

**KBB 38 X**

**Repair instructions**





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- 2. Technical data**
- 3. Notes and requirements**
- 4. Tools required**
- 5. Lubricants and auxiliary substances required**
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## KBB 38 X



### 1. Models described

These repair instructions describe how to repair the following models:

Model	Order number
KBB 38 X	7 272 12 .. ..



## **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**

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

Arbor press	
Cross-tip screwdriver	PH2
Socket head wrenches	2.5 mm/3 mm/4 mm/5 mm
Open-ended spanner	WAF 10/14
Circlip pliers	
Slotted screwdriver	
Flat-nose pliers	
Plastic hammer	
Sleeve	38 mm inner diameter 25 mm outer diameter 15 mm inner diameter 40 mm outer diameter 18 mm inner diameter 35 mm outer diameter 28 mm inner diameter

### Special tools

Chuck cone 22 mm	6 41 07 022 00 1
Chuck cone 28 mm	6 41 07 028 00 2
Drawing-off socket cap	6 41 04 150 00 8



### 4. Tools required

#### Standard tools

Press-in bolt	10 mm diameter/25 mm diameter/28 mm diameter
Ball bearing support	22 mm



## 5. Lubricants and auxiliary substances required

### Lubricants

Grease	0 40 127 0100 0	80 g	Housing
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## 6. Removal

### Removing the swarf guard and coolant tank



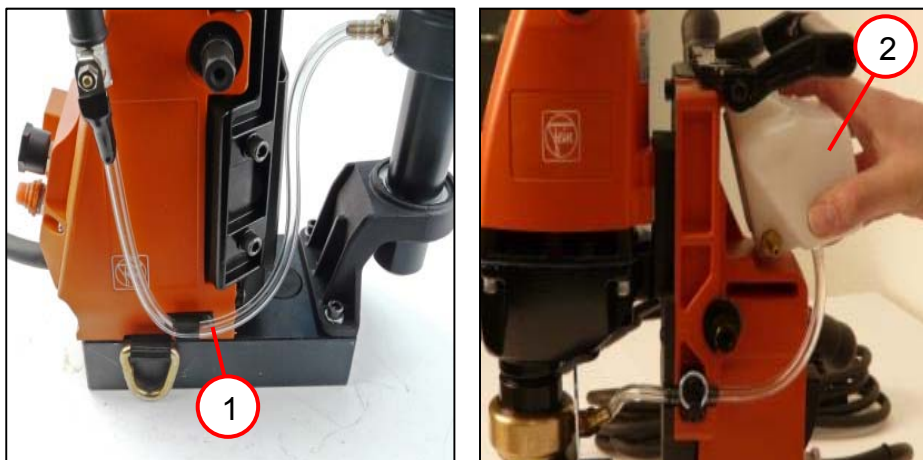
1. Open the protective grille (1).
2. Loosen the set screw (2).
3. Remove the protective grille.
4. Unscrew the two screws (3).
5. Remove the guide (4).

#### Tools:

- Socket head wrench 2.5 mm
- PH2 cross-tip screwdriver

### 6. Removal

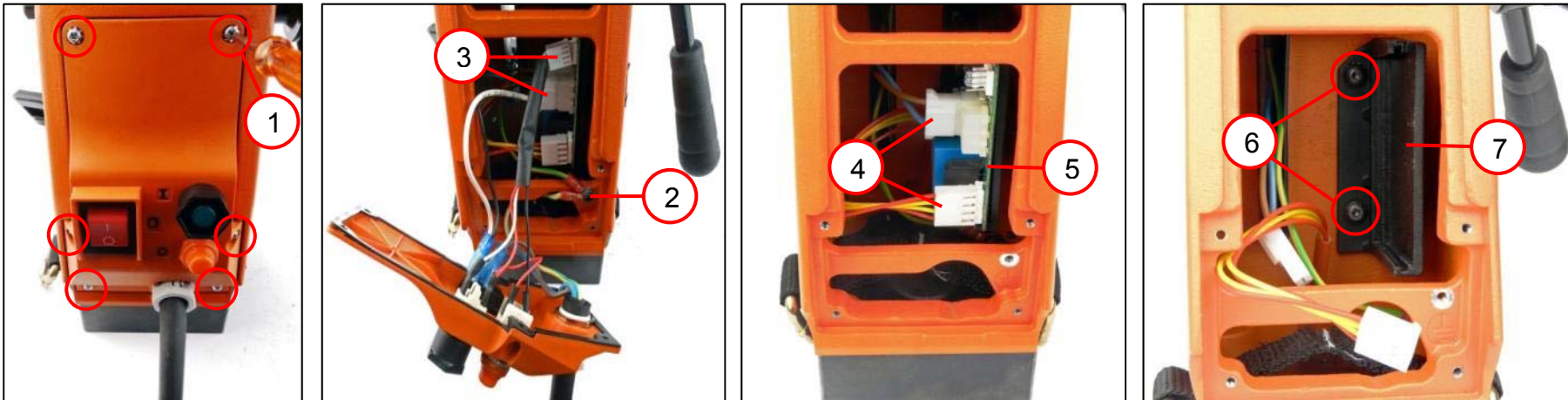
#### Removing the swarf guard and coolant tank



1. Remove the hose (1).  
☞ Empty the tank and pipe first.
2. Remove the tank (2).

## 6. Removal

### Removing the electronics



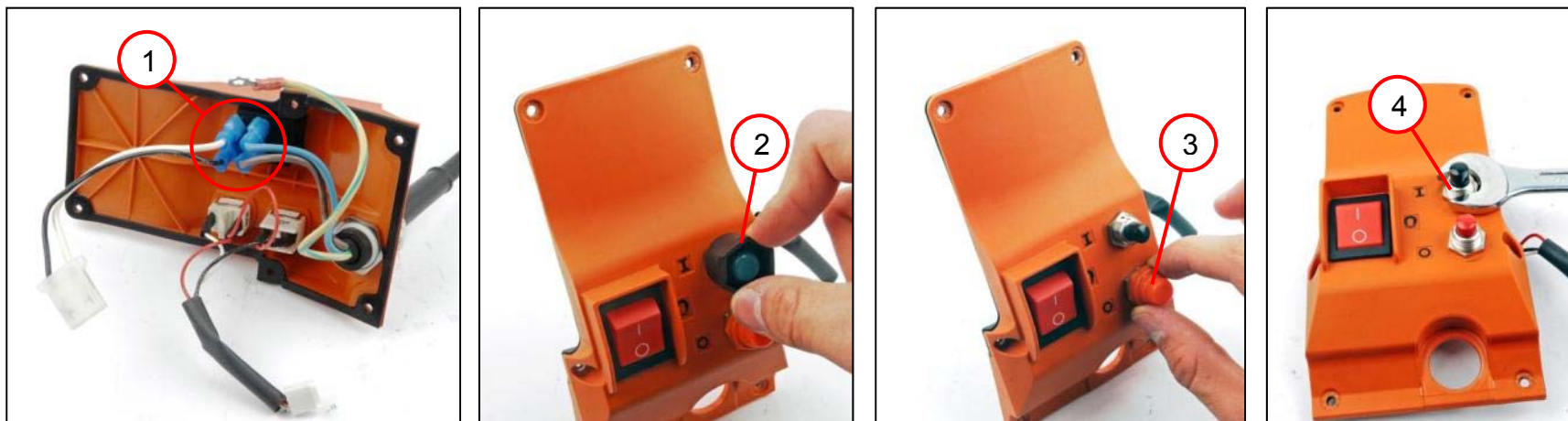
1. Unscrew the six screws (1) and remove the plate.
2. Unscrew the screw (2).
3. Pull off the two plugs (3).
4. Pull off the two plugs (4).
5. Pull the electronics (5) out of the cover.
6. Unscrew the two screws (6).
7. Remove the cover (7).

**Tools:**

- PH2 cross-tip screwdriver
- Socket head wrench 2.5 mm

## 6. Removal

### Removing the electronics



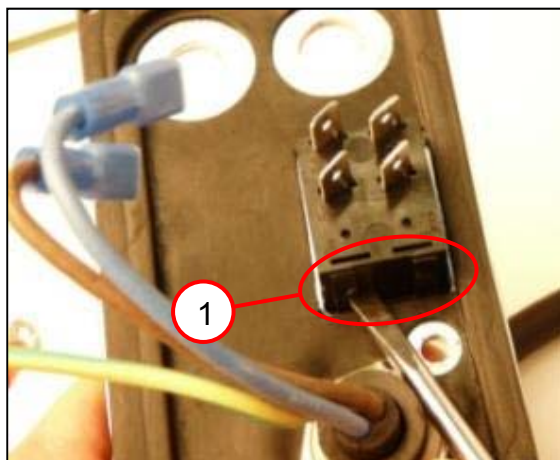
1. Pull the cables (1) off the switch.
2. Unscrew the pushbutton (2).
3. Unscrew the pushbutton (3).
4. Remove the switch module (4).

**Tools:**

- Open-ended spanner  
WAF 14

### 6. Removal

#### Removing the switch



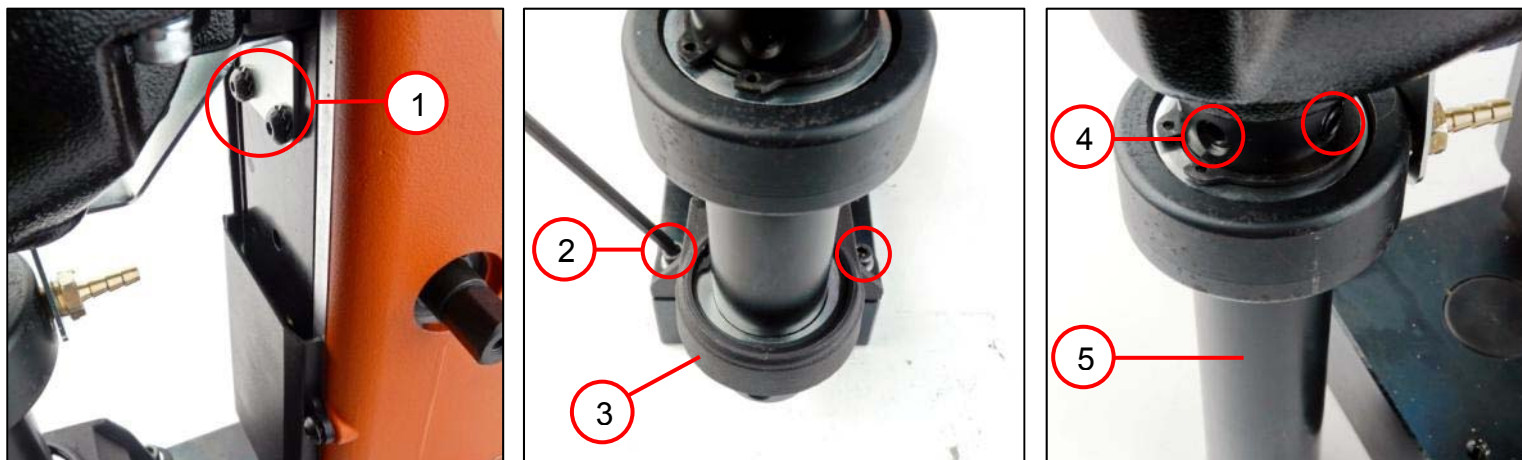
1. Press the lock (1) on both sides with the screwdriver.
2. Remove the switch.

