



Repair instructions





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## 1. Models described

These repair instructions describe how to repair the following models:

Model	Order number
RSG 18a	7 360 09 .. . .
RSG 18b	7 360 10 .. . .
RSG EX 18a	7 360 06 .. . .
RSG EX 18b	7 360 07 .. . .



## 2. Technical data

### Technical data

All the technical data can be found in the operating instructions for the model.

### Test data

Up-to-date test data for all models can be found on the FEIN Extranet (Customer Service → Repair Guides).

### Lubricants

The lubricants and container sizes available from FEIN can be found on the FEIN Extranet (Customer Service → Repair Guides).

### Lists of spare parts

Lists of spare parts and exploded views are available online at [www.fein.com](http://www.fein.com)



### 3. Notes and requirements

#### Please note

The repair instructions refer to all mounted parts outside of the gearbox. A faulty gearbox is replaced by a replacement gearbox. The order no. for the relevant replacement gearbox can be found in the spare parts catalogue.

Faulty gearboxes may be repaired only by C. & E. Fein GmbH (Germany) because such repairs require an extensive range of special tools and special expertise.

Contact the customer service in the relevant country if you have any questions.

#### Please note

These instructions are only intended for persons with suitable technical training. It is assumed that the reader has mechanical and electrical training.

**Only use original FEIN spare parts.**

#### Provisions

Please note that power tools may only be repaired, maintained and checked by a trained electrician, as improper repair can result in serious risks to the user.

The provisions set out in **DIN VDE 0701-0702** should be observed after repairs.

The relevant accident prevention regulations of the employer's liability insurance associations are to be observed when commissioning.

The German Equipment and Product Safety Act [ProdSG] applies for correct use.

**Outside Germany, the regulations applicable in the relevant country must be observed.**



## 4. Tools required

### Standard tools

Outer puller

Arbor press

Punch

3 mm; 7 mm

Open-ended spanner/Ring wrench

13 mm; 17 mm; 18 mm; 19 mm;  
46 mm

Sleeve

- 25 mm inner diameter  
33 mm outer diameter
- 33 mm inner diameter  
38 mm outer diameter
- 33 mm inner diameter  
46 mm outer diameter
- 23 mm inner diameter  
31 mm outer diameter
- 15 mm inner diameter  
28 mm outer diameter

Socket head wrench

3 mm; 4 mm; 5 mm; 6 mm

Cross-tip screwdriver

PH2

Plastic hammer

Blade

### Special tools

Special tool for basic setting

6 41 22 130 02 0



#### 4. Tools required

##### Standard tools

2x nuts	M8
Slotted screwdriver	
Hammer	
¼" hex insert	19 mm
Circlip pliers	
Long-nosed pliers	
Socket wrench	7 mm
Torx	T20



## 5. Lubricants and auxiliary substances required

### Lubricants

Grease	0 40 101 0100 4	
Gearbox oil [-15°C to +50°C]	3 21 320 0901 3	Gearbox
Gearbox oil [-40°C to +5°C]	3 21 320 0902 9	Gearbox
Gearbox oil [>+40°C]	On request	Gearbox

### Auxiliary substances

Loctite 242

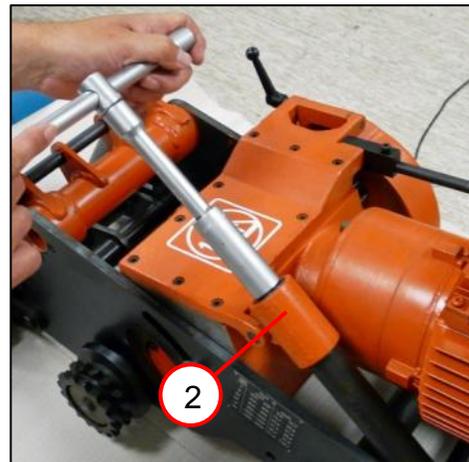
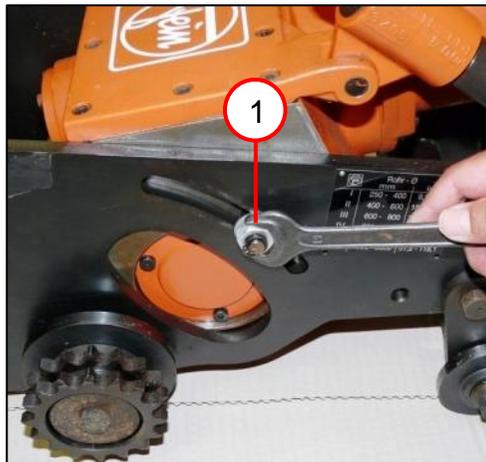
Loctite 574

Epple 28



## 6. Removal

### Removing the delivery fixture



1. Loosen the nut (1) [on both sides].
2. Turn the delivery fixture (2) clockwise.
3. Unscrew the cylinder head screw (3).
4. Remove the bolt (4).

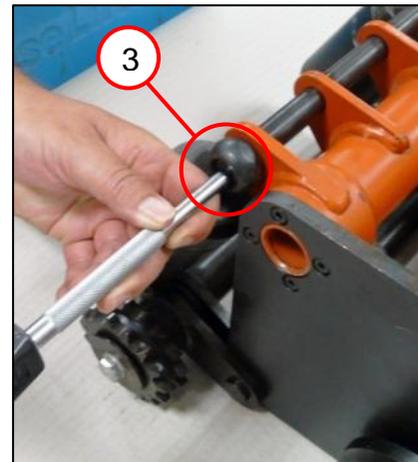
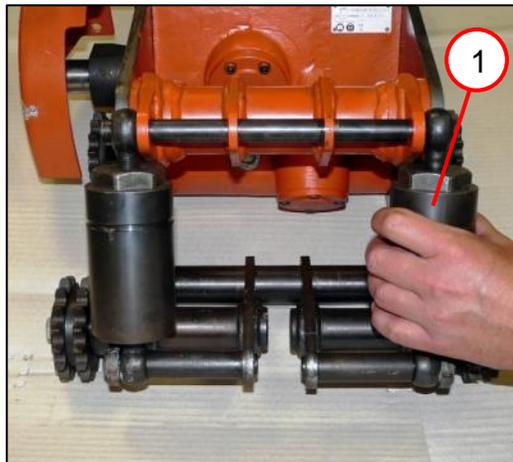
#### Tools:

- Open-ended spanner  
19 mm
- 1/4" hex insert  
19 mm
- Socket head wrench  
3 mm
- Punch 7 mm



## 6. Removal

### Removing the clamping unit



1. Turn the clamping unit (1) clockwise.
2. Remove the circlip (2).
3. Remove the bolt (3).

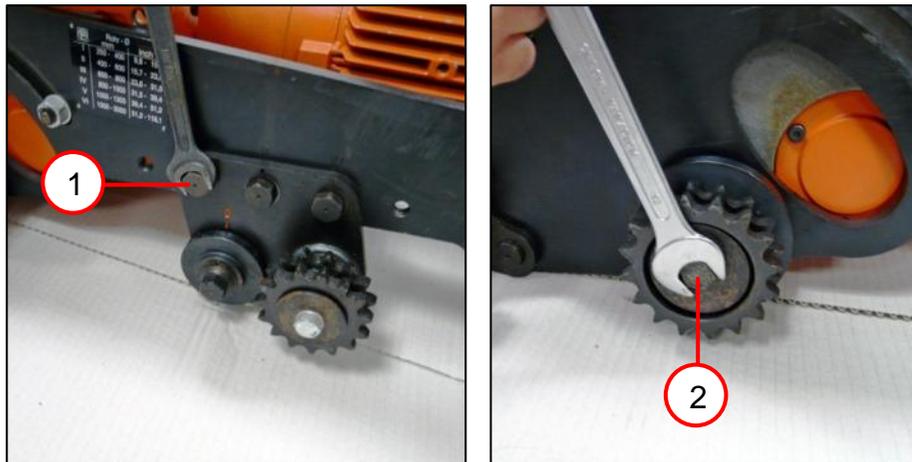
**Tools:**

- Circlip pliers
- Punch 7 mm
- Hammer



## 6. Removal

### Removing the side plate [on both sides]



1. Unscrew the three screws (1).
2. Unscrew the hexagon socket screw (2) and remove the disc.

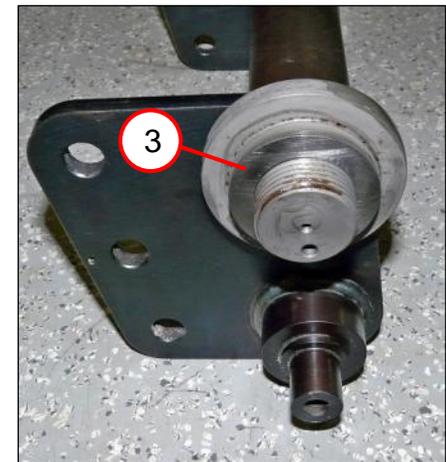
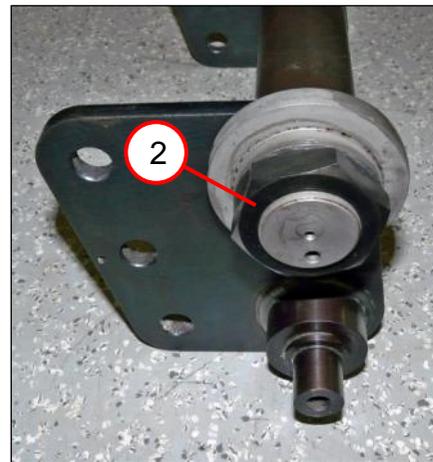
**Tools:**

- Open-ended spanner  
18 mm; 19 mm



## 6. Removal

### Removing the shaft



1. Pull off the gear-wheel (1).
2. Remove the hex nut (2).
3. Remove the disc (3).

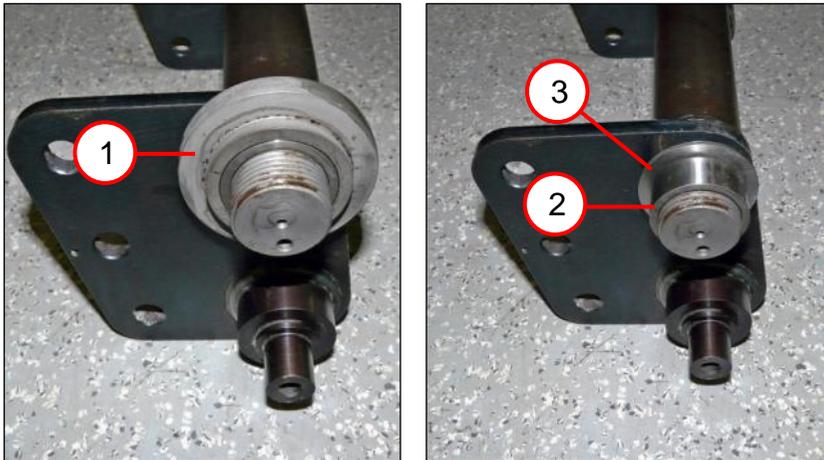
#### Tools:

- Outer puller
- Open-ended spanner  
46 mm
- Ring wrench 19 mm



## 6. Removal

### Removing the shaft

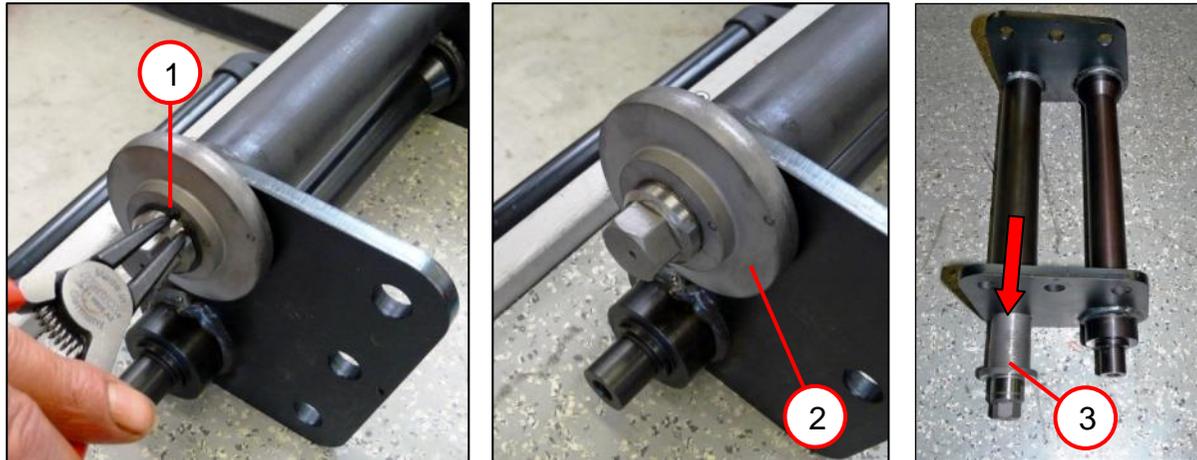


1. Remove the disc (1).
2. Remove the sleeve (2).
3. Remove the disc (3).



## 6. Removal

### Removing the shaft



1. Remove the circlip (1).
2. Remove the disc (2).
3. Remove the shaft (3).

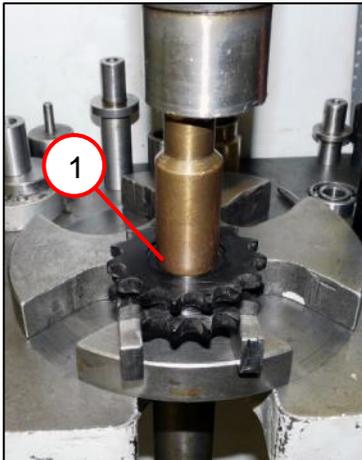
**Tools:**

- Circlip pliers



## 6. Removal

### Removing the gear-wheel



1. Press out the grooved ball bearing (1).

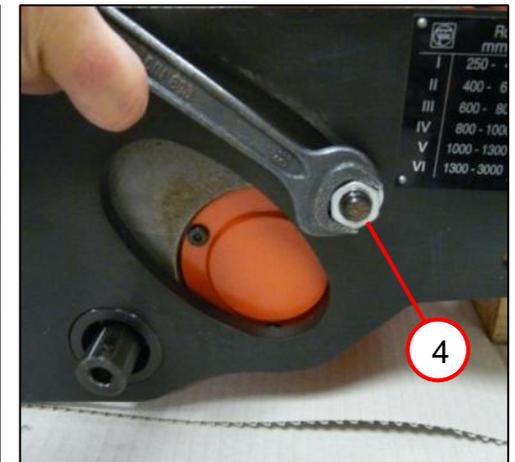
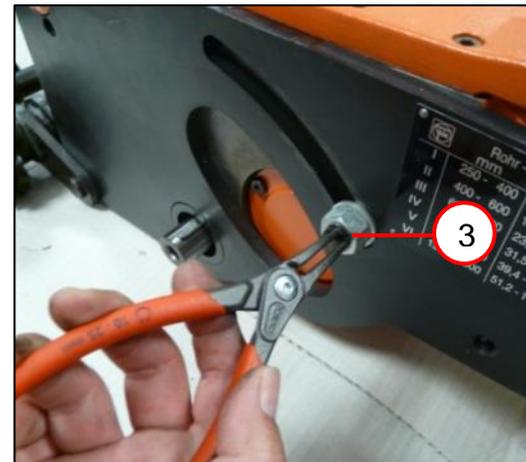
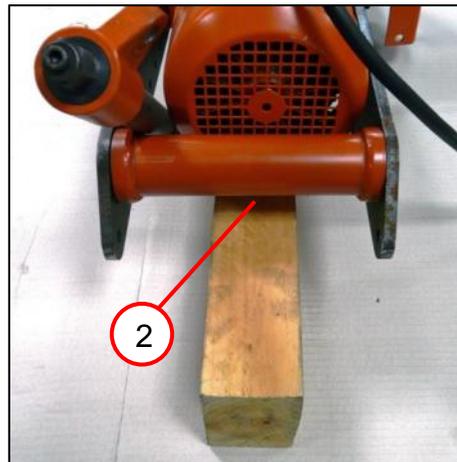
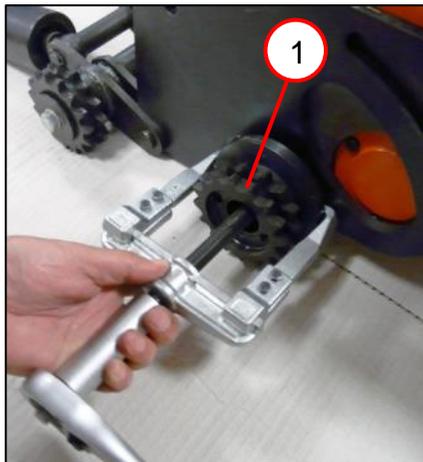
#### Tools:

- Arbor press
- Sleeve  
25 mm inner diameter  
33 mm outer diameter



## 6. Removal

### Removing the side plate



1. Pull off the hook and loop wheel (1).
2. Prop up the pipe milling cutter (2).
3. Remove the circlip (3).
4. Unscrew the nut (4).

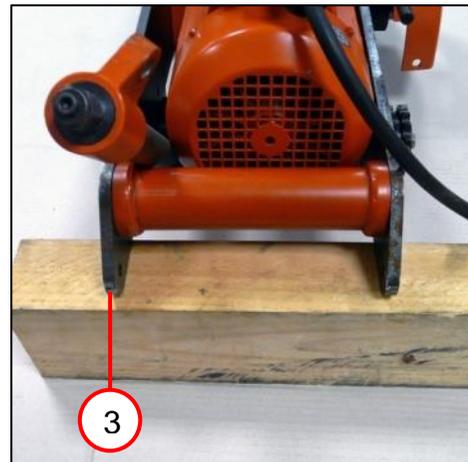
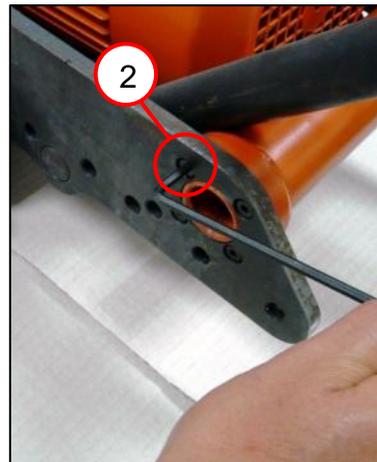
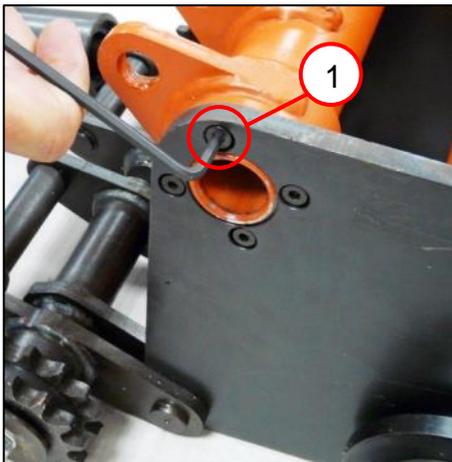
#### Tools:

- Outer puller
- Circlip pliers
- Open-ended spanner  
19 mm



## 6. Removal

### Removing the side plate



1. Unscrew the four cylinder head screws (1).
2. Unscrew the four cylinder head screws (2).
3. Prop up the pipe milling cutter (3).

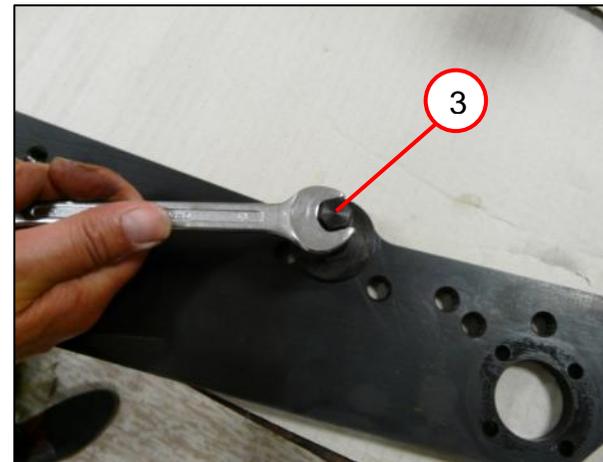
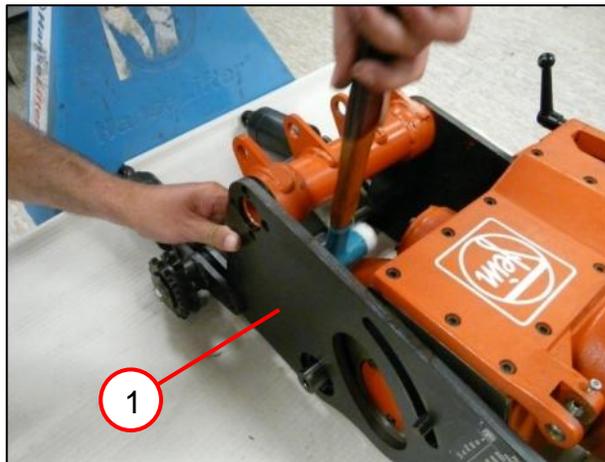
#### Tools:

- Socket head wrench  
4 mm



## 6. Removal

### Removing the side plate



1. Remove the side plate (1).
2. Remove the delivery fixture (2).
3. Unscrew the thread bolt (3).
  - ☞ The screw is locked with Loctite 242.

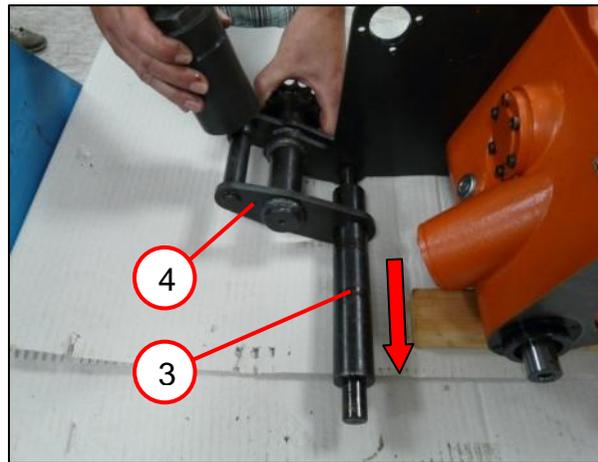
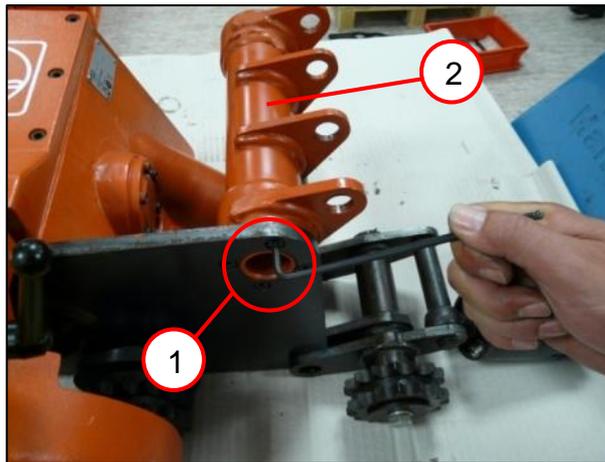
#### Tools:

- Plastic hammer
- Open-ended spanner/Ring wrench 13 mm



## 6. Removal

### Removing the crossbar



1. Unscrew the four screws (1).
2. Remove the crossbar (2).
3. Remove the bolt (3).
4. Remove the hinge (4).

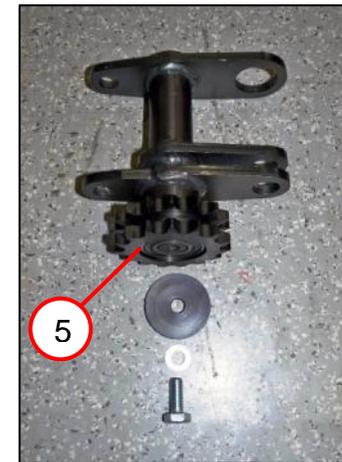
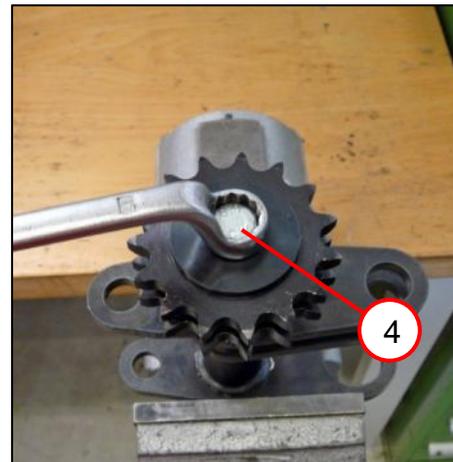
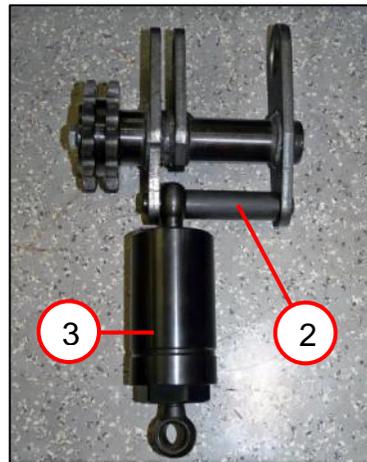
**Tools:**

- Socket head wrench  
4 mm



## 6. Removal

### Removing the crossbar



1. Remove the circlip (1) [on both sides].
2. Remove the bolt with sleeve (2).
3. Remove the clamping sleeve (3).
4. Remove the hexagon socket screw (4).
5. Remove the gear-wheel (5).

