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**1. Models described**

These instructions describe how to repair the following models:

| Model    | Order number     |
|----------|------------------|
| BOS 16   | 7 205 47 00 23 0 |
| BOS 16-2 | 7 205 49 00 23 0 |



## **2. Technical data**

### **Technical data**

The complete 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

#### 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 employers' liability insurance associations are to be observed when commissioning.

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

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



## 4. Tools required

### Standard tools

|                                      |                      |
|--------------------------------------|----------------------|
| Torx T15; T20                        |                      |
| Open-ended spanner, size 17 (sanded) | 6 29 03 002 00 9     |
| Socket wrench, 10 mm                 |                      |
| Plastic hammer                       |                      |
| Arbor press                          |                      |
| Long-nosed pliers                    |                      |
| 2x slotted screwdriver               |                      |
| Inner puller                         | 10 mm                |
| Slide hammer                         |                      |
| Circlip pliers                       |                      |
| Sleeve                               | 7 mm inner diameter  |
| Sleeve                               | 17 mm inner diameter |
| Sleeve                               | 20 mm inner diameter |
|                                      | 24 mm outer diameter |
| Sleeve                               | 22 mm inner diameter |
| Sleeve                               | 21 mm inner diameter |
|                                      | 37 mm outer diameter |

### Special tools

|                        |                  |
|------------------------|------------------|
| Drawing-off socket cap | 6 41 04 150 00 8 |
| Assembly aid           | 6 41 22 121 01 0 |
| Chuck cone, 19 mm      | 6 41 07 019 00 7 |
| 26 mm chuck cone       | 6 41 07 026 00 0 |



#### **4. Tools required**

##### **Standard tools**

|                      |  |
|----------------------|--|
| Sleeve               | 25 mm inner diameter<br>35 mm outer diameter |
| Sleeve               | 38 mm inner diameter<br>43 mm outer diameter |
| Ball bearing support | 8 mm inner diameter                          |
| Ball bearing support | 11 mm inner diameter                         |



## **5. Lubricants and auxiliary substances required**

### **Lubricants**

|        |                  |      |         |
|--------|------------------|------|---------|
| Grease | 0 40 11 301 00 5 | 30 g | Gearbox |
|--------|------------------|------|---------|

## 6. Disassembly

### Disassembling handle

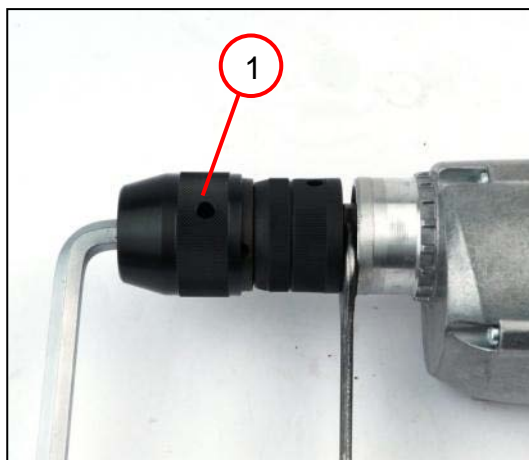


1. Unscrew handle (1).
2. Pull off sleeve (2).
3. Remove screw (3).
4. Pull off locking ring (4).



## 6. Disassembly

### Disassembling quick-clamping drill chuck



1. Unscrew quick-clamping drill chuck (1).

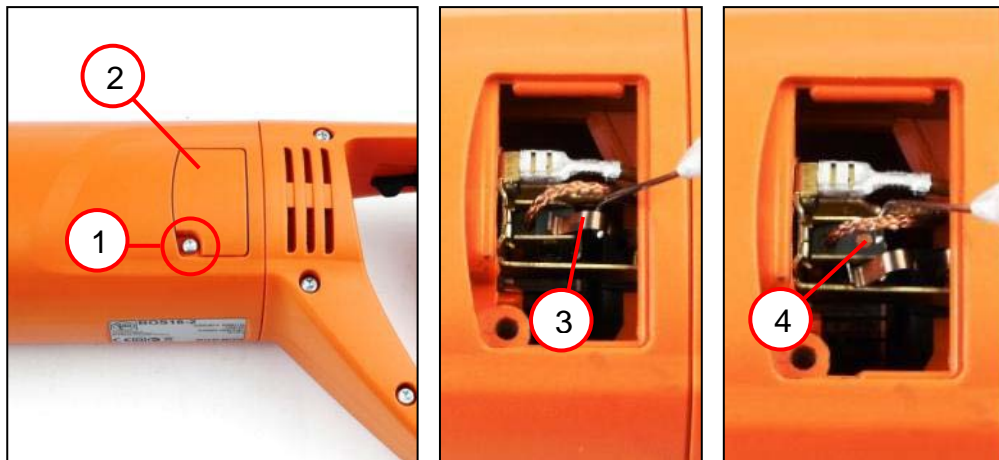
#### Tools:

- Socket wrench, 10 mm
- Open-ended spanner, size 17 (sanded)



## 6. Disassembly

### Disassembling carbon brushes



1. Unscrew screw (1) and remove cover (2).
2. Lift spring (3) to one side.
3. Pull out carbon brush (4).

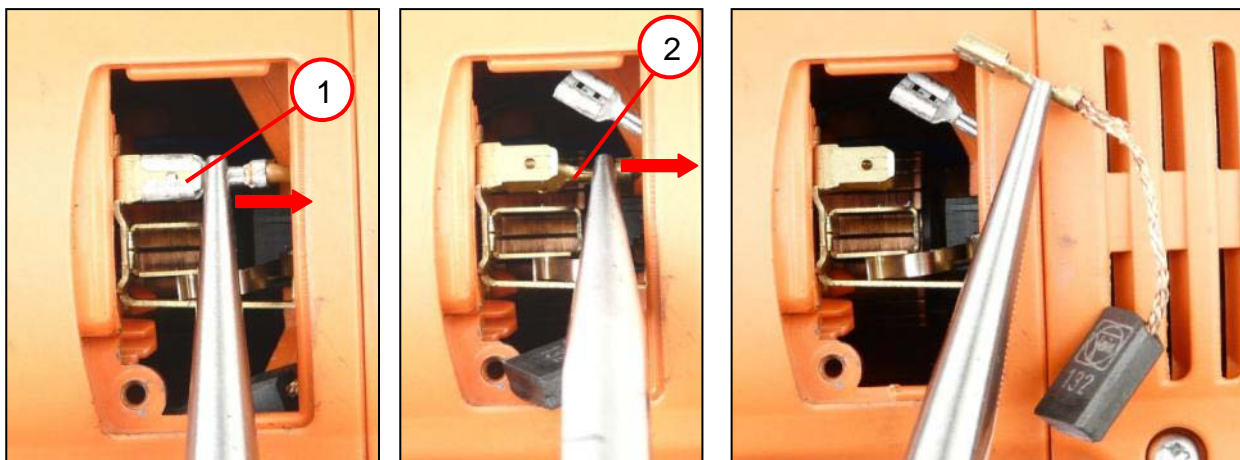
#### Tools:

- Torx T15
- Assembly aid



## 6. Disassembly

### Disassembling carbon brushes



1. Pull out cable (1) of electronics.
2. Pull out plug contact (2) of carbon brush and remove carbon brush.

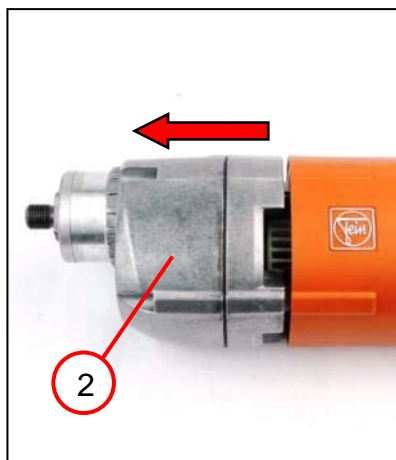
#### Tools:

- Long-nosed pliers



## 6. Disassembly

### Disassembling gearbox housing



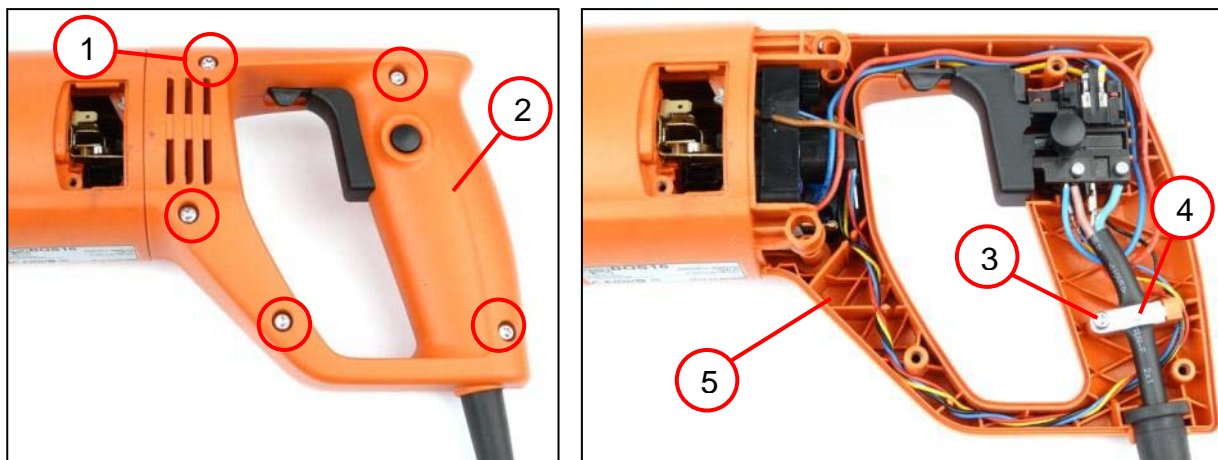
1. Loosen four screws (1).
2. Pull off complete gearbox housing (2).

#### Tools:

- Torx T20

## 6. Disassembly

### Disassembling handle



3. Unscrew the five screws (1).
4. Remove handle half-shell (2).
5. Loosen screw (3) and remove cable clamping piece (4).
6. Remove handle half-shell (5).