**Tools:**

- Slotted screwdriver

## 6. Removal

### Removing the shaft



1. Unscrew the holder (1).
2. Unscrew the two screws (2).
3. Remove the intermediate gearbox (3).
4. Unscrew the two screws (4).
5. Remove the shaft (5).

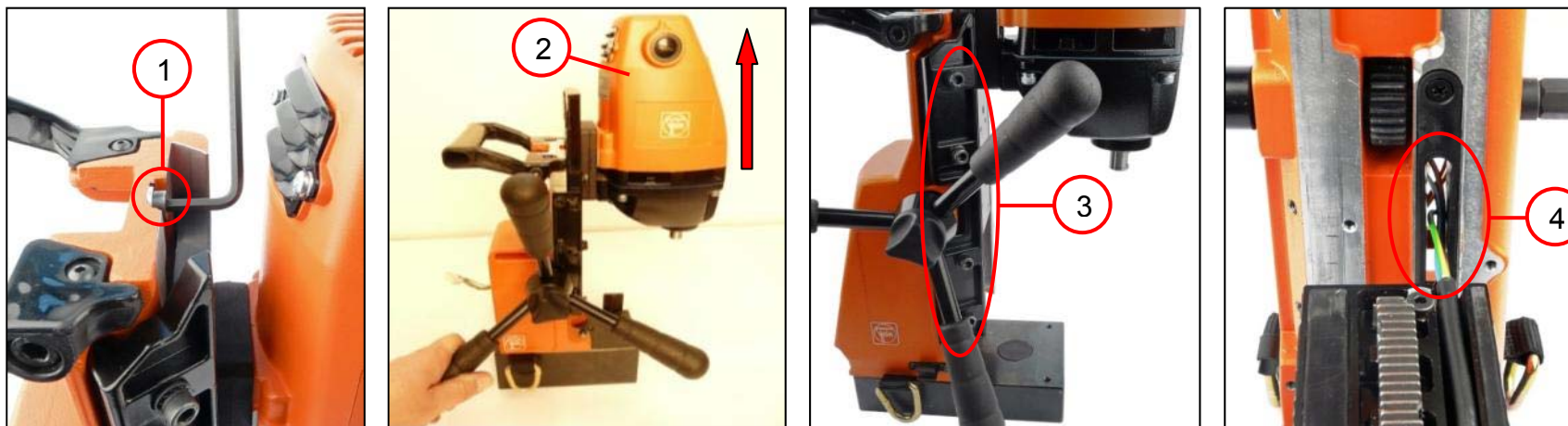
#### Tools:

- Socket head wrench  
5 mm
- Socket head wrench  
4 mm
- Socket head wrench  
3 mm



## 6. Removal

### Removing the guide



1. Unscrew the screw (1).
2. Use the spider to turn the drill motor (2) upward.
3. Unscrew the guide (4).
4. Remove the connecting cable (3).

**Tools:**

- Socket head wrench  
5 mm

## 6. Removal

### Removing the shaft



1. Remove the circlip (1) from the shaft.
2. Remove the shaft (2).

#### Tools:

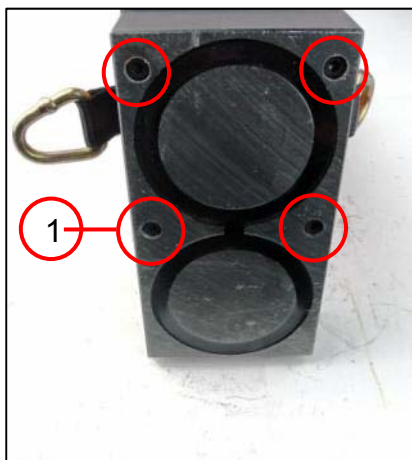
- Open-ended spanner  
WAF 10
- Circlip pliers





## 6. Removal

### Removing the magnetic foot



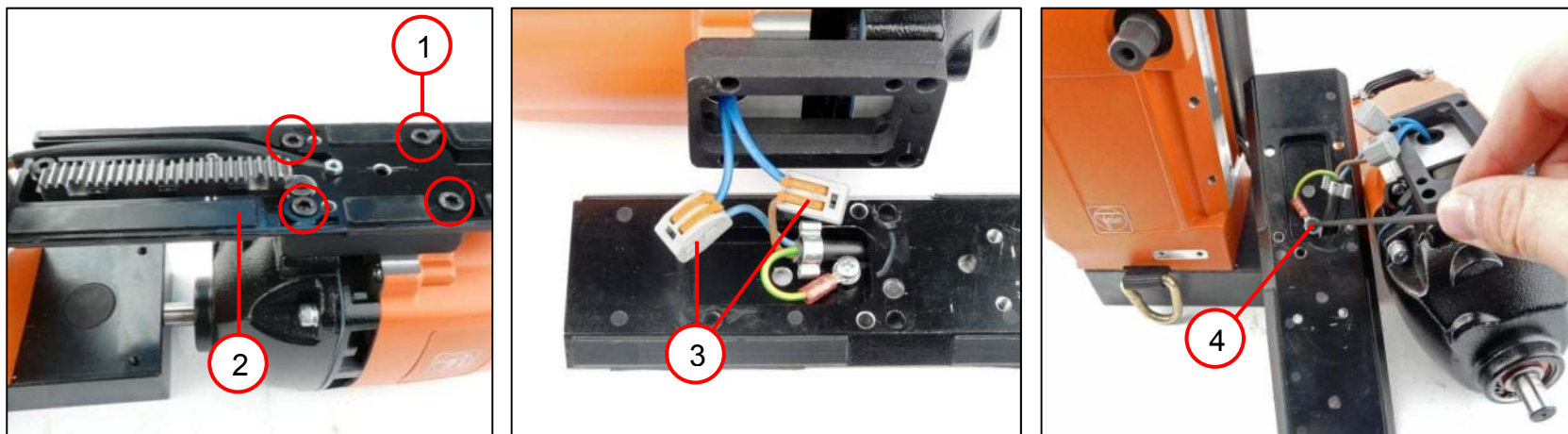
1. Unscrew the four screws (1).
2. Remove the magnetic foot and the tension belt.

#### Tools:

- Socket head wrench 4 mm

## 6. Removal

### Removing the guide plate



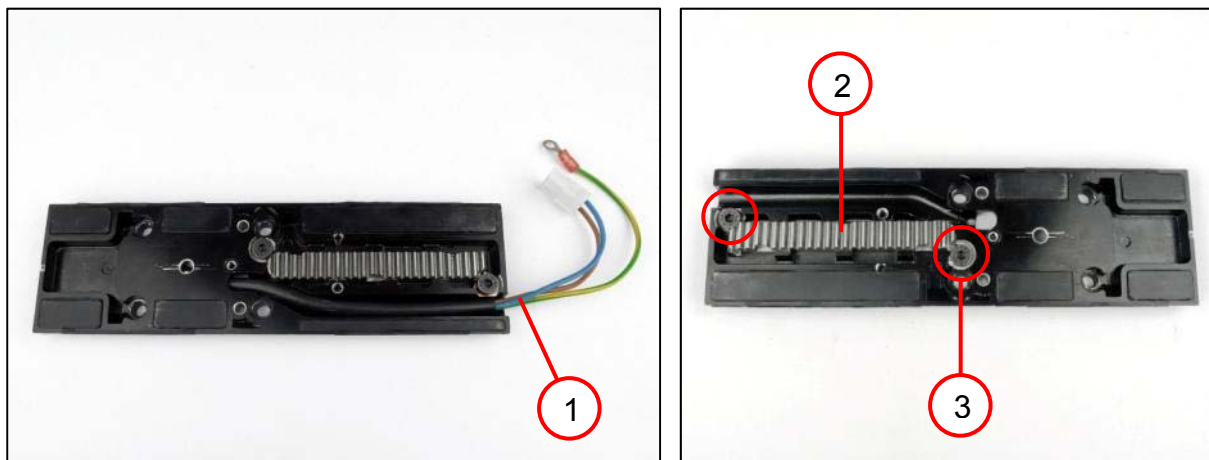
1. Unscrew the four screws (1).
2. Remove the guide (2).
3. Remove the terminals (3).
4. Unscrew the earthing conductor (4) from the guide.

**Tools:**

- Socket head wrench 4 mm
- Socket head wrench 3 mm
- PH2 cross-tip screwdriver

## 6. Removal

### Removing the guide plate



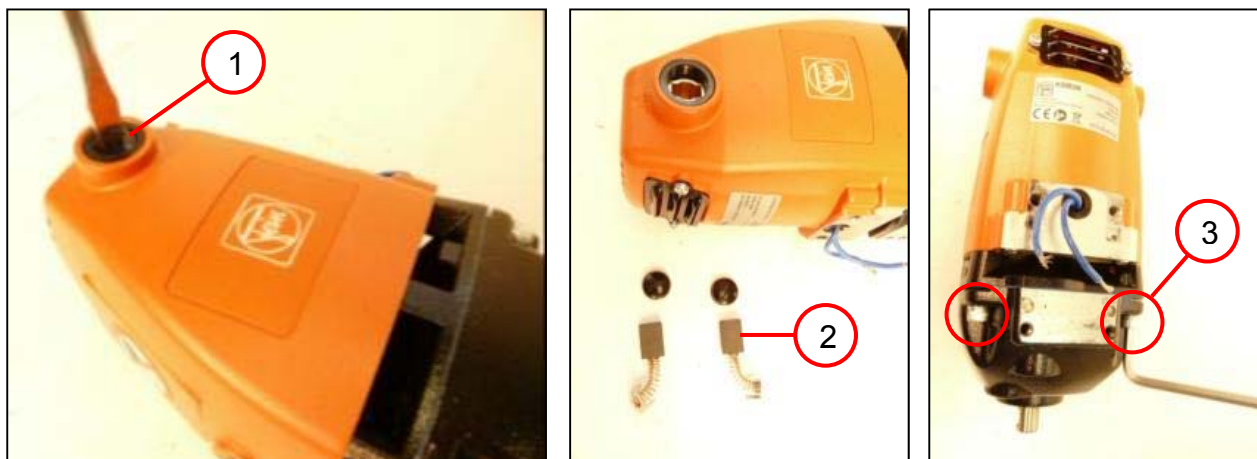
1. Remove the cable (1).
2. Unscrew the two screws (2).
3. Remove the gear rack (3).

#### Tools:

- Socket head wrench 4 mm

## 6. Removal

### Removing the motor housing



1. Remove the covers for the carbon brushes (1) on both sides.
2. Take out the carbon brushes (2).
3. Unscrew the four screws (3).

#### Tools:

- Slotted screwdriver
- Socket head wrench 5 mm



## 6. Removal

### Removing the motor housing



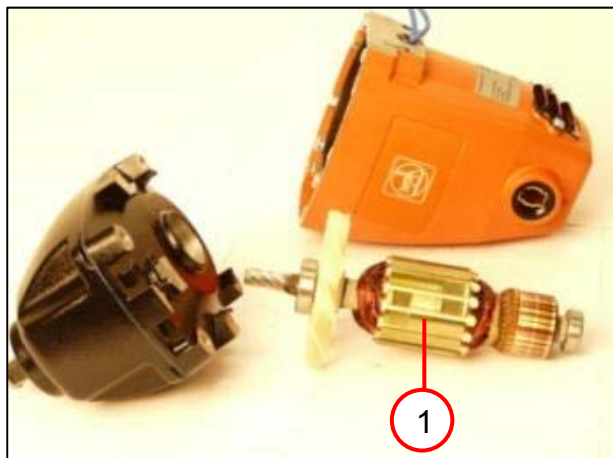
1. Lift the motor housing (1) off the gearbox housing using two screwdrivers.

