 e

**Attention**

When using the wheel units make absolutely sure that

1. no cranking is carried out while the shelter/container is lowered immediately after the first corner reaches the ground - if necessary the connecting shafts have to be disengaged and the second corner is lowered individually to the ground. Under no circumstances may the rack be cranked upwards again after the corner has reached the ground !
2. when dissembling the wheel units take bolts out of the racks first before the racks are cranked upwards !

S 1202 e



motor-stop  
manual operation for remaining lift

S 1193 e

**Attention**

Tyre pressure max. 130 psi.  
Rolling speed depending on the condition of the tarmac: for a short time up to 10 mph. (only narrow-track configuration)  
Rolling height max. 18 inch. (from ground to bottom of container)

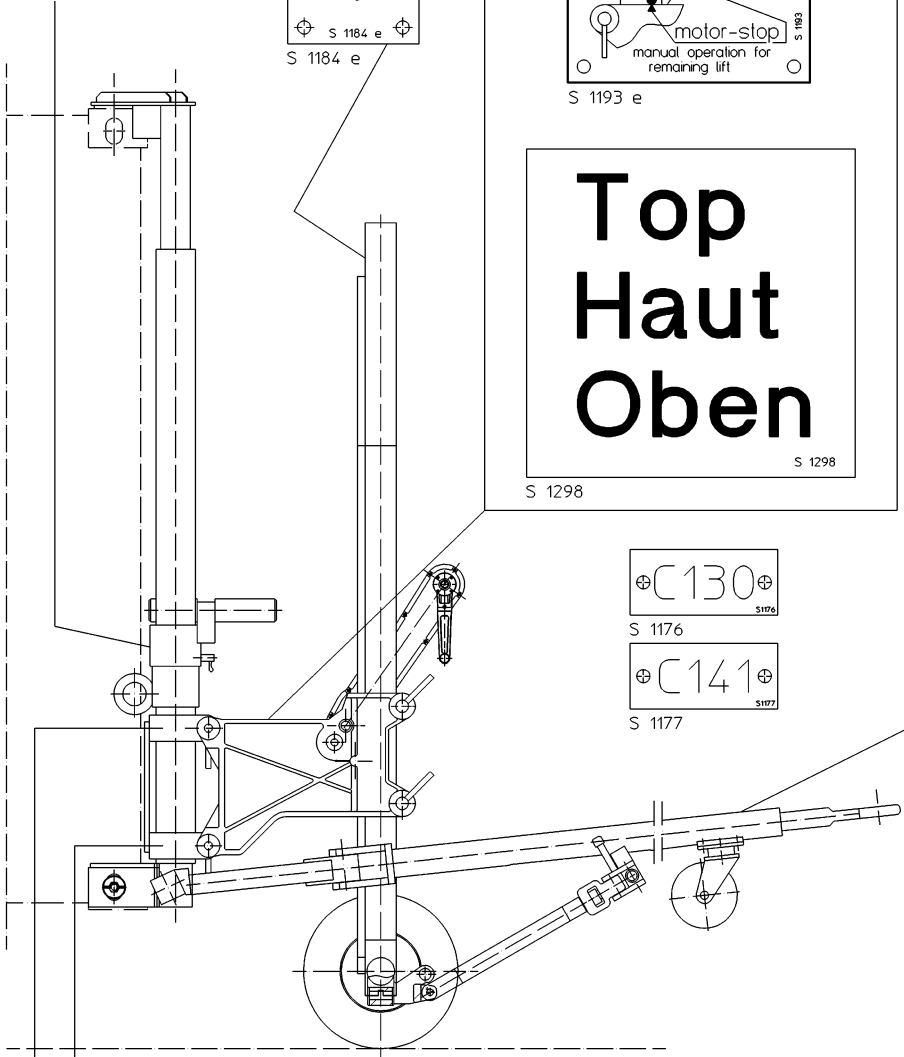
Rolling height for loading and unloading depends on requirements. Wide-track operation only directly at the aircraft.

A change of direction is only possible, if steering bars is attached to the opposite short side of the container.

Avoid jerky pulling and braking. Open parking brake for rolling operations.

Block steering facilities of rear wheel unit for rolling operations.


S 1210 e



**Top  
Haut  
Oben**

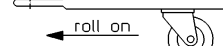
S 1298

**Attention**

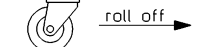


Turn wheel into driving direction before starting.

Driving direction



roll on



roll off

S 1185 e

⊕ C130 ⊕  
S 1176

⊕ C141 ⊕  
S 1177

**Caution !**

Operate low-bar only within red steering markers

S 1196 e

⊕ W ⊕  
S 1222

⊕ N P N ⊕  
S 1221

## B. Basic structure of the system

The operating instructions are based on the drawing no. 1350.6,5.0.00A in chapter C.

### B.1 Basic structure (narrow-track)

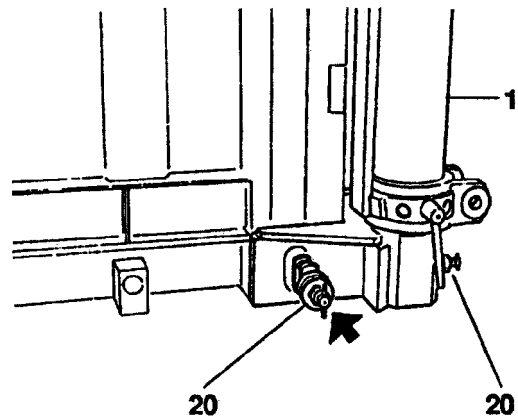
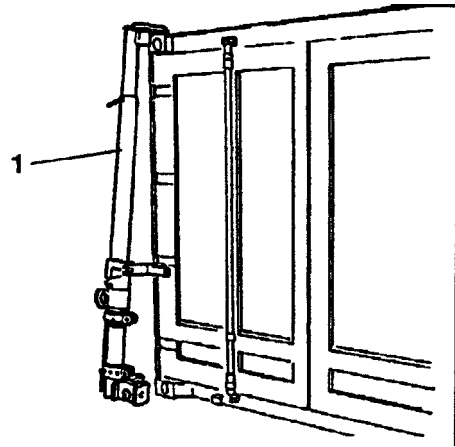
Wide-track is used for:

loading and unloading a truck

loading and unloading an aircraft over a horizontal ramp.

#### B.1.1 Attaching the adaptors

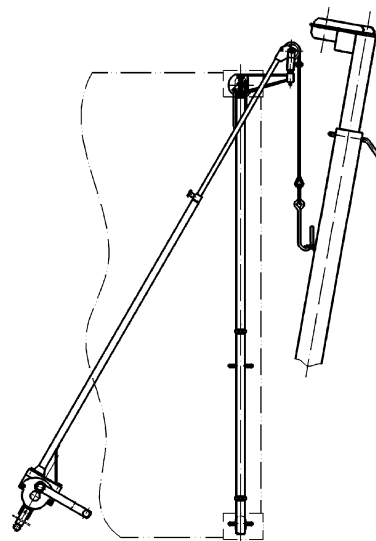
- Adjust adaptor (1) to container height insert adaptor into the upper corner castings of the container.
- Take off the locking device (20) of the adaptor on the container long side (push the attachment pin against its spring and turn until the securing pin is in a vertical position).
- Proceed the same way with the securing pin at the container front side and also turn it into a vertical position.
- Insert the peg into the oval opening of the corner casting (if necessary lift the adaptor slightly), turn the securing pins into a horizontal position and tighten the nut by hand.
- Insert the locking unit you have taken out into the oval opening of the adaptor and the corner casting and secure as described.
- Tighten both nuts of the pins with a spanner / wrench belongs to the system and is supplied with it.



#### B.1.1.2 Fitting with mounting thread

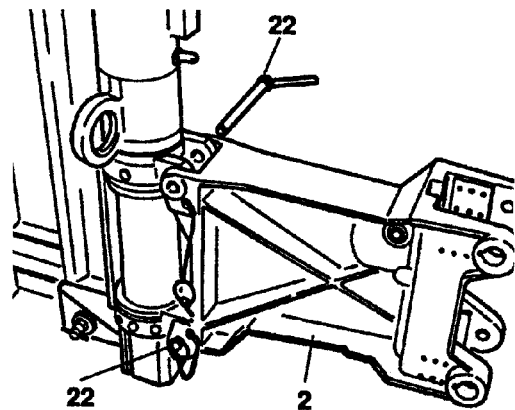
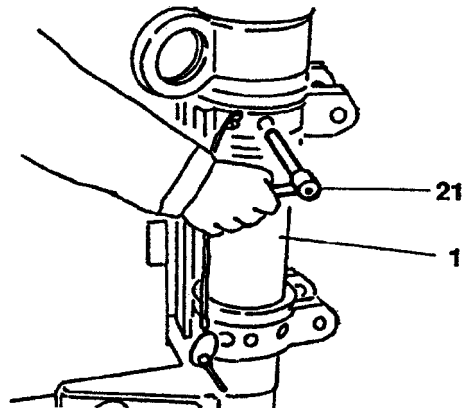
**(Operating Instructions 094047 enclosed)**

If the cabins are on the truck, use of the two-part mounting thread simplifies fitting / removal of the bars.



### B.1.2 Attaching the outriggers

- Turn the two clamps at the adaptor (1) until the eyes point away from the container long side.
- Insert pin (21) into the upper clamp (marked 'W') and secure it with a clip.
- Stand outrigger (2) with its U-shaped opening (no guide plates) in front of the container long side.
- Take out the pins (22) facing towards the adaptor.
- Move the outrigger over the clamp eyes on the adaptor and fasten it with a pin.
- Secure the pin with a clip.



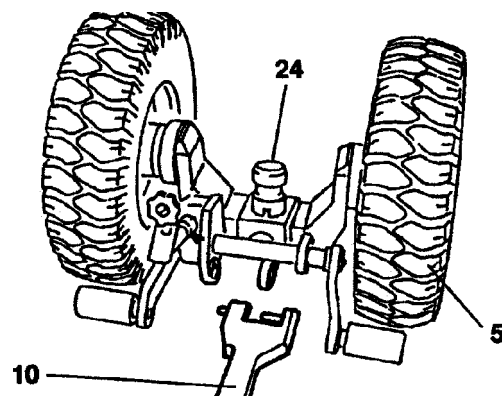
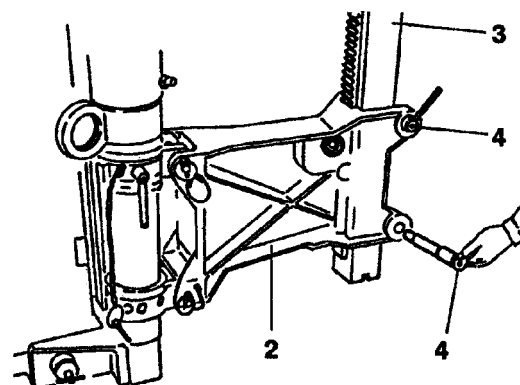
### B.1.3 Attaching the racks

- Position the ground plate (9) below the opening of the outrigger (gearbox) (2).

#### Attention!

**If a shelter is to be loaded into the C-130 then the racks marked C-130 have to be attached so that they will enter the aircraft first.**

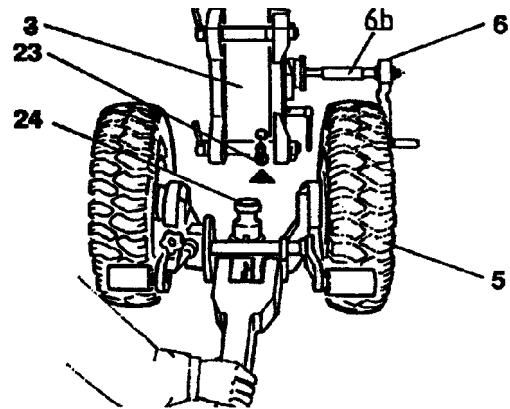
- Stand each pair of racks (3) marked C-130 or C-141 resp. in front of the adaptors (gearbox) already attached.
- Take off loose pins (4) of the outrigger.
- Stand rack with its ball-shaped pin of the ground plate. (Teeth point upwards and towards the container).
- Move rack and ground plate over the U-shaped opening of the outrigger so that they are adjacent to the guide plates.
- Secure rack with a pin (if necessary, attach crank handle - handling as per B.3.2.). Engage pinion and rack by turning the crank handle until the second pin can be pushed through the eyes.





### B.1.4 Attaching the castor unit

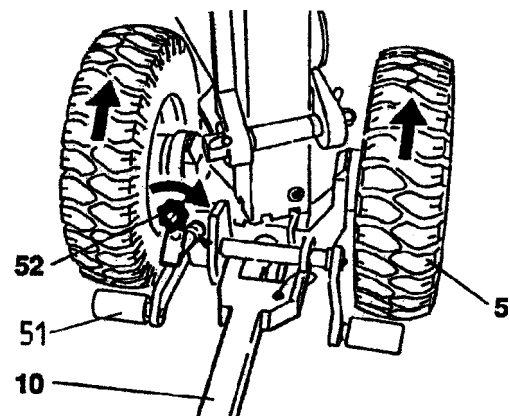
- Attach drag link (10) at the castor unit (5) and secure.
- Turn out the pin (23) at the lower end of the rack (3) (square opening, right-handed thread) with the crank handle (6) and take it off.
- Attach extension (6a) to the crank handle and insert into gearbox.
- Turn the rack up with the crank handle until the castor unit can be rolled directly under the rack.
- Take off ground plate.
- Roll castor unit under the rack.
- Turn rack over the king pin (24) until approx. 2 mm ½" before the stop.
- Insert the pin with the extended crank handle (6 + 6b) into the lower end of the rack and tighten it. Pin must not project.
- Turn the crank handle (52) and brake castor unit.



#### Attention!

**Castor unit and e. g. outrigger must not jam when the rack is retracted and the container close to the ground. Refer to sticker 'S1193e' on the outrigger (gearbox).**

**If this is not obeyed then the thrust pin (23) will be damaged and the castor unit can no longer be taken off. Rack and castor unit have to be exchanged.**



### B.2 Changing from wide- to narrow-track

Narrow-track is used for:

Rolling a container up or down the inclined aircraft ramp (described in C.3.).

Towing a container.

Method:

- Basic structure as per B.1.
- Take load off the corner posts.
- Pull out the pin (21) at the upper of the two adjustable clamps (marked 'W').
- Turn the outrigger (gearbox) (2) with the rack (3) and castor unit (5) in front of the container front side until a hole marked 'N' at the lower clamp matches the bore of the adaptor (1).
- Outrigger (gearbox) points away from the container long side at approx. 60°. Insert pin into the lower bore of the clamp marked 'N' and secure with a clip.
- Repeat at the three other corner posts.

## B.3 Attaching ancillary equipment

### B.3.1 Drive shaft

The drive shaft (7) consists of two parts:

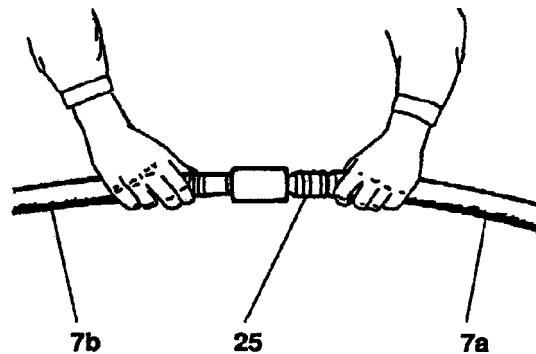
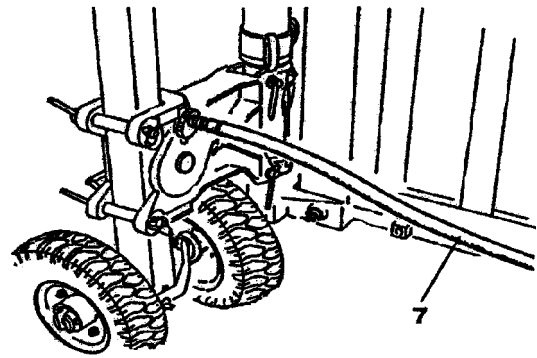
#### (7a) Shorter part

which ends on both sides with an outer square. This shorter drive shaft is used for 'narrow track'.

#### (7b) Extension

The extension and the shorter part together build a long shaft. This shaft is used for 'wide track'.

- The drive shaft can be inserted into the inner square (of gearbox, ergonomic crank, drive shaft extension) by pushing or pulling the grooved sleeve (25) immediately behind the outer square. If necessary turn the inner square of the counterpart in order to adjust the drive shaft.
- Check that the square drive ends engage properly whenever you operate the system.

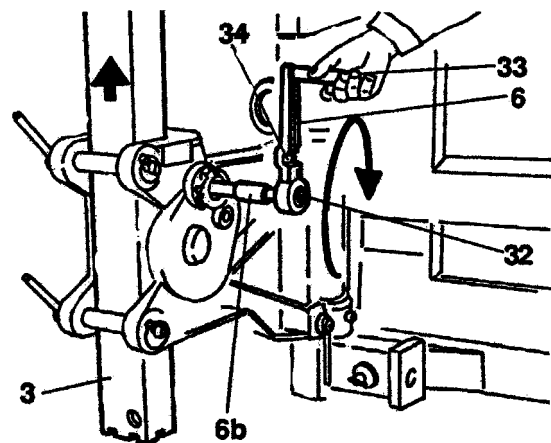


### B.3.2 Crank and crank handle extension

The crank handle (6) is used to assemble and disassemble the individual corner posts, to level the container, to attach the castor units (5) to the rack (3) and to extend and shorten the racks. It is recommended to use the ergonomic crank (6a) to bridge longer travels.

The crank handle can be attached or taken off by pushing the button (32) at the crank head. Release the button to lock.

The handle can be folded through 90° when the button (33) is pushed and the handle is pulled at the same time.



#### Ratcheting mechanism:

- Lever (34) and crank are in a 90° angle: ratcheting in either direction.
- Lever points to the right or to the left: ratcheting in one direction only.

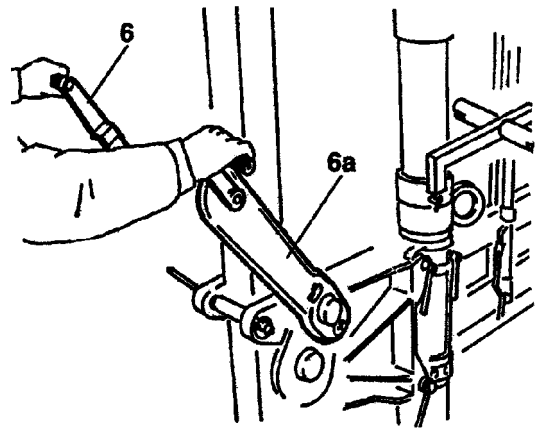
Use the extension when the castor unit is attached.

### B.3.3 Ergonomic crank

The ergonomic crank (6a) will enable the operator to crank with both hands and to crank at a height most convenient for him.

#### Attachment:

- Hold ergonomic crank in a horizontal position. Crank (6) points away from the container.
- Insert crank's square-shaped pin into the patterned disc of the outrigger (gearbox).
- Turn crank handle slowly and thus let the outer square engage with the gearbox's inner square.
- Turn ergonomic crank upwards through 30°.
- Push the pin with the ball-shaped head at the ergonomic crank against its spring and hold, push ergonomic crank further into the gearbox until its locking mechanism is firmly behind the patterned disc.
- Turn ergonomic crank into the most convenient position. Release pin and thus arrest it.



### B.3.4 Rack and rack extension

Use rack and rack extension (3) for loading and unloading trucks.

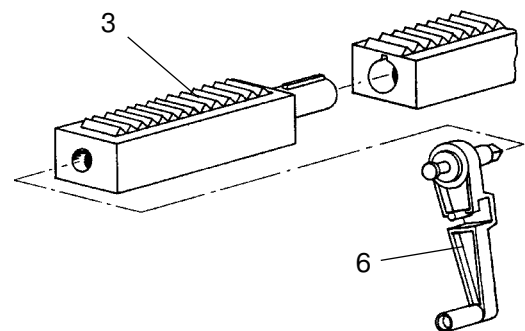
**Take off the extensions when loading and unloading aircraft only and attach the locking unit for the racks (B.5.).**

#### Attaching the rack extension:

- Insert crank handle into the inner tube of the extension and turn to the right against the spring pressure.

#### Taking the rack extension off:

- Insert crank handle (6) into the inner square of the rack extension and turn to the left until the nut no longer engages.
- Take crank handle off and pull rack extension upwards.



**⚠ Attention!**

**The racks have to be in line.**

**Treat pegs and bores with utmost care - do not damage them.**

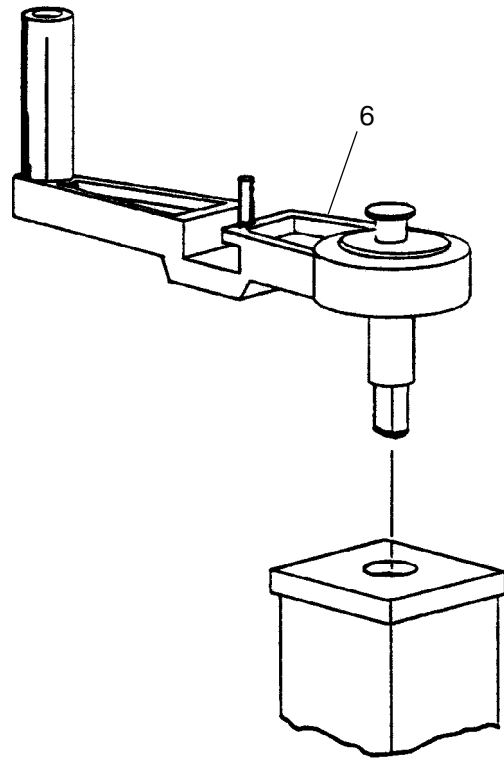
### B.3.5 Locking unit for the racks



**Attention!**

Generally whenever the rack (3) is shortened, the end of the rack must be equipped with the locking unit stowed at the adaptor (1).

- Take off the spring pin and the locking unit.
- Attach locking unit at the rack end (the pins of the locking unit have to disappear inside the rack (3) completely).
- Tighten locking unit with the crank handle (6) at the end of the rack.



### B.3.6 Castor unit and wheels

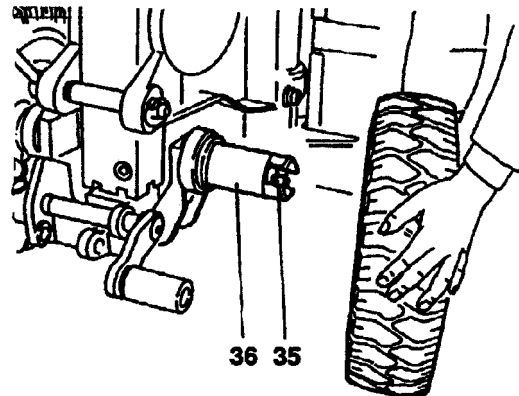
The wheels of the castor units (5) can be taken off or attached individually for exchange or for stowage purposes.

#### Taking them off:

The castor has to be without load.

- Loosen the nut (35) at the end of the axles as far as possible with a spanner/wrench (width across flats 24 mm) and turn it home until the securing pin (diam. approx. 0,63“) is parallel with the receptable.
- Take wheel with hub and rim off the axle (36).

All wheels have to be taken off and stowed in their stowage position above the outrigger before the jacks can be swung into their park position.

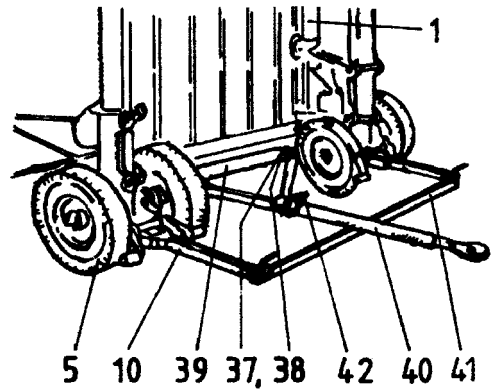


### B.3.7 Tow bar

The tow bar (40) is used for steering while an aircraft is loaded or unloaded or for steering and towing a container outside the aircraft is only permitted in narrow track configuration.

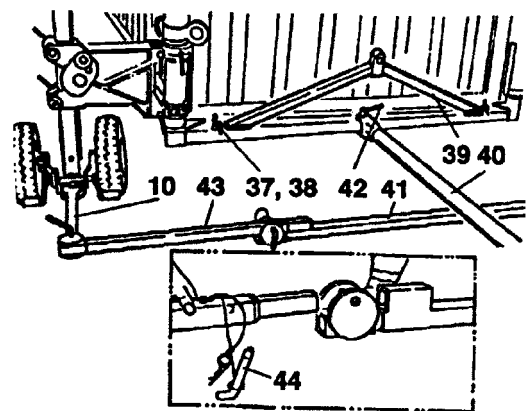
#### Narrow-track configuration

- For basic structure refer to B.1. and B.2.
- Both pins (37) at the triangular frame have to be pushed back. Lift the locker at the same time.
- Attach the triangular frame (39) between two adaptors (1).
- Lift the locker and insert pins into the bores of the adaptors.
- Secure the pin by releasing the locker (38).
- Attach center piece to the triangular frame, fasten with a pin (42) and secure with a clip.
- Attach the castor drag link (10) at the strut (41) and secure with a clip.



#### Wide-track configuration

- For basic structure see B.1.
- Push back both pins at the triangular frame and lift the spring locker at the same time.
- Attach the triangular frame between two adaptors.
- Lift the locker and push the pins into the bores of the adaptor.
- Turn the triangular frame up towards the container wall.
- Attach center piece with a pin at the lateral tube of the triangular frame and secure with a clip.
- Insert extension (43) into the lateral tube and fasten with a pin (44). Secure with a clip.
- Attach castor drag link (10) no. 1350.6,5.115.00 (with pin) at the extension and secure with a clip.



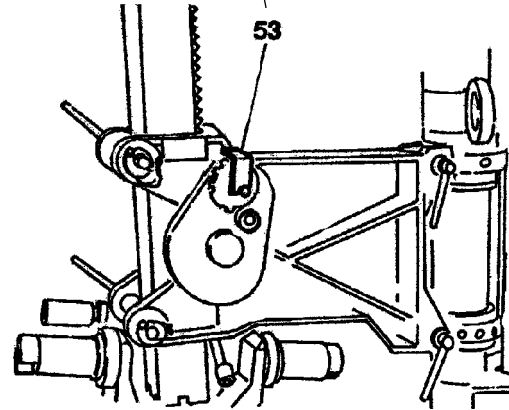
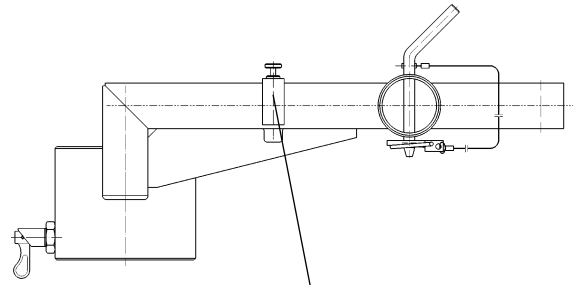
#### Attention!

