



Repair instructions



Applies to:

WSG 20-180; WSG 20-230; WSG 25-180; WSG 25-230;
WSB 20-180; WSB 20-230; WSB 25-180 X; WSB 25-230 X



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**Models described****1 Models described**

These repair instructions describe how to repair the following models:

Model	Material number
WSG 20-180	7 221 07
WSG 20-230	7 221 08
WSG 25-180	7 221 26
WSG 25-230	7 221 27
WSB 20-180	7 221 05
WSB 20-230	7 221 06
WSB 25-180 X	7 221 10
WSB 25-230 X	7 221 11





Technical data

2 Technical data

Technical data

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

Special tools

The special tools catalogue can be found in the FEIN electronic information system.

Lubricants and auxiliary substances

The lubricants catalogue can be found in the FEIN electronic information system.

Lists of spare parts

Lists of spare parts and exploded views are available online in our spare parts catalogue, which can be accessed via the FEIN website.

Connection diagram

The connection diagram can be found in the FEIN electronic information system.

Documents required for further repair work

- FEIN lubricants catalogue
- FEIN special tools catalogue
- All relevant service communications



**Symbols used****3 Symbols used**

	Refers to measures for avoiding the risk of injuries.
	Refers to information or instructions that should be followed. Non-observance can result in damage or malfunctions.
	Read the operating instructions.
	Indicates notes that provide information or instructions that may provide a better understanding and contribute to the more effective use of the product.
	Part of the navigation interface.





Notes and requirements

4 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!



INFORMATION

Read the operating instructions for the product before carrying out any repair work.

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.

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

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

The relevant accident prevention regulations are to be observed during commissioning.

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

Disclaimer

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Safety instructions

5 Safety instructions

5.1 Structure

 SIGNAL WORD FOR THE DANGER CLASSIFICATION.
Type and source of the danger.
Possible consequences.
Measure that must be taken in order to avoid this danger.

5.2 Danger classification

Warning

This warning refers to a dangerous situation. If the situation is not avoided, this may result in severe injuries or death.

 WARNING!
Type and source of the danger.
Possible consequences.
Measure that must be taken in order to avoid this danger.

Caution

This warning refers to a potentially dangerous situation. If the situation is not avoided, this may result in slight or minor injuries. This may also be used as a warning against material damage.

 CAUTION!
Type and source of the danger.
Possible consequences.
Measure that must be taken in order to avoid this danger.

Please note

Indicates a potentially harmful situation. If this situation is not avoided, the product or an object in its environment could be damaged.

 PLEASE NOTE:
Type and source of the danger.
Damage to the product or its environment.
Measure that must be taken in order to avoid this danger.





5.3 Information

Indicates notes that provide information or instructions that may provide a better understanding and contribute to the more effective use of the product.

 INFORMATION
Tip





Tools, lubricants and auxiliary substances required

6 Tools, lubricants and auxiliary substances required

6.1 Standard tools

Torx	T20; T25
Cross-head screwdriver	PH2
Slotted screwdriver	
Arbor press	
Punch	2 mm; 6 mm; 8 mm; 10 mm
Plastic hammer	
Circlip pliers	
Pin-type face wrench 62910022002	35 mm
Sleeve	18 mm outer diameter
Sleeve	22 mm outer diameter
Sleeve	29 mm outer diameter
Sleeve	34 mm outer diameter
Sleeve	39 mm outer diameter
Sleeve	54 mm outer diameter
Sleeve	10 mm inner diameter
Sleeve	13 mm inner diameter
Sleeve	18 mm inner diameter
Sleeve	31 mm inner diameter
Sleeve	65 mm inner diameter

6.2 Special tools

Assembly aid		64122121010
Drawing-off plate		64102070009
Sleeve	120 mm inner diameter 130 mm outer diameter	64101002004
Drawing-off socket cap		64104150008
Chuck cone	32 mm	64107032000
Chuck cone	26 mm	64107026000



**Tools, lubricants and auxiliary substances required****6.3 Lubricants and auxiliary substances required**

The manufacturer's specifications for the lubricants used can be found in the FEIN **lubricants catalogue**.

Grease	SM 0001	85 g	Gearbox
Sealant	Loctite 573	n.a.	Gearbox housing



**Test and diagnostics options****7 Test and diagnostics options****Test data**

The permitted parameters for the machine can be found in the FEIN electronic information system.





8 Disassembly

8.1 Removing the handle and safety hood

Tools:

- None



1. Unscrew the handle (1).
2. Remove the safety hood (2).

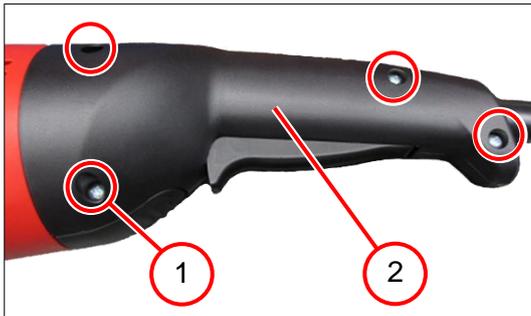


8.2 Disassembling the housing

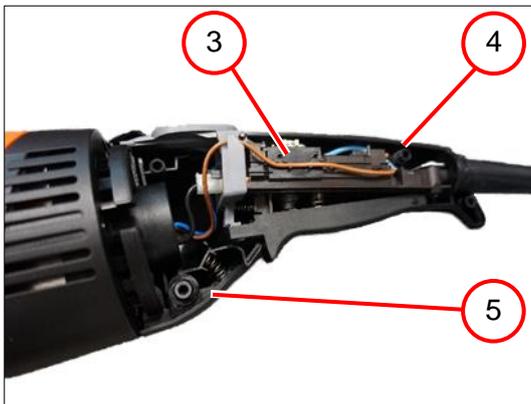
8.2.1 Removing the handle

Tools:

- PH2 cross-head screwdriver



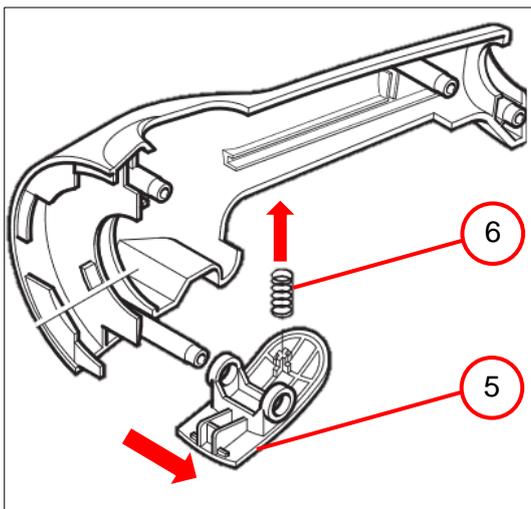
1. Unscrew the four screws (1).
2. Remove the handle half shell (2).



3. Remove the switch (3).
4. Remove the handle half shell (4).

i INFORMATION

Press the switch pushbutton (5) at the same time.



5. Remove the switch pushbutton (5).

i INFORMATION

Secure the spring (6).

6. Remove the spring (6).

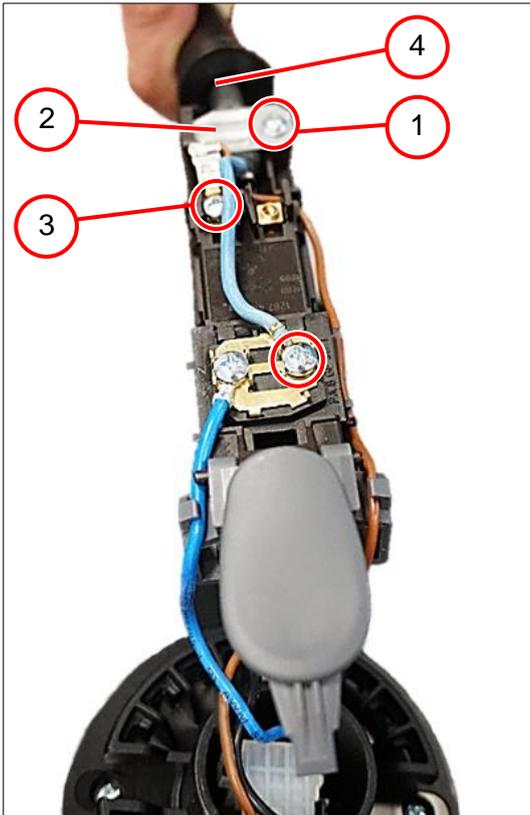
8.2.2 Removing the network cable

Steps that must be completed:

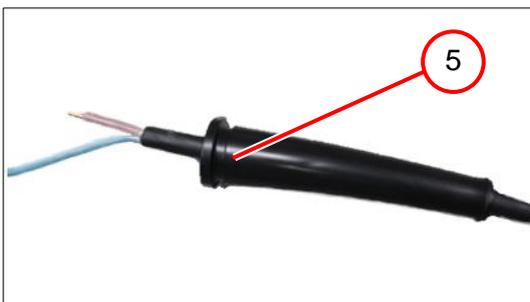
- Remove handle

Tools:

- PH2 cross-head screwdriver



1. Unscrew the screw (1).
2. Remove the cable clamp (2).
3. Unscrew the two screws (3).
4. Remove the cable (4).



5. Remove the cable grommet (5).

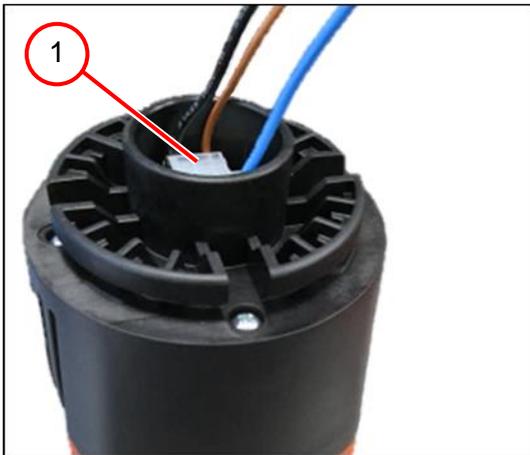
8.2.3 Disassembling the switch WSG 20/25

Steps that must be completed:

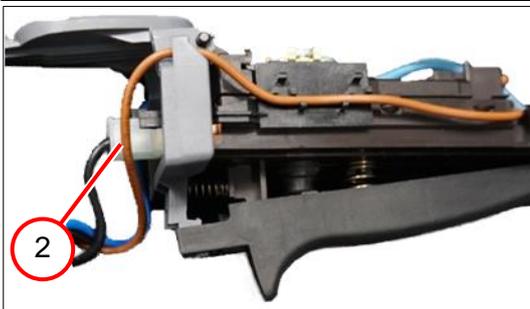
- Removing the handle
- Removing the network cable

Tools:

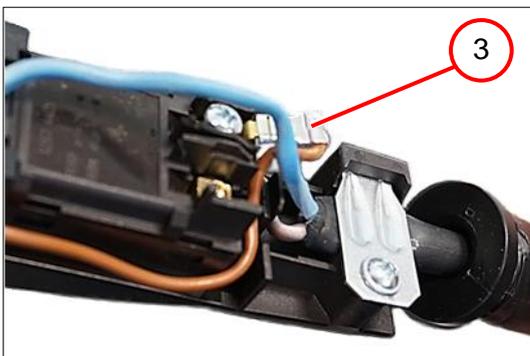
- Assembly aid
- PH2 cross-head screwdriver



1. Remove the plug (1).



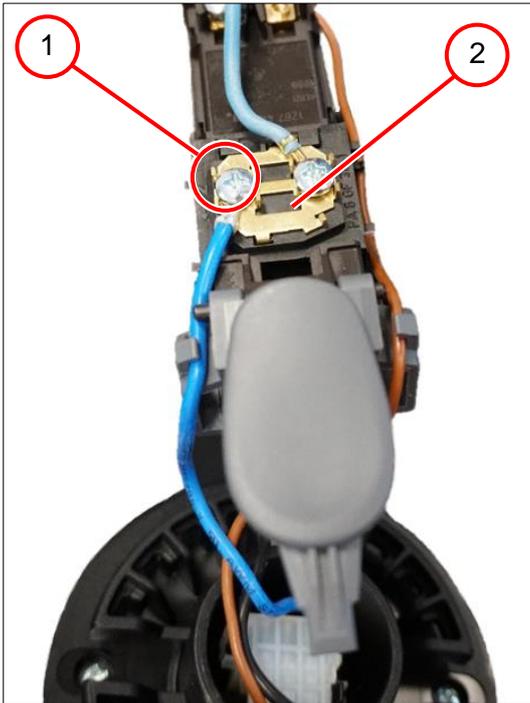
2. Remove the plug (2).



3. Remove the plug (3).



Disassembly



4. Unscrew the screw (1).
5. Remove the connecting piece (2).

i INFORMATION

Only remove the connecting piece (2), if necessary.