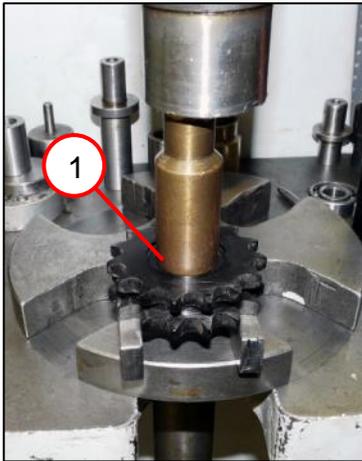
#### Tools:

- Circlip pliers
- Ring wrench 17 mm



## 6. Removal

### Removing the gear-wheel



1. Press out the grooved ball bearing (1).

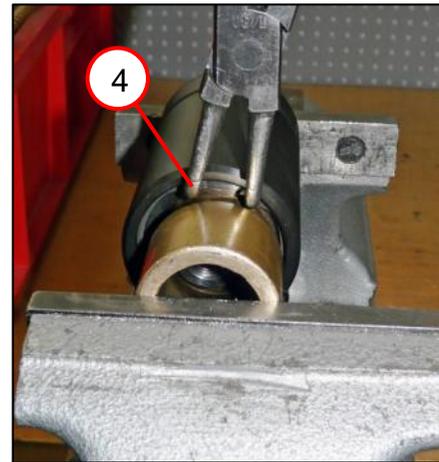
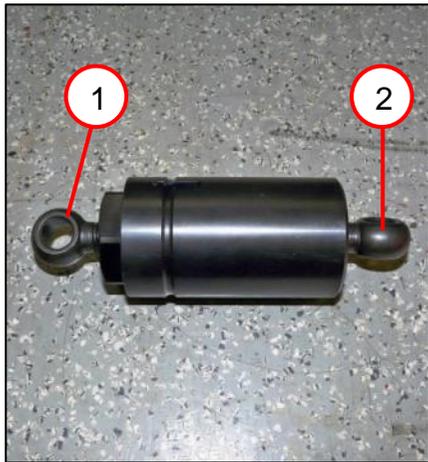
#### Tools:

- Arbor press
- Sleeve  
25 mm inner diameter  
33 mm outer diameter



## 6. Removal

### Removing the clamping unit



1. Unscrew the ring bolt (1).
2. Unscrew the ring bolt (2) [left-handed thread].
3. Press out the pin (3).
4. Remove the circlip (4).

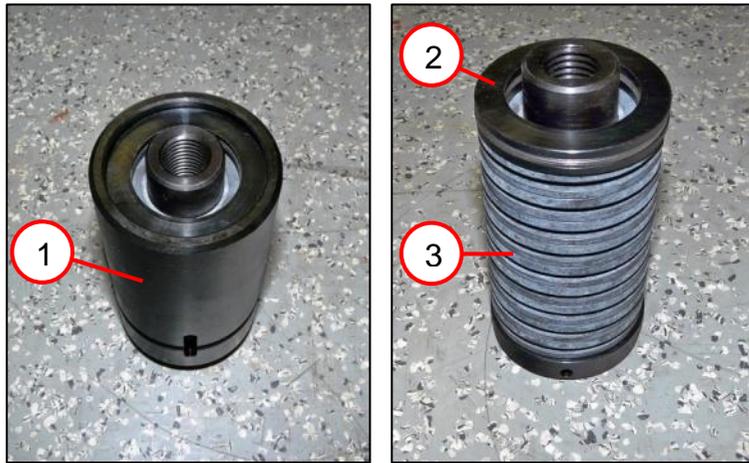
#### Tools:

- Punch 3 mm
- Circlip pliers
- Sleeve  
33 mm inner diameter  
38 mm outer diameter



## 6. Removal

### Removing the clamping unit

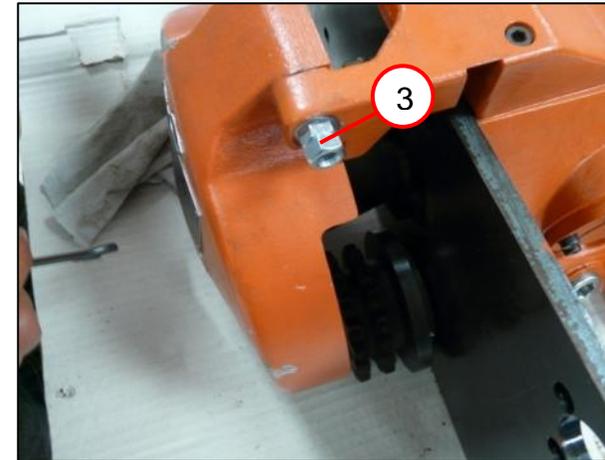
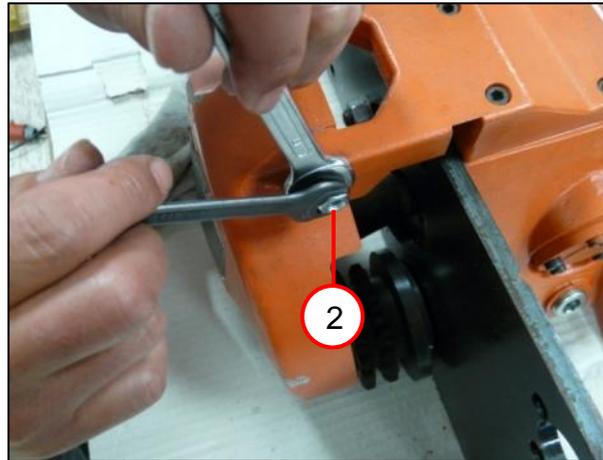
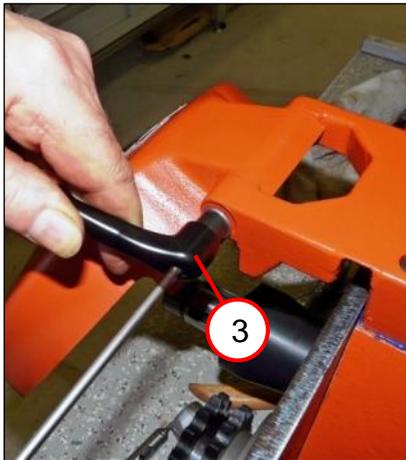


1. Remove the sleeve (1).
2. Remove the discs (2).
3. Remove the cup springs (3).



## 6. Removal

### Removing the safety hood



1. Remove the lever (1).
2. Screw a nut onto the stud bolt and lock it with a second nut (2).
3. Unscrew the stud bolt (3).

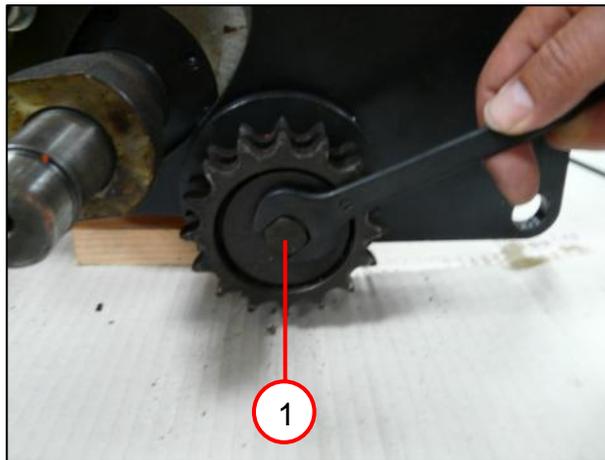
#### Tools:

- Torx T20
- 2x M8 nuts
- 2x open-ended spanners 13 mm



## 6. Removal

### Removing the side plate



1. Unscrew the screw (1).  
☞ The screw is locked with Loctite 242.
2. Remove the hook and loop wheel (2).

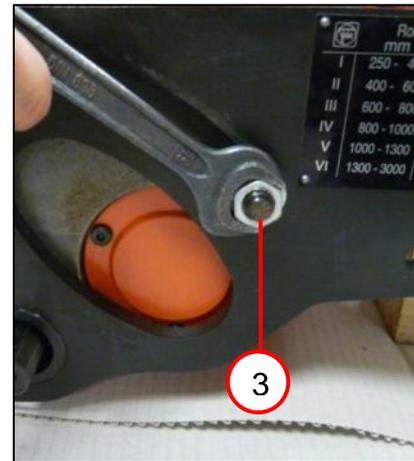
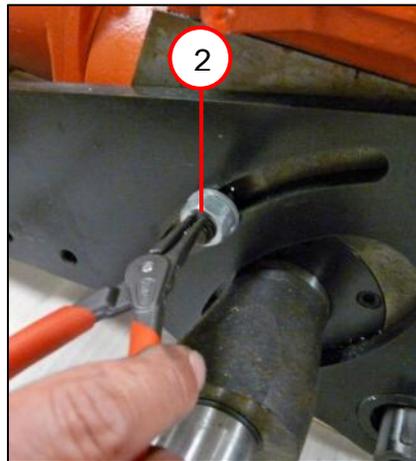
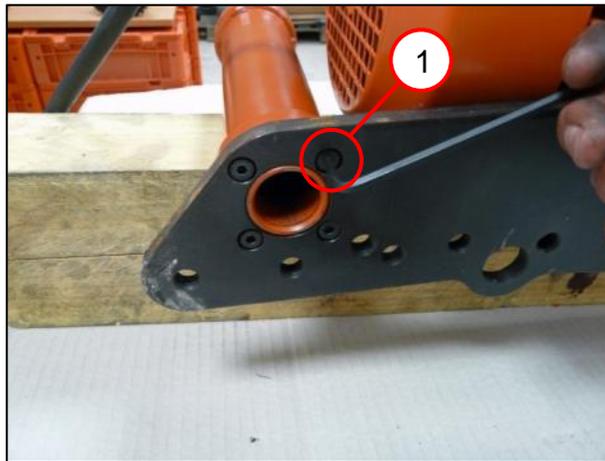
#### Tools:

- Open-ended spanner/Ring wrench 17 mm
- Outer puller



## 6. Removal

### Removing the side plate



1. Remove the four screws (1).
2. Remove the circlip (2).
3. Unscrew the nut (3).

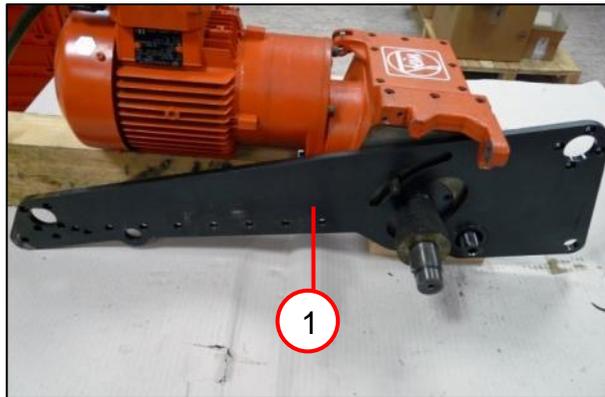
#### Tools:

- Socket head wrench  
4 mm
- Circlip pliers
- Open-ended  
spanner/Ring wrench  
19 mm



## 6. Removal

### Removing the side plate

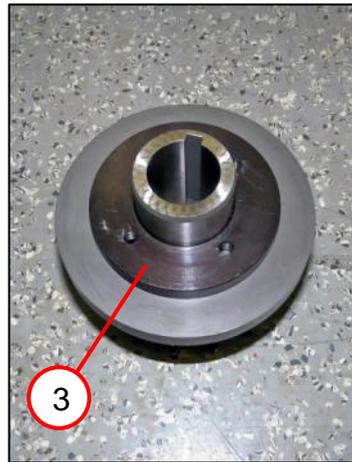


1. Remove the side plate (1).



## 6. Removal

### Removing the hook and loop wheel



1. Unscrew the four screws (1).
2. Remove the hook and loop wheel (2).
3. Remove the disc (3).
4. Remove the disc (4).

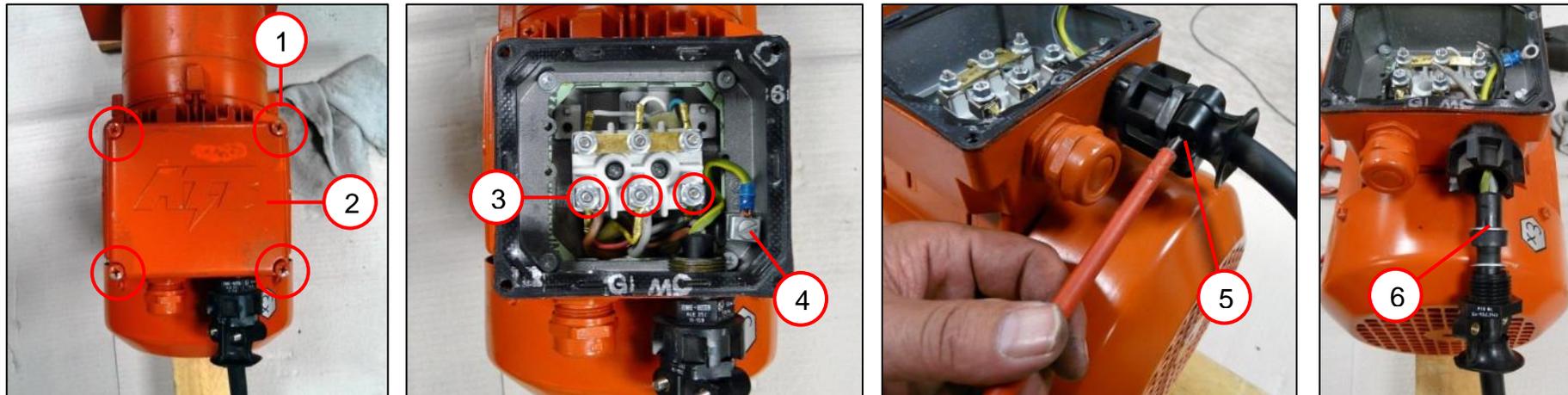
**Tools:**

- Socket head wrench  
4 mm



## 6. Removal

### Removing the motor



1. Unscrew the four screws (1).
2. Remove the cover (2).
3. Loosen the three nuts (3) and pull off the cable.
4. Unscrew the screw (4) and remove the cable.
5. Unscrew the screw (5).
6. Remove the cable clamping piece with cable (6).