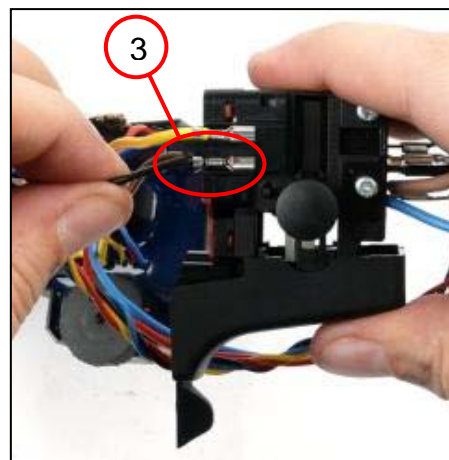
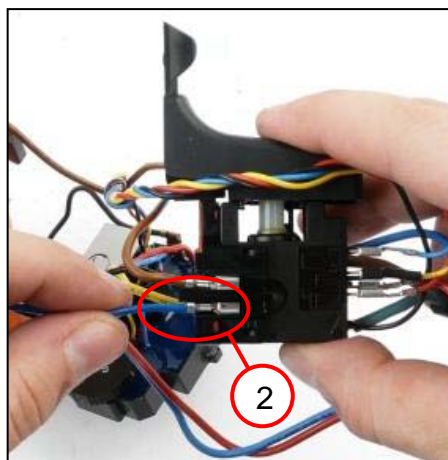
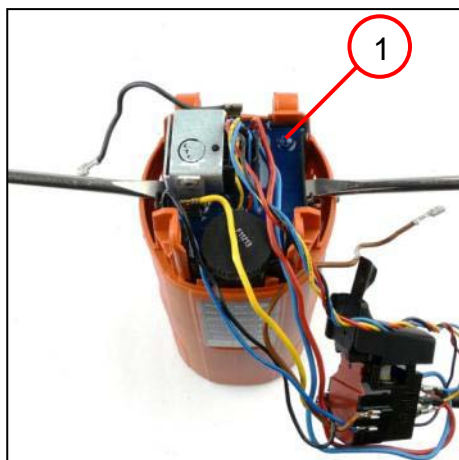
#### Tools:

- Torx T20, T15



## 6. Disassembly

### Disassembling the electronics



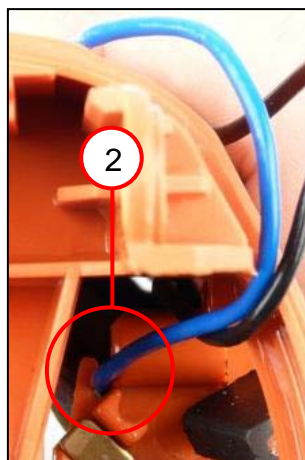
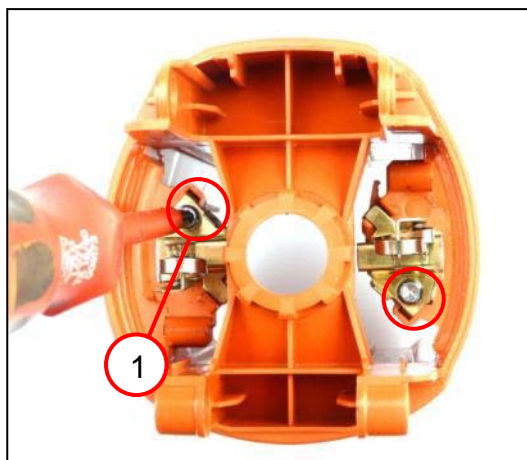
1. Prise out electronics (1).
2. Pull blue cable (2) out of switch.
3. Pull black cable (3) out of switch.

#### Tools:

- 2x slotted screwdriver

## 6. Disassembly

### Disassembling motor housing



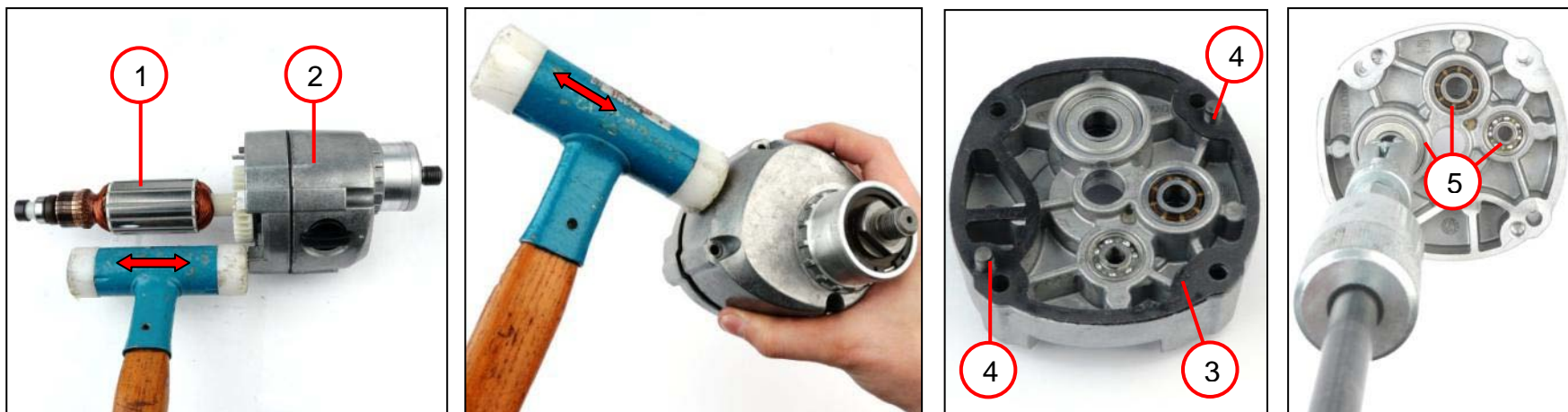
1. Remove the two screws (1) and take off carbon brush holder.
2. Take out blue cable (2).
3. Unscrew the two screws (3) and remove air guide ring (4).
4. Remove stator from motor housing.

#### Tools:

- Torx T15, T20
- Plastic hammer

## 6. Disassembly

### Disassembling gearbox housing



1. Remove armature (1) from gearbox housing (2).
2. Disconnect gearbox housing from intermediate bearing.
3. Remove seal (3).
4. Pull out the two dowels (4).
5. Remove the three grooved ball bearings (5).

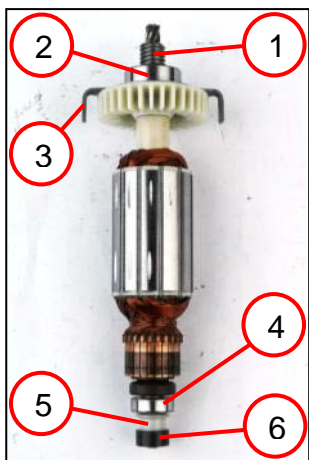
**Tools:**

- Plastic hammer
- Inner puller
- Slide hammer



## 6. Disassembly

### Disassembling armature



1. Pull off grooved ball bearing (2) together with sealing ring (1) from armature.
2. Remove plate (3).
3. Pull off ring magnet (6) by hand.
4. Prise off sleeve (5) with two slotted screwdrivers.
5. Pull off grooved ball bearing (4).

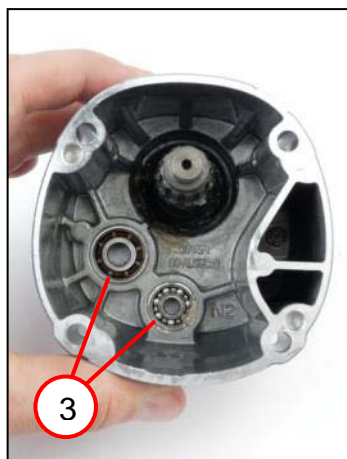
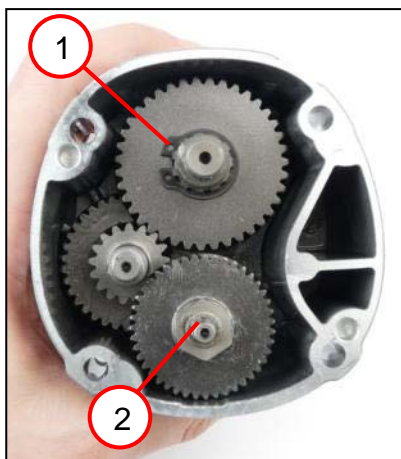
#### Tools:

- Drawing-off socket cap
- Chuck cone, 19 mm
- Chuck cone, 26 mm
- 2x slotted screwdriver



## 6. Disassembly

### Disassembling gearbox housing (only applies to BOS 16)



1. Remove circlip (1).
2. Remove clutch (2).
3. Take all gear-wheels out of gearbox housing.
4. Remove the two grooved ball bearings (3).
5. Remove circlip (4).
6. Press shaft (5) with grooved ball bearing out of gearbox housing.