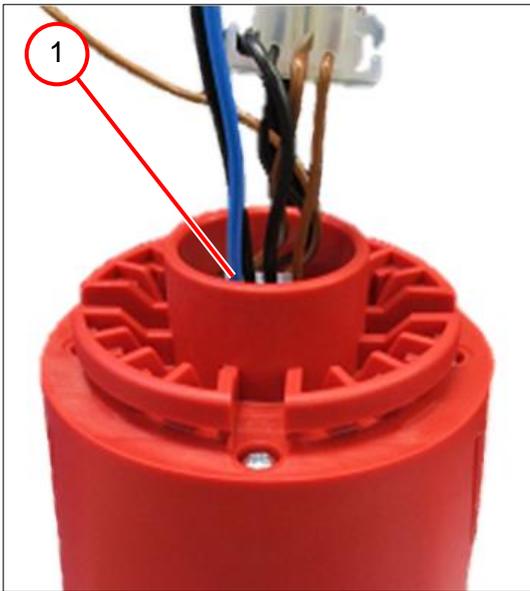
8.2.4 Disassembling the switch WSB 20/25

Steps that must be completed:

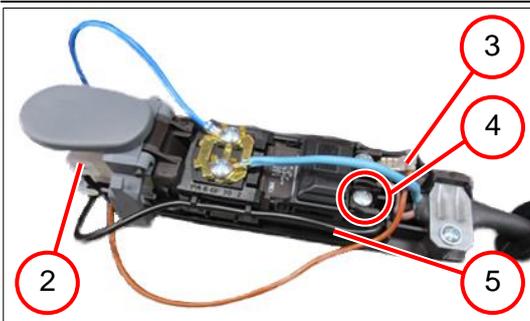
- Removing the handle
- Removing the network cable

Tools:

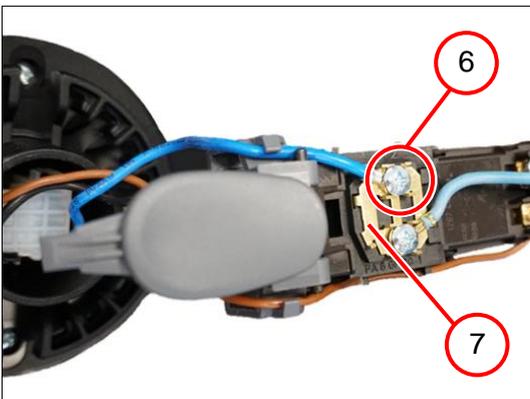
- Assembly aid
- PH2 cross-head screwdriver



1. Remove the plug (1).



2. Remove the plug (2).
3. Remove the plug (3).
4. Unscrew the screw (4).
5. Remove the cable (5).



6. Unscrew the screw (6).
7. Remove the connecting piece (7).

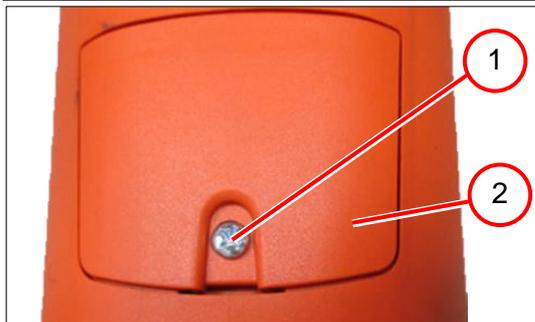
i INFORMATION

Only remove the connecting piece (7), if necessary.

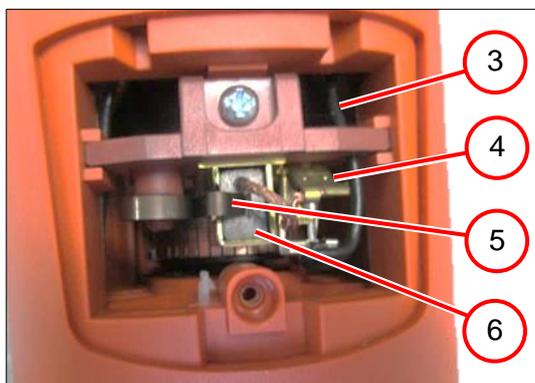
8.2.5 Removing the carbon brushes

Tools:

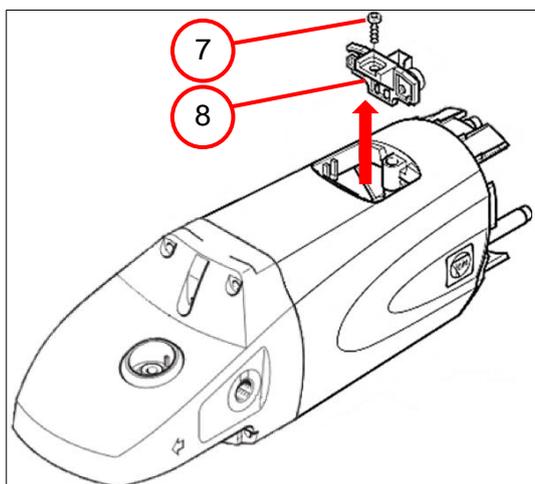
- PH2 cross-head screwdriver
- Assembly aid



1. Unscrew the screw (1).
2. Remove the cover (2).



3. Remove the plug (4).
4. Lift up the spring (5).
5. Remove the carbon brush (6).



6. Unscrew the screw (7).
7. Remove the carbon brush holder (8).
8. Remove the cable (3).
9. Repeat steps 1 to 8 on the opposite side of the machine.

8.2.6 Removing the electronics WSG 20/25

Steps that must be completed:

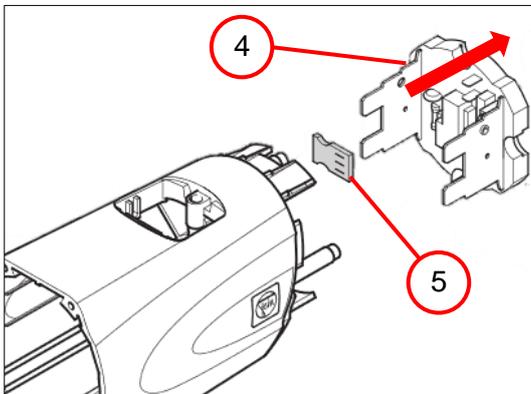
- Remove handle
- Removing the switch

Tools:

- PH2 cross-head screwdriver



1. Remove the plug (1).
2. Unscrew the four screws (2).
3. Remove the housing (3).



4. Remove the electronics (4).
5. Remove the pressure piece (5).

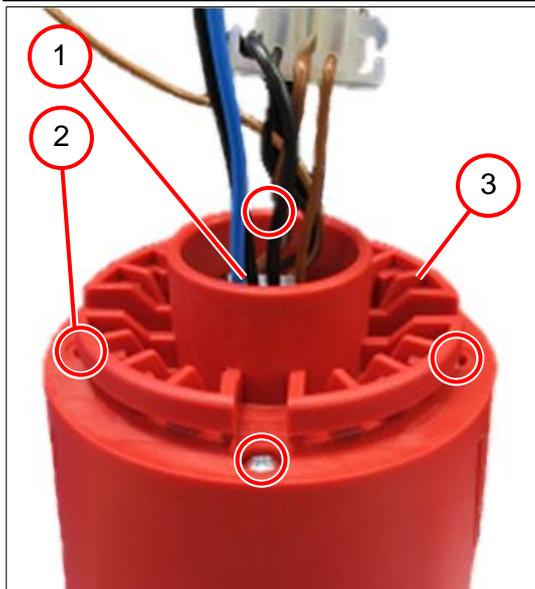
8.2.7 Removing the electronics WSB 20/25

Steps that must be completed:

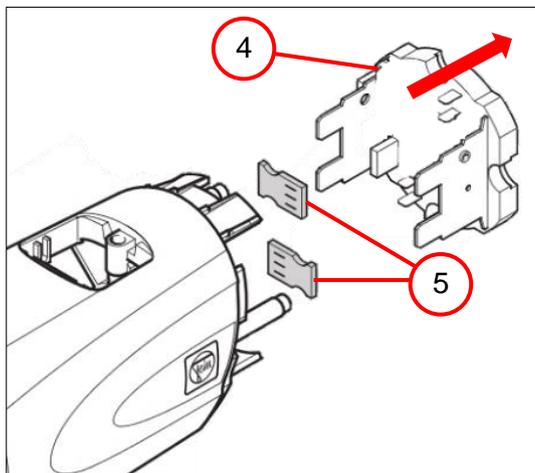
- Remove handle
- Removing the switch

Tools:

- PH2 cross-head screwdriver



1. Remove the plug (1).
2. Unscrew the four screws (2).
3. Remove the housing (3).



4. Remove the electronics (4).
5. Remove the two pressure pieces (5).

8.3 Disassembling the gearbox housing WSG 20/25-180/230

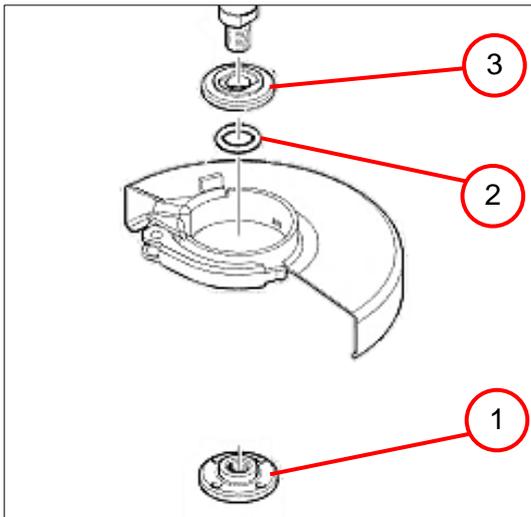
8.3.1 Removing the threaded flange

Steps that must be completed:

- Removing the handle and safety hood

Tools:

- Pin-type face wrench



1. Remove the threaded flange (1).
2. Remove the sealing ring (2).
3. Remove the internal flange (3).

8.3.2 Removing the bearing plate

Steps that must be completed:

- Removing the handle and safety hood
- Removing the threaded flange

Tools:

- Torx T25
- Plastic hammer



1. Unscrew the four screws (1).
2. Remove the four washers (2).

 INFORMATION

Use new washers (2) for assembly each time.

3. Remove the bearing plate (3).

8.3.3 Disassembling the bearing plate

Steps that must be completed:

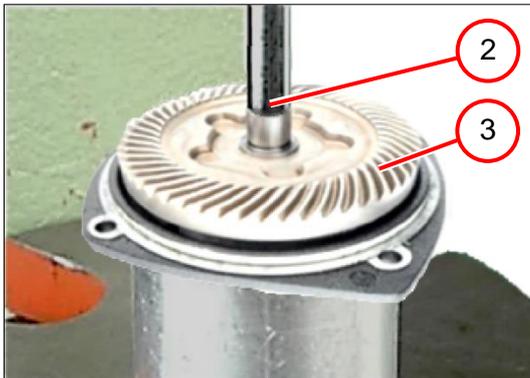
- Removing the handle and safety hood
- Removing the threaded flange
- Removing the bearing plate

Tools:

- Torx T20
- Arbor press
- Punch, 10 mm
- Sleeve, 65 mm inner diameter
- Sleeve, 22 mm outer diameter

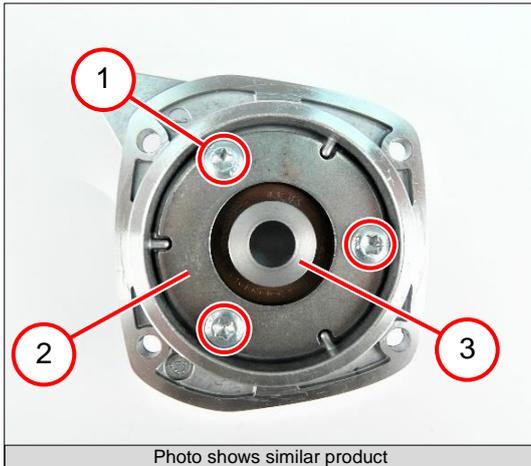


1. Remove the washer (1).

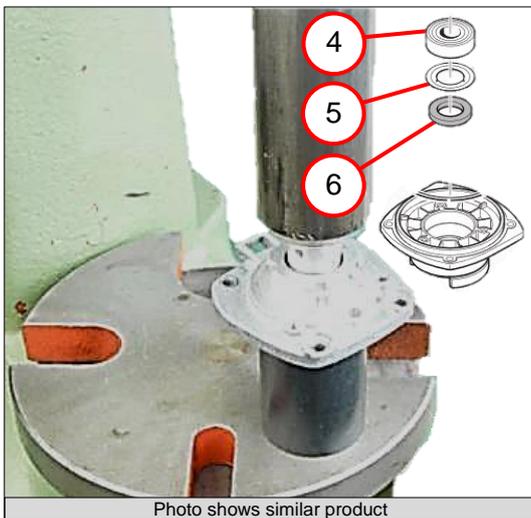


2. Press out the shaft (2).
3. Remove the gearwheel (3).

Disassembly



4. Unscrew the three screws (1).
5. Remove the plate (2).
6. Remove the ring (3).



7. Press out the grooved ball bearing (4).

***i* INFORMATION**

The grooved ball bearing (4) is destroyed during removal and must be replaced.