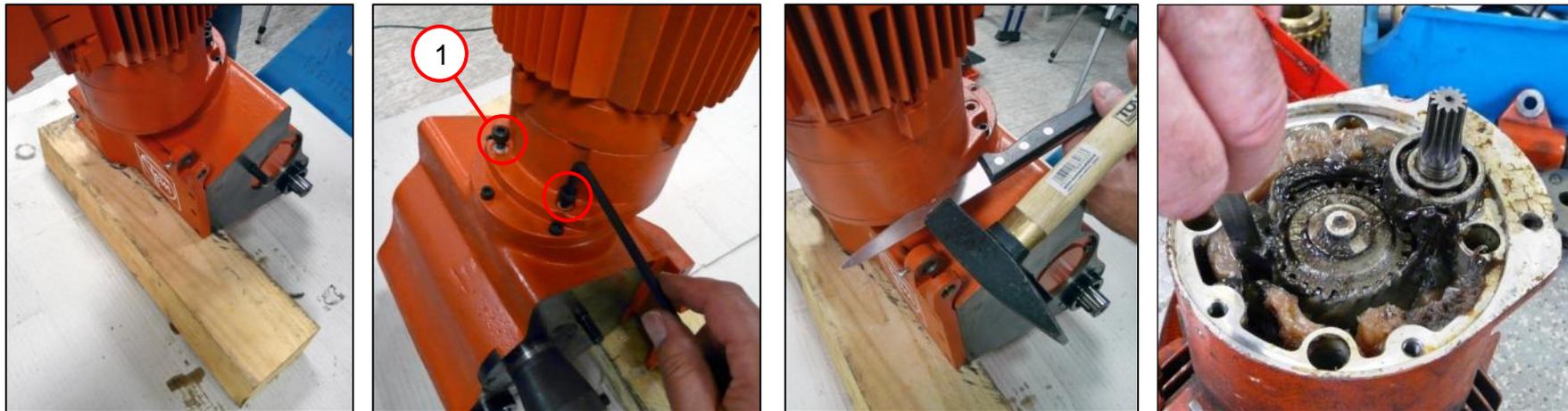
#### Tools:

- PH2 cross-tip screwdriver
- Socket wrench 7 mm
- Slotted screwdriver



## 6. Removal

### Removing the motor



1. Prop up the gearbox housing.
2. Unscrew the two screws (1).
3. Detach the motor from the flange.
  - ☞ The flange is sealed with Loctite 573.
4. Remove the motor.
5. Remove the old grease.

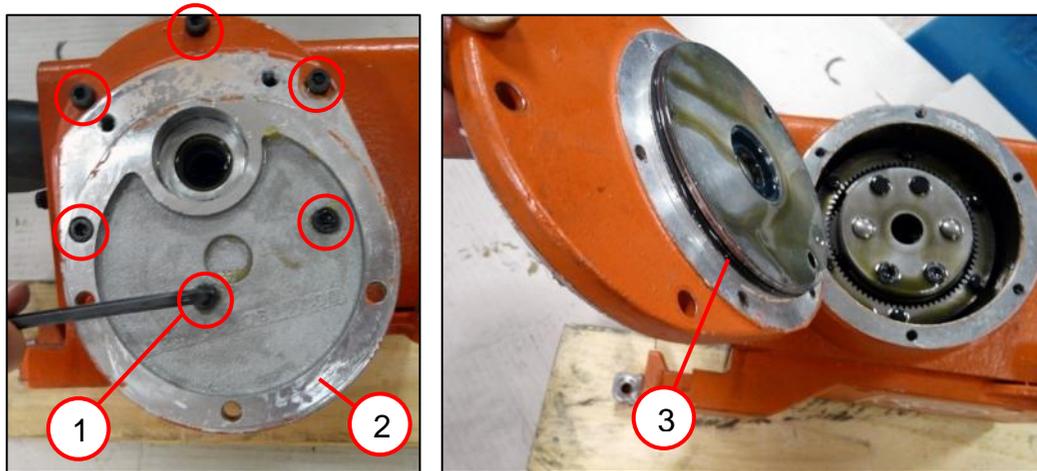
#### Tools:

- Socket head wrench  
5 mm
- Blade
- Hammer



## 6. Removal

### Removing the motor



1. Unscrew the six screws (1).
2. Remove the flange (2).
3. Remove the seal (3).

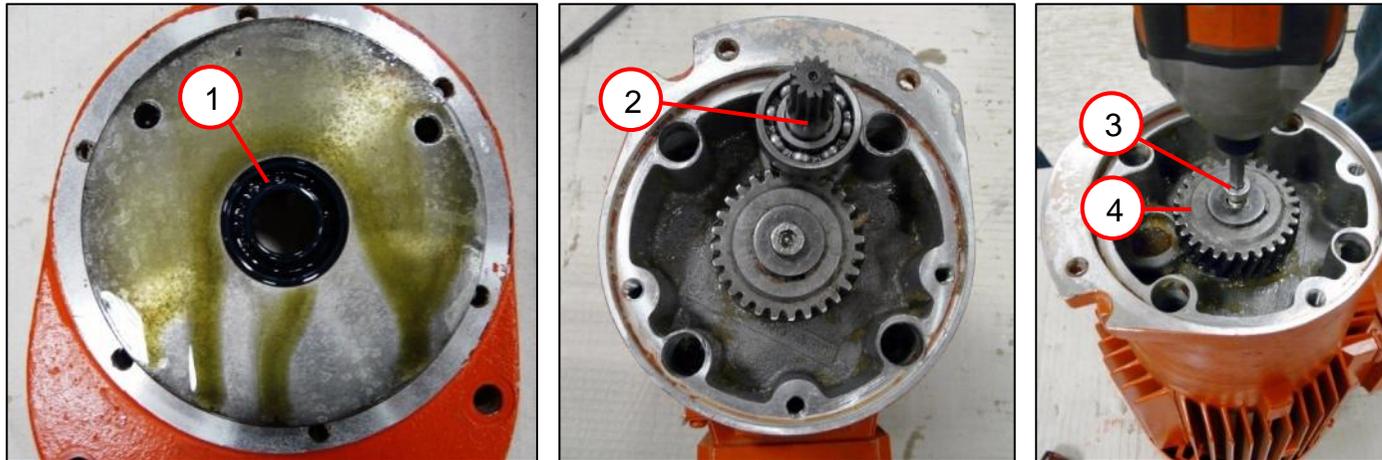
**Tools:**

- Socket head wrench  
5 mm



## 6. Removal

### Removing the motor



1. Remove the seal (1).
2. Remove the splined shaft [z=12] (2).
3. Unscrew the screw (3) and remove the gear-wheel [z=28] (4).

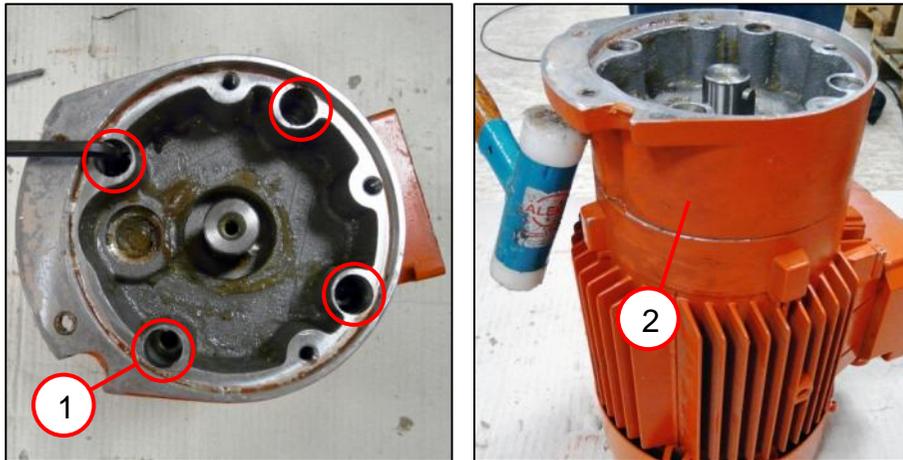
#### Tools:

- Socket head wrench  
6 mm



## 6. Removal

### Removing the motor



1. Remove the four screws (1).
2. Remove the flange (2).

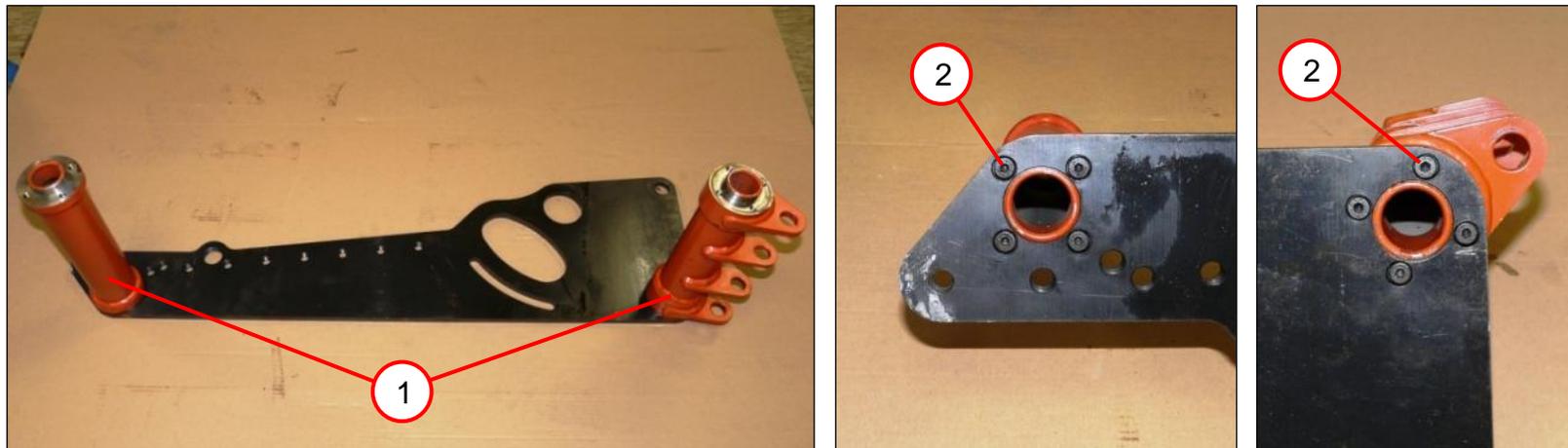
#### Tools:

- Socket head wrench  
6 mm
- Plastic hammer



## 7. Fitting

### Fitting the side plates



1. Position the two crossbars (1) on the side plate.
2. Secure the two crossbars with four screws (2) each.

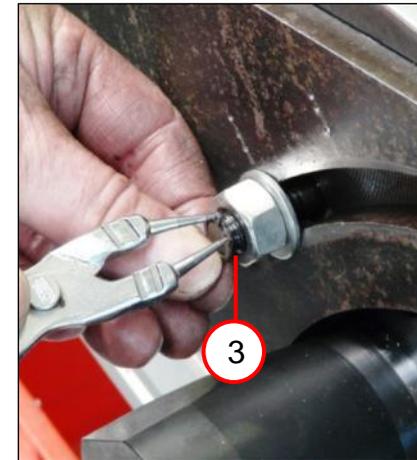
**Tools:**

- Socket head wrench  
4 mm



## 7. Fitting

### Fitting the side plates



1. Coat the cutting tool side on the housing with Gearbox oil.
2. Position the side plate (1) with the two crossbars.
3. Screw the nut (2) with disc onto the thread bolt.
4. Place the circlip (3) on the thread bolt.