#### Tools:

- 2x slotted screwdrivers

## 6. Removal

### Removing the armature



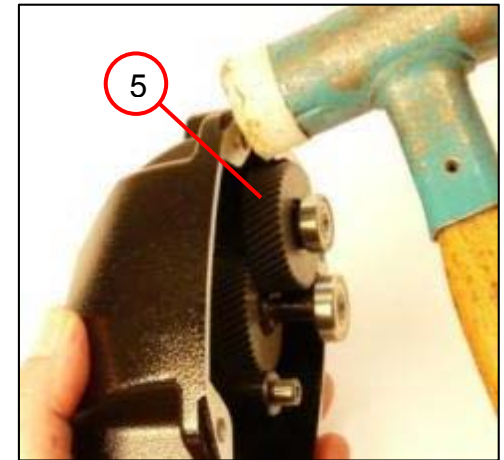
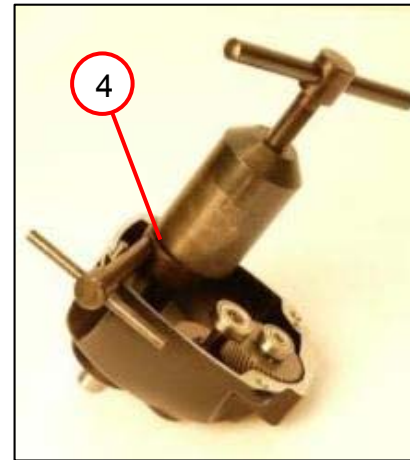
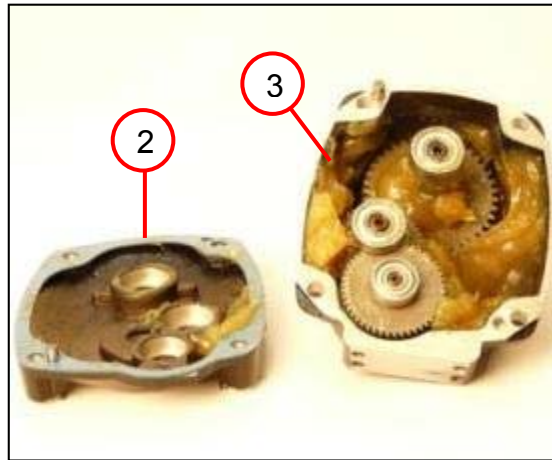
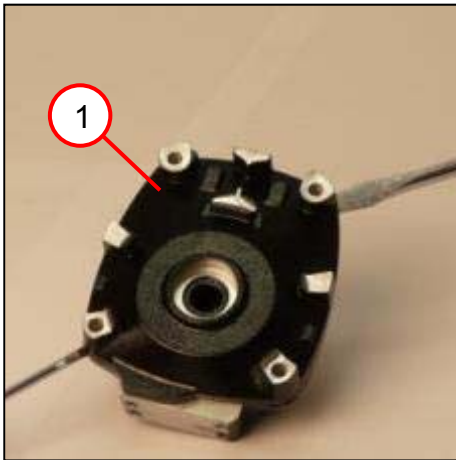
1. Pull the armature (1) out of the gearbox housing.
2. Pull the bearing (2) off the armature.

#### Tools:

- Drawing-off socket cap
- Chuck cone 22 mm
- Chuck cone 28 mm

## 6. Removal

### Removing the gearbox housing



1. Lift the intermediate gearbox (1) off the gearbox housing using two screwdrivers.
2. Remove the seal (2).  
🔧 Replace the seal after each removal.
3. Clean the gearbox housing (3) of grease.
4. Pull off the grooved ball bearing (4).
5. Tap out the gearbox shafts (5).

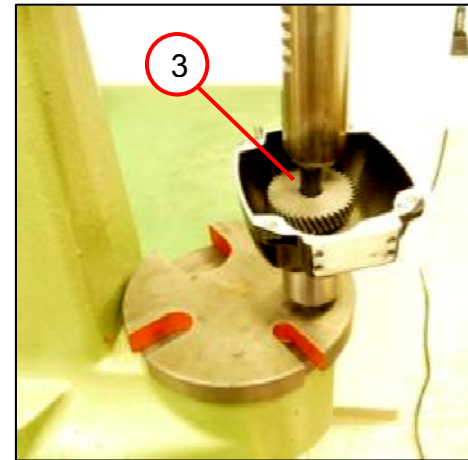
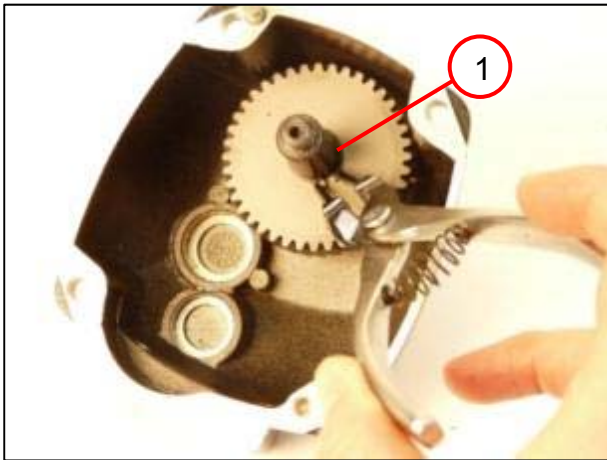
**Tools:**

- 2x slotted screwdrivers
- Chuck cone 22 mm
- Drawing-off socket cap
- Plastic hammer



### 6. Removal

#### Removing the gearbox housing



1. Remove the circlip (1).
2. Remove the circlip (2).
3. Press the shaft with bearing (3) out of gearbox housing.

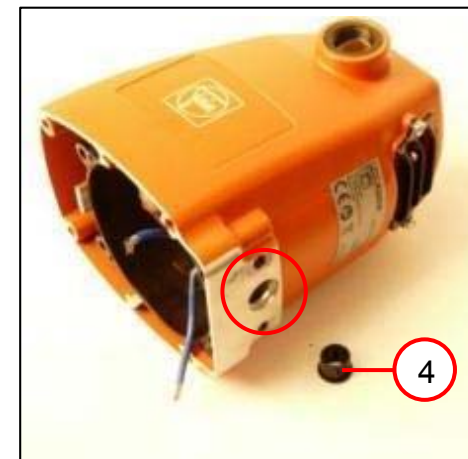
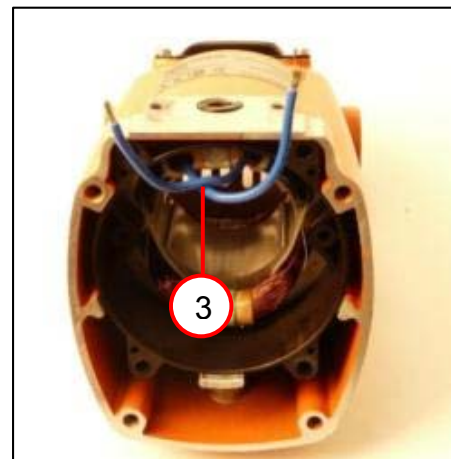
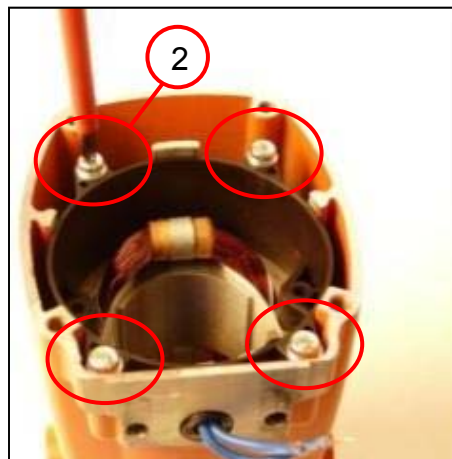
#### Tools:

- Circlip pliers
- Sleeve with 38 mm inner diameter



## 6. Removal

### Removing the motor housing



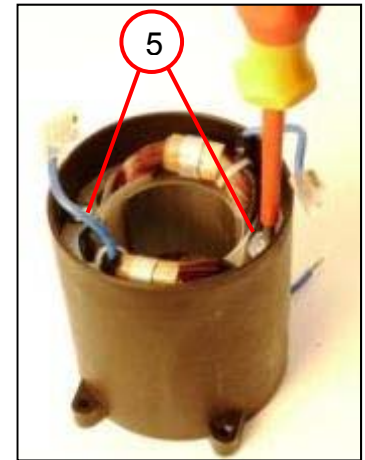
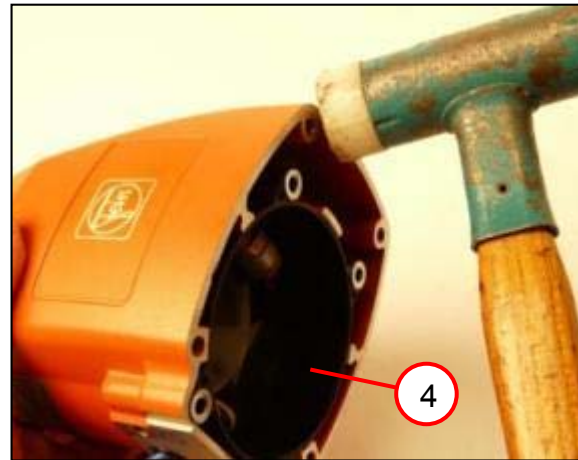
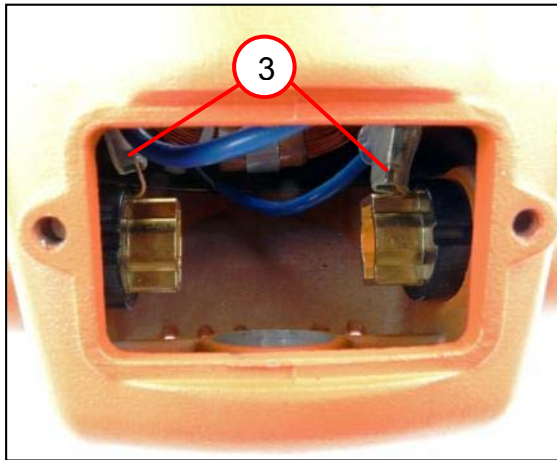
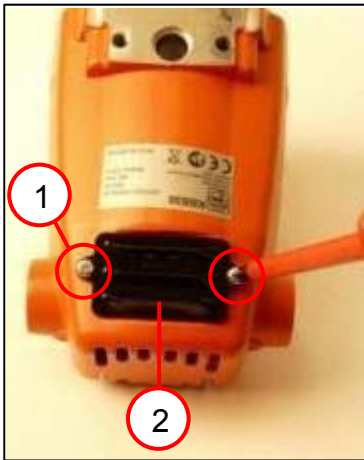
1. Press out the sealing ring (1).
2. Unscrew the screws (2).
3. Slide the cables (3) through the motor housing.
4. Take out the sleeve (4).