8. Remove the washer (5).
9. Remove the felt ring (6).

8.3.4 Removing the gearbox housing

Steps that must be completed:

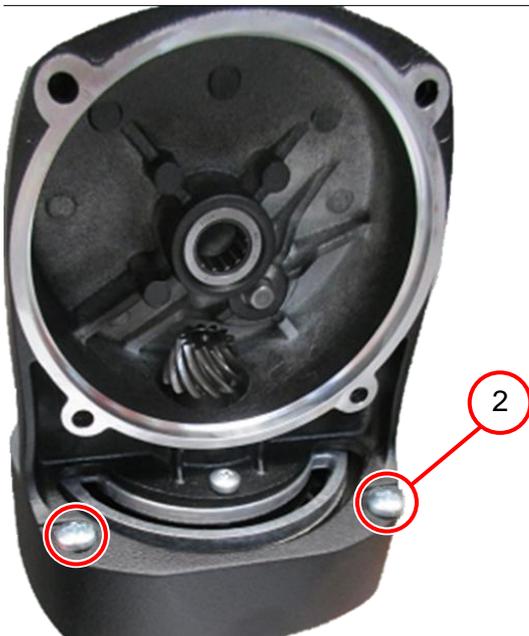
- Removing the carbon brushes
- Removing the handle and safety hood
- Removing the threaded flange
- Removing the bearing plate

Tools:

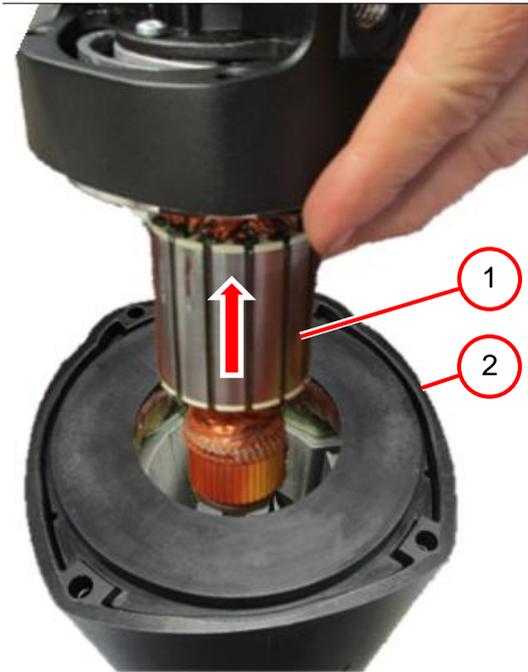
- PH2 cross-head screwdriver
- Plastic hammer



1. Unscrew the two screws (1).



2. Unscrew the two screws (2).



3. Remove the armature (1) from the motor housing (2).



4. Remove the air guide ring (3).



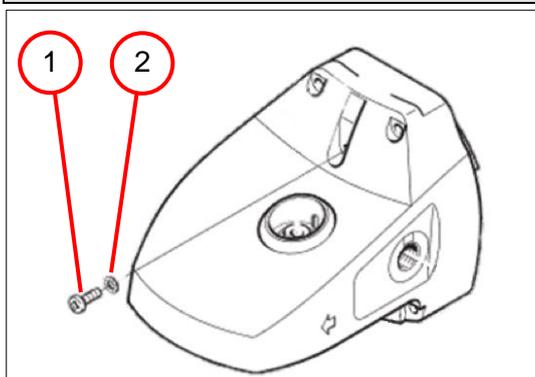
8.3.5 Removing the armature

Steps that must be completed:

- Removing the carbon brushes
- Removing the handle and safety hood
- Removing the threaded flange
- Removing the bearing plate
- Removing the gearbox housing

Tools:

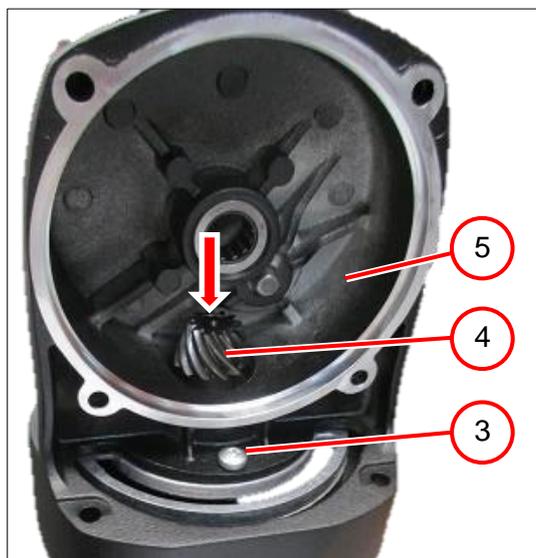
- Torx T20
- Plastic hammer



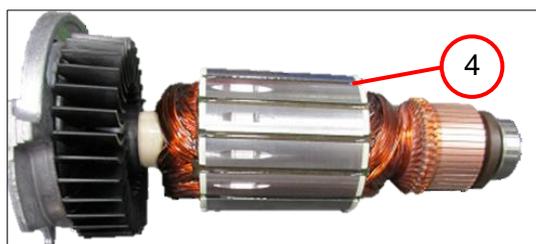
1. Unscrew the screw (1).
2. Remove the washer (2).

 **INFORMATION**

Use new washers (2) for assembly.



3. Unscrew the screw (3).
4. Remove the armature (4) from the housing (5).



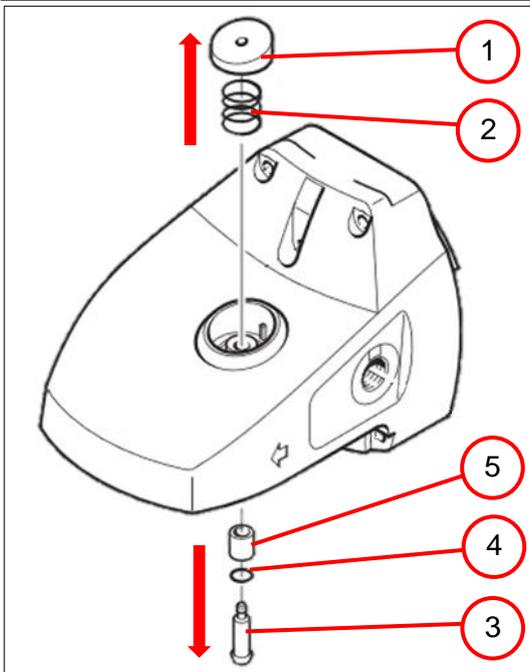
8.3.6 Removing the housing components

Steps that must be completed:

- Removing the carbon brushes
- Removing the handle and safety hood
- Removing the threaded flange
- Removing the bearing plate
- Removing the gearbox housing
- Removing the armature

Tools:

- Punch, 2 mm
- Punch, 6 mm
- Internal puller



1. Remove the pushbutton (1).
2. Remove the spring (2).
3. Remove the bolt (3).
4. Remove the sealing ring (4).

i INFORMATION

Only remove the pushbutton (1), if necessary.
Secure the spring (2).

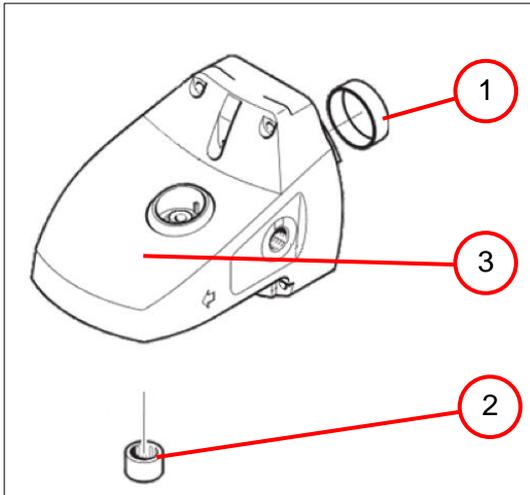
5. Remove the bushing (5).

i INFORMATION

Only remove the bushing (5), if necessary.



Disassembly



6. Remove the bushing (1).
7. Remove the needle sleeve (2).

i INFORMATION

Only remove the needle sleeve (2), if necessary.
Pre-heat the housing (3).



8.4 Disassembling the gearbox housing WSB 20/25-180/230

8.4.1 Remove the clamping unit

Steps that must be completed:

- Removing the handle and safety hood



1. Open the lever (1).



2. Remove the clamping unit (2).



8.4.2 Removing the bearing plate

Steps that must be completed:

- Removing the handle and safety hood
- Remove the clamping unit

Tools:

- Torx T20
- Plastic hammer

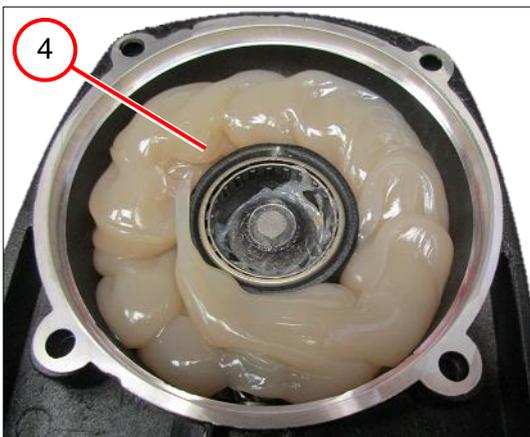


1. Unscrew the four screws (1).
2. Remove the four washers (2).

INFORMATION

Use new washers (2) for assembly each time.

3. Remove the bearing plate (3).



4. Remove the grease (4).

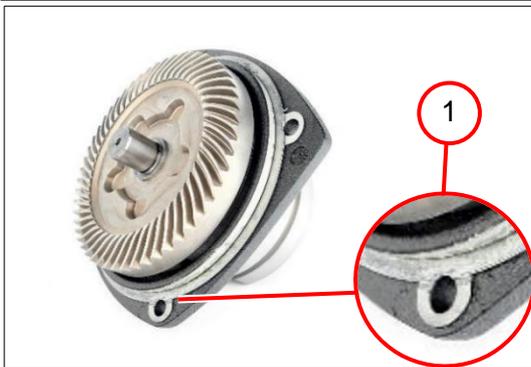
8.4.3 Disassembling the bearing plate

Steps that must be completed:

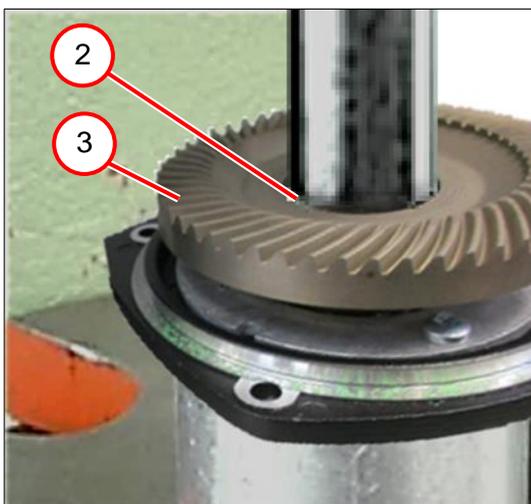
- Removing the handle and safety hood
- Remove the clamping unit
- Removing the bearing plate

Tools:

- Torx T20
- Arbor press
- Punch, 10 mm
- Sleeve, 29 mm outer diameter
- Sleeve, 65 mm inner diameter
- Sleeve, 34 mm outer diameter



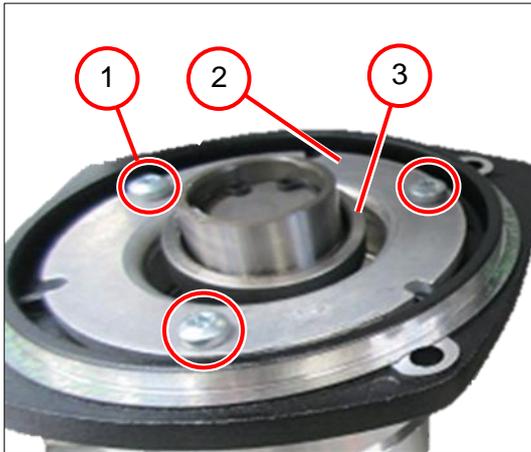
1. Remove the washer (1).