**Moving the shelter in wide-track configuration is only permitted for level loading and unloading of an aircraft and for movements of the container over short distances immediately near the aircraft in walking speed only.**

### B.3.8 Locking unit to prevent racks from running down

To prevent the rack (3) from running down in its stowed position at the aircraft or on the truck a special locking unit (53) is inserted into the outrigger (gearbox).

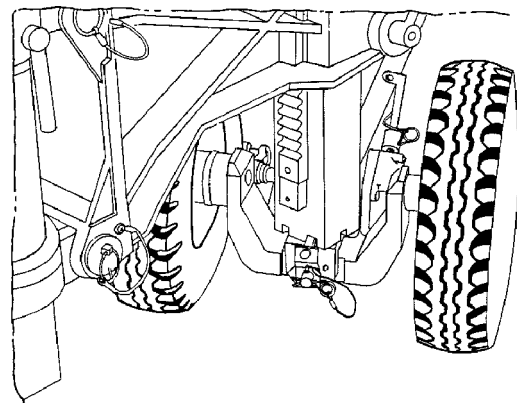
- Push the button and take the locking unit out into the inner square of the gearbox while still pushing the button.
- Let the button go and check that the locking unit will not fall out (the locking unit is held back as long as the button is not pushed).



### B.3.9 Locking the castor units

For various purposes described in paragraph 'C' the swivelling castor units (5) have to be blocked.

- Take out the square-shaped pin which is stowed at a clamp above the outrigger (gearbox).
- Turn the corner post into the position required and secure.
- Turn the castor unit into travelling direction.
- Insert the square-shaped pin on the side opposite the brakes parallel with the wheels into the square opening at the lower end of the rack. Push the bore of the retaining plate over the retaining pin of the king pin (24) at the castor.
- Secure the square-shaped pin with a spring clip.



## C. Operating the system

### C.1 Loading and unloading the vehicle

When loading or unloading a vehicle it has to stand on firm, even ground.

**The maximum inclination of the container is restricted to 2°.**

#### C.1.1 Unloading onto ground level

- Basic configuration as per B.1.1. to B.1.3.



#### **Attention!**

**Open twistlocks on the truck.**

- Use crank handle (6) to crank the container up by approx. 25 mm 1“.
- Insert drive shafts (7) (B.3.1.)
- Lift the container either with the crank handle (6) or the ergonomic crank (6a) by approx. 100 mm 4“ and drive the truck away (there should be a second person to guide the driver).



#### **Attention!**

**Fouling the system with the vehicle might lead to the collapse of the system.**

- Lower the container

#### **Attention!**

**\* Avoid oscillations of the container by e. g. corresponding cranking.**

**\* Watch all four corner posts. As soon as you reach the first mark for a motor-stop (refer to sticker S1193) stop the motors immediately.**

- Lower the container either crank handle or ergonomic crank now.
- Take off the drive shafts.
- If necessary, take load off each corner post individually.
- Only after load has been taken off all corner posts the whole system may be taken off the container.

#### C.1.2 Loading from ground level

- Basic configuration as per B.1.1. to B.1.3.
- Use crank handle (6) to crank the container up by approx. 25 mm 1“.
- Insert drive shafts (7) and lift container by another 100 mm 4“. Level container.
- Lift the container either with the crank handle (6) or the ergonomic crank (6a) by approx. 100 mm 4“ above trucked level.
- Drive the truck carefully under the container (there should be a second person to guide the driver).
- Position the truck twistlocks directly under the lower hole of the container's corner castings.



#### **Attention!**

**Correct only the position of the truck twistlocks, if they do not match the holes of the container's corner castings. Do not move the system.**

## C.2 Loading and unloading an aircraft over a horizontal ramp

### C.2.1 Loading over a horizontal ramp

Drive the truck with the container as closely to the ramp as possible and into the position adequate for loading the aircraft.

In order to unload the truck it has to be on even, firm ground. The maximum inclination of the container is restricted to 2°.

For unloading the container refer to B.1.1. to B.1.4.

#### **Attention!** **Open twistlocks on the truck.**

- Use crank handle (6) to crank the container up by approx. 25 mm 1“.
- Insert drive shafts (7) (B.3.1.).
- Lift the container either with the crank handle (6) or the ergonomic crank (6a) by approx. 100 mm 4“ and drive the truck away (there should be a second person to guide the driver).

#### **Attention!**

**Fouling the system with the vehicle might lead to the collapse of the system.**

**If the distance between the container and the ramp exceeds 4 m 13‘ then lower the container to a travelling height of approx. 460 mm 18‘.**

**If the distance between the container and the ramp exceeds 10 m 30‘ then the system has to be changed into narrow track configuration. (B.2)**

- Take load off each corner post individually and turn castor units (5) into travelling direction. Pull parking brake (51 / 52).
- Attach extended drive shaft (7).
- Open parking brake.
- Roll container up to approx. 600 mm 2‘ in front of the ramp and into a loading position.

#### **Attention!** **To adjust the container position use the drag links (10) individually.**

- Pull the parking brake (51).
- Attach ropes/chains to the front adaptor eyes (1) and connect them with the aircraft rope. Refer to drawing no. 180690.
- Shorten front racks (B.3.4.) and attach locking unit (B.3.5.).
- Lift the container above the level of the supported ramp by either crank handle (6) or ergonomic crank (6a).
- Open parking brake (51).
- Push or pull the container into the aircraft as far as possible, so that the container and the system do not jam the aircraft but also roll over as many aircraft rollers as possible.
- Lower the container with either a rolling surface or a pallet underneath down onto the aircraft rollers of the ramp.
- Secure the container with the aircraft rope and by pulling the rear parking brakes (51 / 52).
- Take load off the front corner posts and take them off. The adaptors can stay on the container and can be used to tie down the container inside the aircraft.
- Continue pulling the container into the aircraft. If necessary adjust the direction by steering the rear castors (5) with the track rods (11).
- Pull the container into the rear racks (3) are approx. 150 mm 6“ away from the ramp.
- Take load off the rear castors and take them off. The adaptors may stay on the container and can be used to tie down the container inside the aircraft.
- Stow all parts you have taken off and all the parts used for steering the system inside the aircraft.



- Pull the container into its final position and tie it down.
- If necessary outrigger (gearbox) (2), racks and castor units (without wheels) can stay on the container. Swing outrigger (gearbox) into the position marked (P). The wheels are stowed at the clamp on the adaptor. Refer to 3rd option described later on.

### C.2.2 Unloading over a horizontal ramp



#### Attention!

**Do not take the aircraft winch off before the container is well outside the aircraft and standing firmly on the system.**

- Push or pull the container out of the aircraft until the front end projects the ramp by approx. 250 mm 10“.
- Attach front corner posts according to B.1.1. to B.1.4.
- Turn castor units (5) into driving direction and attach track rod (11).
- Distribute the load evenly among all corner posts.
- Push or pull the container out until the rear end rests on the ramp by approx. 400 mm 16“. Use track rod for steering.
- Brake front caster units (51 / 52):
- Attach rear corner posts acc. to B.1.1. to B.1.4.. Use shorten racks (3) of the corresponding aircraft type (attach locking unit for the tack B.3.5.).
- Attach cross shaft (7).
- Lift container by approx. 25 mm
- Open parking brakes at the front corner posts.
- Pull container out of the aircraft completely until the distance between container and ramp is approx. 500 mm 20“.
- Take off ropes / chains and aircraft rope.
- Brake all parking brakes for transporting the container with the truck.
- Extend the racks.
- Lift container slightly above trucked level.
- Drive truck under the container. There should be a second person to guide this.
- Position the truck twistlocks directly under the lower openings of the container corner castings.
- Lower container until load is taken off four corner posts.

#### Travelling with the container over longer distances

- Brake all four castors.
- Extend all racks.
- Lower container down to approx. 500 mm 20“.
- Turn castor units to a 90° angle with the container long side. Take off drive shafts. Take load off individual corner posts and swing castor units (5).
- Lower container to ground level and take load off the corner posts.
- Change corner posts from wide- to narrow-track (B.2.).
- Turn castor units into travelling direction.
- Attach tow bar to front castor units (B.3.7.).
- Lock rear castor units so they will not swivel (B.3.9.).
- Lift container to a travelling height of approx. 460 mm 18“.
- Open all parking brakes (51 / 52). Container is now ready for rolling.



**Attention!**

**Max. travelling speed (narrow-track only!)**

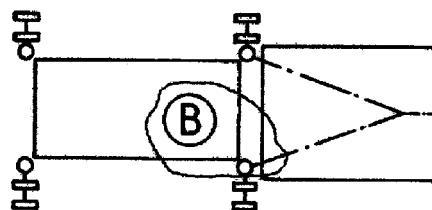
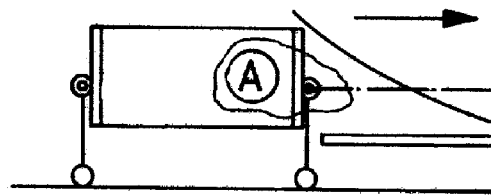
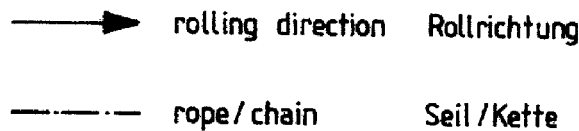
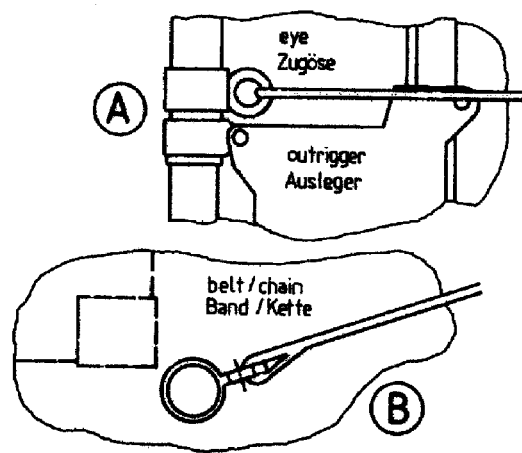
- on even, hard surfaces                    16 km/h            10 mph
- on even, smooth surfaces                8 km/h             5 mph
- on uneven surfaces                        5 km/h             3,2 mph

**C.3 Loading and unloading up and down an inclined ramp**

**C.3.1 Loading up an inclined ramp**

- Container is standing on the ground. Basic configuration as per B.1.1. to B.1.4. and B.2.
- Lift container with the crank (6) by approx. 25 mm 1".
- Insert long drive shaft (7a) (B.3.1.)
- Attach tow bar (8) to front adaptors (1) (B.3.7.). Turn the support wheel on the tow bar into travelling direction. (See sticker S' 1185' on the towbar).

Drawing no. 180690



**⚠ Attention!**  
**When loading the aircraft up the inclined ramp the tow bar must not be used to tow the container.**

- Attach ropes / chains at the front adaptor eyes according to drawing no. 310189 and connect them with the aircraft rope.

**⚠ Attention!**

**The angle of the ropes / winches must not exceed 40°, i. e. the distance between the attachment of the aircraft rope and adaptor (1) has to be at least 3.5 m 12'. Refer to drawing no. 310189.**

- To help with steering attach a rope of approx. 5 m 16' laterally through the eye of the tow bar so that it is possible to operate the tow bar on both sides without standing the ramp.
- Open locking unit of the castor units (5).
- Connect castor track rod (10) and drag link (11).
- Attach four ramp extensions according to the position of the castor wheels.

**⚠ Attention!**

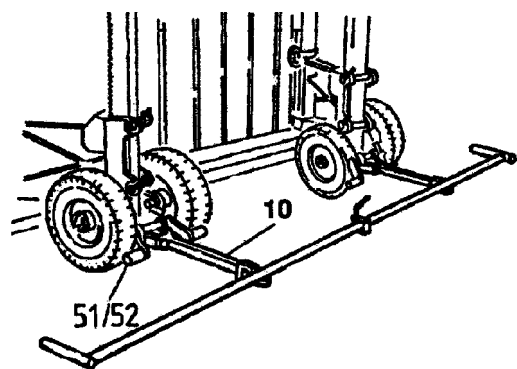
**Make sure that when you roll up the inclined ramp the container is as horizontal as possible. Stop and correct the height of each corner post several times to keep the container in a horizontal position.**

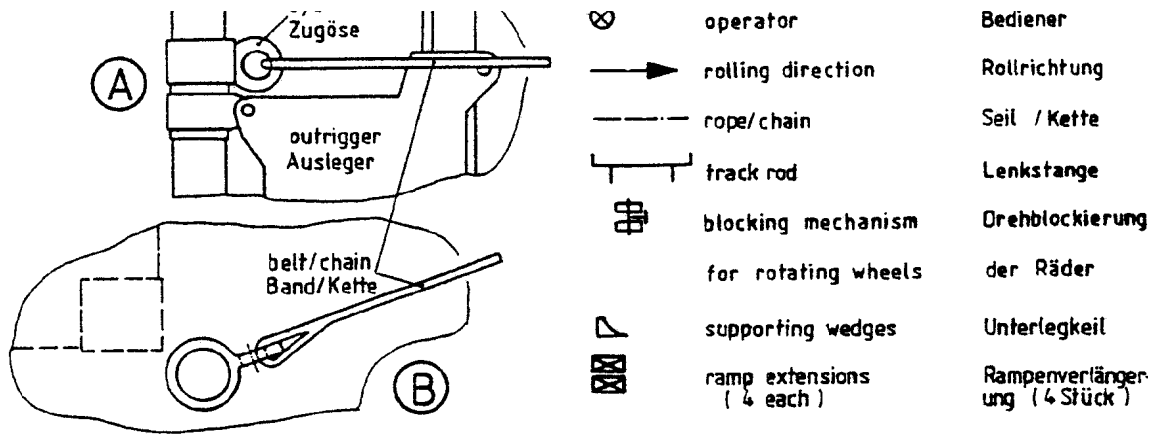
**For safety reasons adjust the height of the container (on front and rear side) only when the container is secured by the aircraft rope and cannot move. Keep the aircraft rope under tension. Put wedges behind all four rear wheels of the system. Do not stand on the ramp to do so.**

**Make sure neither the container nor the system jam the aircraft. Watch especially the upper edge of the container and the container floor when leaving the inclined ramp and entering the aircraft.**

- Open all parking brakes (51 / 52).
- Pull container slowly towards the ramp. Steer with the tow bar in front (by pulling the rope on both sides of the container) and the track rod at the rear so that the container is aligned to the cargo hold.
- If the container has been aligned correctly when reaching the ramp, take tow bar and track rod off and lock the rear castor units so they cannot swivel.

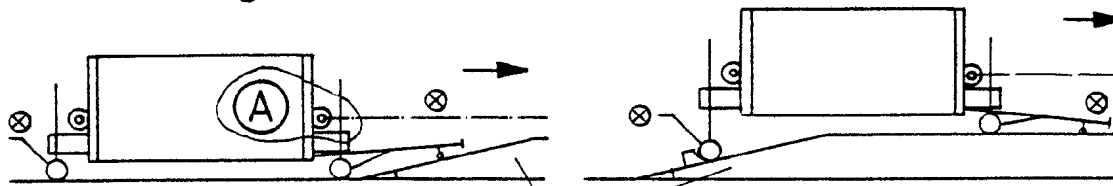
If the container has to be aligned after reaching the ramp and while the container is entering the aircraft then the track rod stays on the rear corner posts.



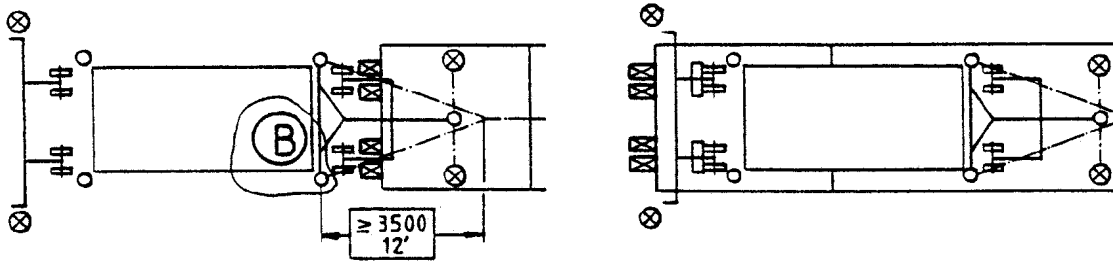


loading

Beladen

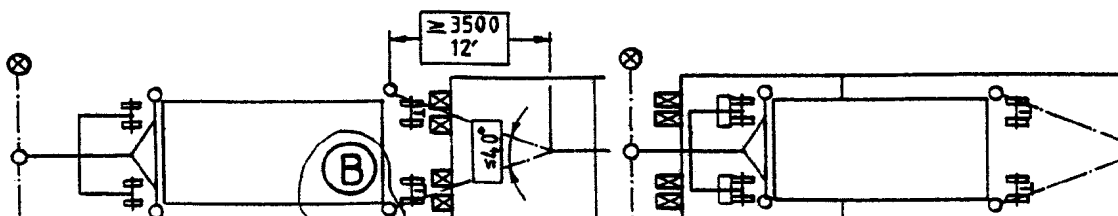
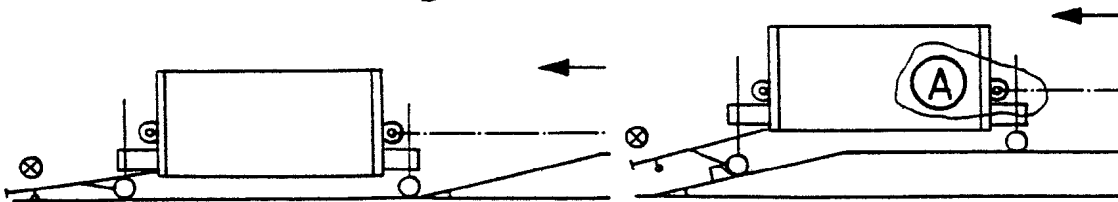


ramp Rampe



unloading

Entladen



 **Attention!**

**When loading the aircraft up the inclined ramp no one is allowed behind the container.**

**For safety reasons the personnel at the front end of the container has to walk along the outer edges of the ramp and later along the aircraft walls. The personnel at the rear end of the container has to walk alongside the container and later alongside, not on the ramp. Refer to drawing no. 310189.**

- Lift container by approx. 100 mm 4“ in front and 200 mm 8“ at the rear.
- Pull container slowly and smoothly over the ramp extensions onto the aircraft ramp.
- Correct the rear castor units so that the container is properly aligned with the cargohold.
- Correct the height of the corner posts.

**When properly aligned:**

- Put wedges behind all four rear wheels.
- Take off track rod and drag link at rear.
- Lock rear castor units against swivelling and, if necessary move wedges to make room for this.
- Adjust height of rear end of the container (standing alongside the container not behind it) by using the crank handle.
- Continue pulling the container into the aircraft while still adjusting the height of the container in order to avoid jamming the aircraft.

 **Attention!**

**Make sure that when you roll up the inclined ramp the container is as horizontal as possible. Stop and correct the height of each corner post several times to keep the container in a horizontal position.**

**For safety reasons adjust the height of the container (on front and rear side) only when the container is secured by the aircraft rope and cannot move. Keep the aircraft rope under tension. Put wedges behind all four rear wheels of the system. Do not stand on the ramp to do so.**

**Make sure that neither the container nor the system jam the aircraft. Watch especially the upper edge of the container and the container floor when leaving the inclined ramp and entering the aircraft.**

- Pull container into the aircraft as far as possible while still steering at the front.
- Stop as soon as rope/chain touch the outrigger (gearbox).
- Position wedges behind the rear wheels which have entered the horizontal cargohold already. Pull parking brake.
- Take off ropes / chains, open parking brake and continue pushing the container inside the aircraft.
- Take off the tow bar and steer each front corner post individually with the track rod until the container has reached its tie-down position.
- Pull parking brakes and lower container onto the floor.

## Taking the system off, stowage and tying the container down

### Option 1

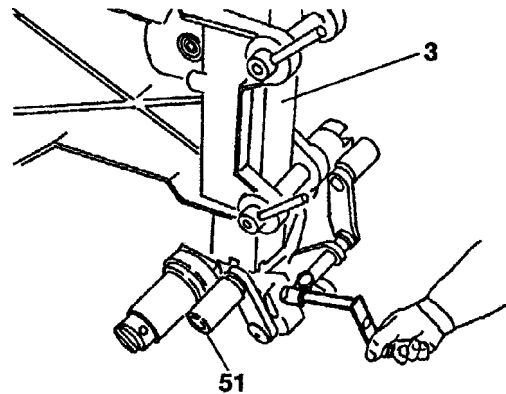
- Take the corner posts off, except for the adaptors.
- Adaptors stay on the container.
- Stow all the parts you have taken off inside the aircraft.
- Tie the container down.

### Option 2

- Take off the whole system and stow it inside the aircraft.
- Tie the container down.

### Option 3

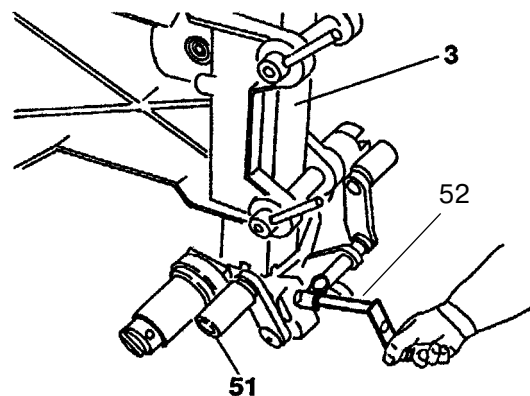
- Turn the corner posts into their stowage position at the front side of the container (projection approx. 480 mm 19").
- Take off the drive shafts and the tow bar.
- Take off and stow the wheels (B.3.6.).
- Crank the crank shafts (51) of the castor unit parallel with the container walls.
- Take off the cranks (52), turn through 180° and insert above the square of the drive shaft. Secure.
- Turn corner posts with outriggers (gearbox), racks and castor units (without wheels) in front of the container front side until the holes marked 'P' at the lower clamp match the bores of the adaptors. The brakes (51) point away from the container wall.
- Insert pin (21) into the lower bore marked 'P' and secure.
- Attach locking units at the outrigger (gearbox) (B.3.8.).
- Tie the container down.
- Stow the parts you have taken off inside the aircraft.



### C.3.2 Unloading down an inclined ramp

The system is stowed on the container. If not, refer to B.1.1. to B.1.4. and B.2.

- Take off ropes tying the container to the aircraft.
- Pull the pin (21) out of the hole marked 'P' at the lower clamp.
- Swing outrigger (gearbox) (2) into the direction of the container long side until the hole marked 'N' on the clamp matches the bore of the adaptor. Outrigger (gearbox) points away from the front side of the container at an angle of approx. 60°.
- Insert pin into the bore on the clamp marked 'N' and secure.
- Attach crank handle (52).



- Turn brake shafts (51) down until they reach the maximum distance with the wheel axle.
- Take wheels out of their stowage position on the adaptor and attach castor unit (5). Secure. (B.3.6.)
- Turn castor units into travelling direction.
- Lock rear castor units (on the side pointing towards the cockpit) so that they cannot swivel.
- Attach castor units, tow bar (8) with drag links (10) at the front adaptors. Turn supporting wheel on the tow bar into travelling direction. Refer to sticker 'S1185e' on the tow bar.
- Pull all four parking brakes (51 / 52).
- Lift each corner individually by approx. 25 mm 1" with the crank handle.
- Attach drive shaft (7a).
- To help with steering attach a rope of approx. 5 m 16' at the tow bar eye so that steering is possible on both sides of the container.
- For safety reasons attach rope acc. to drwg. no 310189 at the eyes of the rear adaptors and connect it with the aircraft rope.



### **Attention!**

**The angle of the ropes / chains must not exceed 40°, i. e. the distance between the attachment of the aircraft rope and the adaptor (1) has to be at least 3.5 m 12'. Refer to drawing no. 310189.**

**For safety reasons there has to be tension on the aircraft rope all the time while unloading the container.**

- Attach four ramp extensions according to the position of the wheels.
- Lift the container.
- Open all parking brakes.
- Roll the container towards the ramp while steering with the tow bar and securing the container with the aircraft rope.

When the eye of the tow bar projects the aircraft the operating personnel has to walk alongside the ramp on left and right. they have to operate the tow bar with the rope.



### **Attention!**

**While the container is unloaded down the inclined ramp no one is allowed in front of the container.**

**Steering with the tow bar in front and the track rod (11) at the rear has to be carried out from alongside the ramp and the container respectively. Refer to drawing no. 310189.**

**Neither the container nor the system must jam the aircraft. Watch especially The upper edge of the container and the container floor when leaving the aircraft and reaching the ramp.**

- Roll the container slowly and smoothly down the inclined ramp. Keep the aircraft rope under tension, steer with the tow bar (standing beside not behind the ramp) and adjust the container height.



### **Attention!**

**Make sure that you roll down the inclined ramp the container is as horizontal as possible. Stop and correct the height of each corner post several times to keep the container in a horizontal position.**

**For safety reasons adjust the height of the container (on front and rear side) only when the container is secured by the aircraft rope and cannot move. Keep the aircraft rope under tension. Put wedges behind all four rear wheels of the system. Do not stand on the ramp to do so.**

**Make sure that neither the container nor the system jam the aircraft. Watch especially the upper edge of the container and the container floor when leaving the inclined ramp and entering the aircraft.**

- Repeat the adjustment of the container height at all four corner posts until the container has reached even ground outside the aircraft and until it is standing firmly on the system.
- Pull all parking brakes.
- Take off ropes/chains and aircraft rope.

### **Travelling with the container over longer distances**

- Lift container to a travelling height of approx. 460 mm 18“.
- Connect tow bar and towing vehicle.
- Open all parking brakes (51 / 52). Container is now ready for rolling.
- Container is ready to move.