#### Tools:

- Circlip pliers
- Inner puller
- Slide hammer
- Arbor press
- Sleeve  
38 mm inner diameter  
43 mm outer diameter



## 6. Disassembly

Disassembling shaft (only applies to BOS 16)



1. Remove circlip (1).
2. Press grooved ball bearing (2) off shaft (3).

### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
24 mm inner diameter



## 6. Disassembly

### Disassembling gearbox (only applies to BOS 16-2)



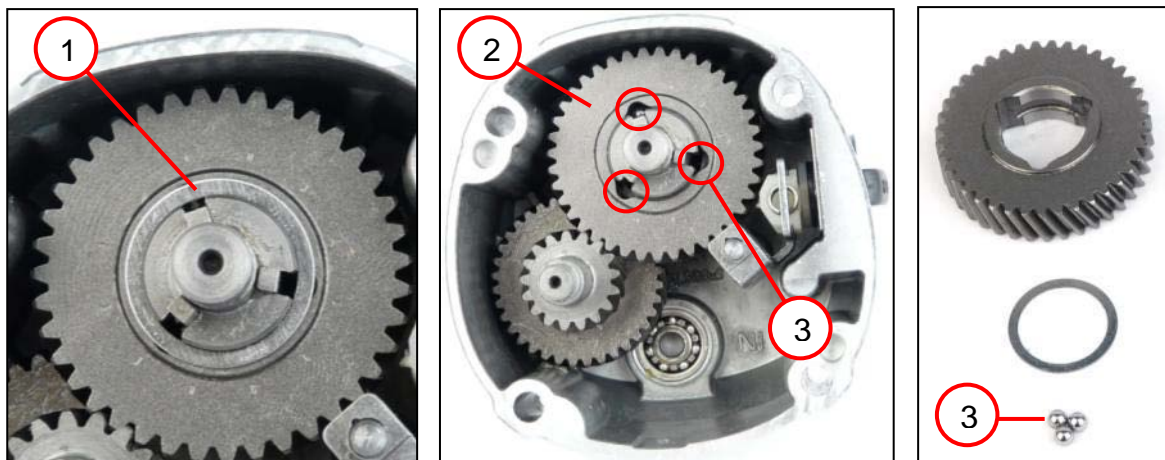
1. Remove clutch (1).
2. Remove circlip (2).

#### Tools:

- Circlip pliers

## 6. Disassembly

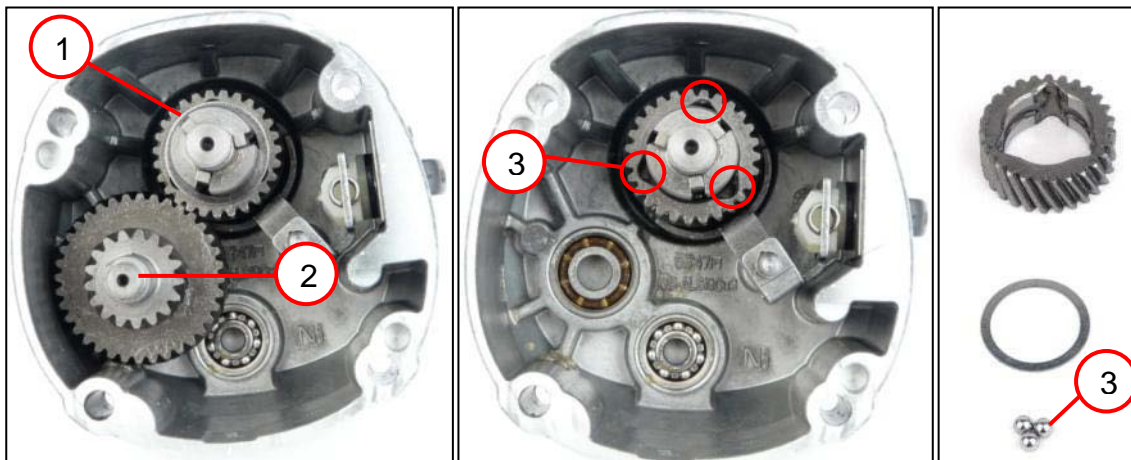
### Disassembling gearbox (only applies to BOS 16-2)



1. Remove disc (1).
2. Remove gear-wheel (2).
3. Remove the three balls (3) between shaft and gear-wheel.

## 6. Disassembly

### Disassembling gearbox (only applies to BOS 16-2)



1. Remove disc (1).
2. Remove gear-wheel with shaft (2).
3. Remove the three balls (3) between shaft and gear-wheel.

## 6. Disassembly

### Disassembling gearbox (only applies to BOS 16-2)



1. Slide locking plate (1) up and out.
2. Pull out switch pushbutton (2).
3. Remove pin (3).
4. Take out switch module (4).
5. Take round seal ring (5) off switch pushbutton.

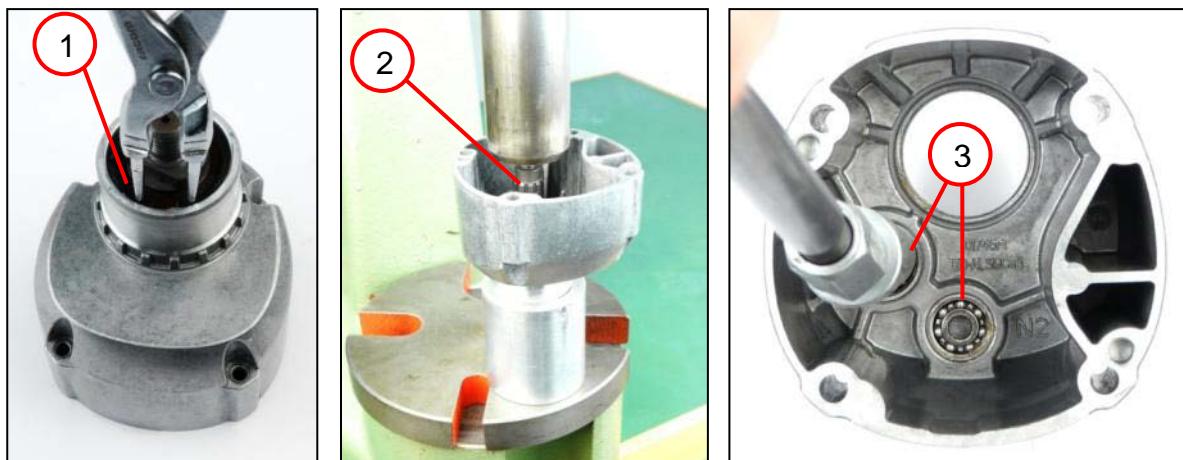
**Tools:**

- Slotted screwdriver



## 6. Disassembly

### Disassembling gearbox (only applies to BOS 16-2)



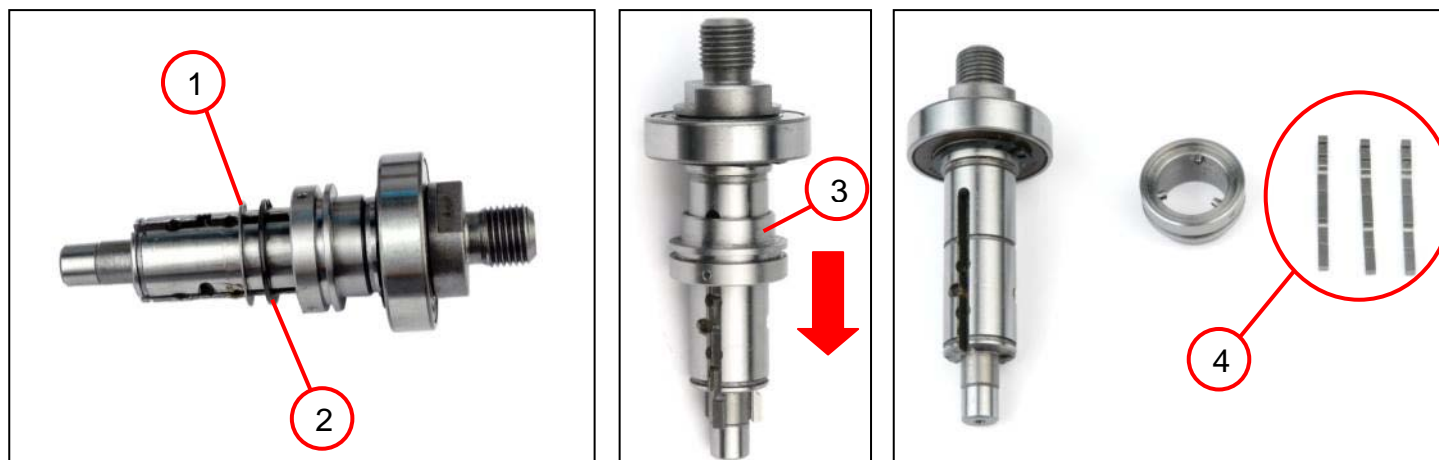
1. Remove circlip (1).
2. Press shaft (2) out of gearbox housing.
3. Remove the two ball bearings (3).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
38 mm inner diameter  
43 mm outer diameter
- Inner puller
- Slide hammer

## 6. Disassembly

### Disassembling shaft (only applies to BOS 16-2)



1. Remove disc (1).
2. Remove circlip (2).
3. Slide sleeve (3) down and remove it with the draw keys (4).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
38 mm inner diameter  
43 mm outer diameter



## 6. Disassembly

### Disassembling shaft (only applies to BOS 16-2)



1. Remove circlip (1).
2. Press grooved ball bearing (2) off shaft (3).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
24 mm inner diameter



## 6. Disassembly

### Disassembling gear-wheel



1. Press gear-wheel (1) off spur gear shaft.

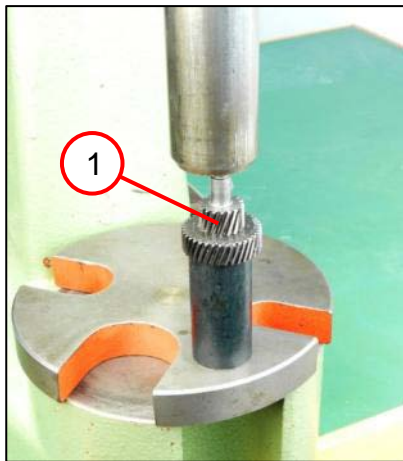
#### Tools:

- Arbor press
- Sleeve  
22 mm inner diameter



## 7. Assembly

### Assembling gear-wheel



1. Press spur gear shaft (1) into gear-wheel.

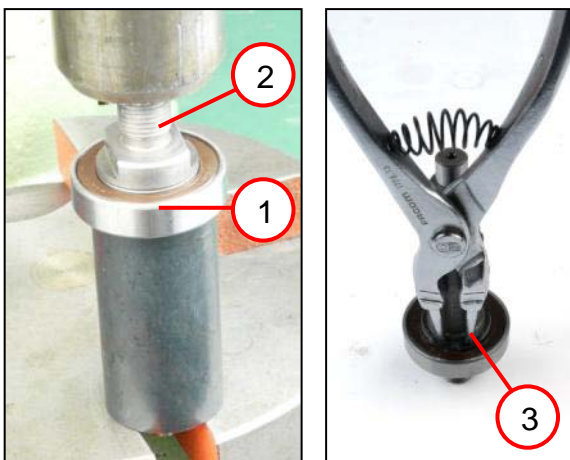
#### Tools:

- Arbor press
- Sleeve  
17 mm inner diameter



## 7. Assembly

### Assembling shaft (only applies to BOS 16)



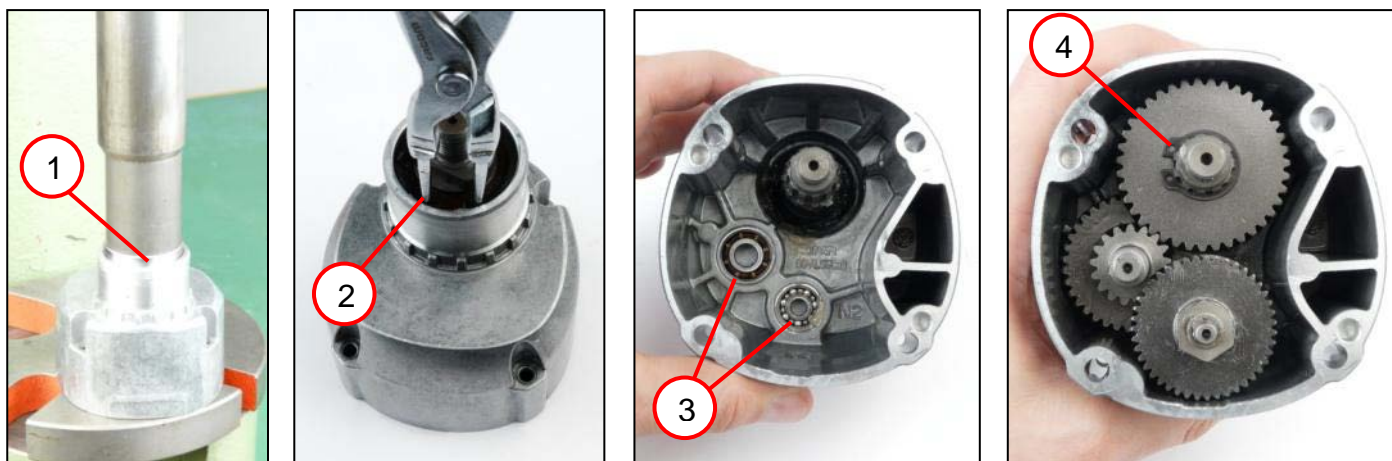
1. Press grooved ball bearing (1) on to shaft (2).
2. Secure grooved ball bearing with circlip (3).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
21 mm inner diameter  
37 mm outer diameter

## 7. Assembly

### Assembling gearbox (only applies to BOS 16)



1. Press grooved ball bearing (1) with shaft into gearbox housing.
2. Insert circlip (2).
3. Press in the two grooved ball bearings (3).
4. Insert all gear-wheels and clutch in gearbox housing.  
☞ Check clutch before inserting (see test instructions).
5. Insert circlip (4).

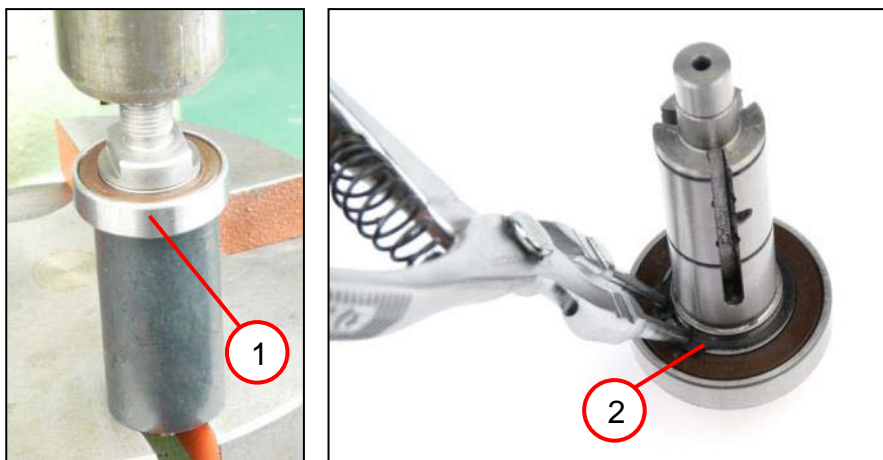
**Tools:**

- Circlip pliers
- Arbor press
- Sleeve  
25 mm inner diameter  
35 mm outer diameter



## 7. Assembly

### Assembling shaft (only applies to BOS 16-2)



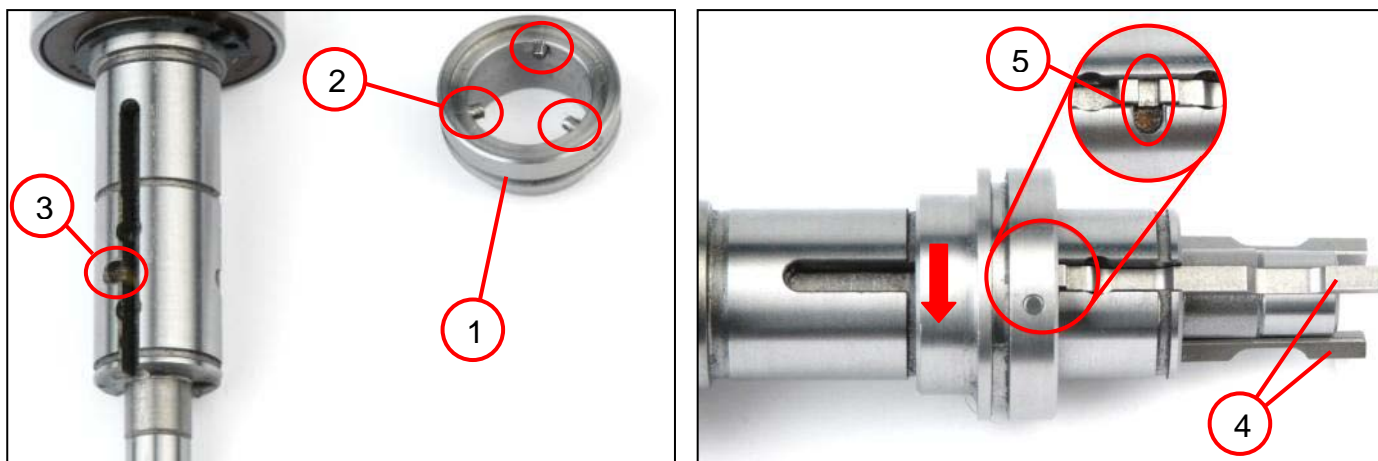
1. Press the grooved ball bearing (1) onto the shaft.
2. Assemble circlip (2).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
21 mm inner diameter  
37 mm outer diameter

## 7. Assembly

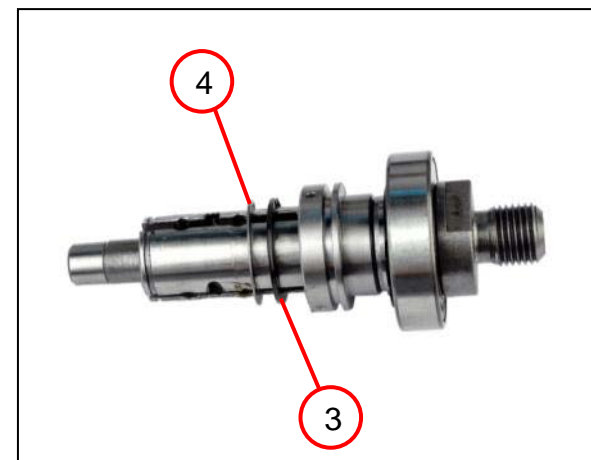
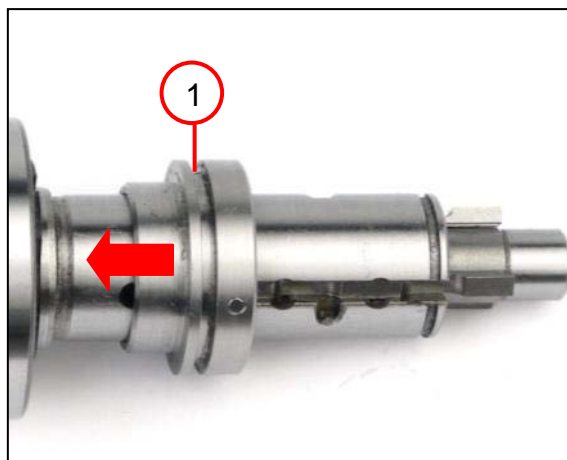
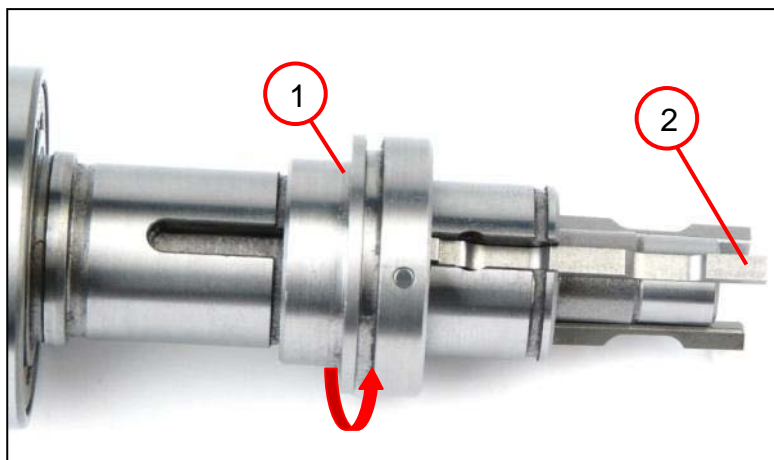
### Assembling shaft (only applies to BOS 16-2)



1. Slide sleeve (1) on to shaft.
2. Rotate sleeve such that the three dowels (2) lie inside the recesses (3).
3. Insert the three draw keys (4) such that the two grooves (5) under the sleeve are adjacent.
  - ☞ Fix draw keys with a drop of grease.
  - ☞ Insert draw keys one at a time.