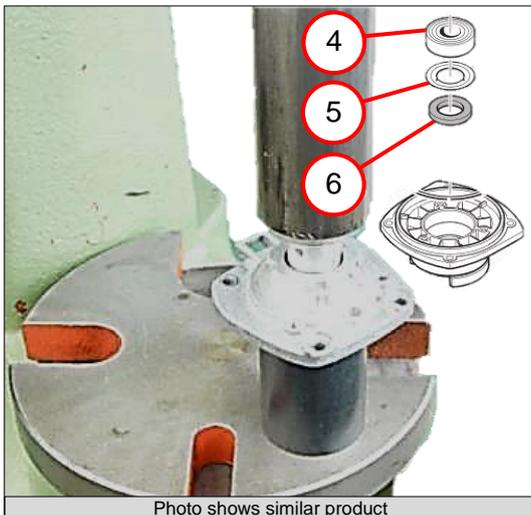
2. Press out the shaft (2).
3. Remove the gearwheel (3).



Disassembly



4. Unscrew the three screws (1).
5. Remove the washer (2).
6. Remove the ring (3).



7. Press out the grooved ball bearing (4).

i INFORMATION

The grooved ball bearing (4) must be replaced after disassembly.

8. Remove the washer (5).
9. Remove the felt ring (6).



8.4.4 Disassembling the shaft

Steps that must be completed:

- Removing the handle and safety hood
- Remove the clamping unit
- Removing the bearing plate
- Disassembling the bearing plate

Tools:

- Circlip pliers
- Arbor press
- Punch, 10 mm



1. Remove the circlip (1).

INFORMATION

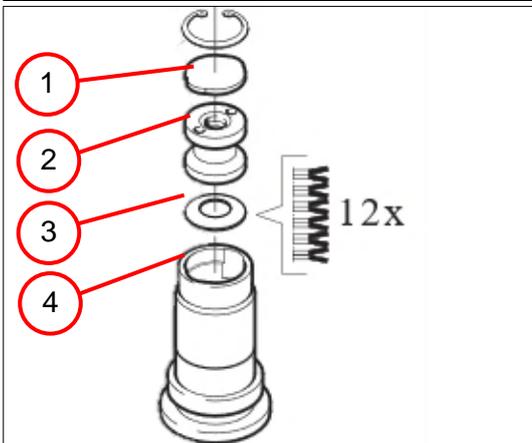
Press down on the washer (2).

CAUTION!

The spring is under tension.

Risk of injury.

Ensure the punch does not slip.



2. Remove the washer (2).
3. Remove the pressure piece (3).
4. Remove the twelve disc springs (4)

8.4.5 Removing the gearbox housing

Steps that must be completed:

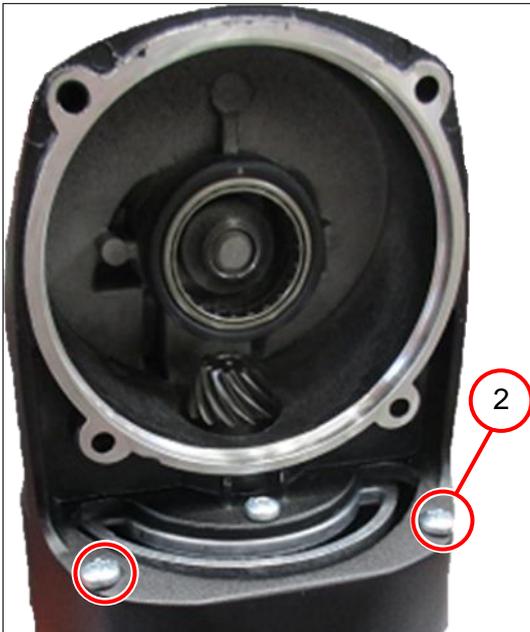
- Removing the carbon brushes
- Removing the handle and safety hood
- Remove the clamping unit
- Removing the bearing plate

Tools:

- Torx T25
- Plastic hammer



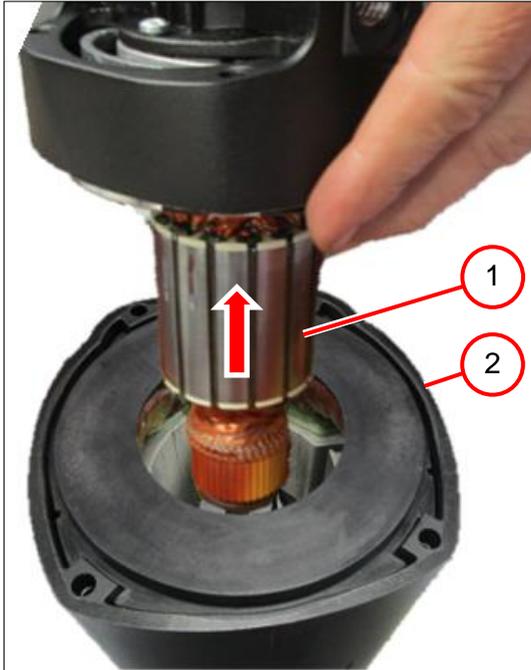
1. Unscrew the two screws (1).



2. Unscrew the two screws (2).



Disassembly



3. Remove the armature (1) from the motor housing (2).



4. Remove the air guide ring (3).



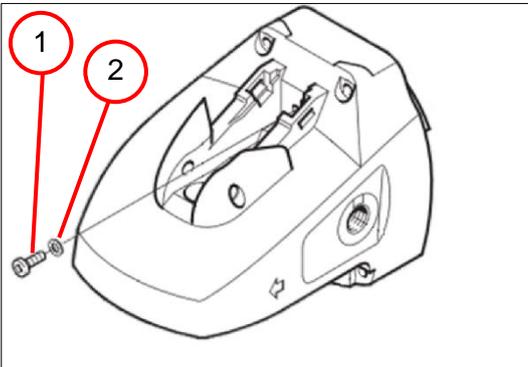
8.4.6 Removing the armature

Steps that must be completed:

- Removing the carbon brushes
- Removing the handle and safety hood
- Remove the clamping unit
- Removing the bearing plate
- Removing the gearbox housing

Tools:

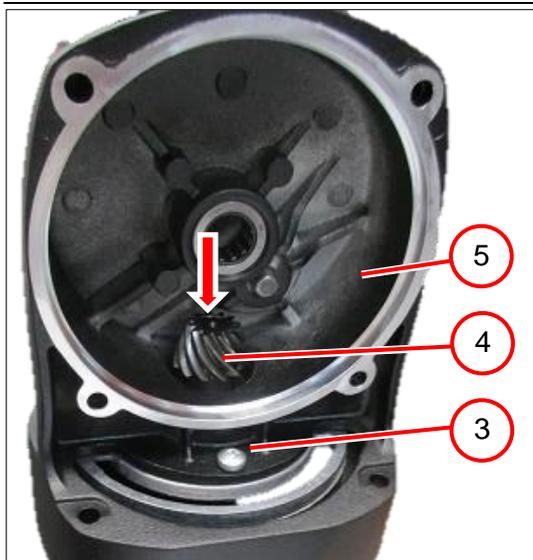
- Cross-head screwdriver



1. Unscrew the screw (1).
2. Remove the washer (2).

i INFORMATION

Use new washers (2) for assembly each time.



3. Unscrew the screw (3).
4. Remove the armature (4) from the housing (5).



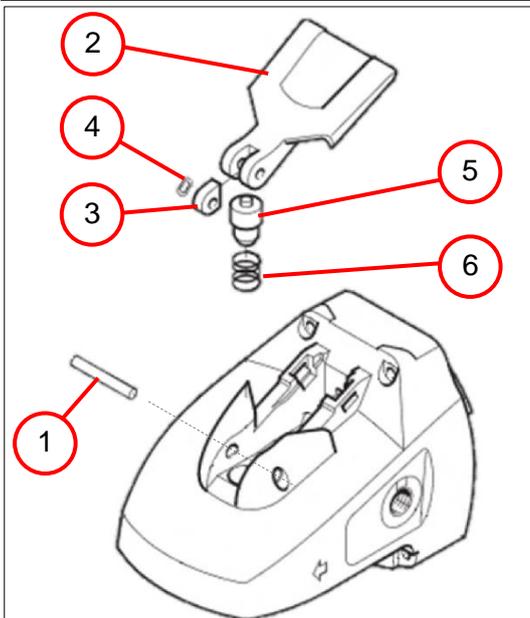
8.4.7 Removing the housing components

Steps that must be completed:

- Removing the carbon brushes
- Removing the handle and safety hood
- Remove the clamping unit
- Removing the bearing plate
- Removing the gearbox housing
- Removing the armature

Tools:

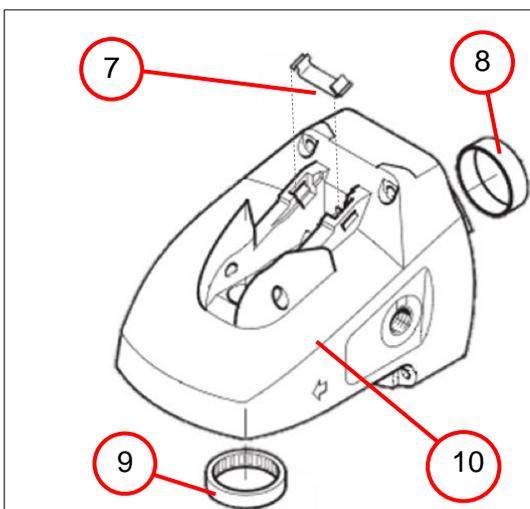
- Punch, 2 mm
- Slotted screwdriver



1. Remove the bolt (1).
2. Remove the lever (2).
3. Remove the eccentric ring (3).
4. Remove the washer (4).
5. Remove the bolt (5).
6. Remove the spring (6).

i INFORMATION

Only remove the lever (2), if necessary.



7. Remove the locking spring (7).
8. Remove the bushing (8).
9. Remove the needle sleeve (9).

i INFORMATION

Only remove the needle sleeve (9), if necessary.
Pre-heat the housing (10).

8.5 Removing the motor

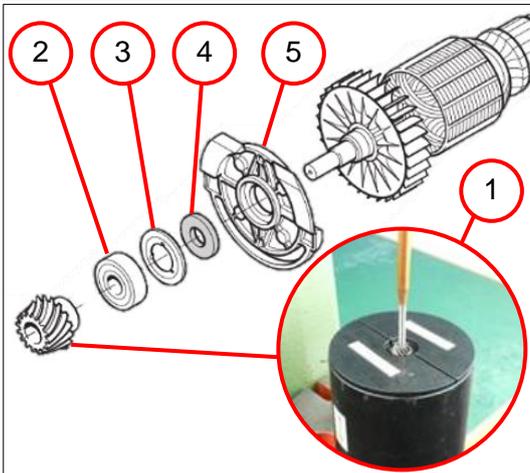
8.5.1 Disassembling the armature

Steps that must be completed:

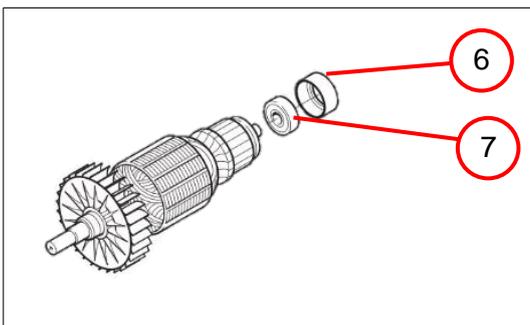
- | | |
|--|--------------------------------|
| - Removing the carbon brushes
WSG 20/25-180/230 | WSB 20/25-180/230 |
| - Removing the threaded flange | - Remove the clamping unit |
| - Removing the bearing plate | - Removing the bearing plate |
| - Removing the gearbox housing | - Removing the gearbox housing |
| - Removing the armature | - Removing the armature |

Tools:

- Arbor press
- Drawing-off plate
- Sleeve 64101002004
- Punch, 10 mm
- Drawing-off socket cap
- Chuck cone, 32
- Chuck cone, 26



1. Press out the pinion (1).
2. Press out the grooved ball bearing (2).
3. Remove the washer (3).
4. Remove the felt ring (4).
5. Remove the plate (5).