#### **Attention!**

#### **Max. travelling speed (narrow-track only!)**

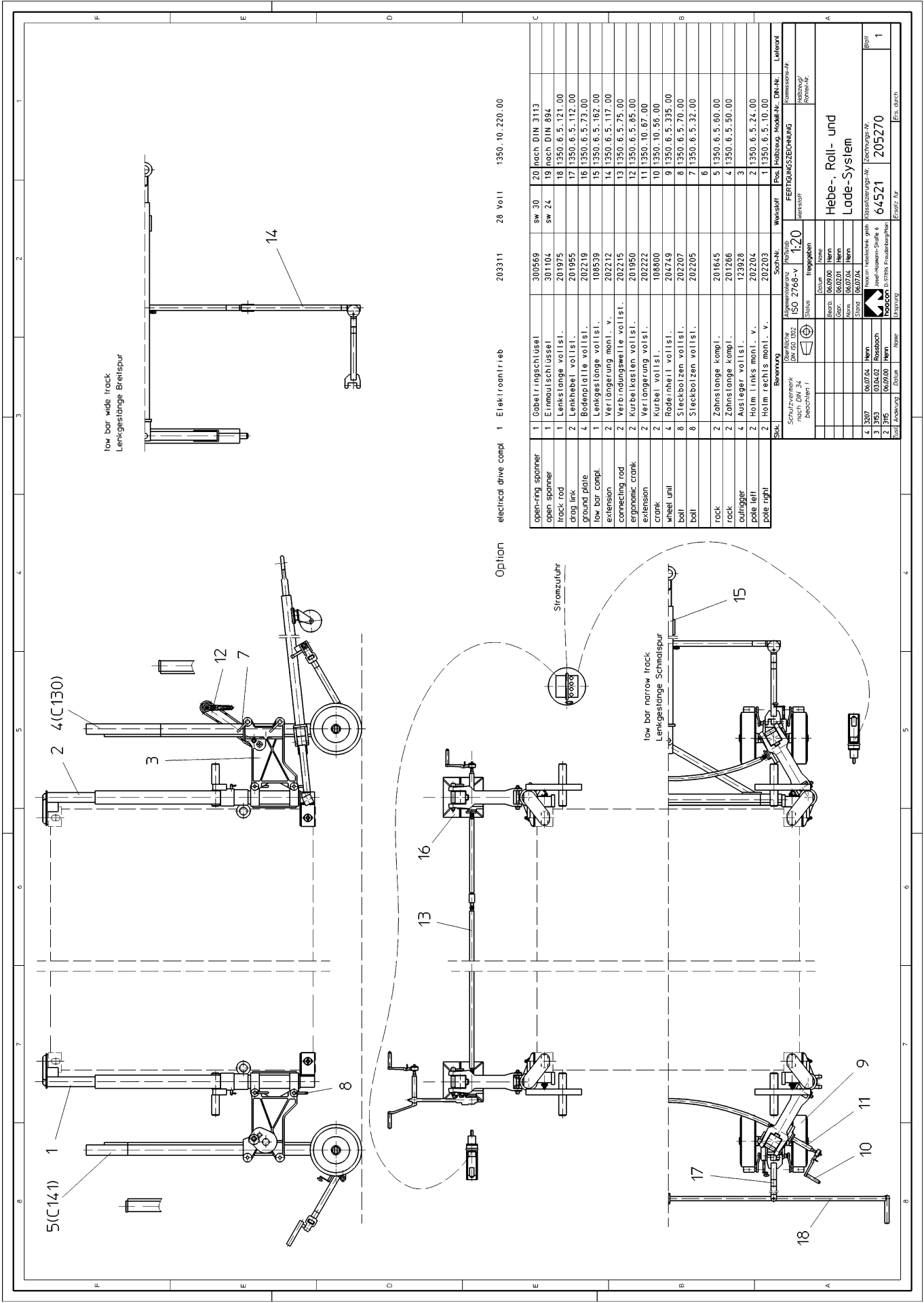
- |                            |         |         |
|----------------------------|---------|---------|
| – on even, hard surfaces   | 16 km/h | 10 mph  |
| – on even, smooth surfaces | 8 km/h  | 5 mph   |
| – on uneven surfaces       | 5 km/h  | 3,2 mph |

### **Transporting the container with a truck**

- Lower the container until there is no load on any of the corner posts.
- Change corner posts to wide-track configuration (reverse B.2.).
- Load container onto the truck (C.1.2.)







low bar wide track  
Lenkgestänge Breitspur

Option

low bar narrow track  
Lenkgestänge Schmalspur

electrical drive compl 1 Elektroantrieb 203311 28 Volt 1350..10.220.00

1	Oberringschlüssel	300569	sw 30	20	nach DIN 3113
1	Ermittelschlüssel	301104	sw 24	19	nach DIN 894
1	Lenkstange vollst.	201975		18	1350.6.5.121.00
4	Lenkhebel vollst.	201955		17	1350.6.5.112.00
4	Bodenplatte vollst.	202210		16	1350.6.5.73.00
1	Lenkgestänge vollst.	108539		15	1350.6.5.162.00
2	Verlängerung mont. v.	202212		14	1350.6.5.117.00
2	Verbindungsweite vollst.	202215		13	1350.6.5.75.00
2	Verlängerung vollst.	201950		12	1350.6.5.85.00
2	Kurbelkasen vollst.	202222		11	1350.10.67.00
2	Verlängerung vollst.	108800		10	1350.10.56.00
4	Radeinheit vollst.	204749		9	1350.6.5.395.00
8	Stückboizen vollst.	202207		8	1350.6.5.70.00
8	Stückboizen vollst.	202205		7	1350.6.5.32.00
2	Zahnstange kompl.	201645		6	1350.6.5.60.00
2	Zahnstange kompl.	201266		4	1350.6.5.50.00
4	Ausleger vollst.	123928		3	
2	Holm links mont. v.	202204		2	1350.6.5.24.00
2	Holm rechts mont. v.	202203		1	1350.6.5.10.00

Spez.	Bestellung	Sach-Nr.	Werkstoff	Preis	Indizes	Modell-Nr.	DIN-Nr.	Lieferort
Fertigungszeichnung Hebe-, Roll- und Lade-System 64521 205270 1								

## D. Components, maintenance and repair

### D.1 List of components

Pos. / Unit	Description	Drwg. no.	Pos.	Order no.
2	Adapter right hand side compl.	1350..6,5.10.00	1	202203
2	Adapter left hand side compl.	1350.6,5.24.00	2	202204
4	Outrigger compl.		3	123928
2	Rack compl.	1350.6,5.50.00	4	201266
2	Rack compl.	1350.6,5.60.00	5	201645
8	Main pin compl.	1350.6,5.32.00	7	202205
8	Main pin compl.	1350.6,5.70.00	8	202207
4	Castor unit compl.	1350.6,5.335.00	9	204749
2	Crank handle compl.	1350.10.56.00	10	108800
2	Extension compl.	1350.10.67.00	11	202222
2	Ergonomic crank	1350.6,5.85.00	12	201950
2	Drive shaft compl.	1350.6,5.75.00	13	202215
2	Extension	1350.6,5.117.00	14	202212
1	Tow bar compl.	1350.6,5.162.00	15	108539
4	Groundplate compl.	1350.6,5.73.00	16	202219
2	Drag link compl.	1350.6,5.112.00	17	201955
1	Track rod compl.	1350.6,5.121.00	18	201975
1	Spanner	SW 24	19	301104
1	Ring spanner	SW 30	20	300569

### D.2 Maintenance

Maintenance of the system consists of cleaning and greasing the components listed in D.1.

#### Cleaning and greasing

When necessary but at least when disassembling the system before storing it.

If necessary when using the system after a longer storage period.

#### Lubricants, oils and rust preventives

Agent	Description	Supplier
Lubricant	Gleitmo 805 K	Fa. Gleitmo, München or equivalent
Lubricant	Molycote 3402C	Fa. Dow Corning or equivalent
Gearbox oil	Herm-Gearfit TCL 00/000	Fa. Herm / haacon
Grease	Shell Alvania R 3	Fa. Shell or equivalent
Oil	Shell Spirax HD 80 W	Fa. Shell or equivalent

**AR = as required**

**AEO = after every operation**

**Cleaning = careful mechanical treatment** (e.g. with a brush or a rag) without damaging the surfaces.

**Outrigger** (gearbox)

AR / AEO

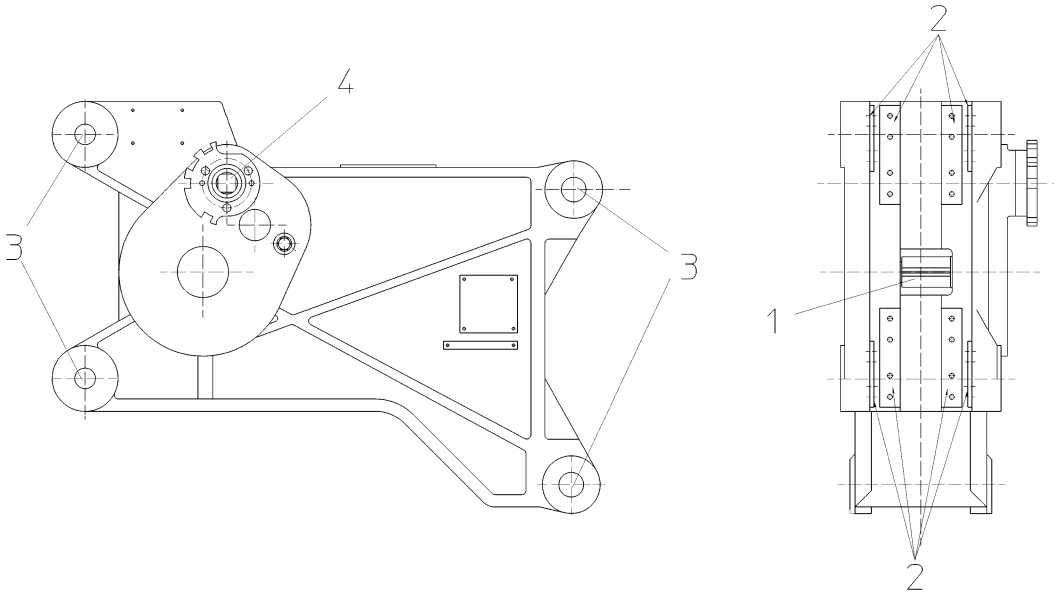
1 – Clean pinion AR / AEO and apply lubricant Molycote 3402 C.

2 – Clean gliding surfaces AR / AEO.

3 – Clean bores AEO and apply lubricant Molycote 3402 C.

4 – Clean inner square and exposed portion of shaft AEO and apply Gleitmo 805K.

It is not necessary to exchange the gearbox grease (volume 0.8 l) - lifetime greasing.



### **Rack and rack extension C130 / C141**

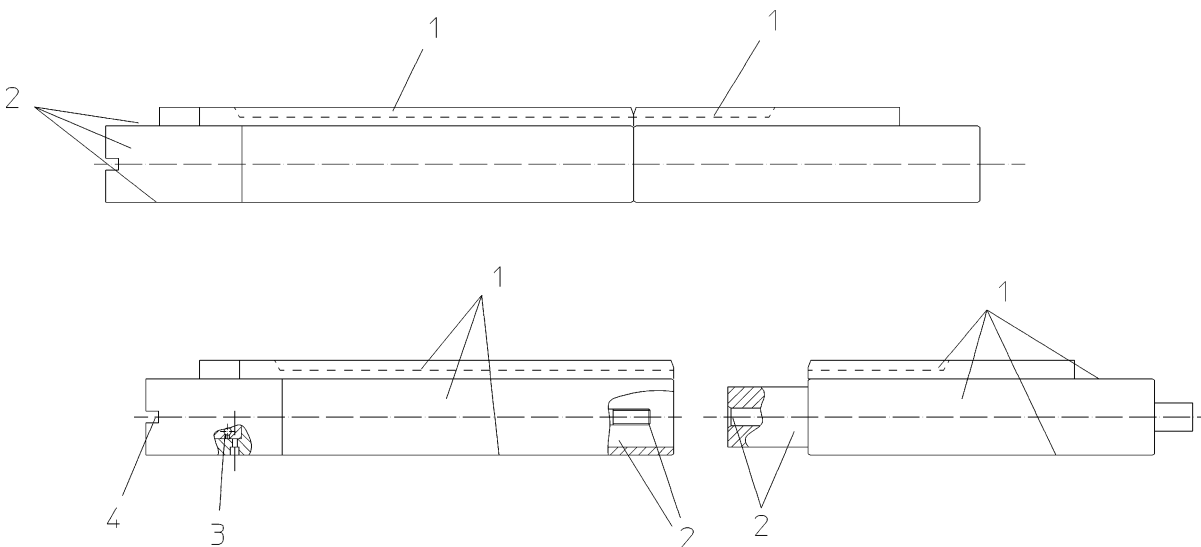
AR / AEO

1 – Clean teeth AR / AEO and apply lubricant Molycote 3402 C.

2 – Clean the connection between rack and extension AR / AEO and apply Molycote 3402 C.

3 – Grease thrust bearing AR / AEO with Gleitmo 805 K (grease nipple).

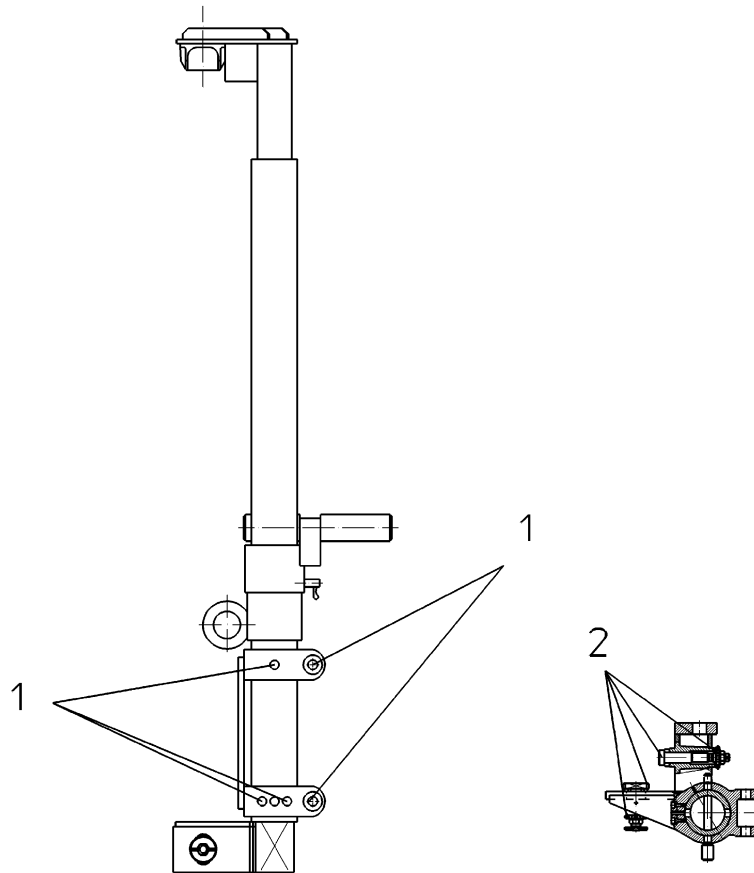
4 – Clean square opening at the lower rack end and apply Molycote 3402 C.



## Adaptor

AEO

1 – Clean bore, pin AEO and apply lubricant Molycote 3402 C.



## Castor unit

AR / AEO

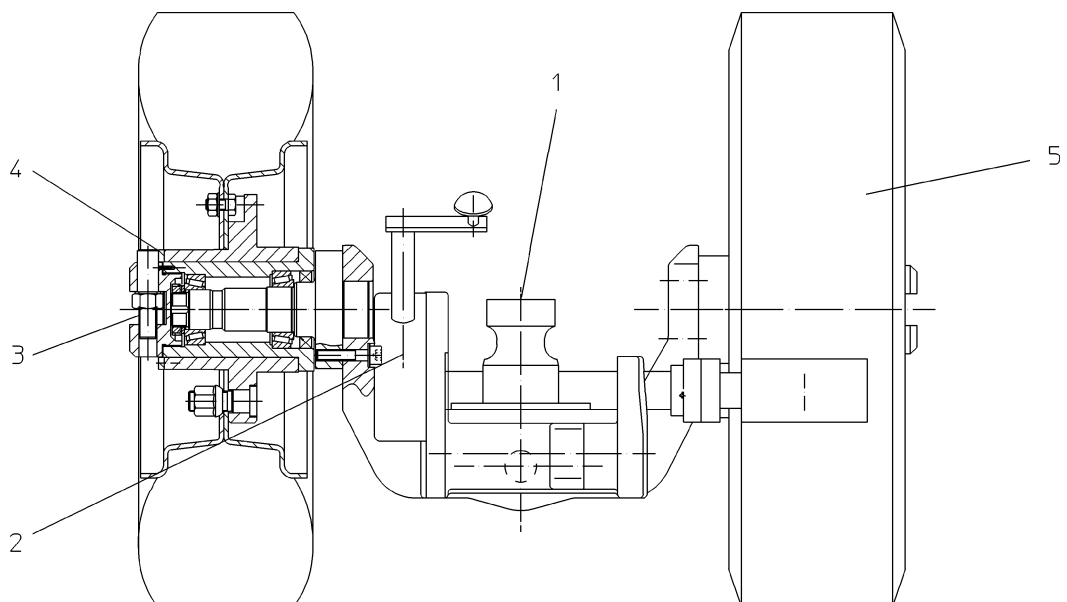
1 - Clean king pin AR/AEO and apply Molycote 3402 C.

2 - Grease gearbox for parking brake AR with Shell Alvania R3 (grease nipple).

3 - Clean threaded pin AR and apply Molycote 3402 C.

4 - Clean hub and flange and apply Molycote 3402 C.

5 - Check profile, condition and pressure of the wheels before using them. Tyre pressure 9 bar 130 psi.

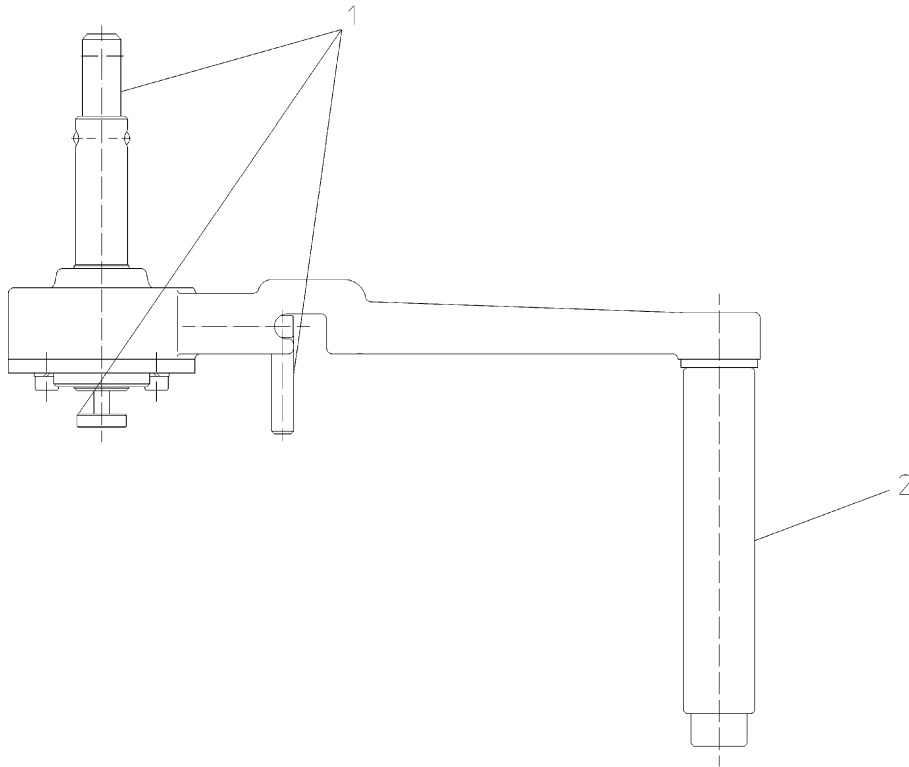


## Crank handle

AR

1 - Clean crank pin, retaining pin and threaded pin AR and apply Gleitmo 805 K.

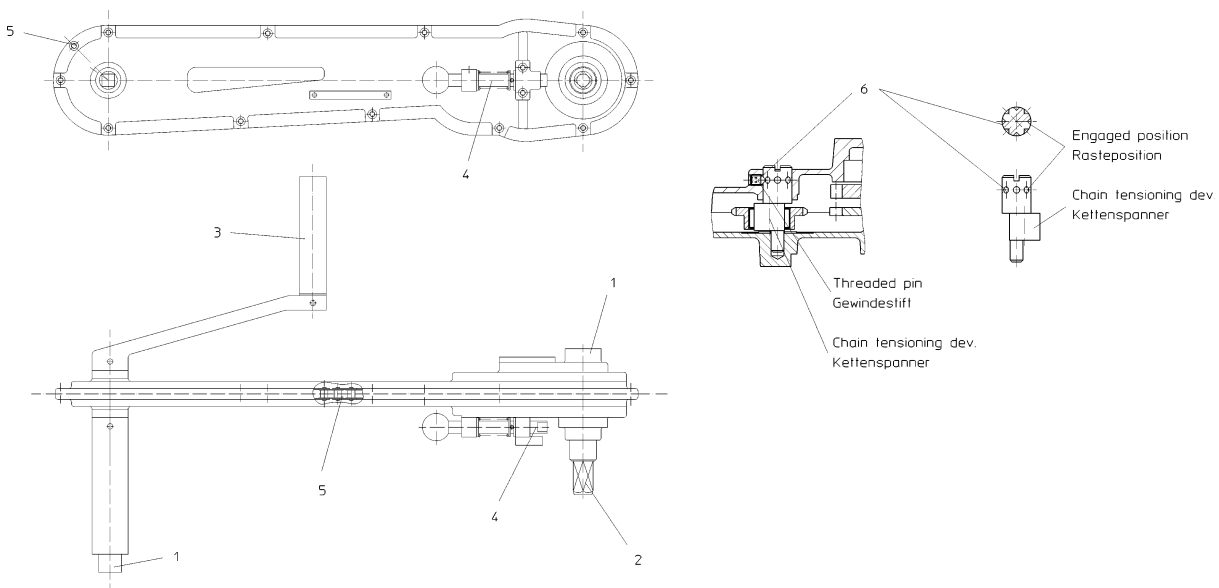
2 - Clean sleeve AR.



## Ergonomic crank

AR / AEO

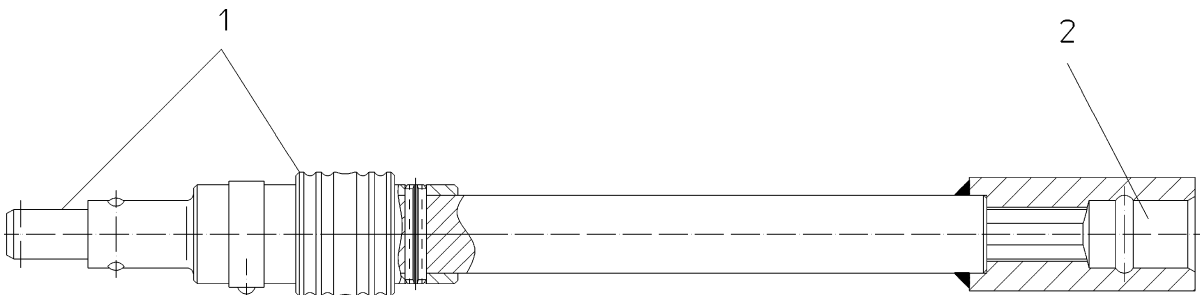
- 1 – Clean drive shaft and its inner square AEO and apply Gleitmo 805 K.
- 2 – Clean crank pin AR / AEO and apply Gleitmo 805 K.
- 3 – Clean sleeve AR.
- 4 – Clean pin AEO and apply Molycote 3402 C.
- 5 – Open screw every 12 months and lubricate chain with oil Shell Spirax HD80W.
- 6 – Tensioning the chain AR.
  - Turn out the threaded pin (until the chain tensioning device is set free).
  - Turn the chain tensioning device until pressure of the chain can be noticed.
  - Turn the chain tensioning device until one of the four engaged positions is reached (turn the threaded pin to check).
  - Turn the threaded pin and set the chain tensioning device free.



## Extension

AEO

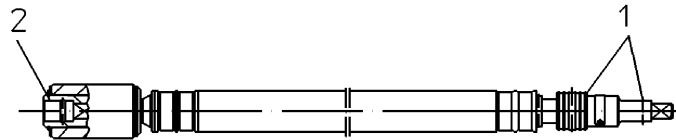
- 1 – Clean locking unit AEO and apply Molycote 3402 C.
- 2 – Clean inner square AEO and apply Gleitmo 805 K.



## Drive shaft

AEO

- 1 – Clean locking unit AEO and apply Molycote 3402 C.
- 2 – Clean clutch AEO and apply Molycote 3402 C to inner square.

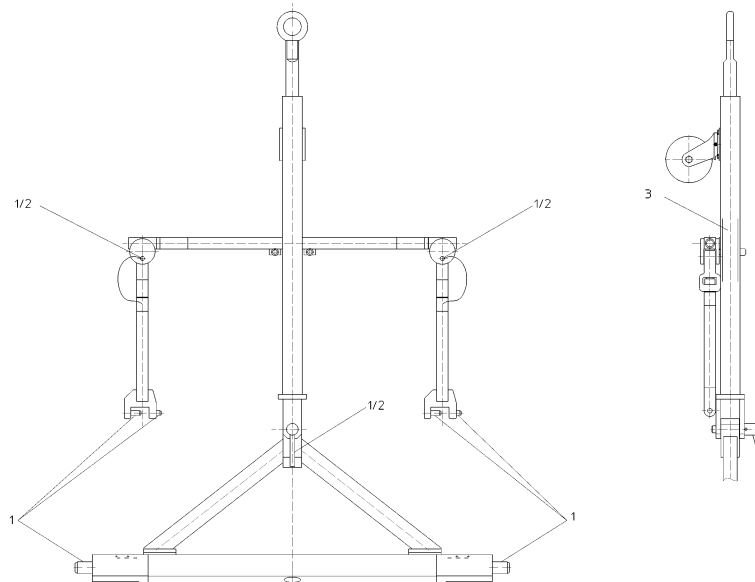


## Tow bar, drag link and track rod

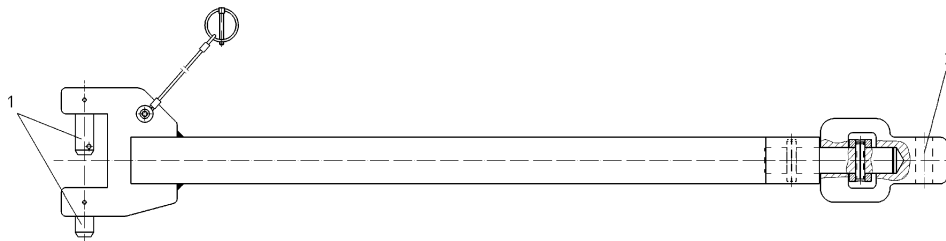
AR / AEO

- 1 – Clean pin AEO and apply Molycote 3402 C.
- 2 – Clean bore AEO and apply Molycote 3402 C.
- 3 – Grease moving part and gliding surfaces of the inner tube AR by injecting oil Shell Spirax HD 80 W.

