Metal core drilling

Repair instructions

Applies to:

KBU 110-4 M; JMU 404 M

Contents

1 Models described

These repair instructions describe how to repair the following models:

Model	Material number
KBU 110-4 M	7 270 60 .. .. .
JMU 404 M	7 270 60 .. .. .

2 Technical data

Technical data

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

Troubleshooting

Troubleshooting for all devices can be found in the FEIN electronic information system.

Specific test specifications and measured values

Up-to-date test data for all devices can be found in the FEIN electronic information system.

Special tools, lubricants and auxiliary substances

The special tools catalogue and the lubricants and container sizes available from FEIN 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

Lists of spare parts and exploded views can be found in the FEIN electronic information system.

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.

INFORMATION
Read the operating instructions for the product before carrying out any repairs.

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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4 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.

5 Safety instructions

5.1 Structure

SIGNAL WORD FOR 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 indicates a dangerous situation. If this situation is not avoided, it may lead to serious or fatal injury.

WARNING!

Type and source of the danger.

Possible consequences.

Measure that must be taken in order to avoid this danger.

Caution

This warning indicates a potentially dangerous situation. If this situation is not avoided, it may lead to slight or minor injury. May also be used as a warning about 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

6 Tools, lubricants and auxiliary substances required

6.1 Standard tools

Cross-tip screwdriver	PH2
Torx	T15; T20
Socket wrench	13 mm
Socket head wrench set	
Socket head wrench with pin	5 mm
Circlip pliers	
Plastic hammer	
Arbor press	
Side-cutting pliers	
Punch	1 mm; 2 mm
Magnet	
Inner bearing puller set	
Slide hammer	
Socket wrench	
Socket wrench insert	7 mm
Open-ended spanner	19 mm
Sleeve	78 mm inner diameter
	55 mm inner diameter
	16 mm outer diameter

6.2 Special tools

Drawing-off socket cap		6 41 04 150 00 0
Chuck cone	26 mm diameter	6 41 07 026 00 0
	32 mm diameter	6 41 07 032 00 0

6.3 Lubricants and auxiliary substances required

Grease	0 40 132 0300 0	500 g	Gearbox
Grease	0 40 128 0300 0	10 g	Guides, seals
Loctite 242			

7 Test and diagnosis options

The **BMPB2** drill motor test box diagnosis tool

can be used for the models listed in these repair instructions.

The **BMPB2** drill motor test box can help with error diagnosis.

More detailed information can be found in the FEIN electronic information system.

8 Disassembly

8.1 Disassembling the drill jig

8.1.1 Removing the container

INFORMATION

Tip

Fluid may be present in the container.

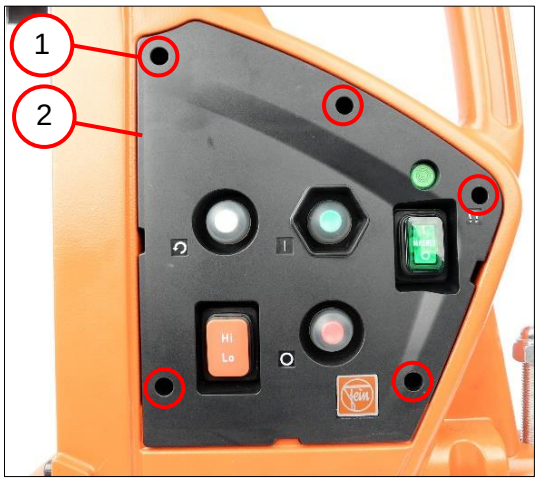
- Always drain the container (**1**) before disassembly.

1. Remove the container (**1**).
2. Remove the hose (**2**) from the hose socket.

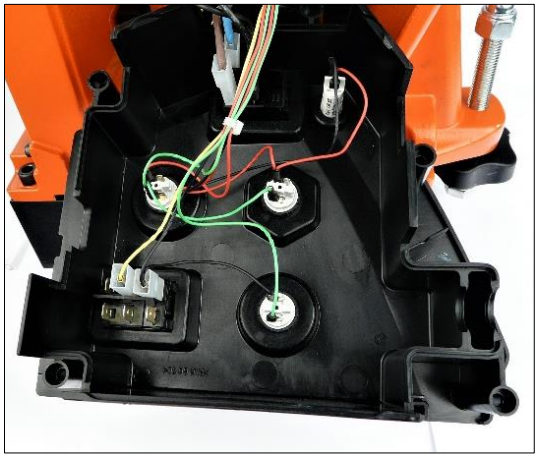
8.1.2 Removing the switches

Tools:

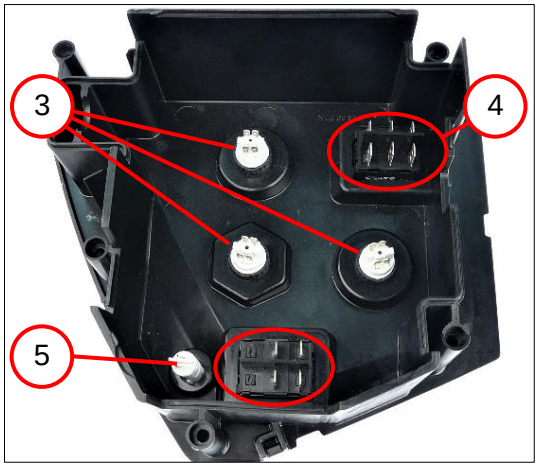
- Torx T15



1. Unscrew the five screws (**1**).
2. Remove the cover (**2**).



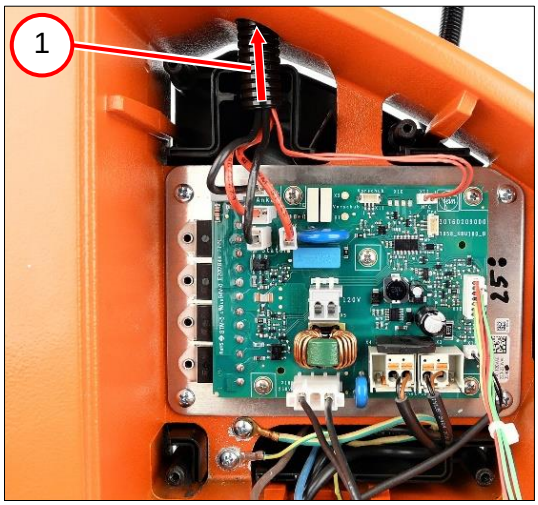
3. Remove all connectors.



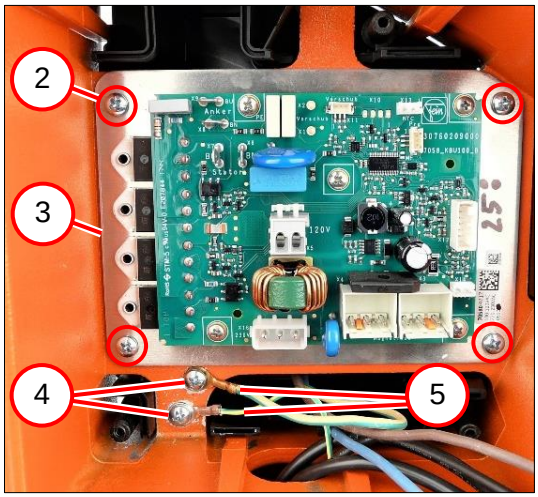
4. Remove the three buttons (**3**).
5. Remove the two switches (**4**).
6. Remove the LED (**5**).

8.1.3 Removing the electronics

Steps that must be completed: - Removing the switches
Tools: - PH2 cross-tip screwdriver



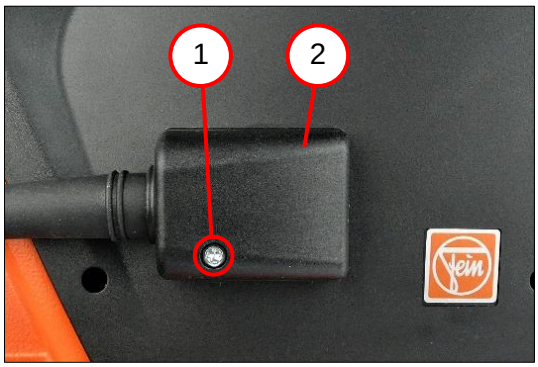
1. Remove all connectors.
2. Remove the protective hose (**1**).



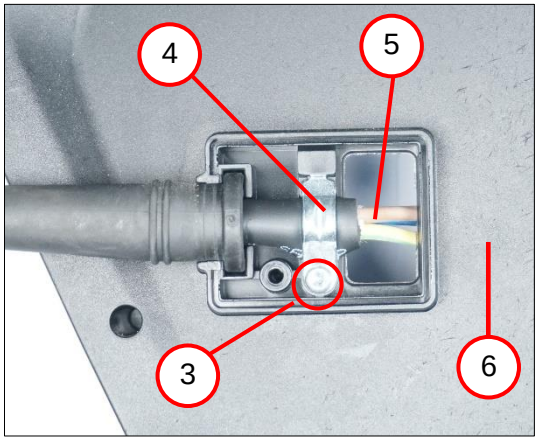
3. Remove the four screws (**2**).
4. Remove the electronics (**3**).
5. Unscrew the two screws (**4**).
6. Remove the two cables (**5**).

8.1.4 Removing the network cable

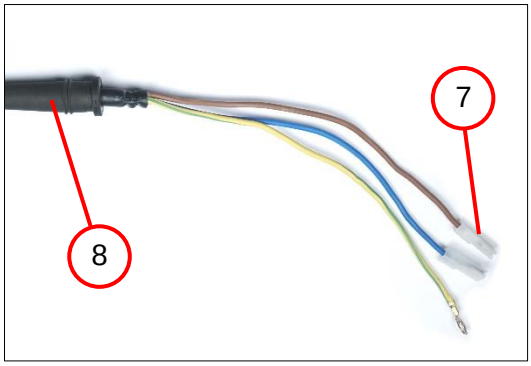
Steps that must be completed: - Removing the electronics
Tools: - Torx T15



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



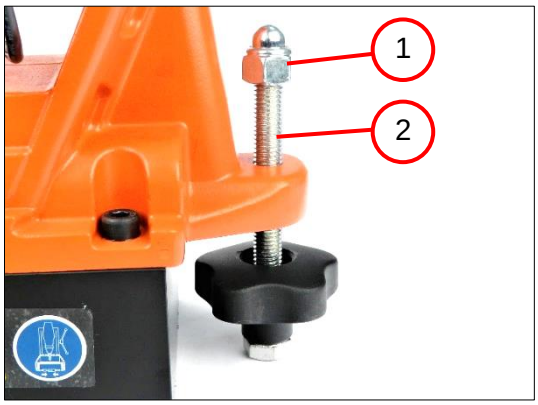
3. Unscrew the screw (**3**).
4. Remove the cable clamping piece (**4**).
5. Remove the cables (**5**).
6. Remove the cover (**6**).



7. Remove the two protective caps (**7**).
8. Remove the protective hose (**8**).

8.1.5 Removing the magnetic foot

Steps that must be completed: - Removing the electronics
Tools: - Socket head wrench, 6 mm



1. Unscrew the nut (**1**).
2. Unscrew the screw (**2**).

3. Unscrew the two cylinder head screws [M8x22] (**3**).
4. Repeat step 3 on the opposite side of the machine.
5. Remove the magnetic foot (**4**).