**Tools:**

- Sleeve with 25 mm outer diameter
- PH2 cross-tip screwdriver

## 6. Removal

### Removing the motor housing



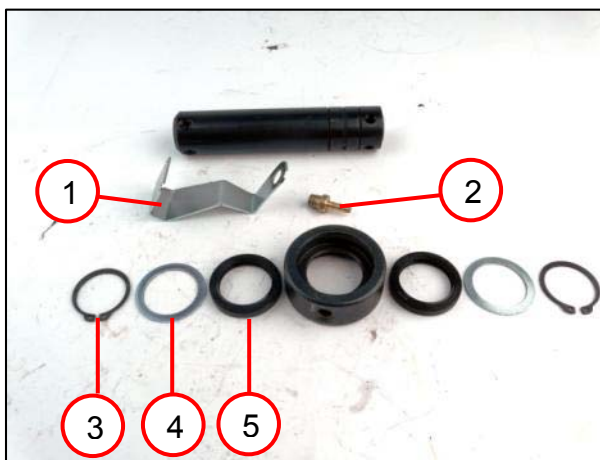
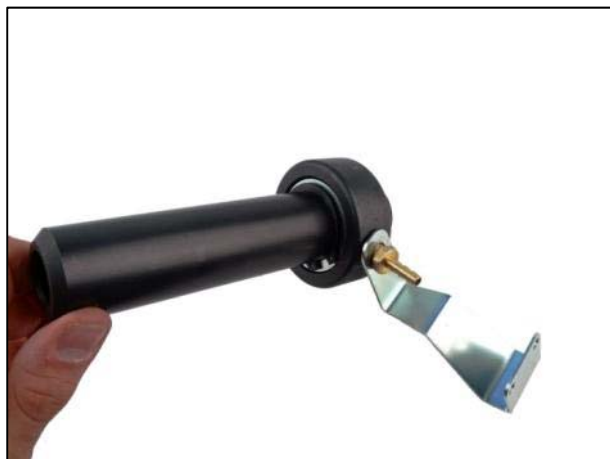
1. Unscrew two screws (1).
2. Remove the protective grille (2).
3. Pull the respective cable (3) off the carbon brush holders.
4. Drive out the field coil (4).
5. Unscrew the two screws (5).
6. Take the field coil out of the sleeve.

**Tools:**

- PH2 cross-tip screwdriver
- Plastic hammer

## 6. Removal

### Removing the shaft



1. Unscrew the hose socket (2) and remove the holder (1).
2. Remove the circlips (3).
3. Remove the discs (4).
4. Remove the rings (5).

#### Tools:

- Open-ended spanner  
WAF 10
- Circlip pliers

## 6. Removal

### Removing the shaft



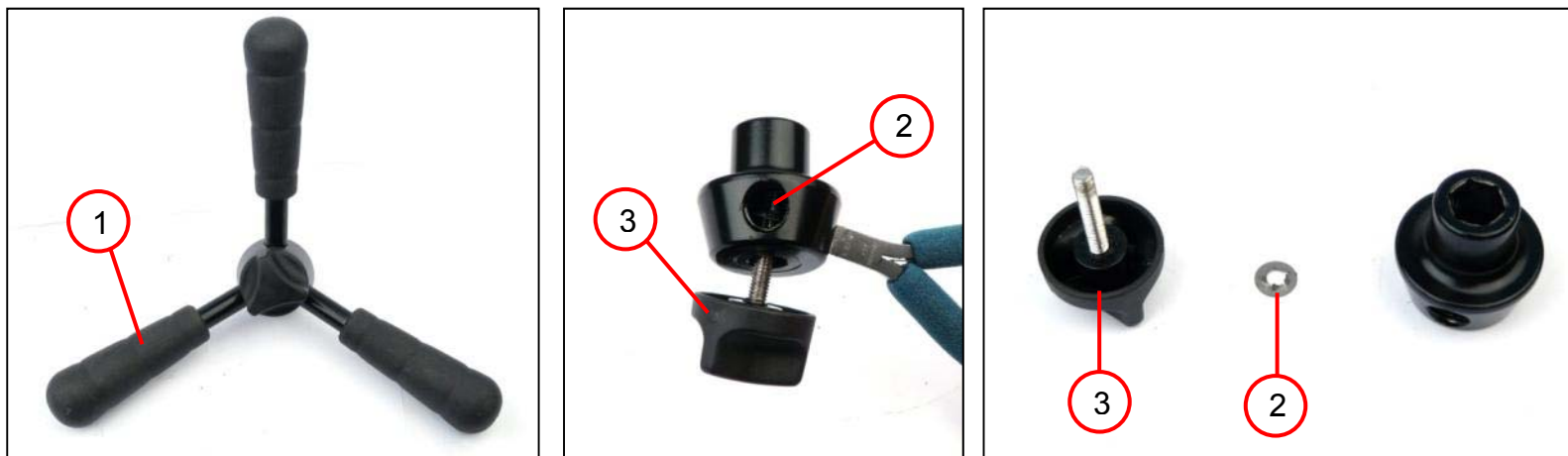
1. Remove the circlip (1).
2. Remove the disc (2).
3. Remove the sealing ring (3).
4. Remove the pressure piece (4).
5. Remove the spring (5).

#### Tools:

- Circlip pliers

## 6. Removal

### Removing the spider



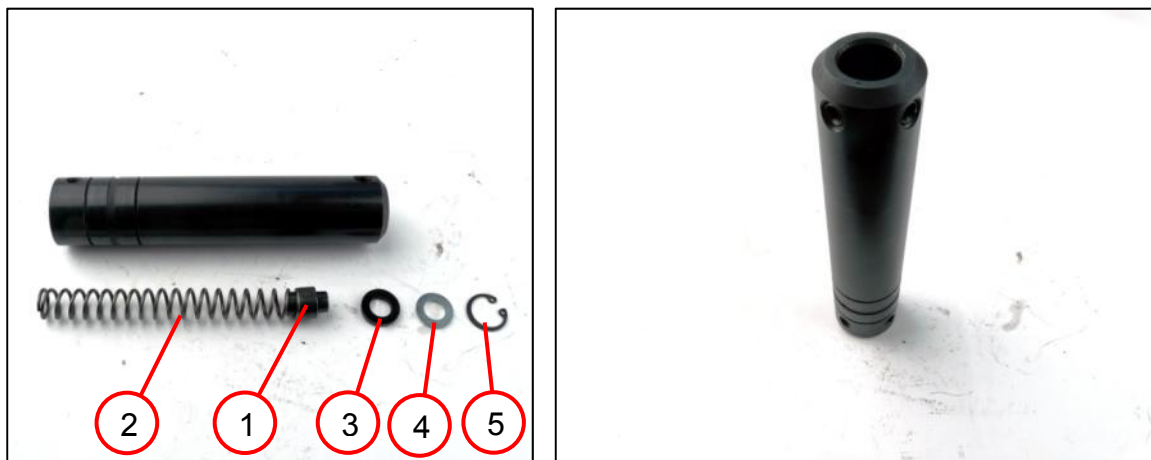
1. Unscrew the three handles (1).
2. Use flat-nose pliers to hold the nut (2) in position.
3. Unscrew the screw connection (3).

#### Tools:

- Flat-nose pliers

## 7. Fitting

### Fitting the shaft



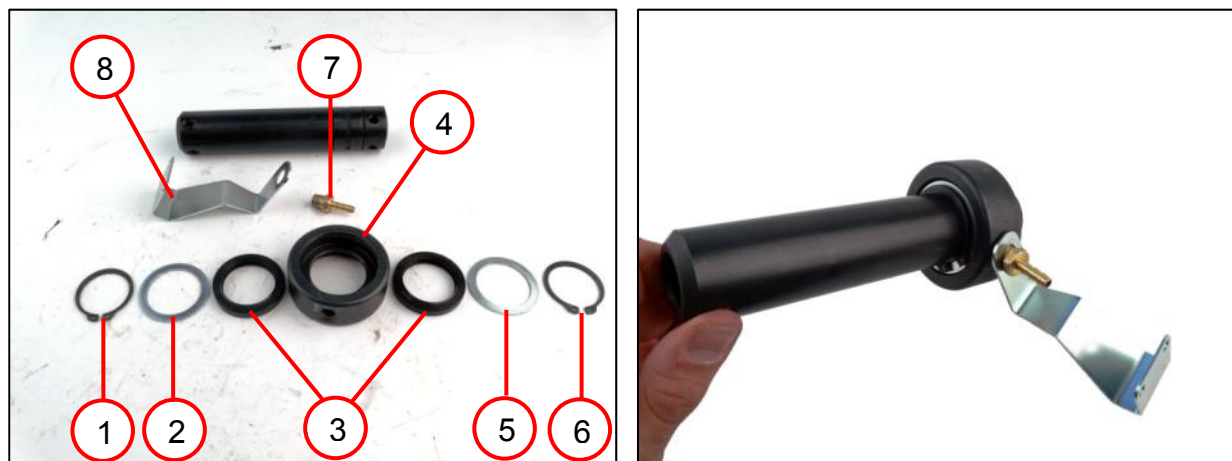
1. Insert the pressure piece (1) into the spring (2).
2. Insert the spring (2) into the shaft.
3. Insert the sealing ring (3).
4. Insert the disc (4).
5. Insert the circlip (5).

#### Tools:

- Circlip pliers

## 7. Fitting

### Fitting the shaft



1. Insert the circlip (1) into the groove of the shaft.
2. Insert the disc (2).
3. Insert the rings (3) into the distributor.
4. Slide the distributor (4) onto the shaft.
5. Insert the disc (5).
6. Insert the circlip (6) into the groove of the shaft.
7. Screw the hose socket (7) with the holder (8) onto the distributor.

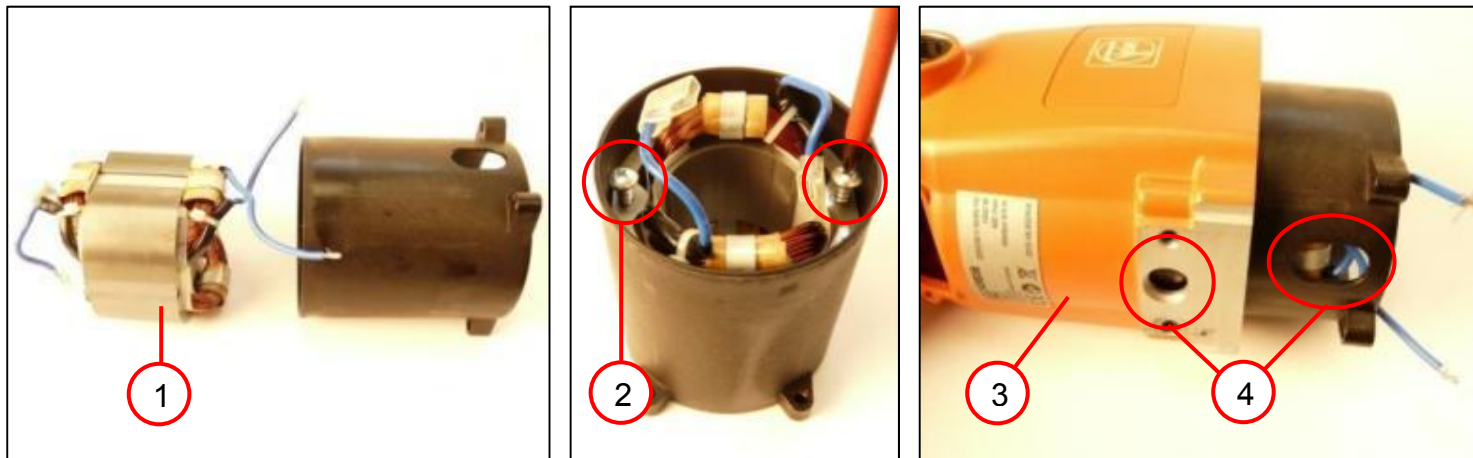
#### Tools:

- Open-ended spanner  
WAF 10
- Circlip pliers



## 7. Fitting

### Fitting the motor housing



1. Slide the stator (1) into the sleeve.
2. Screw down the stator in the sleeve (2).
3. Slide the sleeve with stator into the motor housing (3).
  - ☞ Observe the correct position of the recess (4) for the cables.