6. Remove the bushing (6).
7. Press out the grooved ball bearing (7).

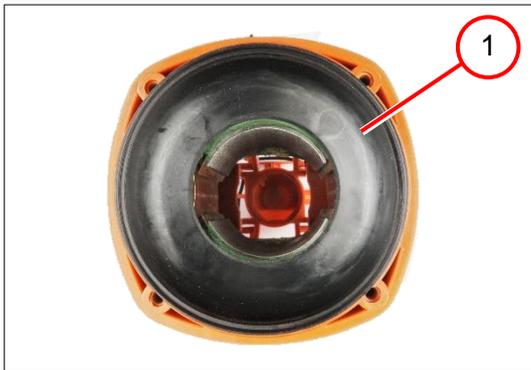
8.5.2 Removing the stator

Steps that must be completed:

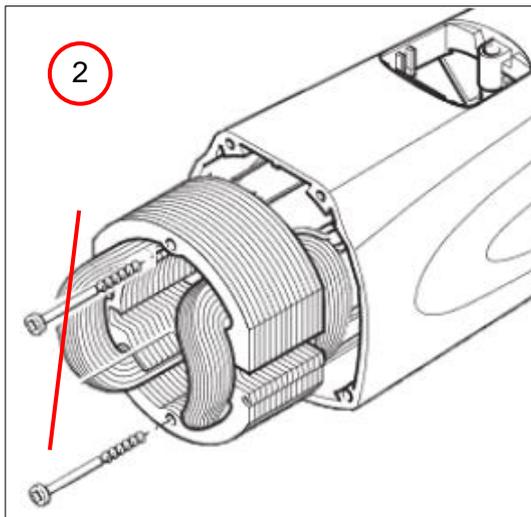
- | | |
|--|--------------------------------|
| - Disassembling the housing
WSG 20/25-180/230 | WSB 20/25-180/230 |
| - Removing the threaded flange | - Remove the clamping unit |
| - Removing the bearing plate | - Removing the bearing plate |
| - Removing the gearbox housing | - Removing the gearbox housing |
| - Removing the armature | - Removing the armature |

Tools:

- Cross-head screwdriver
- Plastic hammer



1. Remove the air guide ring (1).



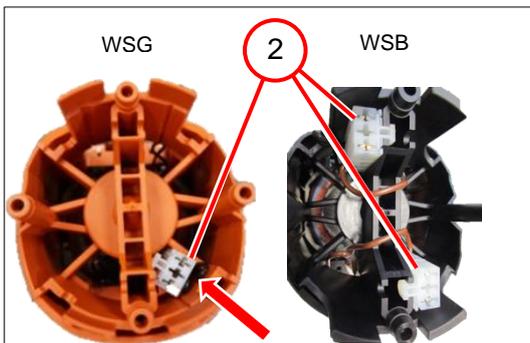
2. Remove the two screws (2).



Disassembly



3. WSG 20/25-180/230: Loosen the locking mechanism (1).
WSB 20/25-180/230: Repeat step 3 on the opposite side.



4. WSG 20/25-180/230: Remove the plug (2) and guide it through the housing.
5. WSB 20/25-180/230: Remove the two plugs (2) and guide them through the housing.



6. Remove the stator (3).





9 Assembly

9.1 Fitting the motor

9.1.1 Fitting the stator

Tools:

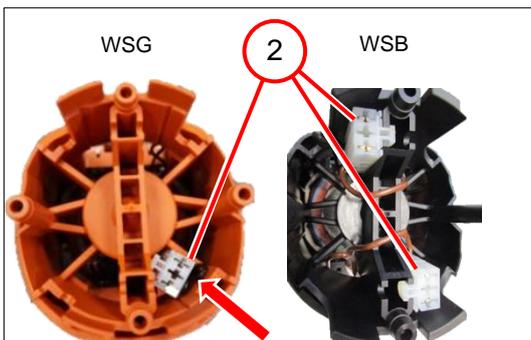
- Assembly aid
- Plastic hammer



1. Align the stator (1).

i INFORMATION

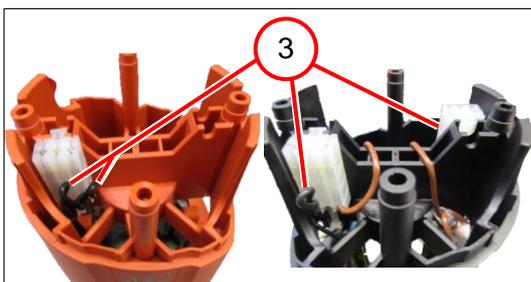
Ensure that it is in the correct position, with the stator lettering 90° to the type plate.



2. WSG 20/25-180/230: Remove the plug (2) and guide it through the housing and position it.
3. WSB 20/25-180/230: Remove the two plugs (2) and guide them through the housing and position them.

i INFORMATION

The locking mechanism must engage. **

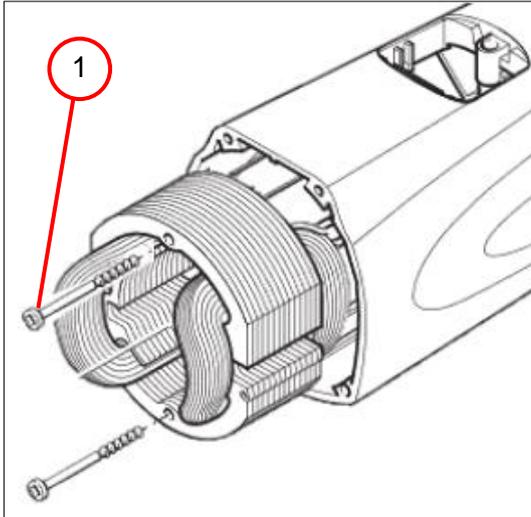


4. Twist the cables (3).





Assembly



5. Screw in the two screws [5 x 55 mm] (1) [5 Nm].



6. Position the air guide ring (2).



9.1.2 Assembling the armature

Tools:

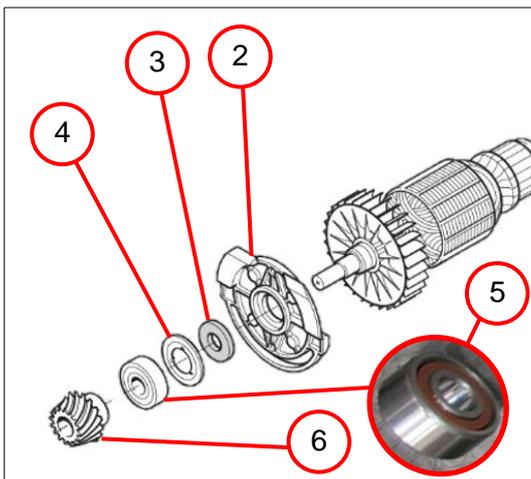
- Arbor press
- Sleeve, 10 mm inner diameter
- Sleeve, 13 mm inner diameter



1. Press on the deep groove ball bearing (1).

i INFORMATION

Ensure that the deep groove ball bearing (1) is in the correct position. The plain side (no lettering) must face the collector.



2. Position the plate (2).

i INFORMATION

Ensure that the plate (2) is in the correct position.

3. Apply oil to the felt ring (3).
4. Position the felt ring (3).
5. Position the washer (4).

i INFORMATION

Ensure that the washer (4) is in the correct position with the tothing towards the felt ring (3).

6. Press on the grooved ball bearing (5).

i INFORMATION

Ensure that the deep groove ball bearing (5) is in the correct position. The side with brown cover towards the washer (4).

7. Press on the pinion (6).

i INFORMATION

Pre-heat the pinion. Ensure that it is in the correct position.



8. Position the bushing (7).

i INFORMATION

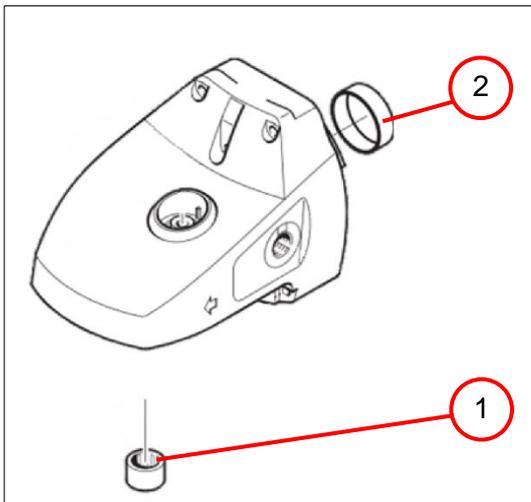
Apply oil to the bushing (7).

9.2 Assembling the gearbox housing WSG 20/25-180/230

9.2.1 Positioning the housing components

Tools:

- Sleeve, 18 mm outer diameter
- Plastic hammer
- Punch, 8 mm diameter



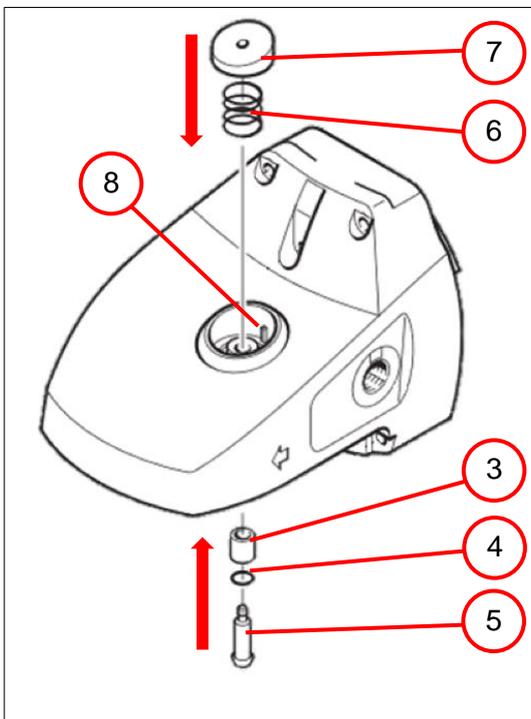
1. Position the needle sleeve (1).

i INFORMATION

Pre-heat the housing.

Align the letter on the needle sleeve (1) with the visible side.

2. Position the bushing (2).
3. Apply oil to the bushing (2).



4. Position the bushing (3).
5. Position the sealing ring (4).
6. Grease the bolt (5).
7. Position the bolt (5).
8. Position the spring (6).
9. Position the pushbutton (7).

i INFORMATION

Ensure that it is in the correct position.

Align the pushbutton (7) with the guide plate (8).

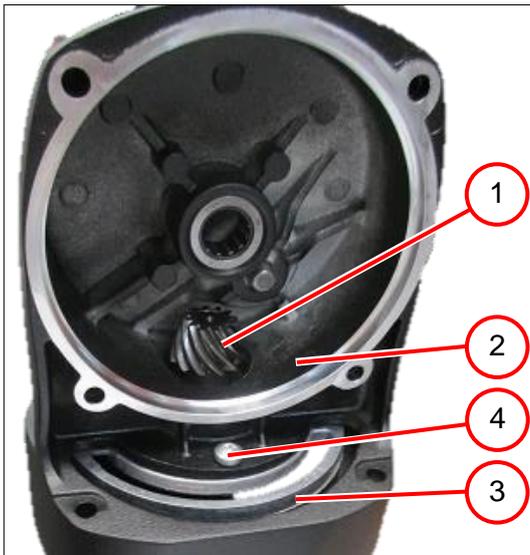
9.2.2 Positioning the armature

Steps that must be completed:

- Assembling the armature
- Positioning the housing components

Tools:

- Torx T20



1. Position the armature (1) in the gearbox housing (2).

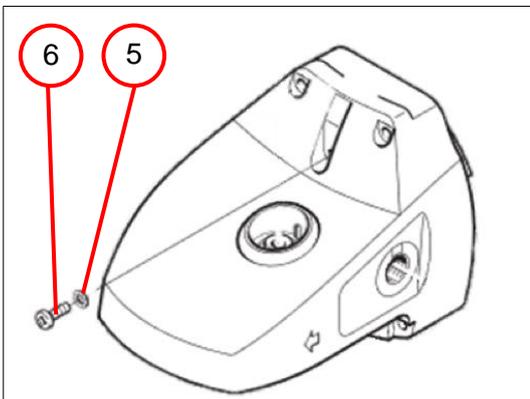
i INFORMATION

Ensure the plate (3) is in the correct position.

2. Screw in the screw (4) with a washer [1.2 Nm].

i INFORMATION

Use a new washer.



3. Position the washer (5).

i INFORMATION

Use a new washer.

4. Screw in the screw (6) [1.2 Nm].

9.2.3 Positioning the gearbox housing

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature

Tools:

- PH2
- Plastic hammer



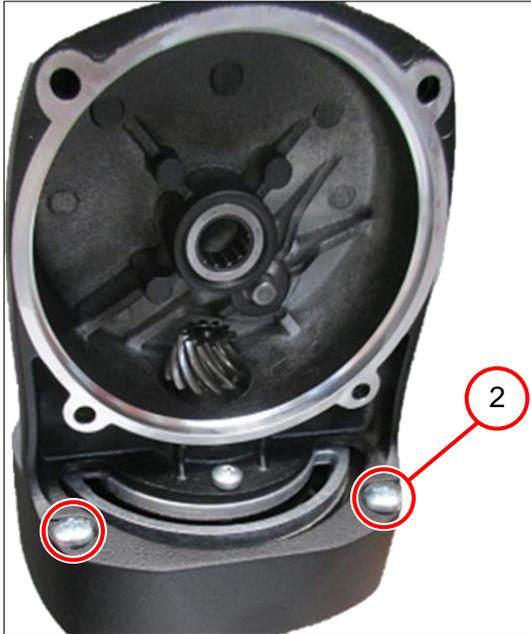
1. Position the air guide ring (1).

 INFORMATION

Ensure that it is in the correct position.