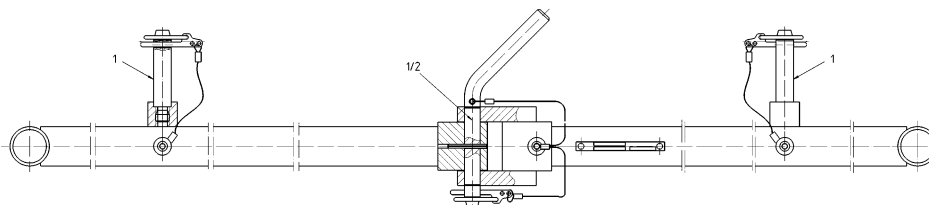
Tow bar



Drag link



Track rod





### D.3 On-the-spot trouble shooting

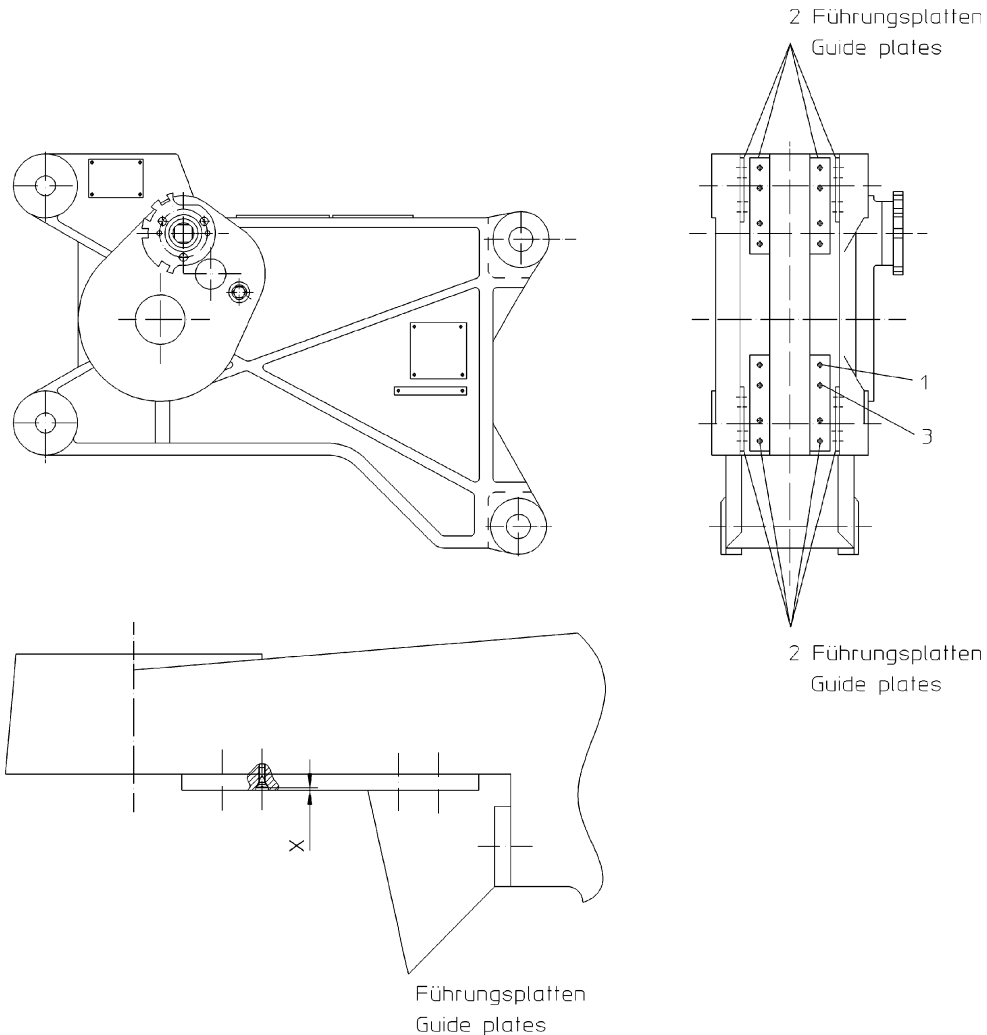
Exchange only the components listed in D.1. completely.

### D.4 Workshop repair

Square parts as listed in D.5. may only be exchanged in workshops by expert personnel.

#### D.4.1 How to recognize wear and tear

After reaching the limit for wear and tear (see pictures) the following parts have to be exchanged:



#### Outrigger (gearbox)

– Guide plate - set

„X“ When the gliding surfaces of the guide plates are in line with the head of the countersunk screw then the guide plate has to be exchanged.

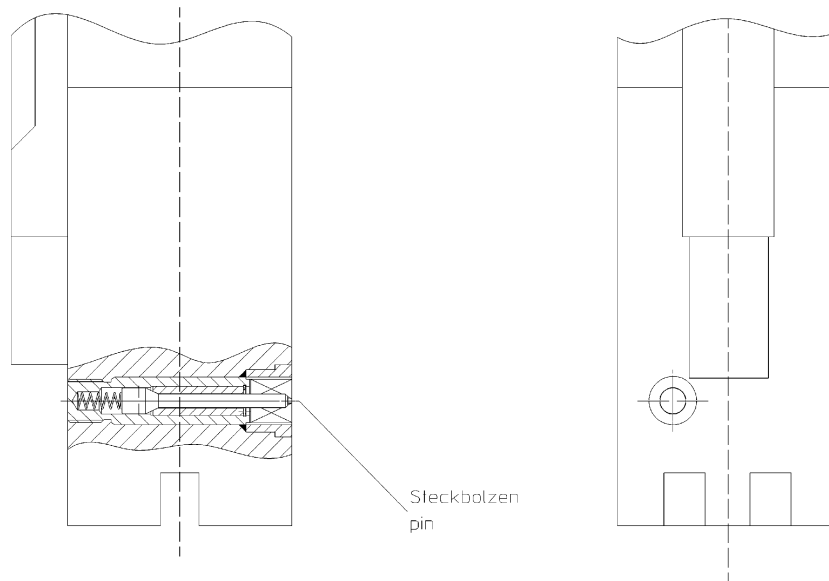
- Heat the area round the countersunk screw (1) (250° C up to 300° C).
- Unscrew the countersunk screws (1).
- Take the guide plates (2) off the clamping pins (3).
- Install new guide plates (2).
- Tighten those countersunk screws (1) which have been applied with Loctite 638.

 **Attention!**

**If the limit for wear and tear (guide plates) has not been reached after 500 operations then the outrigger (gearbox) has to be exchanged nevertheless.**

### Rack compl.

– Pin compl. Bestell-Nr. 108 292



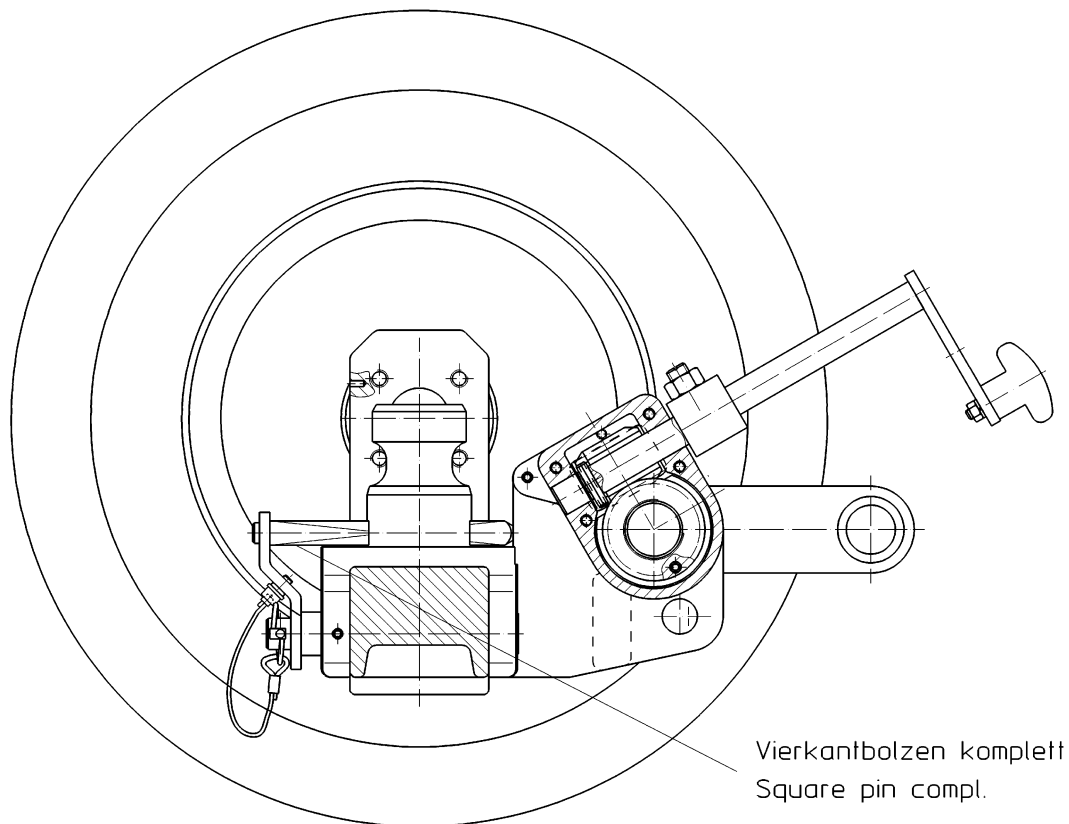
If the pin is difficult to move then it has to be exchanged.

For a description of how to change the pin refer to B.1.4.

If deep grooves appear (deeper than 1 mm 0.04") but at least after 700 operations the rack has to be exchanged completely.

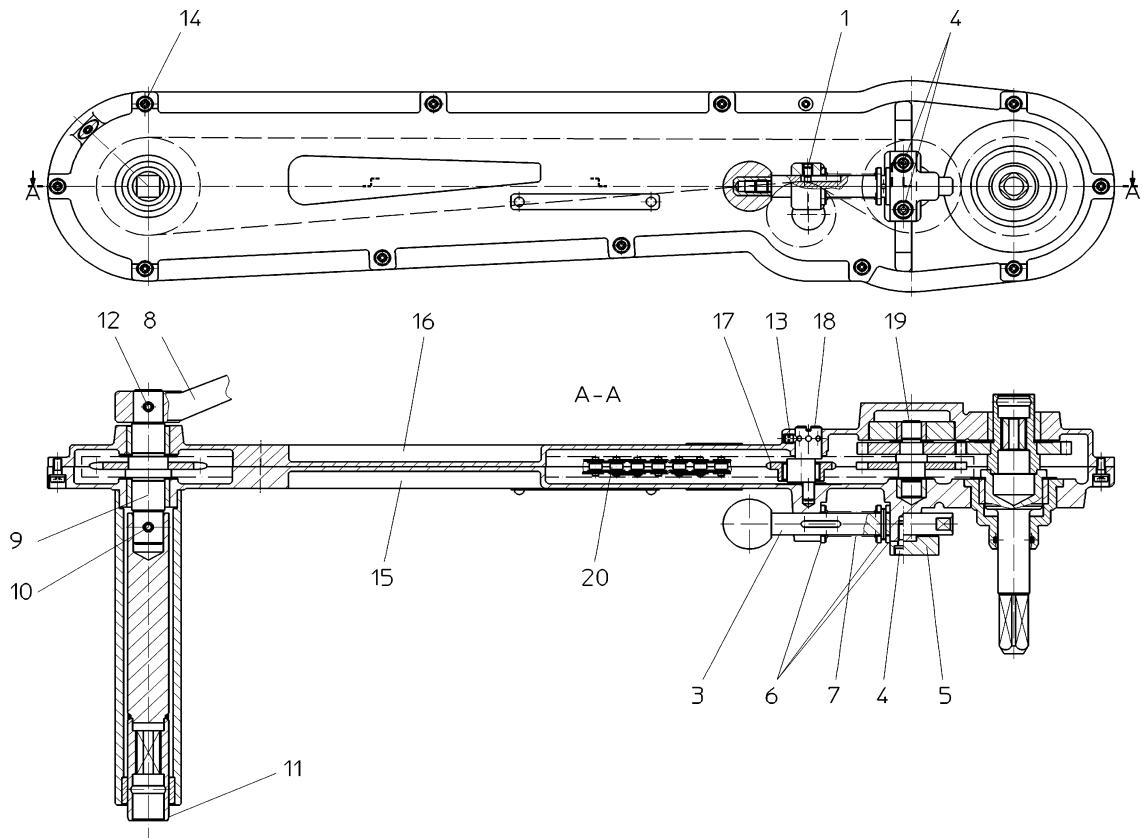
### Square pin

Square pin compl. Bestell-Nr. 108 340



If the square pin is hard to move then it has to be exchanged.

## Ergonomic crank



### pin

If the pin shows excessive tear at its flat parts or has it been bent due to force then it has to be exchanged.

- Unscrew threaded pin (1).
- Push out the clamping pin (2).
- Pull out the pin (3) with the spring parts.
- Turn out the cylinder screws (4).
- Take off the stopper.
- Attach new stopper (5) with cylinder screws and spring-loaded ring (4).
- Push pin (3) through the first bearing, through the washers (6) and the spring (7).
- Push clamping pin (3) properly and secure with a threaded pin (1).
- Apply Gleitmo 805 K at the pin.
- Check whether it works properly.

### Chain, crank-shaft-, chain tensioning device- and intermediate drive

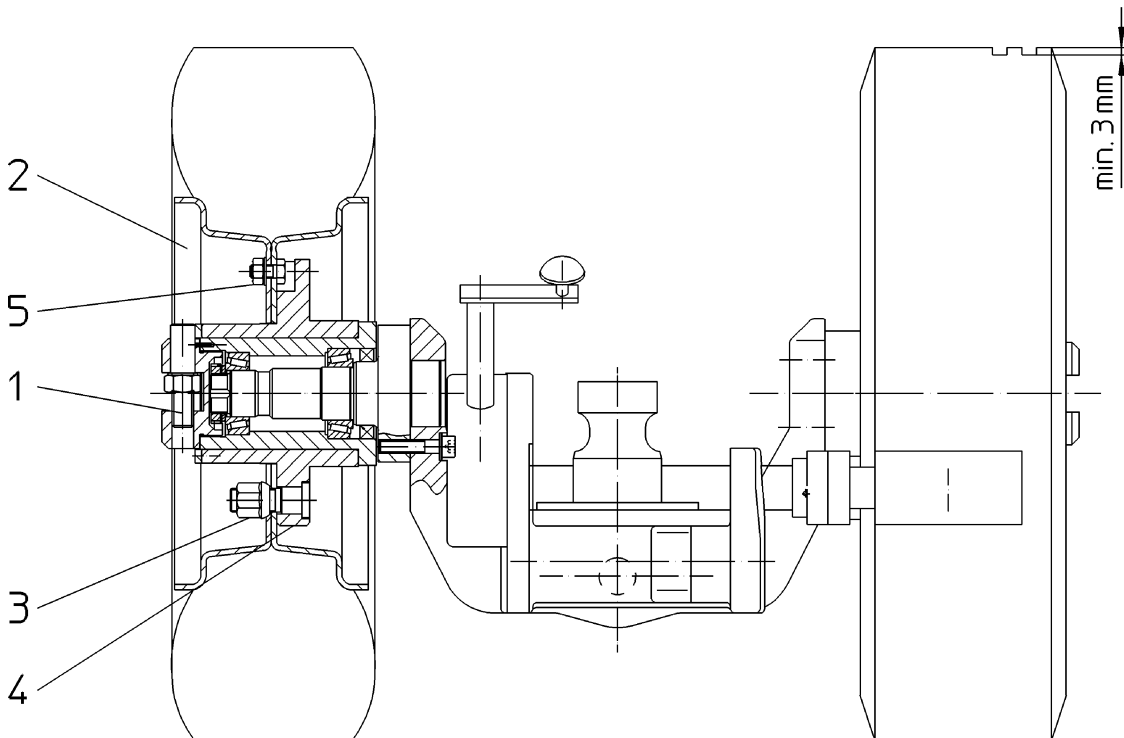
As soon as the chain can no longer be tightened again and it stalls the chain-, crank shaft-, chain tensioning device- and the intermediate drive have to be exchanged.

- Turn the crank shaft (9) with the crank handle (8) so far that the clamping pin (10) matches a hole in the extension tube and can be pushed out.
- Pull out the shaft (11).
- Push out the clamping pin (12), take off the crank (8) completely.
- Turn out the threaded pin (13) completely (chain tensioning device is set free).
- Turn out the cylinder screws (14).
- Open the crank cover (15 / 16).
- Take off the crank cover (15).
- Take off and exchange sprocket wheel (17), chain tensioning device (18), crank shaft (9), intermediate drive (19) and chain (20).
- Grease new parts with Shell Alvania R3.

Assembly in reverse order.

## Castor unit

Wheel Best. Nr. 106 322



If the profile depth is less than 3 mm then either tyre or wheel compl. have to be exchanged.

### Exchanging tyre, air tube and rim

- Screw home the threaded pin (1).
- Take off the wheel (2).
- Take off the nut (3)
- Take the wheel (2) off the flange (4).
- Deflate the tyre.
- Take the retaining screws (5) off the tyre.
- Exchange worn or damaged part.

Assembly in reverse order.

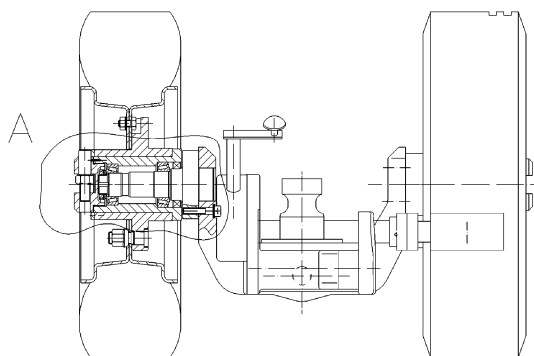
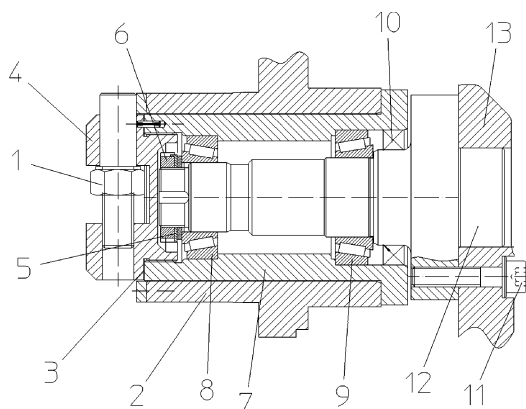
**⚠ Attention!**  
**Please fit screws (3) with 120 Nm (1062 in-lb) when assembling.**

- Inflate tyre.
- Tyre pressure 9 bar 130 psi.

## D.4.2 Repair

### Wheel bearing

- Necessary tools (see list D.4.3)

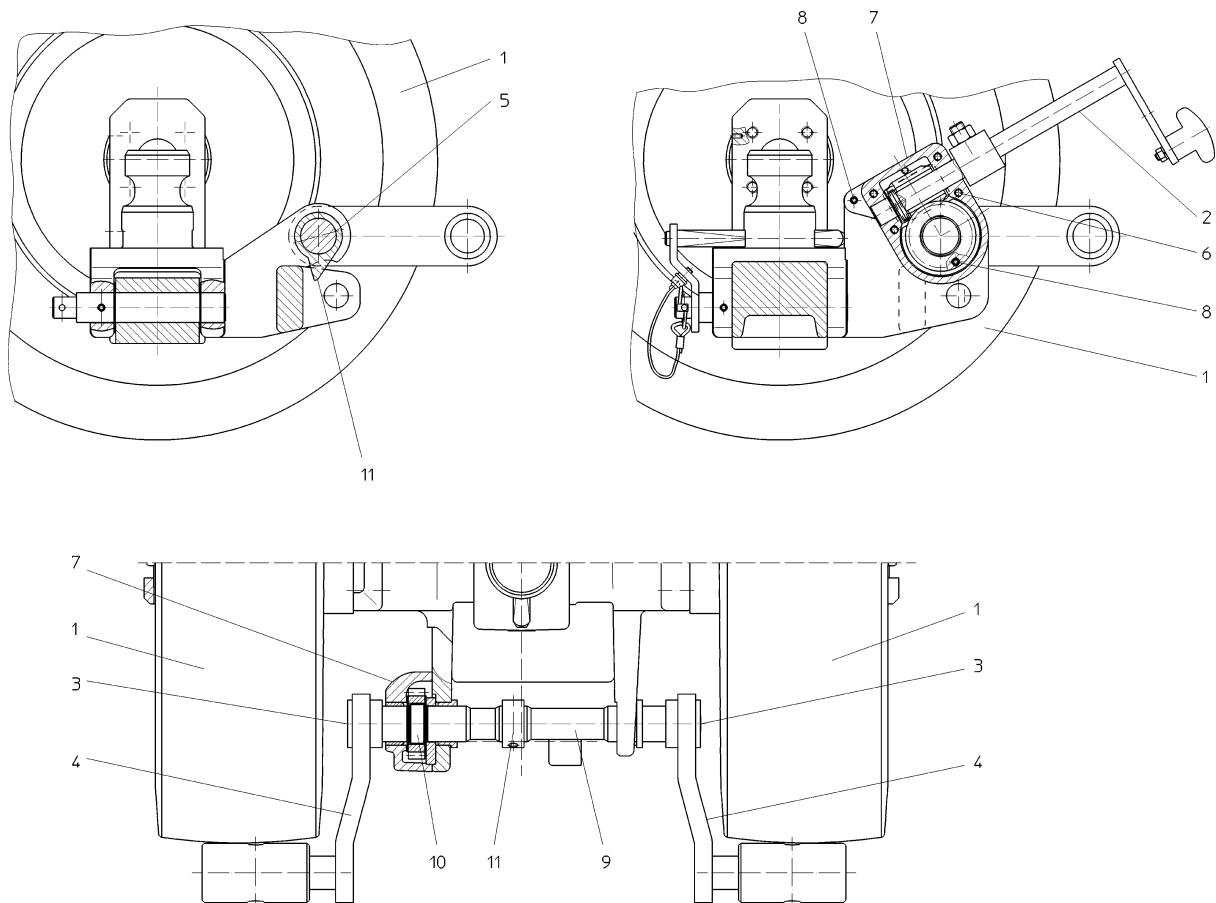


- Screw out the threaded pin (1).
- Take off the wheel (2).
- Bend the retaining washer (3) open.
- Turn out the locking unit (4).
- Bend the retaining plate (5) open.
- Turn out the shaft sealing nut (6).
- Pull off retaining plate (5) and washer (14).
- Take off the hub (7) and the tapered roller bearing (8).
- Take off the tapered roller bearing (9).
- Take off the shaft sealing ring (10).
- Press out the tapered roller bearing (8) on the hub (7).
- Open screws (11).
- Push the axle (12) out of the castor unit (13).

Assembly in reverse order.

**⚠ Attention!**  
**Please fit screws (11) with 50 Nm (442 in-lb) when assembling.**

## Brake on the castor unit



- Refer to paragraph on wheel bearing for taking off the wheel.
- Take off the crank handle (2).
- Take off the screws (3).
- Take off the arm (4).
- Push out the clamping pin (5).
- Unscrew the cylinder screws (6).
- Take the gear cover (7) off the clamping pins (8).
- Take off drive shaft (9), spur gear (13) and gear cover (7). Cam (11) moves off the drive shaft (9).
- Take spur gear (10) and gear cover (7) off the drive shaft (9).

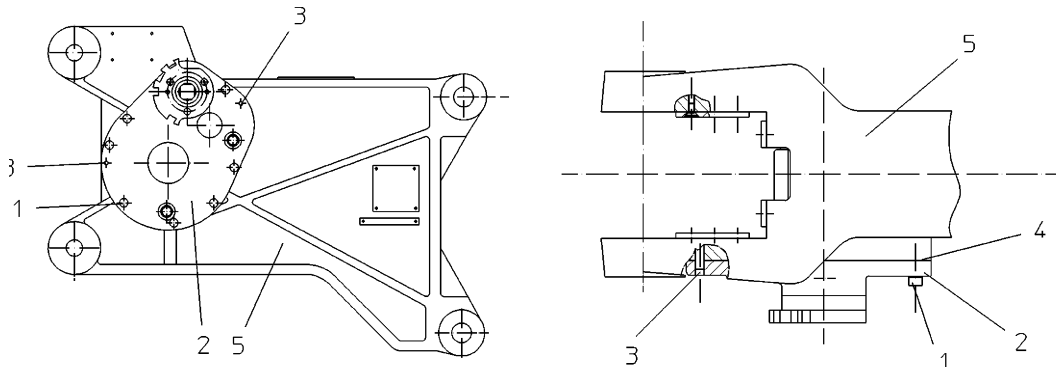
Assembly in reverse order.

## Changing the sealing on the gearbox cover at the outrigger



**Attention!**

The gearbox (outrigger) may only be opened in order to exchange sealings. The parts of the gearbox have to be left in their position inside the casing (outrigger) and may not be taken off. Only the manufacturer may disassemble the gearbox further.



- Lay outrigger (gearbox) down with gearbox cover (2) on top.

Exchanging the sealings:

- Take off the screws (1).
- Lift the gearbox cover (2) off the clamping pins (3). The parts of the gearbox will be lifted off the cover (2).
- Take off the sealing (4).
- Clean sealing surfaces on the outrigger (gearbox) (5) and the gearbox cover (2).
- Install new gearbox sealing (4).
- Attach new cover (2).
- Push cover (2) into the clamping pins (3).
- Tighten screws (1) on the cover (2).
- Turn crank handle. Check impermeability and proper function of the gearbox.

Other components.

Repair of other components is carried out in the usual way.

### D.4.3 List of necessary tools

List of necessary metric tools. Other tools are not based on a certain unit of measurement and it is supposed that the user has such tools at hand.

Open-jaw type spanner/wrench acc. to DIN 3110 (German standard)

Width across flats: 7x8, 11x13, 17x19 and 24x30

Socket spanner / wrench acc. to DIN 896 B (German standard)

Width across flats: 6x7

Hexagon socket key spanner / wrench acc. to DIN 911 B (German standard)

Width across flats: 3 / 4 / 5 / 6 / 8

Cotter pin extractor acc. to DIN 6450 C (German standard)

Point size: 2 / 3 / 4 / 5 / 6 / 7 / 8 / 10

### D.5 Spare parts to keep in stock

(for case of damage or loss)

Pos.	Description	Drwg. no.	Order no.
1	Outrigger compl. (Spare parts compl.)		123929
1	Sealing	1350.6,5.01.853	101973
1	Rack (C-130) (Spare parts compl.)	1350.6,5.51.00	202209
1	Rack extension (C-130)	1350.6,5.55.00	202210
1	Rack (C-141) (Spare parts compl.)	1350.6,5.61.00	202123
1	Rack extension (C-141)	1350.6,5.65.00	202214
2	Main pin	1350.6,5.70.00	202207
2	Main pin	1350.6,5.32.00	202205
1	Locking unit	1350.6,5.58.00	107802
1	Locking unit	1350.6,5.07.00	108341
1	Crank handle	1350.10.56.00	108800
1	Castor unit compl. (Spare parts compl.)	1350.6,5.335.00	204749
1	Pin	1350.6,5.44.00	108340



## D.6 Spare parts list

Adaptor R. H. compl.