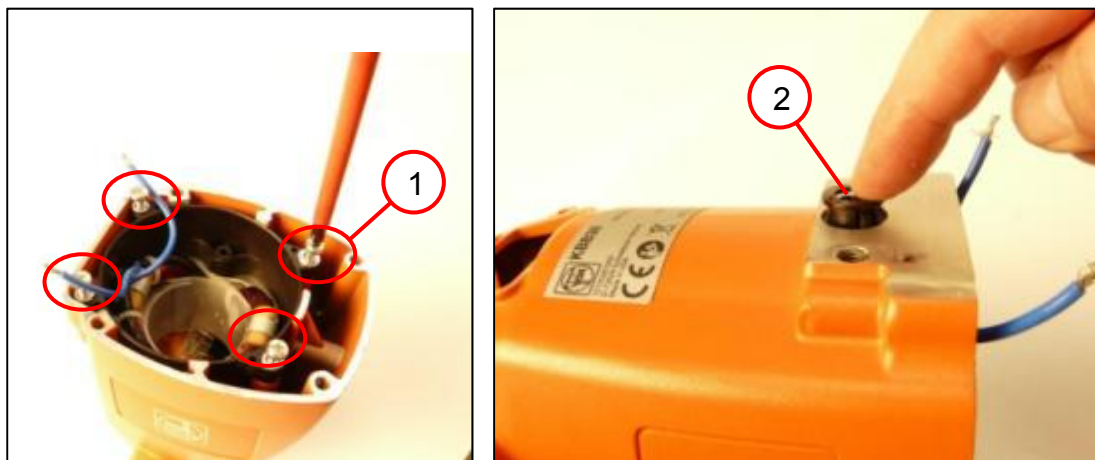
**Tools:**

- PH2 cross-tip screwdriver



## 7. Fitting

### Fitting the motor housing



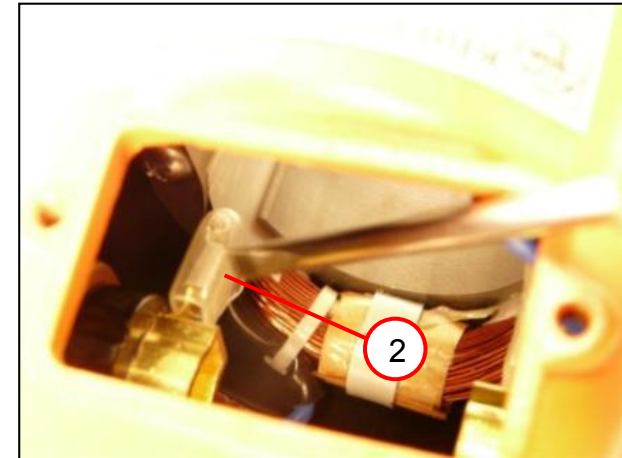
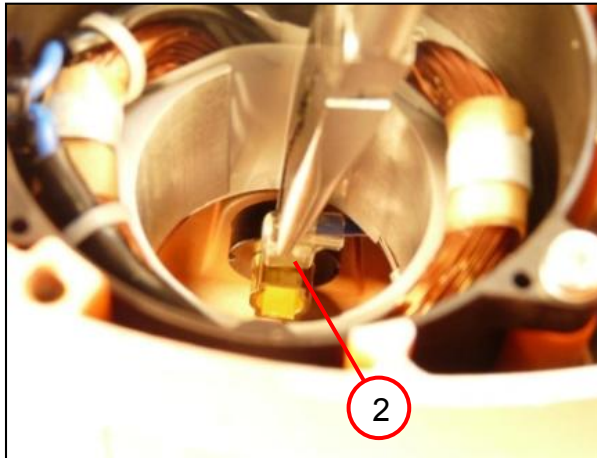
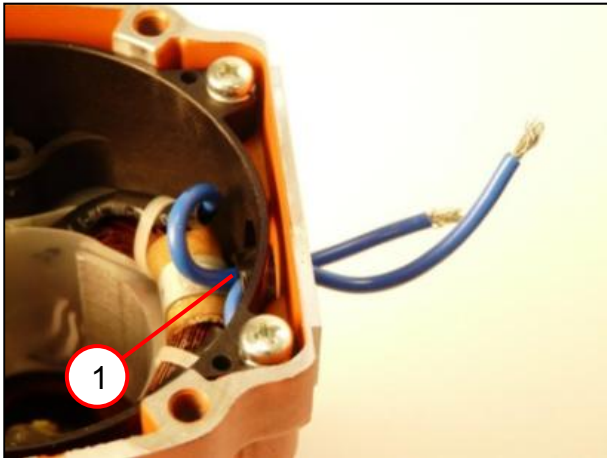
1. Screw down the sleeve in the motor housing (1).
2. Install the sleeve (2) for the stator cables.

#### Tools:

- PH2 cross-tip screwdriver

## 7. Fitting

### Fitting the motor housing



1. Feed the stator cables (1) through the sleeve.
2. Connect the stator cables (2) to the brush holders.

**PLEASE NOTE:**

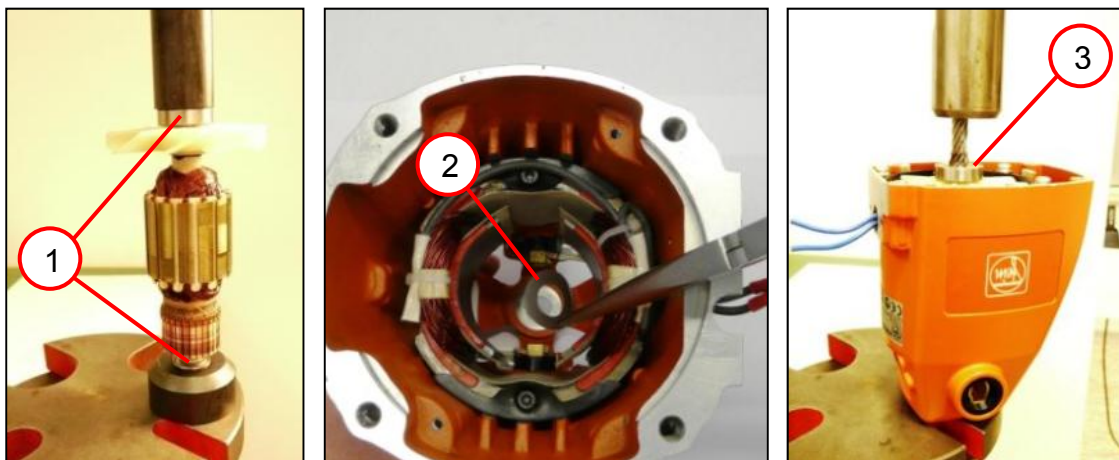
Bend the connections towards the motor housing after connecting them, otherwise there is a risk of the connecting cable grazing the armature later on.

**Tools:**

- Flat-nose pliers
- Slotted screwdriver

## 7. Fitting

### Fitting the motor housing



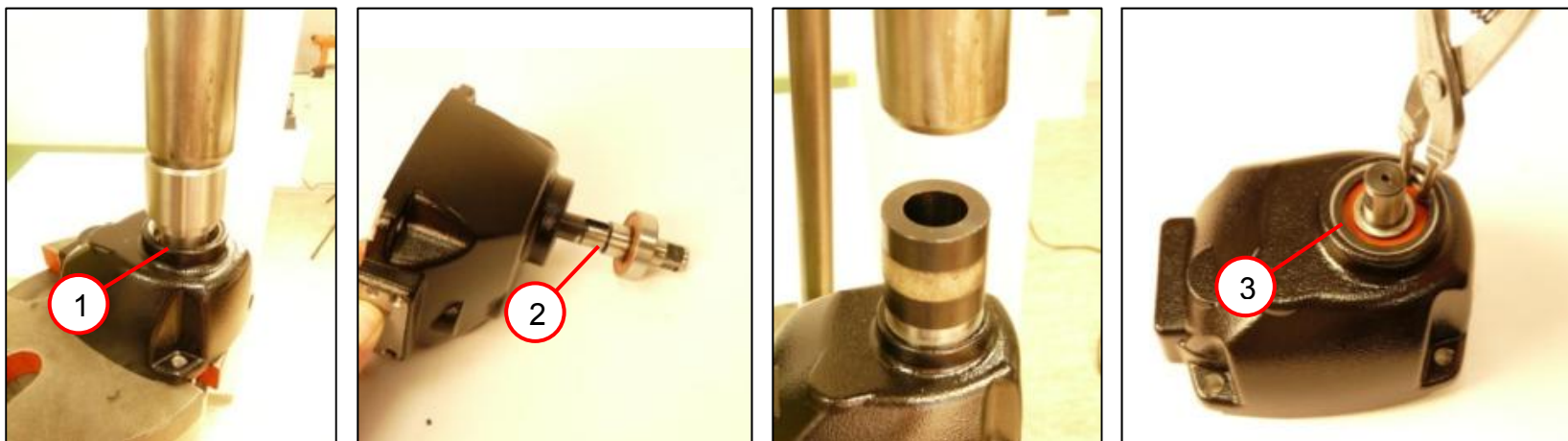
1. Remove the bearings (1).
2. Insert the disc (2) into the bearing seat of the armature.
3. Press the armature (3) into the bearing seat.

#### Tools:

- Arbor press
- Sleeve  
25 mm outer diameter  
15 mm inner diameter
- Ball bearing support  
22 mm diameter

## 7. Fitting

### Fitting the gearbox housing



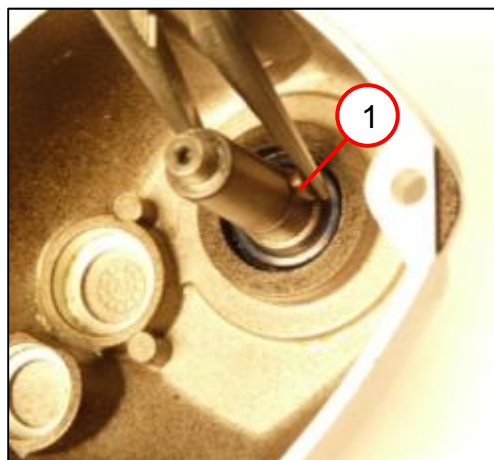
1. Press the sealing ring (1) into gearbox housing in the correct position.  
☞ The smooth side of the ring facing outward.
2. Press in the shaft (2) with grooved ball bearing.
3. Insert the circlip (3).