## 7. Assembly

### Assembling shaft (only applies to BOS 16-2)



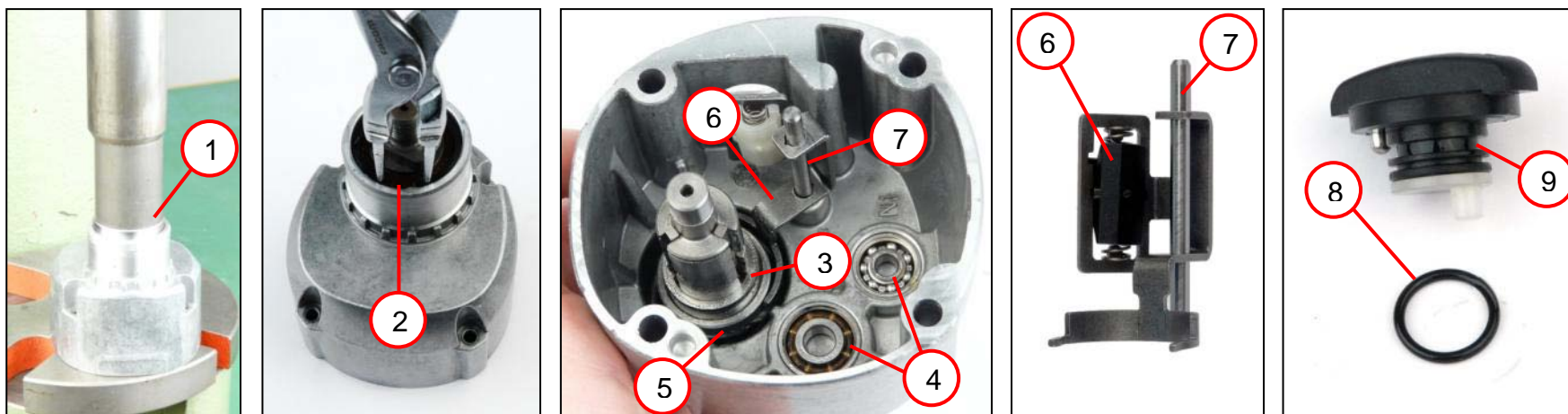
1. Rotate sleeve (1) on to draw keys (2).
2. Slide sleeve (1) with draw keys in direction of arrow.
3. Assemble circlip (3).
4. Slide disc (4) on to shaft.

#### Tools:

- Circlip pliers

## 7. Assembly

### Assembling gearbox (only applies to BOS 16-2)



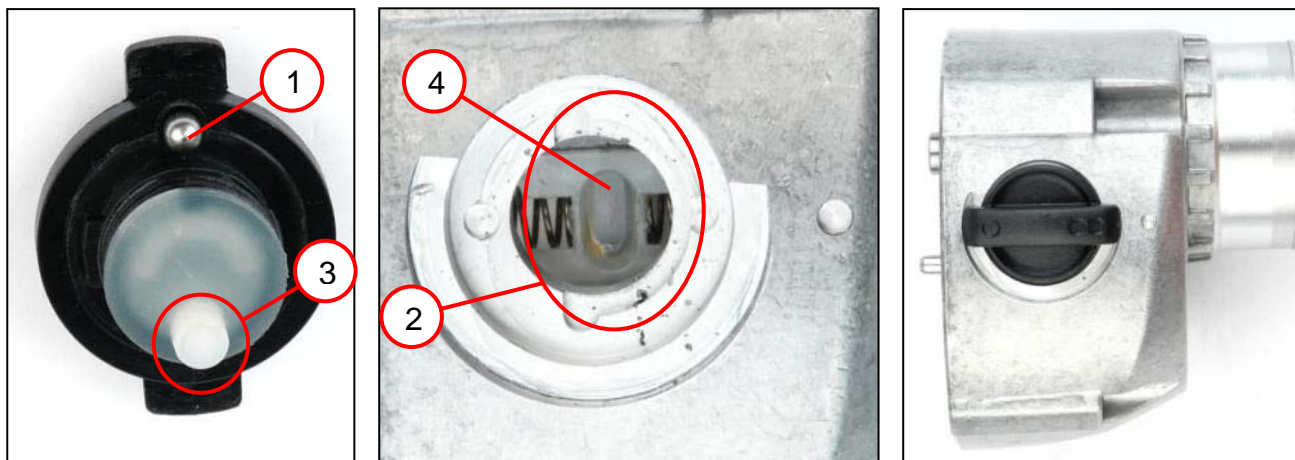
1. Press grooved ball bearing (1) with shaft into housing.
2. Assemble circlip (2).
3. Assemble disc (3).
4. Press in the two grooved ball bearings (4).
5. Pull out sleeve (5).
6. Insert switch module (6) in groove of sleeve.
7. Insert guide pin (7).
8. Slide round seal ring (8) into groove of switch pushbutton (9).

#### Tools:

- Circlip pliers
- Arbor press
- Sleeve  
25 mm inner diameter  
35 mm outer diameter

## 7. Assembly

### Assembling switch pushbutton (only applies to BOS 16-2)

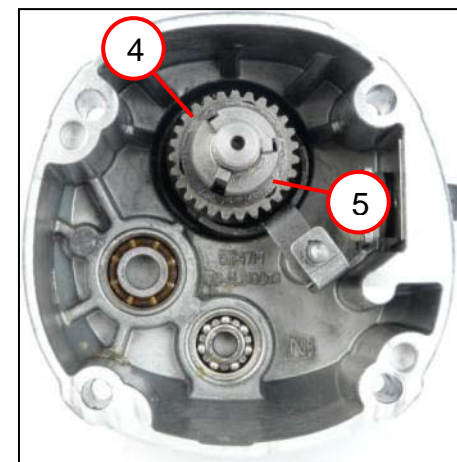
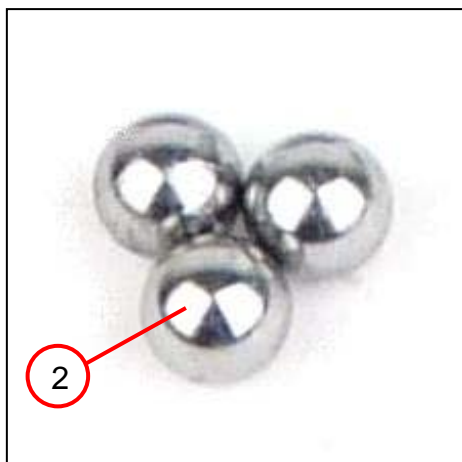
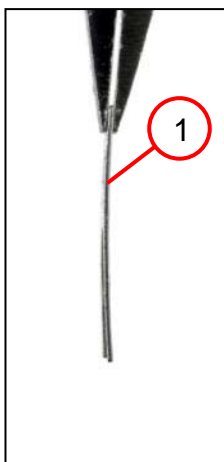


#### 1. Insert switch pushbutton.

- ☞ Ball (1) of switch pushbutton must run inside guide (2) of housing.
- ☞ Projection (3) of switch pushbutton must lie inside recess (4) of switch module.

## 7. Assembly

### Assembling shaft (only applies to BOS 16-2)



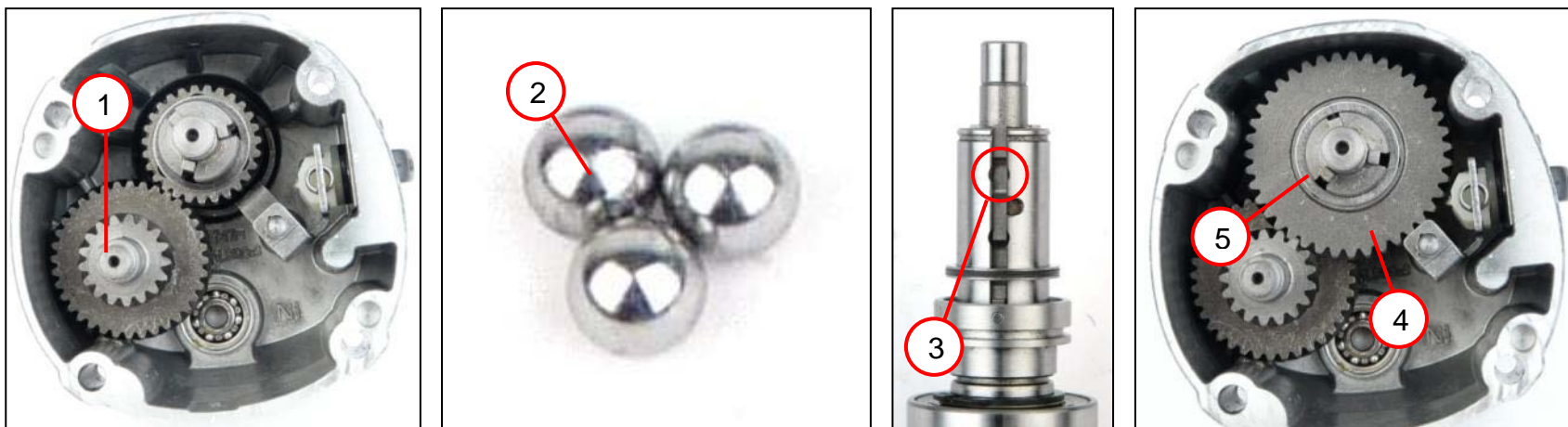
1. Slide locking plate (1) into groove on switch pushbutton.  
☞ Insert locking plate such that curvature faces inside of tool.
2. Turn switch pushbutton to position 1.
3. Insert the three balls (2) in recesses (3) of shaft.  
☞ Fix balls with a drop of grease.
4. Slide gear-wheel (4) on to shaft.
5. Insert disc (5).