2. Position the armature (2) in the motor housing (3).



3. Position the two screws [5 x 50] (2).



4. Position the two screws [5 x 40] (3).

i INFORMATION

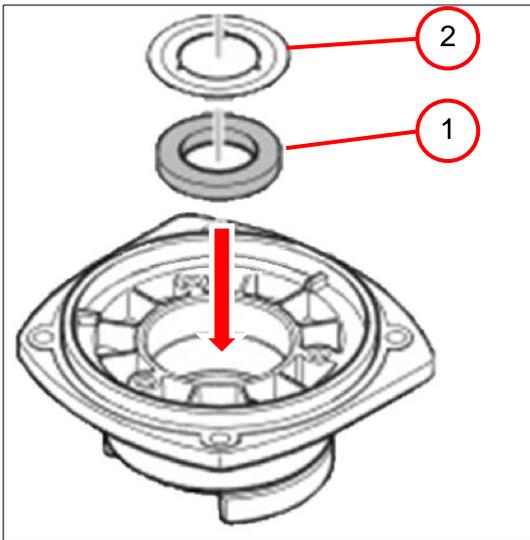
Screw in the screws (2) + (3) crosswise [3.1 Nm].



9.2.4 Assembling the bearing plate

Tools:

- Arbor press
- Torx T20
- Punch, 10 mm
- Sleeve, 39 mm outer diameter
- Sleeve, 18 mm inner diameter



1. Apply oil to the felt ring (1).
2. Position the felt ring (1).
3. Position the washer (2).

i INFORMATION

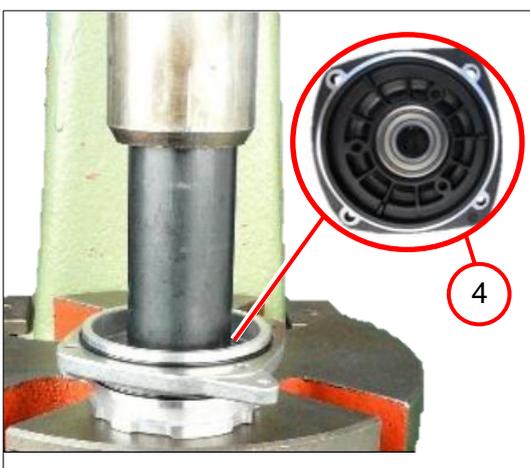
Ensure that the washer (2) is in the correct position. The tothing points to the felt ring (1).



4. Grease the grooved ball bearing (3).

i INFORMATION

Used a new grooved ball bearing.



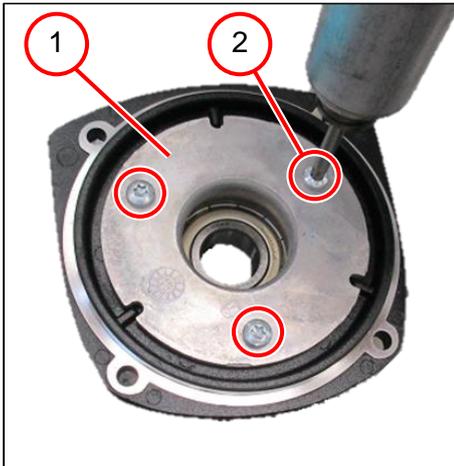
5. Press in the grooved ball bearing (4).

i INFORMATION

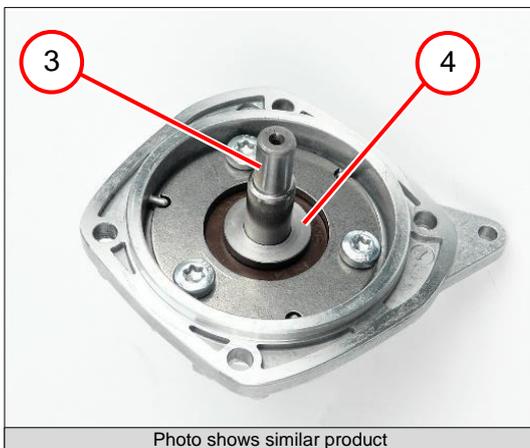
Ensure that the deep groove ball bearing (4) is in the correct position with the open side facing the washer (2).



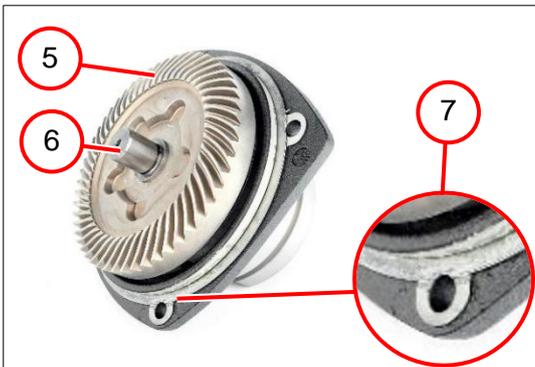
Assembly



6. Position the plate (1).
7. Screw in the three screws (2) [1.3 N].



8. Press in the shaft (3).
9. Position the ring (4).



10. Press the gearwheel (5) onto the shaft (6).
11. Position the washer (7).

i INFORMATION

Ensure the washer is in the correct position in relation to the holes (7).

12. Apply Loctite to the washer (7).



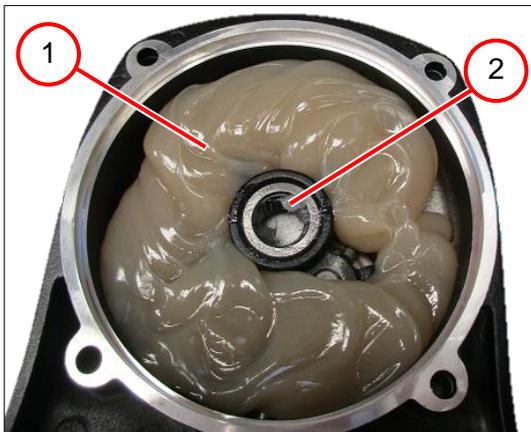
9.2.5 Positioning the bearing plate

Steps that must be completed:

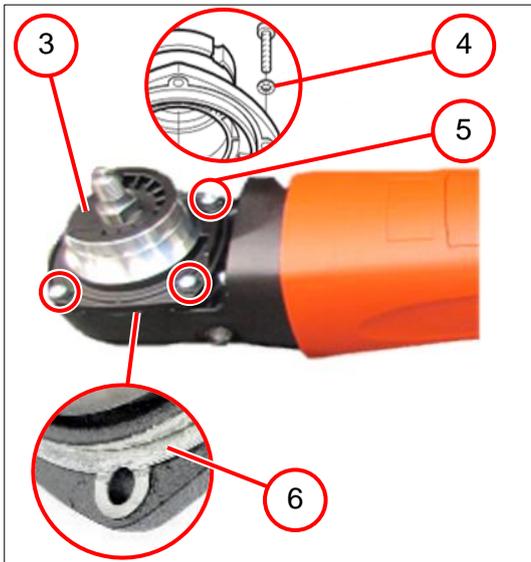
- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Fitting the gearbox housing
- Assembling the bearing plate

Tools:

- Torx T20



1. Fill with 70 g of grease (1).
2. Grease the needle bearing (2).



3. Position the bearing plate (3).
4. Position the four washers (4).

i INFORMATION

Use new washers (4).

5. Screw in the four screws (5) [4.1 Nm].
6. Check the backlash.

i INFORMATION

Adjust with shims (6), if needed, and repeat steps 3 to 5.

7. Apply Loctite to the ring (6).
8. Repeat steps 3 to 5.



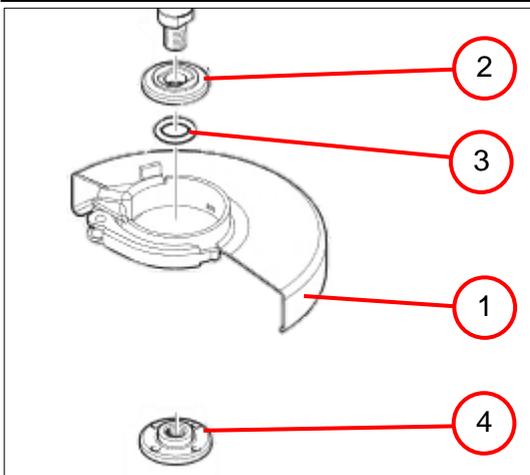
9.2.6 Positioning the threaded flange

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Fitting the gearbox housing
- Assembling the bearing plate
- Positioning the bearing plate

Tools:

- Pin-type face wrench



1. Position the safety hood (1).
2. Position the internal flange (2).
3. Position the sealing ring (3).
4. Position the threaded flange (4).

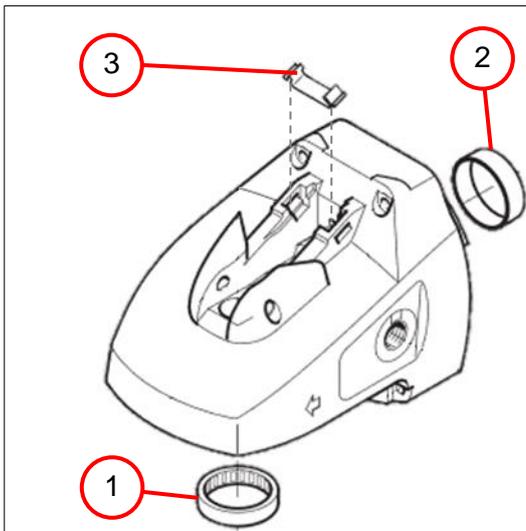


9.3 Assembling the gearbox housing WSB 20/25-180/230

9.3.1 Positioning the housing components

Tools:

- Sleeve, 34 mm outer diameter
- Slotted screwdriver
- Punch, 2 mm

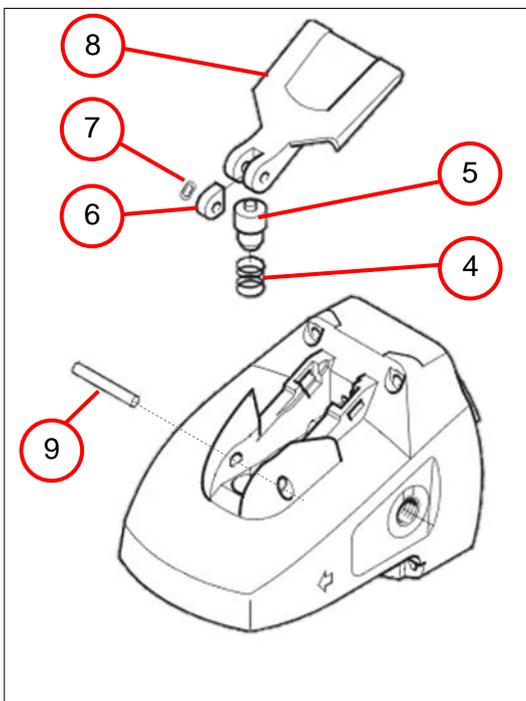


1. Position the needle sleeve (1).

i INFORMATION

Heat the housing.
Align the letter with the visible side.

2. Position the bushing (2).
3. Apply oil to the bushing (2).
4. Position the locking spring (3).



5. Position the spring (4).
6. Position the bolt (5).
7. Lightly grease the eccentric ring (6).
8. Position the eccentric ring (6).

i INFORMATION

Ensure that the eccentric ring (6) is in the correct position.
Align the hole downwards.

9. Position the washer (7).
10. Position the lever (8).
11. Position the bolt (9).

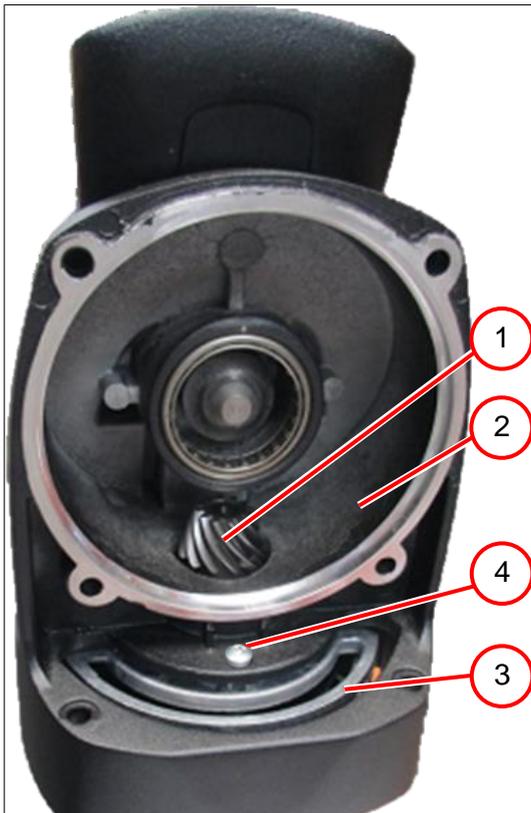
9.3.2 Positioning the armature

Steps that must be completed:

- Assembling the armature
- Positioning the housing components

Tools:

- Cross-head screwdriver



1. Position the armature (1) in the gearbox housing (2).

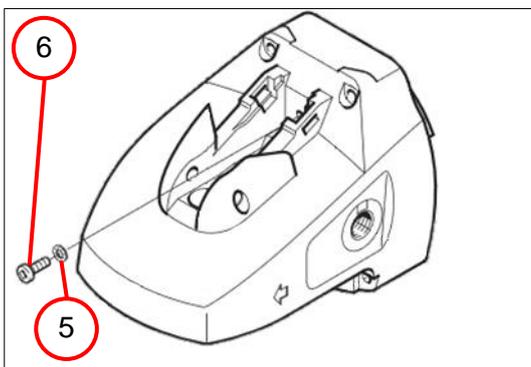
INFORMATION

Ensure the plate (3) is in the correct position.