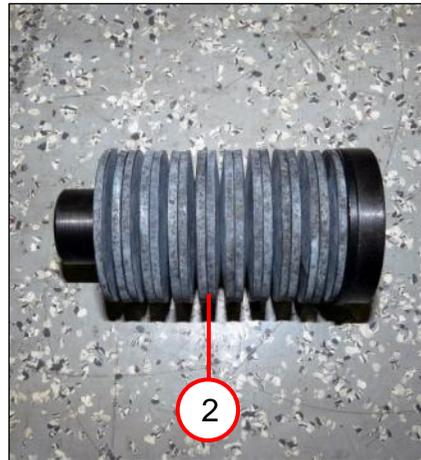
**Tools:**

- Gearbox oil
- Open-ended spanner  
19 mm
- Circlip pliers



## 7. Fitting

### Fitting the clamping unit



1. Slide the ring (1) onto the bolt.
2. Slide the cup springs (2) onto the bolt in the correct position.
3. Slide the ring (3) onto the bolt.



## 7. Fitting

### Fitting the clamping unit



1. Slide the discs (1) onto the bolt.
2. Slide the ring (2) onto the bolt.
3. Insert the bolt into the clamping sleeve (3).
4. Position the circlip (4).

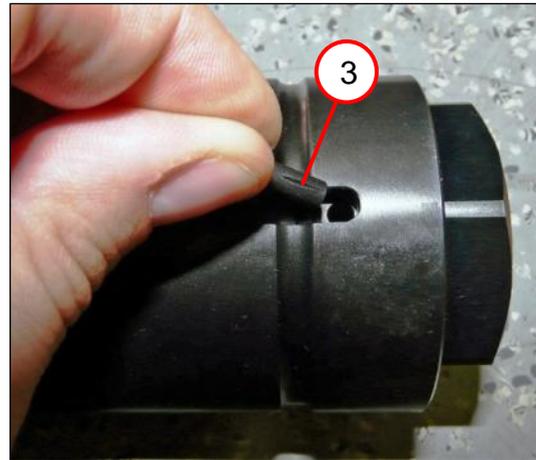
**Tools:**

- Circlip pliers



## 7. Fitting

### Fitting the clamping unit



1. Press in the circlip (1).
2. Pre-tension the cup spring package (2).  
☞ The circlip will click into place.
3. Fit the pin (3) in the correct position.

#### Tools:

- Sleeve  
33 mm inner diameter  
46 mm outer diameter
- Sleeve  
33 mm inner diameter  
38 mm outer diameter
- Hammer



## 7. Fitting

### Fitting the hinge



1. Remove any grease from the pressing surfaces of the grooved ball bearing and gear-wheel.
2. Press the grooved ball bearing (1) into the gear-wheel.

**Tools:**

- Arbor press
- Sleeve  
33 mm inner diameter  
46 mm outer diameter



## 7. Fitting

### Fitting the hinge



1. Remove any grease from the pressing surfaces of the hinge.
2. Press the gear-wheel (1) onto the hinge.

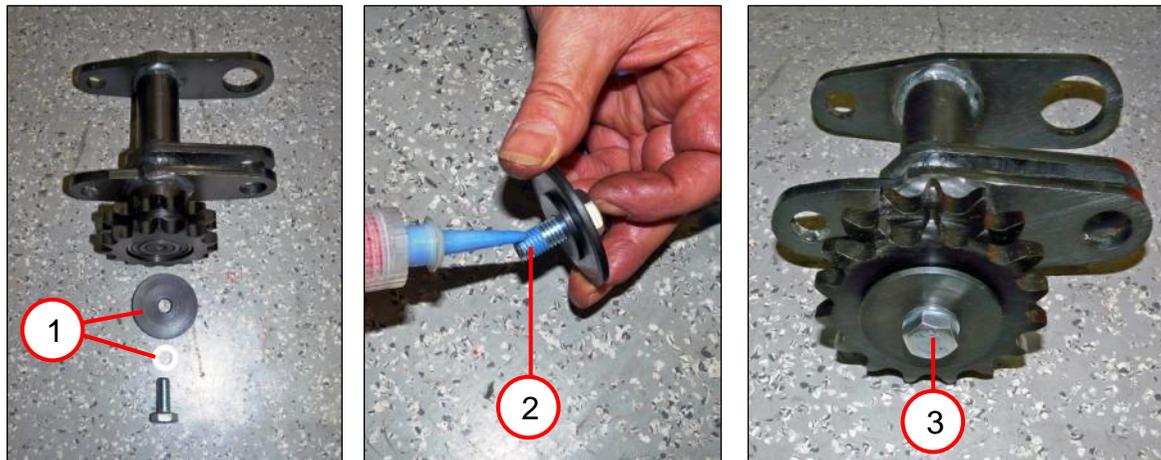
#### Tools:

- Arbor press
- Sleeve  
25 mm inner diameter  
33 mm outer diameter



## 7. Fitting

### Fitting the hinge



1. Slide the two discs (1) onto the screw in the correct position.
2. Coat the screw (2) with Loctite 242.
3. Screw in the screw (3).

**Tools:**

- Ring wrench 17 mm



## 7. Fitting

### Fitting the hinges

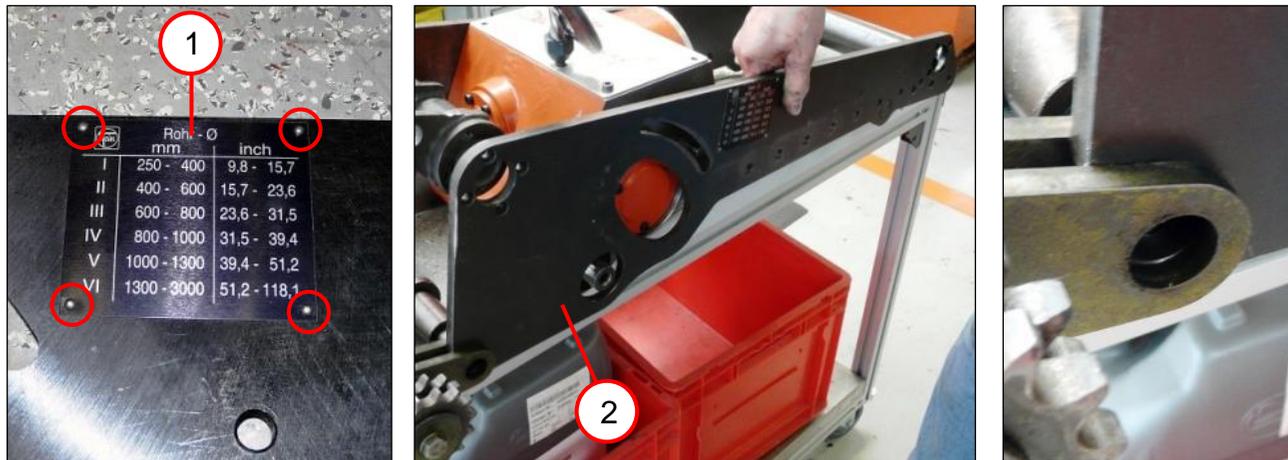


1. Position the two hinges (1) on the bolt.



## 7. Fitting

### Fitting the side plate



1. Position the information sign (1).
2. Rivet the information sign.
3. Position the side plate (2).

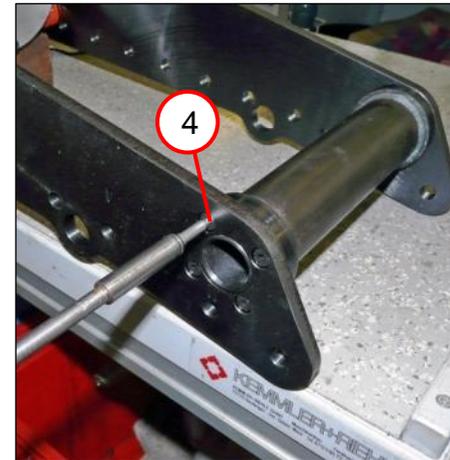
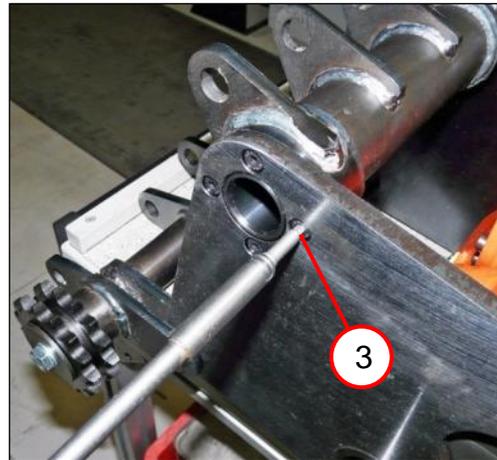
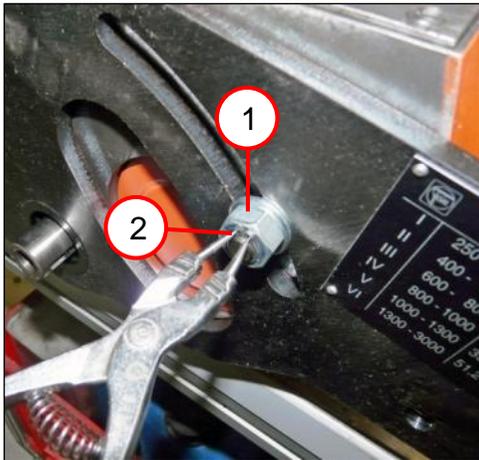
**Tools:**

- Hammer
- Long-nosed pliers



## 7. Fitting

### Fitting the side plate



1. Screw the nut (1) with disc onto the thread bolt.
2. Fit the circlip (2) on the thread bolt.
3. Screw in the four screws (3).
4. Screw in the four screws (4).

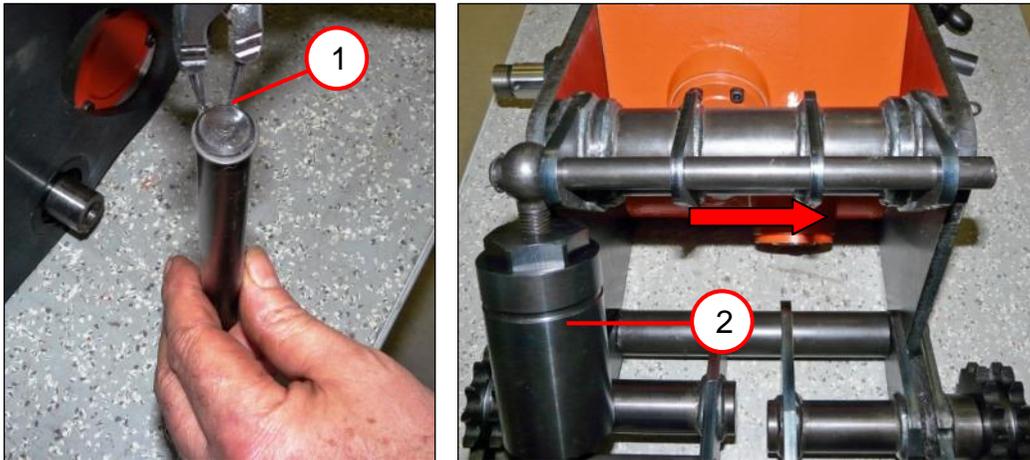
**Tools:**

- Circlip pliers
- Socket head wrench  
4 mm



## 7. Fitting

### Fitting the clamping unit



1. Fit the circlip (1).
2. Fit the clamping unit (2) in the correct position.

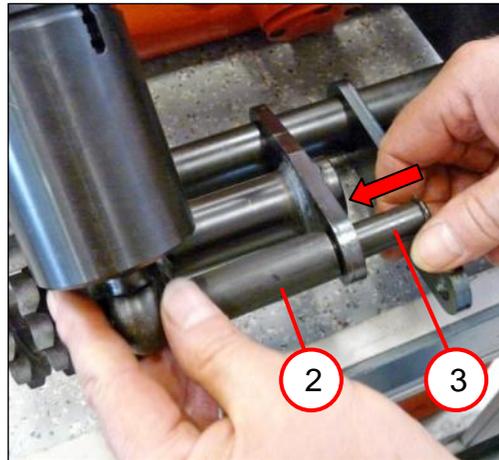
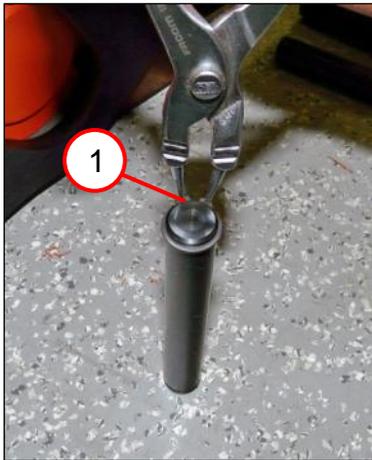
**Tools:**