**Tools:**

- Slotted screwdriver

## 7. Assembly

### Assembling gearbox (only applies to BOS 16-2)

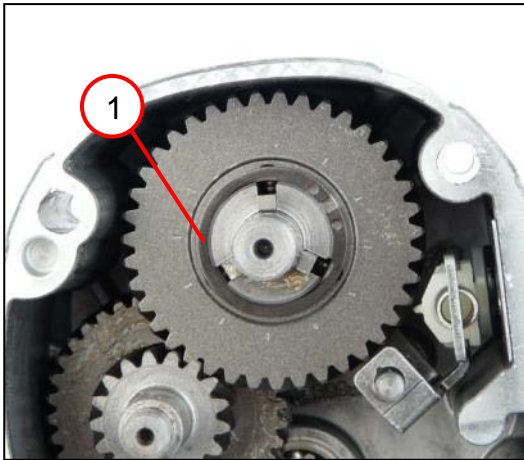


1. Insert shaft (1) and gear-wheel.
2. With switch pushbutton, switch to second gear.
3. Insert the three balls (2) in recesses (3) of shaft.  
☞ Fix balls with a drop of grease.
4. Slide gear-wheel (4) on to shaft.
5. Insert disc (5).



## 7. Assembly

### Assembling gearbox (only applies to BOS 16-2)



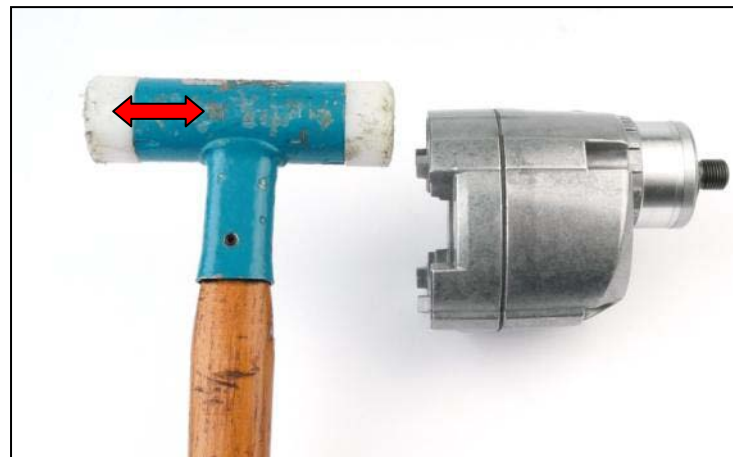
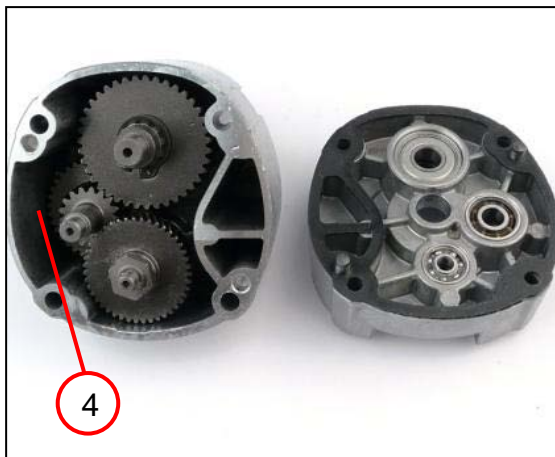
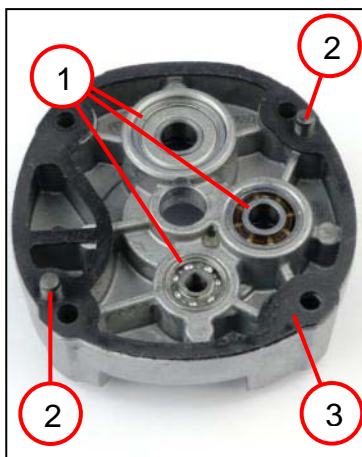
1. Assemble circlip (1).
2. Insert the clutch (2).

#### Tools:

- Circlip pliers

## 7. Assembly

### Assembling gearbox housing



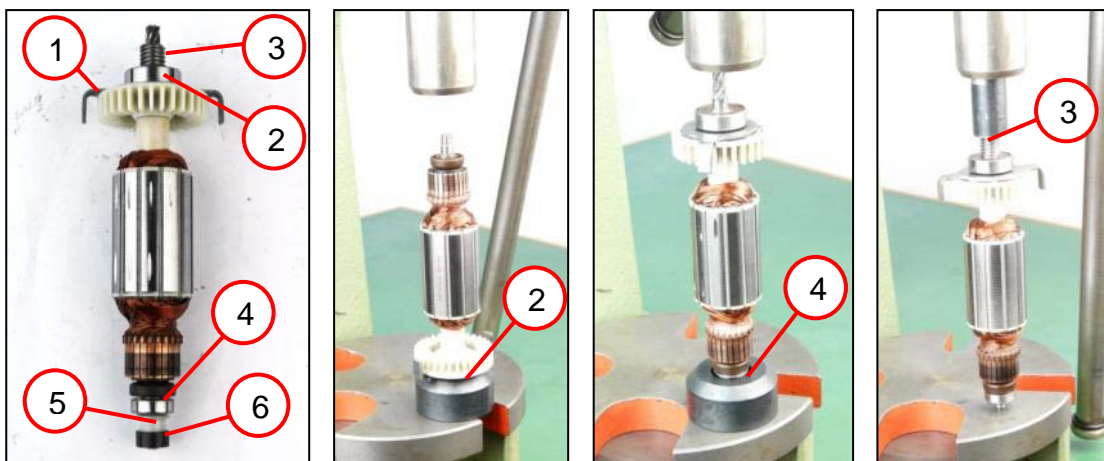
1. Press in the three grooved ball bearings (1).
2. Insert the two dowels (2).
3. Fit seal (3) in the correct position.
4. Fill gearbox housing (4) with 30 g of grease.
5. Join gearbox housing and intermediate bearing.

**Tools:**

- Arbor press
- Plastic hammer
- Grease  
(0 40 11 301 00 5)

## 7. Assembly

### Assembling the armature



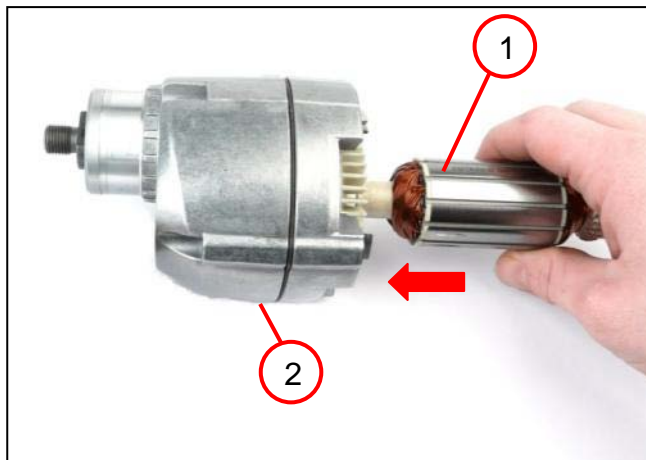
1. Fit plate (1).
2. Press on grooved ball bearing (2).
3. Press on sealing ring (3).
4. Press on grooved ball bearing (4).
5. Press on sleeve (5).
6. Press magnet (6) on to sleeve by hand.

#### Tools:

- Ball bearing support  
8 mm inner diameter
- Ball bearing support  
11 mm inner diameter
- Sleeve  
7 mm inner diameter

## 7. Assembly

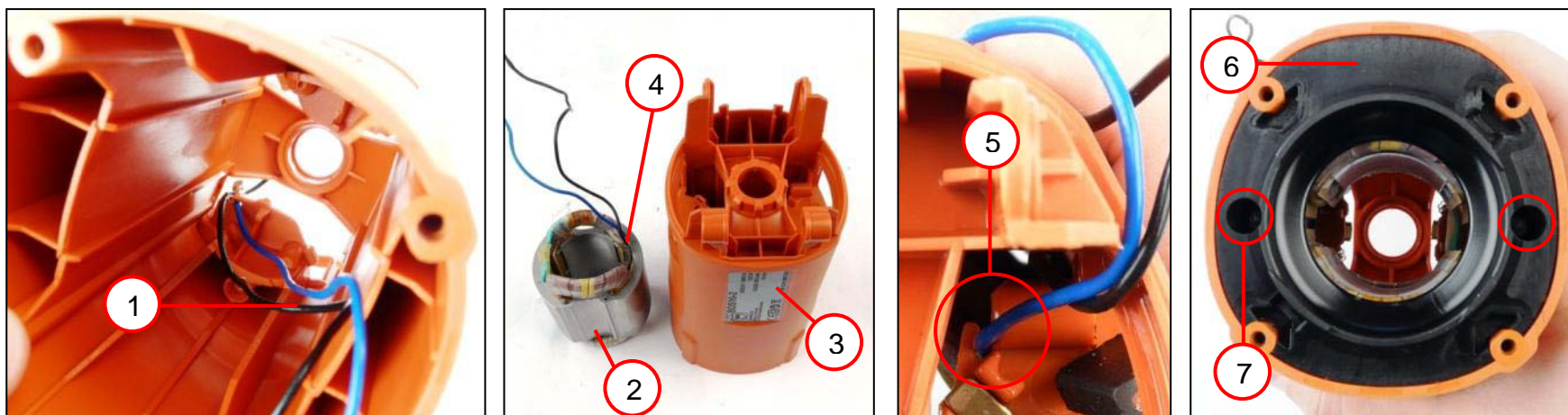
### Assembling the armature



1. Insert armature (1) into gearbox housing (2).

## 7. Assembly

### Assembling stator



1. Route black cable (1) behind blue cable to fix black cable in place.
2. Press stator (2) into motor housing and at the same time pull out both cables.
  - ☞ Cables (4) of stators must be to the right of type plate.
3. Press blue cable into appropriate recess (5).
4. Insert air guide ring (6) and secure with the two screws (7) [ $1.8 \pm 0.25$  Nm].
  - ☞ Tightening the screws (7) presses the stator fully into the housing.