2. Screw in the screw (4) with a washer [1.2 Nm].

INFORMATION

Use a new washer.



3. Position the washer (5).

INFORMATION

Use a new washer.

4. Screw in the screw (6) [1.2 Nm].

9.3.3 Positioning the gearbox housing

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature

Tools:

- Torx T25
- Plastic hammer



1. Position the air guide ring (1).



2. Position the armature (2) in the motor housing (3).



3. Position the two screws [5 x 50] (1).



4. Position the two screws [5 x 40] (2).

i **INFORMATION**

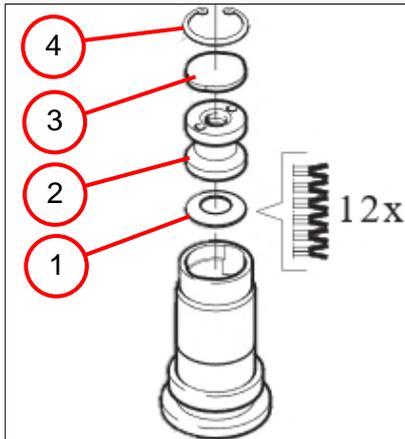
Screw in the screws (1) + (2) crosswise [3.1 Nm].



9.3.4 Assembling the shaft

Tool(s):

- Circlip pliers
- Arbor press
- Punch, 10 mm



1. Remove the twelve disc springs (1).

***i* INFORMATION**

Ensure that it is in the correct position.

2. Position the pressure piece (2).
3. Position the washer (3).
4. Position the circlip (4).

***i* INFORMATION**

Press down on the washer (3).

***!* CAUTION!**

The spring is under tension.

Risk of injury.

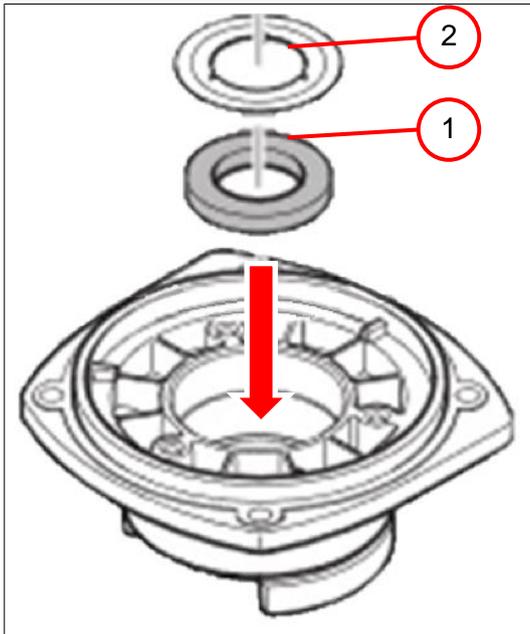
Ensure the punch does not slip.



9.3.5 Assembling the bearing plate

Tools:

- Arbor press
- Sleeve, 54 mm outer diameter
- Sleeve, 31 mm inner diameter



1. Apply oil to the felt ring (1).
2. Position the felt ring (1).
3. Position the washer (2).

i INFORMATION

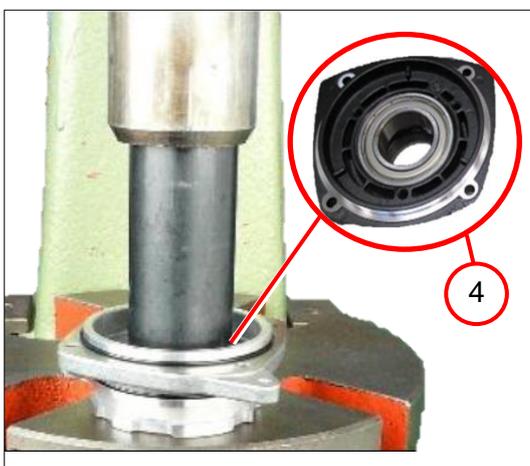
Ensure that the washer (2) is in the correct position. The tothing points to the felt ring (1).



4. Grease the grooved ball bearing (3).

i INFORMATION

Used a new grooved ball bearing.



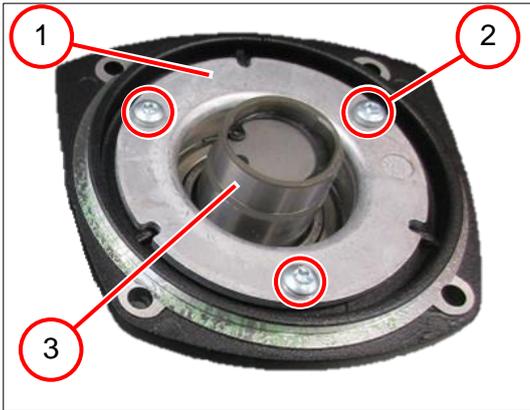
5. Press in the grooved ball bearing (4).

i INFORMATION

Ensure that the deep groove ball bearing (4) is in the correct position with the open side facing the washer (2).



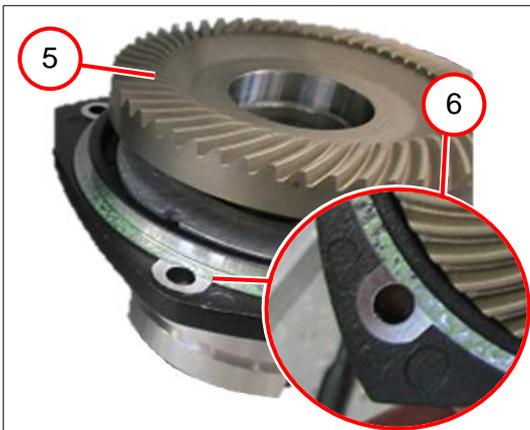
Assembly



6. Position the plate (1).
7. Screw in the three screws (2) [1.3 N].
8. Press in the shaft (3).



9. Position the ring (4).



10. Press on the gearwheel (5).
11. Position the washer (6).

i INFORMATION

Ensure the washer is in the correct position in relation to the holes.

12. Apply Loctite to the washer (6).



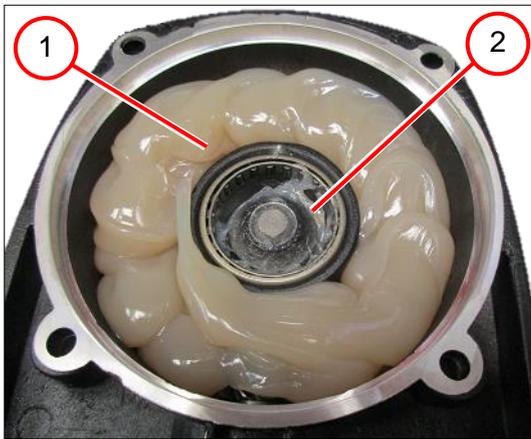
9.3.6 Positioning the bearing plate

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Positioning the gearbox housing
- Assembling the shaft
- Assembling the bearing plate

Tools:

- Torx T20



1. Fill with 70 g of grease (1).
2. Grease the needle bearing (2).



3. Position the bearing plate (3).
4. Position the four washers (4).
5. Screw in the four screws (5) [4.1 Nm].

i INFORMATION

Screw in the screws crosswise.

6. Check the backlash.

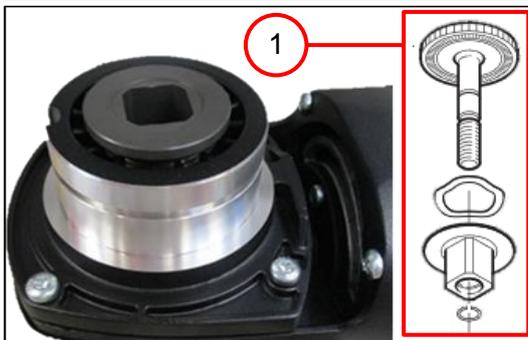
i INFORMATION

Adjust with shims, if needed, and repeat steps 3 to 5.

9.3.7 Positioning the clamping unit

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Positioning the gearbox housing
- Assembling the shaft
- Assembling the bearing plate
- Positioning the bearing plate



1. Positioning the clamping unit (1).



2. Closing the lever (2).

9.4 Assembling the housing

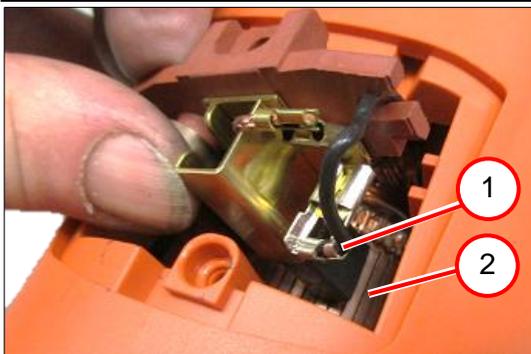
9.4.1 Positioning the carbon brushes

Steps that must be completed:

- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Positioning the gearbox housing

Tools:

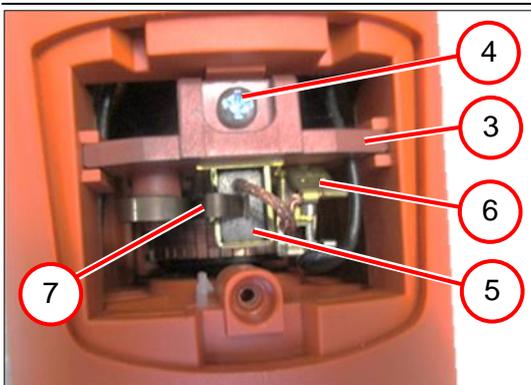
- PH2 cross-head screwdriver
- Assembly aid



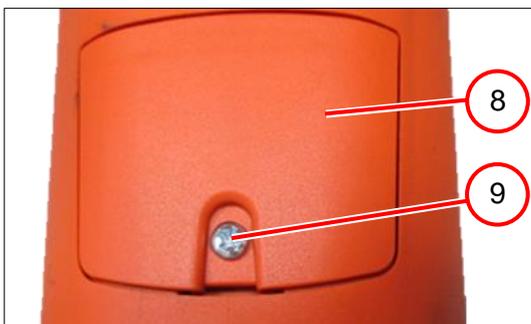
1. Position the cable (1).

! NOTE!

Ensure that the cables are in the correct position. The cable must not touch the collector (2).



2. Position the brush holder (3).
3. Screw in the screw (4) [1.25 Nm].
4. Position the carbon brush (5).
5. Position the plug (6).
6. Position the spring (7).



7. Position the cover (8).
8. Screw in the screw (9) [1.25 Nm].
9. Repeat steps 1 to 8 on the opposite side of the machine.

i INFORMATION

WSG 20/25-180/230: two connecting cables.

WSB 20/25-180/230: one connecting cable and one cable with toroidal choke.