- Circlip pliers



## 7. Fitting

### Fitting the clamping unit



1. Fit the circlip (1).
2. Position the sleeve (2).
3. Fit the bolt (3).
4. Fit the circlip (4).

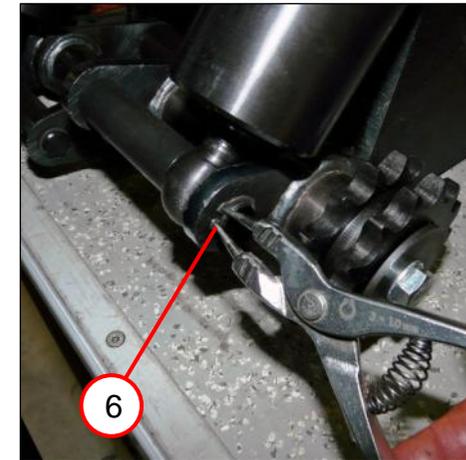
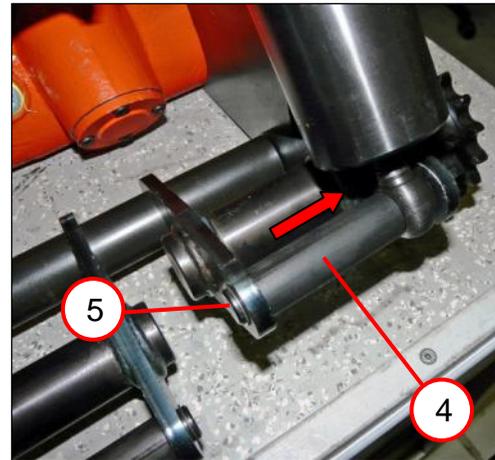
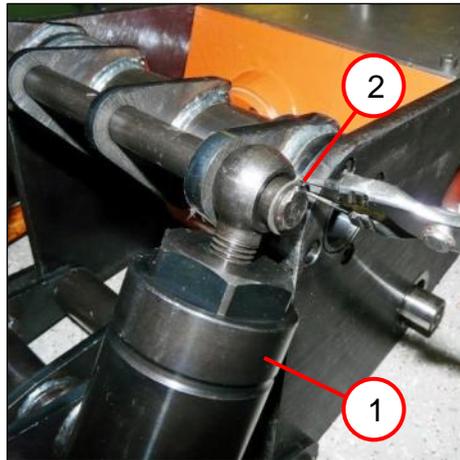
**Tools:**

- Circlip pliers



## 7. Fitting

### Fitting the clamping unit



1. Fit the clamping unit (1) in the correct position.
2. Fit the circlip (2).
3. Fit the circlip (3).
5. Position the sleeve (4).
4. Fit the bolt (5).
5. Fit the circlip (6).

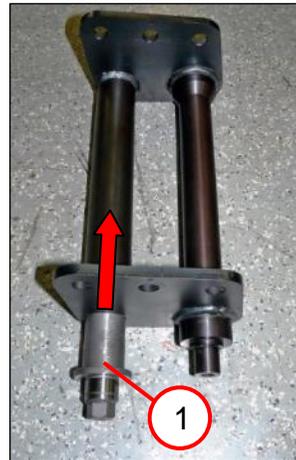
**Tools:**

- Circlip pliers



## 7. Fitting

### Fitting the shaft



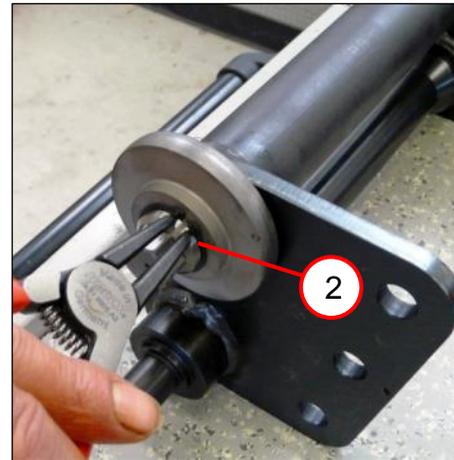
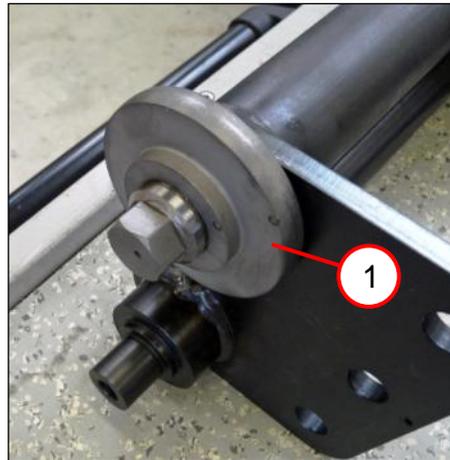
1. Coat both ends of the shaft with Gearbox oil.
2. Fit the shaft (1).

**Werkzeuge:**  
- Gearbox oil



## 7. Fitting

### Fitting the shaft



1. Coat both ends of the shaft with Gearbox oil.
2. Position the disc (1).
3. Fit the circlip (2).

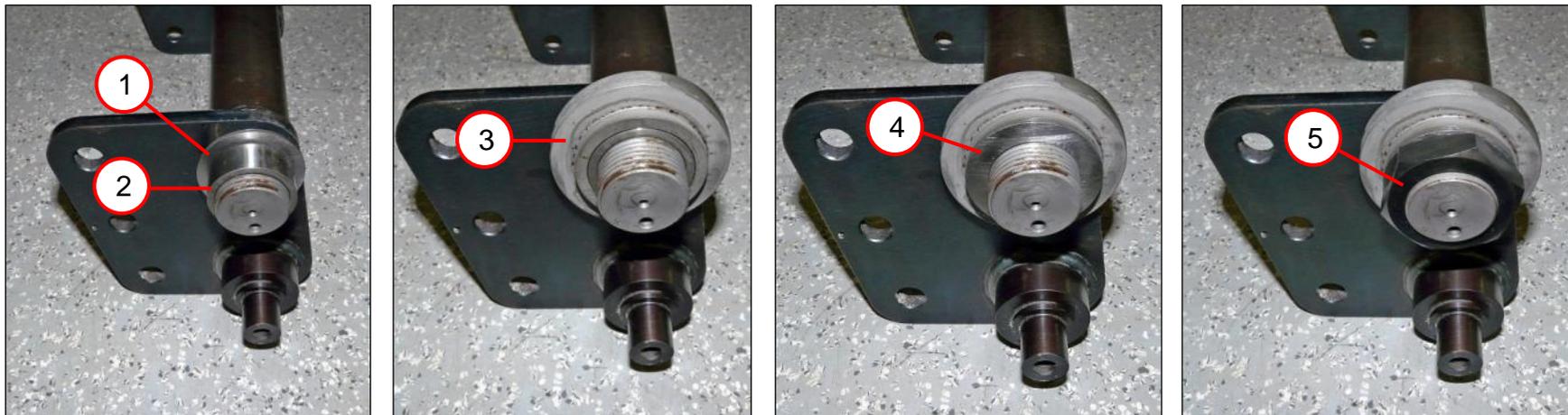
**Tools:**

- Gearbox oil
- Circlip pliers



## 7. Fitting

### Fitting the shaft

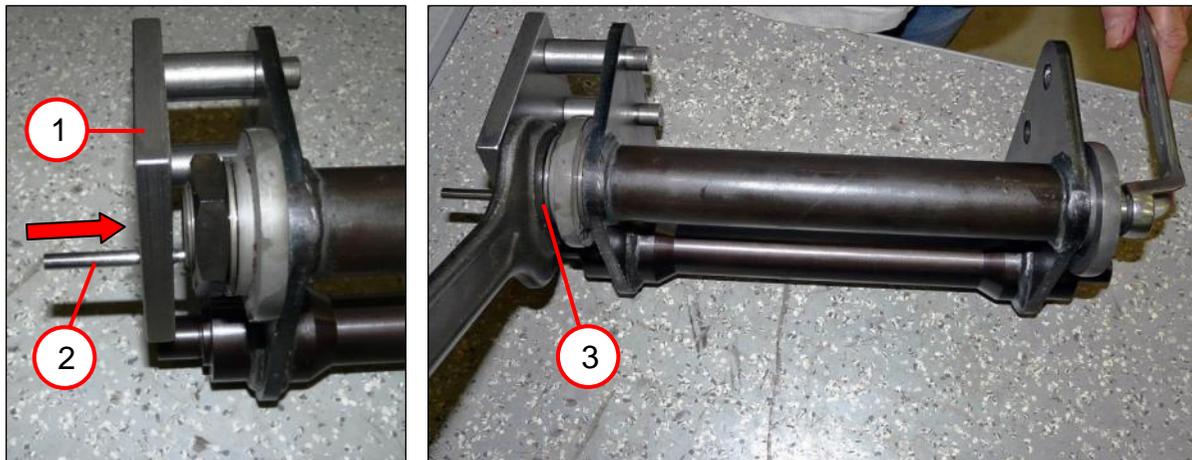


1. Slide the disc (1) onto the shaft.
2. Slide the sleeve (2) onto the shaft.
3. Slide the disc (3) onto the shaft.
4. Slide the disc (4) onto the shaft.
5. Screw on the hex nut (5) [hand-tight].



## 7. Fitting

### Fitting the shaft



1. Position the special tool (1).
2. Turn the shaft and pin it using the pin (2).
3. Tighten the nut (3).

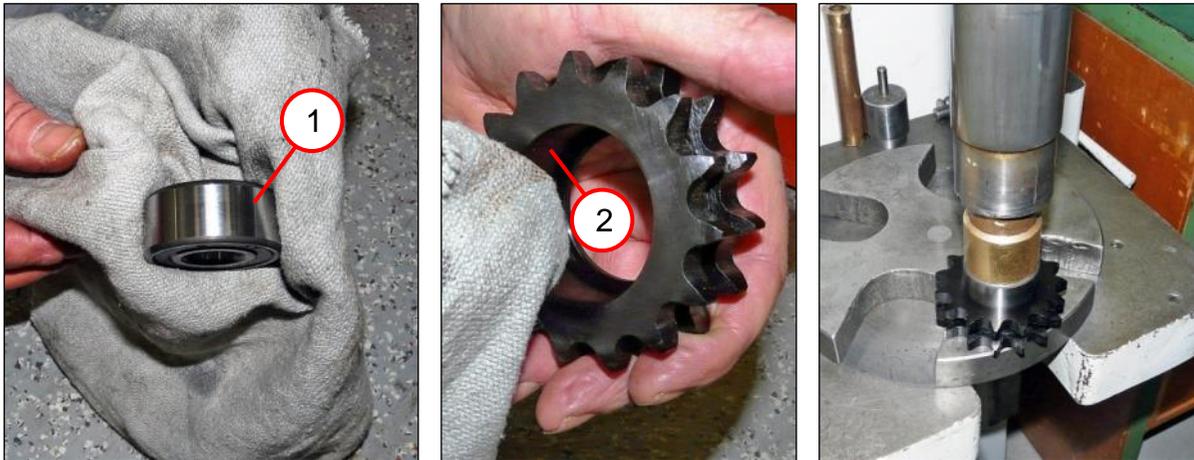
#### Tools:

- Special tool
- Open-ended spanner  
46 mm
- Ring wrench 19 mm



## 7. Fitting

### Fitting the hook and loop wheel [on both sides]



1. Remove any grease from the grooved ball bearing (1).
2. Remove any grease from the press-in surface (2) on the hook and loop wheel.
3. Press the grooved ball bearing into the hook and loop wheel.

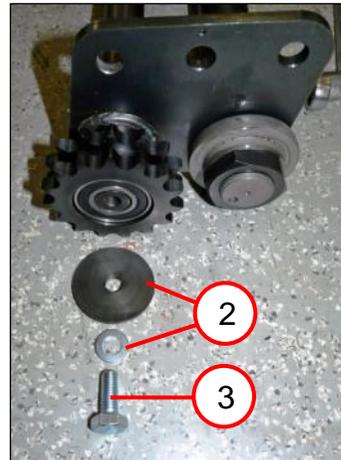
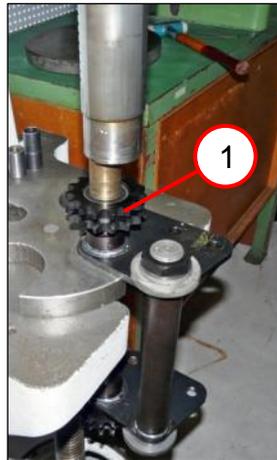
#### Tools:

- Arbor press
- Sleeve  
33 mm inner diameter  
46 mm outer diameter



## 7. Fitting

### Fitting the shaft [on both sides]



1. Press the hook and loop wheel (1) onto the axle.
2. Slide the two discs (2) onto the hexagon socket screw (3).
3. Coat the hexagon socket screw with Loctite 242.
4. Screw in the hexagon socket screw (3).