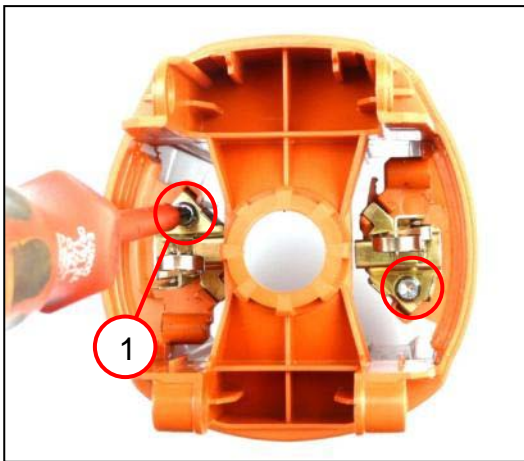
**Tools:**

- Torx T20



## 7. Assembly

### Assembling carbon brush holders



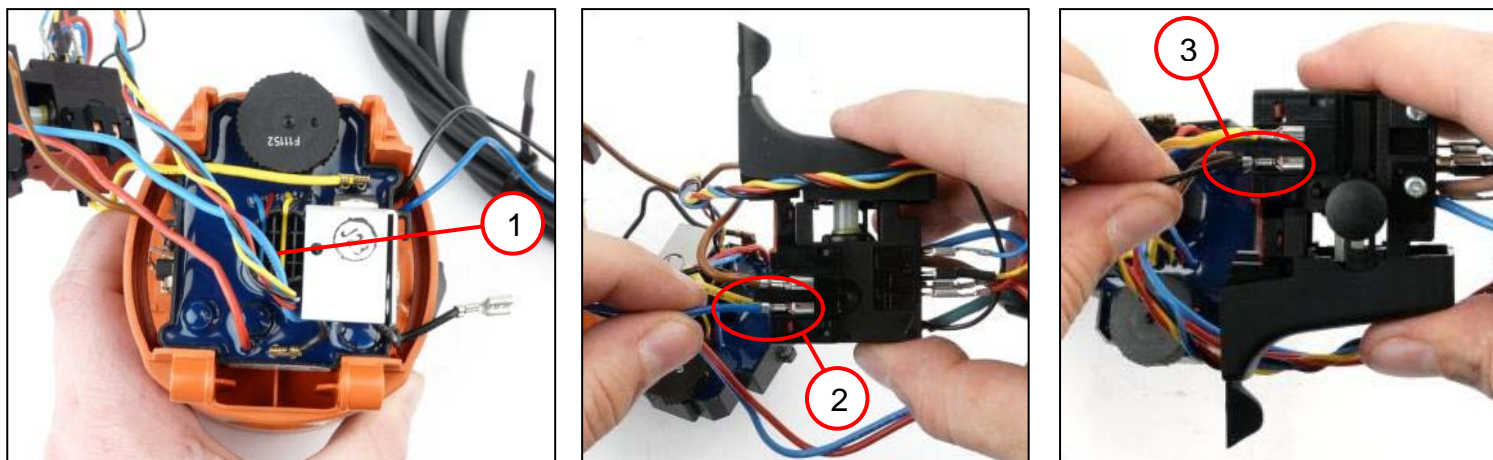
1. Insert the two carbon brush holders (1) and secure each with the appropriate screw [ $1.2 \pm 0.15$  Nm].

**Tools:**

- Torx T15

## 7. Assembly

### Assembling the electronics

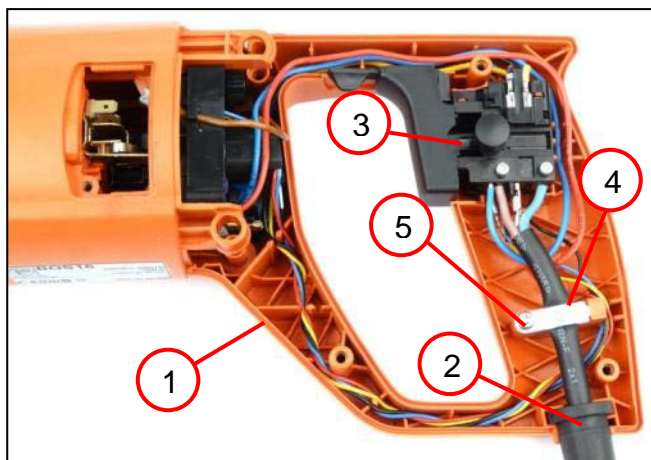


1. Press electronics (1) on to motor housing in correct position.  
☞ The hooks must audibly click into place.
2. Connect blue cable (2) as shown in connection diagram.
3. Connect black cable (3) as shown in connection diagram.



### 7. Assembly

#### Assembling handle



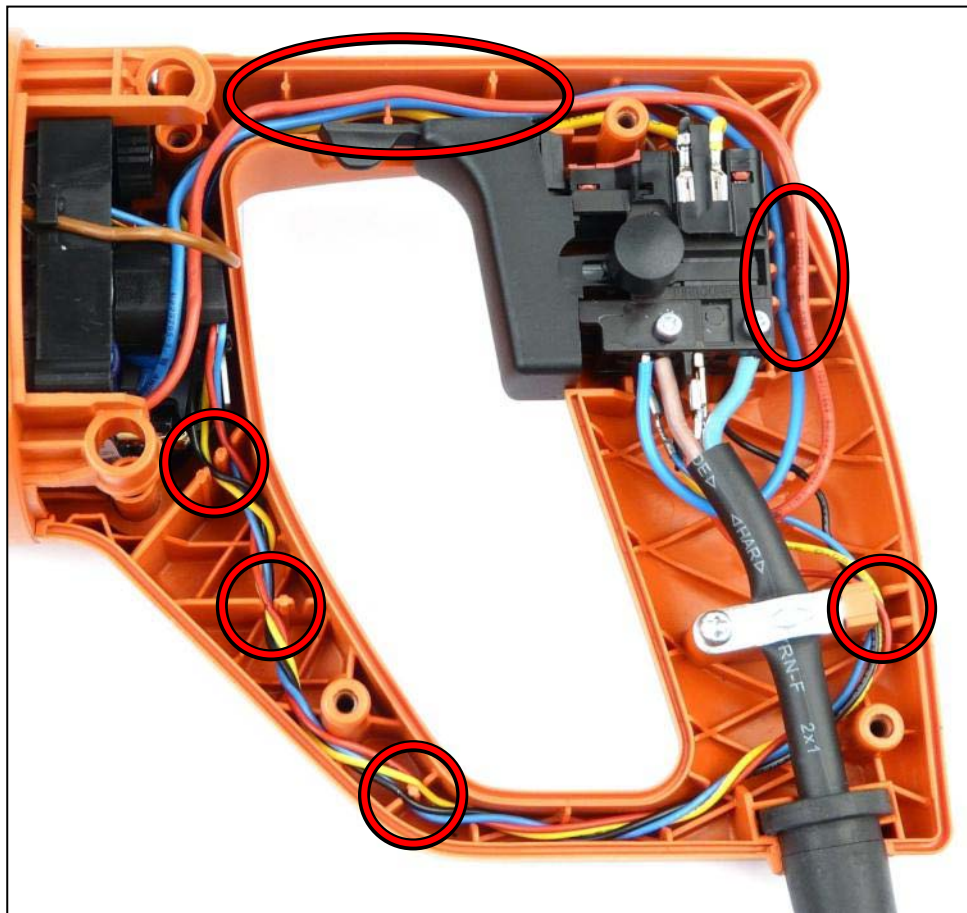
1. Slide on lower part of handle (1).
2. Connect supply cable to switch as shown in connection diagram.
3. Press cables into appropriate holders (see page 47).
4. Insert cable kink guard (2) in appropriate recess.
5. Insert switch (3) and position cables in guides (see page 47).
6. Insert cable clamping piece (4) and secure with screw (5) [1.8 ±0.25 Nm].

#### Tools:

- Torx T15

## 7. Assembly

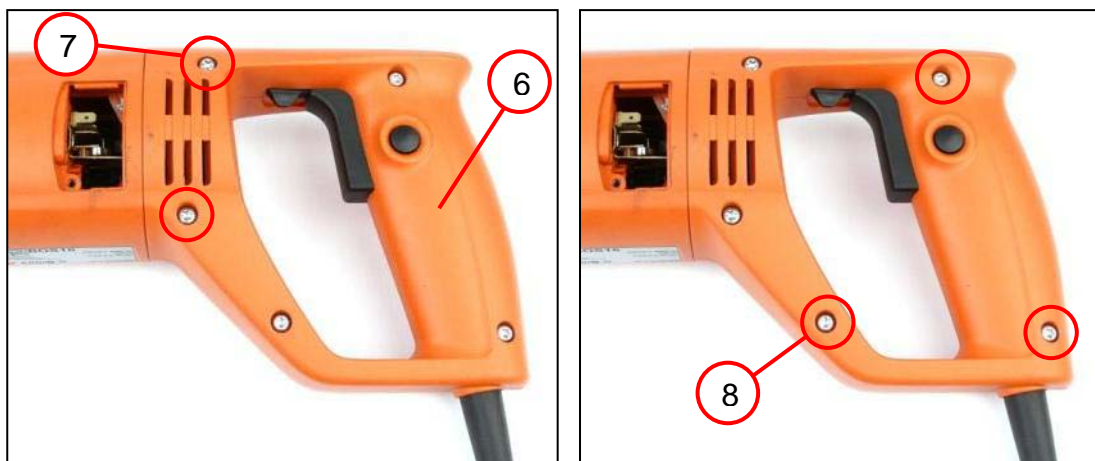
### Cable routing





## 7. Assembly

### Assembling handle



1. Fit upper part of handle (6).
2. Screw in the two screws 4x48 (7) [2.5 ±0.3 Nm].
3. Screw in the three screws 4x18 (8) [2.5 ±0.3 Nm].