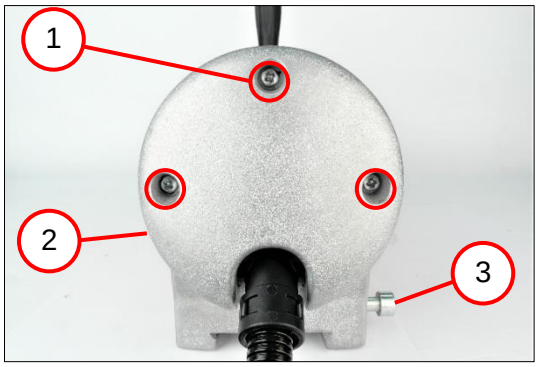
8.1.6 Removing the protective hose

Steps that must be completed:

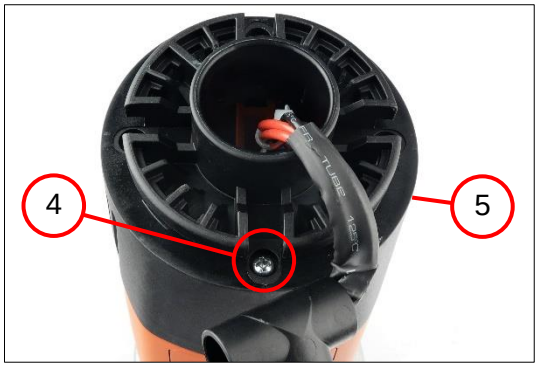
- Removing the electronics

Tools:

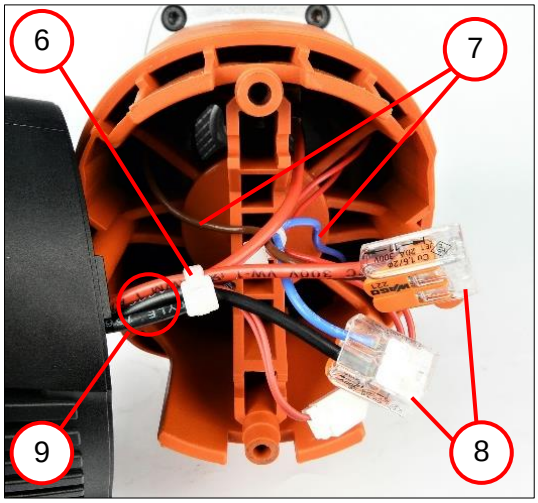
- Torx T20
- PH2 cross-tip screwdriver
- Socket head wrench, 6 mm
- Side-cutting pliers



1. Unscrew the three screws (**1**).
2. Remove the cover (**2**).
3. Unscrew the screw (**3**).



4. Unscrew the screw (**4**).
5. Remove the housing (**5**).



6. Undo the cable tie (**6**).
7. Remove the two cables (**7**).
8. Remove all connectors.
9. Remove the two terminals (**8**).
10. Remove the protective hose (**9**).

8.1.7 Removing the motor

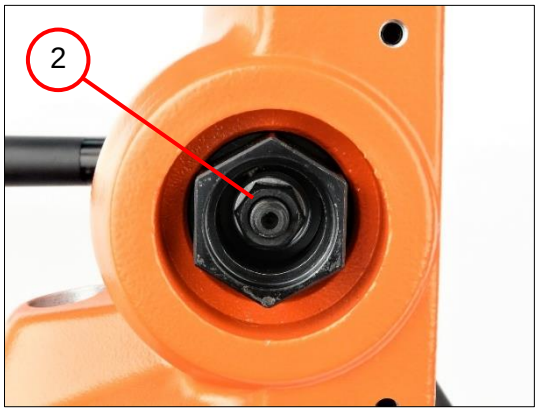
Steps that must be completed: - Removing the electronics - Removing the protective hose
Tools: - Socket head wrench, 6 mm

1. Undo the screw (**1**).
2. Move the drill motor upwards.
3. Lift the motor (**2**) out of the guide.

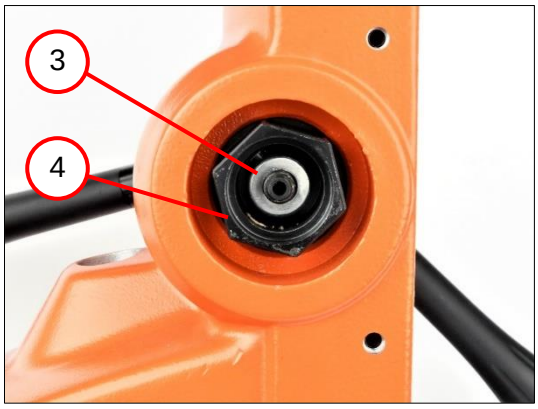
8.1.8 Removing the spider

Steps that must be completed:
- Removing the motor
Tools:
- 13 mm socket wrench

1. Remove the plug (**1**).

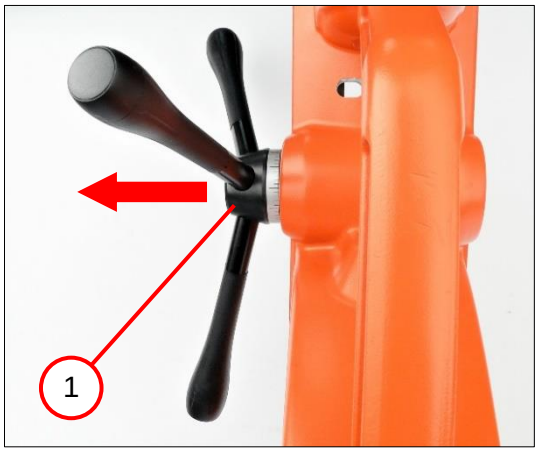


2. Unscrew the hex nut (**2**).

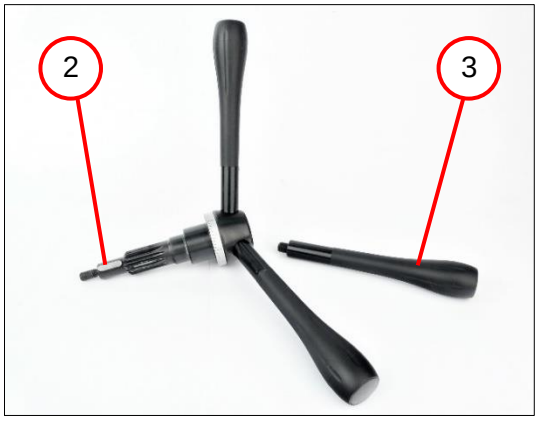


3. Remove the discs and cup springs (**3**).
4. Remove the clutch part (**4**).

8.1.8 Removing the spider



5. Remove the spider (**1**).



6. Remove the feather key (**2**).
7. Unscrew the three handles (**3**).

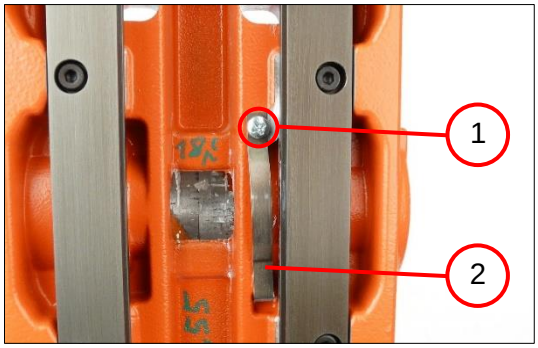
INFORMATION

The bush (**4**) is destroyed during disassembly and must be replaced.

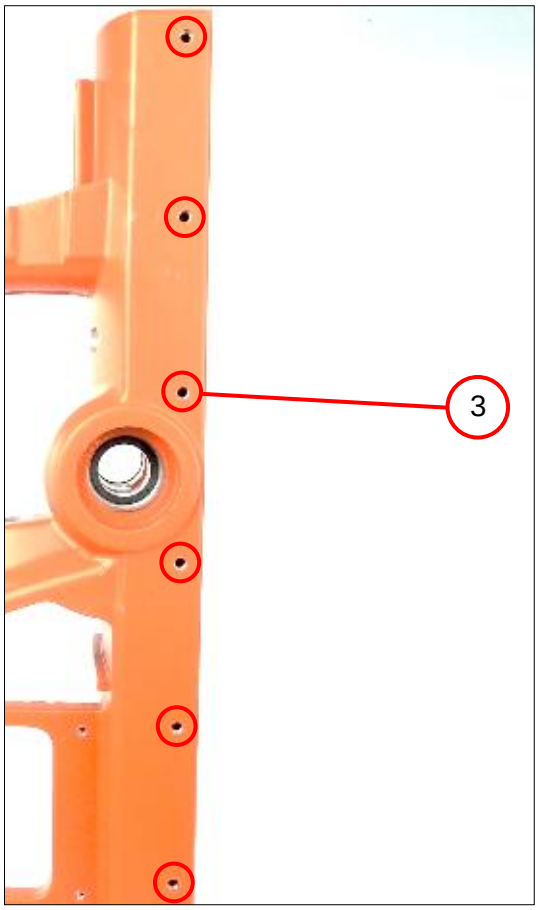
8. Remove the bush (**4**).
9. Repeat step 8 on the opposite side of the machine.

8.1.9 Removing the guide

Steps that must be completed: - Removing the protective hose - Removing the motor
Tools: - PH2 cross-tip screwdriver - 2.5 mm socket head wrench; 5 mm with pin



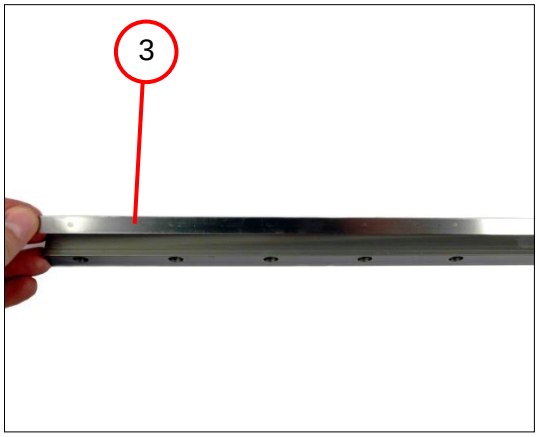
1. Unscrew the screw (**1**).
2. Remove the leaf spring (**2**).



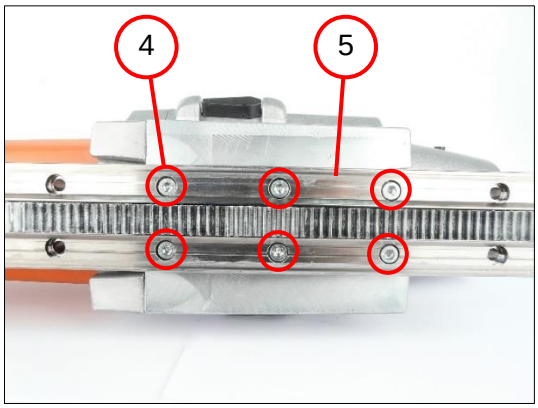
3. Remove the six set screws (**3**).