Drwg. no. 1350.6,5.10.00

Order no. 202203

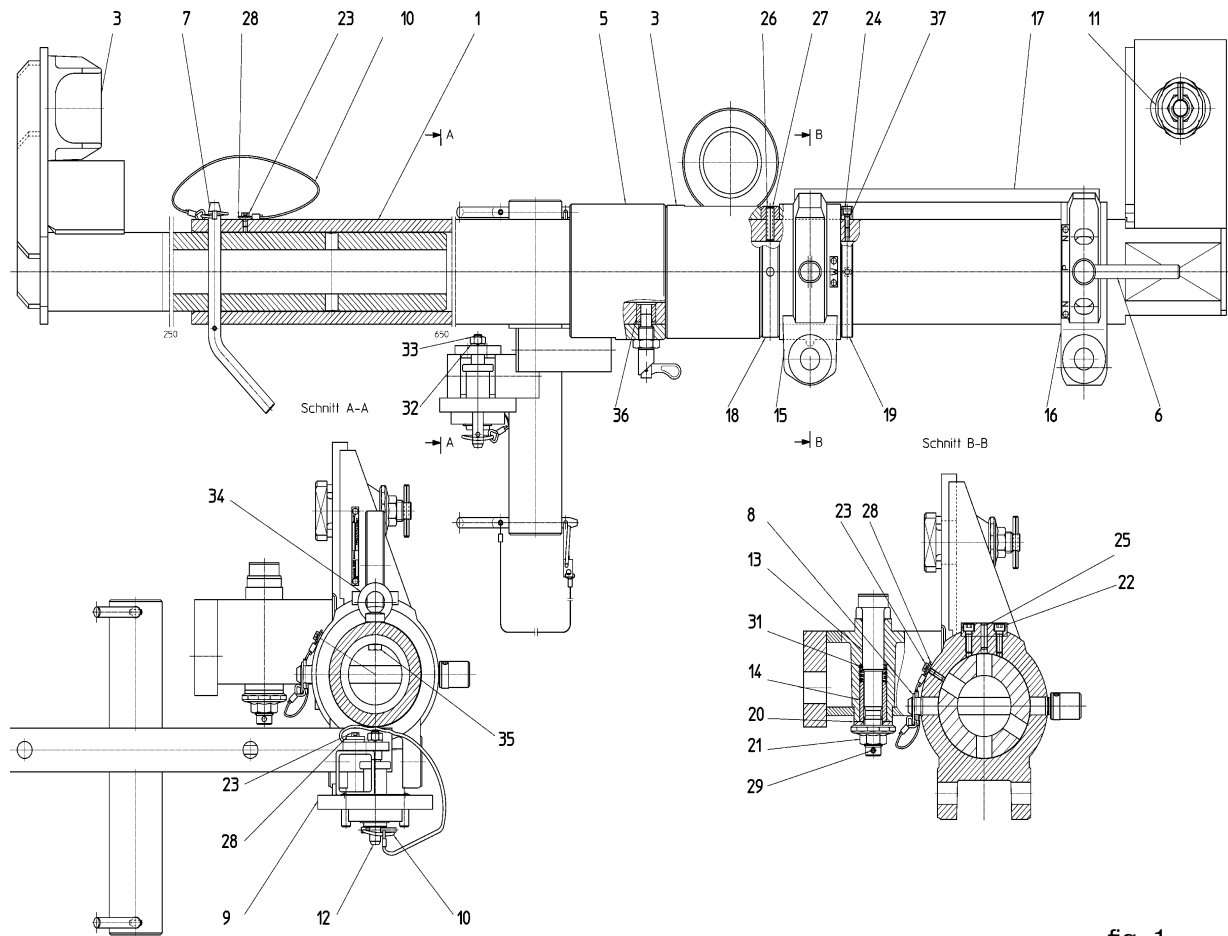


fig. 1

Pos.	Description	Order No.	Oty.	DIN No.	Dimension
1	Adaptor right hand side	108509	1		
3	Outrigger right hand side	108427	1		
4	Clamp	108346	1		
5	Clamp - set right hand side	108425 (fig. 2)	1		
6	Pin compl.	202206	1		
7	Pin compl.	108227	1		
8	Folding pin compl.	108240	1		
9	Locking piece compl.	107802 (fig. 3)	1		
10	Folding pin compl.	114716	2		
11	Locking device compl.	107926	1		
12	Pin	108221	1		
13	Locking pin	108452	1		
14	Sleeve	108293	1		
15	Upper clamp	108336	1		
16	Lower clamp	108335	1		
17	Ledge	108219	1		
18	Supporting ring	108295	1		
19	Ring	108294	1		

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
20	Washer	107925	1		
21	Nut	123607	1		
22	Allen screw	100024	4	ISO 4762	M 8 x 25 - A2
23	Allen screw	100611	3	DIN 6912	M 6 x 12 - A2
24	Allen screw	100066	4	ISO 4762	M 6 x 16 - A2
25	Clamping pin	101886	2	ISO 8752	8 x 30 - A2
26	Clamping pin	101889	4	ISO 8752	10 x 40 - A2
27	Clamping pin	100143	4	ISO 8752	6 x 40 - A2
28	Washer	100442	3	DIN 9021	6,4 - A2
29	Clamping pin	100146	1	ISO 8752	6 x 50 - A2
31	Compression spring	101074	1		VD-264
32	Spring-loaded ring	100458	1	DIN 127	A 10 - A2
33	Hex. nut	100360	1	DIN 934	M 10 - A2
34	Eyebolt	201631	1	DIN 582	M 10 - A3C
35	Hex. screw	100210	1	ISO 4017	M 10 x 40 - 8.8 - A3C
36	Sleeve	108220	1		
37	Spring-loaded ring	100468	4	DIN 7980	A 6 - A2

**Clamp - set right hand side**

Drwg. No. 1350.6,5.16.00

Order No. 108425

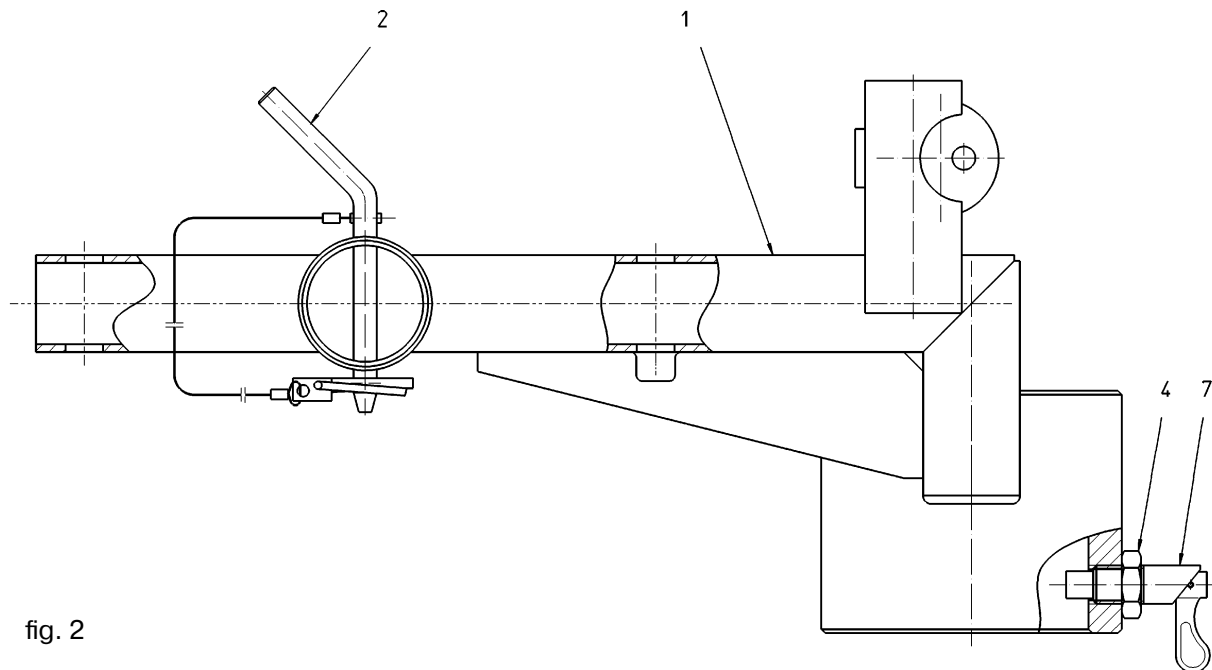


fig. 2

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Arm right hand side	116638	1		
2	Main pin	116641	2		
4	Hex. nut	106013	1	DIN 936	M 20 - A2
7	Locking pin	108258	1		

**Locking piece compl.**

Drwg. No. 1350.6,5.58.00

Order No. 107802

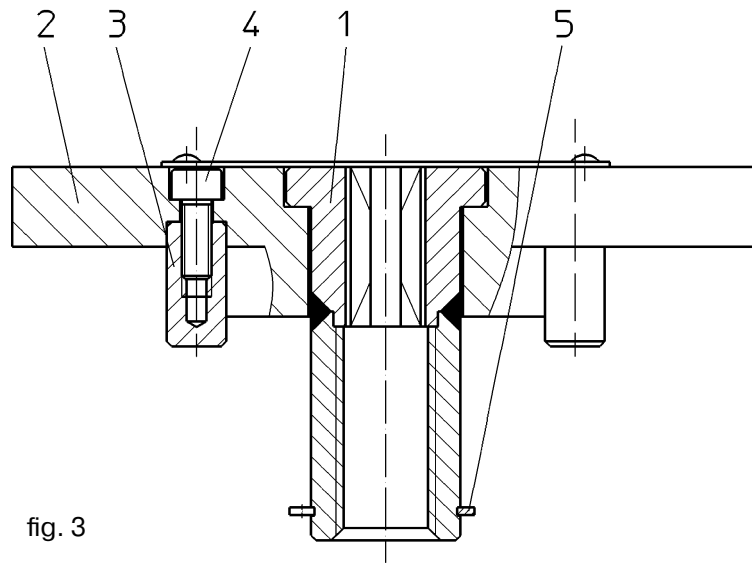


fig. 3

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Bushing	107804	1		
2	Plate	107803	1		
3	Nipple	107807	2		
4	Allen screw	100066	2	ISO 4762	M 6 x x16 - A2
5	Securing ring	100734	1	DIN 471	30 x 1,5 - A2

## Adaptor L. H. compl.

Drwg. No. 1350.6,5.24.00

Order No. 202204

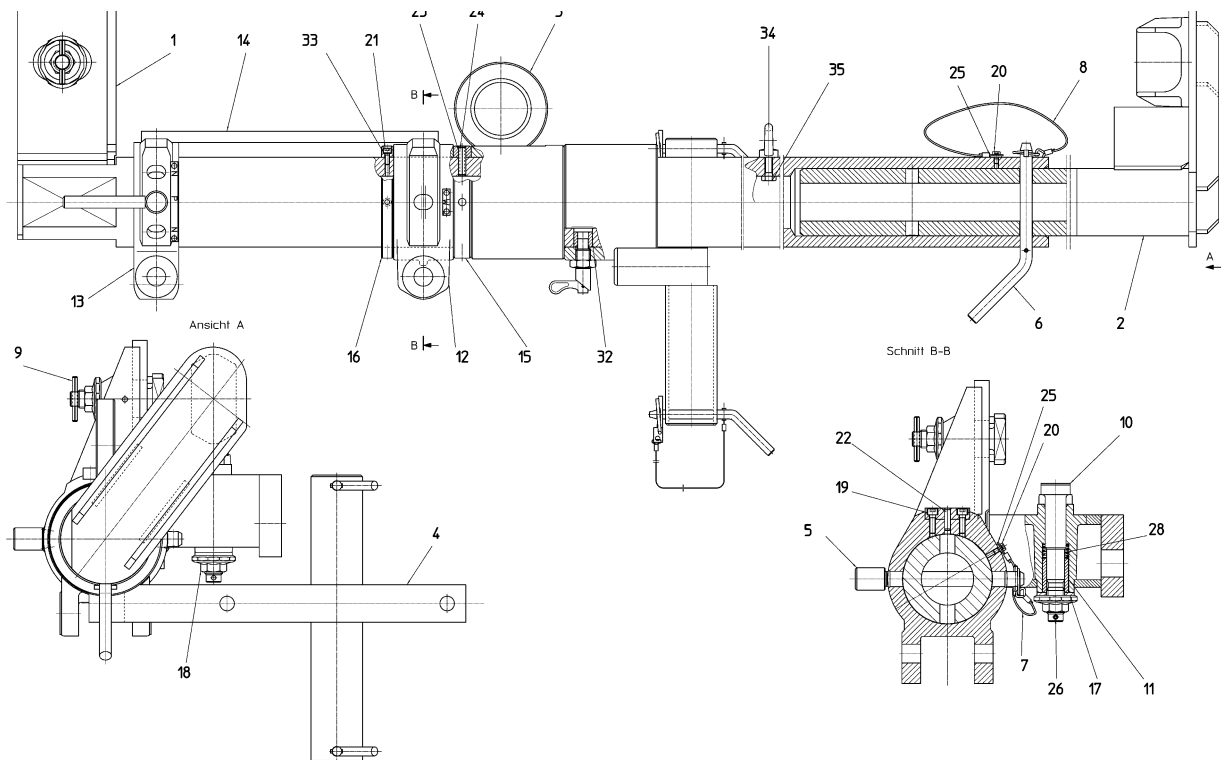


fig. 4

Pos.	Description	Order No.	Oty.	DIN No.	Dimension
1	Adaptor left hand side	108509	1		
2	Outrigger left hand side	108426	1		
3	Clamp	108346	1		
4	Clamp - set left hand side	108423 (fig. 5)	1		
5	Pin compl.	202206	1		
6	Pin compl.	108227	1		
7	Folding pin	108240	1		
8	Folding pin	114716	1		
9	Locking device compl.	107926	1		
10	Locking pin	108452	1		
11	Sleeve	108293	1		
12	Upper clamp	108336	1		
13	Lower clamp	108335	1		
14	Ledge	108219	1		
15	Supporting ring	108295	1		
16	Ring	108294	1		
17	Washer	107925	1		
18	Nut	123607	1		
19	Allen screw	100024	4	ISO 4762	M 8 x 25 - A2
20	Allen screw	100611	2	DIN 6912	M 6 x 12 - A2
21	Allen screw	100066	4	ISO 4762	M 6 x 16 - A2
22	Clamping pin	101886	2	ISO 8752	8 x 30 - A2
23	Clamping pin	101889	4	ISO 8752	10 x 40 - A2
24	Clamping pin	100143	4	ISO 8752	6 x 40 - A2

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
25	Washer	100442	2	ISO 7093	6,4 - A2
26	Clamping pin	100146	1	ISO 8752	6 x 50 - A2
28	Compression spring	101074	1		VD-264
32	Sleeve	108220	1		
33	Spring loaded ring	100468	4	DIN 7980	A 6 - A2
34	Eyebolt	201631	1	DIN 582	M 10 - A3C
35	Hex. screw	100210	1	ISO 4017	M 10 x 40 - 8.8 - A3C

**Clamp - set left hand side**

Drwg. No. 1350.6,5.30.00

Order No. 108423

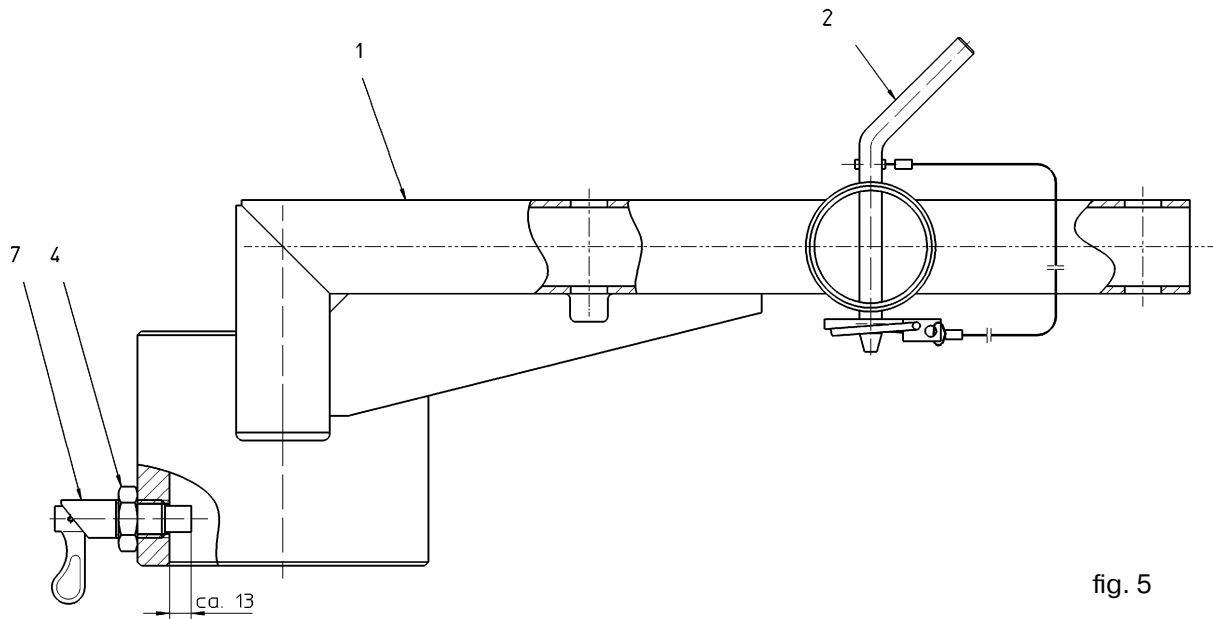


fig. 5

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Arm left hand side	108530	1		
2	Main pin	116641	2		
4	Hex. nut	106013	1	DIN 936	M 20 - A2
7	Locking pin	108258	1		

Outrigger mont. compl.

Drwg. No. 1350.6,5.170.00

Order No. 202576

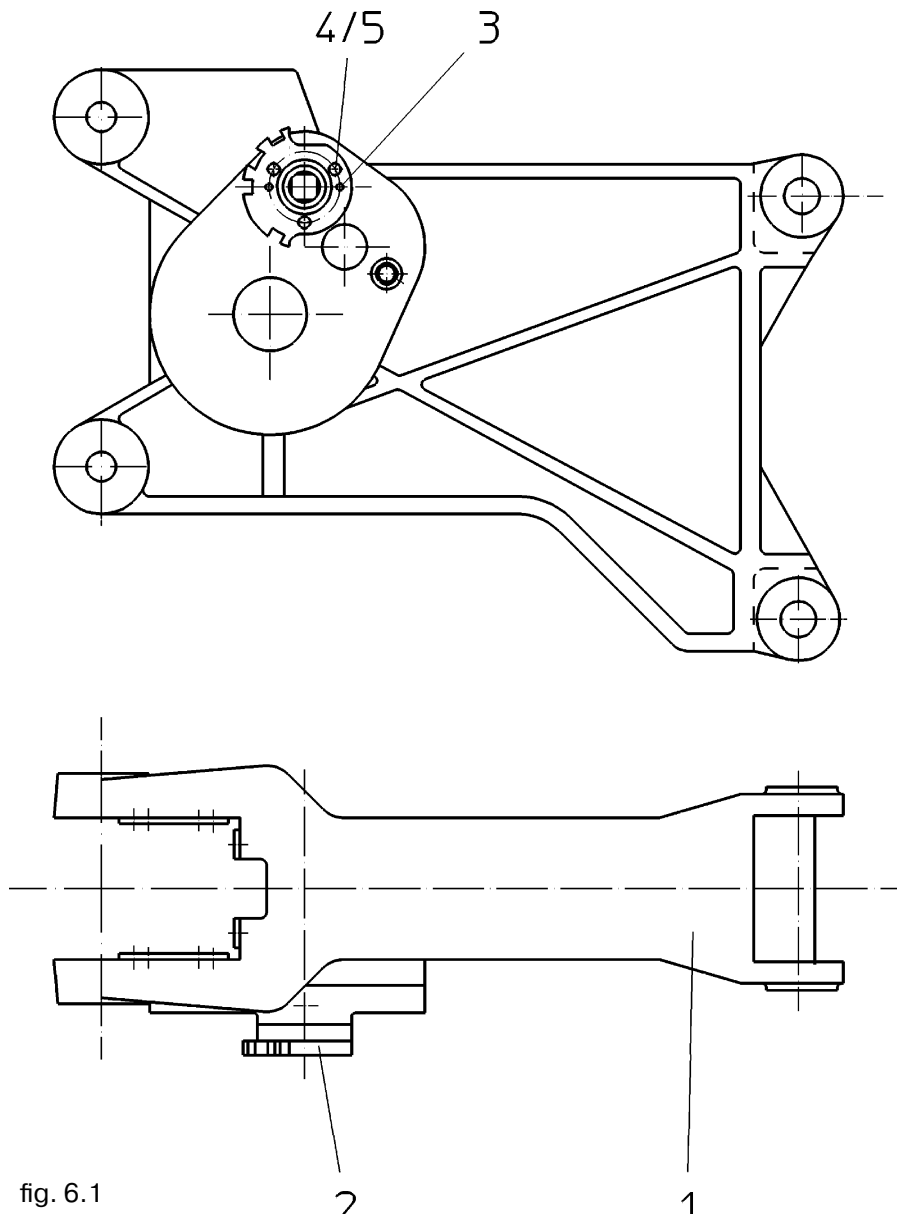


fig. 6.1

Pos.	Description	Order No.	Oty.	DIN No.	Dimension
1	Outrigger compl.	123929	1		
2	Patterned disc	108424	1		
3	Clamping pin	100143	2	ISO 8752	6 x 40 - A2
4	Allen screw	100021	3	ISO 4762	M 8 x 20 - A2
5	Spring loaded ring	100469	3	DIN 7980	A 8 - A2

**Outrigger compl.**

Drwg. No. 1350.6,5.180.00

Order No. 117700

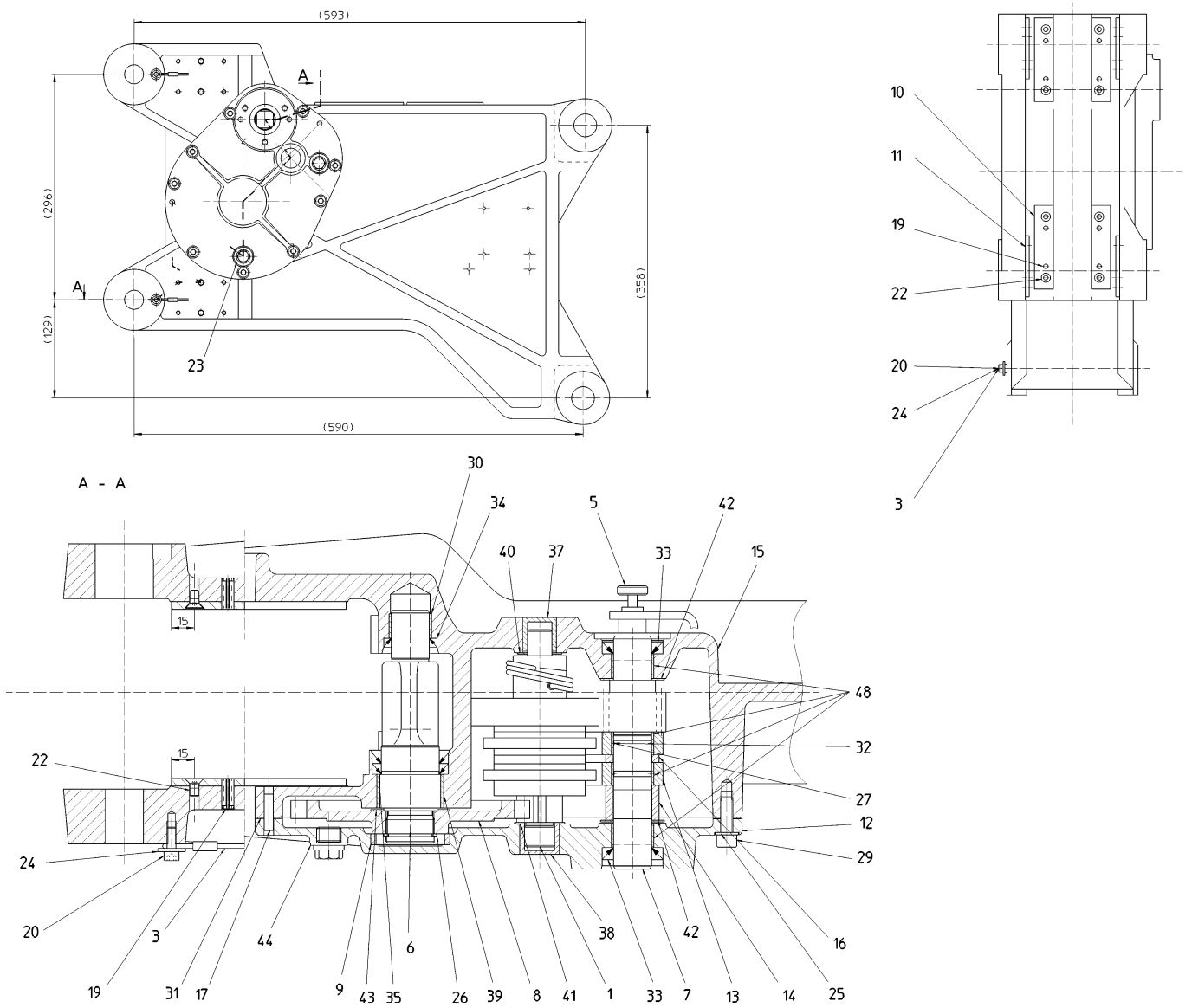


fig. 6.2

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Safety blocking device	108444	1		
3	Folding pin	108263	4		
5	Locking piece	108341 (fig. 7)	1		
6	Rack drive	108448	1		
7	Crank drive	108415	1		
8	Gear wheel	108491	1		
9	Gliding ring	108299	1		
10	Guide plate	108224	4		
11	Guide plate	108223	4		
12	Cover	108523	1		
13	Detent lever	108270	2		
14	Clamping sleeve	108234	1		
15	Outrigger	108751	1		
16	Detent lever	108271	1		
17	Cylinder pin	101407	2	ISO 2338	A 6 x 24 - A2
19	Clamping pin	100153	16	ISO 8752	8 x 20 - A2
20	Allen screw	100066	4	ISO 4762	M 6 x 16 - A2
22	Countersunk screw	100635	24	DIN 7991	M 6 x 12 - A2
23	Screw	100682	2	DIN 910	M 16 x 1,5 - A2
24	Washer	100442	4	ISO 7093	A 6,4 - A2
25	Spring loaded ring	100456	9	DIN 137	B 8 - A2
26	Securing ring	100733	1	DIN 471	A 30 x 1,5
27	Ball	101029	2	DIN 5401 III	6,5
29	Allen screw	100024	9	ISO 4762	M8 x 25 - A2
30	Bushing	102427	1		
31	Sealing	101973	1		
32	Compression spring	101665	2		
33	Shaft sealing ring	100875	2		BASL 25 x 40 x 8
34	Shaft sealing ring	100874	1		BASL 25 x 35 x 7
35	Shaft sealing ring	106018	2		BA 38 x 50 x 7
37	Needle sleeve	106016	1		BK 1622
38	Needle sleeve	100829	1		BK 2020
39	Bushing	100982	1		MB 4020
40	Axial washer	100812	1		AS 1730
41	Axial washer	100813	1		AS 2035
42	Axial washer	100814	2		AS 2542
43	Axial washer	100816	1		AS 3552
44	Ring	100908	2		16,7 x 24 x 1,5
48	Bushing	100969	4		