**Tools:**

- Arbor press
- Press-in mandrel with 28 mm diameter
- Sleeve 35 mm outer diameter 28 mm inner diameter
- Circlip pliers

## 7. Fitting

### Fitting the gearbox housing



1. Insert the feather key (1).
2. Press on the gear-wheel (2).

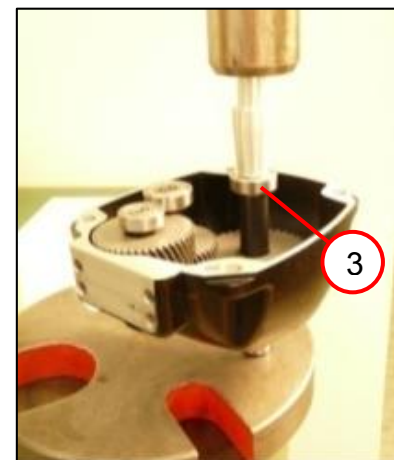
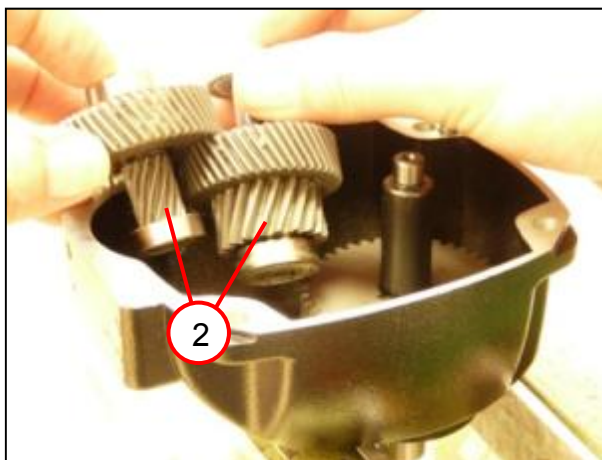
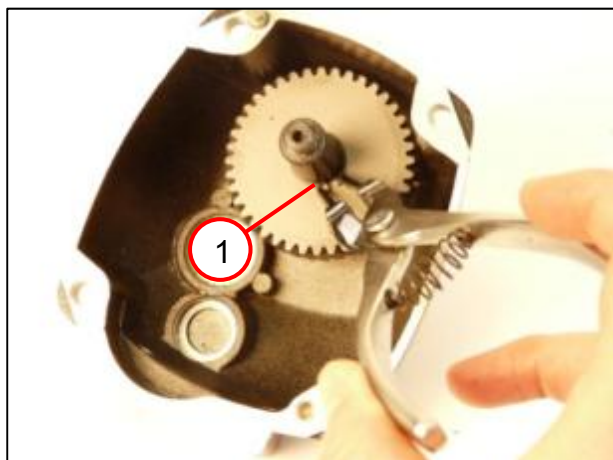
#### Tools:

- Flat-nose pliers
- Arbor press
- Sleeve  
40 mm outer diameter  
18 mm inner diameter



## 7. Fitting

### Fitting the gearbox housing



1. Insert the circlip (1).
2. Insert the gearbox shafts (2) together.
3. Press on the bearing (3).

#### Tools:

- Circlip pliers
- Press-in mandrel with 10 mm diameter
- Arbor press

## 7. Fitting

### Fitting the gearbox housing



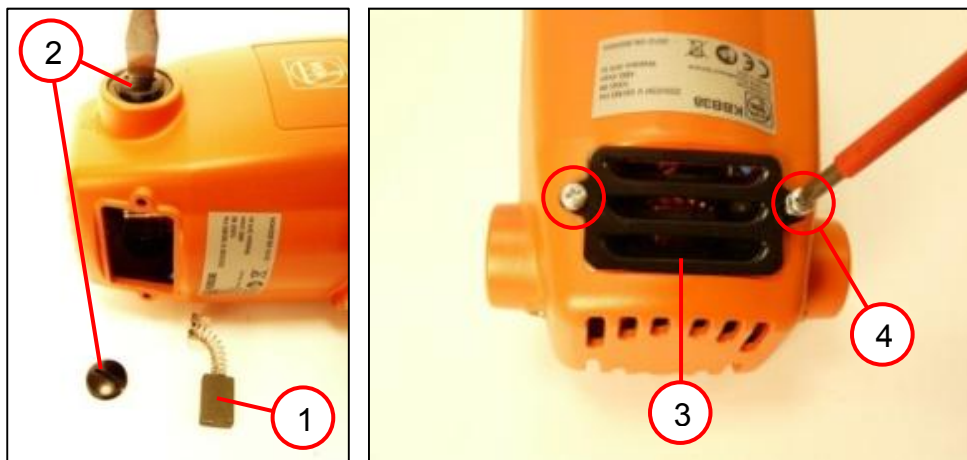
1. Fill the gearbox (1) with 80 g of grease.
2. Fit the seal (2) and seal the gearbox with the intermediate gearbox.
3. Screw the gearbox to the drive unit (3).

#### Tools:

- Socket head wrench  
5 mm
- 80 g grease

## 7. Fitting

### Fitting the gearbox housing



1. Insert the carbon brushes (1) on both sides and screw them down with the cover (2).
2. Position the protective grille (3) and secure it with the two screws (4).

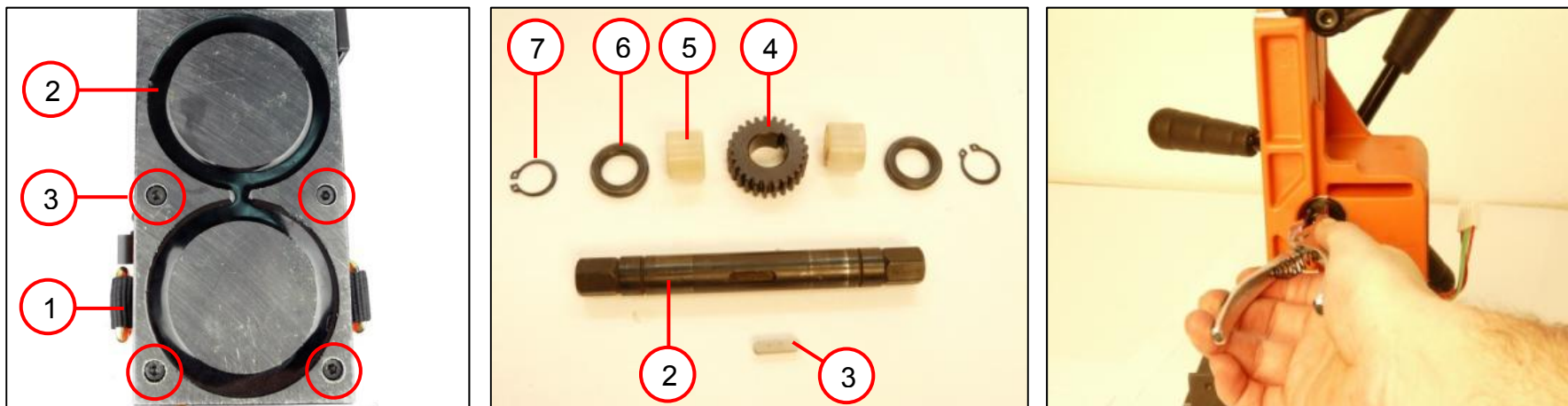
#### Tools:

- Socket head wrench  
5 mm
- PH2 cross-tip  
screwdriver



## 7. Fitting

### Fitting the shaft



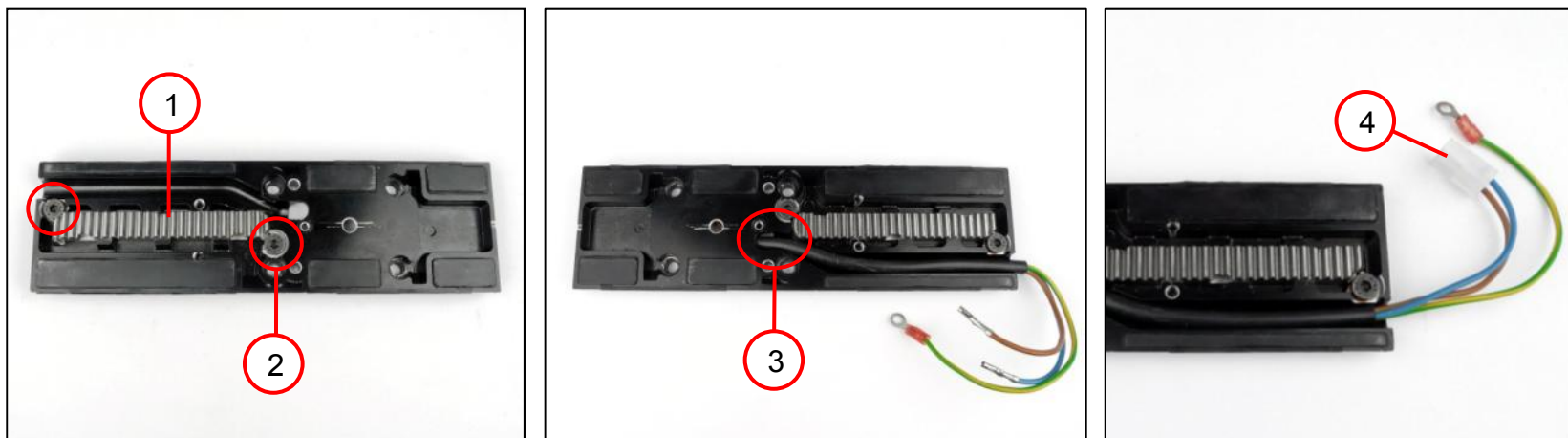
1. Position the belt (1) in the recess on the magnet.
2. Position the magnetic foot (2) with the belt on the housing.
3. Screw in the four screws (3).
4. Install the shaft (2) with feather key (3), gear-wheel (4), bushes (5), discs (6) and circlips (7).

**Tools:**

- Socket head wrench  
4 mm
- Circlip pliers

## 7. Fitting

### Fitting the guide



1. Insert the gear rack (1).
  2. Secure the gear rack with the two screws (2).
  3. Slide the connecting cable through the opening of the guide plate (3).
  4. Connect the stranded wires to the plug (4).
- ☞ The assignment of the pins is not relevant.