8.1.9 Removing the guide

4. Unscrew the 14 cylinder head screws (**1**).
5. Remove the two guide strips (**2**).

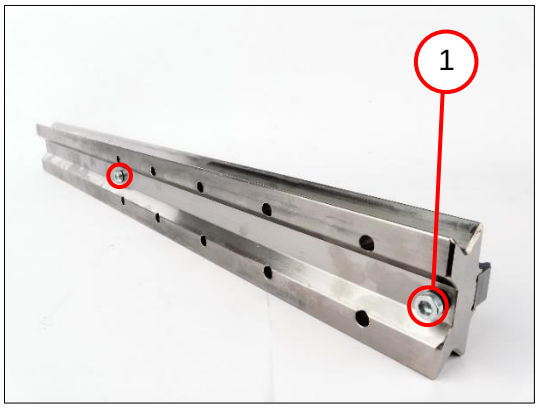


6. Remove the pressure piece (**3**).

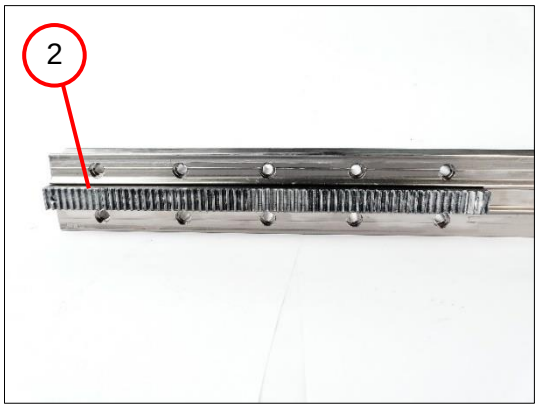


7. Unscrew the six cylinder head screws (**4**).
8. Remove the guide (**5**).

8.1.9 Removing the guide



9. Unscrew the two cylinder head screws (**1**).

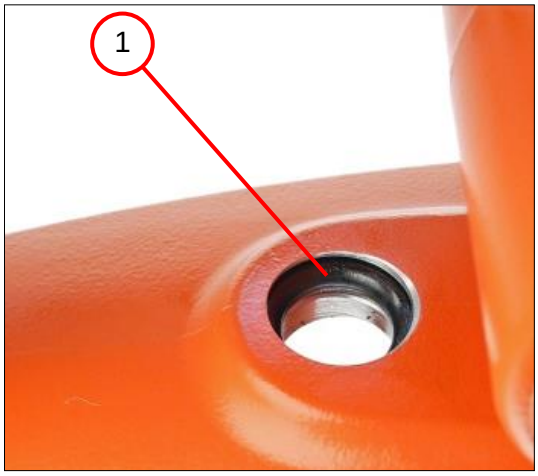


10. Remove gear rack (**2**).

8.1.10 Removing the sealing ring

Steps that must be completed:

- Removing the container
- Removing the protective hose



INFORMATION

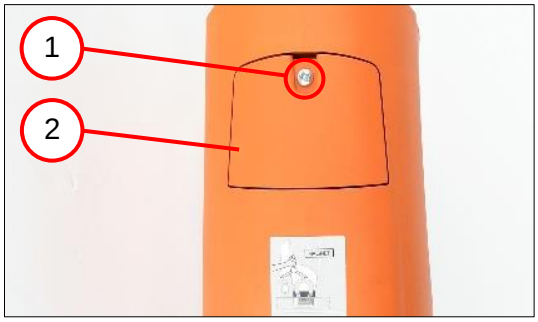
The sealing ring (**1**) is destroyed during disassembly and must be replaced.

1. Remove the sealing ring (**1**).

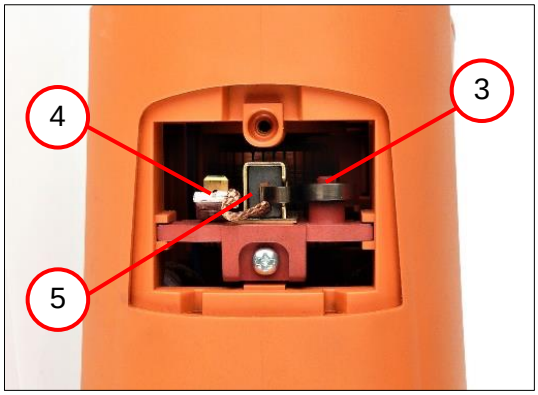
8.2 Disassembling the motor housing

8.2.1 Removing the carbon brushes

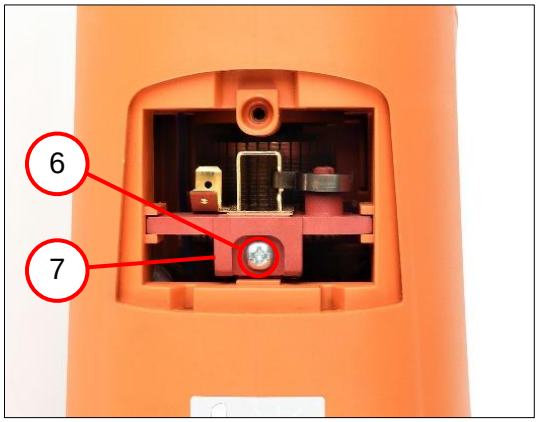
Steps that must be completed: - Removing the protective hose - Removing the guide - Removing the motor
Tools: - PH2 cross-tip screwdriver



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

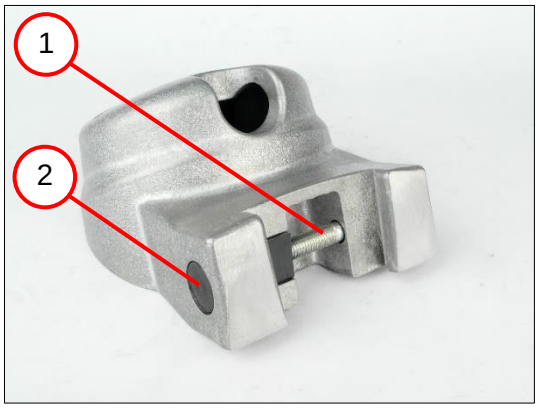


3. Lift up the spring (**3**).
4. Pull off the plug (**4**).
5. Remove the carbon brush (**5**).



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

8.2.2 Removing the bolt



1. Unscrew the cylinder head screws (**1**).
2. Remove the bolt (**2**).

3. Remove the disc (**3**).

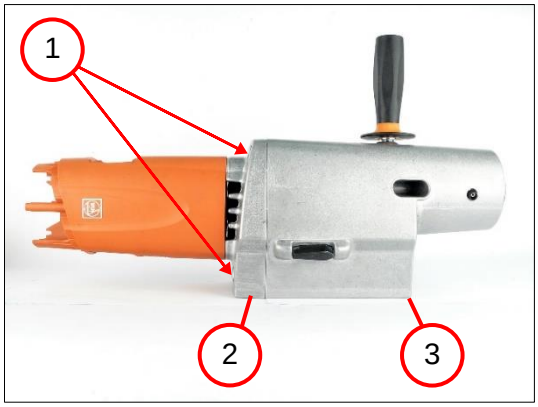
8.2.3 Removing the intermediate gearbox

Steps that must be completed:

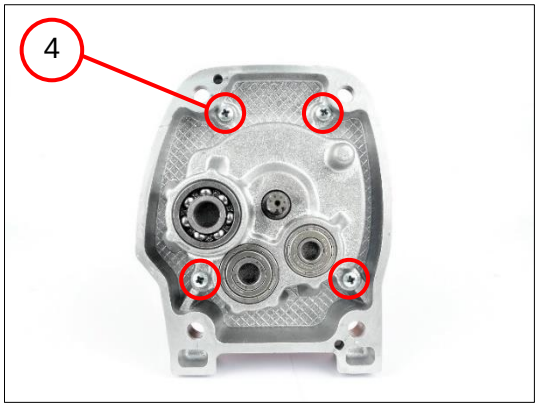
- Removing the carbon brushes
- Removing the guide

Tools:

- 6 mm hexagon socket
- PH2 cross-tip screwdriver



1. Remove the two cylinder head screws (**1**).
2. Repeat step 1 on the opposite side of the machine.
3. Remove the intermediate gearbox (**2**) from the gearbox housing (**3**).



4. Unscrew the four screws (**4**).

5. Remove the intermediate gearbox (**2**) from the motor housing (**5**).

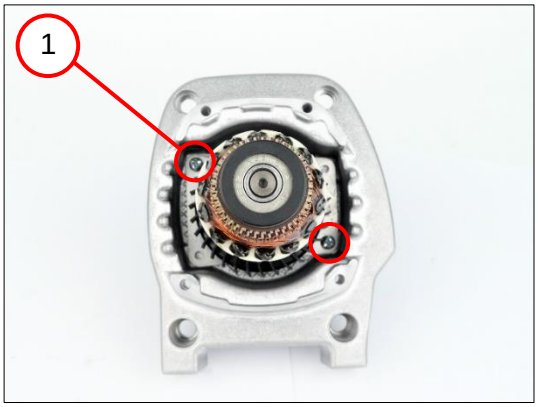
8.2.4 Disassembling the intermediate gearbox

Steps that must be completed:

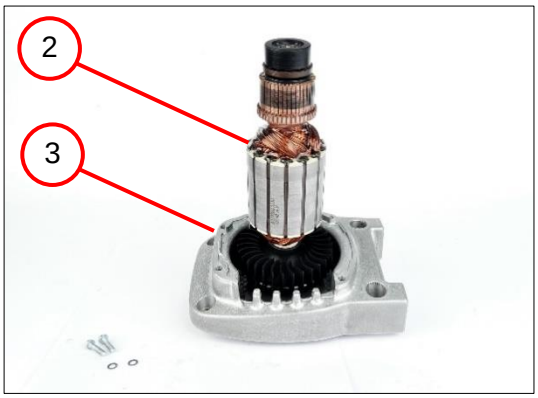
- Removing the carbon brushes
- Removing the guide

Tools:

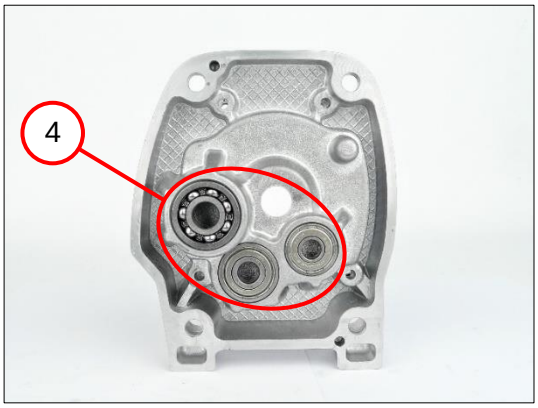
- PH2 cross-tip screwdriver



1. Unscrew the two fillister head screws (**1**).



2. Remove the armature (**2**) from the intermediate gearbox (**3**).



3. Remove the three grooved ball bearings (**4**).

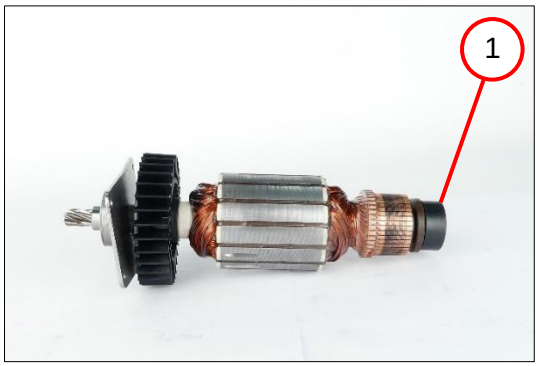
8.2.5 Disassembling the armature

Steps that must be completed:

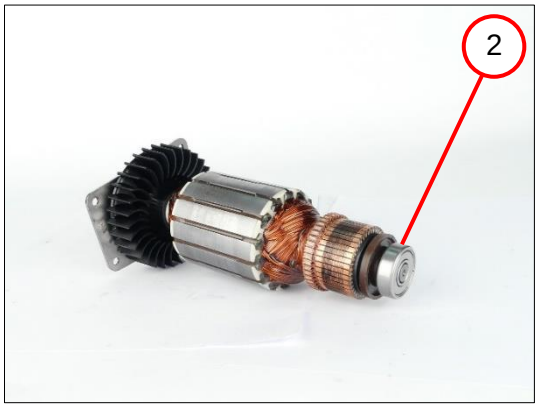
- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox
- Disassembling the intermediate gearbox

Tools:

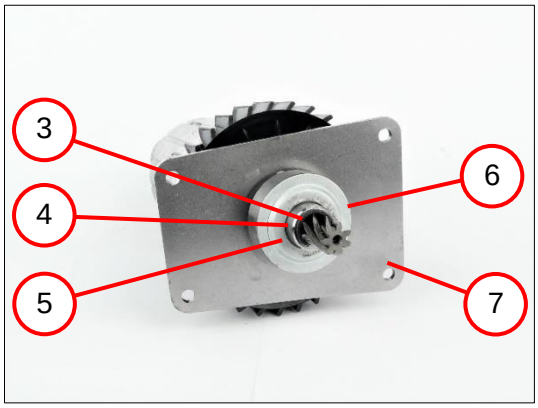
- Drawing-off socket cap
- Chuck cone dia. 26; dia. 32



1. Remove the bush (**1**).



2. Pull off the grooved ball bearing (**2**).

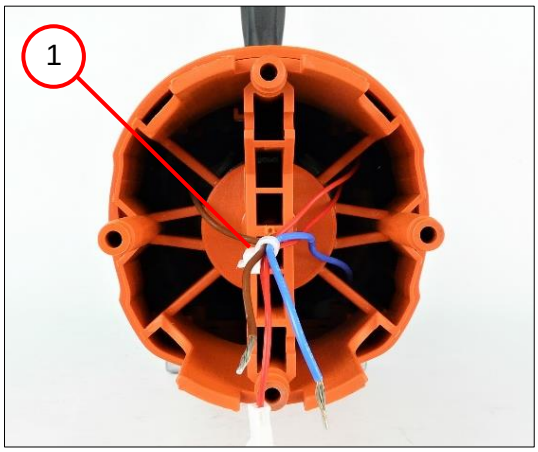


3. Remove the circlip (**3**).
4. Remove the spacer sleeve (**4**).
5. Remove the sealing ring (**5**).
6. Remove the ball bearing (**6**).
7. Remove the plate (**7**).