**Locking piece**

Drwg. No. 1350.6,5.07.00

Order No. 108341

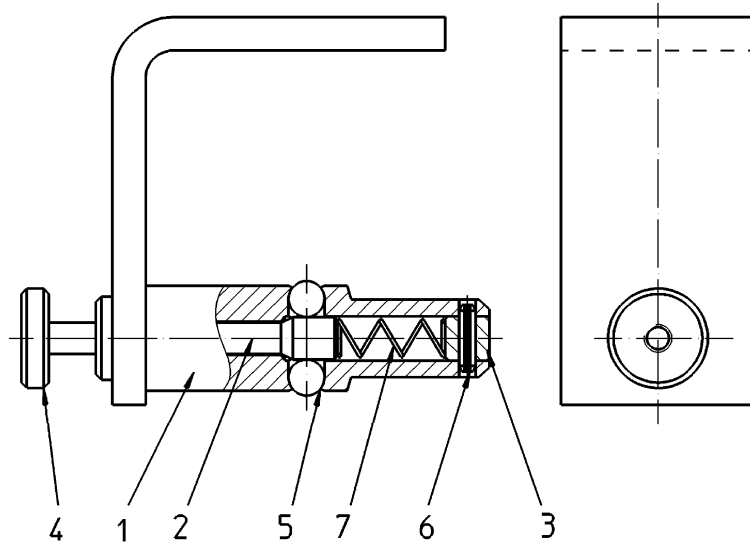


fig. 7

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Shank	108342	1		
2	Latch pin	108788	1		
3	Stopper	104790	1		
4	Button	103954	1		
5	Ball	101028	2	DIN 5401 III	6,35 - A2
6	Clamping pin	100081	1	ISO 8752	3 x 12 - A2
7	Compression ring	100996	1		VD-099

**Rack compl.**

Drwg. No. 1350.6,5.50.00

Order No. 201266

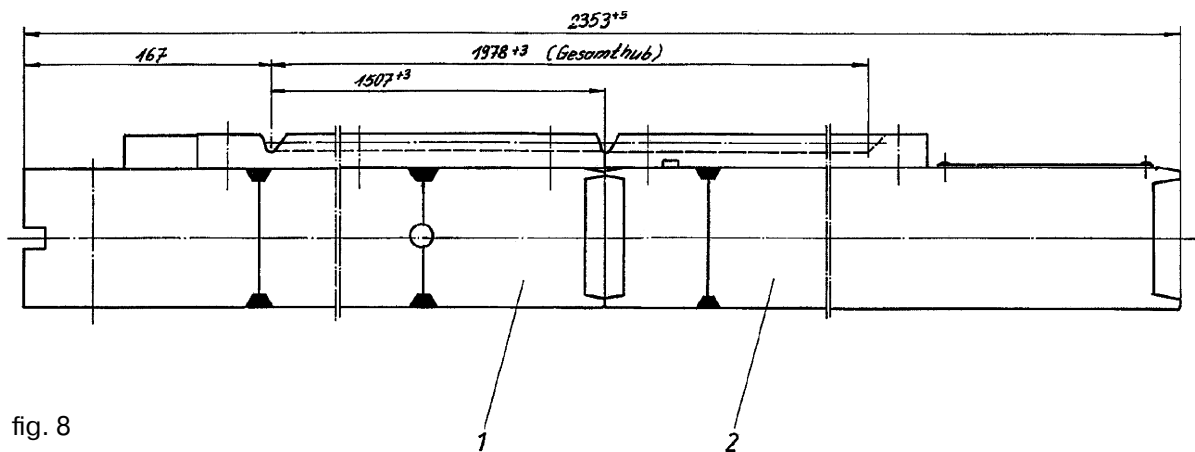


fig. 8

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Rack compl.	202209 (fig. 9)	1		
2	Rack extension compl.	202210 (fig. 10)	1		

**Rack compl.**

Drwg. No. 1350.6,5.51.00

Order No. 202209

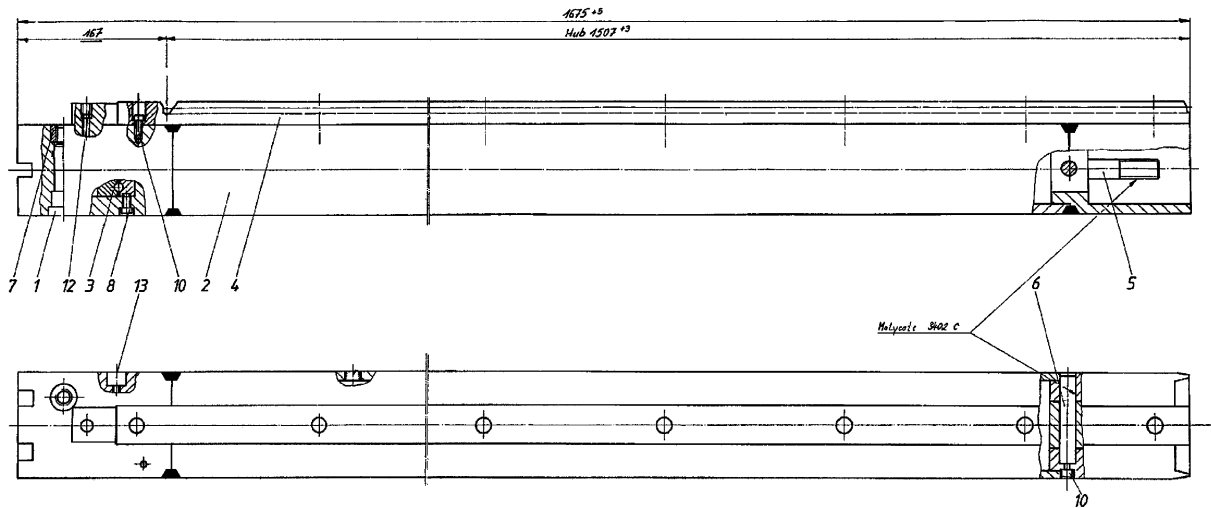


fig. 9

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Pin compl.	108292	1		
2	Rack tube compl.	108760	1		
3	Ball bearing	108225	1		
4	Rack	108475	1		
5	Lever	108284	1		
6	Pin	108283	1		
7	Bushing	108282	1		
8	Screw	108267	1		
10	Allen screw	100615	10	DIN 6912	M 6 x 16 - A2
12	Threaded pin	100706	1	ISO 4026	M 10 x 12 - A2
13	Grease nipple	100271	1	DIN 71412	M 6 x 1 - MS

**Rack compl.**

Drwg. No. 1350.6,5.55.00

Order No. 202210

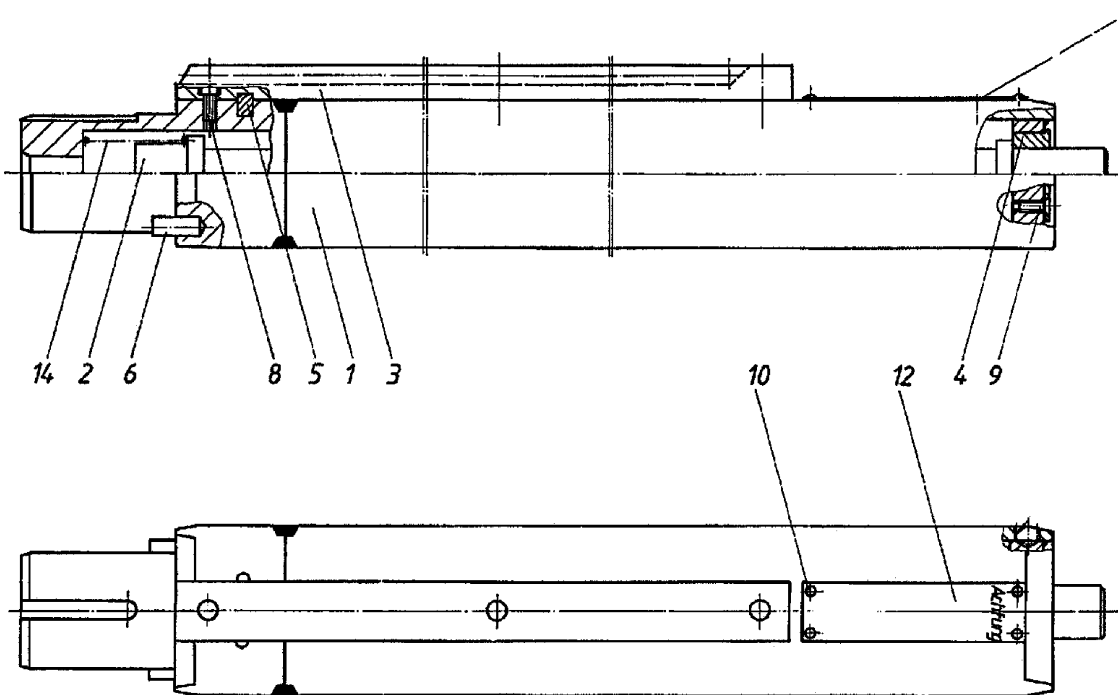


fig. 10

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Rectangular tube	108524	1		
2	Extension	108430	1		
3	Rack	108485	1		
4	Cover	108212	1		
5	Key	108226	1		
6	Cylinder pin	107933	2		
8	Allen screw	100615	4	DIN 6912	M 6 x 16 - A2
9	Countersunk screw	101705	4	DIN 7991	M 6 x 20 - A2
14	Compression spring	106020	1		

**Rack compl.**

Drwg. No. 1350.6,5.60.00

Order No. 201645

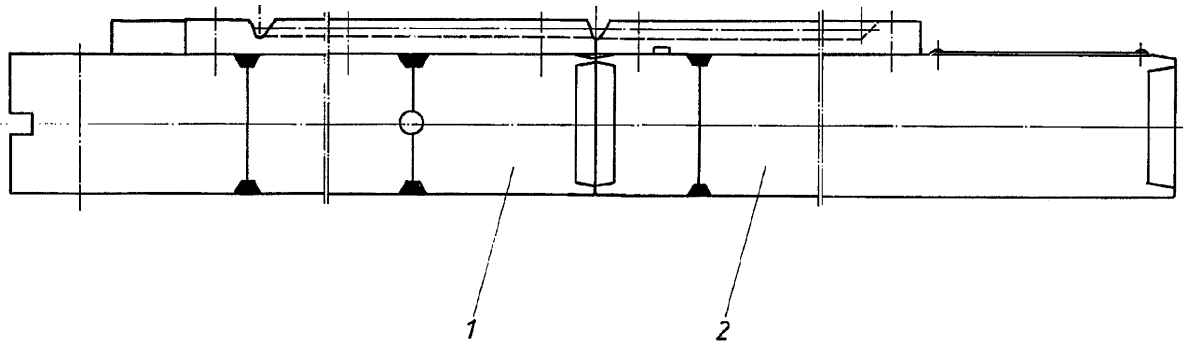


fig. 11

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Rack compl.	202213 (fig. 12)	1		
2	Rack extension compl.	202214 (fig. 13)	1		

**Rack compl.**

Drwg. No. 1350.6,5.61.00

Order No. 202213

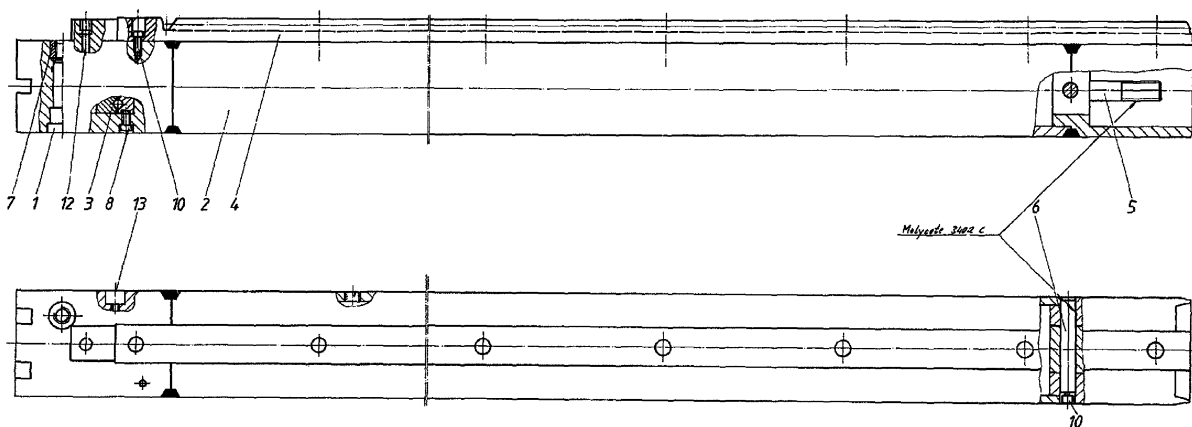


fig. 12

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Pin compl.	108292	1		
2	Rack tube compl.	108761	1		
3	Ball bearing	108225	1		
4	Rack	108486	1		
5	Lever	108284	1		
6	Pin	108283	1		
7	Bushing	108282	1		
8	Screw	108267	1		
10	Allen screw	100615	12	DIN 6912	M 6 x 16 - A2
12	Threaded pin	100706	1	ISO 4026	M 10 x 12 - A2
13	Grease nipple	100271	1	DIN 71412	M 6 x 1 - MS

**Rack extension compl.**

Drwg. No. 1350.6,5.65.00

Order No. 202214

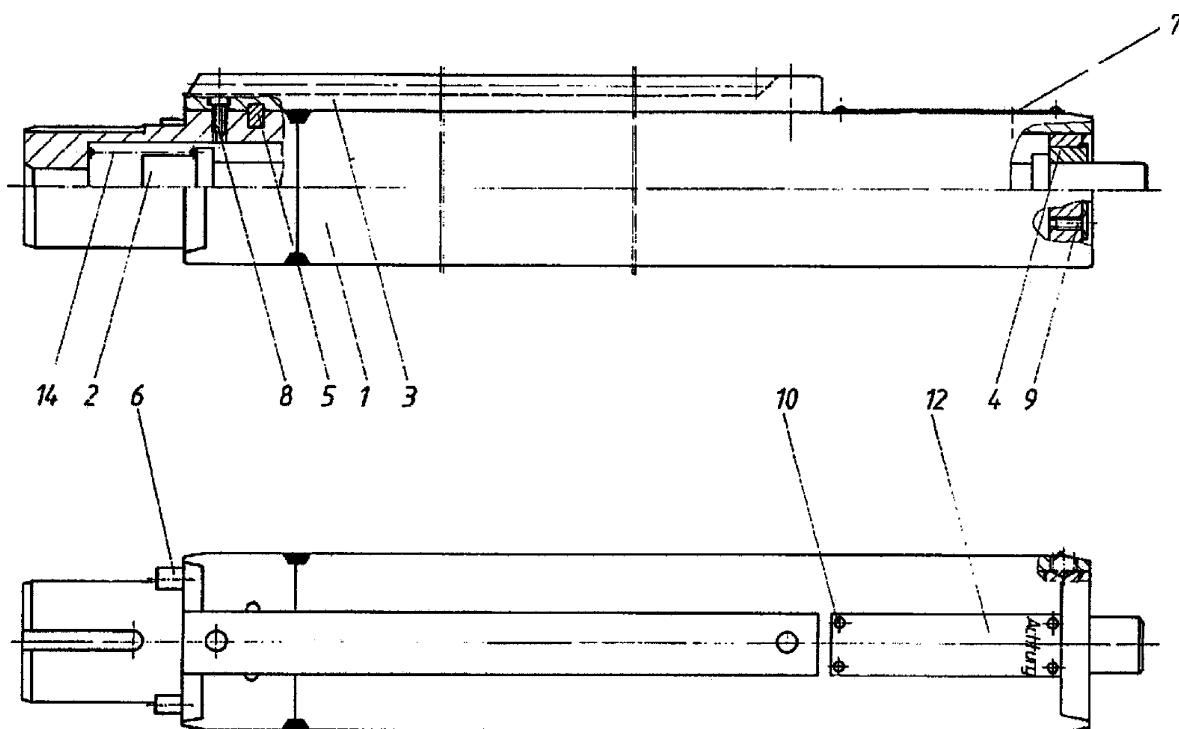


fig. 13

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Rectangular tube	108506	1		
2	Extension	108436	1		
3	Rack	108281	1		
4	Cover	108212	1		
5	Key	108226	1		
6	Cylinder pin	107933	2		
8	Allen screw	100615	2	DIN 6912	M 6 x 16 - A2
9	Countersunk screw	101705	4	DIN 7991	M 6 x 20 - A2
14	Compression spring	106020	1		

**Main pin compl.**

Drwg. No. 1350.6,5.32.00

Order No. 202205

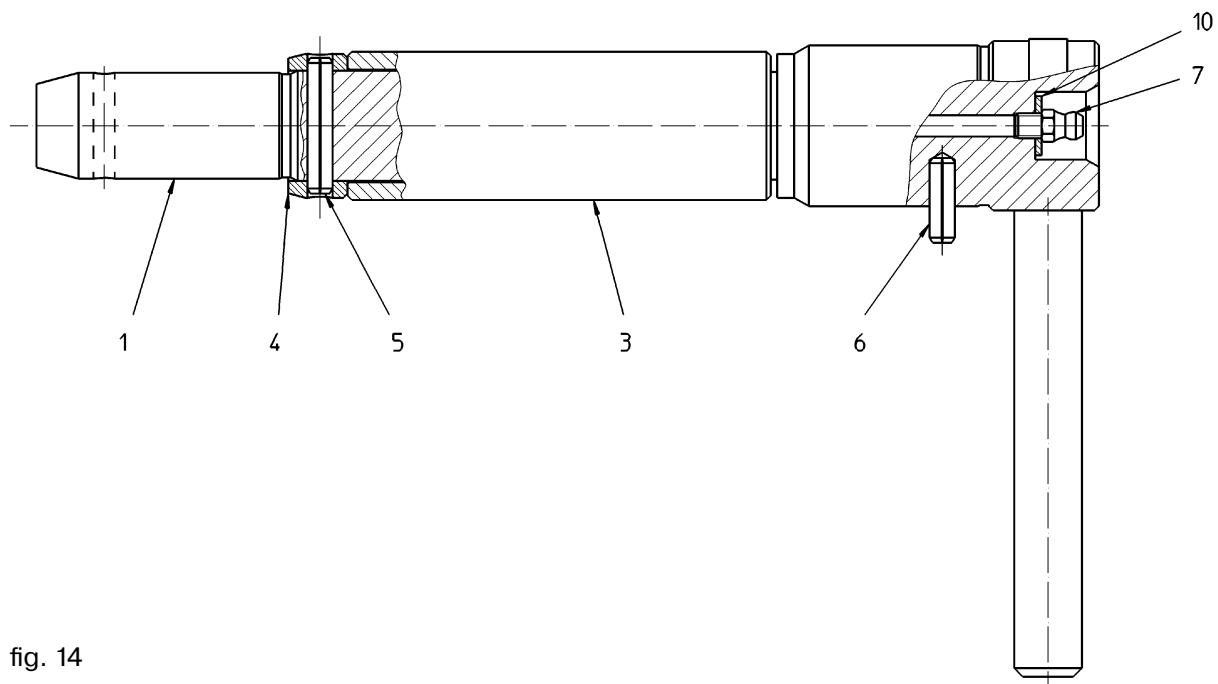


fig. 14

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Pin compl.	108463	1		
3	Roller	108275	1		
4	Clamp	108237	1		
5	Clamping pin	201161	1	ISO 8752	6 x 32 - A2
6	Clamping pin	100134	1	ISO 8752	6 x 20 - A2
7	Grease nipple	100270	1	DIN 71412	M 6 x 1 - A3D
10	Name plate	106040	1	14 x 6	

**Main pin compl.**

Drwg. No. 1350.6,5.70.00

Order No. 202207

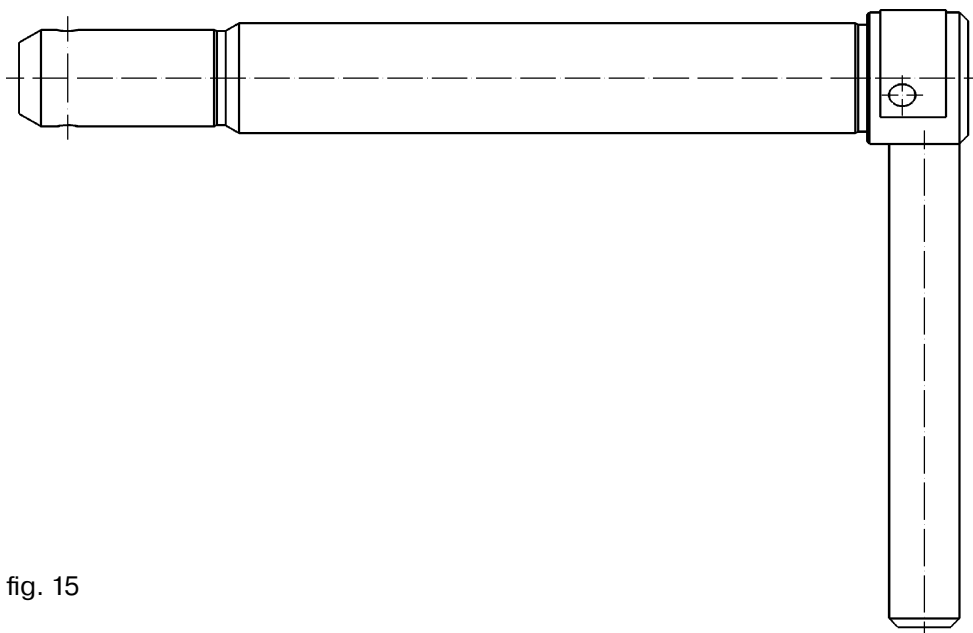


fig. 15

**Wheel set compl.**

Drwg. No. 1350.6,5.335.00

Order No. 204749

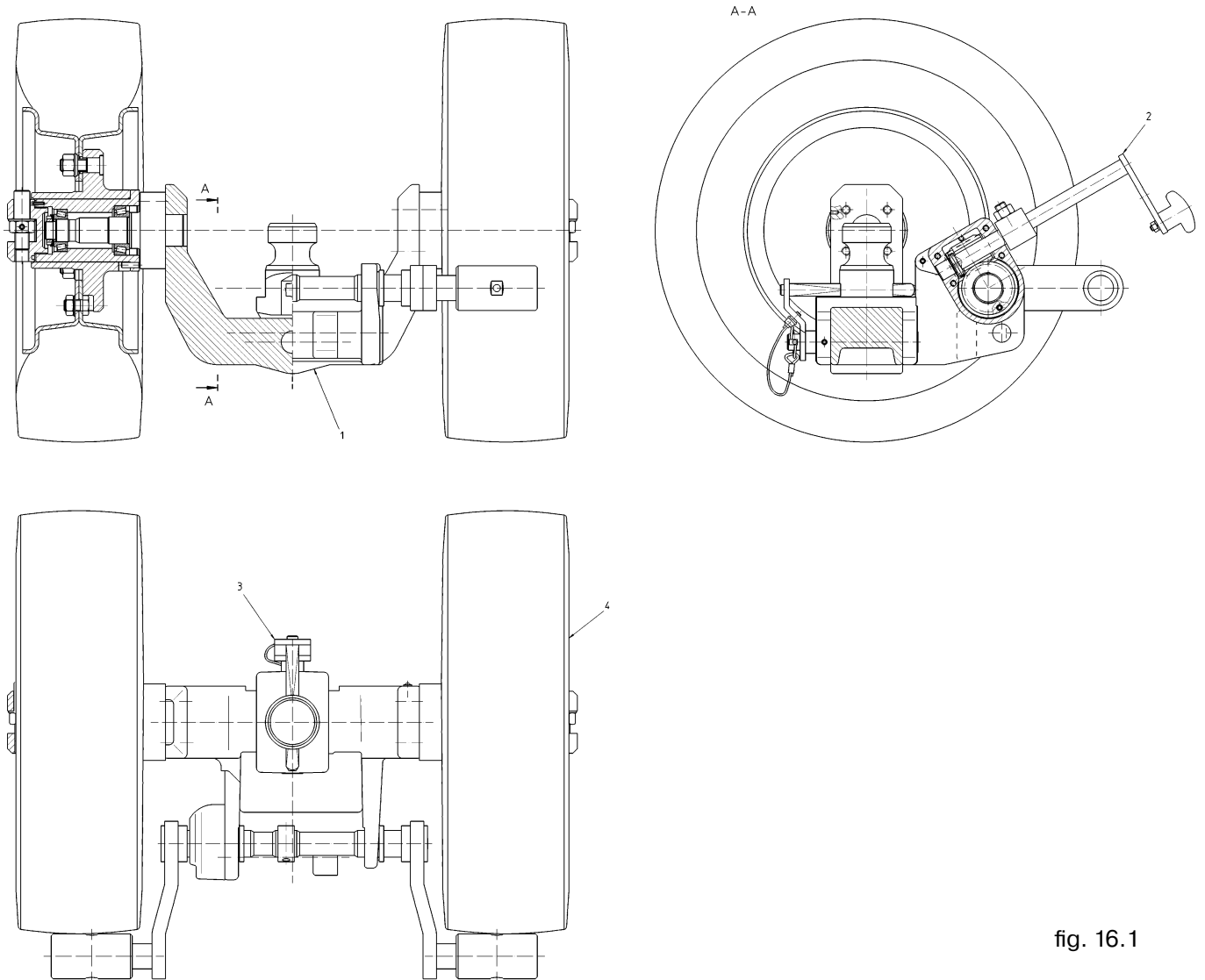


fig. 16.1

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Wheel unit mont.	208632 (fig. 16.2)	1		
2	Crank handle	114927 (fig. 20)	1		
3	Square pin	108340 (fig. 21)	1		
4	Wheel compl.	108419 (fig. 17)	2		