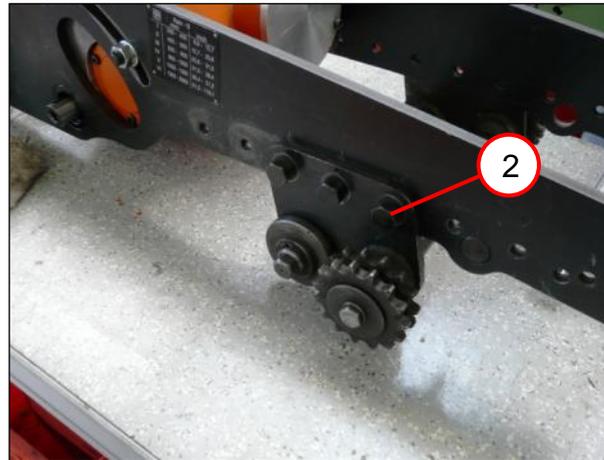
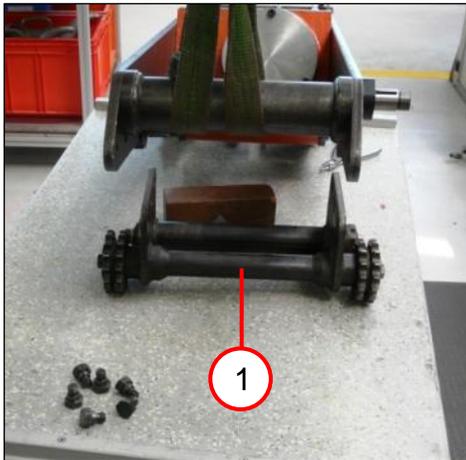
#### Tools:

- Arbor press
- Sleeve  
25 mm inner diameter  
33 mm outer diameter
- Ring wrench 17 mm



## 7. Fitting

### Fitting the shaft



1. Position the axle (1).
  - ☞ See the operating instructions for a guide to axle positioning.
2. Screw in the three screws (2) [on both sides].

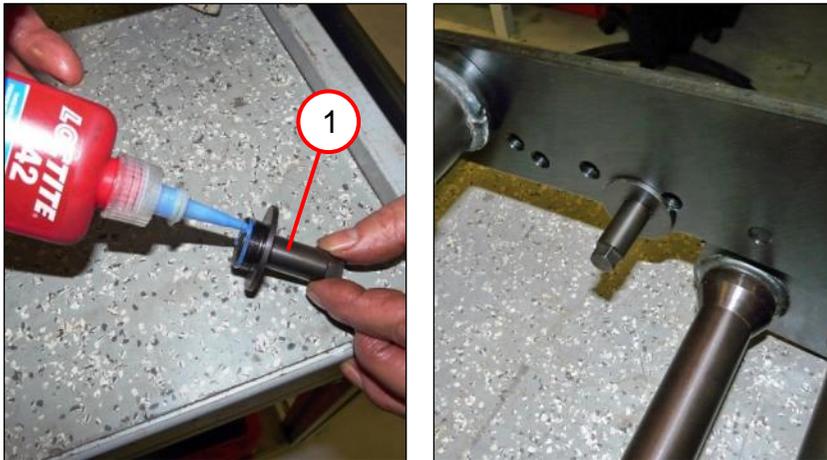
**Tools:**

- Ring wrench 17 mm



## 7. Fitting

### Fitting the delivery fixture



1. Coat the thread bolt (1) with Loctite 242.
2. Screw in the thread bolt.

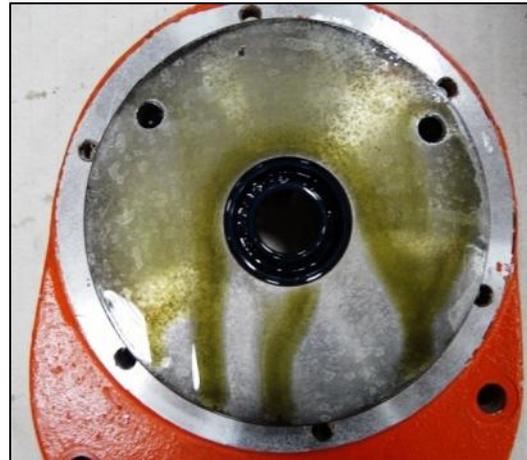
**Tools:**

- Ring wrench 13 mm



## 7. Fitting

### Fitting the motor



1. Coat the press-in surfaces with grease.
2. Press in the sealing ring (1) in the correct position.

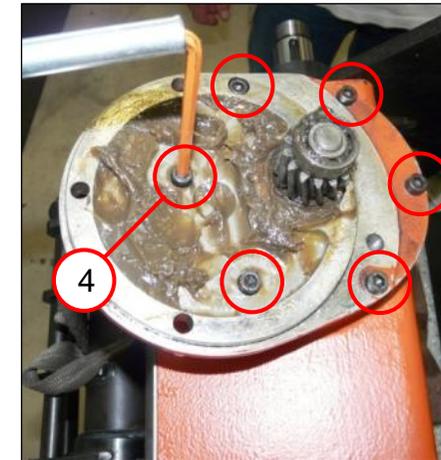
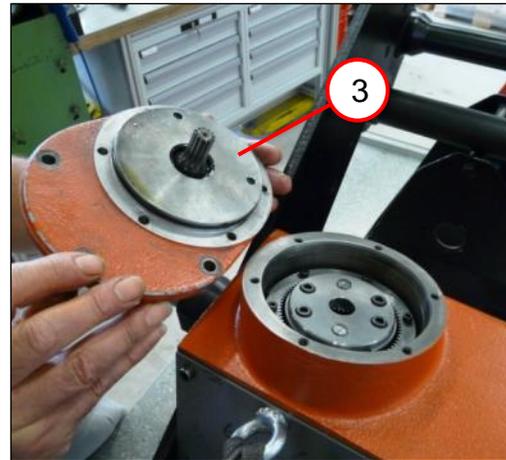
**Tools:**

- Arbor press
- Sleeve  
23 mm inner diameter  
31 mm outer diameter



## 7. Fitting

### Fitting the motor



1. Press on the grooved ball bearing (1).
2. Press in the shaft (2).
3. Fit the flange (3) in the correct position.
4. Screw in the six screws (4).

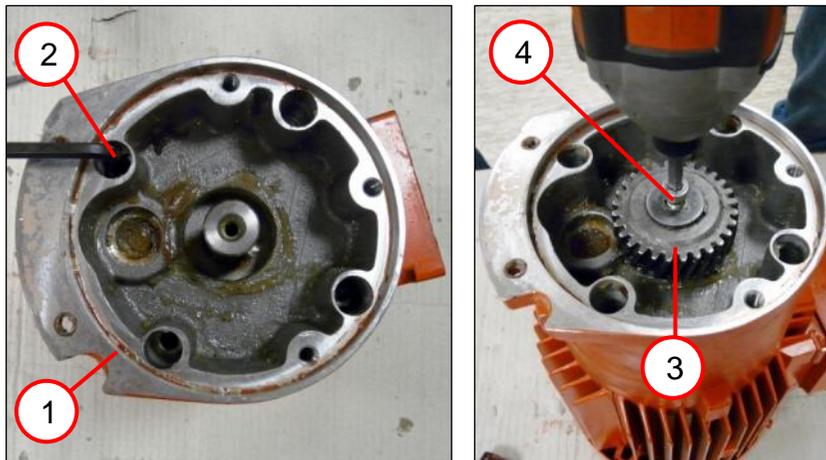
#### Tools:

- Arbor press
- Sleeve  
15 mm inner diameter  
28 mm outer diameter
- Socket head wrench  
6 mm



## 7. Fitting

### Fitting the motor



1. Position the flange (1) in the correct position.
2. Screw in the four screws (2).
3. Position the gear-wheel (3).
4. Coat the cylinder head screw (4) with Loctite 242.
5. Screw in the cylinder head screw (4) with disc.
6. Fill the gearbox housing flush with grease.

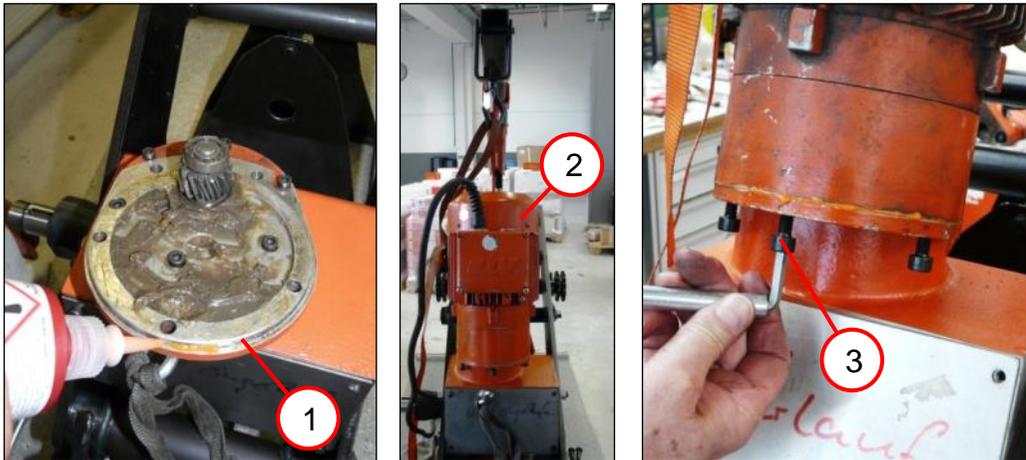
**Tools:**

- Socket head wrench  
6 mm



## 7. Fitting

### Fitting the motor



1. Apply Loctite 574 to the flange (1).
2. Place the motor (2) on the gearbox housing.
3. Coat the three screws (3) with Loctite 574.
4. Screw in the three screws (3).

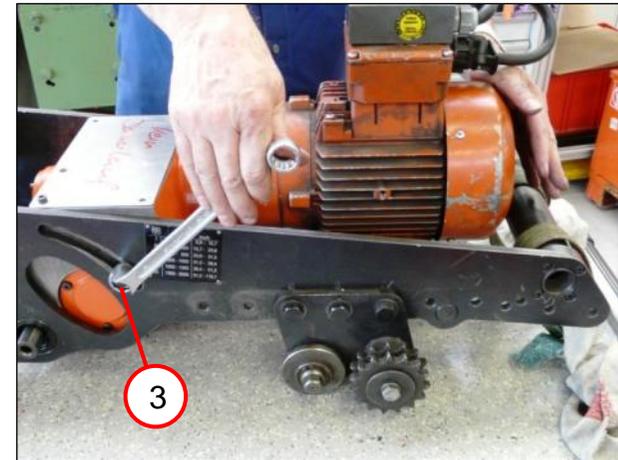
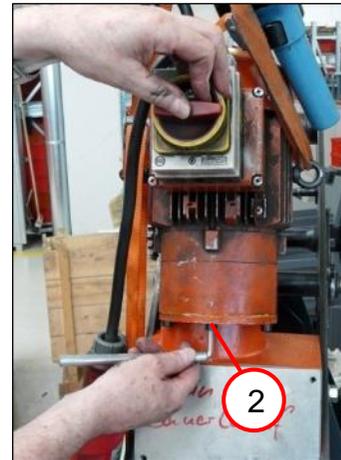
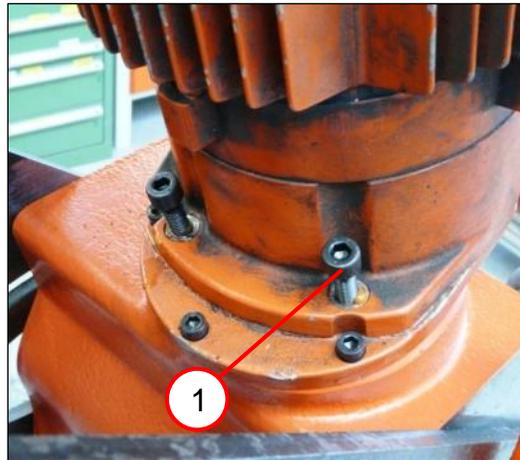
**Tools:**

- Socket head wrench  
6 mm



## 7. Fitting

### Fitting the motor



1. Coat the two screws (1) with Loctite 574.
2. Screw in the two screws (1).
3. Start the motor running briefly.  
 ☞ Correct the motor position if there are running noises.
4. Retighten the two screws (1).
5. Retighten the three screws (2).
6. Loosen the two nuts (3) on both sides and lower the motor.
7. Tighten the two nuts (3) on both sides.