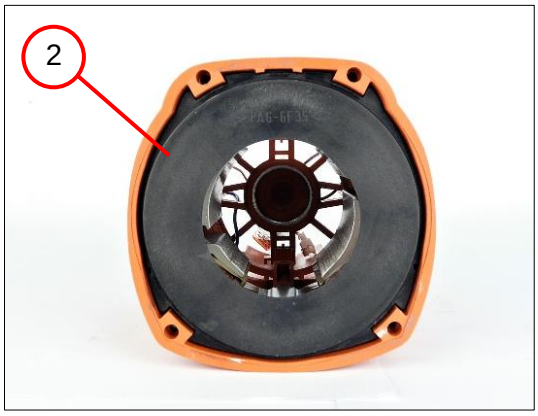
8.2.6 Removing the stator

Tools:

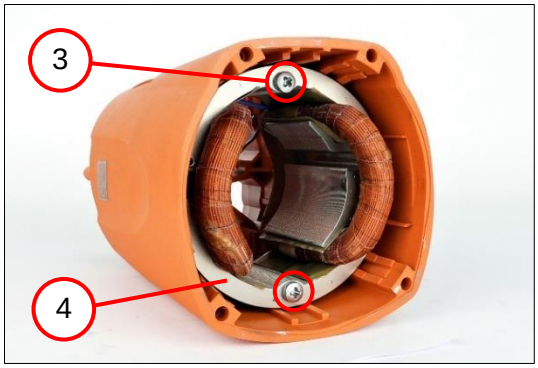
- PH2 cross-tip screwdriver



1. Remove the cable tie (**1**).



2. Remove the air guide ring (**2**).

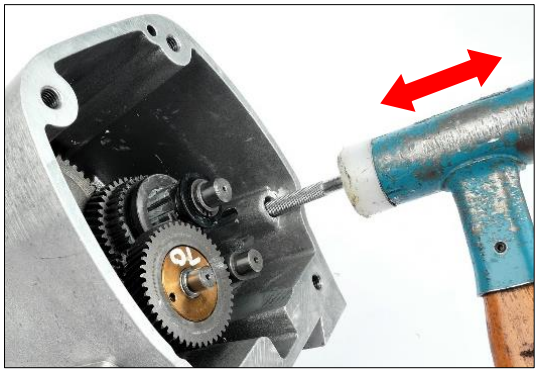


3. Unscrew the two screws (**3**).
4. Remove the stator (**4**).

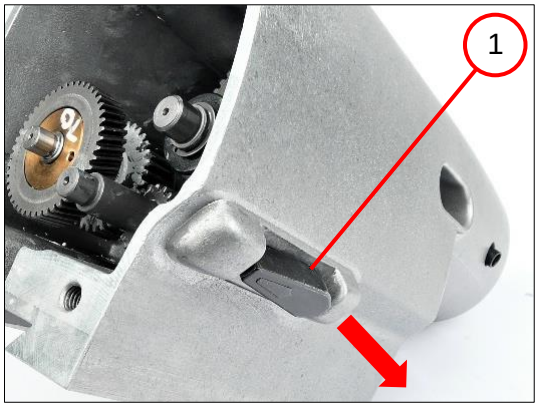
8.3 Disassembling the gearbox housing

8.3.1 Removing the lever

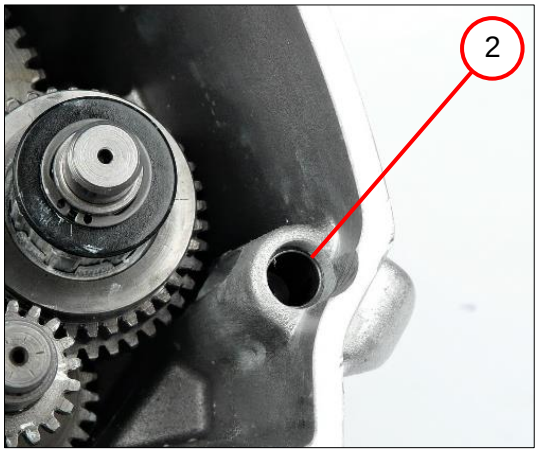
Steps that must be completed: - Removing the guide
Tools: - Punch, 2 mm - Plastic hammer - Magnet



1. Remove the clamping sleeve.

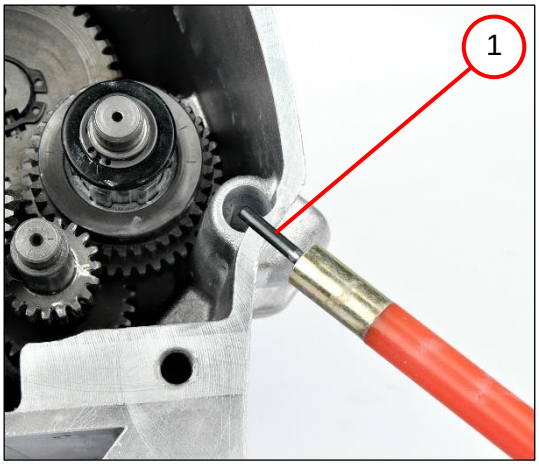


2. Remove the lever (**1**).



3. Remove the bolt (**2**).

8.2.6 Removing the stator

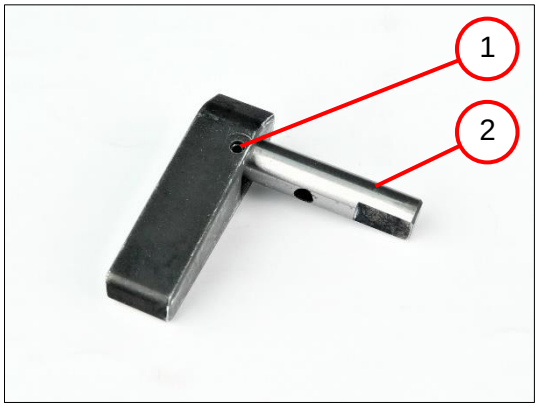


4. Remove the clamping sleeve (**1**).
5. Repeat steps 1 to 4 on the opposite side of the machine.

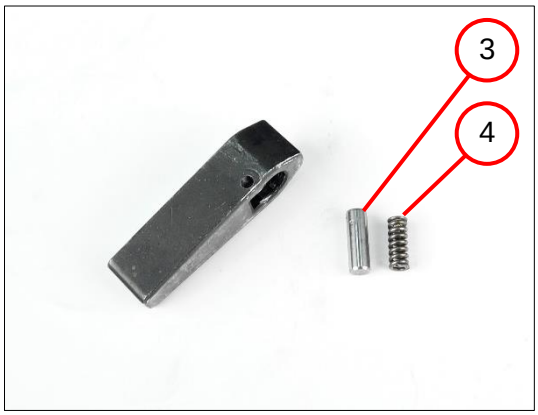
8.3.2 Disassembling the lever

Tools:

- Punch, 1 mm
- Plastic hammer



1. Remove the clamping sleeve (**1**).
2. Remove the bolt (**2**).

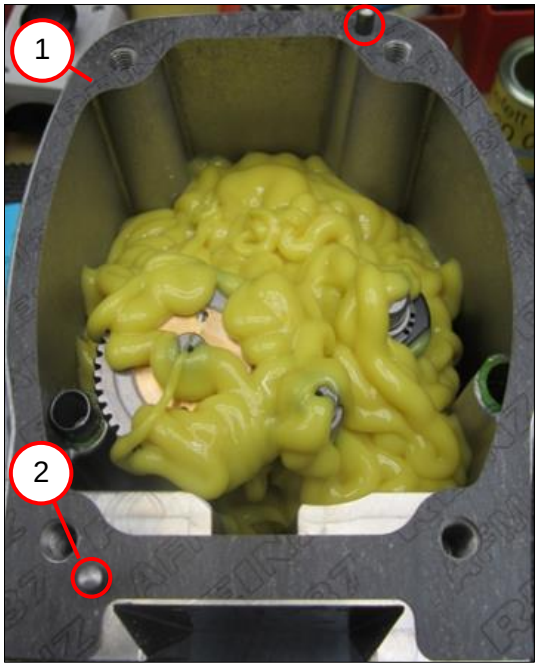


3. Remove the bolt (**3**).
4. Remove the spiral spring (**4**).

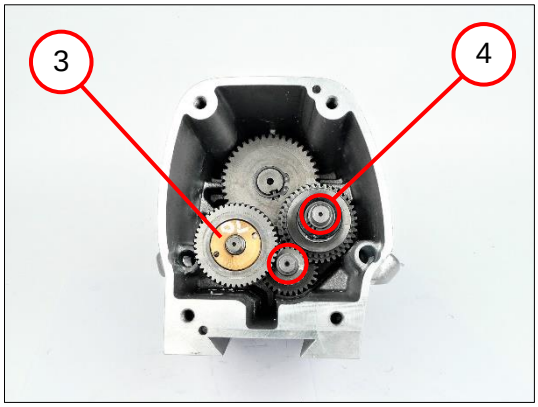
8.3.3 Removing the gearbox parts

Steps that must be completed:

- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox



1. Remove the seal (**1**).
2. Remove the bolt (**2**).



3. Remove clutch (**3**).
4. Remove the two gear wheels (**4**).

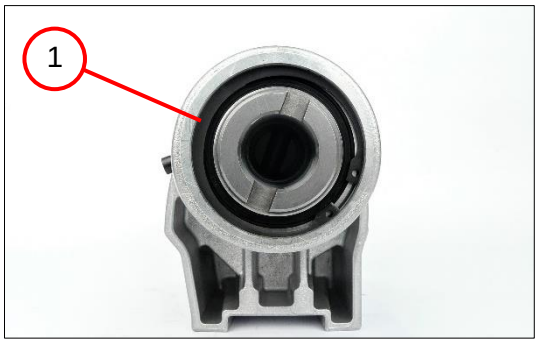
8.3.4 Removing the shaft

Steps that must be completed:

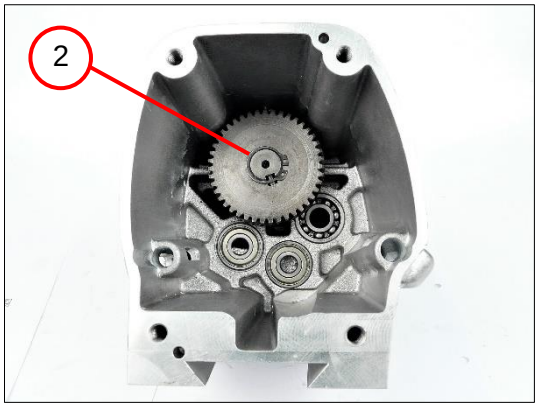
- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox
- Removing the gearbox parts

Tools:

- Circlip pliers
- Arbor press
- Sleeve with 78 mm inner diameter

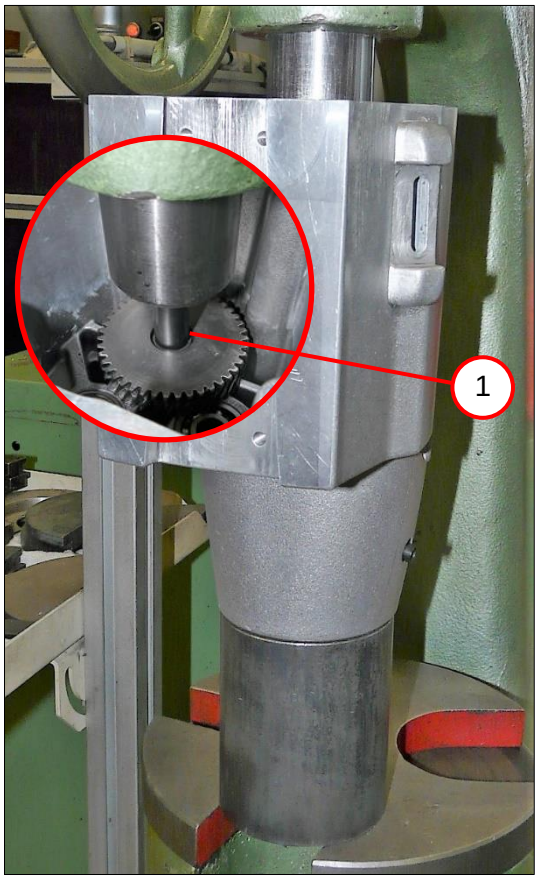


1. Remove the circlip (**1**).

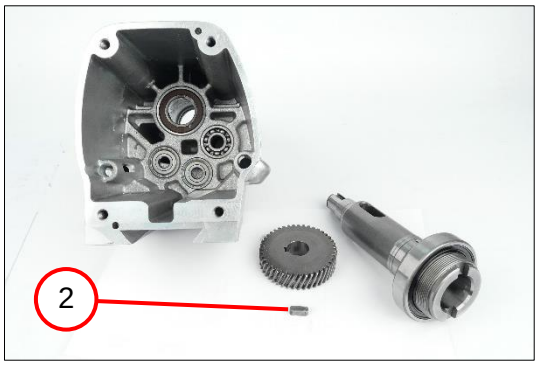


2. Remove the circlip (**2**).
3. Press out the shaft (**3**).

8.3.4 Removing the shaft



4. Press out the shaft (**1**).



5. Remove the feather key (**2**).

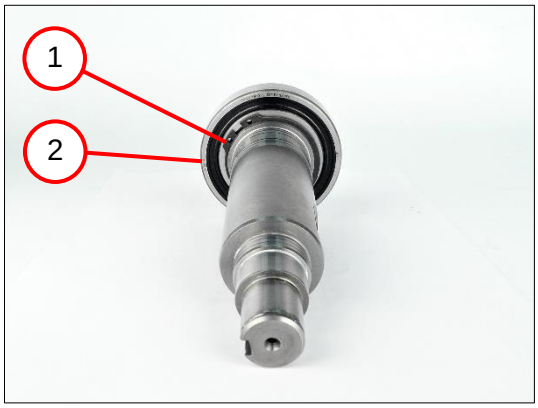
8.3.5 Disassembling the shaft

Steps that must be completed:

- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox
- Removing the gearbox parts
- Removing the shaft

Tools:

- Circlip pliers
- Arbor press
- Sleeve with 55 mm inner diameter



1. Remove the circlip (**1**).
2. Remove the grooved ball bearing (2).

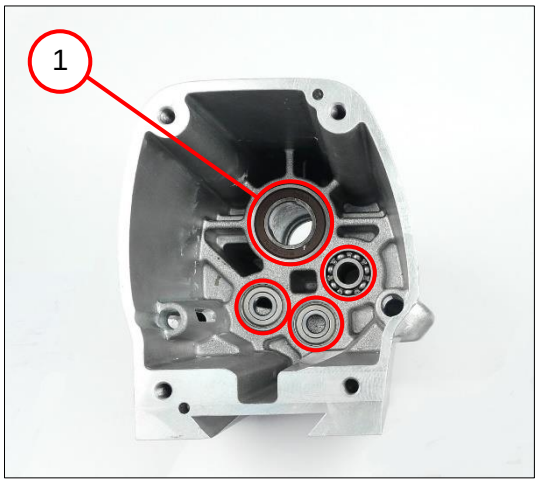
8.3.6 Removing the grooved ball bearings

Steps that must be completed:

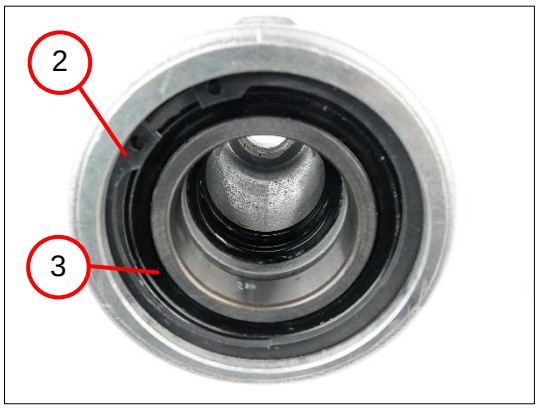
- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox
- Removing the gearbox parts
- Removing the shaft

Tools:

- Circlip pliers
- Inner bearing puller 8–12 mm; 12–16 mm; 25 mm
- Slide hammer



1. Pull off the four grooved ball bearings (**1**).



2. Remove the circlip (**2**).
3. Remove the grooved ball bearing (**3**).

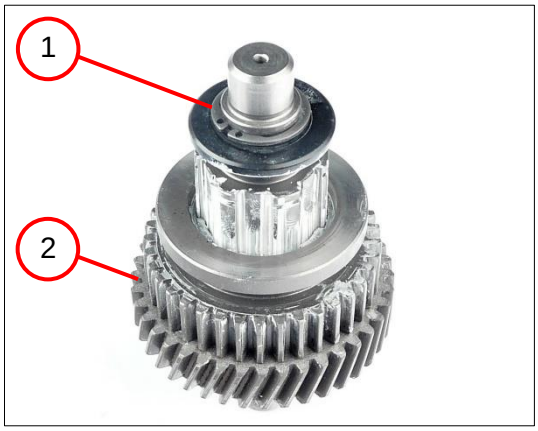
8.3.7 Disassembling the clutch and shafts

Steps that must be completed:

- Removing the carbon brushes
- Removing the guide
- Removing the intermediate gearbox
- Removing the gearbox parts

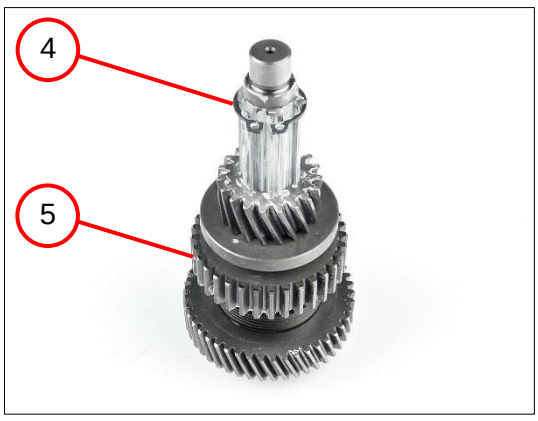
Tools:

- Circlip pliers



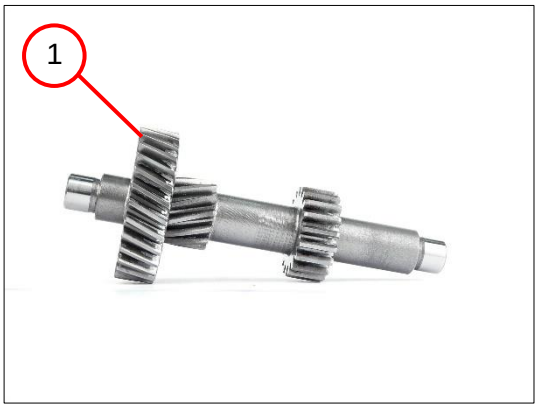
1. Remove the circlip (**1**).
2. Remove the gear wheel (**2**).

3. Remove the circlip (**3**).



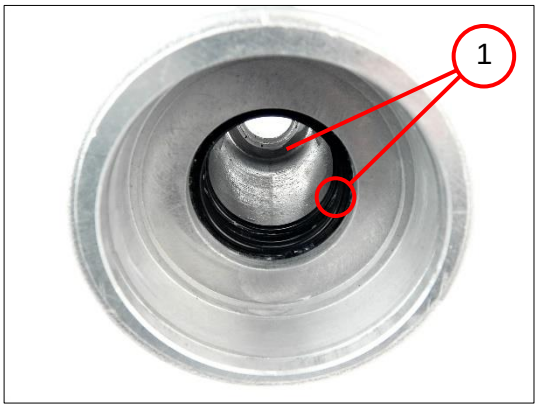
4. Remove the circlip (**4**).
5. Remove the gear wheel (**5**).

8.3.7 Disassembling the clutch and shafts



6. Remove the gear wheel (**1**).

8.3.8 Removing the sealing rings



INFORMATION

Damage to the sealing rings.

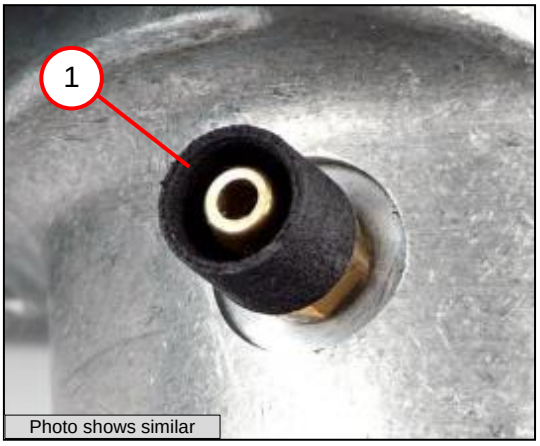
The sealing rings (**1**) are destroyed during disassembly and must be replaced.

1. Remove the three sealing rings (**1**).

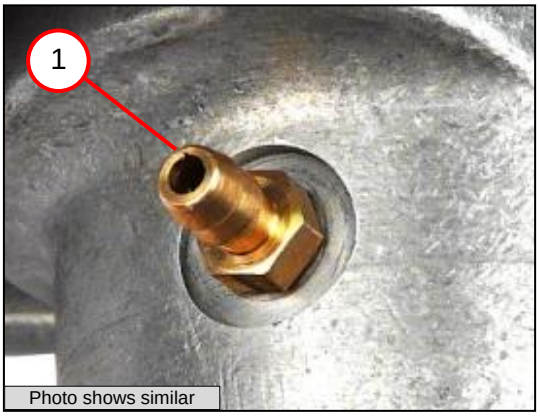
8.3.9 Removing the hose socket

Tools:

- Socket wrench
- Socket wrench insert, 7 mm



1. Remove the sleeve (**1**).



2. Unscrew the hose socket (**2**).

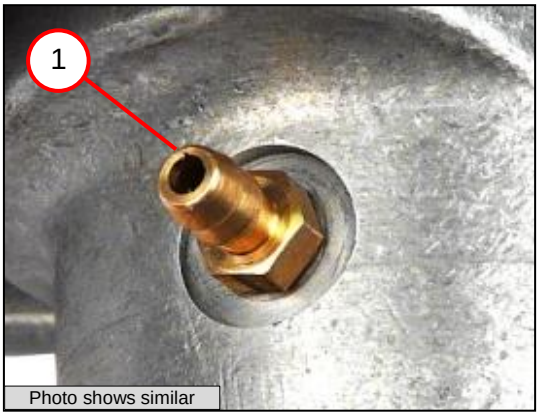
9 Assembly

9.1 Assembling the gearbox housing

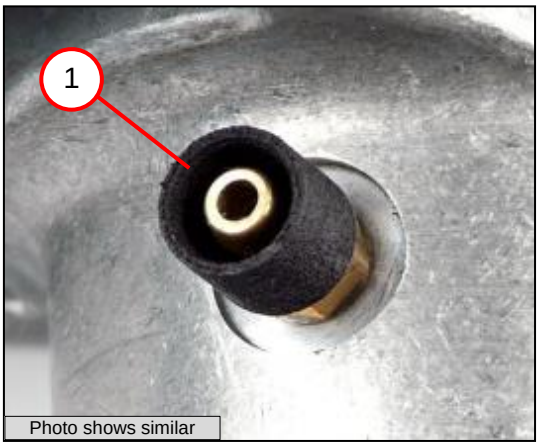
9.1.1 Fitting the hose socket

Tools:

- Socket wrench insert, 7 mm
- Socket wrench

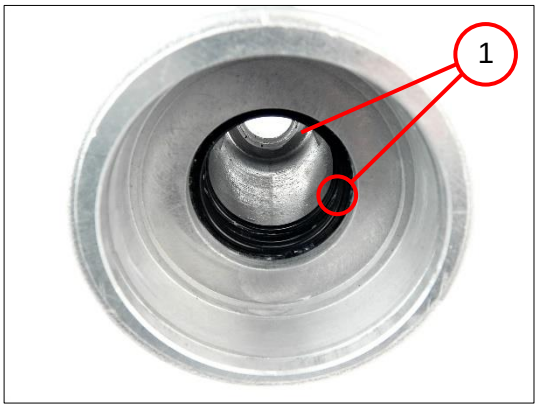


3. Fit the hose socket (**1**) [1.8 Nm $^{\pm 0.25\ Nm}$].



4. Fit the sleeve (**2**).

9.1.2 Fitting the sealing rings



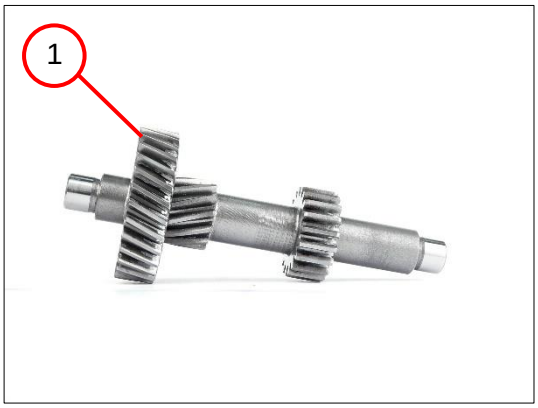
INFORMATION

Use new sealing rings.

The sealing rings are damaged during removal and must be replaced.

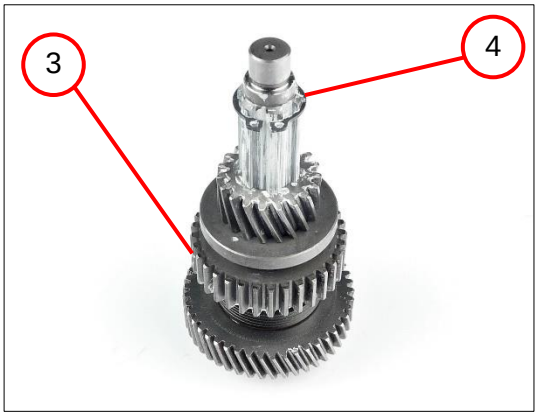
1. Apply a layer of grease to the three sealing rings (**1**).
2. Position the three sealing rings (**1**).

9.1.3 Assembling the clutch and shafts



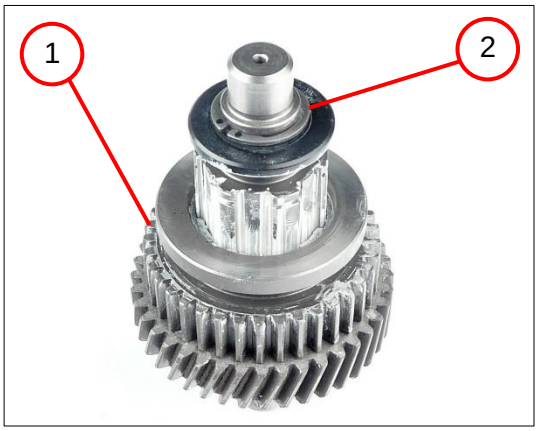
1. Position the gear wheel (**1**).

2. Position the circlip (**2**).



3. Position the gear wheel (**3**).
4. Position the circlip (**4**).

9.1.3 Assembling the clutch and shafts

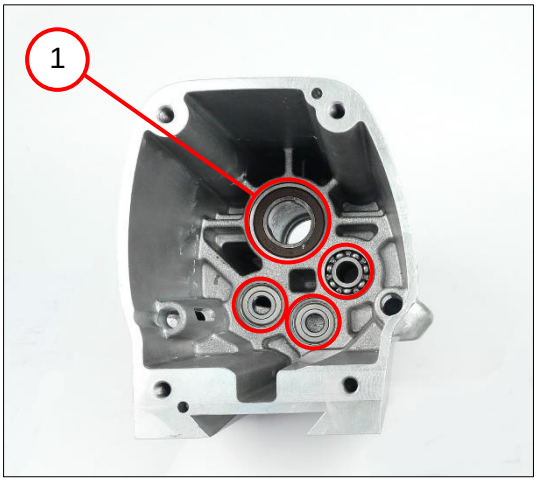


5. Position the gear wheel (**1**).
6. Position the circlip (**2**).

9.1.4 Fitting grooved ball bearings in the gearbox housing

Tools:

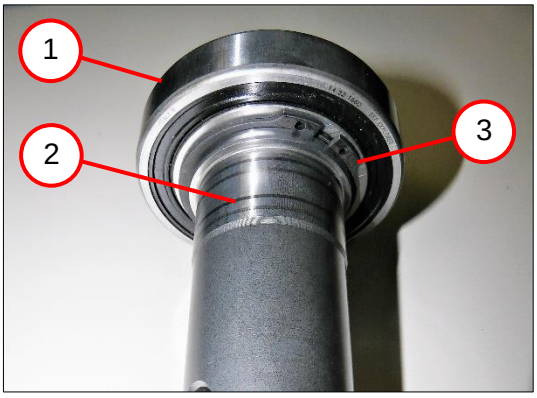
- Arbor press
- Sleeve



7. Press in the four grooved ball bearings (**1**).

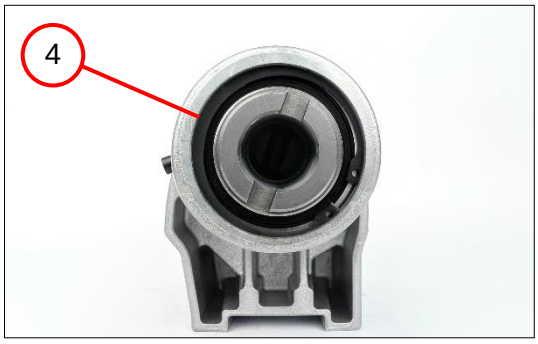
9.1.5 Assembling the shaft

Steps that must be completed: - Fitting the grooved ball bearings
Tools: - Arbor press - Circlip pliers



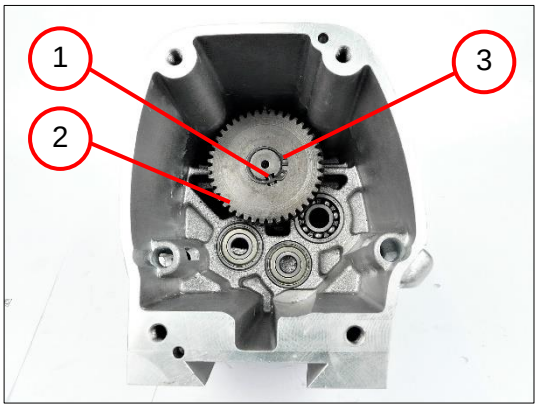
1. Press the bearing (**1**) onto the shaft (**2**).
2. Position the circlip (**3**).

3. Press in the shaft.



4. Position the circlip (**4**).

9.1.5 Assembling the shaft



5. Position the feather key (**1**).

INFORMATION

Fitting the gear wheel

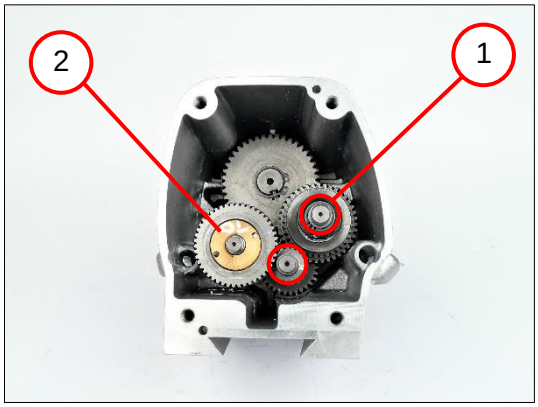
The smooth side of the gear wheel must face upwards.

6. Press in the gear wheel (**2**).
7. Position the circlip (**3**).

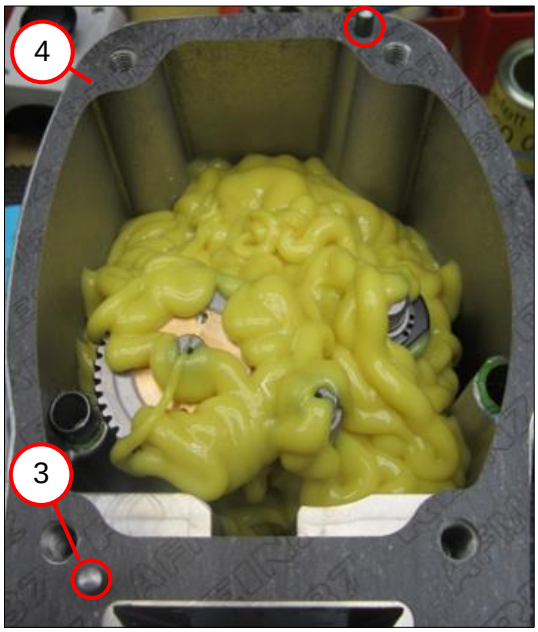
9.1.6 Fitting the gearbox parts

Steps that must be completed:

- Fitting the grooved ball bearings
- Assembling the clutch and shafts



1. Position the two gear wheels (**1**).
2. Position the clutch (**2**).

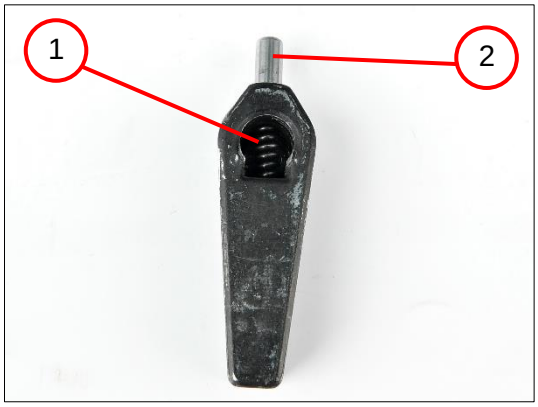


3. Position the seal (**4**).
4. Position the bolt (**3**).
5. Fill the gearbox with 500 g grease.

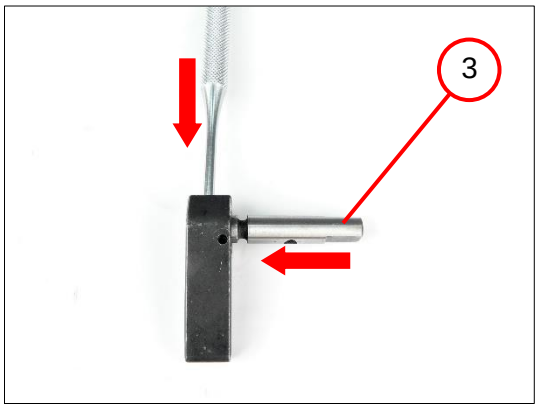
9.1.7 Assembling the lever

Steps that must be completed:

- Fitting the grooved ball bearings
- Assembling the clutch and shafts



1. Position the spiral spring (**1**).
2. Position the bolt (**2**).

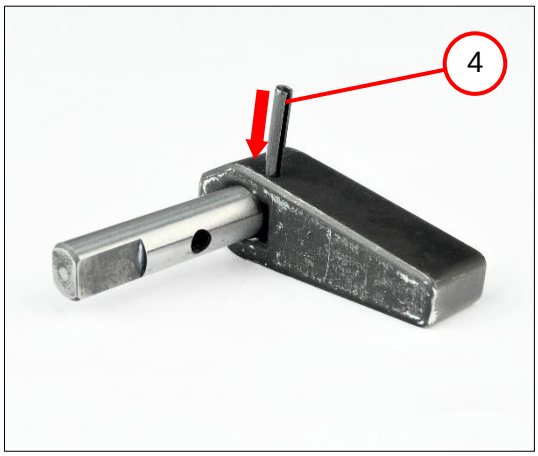


3. Push the bolt (**2**) down.
4. Position the bolt (**3**).

INFORMATION

Fitting the bolt

Note the position of the bolt



5. Position the clamping sleeve (**4**).
6. Repeat steps 1 to 5 on the other lever.

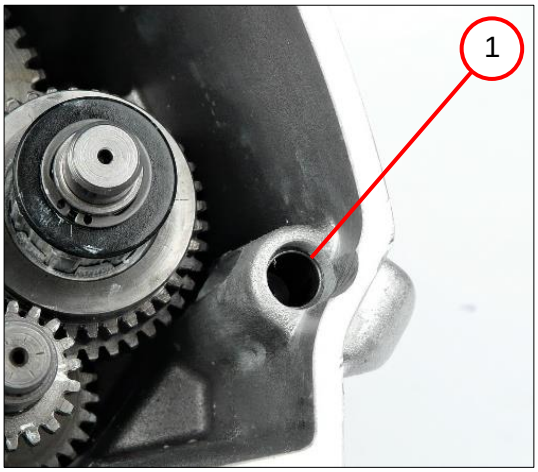
9.1.8 Positioning the lever

Steps that must be completed:

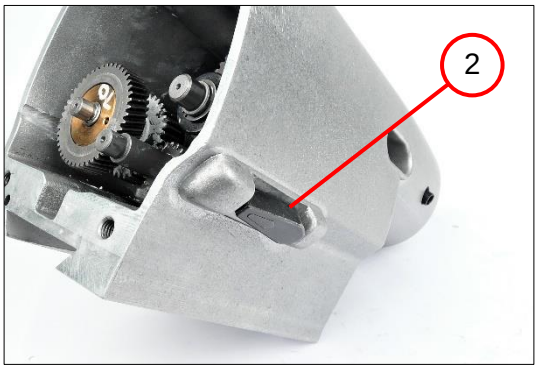
- Fitting the grooved ball bearings
- Assembling the clutch and shafts
- Assembling the lever

Tools:

- Punch, 2 mm
- Plastic hammer



1. Grease the bolt (**1**).
2. Position the bolt (**1**).



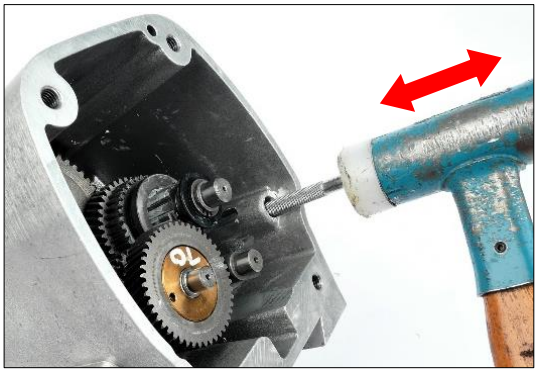
3. Position the lever (**2**).

PLEASE NOTE!

Damage to the lever

The lever may be damaged if it is not positioned correctly.

When fitting the clamping sleeve (**3**), pay attention to the position of the hole in the lever (**2**).



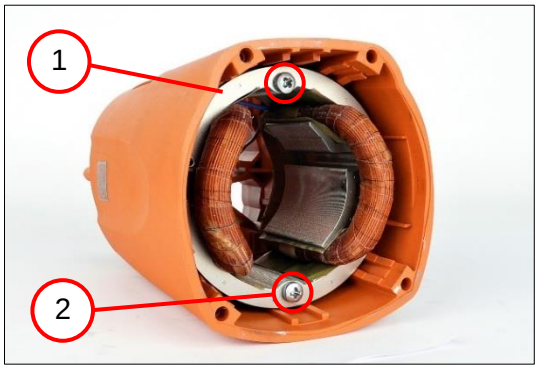
4. Position the clamping sleeve.
5. Repeat steps 1 to 4 on the opposite side of the machine.

9.2 Assembling the motor housing

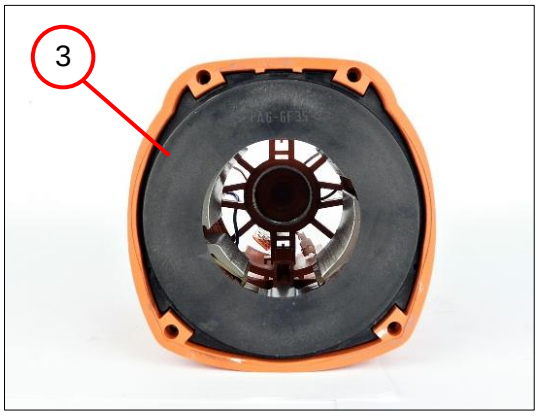
9.2.1 Fitting the stator

Tools:

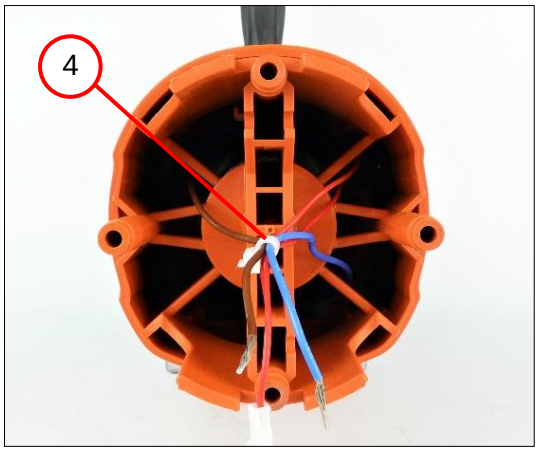
- PH2 cross-tip screwdriver



1. Position the stator (**1**).
2. Screw in the two screws (**2**).



3. Position the air guide ring (**3**).

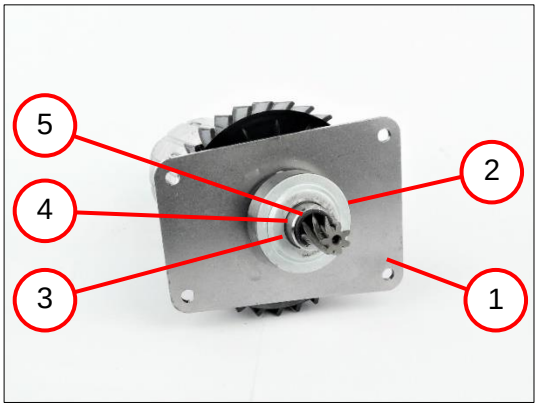


4. Position the cable tie (**4**).

9.2.2 Fitting the armature

Tools:

- PH2 cross-tip screwdriver
- Circlip pliers



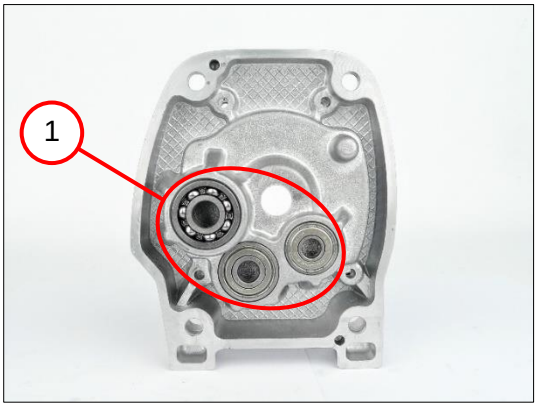
1. Position the plate (**1**).
2. Press on the ball bearing (**2**).
3. Grease the sealing ring (**3**).
4. Position the sealing ring (**3**).
5. Position the spacer sleeve (**4**).
6. Position the circlip (**5**).

7. Press on the grooved ball bearing (**6**).

8. Apply oil to the bush (**7**).
9. Position the bush (**7**).

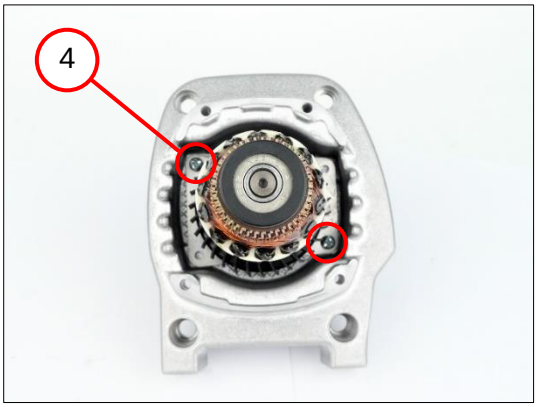
9.2.3 Fitting the intermediate gearbox

Steps that must be completed: - Fitting the stator - Fitting the grooved ball bearings - Fitting the armature
Tools: - PH2 cross-tip screwdriver



1. Press in the three grooved ball bearings (**1**).

2. Position the armature (**2**) in the intermediate gearbox (**3**).



3. Screw in the two fillister head screws (**4**).

9.2.4 Positioning the intermediate gearbox

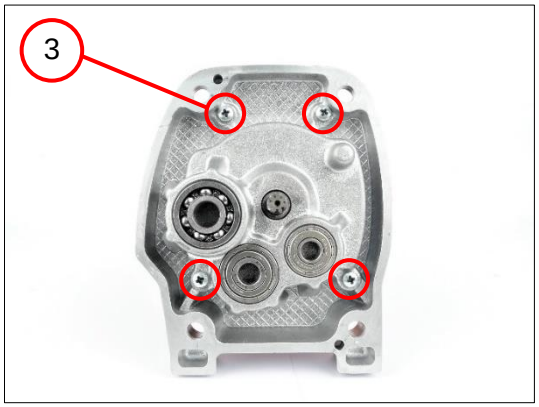
Steps that must be completed:

- Fitting the stator
- Fitting the grooved ball bearings
- Fitting the armature
- Fitting the intermediate gearbox

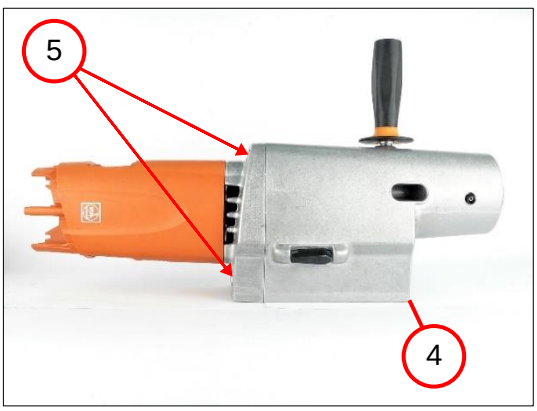
Tools:

- PH2 cross-tip screwdriver
- Socket head wrench, 6 mm

1. Position the intermediate gearbox (**1**) in the motor housing (**2**).



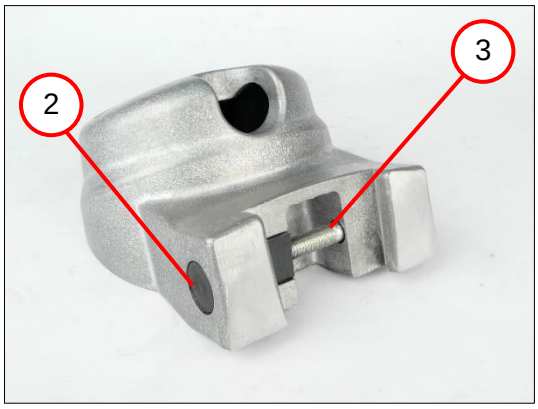
2. Screw in the four screws with the sealing rings (**3**) [4 Nm].