## Wheel unit compl.

Order No. 208632

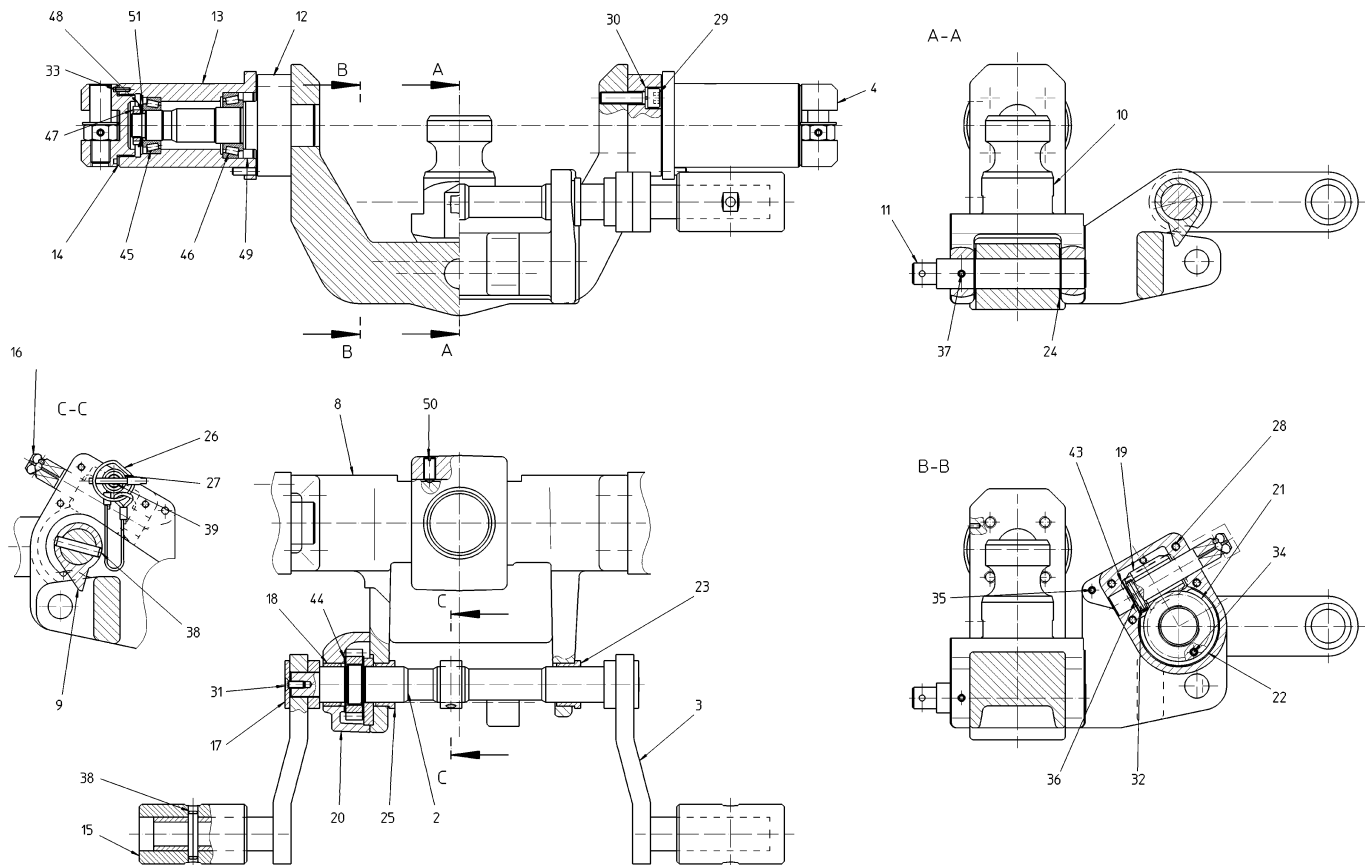


fig. 16.2

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
3	Drive shaft	108451	1		
4	Arm compl.	108345	2		
5	Cover	108348 (fig. 19)	2		
8	Wheel tool	107194	1		
9	Cam	108289	1		
10	King pin	108629	1		
11	Pin	108288	1		
12	Axle	108450	2		
13	Hub compl.	113002 (fig. 22)	2		
14	Security washer	108239	2		
15	Brake	108261	2		
16	Square bolt	108287	1		
17	Washer	108256	2		
18	Sleeve	107944	1		
19	Worm	103370	1		
20	Gearbox cover	107928	1		
21	Worm gear wheel	107947	1		
22	Washer	107946	1		
23	Bushing	108286	1		
24	Axial washer	100814	2		
25	Bushing	108285	1		
26	Folding pin	111384	1		4,5 x 32
27	Sleeve	114928	1		
28	Allen screw	106017	4	ISO 4762	M 6 x 50 - A2



Pos.	Description	Order No.	Qty.	DIN No.	Dimension
29	Allen screw	101747	8	ISO 4762	M 10 x 40 - A2
30	Spring ring	100470	8	DIN 7980	A10 - A2
31	Countersunk screw	106033	2	DIN 7991	M 6 x 16 - A2
32	Clamping pin	100094	1	ISO 8752	3,5 x 26 - A2
33	Clamping pin	100081	2	ISO 8752	3 x 12 - A2
34	Clamping pin	100129	1	ISO 8752	6 x 16 - A2
35	Clamping pin	100134	1	ISO 8752	6 x 20 - A2
36	Clamping pin	100138	1	ISO 8752	6 x 28 - A2
37	Clamping pin	100146	1	ISO 8752	6 x 50 - A2
38	Clamping pin	100158	3	ISO 8752	8 x 40 - A2
39	Allen screw	100065	1	ISO 4762	M 6 x 12
43	Washer	100822	2		CP 2 - 1830
44	Axial washer	100815	2		AS 3047
45	Taper roller bearing	106025	2		32005 X
46	Taper roller bearing	106024	2		32006 X
47	Shaft nut	106404	2		KM 4
48	Safety plate	106026	2		MB 4
49	Seal ring	106019	2		BASL 40 x 55 x 8 - 50505
50	Retention unit	106411	1		KN 301-10 - A2
51	Washer	100809	2		LS 2035

### Wheel compl.

Drwg. No. 1350.6,5.37.00

Order No. 108419

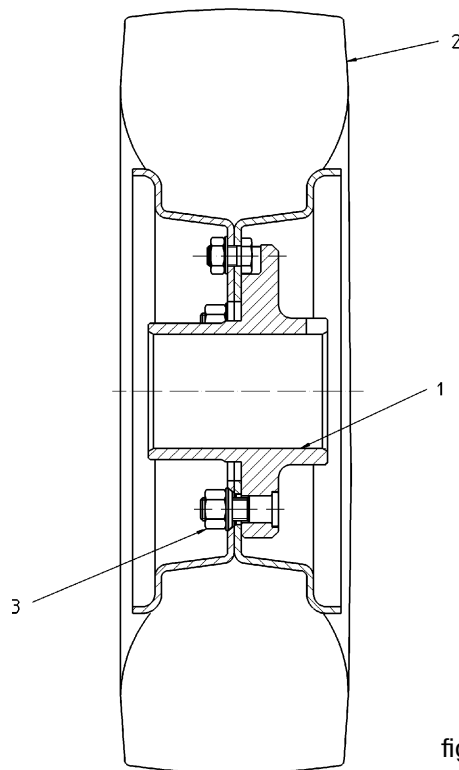


fig. 17

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Flange compl.	108260 (fig. 18)	1		
2	Wheel assembly	108275	1		
3	Wheel nut	115409	5		M 14 x 1,5 - A3D

**Flange compl.**

Drwg. No. 1350.6,5.38.00

Order No. 108260

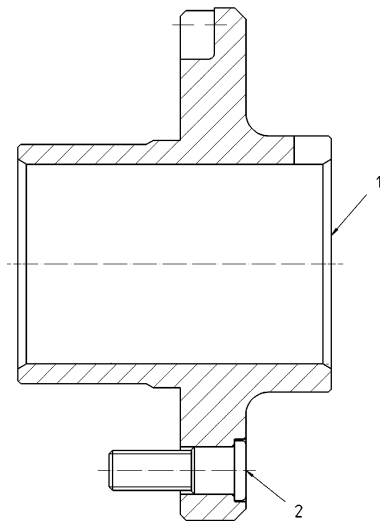


fig. 18

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Flange	108520	1		
2	Wheel stud	115402	5		M 14 x 1,5 x 48 - A3D

**Cover compl.**

Drwg. No. 1350.6,5.41.00

Order No. 108348

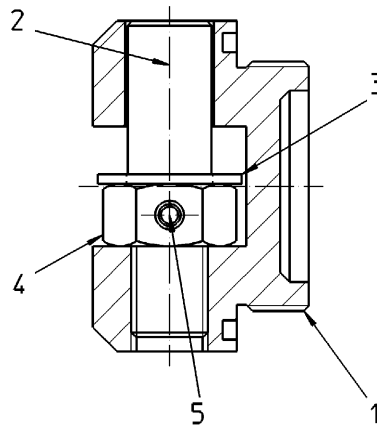


fig. 19

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Cover	108453	1		
2	Threaded pin	108213	1		
3	Spring washer	107951	1		
4	Hex. nut	101674	1	ISO 4032	M 16 - A2
5	Clamping pin	100136	1	ISO 8752	6 x 24 - A2

**Crank handle compl.**

Drwg. No. 1350.6,5.342.00

Order No. 114927

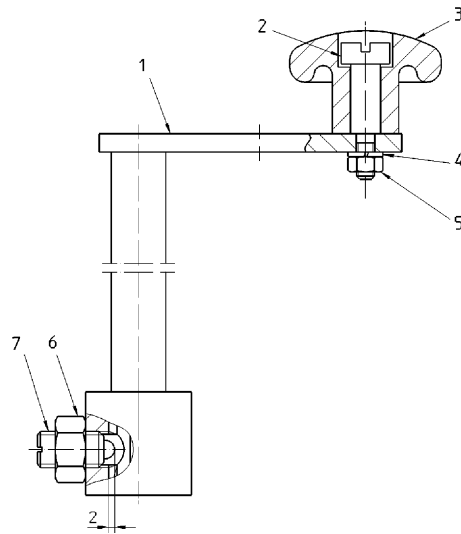


fig. 18

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Crank handle	114925	1		
2	Bolt	107923	1		
3	Handle	108585	1		
4	Spring washer	100454	1	DIN 127	B6 - A2
5	Hex. nut	100354	1	ISO 4032	M 6 - A2
6	Hex. nut	100367	1	ISO 4032	M 12 - A2
7	Elastic pressure pce.	100559	1		M 12 x 22 - A2

**Square pin compl.**

Drwg. No. 1350.6,5.44.00

Order No. 108340

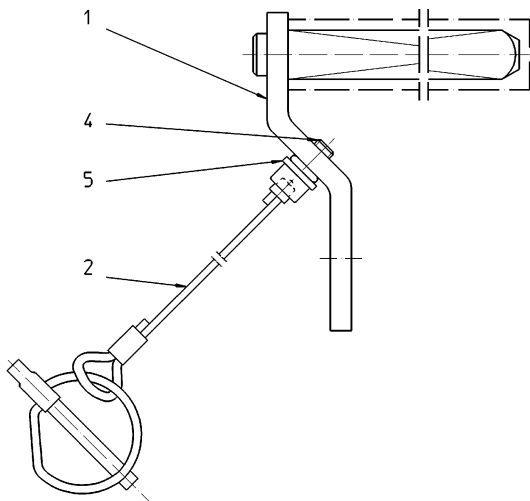


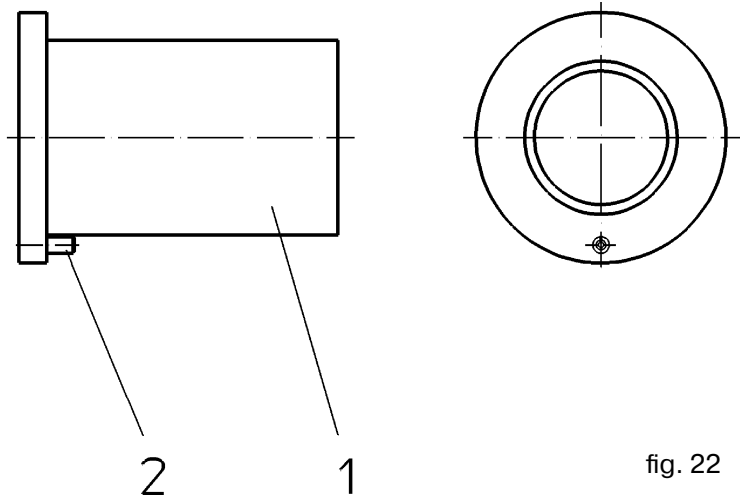
fig. 21

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Square pin compl.	108343	1		
2	Folding pin	114716	1		
4	Allen screw	100065	1	ISO 4762	M 6 x 12 - A2
5	Washer	100442	1	ISO 7093	6,4 - A2

**Hub compl.**

Drwg. No. 1350.6,5.39.00

Order No. 113002



Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Hub	108473	1		
2	Clamping pin	100134	1	ISO 8752	6 x 20 - A2
3	Clamping pin	100091	1	ISO 8752	3,5 x 20 - A2

## Crank handle compl.

Drwg. No. 1350.10.56.00

Order No. 108800

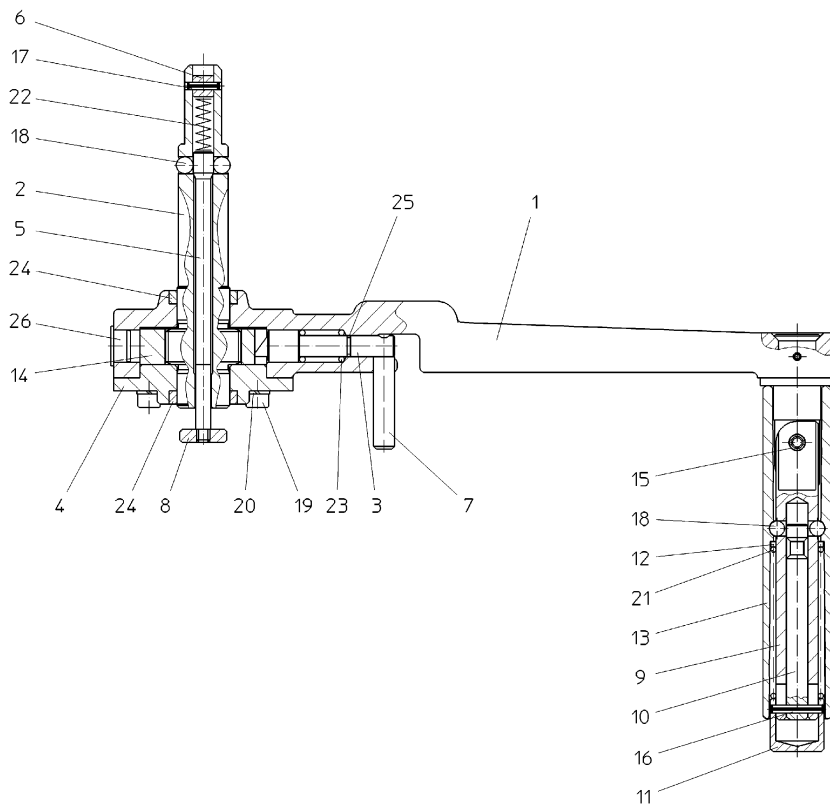


fig. 23

Pos.	Description	Order No.	Oty.	DIN No.	Dimension
1	Crank handle	104811	1		
2	Crank bolt	104816	1		
3	Ratchet bolt	104817	1		
4	Cover	104818	1		
5	Release pin	104819	1		
6	Stopper	104790	1		
7	Lever	104820	1		
8	Knob	103954	1		
9	Sleeve hinge	104813	1		
10	Latch pin	104812	1		
11	Cover	104815	1		
12	Washer	104814	1		
13	Sleeve	101253	1		
14	Ratchet	104821	1		
15	Clamping pin	100129	1	ISO 8752	6 x 16 - A2
16	Clamping pin	100084	1	ISO 8752	3 x 20 - A2
17	Clamping pin	100081	1	ISO 8752	3 x 12 - A2
18	Ball	101028	4	DIN 5401 III	6,35 - A2
19	Allen screw	101270	4	DIN 6912	M 5 x 12 - A4D
20	Spring ring	100452	4	DIN 127	A5 - A2
21	Compression spring	101111	1		VD-180Y-03
22	Compression spring	100996	1		VD-099
23	Compression spring	101110	1		D-180
24	Seal	100864	2		G 20 x 26 x 4
25	O-Ring	100858	1		6 x 1
26	Plug	101197	1		GPN 300-F9

### Crank handle compl.

Drwg. No. 1350.10.67.00

Order No. 202222

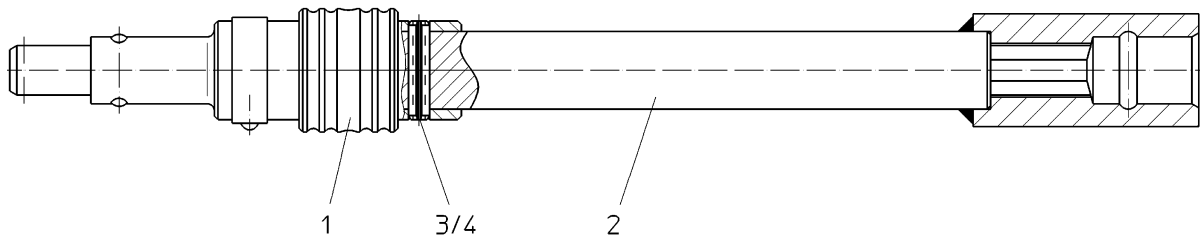


fig. 24

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Connection shank	202222 (fig. 25)	1		
2	Shaft	108636	1		
3	Clamping pin	100138	2	ISO 8752	6 x 28
4	Clamping pin	100094	2	ISO 8752	3,5 x 26

### Connection shank

Drwg. No. 1350.10.226.00

Order No. 116354

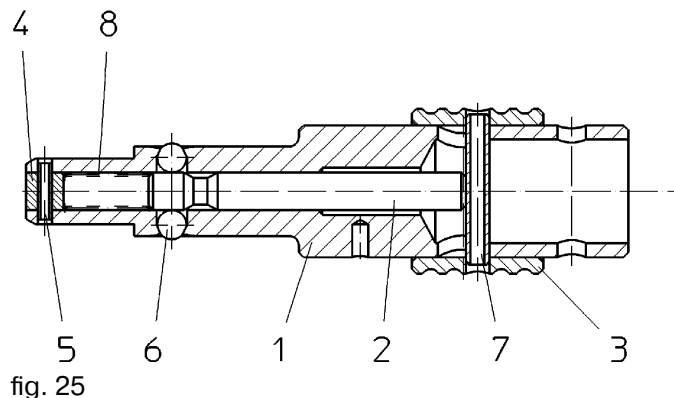


fig. 25

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Square shank	116355	1		
2	Latch pin	116353	1		
3	Knurled sleeve	103788	1		
4	Stopper	104790	1		
5	Clamping pin	100081	1	ISO 8752	3 x 12 - A2
6	Ball	101028	1	DIN 5401 III	6,35 - A2
7	Clamping pin	100121	1	ISO 8752	5 x 32 - A2
8	Compression spring	100996	1		VD-099

**Ergonomic crank compl.**

Drwg. No. 1350.6,5.85.00

Order No. 201950

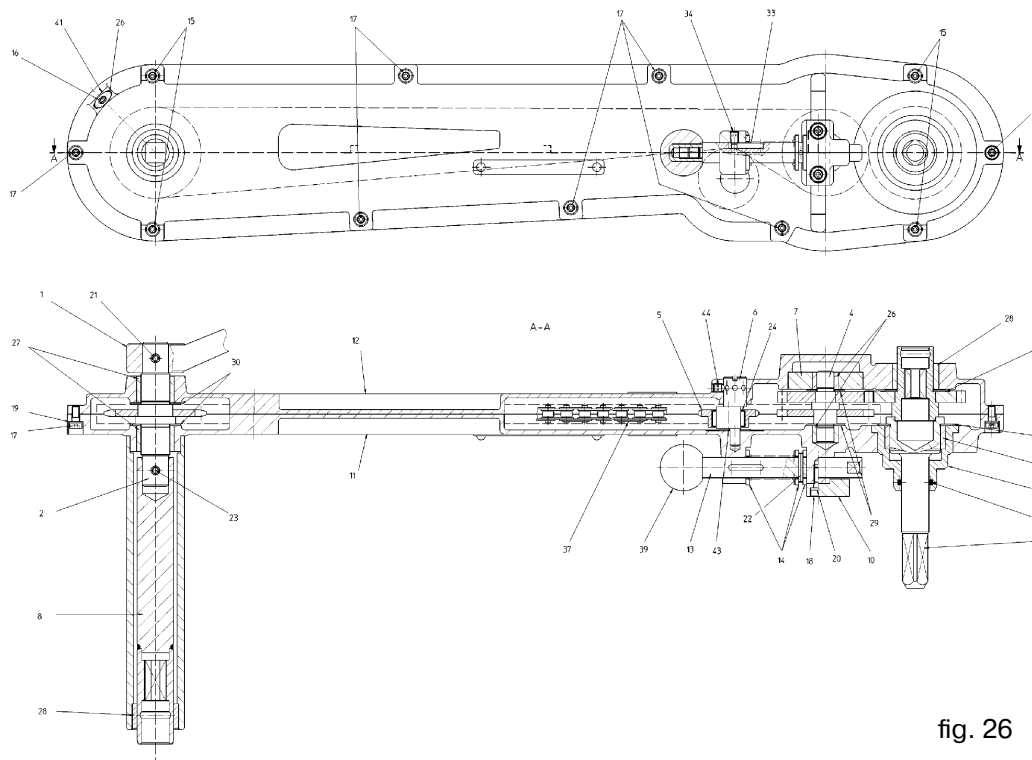


fig. 26

Pos.	Description	Order No.	Oty.	DIN No.	Dimension
1	Crank compl.	103638 (fig. 27)	1		
2	Crank shaft compl.	103640	1		
3	Drive shaft compl.	103594	1		
4	Intermediate drive compl.	103596	1		
5	Sprocket wheel	103668	1		
6	Chain tensioner	104832	1		
7	Sleeve	103645	1		
8	Shaft compl.	108338	1		
9	Housing	103646	1		
10	Stopper	104200	1		
11	Cover compl.	108440	1		
12	Crank case cover	103648	1		
13	Bolt	104829	1		
14	Washer	100430	3	ISO 7092	15 - A2
15	Allen screw	100687	4	DIN 6912	M 5 x 16 - A2
16	Allen screw	100611	1	DIN 6912	M 6 x 12 - A2
17	Allen screw	100607	7	DIN 6912	M 5 x 12 - A2
18	Allen screw	100615	2	DIN 6912	M 6 x 16 - A2
19	Spring ring	100466	11	DIN 7980	A5 - A2
20	Spring ring	100468	2	DIN 7980	A6 - A2
21	Clamping pin	100141	1	ISO 8752	6 x 35 - A2
22	Clamping pin	100084	1	ISO 8752	3 x 20 - A2
23	Clamping pin	100138	1	ISO 8752	6 x 26 - A2
24	Needle sleeve	100844	1		Hk 1712
25	Needle sleeve	100845	1		HK 3516
26	Needle sleeve	100824	2		HK 1212
27	Needle sleeve	100828	2		HK 2018 RS
28	Needle sleeve	100832	2		HK 2518 RS

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
29	Axial washer	100810	2		AS 1226
30	Axial washer	100813	2		AS 2035
31	Axial washer	100814	1		AS 2542
32	Axial washer	100816	1		AS 3552
33	Compression spring	101068	1		VD-214
34	Thread pin	100717	1	ISO 4028	M 6 x 12
36	No. plate	106129	1		GPN 990 K1 rot
37	Chain compl.	103637 (fig. 28)	1		
39	Spring loaded pin	101172	1		625-23208
40	O-Ring	100852	1		19,2 x 3
41	Usit-ring	100907	1		U 6,7 x 11 x 2,5
43	Axial washer	100821	1		AS 0821
44	Threaded pin	100710	1	ISO 4027	M 6 x 8 - A2

### Crank handle

Drwg. No. 1350.12.61.00

Order No. 103638

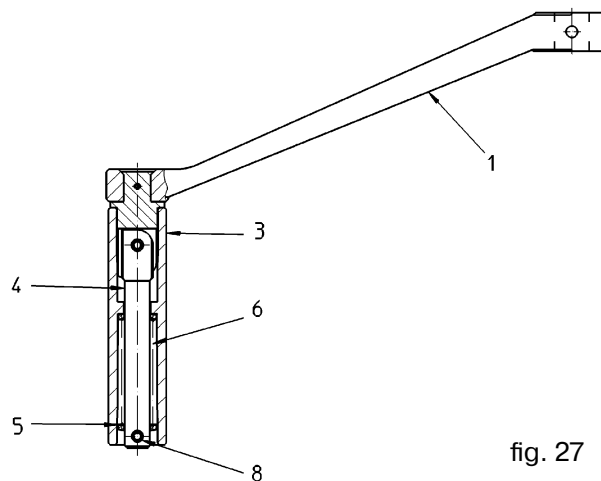


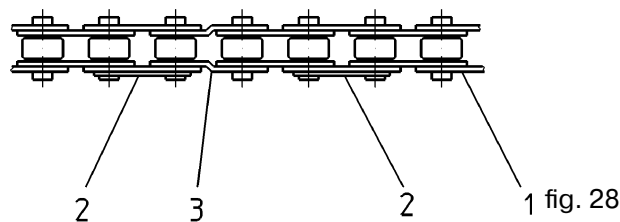
fig. 27

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Crank handle	103639	1		
3	Sleeve	100524	1		
4	Sleeve hinge	103953	1		
5	Washer	101829	2		
6	Compression spring	101065	1		VD-183
8	Clamping pin	100132	2	ISO 8752	6 x 18 - A2

### Chain compl.

Drwg. No. 1350.12.67.00

Order No. 103637



1 fig. 28

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Chain	107035	1		
2	Link	101169	2		332-11
3	Cranked link double	101171	1		332-15



### Drive shaft compl.

Drwg. No. 1350.6,5.76.00

Order No. 108517

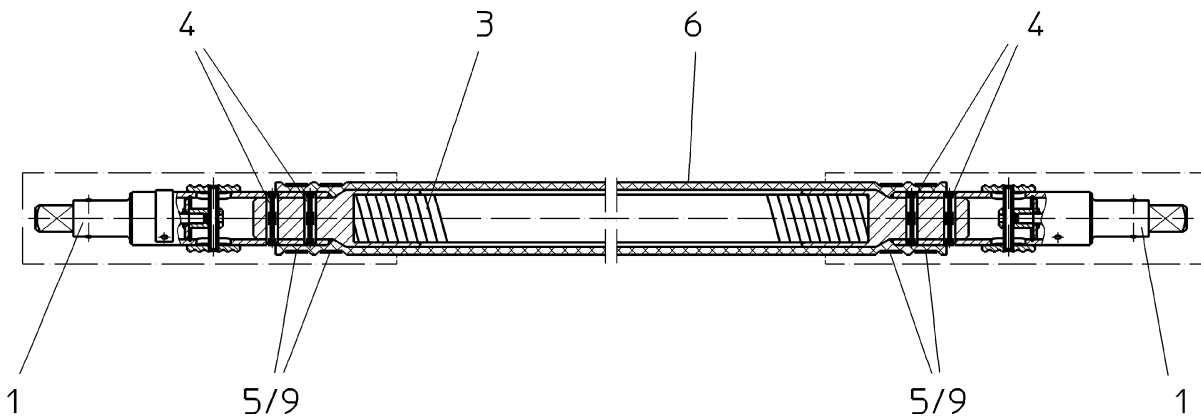


fig. 29

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Connection shank	107249 (fig. 30)	1		
3	Shaft core	108420	1		
4	Clamping pin	100138	4	ISO 8752	6 x 28 - A2
5	Clamping strap	113079	4		
6	Cover hose	108752	1		
9	Clamp	106911	4		

### Connection shank

Drwg. No. 1350.10.77.00

Order No. 107249

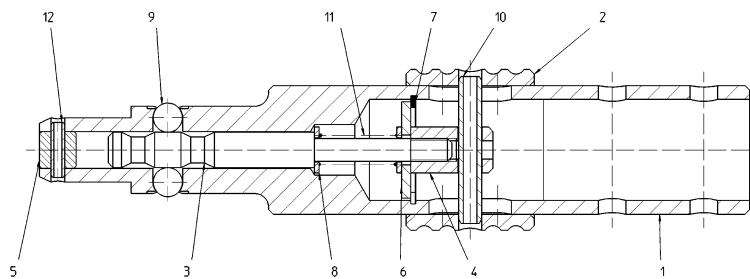


fig. 30

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Square shank	108794	1		
2	Knurled sleeve	103788	1		
3	Latch pin	107969	1		
4	Stopper	103768	1		
5	Stopper	104790	1		
6	Washer	100435	1	DIN 6902	B 6,5 - A2
7	Lock washer	100747	1	DIN 472	22 x 1 - A2
8	Washer	100402	2	ISO 7089	B 5,3 - A2
9	Ball	101028	2	DIN 5401 III	6,35 - A2
10	Clamping pin	100121	1	ISO 8752	5 x 32 - A2
11	Compression spring	100996	1		VD-099
12	Clamping pin	100081	1	ISO 8752	3 x 12 - A2