**Tools:**

- Socket head wrench  
4 mm

## 7. Fitting

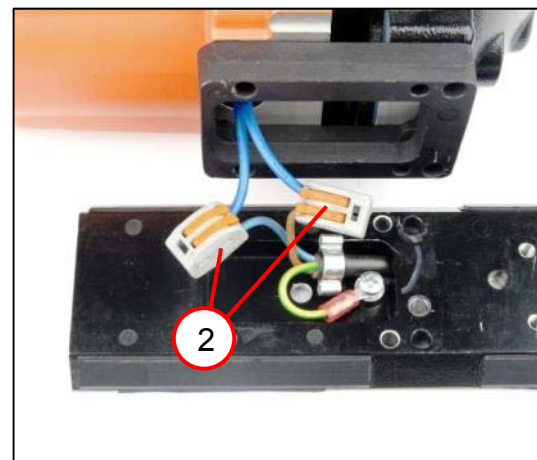
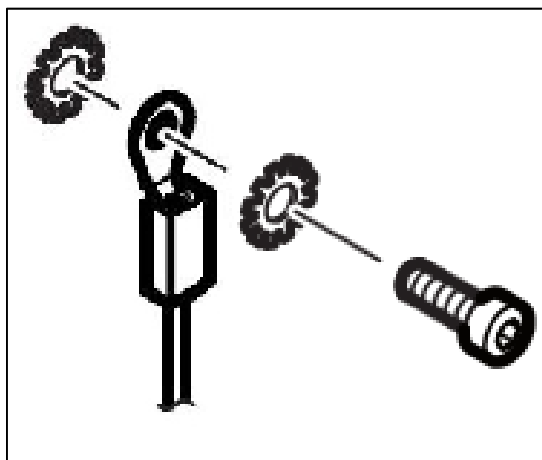
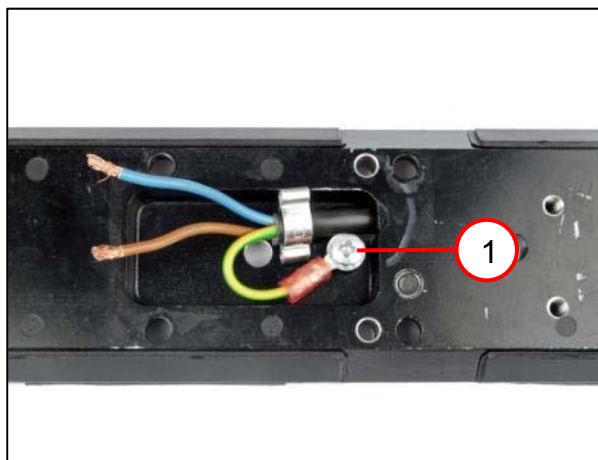
### Fitting the guide



1. Insert the two pins (1) into the gearbox housing.
2. Put the flange (2) on the gearbox housing.

## 7. Fitting

### Fitting the guide



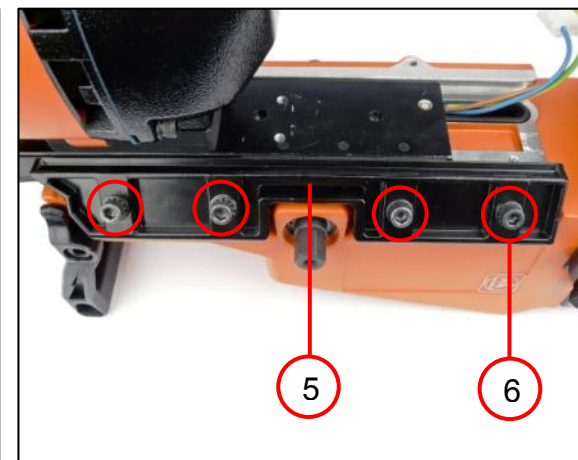
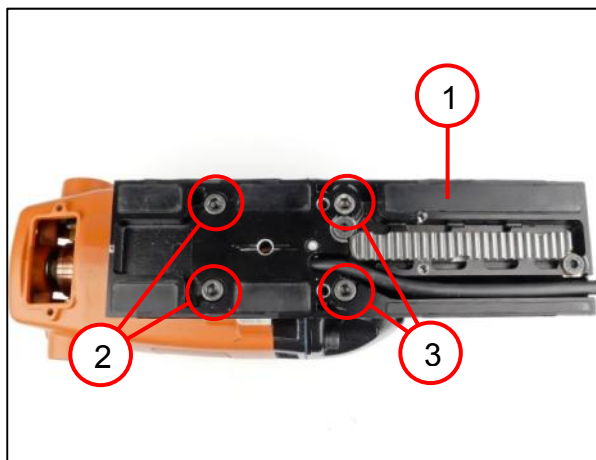
1. Screw the earthing conductor (1) to the guide.
2. Connect the motor and the connecting cable to the two terminals (2).
  - ☞ The assignment of the pins is not relevant.

**Tools:**

- PH2 cross-tip screwdriver

## 7. Fitting

### Fitting the guide



1. Position the guide (1) on the drill motor.
2. Secure the guide with the two screws [M6x30] (2) and the two screws [M6x35] (3).

#### PLEASE NOTE:

Raising and lowering the drill motor poses a risk of crushing at the cable.

☞ Connecting cable must be laid in the guide rail intended for it.

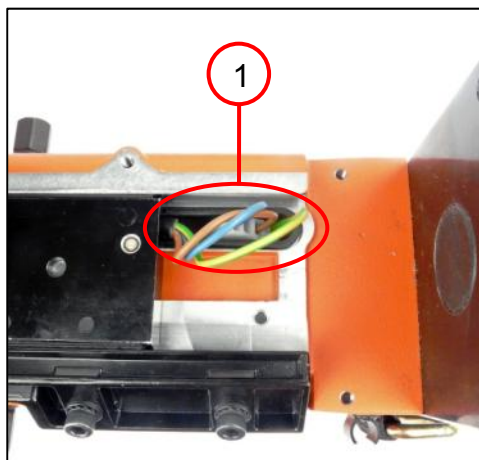
3. Put the drill motor (4) on the housing.
4. Position the guide (5).
5. Install the guide with the four screws with discs (6).

#### Tools:

- Socket head wrench  
5 mm

## 7. Fitting

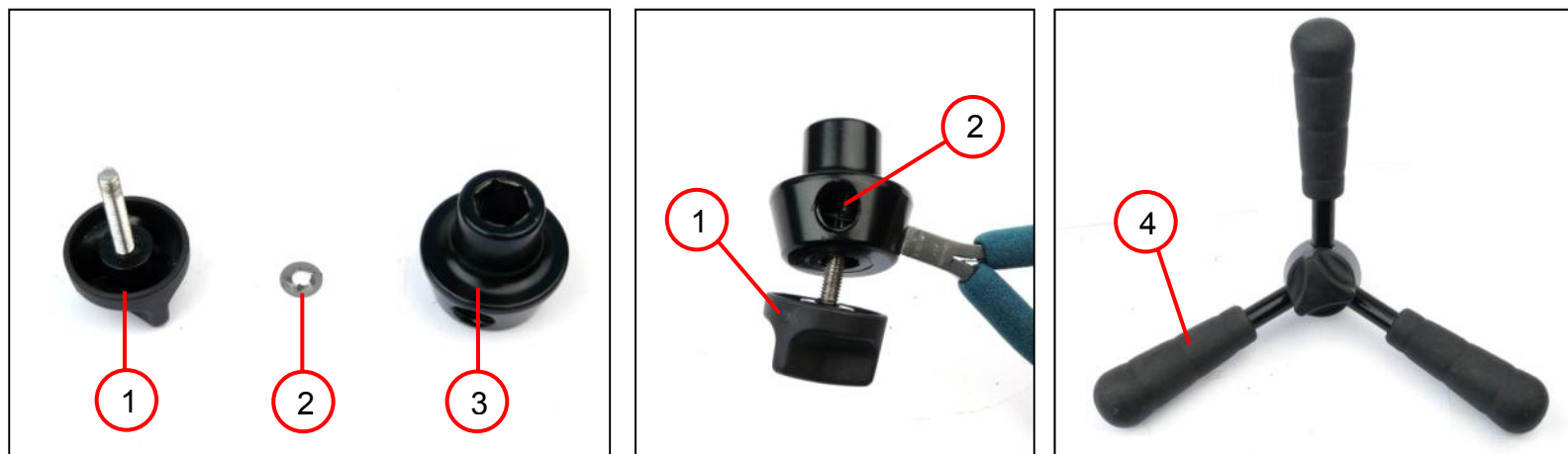
### Fitting the guide



1. Slide the connecting cable (1) through the housing insert.

## 7. Fitting

### Fitting the spider



1. Slide the nut (2) into the connecting piece (3) and hold it in position with the flat-nose pliers.
2. Turn the screw connection (1) into the connecting piece (3) and all the way through the nut (2).
3. Screw the three handles (4) into the connecting piece (3).

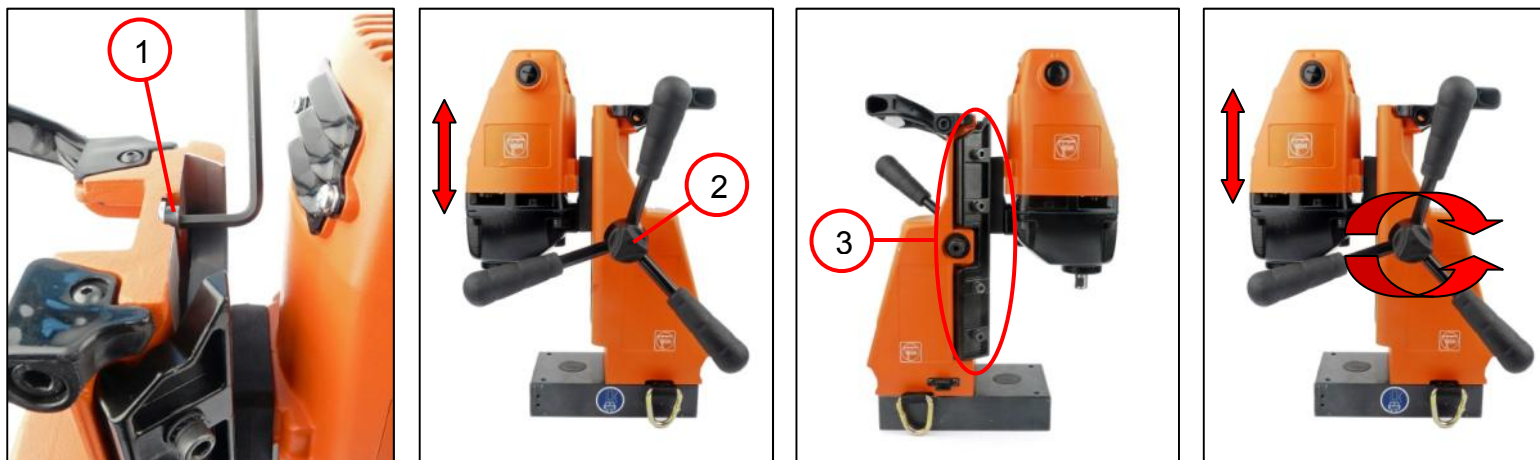
#### Tools:

- Flat-nose pliers



## 7. Fitting

### Setting the dove-tail guide



1. Tighten the stop screw (1).
2. Move the drill motor up and down with the spider (2).
  - ☞ The drill motor must not jam or move down of its own accord.
  - ☞ If the drill motor jams or moves down of its own accord, continue with step two.
3. Loosen the screws (3) of the guide plate.
4. Install the screws (3) of the guide plate.
5. Move the drill motor up and down with the spider (2).
  - ☞ Repeat steps two to four until the drill motor moves up and down correctly.

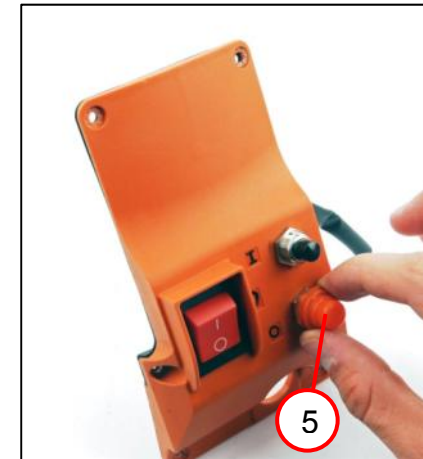
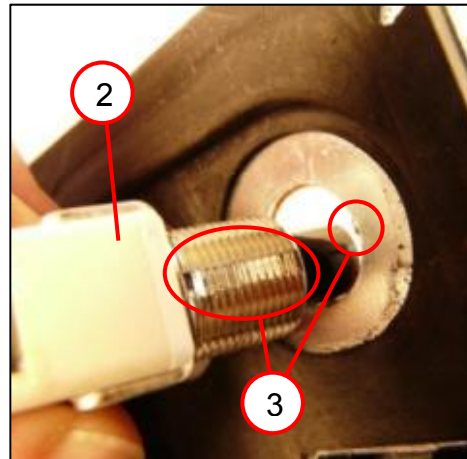
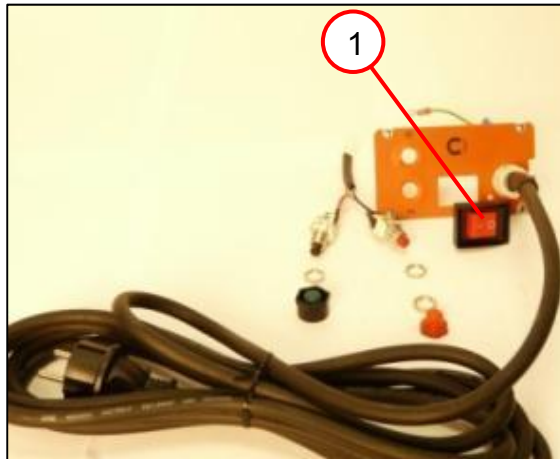
#### Tools:

- Socket head wrenches  
4 mm; 5 mm



## 7. Fitting

### Fitting the electronics



1. Fit the switch (1) in the cover.
2. Fit the switch module (2).  
☞ Observe the correct position of the groove.
3. Secure the switch module (3).
4. Screw on the pushbutton (4).