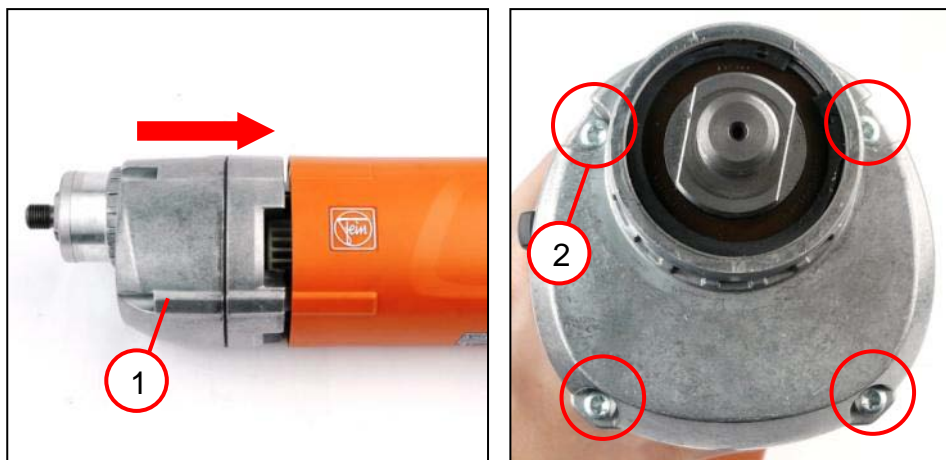
#### Tools:

- Torx T20



## 7. Assembly

### Assembling gearbox housing



1. Insert gearbox housing with armature (1).
  - ☞ Make sure the carbon brushes are not assembled before the armature is inserted.
2. Secure with the four screws (2) [ $2.0 \pm 0.25$  Nm].

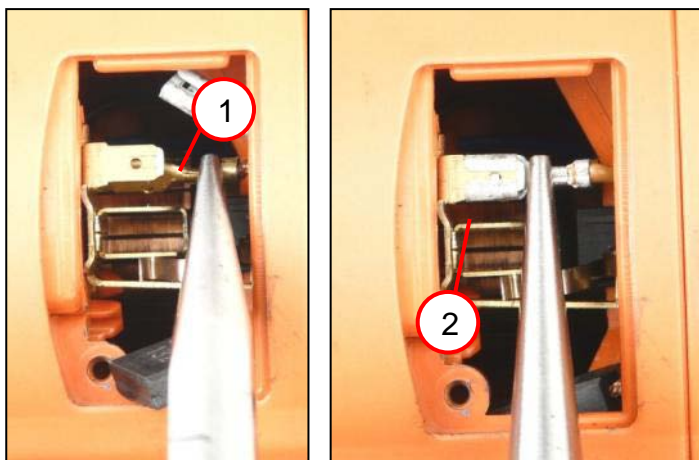
#### Tools:

- Torx T20



## 7. Assembly

### Assembling carbon brushes



1. Connect cable of carbon brushes (1) on both sides.
2. Connect cable (2) of electronics as shown in connection diagram.

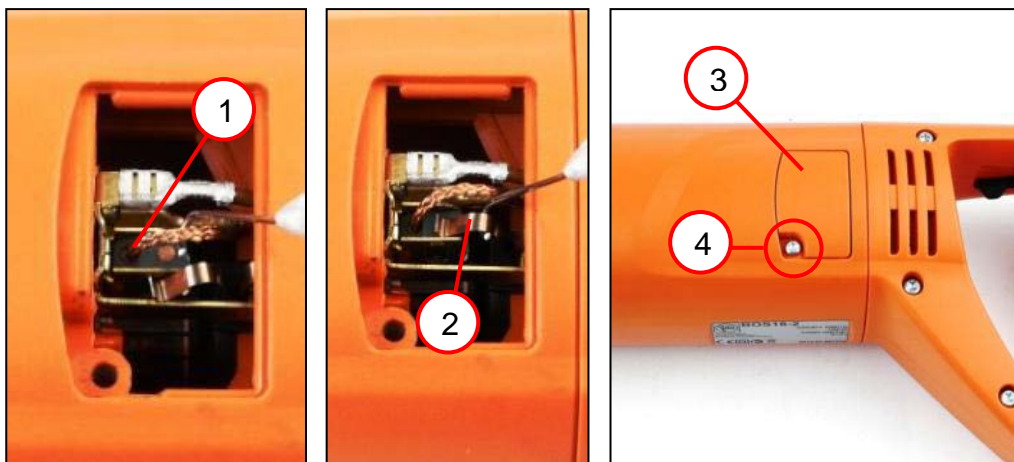
#### Tools:

- Long-nosed pliers



## 7. Assembly

### Assembling carbon brushes



1. Insert carbon brushes (1) on both sides.
2. Raise springs (2) to carbon brushes.
3. Position covers (3) on both sides and secure with screws (4) [ $1.2 \pm 0.15$  Nm].

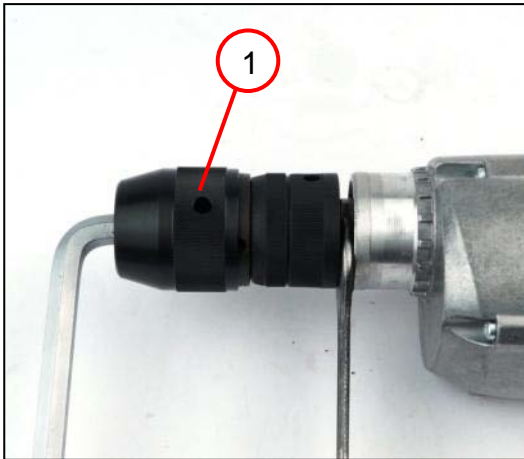
**Tools:**

- Torx T15
- Assembly aid



## 7. Assembly

### Assembling quick-clamping drill chuck



1. Assemble quick-clamping drill chuck (1).  
☞ Tighten drill chuck to 50 Nm.

#### Tools:

- Socket head screws, 10 mm
- Open-ended spanner, size 17 (sanded)

## 7. Assembly

### Assembling handle



1. Slide on locking ring (1).
2. Insert screw (2).
3. Slide on sleeve (3).
4. Screw down handle (4).



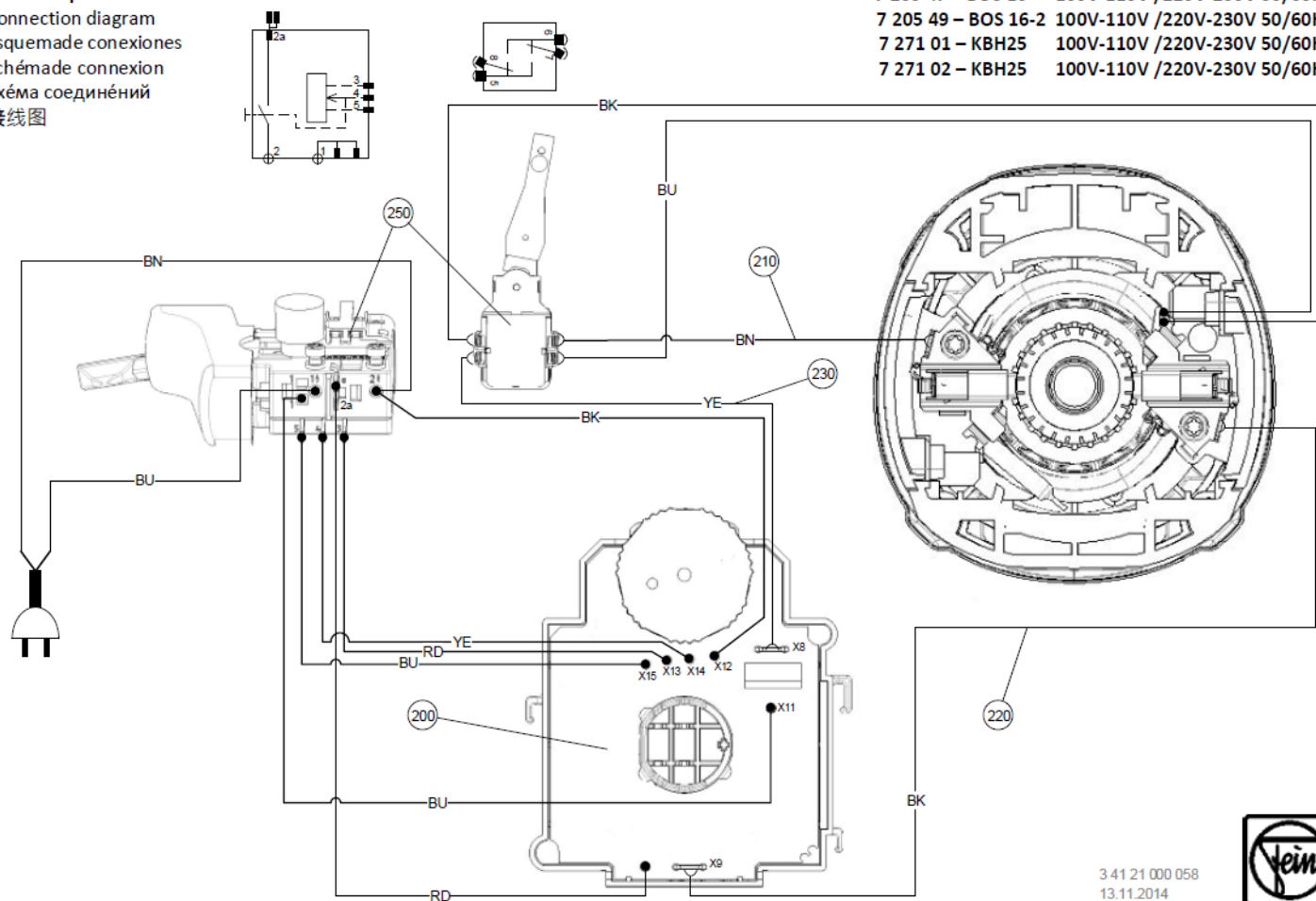


## 9. Connection diagram

### Anschlussplan

Connection diagram  
Esquema de conexiones  
Schéma connexion  
Схема соединений  
接线图

|                     |                               |
|---------------------|-------------------------------|
| 7 205 47 – BOS 16   | 100V-110V / 220V-230V 50/60Hz |
| 7 205 49 – BOS 16-2 | 100V-110V / 220V-230V 50/60Hz |
| 7 271 01 – KBH25    | 100V-110V / 220V-230V 50/60Hz |
| 7 271 02 – KBH25    | 100V-110V / 220V-230V 50/60Hz |



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