### Drive shaft compl.

Drwg. No. 1350.6,5.80.00

Order No. 202216

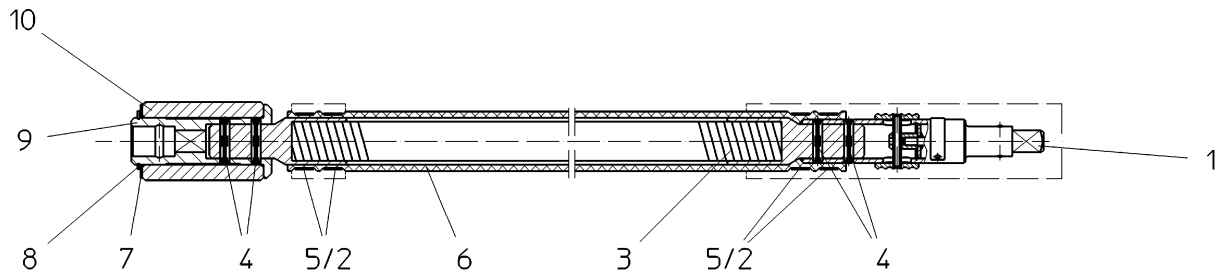


fig. 32

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Connection shank	107249 (fig. 30)	1		
2	Clamp	106911	4		
3	Shaft core	108421	1		
4	Clamping pin	100138	4	ISO 8752	6x28 A
5	Clamping strap	113079	4		
6	Cover hose	108683	1		
7	Axial washer	107939	1		
8	Lock washer	100734	1	DIN 471	30x1,5 - A2
9	Coupling	107937	1		
10	Sleeve	107938	1		

### Extension

Drwg. No. 1350.6,5.117.00

Order No. 202212

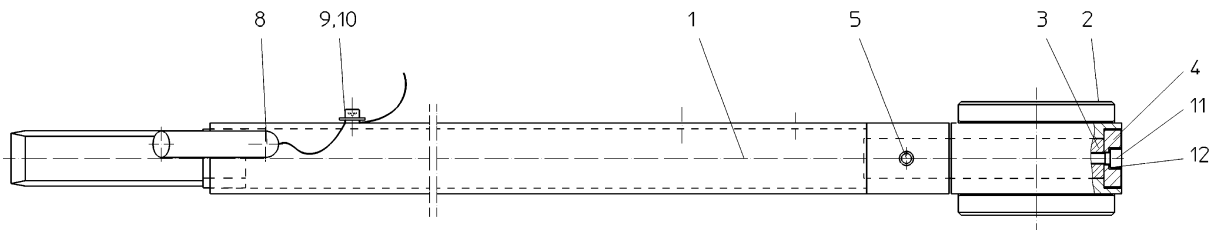


fig. 33

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Extension	108416	1		
2	Strap	108798	1		
3	Bolt	108583	1		
4	Washer	108584	1		
5	Clamping pin	101890	1	ISO 8752	10 x 45 - A2
8	Main pin	108355	1		
9	Allen screw	100065	1	ISO 4762	M 6 x 12 - A2
10	Washer	100442	1	ISO 7093	A 6,4 - A2
11	Allen screw	100620	1	DIN 6912	M 8 x 20 - A2
12	Spring ring	100469	1	DIN 7980	A 8 - A2

**Tow bar compl.**

Drwg. No. 1350.6,5.162.00

Order No. 108539

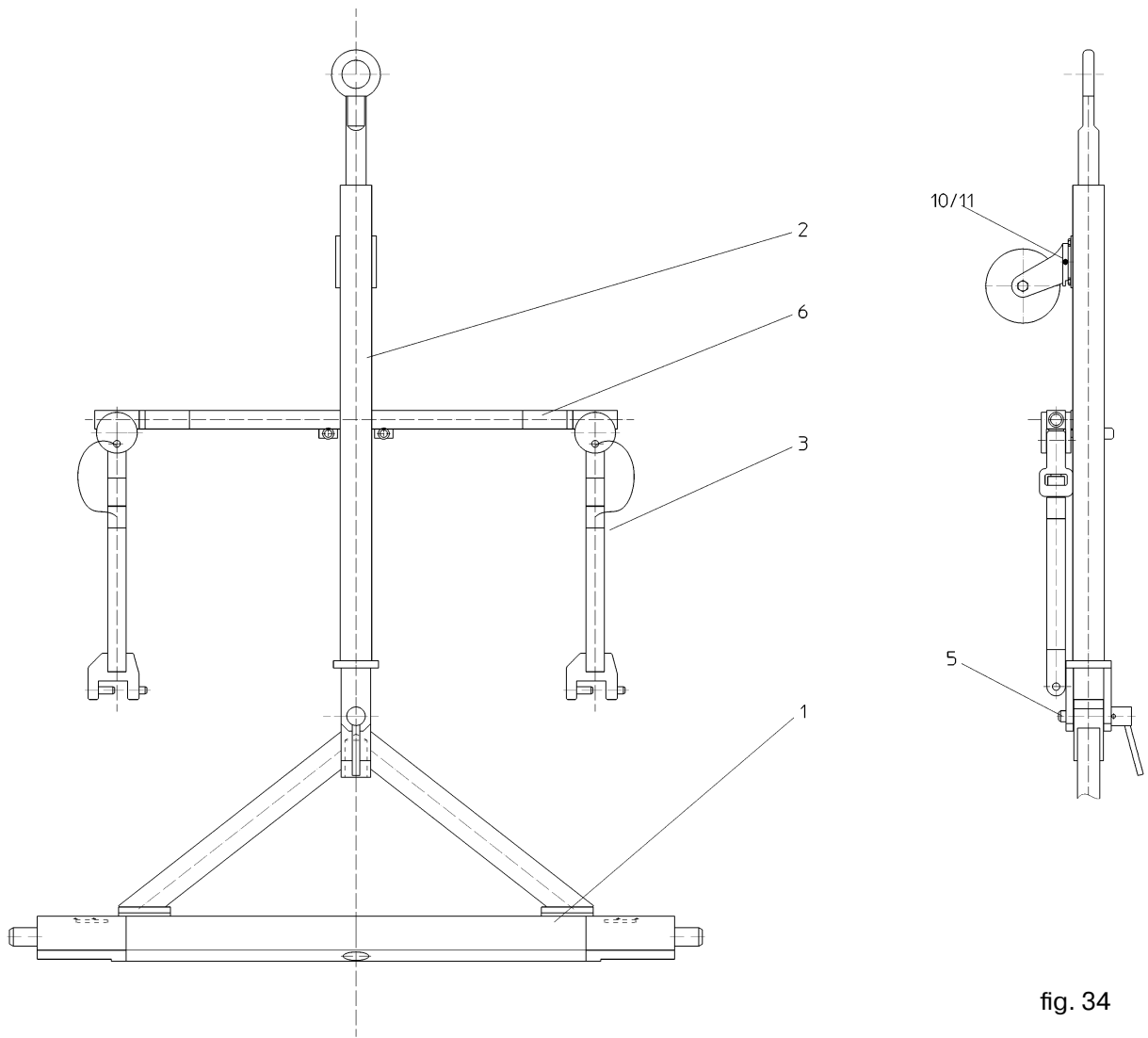


fig. 34

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Lateral adaptor	109617 (fig. 35)	1		
2	Centre piece	109618 (fig. 37)	1		
3	Drag link	108406 (fig. 38)	2		
5	Pin	108439 (fig. 39)	1		
6	Strut	108512 (fig. 40)	1		
10	Name plate	106129	1		11 x 6
11	Grease nipple	100270	1	DIN 71412	M 6 x 1 - A3D

### Lateral adaptor compl.

Drwg. No. 1350.6,5.167.00

Order No. 109617

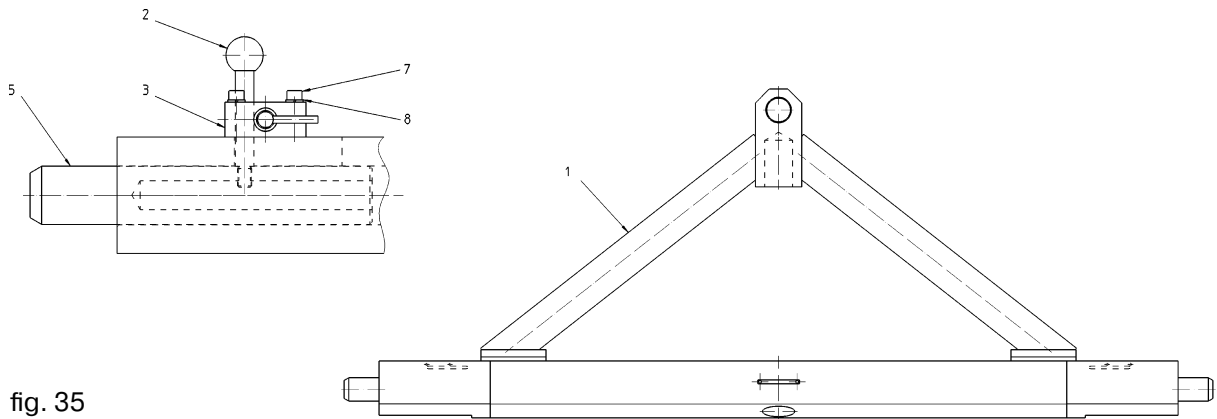


fig. 35

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Lateral adaptor	202221	1		
2	Lever	108774	2		
3	Spring bolt compl.	108770 (fig. 36)	2		
5	Bolt	108280	2		
7	Allen screw	106010	4	ISO 4762	M 8 x 50 - A2
8	Spring ring	100456	4	DIN 127	A 8 - A2

### Spring bolt compl.

Drwg. No. 1350.11.106.00

Order No. 108770

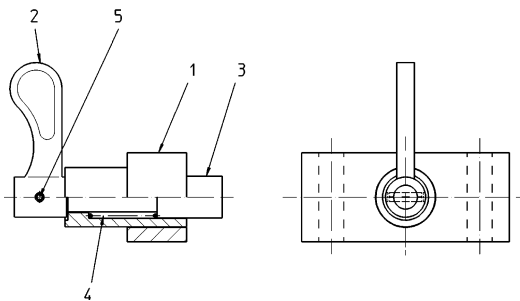


fig. 36

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Mounting	108772	1		
2	Grip	106180	1		
3	Bolt	107952	1		
4	Spring	109022	1		VD-186
5	Clamping pin	100081	1	ISO 8752	3 x 12 - A2

## Centre piece

Drwg. No. 1350.6,5.168.00

Order No. 109618

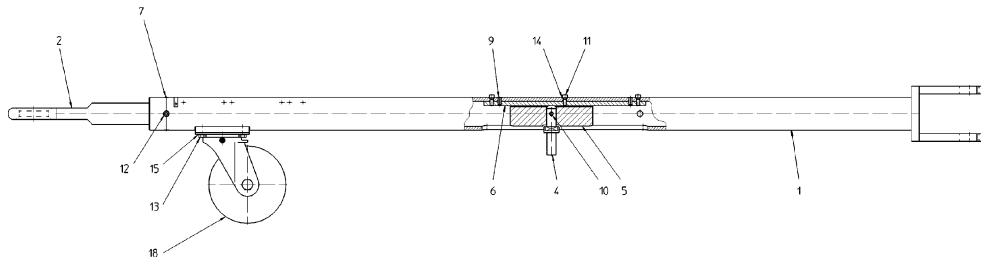


fig. 37

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Centre piece	108513	1		
2	Eye compl.	108799	1		
4	Bolt	108274	1		
5	Key way	108262	1		
6	Key	108272	1		
7	Bolt	108787	1		
9	Clamping pin	100153	2	ISO 8752	8 x 20 - A2
10	Clamping pin	101896	1	ISO 8752	10 x 60 - A2
11	Allen screw	100021	3	ISO 4762	M 8 x 20 - A2
12	Allen screw	101854	1	ISO 4762	M 8 x 30 - A2
13	Allen screw	106009	4	ISO 4762	M 10 x 25 - A2
14	Spring ring	100456	3	DIN 127	A 8 - A2
15	Spring ring	100458	4	DIN127	A 10 - A2
18	Castor	106407	1		LS SPO 200

## Drag link

Drwg. No. 1350.6,5.115.00

Order No. 108406

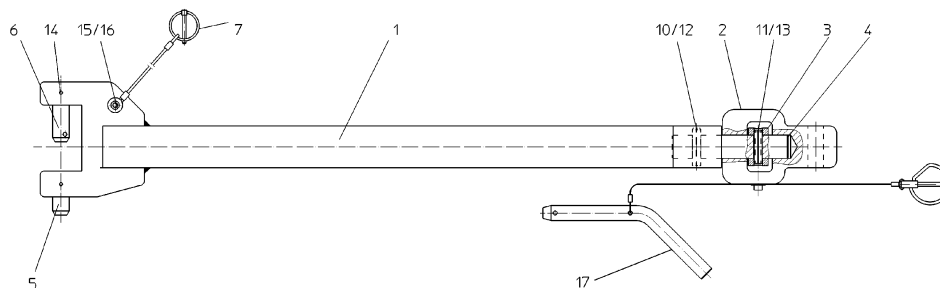


fig. 38

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Arm	108437	1		
2	Link piece	108630	1		
3	Clamp	108632	1		
4	Bolt	108634	1		
5	Bolt	108278	1		
6	Bolt	108277	1		
7	Spring cotter	108238	1		
10	Clamping pin	101890	1	ISO 8752	10 x 45 - A2
11	Clamping pin	101889	1	ISO 8752	10 x 40 - A2
12	Clamping pin	101883	1	ISO 8752	6 x 45 - A2
13	Clamping pin	100143	1	ISO 8752	6 x 40 - A2
14	Clamping pin	100107	2	ISO 8752	4 x 40 - A2
15	Allen screw	100065	2	ISO 4762	M 6 x 12 - A2
16	Washer	100442	2	ISO 7093	A 6,4 - A2
17	Main pin compl.	108335	1		

**Pin compl.**

Drwg. No. 1350.6,5.107.00

Order No. 108439

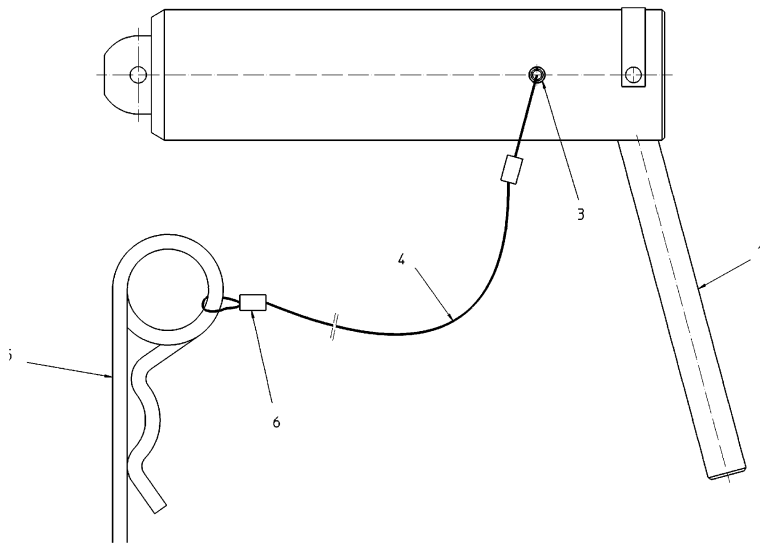


fig. 39

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Pin	108438	1		
3	Clamping pin	100149	1	ISO 8752	6 x 50 - A2
4	Lanyard	107987	1		2 x 550
5	Spring cotter	100555	1	DIN 11024	Gr. 6,3 - A3A
6	Cleat	100570	2		

**Strut compl.**

Drwg. No. 1350.6,5.163.00

Order No. 108512

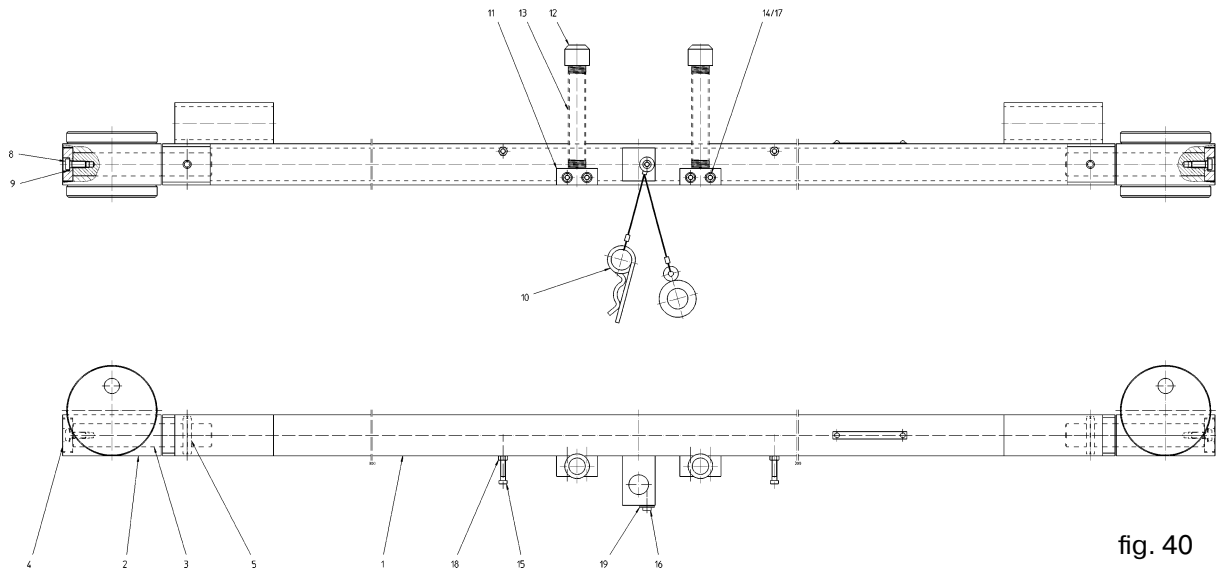


fig. 40

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Strut compl.	108514	1		
2	Strap	108798	2		
3	Bolt	108583	2		
4	Washer	108584	2		
5	Clamping pin	101890	2	ISO 8752	10 x 45 - A2
8	Allen screw	100620	2	DIN 6912	8 x 20 - A2
9	Spring ring	100469	2	DIN 7980	A 8 - A2
10	Spring cotter	107353	1		
11	Bracket	108236	2		
12	Red cap	108349	2		
13	Steering marker	107718	2		
14	Allen screw	100010	4	ISO 4762	M 6 x 20 - A2
15	Allen screw	101695	2	DIN 6912	M 6 x 50 - A2
16	Allen screw	100611	1	DIN 6912	M 6 x 12 - A2
17	Spring ring	100468	4	DIN 7980	A 6 - A2
18	Hex. nut	100354	2	ISO 4032	M 6 - A2
19	Washer	100442	1	ISO 7093	A 6,4 - A2

## Ground plate

Drwg. No. 1350.6,5.73.00

Order No. 202219

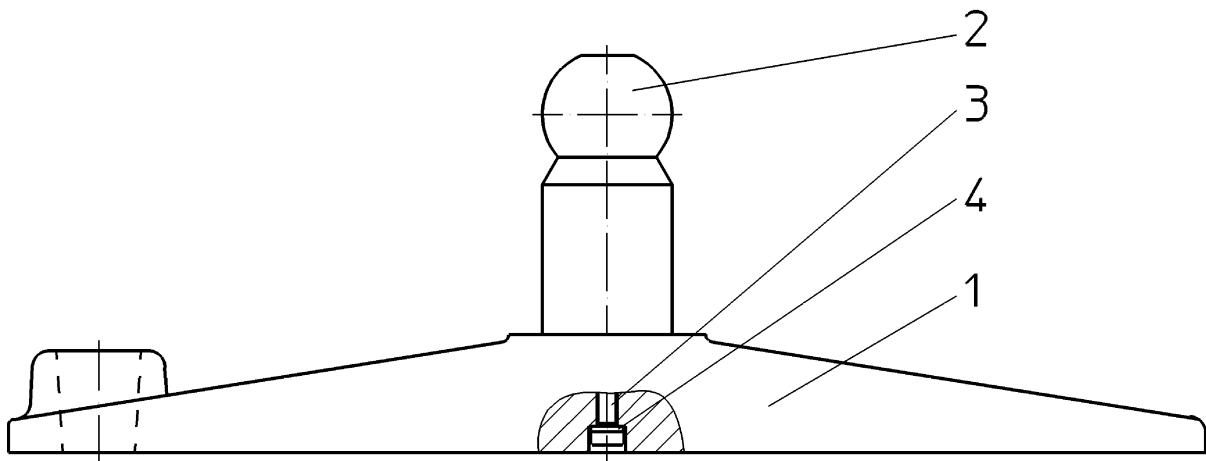


fig. 42

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Ground plate	110248	1		
2	Ball end stud	103642	1		
3	Allen screw	100010	1	ISO 4762	M 6 x 20 - A2
4	Spring ring	100048	1	SIN 7980	A 6 - A2

## Drag link

Drwg. No. 1350.6,5.112.00

Order No. 201955

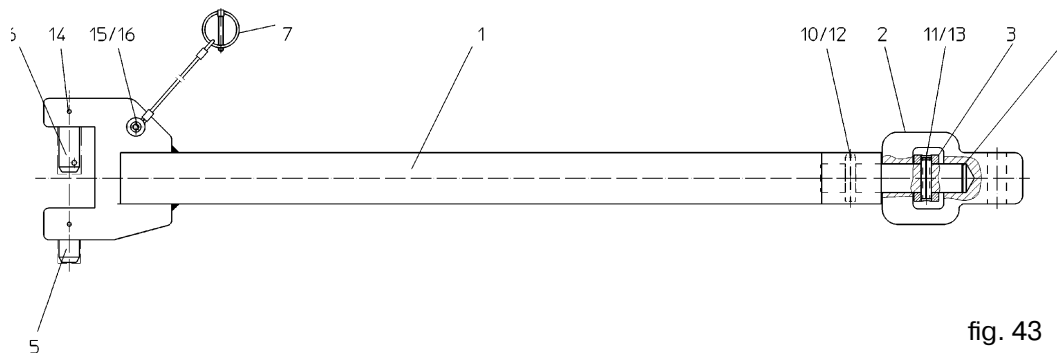


fig. 43

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Arm	108437	1		
2	Link piece	108630	1		
3	Clamp	108632	1		
4	Bolt	108634	1		
5	Bolt	108278	1		
6	Bolt	108277	1		
7	Folding pin	108238	1		
10	Clamping pin	101890	1	ISO 8752	10 x 45 - A2
11	Clamping pin	101889	1	ISO 8752	10 x 40 - A2
12	Clamping pin	101883	1	ISO 8752	6 x 45 - A2
13	Clamping pin	100143	1	ISO 8752	6 x 40 - A2
14	Clamping pin	100107	2	ISO 8752	4 x 40 - A2
15	Allen screw	100065	2	ISO 4762	M 6 x 12 - A2
16	Washer	100442	2	ISO 7093	A 6,4 - A2



## Track rod

Drwg. No. 1350.6,5.121.00

Order No. 201975

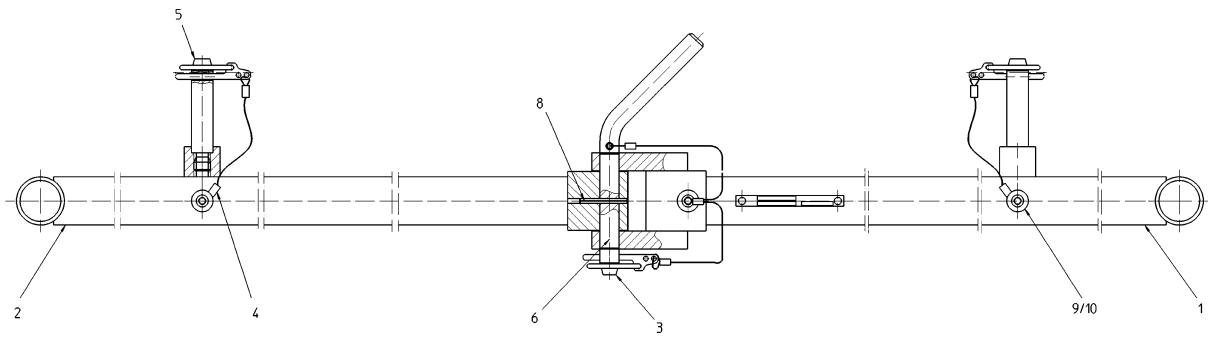


fig. 44

Pos.	Description	Order No.	Qty.	DIN No.	Dimension
1	Arm R. H.	108470	1		
2	Arm L. H.	108471	1		
3	Pin compl.	108769	1		
4	Pin	116625	2		
5	Spring cotter	108768	2		
6	Pin	108786	1		
8	Clamping pin	100105	1	ISO 8752	4 x 32 - A2
9	Allen screw	100065	3	ISO 4762	M 6 x 12 - A2
10	Washer	100442	3	ISO 7093	A 6,4 - A2

# E.C. Declaration of Conformity to 98/37/EC IIA

haacon hebetchnik gmbh  
Josef-Haamann-Straße 6  
D-97896 Freudenberg/Main



**Name and address:**      haacon hebettechnik gmbh      Telefon: 09375/84-0  
Josef-Haamann-Straße 6      Telefax: 09375/8466  
97896 Freudenberg/Main

## Description:

Designation:      Shelter Lifting, Rolling and Loading System – electric drive  
Type:      1350.10      1350.6,5  
Capacities      – 10 t      – 6,5 t

## Relevant E.C. Directives:

98/37/EC      EC-machinery directive  
73/23/EEC      EC-Low - voltage directives

## Harmonised standards:

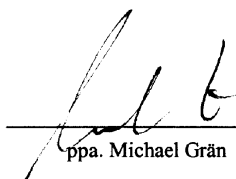
DIN EN ISO 12100-1/-2 safety of machines

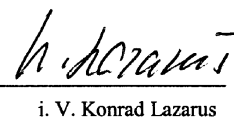
## National standards and technical specifications:

BGV A1 Unfallverhütungsvorschriften (Allgemeine Vorschriften)  
BGV D8 Unfallverhütungsvorschriften (Winden, Hub-Zuggeräte)  
DIN 1055 Blatt 4; Verkehrslasten- Windlasten  
DIN 7355 Stahlwinden  
DIN/VDE 0530 Teil 1 umlaufende, elektrische Maschinen  
DIN/VDE 0660 Teil 2 Niederspannungsgeräte, Steuergeräte, Schaltelemente  
DIN/VDE 0470 Schutzarten IP

## Signed:

Freudenberg , 27.06.07

  
ppa. Michael Grän

  
i. V. Konrad Lazarus