**Tools:**

- Open-ended spanner  
WAF 14



## 7. Fitting

### Fitting the electronics



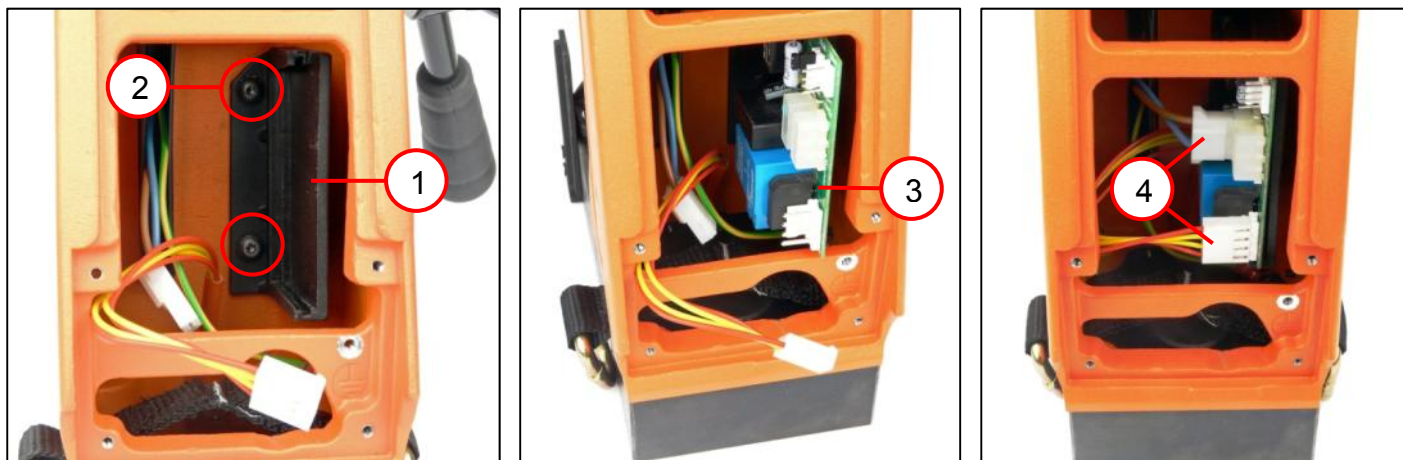
1. Screw the protective cap (1) onto the switch module.

#### Tools:

- Open-ended spanner  
WAF 14

## 7. Fitting

### Fitting the electronics



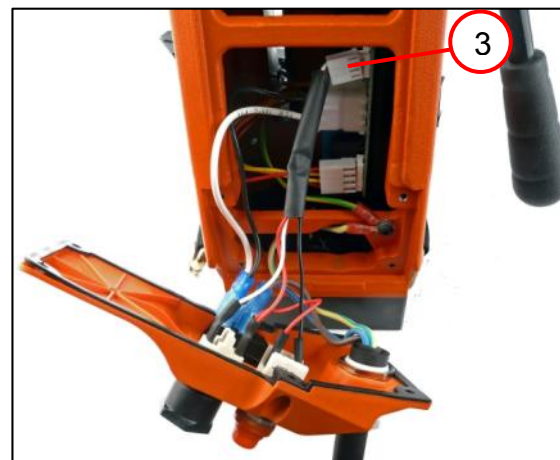
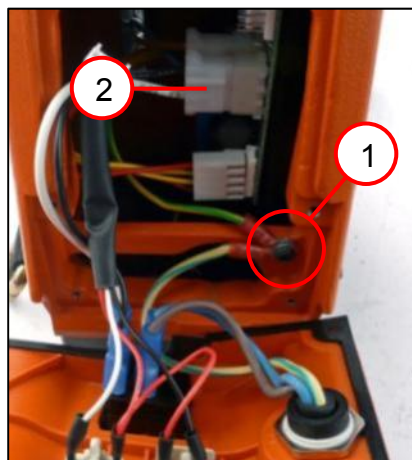
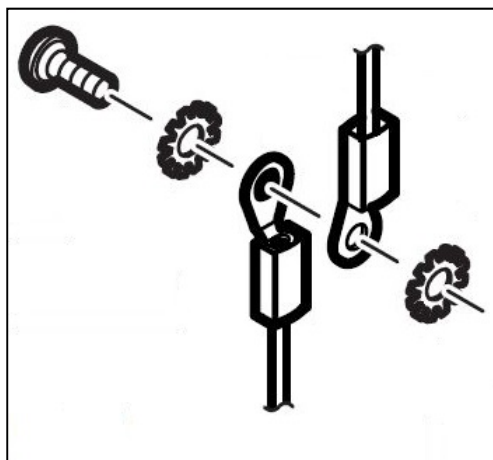
1. Insert the cover (1) and screw it down with the two screws (2).
2. Insert the electronics (3) into the cover.
3. Connect the two cables (4) as shown in the connection diagram.

#### Tools:

- Socket head wrench  
3 mm

## 7. Fitting

### Fitting the electronics



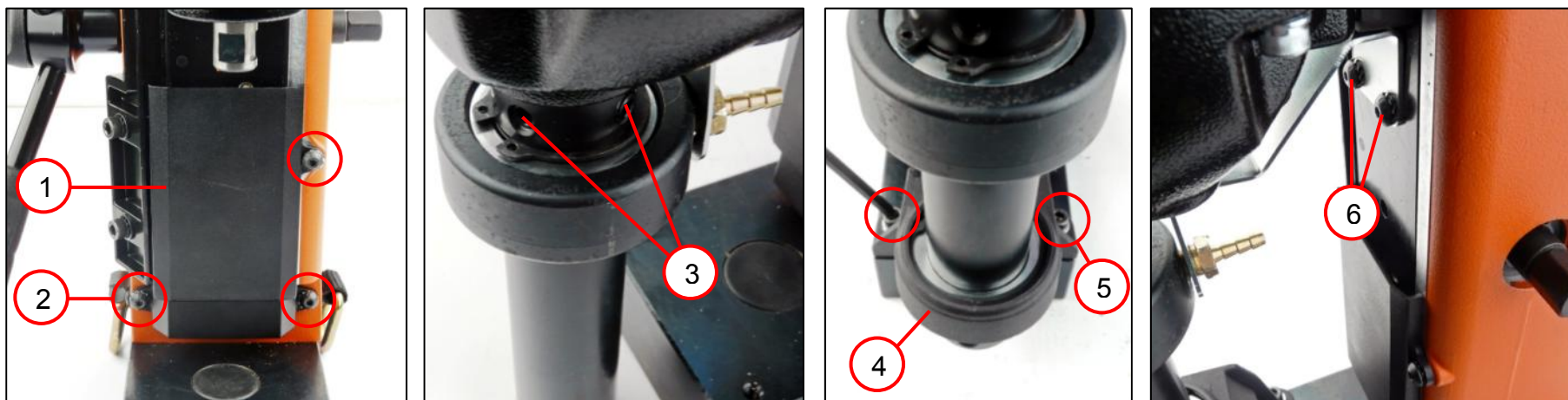
1. Move the drill motor into the upper position
2. Screw down the earthing conductor (1) on the housing.
3. Connect the plug (2).
4. Connect the plug (3).
5. Attach the cover (4) and screw it down with the six screws (5).

**Tools:**

- Socket head wrench  
2.5 mm
- PH2 cross-tip  
screwdriver

## 7. Fitting

### Fitting the shaft



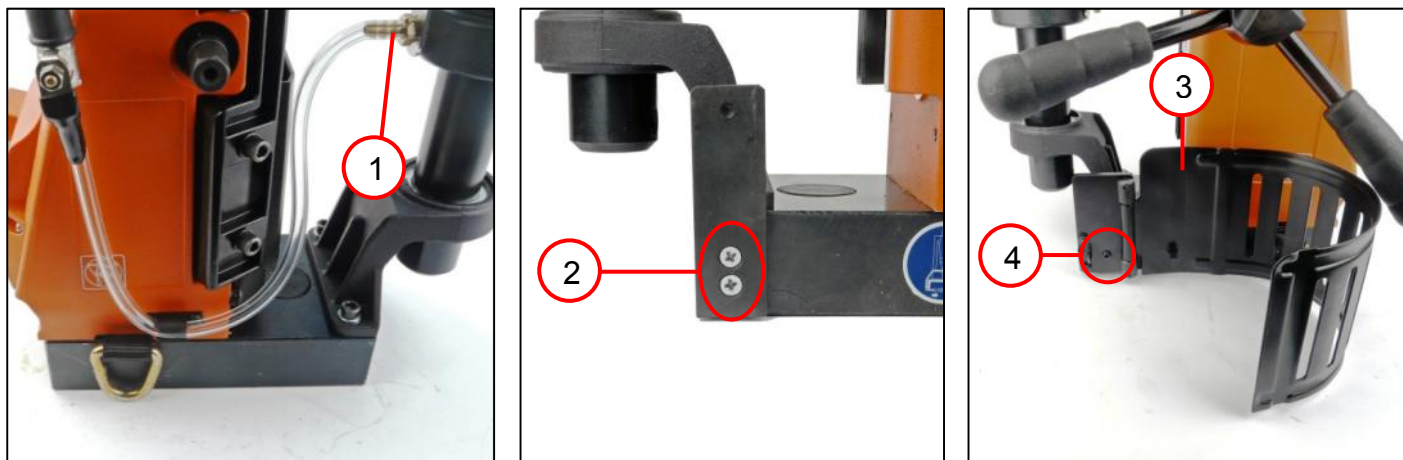
1. Position the cover (1) and screw it down with the three screws with disc (2).
2. Position the shaft and tighten the two screws (3).
3. Position the holder (4) and screw it down with the two screws with disc (5).
4. Screw down the holder with the two screws with disc (6).

**Tools:**

- Socket head wrench 4 mm
- Socket head wrench 5 mm
- Socket head wrench 3 mm

## 7. Fitting

### Fitting the coolant tank and swarf guard



1. Lay the hose (1).
2. Secure the guide with the two screws (2).
3. Attach the protective grille (3).
4. Install the set screw (4).

#### Tools:

- PH2 cross-tip screwdriver
- Socket head wrench 2.5 mm







## 9. Connection diagram

7 272 02 KBB 38  
7 272 12 KBB 38X