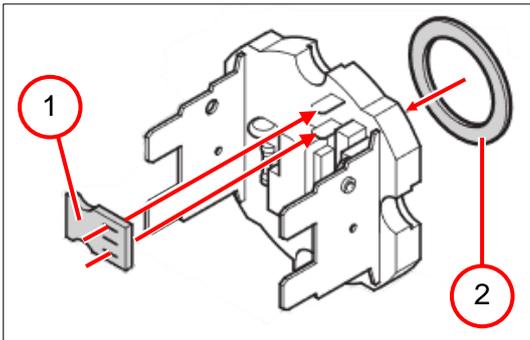
9.4.2 Positioning the electronics WSG 20/25

Steps that must be completed:

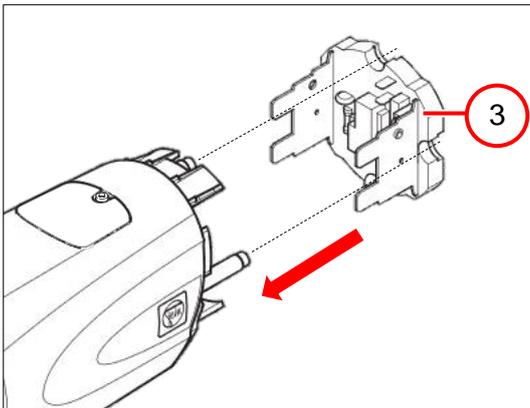
- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Positioning the gearbox housing

Tools:

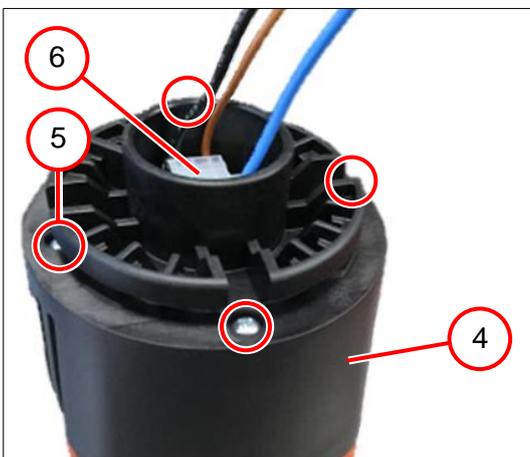
- PH2 cross-head screwdriver



1. Position the pressure piece (1).
2. Position the pressure piece (2).



3. Position the electronics (3).



4. Position the housing (4).
5. Screw in the four screws (5) [1.7 Nm].
6. Position the plug (6).

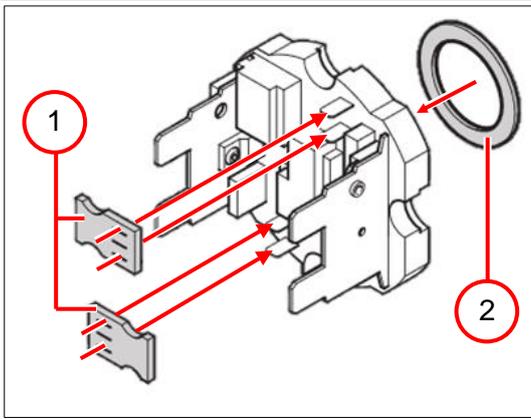
9.4.3 Positioning the electronics WSB 20/25

Steps that must be completed:

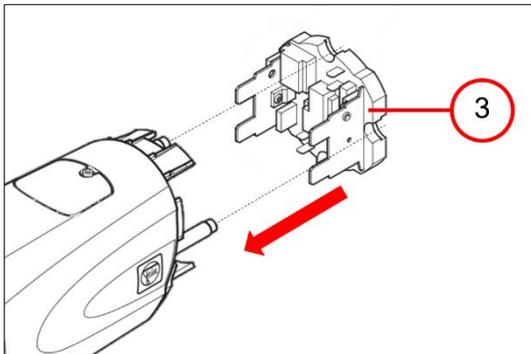
- Assembling the motor
- Positioning the housing components
- Positioning the armature
- Positioning the gearbox housing

Tools:

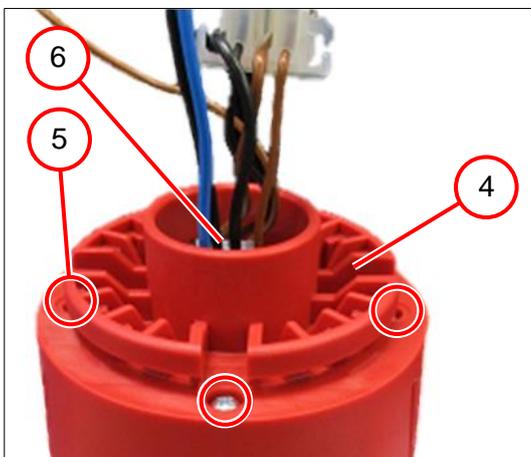
- PH2 cross-head screwdriver



1. Position the two pressure pieces (1).
2. Position the pressure piece (2).



3. Position the electronics (3).



4. Position the housing (4).
5. Screw in the four screws (5) [1.7 Nm].
6. Position the plug (6).

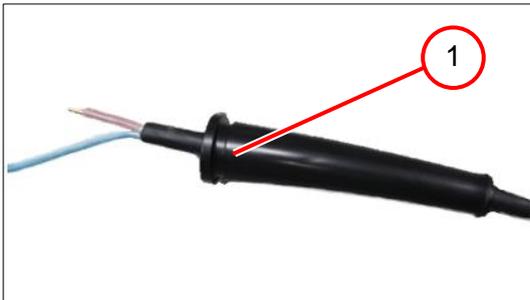
9.4.4 Positioning the network cables

Steps that must be completed:

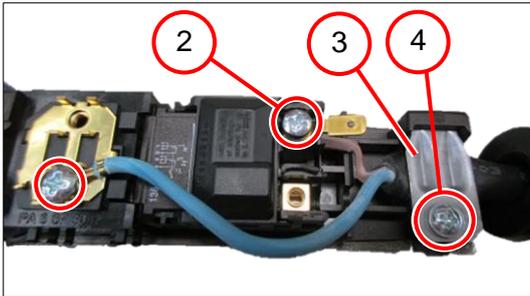
- Assembling the motor
- Assembling the gearbox housing
- Positioning the carbon brushes
- Position electronics

Tools:

- PH2 cross-head screwdriver



1. Position the cable grommet (1).



2. Position the cable ends.
3. Screw in the two screws (2). [0.9 Nm].
4. Position the cable clamp (3).

 INFORMATION

Clamp the cable on the black insulation.

5. Screw in the screw (4) [1.9 Nm].

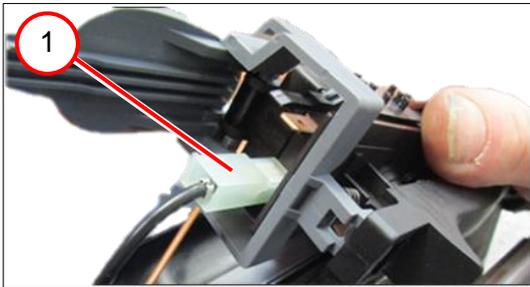
9.4.5 Assembling the switch WSG 20/25

Steps that must be completed:

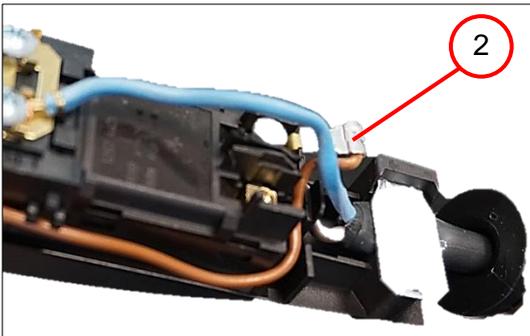
- Assembling the motor
- Assembling the gearbox housing
- Positioning the carbon brushes
- Positioning the network cables
- Position electronics

Tools:

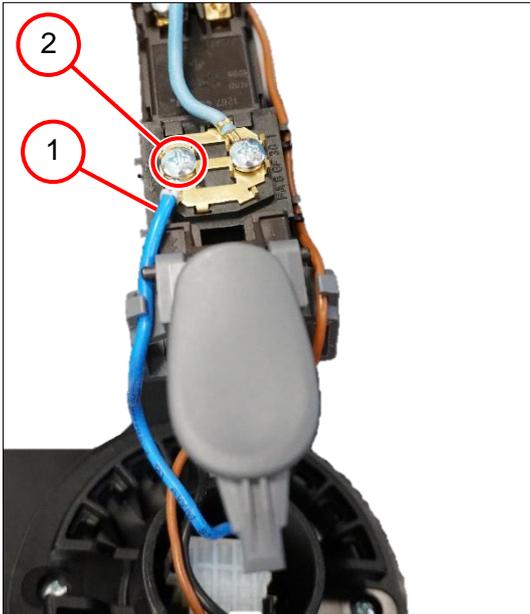
- PH2 cross-head screwdriver



1. Position the plug (1).



2. Position the plug (2).



3. Position the cable (1).
4. Screw in the screw (2) [0.9 Nm].

i INFORMATION

Make sure that the cables are routed correctly.



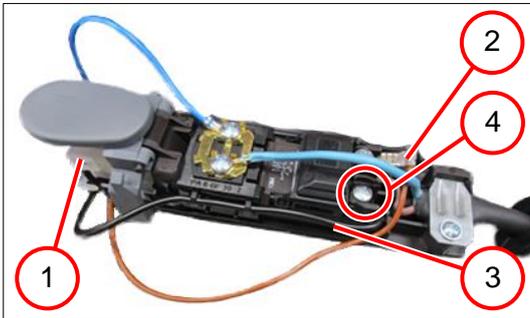
9.4.6 Assembling the switch WSB 20/25

Steps that must be completed:

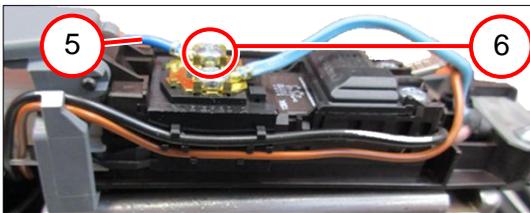
- Assembling the motor
- Assembling the gearbox housing
- Positioning the carbon brushes
- Positioning the network cables
- Position electronics

Tools:

- PH2 cross-head screwdriver



1. Position the plug (1).
2. Position the plug (2).
3. Position the cable (3).
4. Screw in the screw (4) [0.9 Nm].



5. Position the cable (5).
6. Screw in the screw (6) [0.9 Nm].

 INFORMATION

Make sure that the cables are routed correctly.

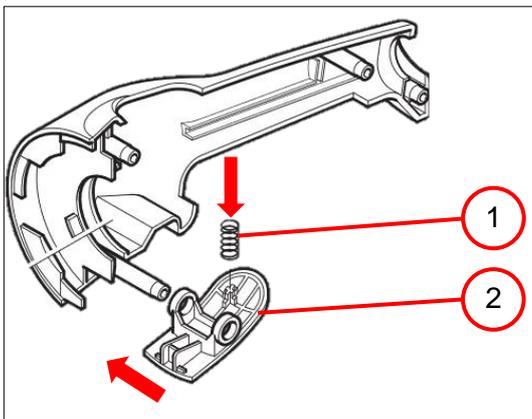
9.4.7 Fitting the handle

Steps that must be completed:

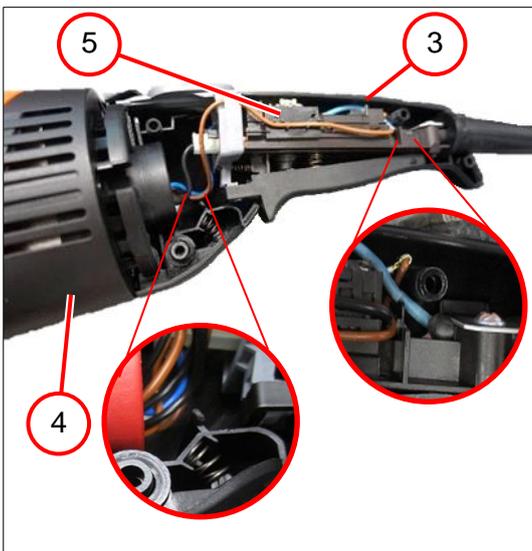
- Assembling the motor
- Assembling the gearbox housing
- Positioning the carbon brushes
- Position electronics
- Positioning the network cables
- Position switch

Tools:

- PH2 cross-head screwdriver



1. Position the spring (1).
2. Position the switch pushbutton (2).



3. Position the lower handle shell half (3) on the housing (4).

 INFORMATION

Turn the handle half shell (3) into position until the switch pushbutton (2) audibly engages. *Click* 



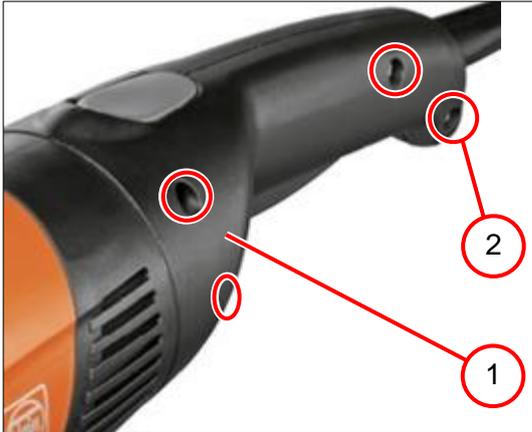
4. Position the switch (5) and the cable grommet.

 INFORMATION

Ensure that the cables are in the correct position.



Assembly



5. Position the upper handle half shell (1).
6. Screw in the four screws (2) [1.4 Nm].

i INFORMATION

Make sure that the cables are routed correctly.





9.5 Assembling the handle and safety hood

Tools:

- None



1. Assemble the safety hood (1).
2. Screw in the handle (2).





Inspection following repairs

10 Inspection following repairs

Always: Visual inspection
Speed check
Perform cutting test in metal

Mains-operated machines: Electrical safety test

If restart lock present: Check restart lock

Check brake Standstill of grinding wheel within 3 seconds after switching off

WSB 20/25-180/230