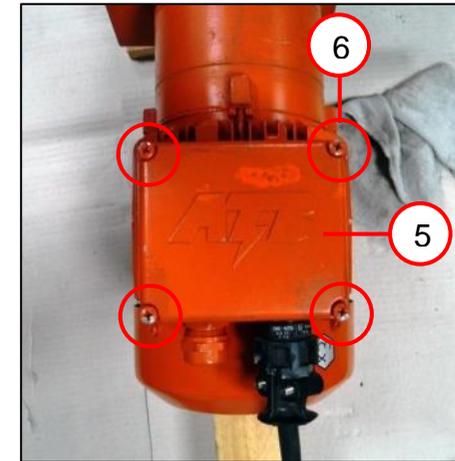
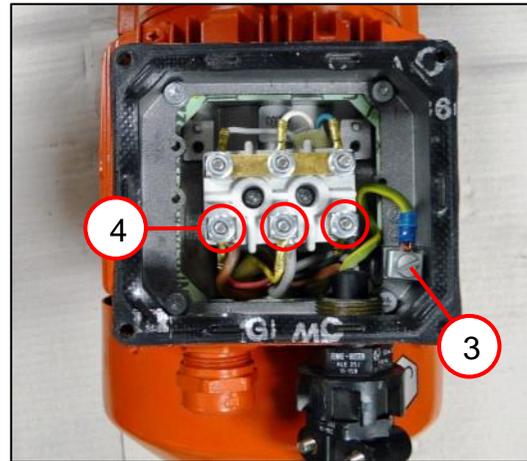
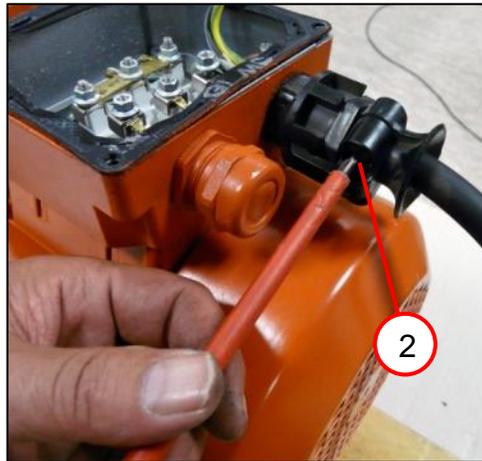
#### Tools:

- Socket head wrench  
6 mm
- Open-ended  
spanner/Ring wrench  
19 mm



## 7. Fitting

### Fitting the cover



1. Position the cable (1).
2. Screw in the screw (2).
3. Connect the cable (3).
4. Connect the three cables (4) as shown in the connection diagram.
5. Position the cover (5).
6. Screw in the four screws (6).

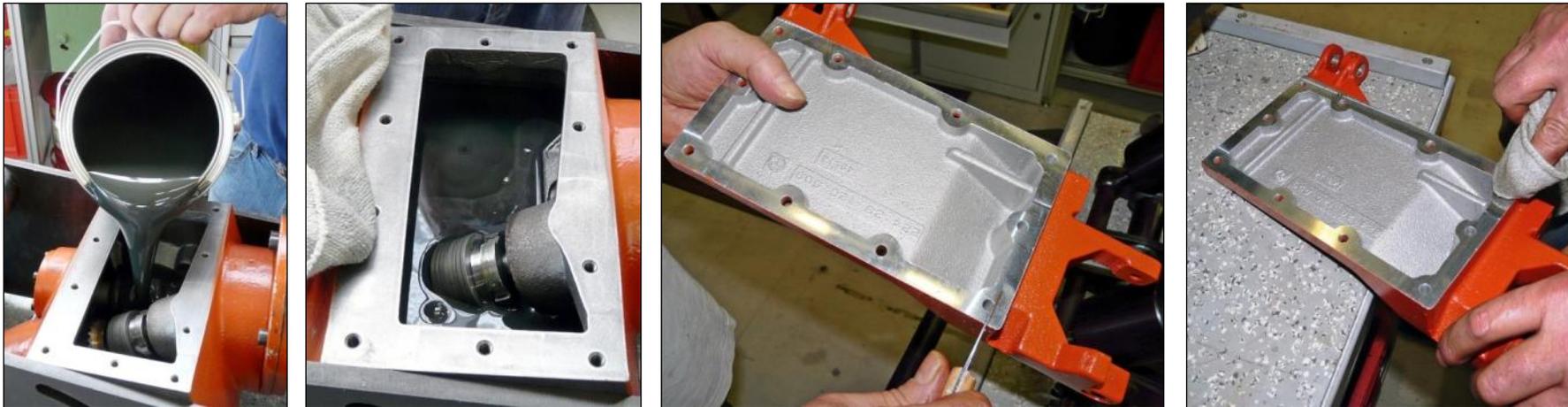
#### Tools:

- PH2 cross-tip screwdriver
- Socket wrench 7 mm
- Slotted screwdriver



## 7. Fitting

### Fitting the planetary gear

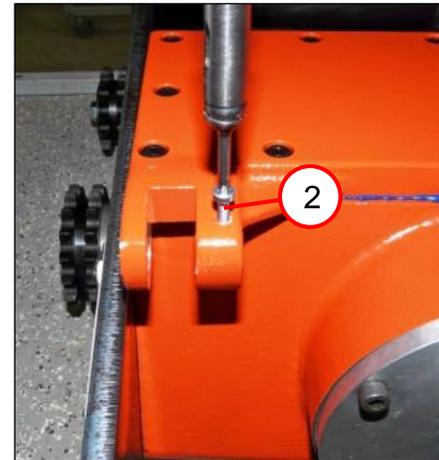
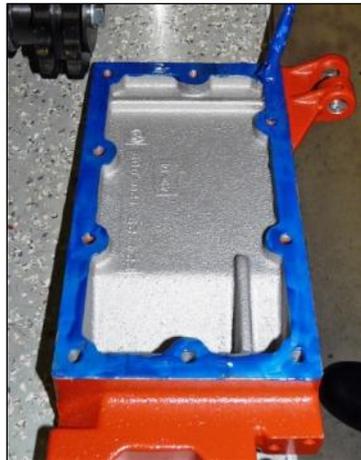
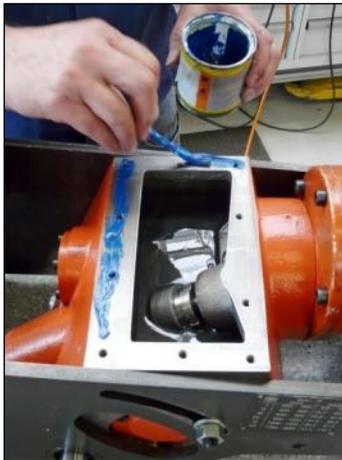


1. Pour two litres of oil into the gearbox.
2. Carefully clean and remove any grease from the rim of the gearbox housing.
3. Carefully clean and remove any grease from the cover.



## 7. Fitting

### Fitting the planetary gear



1. Coat the rim of the gearbox housing and of the cover with Epple 28 sealant.
2. Place the cover in the correct position on the gearbox housing.
3. Screw in the ten screws (1).
4. Fit the cylinder head screw (2).

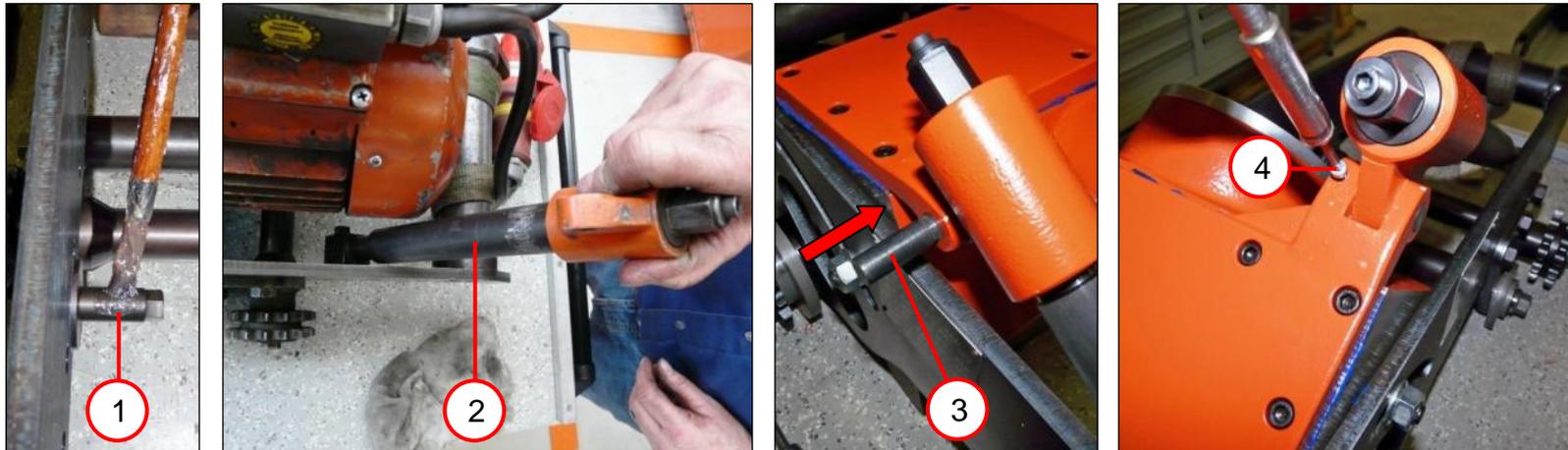
**Tools:**

- Socket head wrench  
5 mm



## 7. Fitting

### Fitting the planetary gear



1. Coat the bolt (1) with grease.
2. Slide the delivery fixture (2) onto the bolt.
3. Position the delivery fixture on the cover and secure it with the bolt (3).
4. Screw in the cylinder head screw (4).

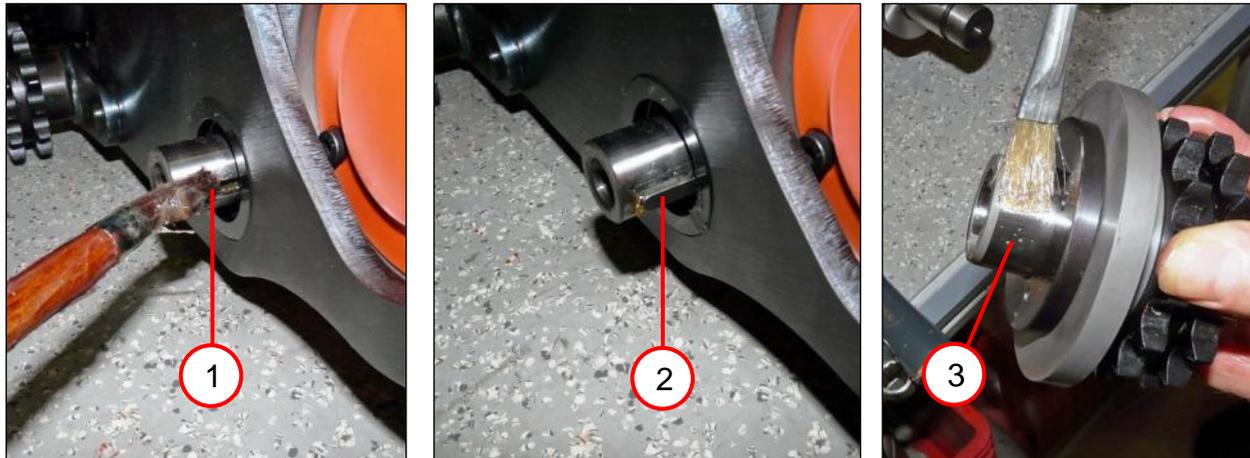
**Tools:**

- Socket head wrench  
3 mm



## 7. Fitting

### Fitting the planetary gear [on both sides]



1. Coat the shaft (1) with grease.
2. Fit the feather key (2).
3. Coat the hook and loop wheel (3) with Gearbox oil.

**Werkzeuge:**

- Gearbox oil



## 7. Fitting

### Fitting the planetary gear [on both sides]



1. Coat the screw with Loctite 242.
2. Screw in the screw (1).

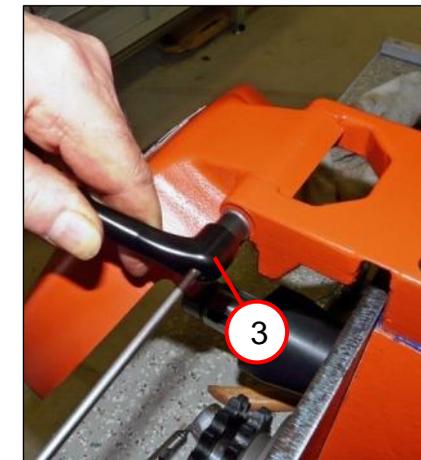
**Tools:**

- Ring wrench 17 mm



## 7. Fitting

### Fitting the planetary gear



1. Screw a mounting nut onto the stud bolt (1) and lock it with a second mounting nut.
2. Coat the inner thread with Loctite 242.
3. Screw in the stud bolt.
4. Remove the two mounting nuts.
5. Position the disc (2).
6. Mount the lever (3).
7. See the operating instructions for a guide to “Setting the running precision” of the machine.

**Tools:**

- Ring wrench 13 mm
- Torx T20



## 8. Connection diagram

**Not yet available.**