3. Position the intermediate gearbox (**1**) in the gearbox housing (**4**).
4. Screw in the two cylinder head screws (**5**).
5. Repeat step 4 on the opposite side of the machine.

9.2.5 Assembling the bolt

1. Position the disc (**1**).



2. Position the bolt (**2**).
3. Screw in the cylinder head screw (**3**).

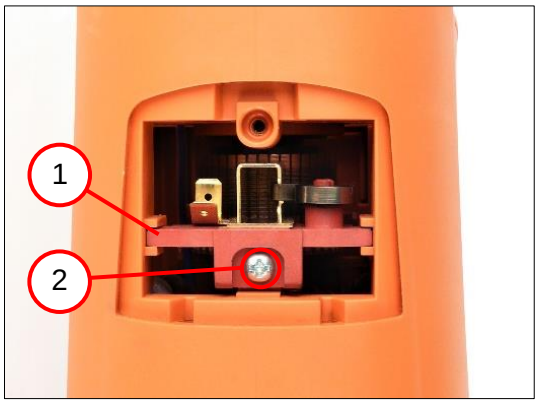
9.2.6 Fitting the carbon brushes

Steps that must be completed:

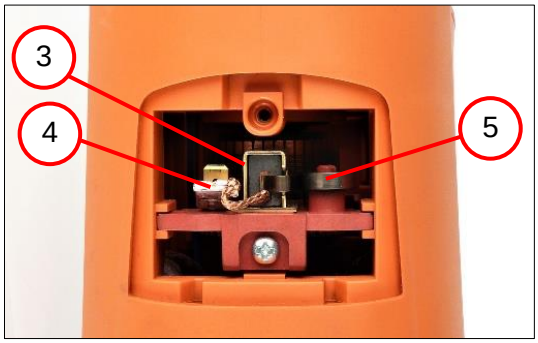
- Fitting the stator
- Fitting the grooved ball bearings
- Fitting the armature
- Fitting the intermediate gearbox
- Positioning the intermediate gearbox

Tools:

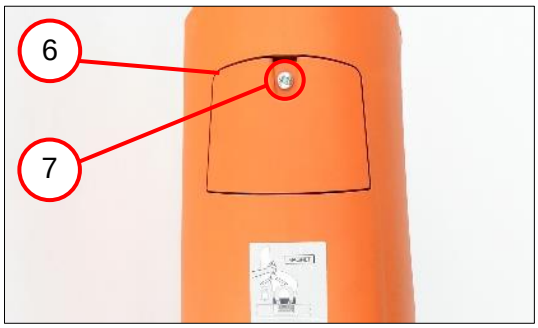
- PH2 cross-tip screwdriver



1. Position the carbon brush holder (**1**).
2. Screw in the screw (**2**).



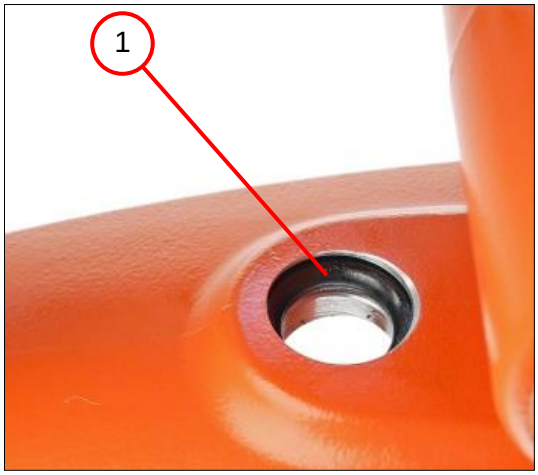
3. Position the carbon brush (**3**).
4. Connect the plug (**4**).
5. Position the spring (**5**).



6. Position the cover (**6**).
7. Screw in the screw (**7**) [1.1 Nm].
8. Repeat steps 1 to 7 on the opposite side of the machine.

9.3 Assembling the drill jig

9.3.1 Fitting the sealing ring



1. Grease the sealing ring (**1**).
2. Position the sealing ring (**1**).

9.3.2 Fitting the guide

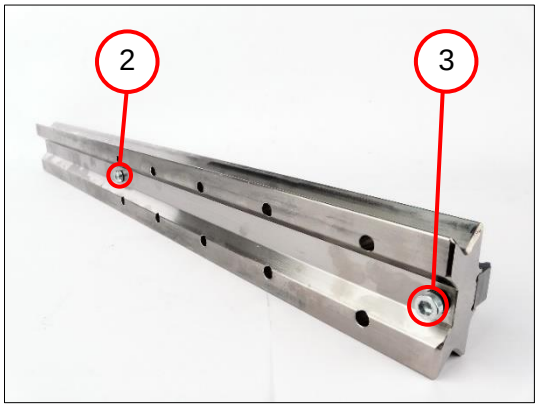
Steps that must be completed:

- Fitting the stator
- Fitting the grooved ball bearings
- Fitting the armature
- Fitting the intermediate gearbox

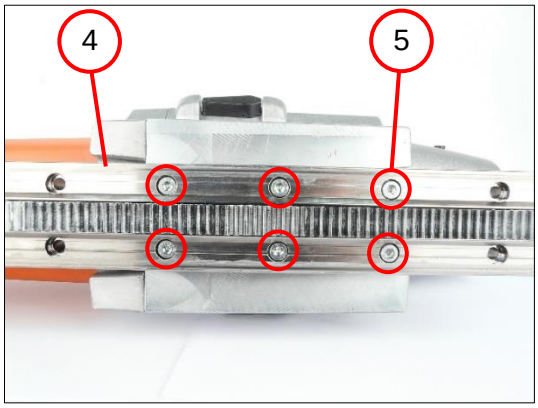
Tools:

- 5 mm socket head wrench with pin; 2.5 mm
- PH2 cross-tip screwdriver

1. Position the gear rack (**1**).

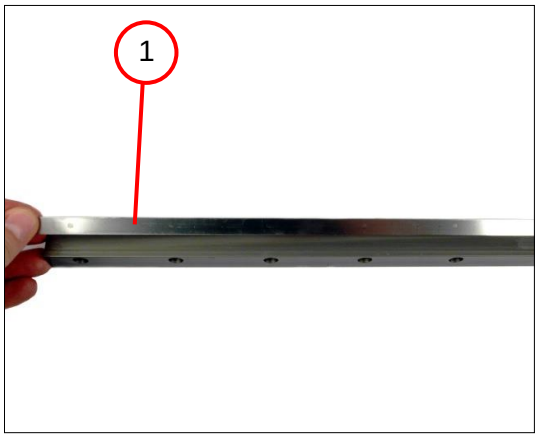


2. Screw in the cylinder head screws (**2**).
3. Slightly tighten the cylinder head screws (**3**).



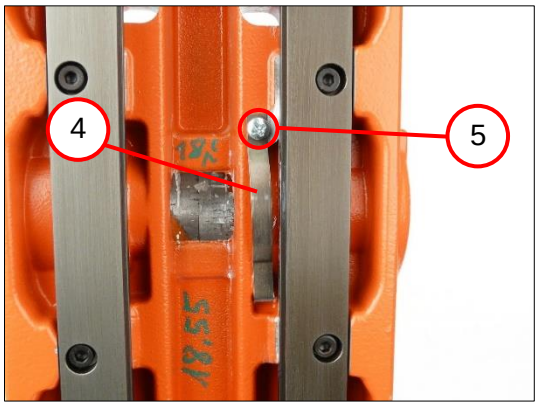
4. Position the guide (**4**).
5. Screw in the six cylinder head screw with circlips (**5**).

9.3.2 Fitting the guide



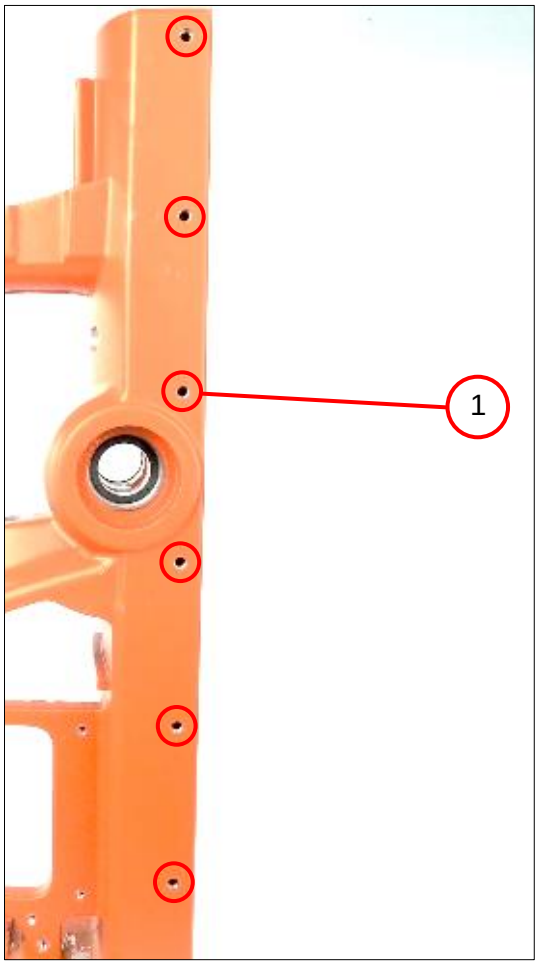
6. Place the pressure piece (**1**) in the correct position.

7. Position the two guide strips (**2**).
8. Screw in the 14 cylinder head screws (**3**).



9. Position the leaf spring (**4**).
10. Screw in the screw (**5**).

9.3.2 Fitting the guide



11. Screw in the seven set screws (**1**).

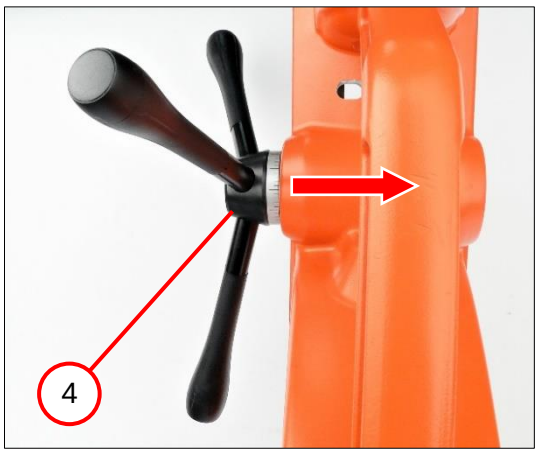
9.3.3 Fitting the spider

Tools:

- Sleeve with 16 mm outer diameter
- Plastic hammer
- Socket wrench

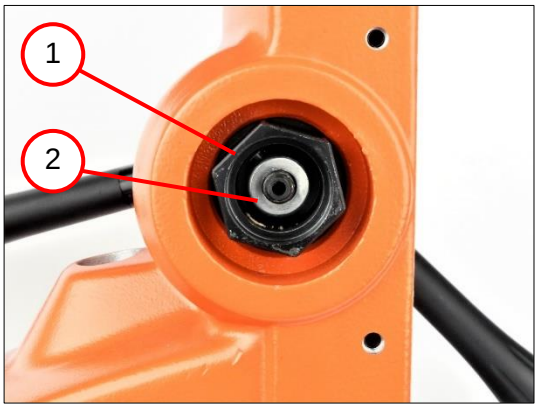
1. Press in the bush (**1**).
2. Repeat step 1 on the opposite side of the machine.

3. Position the feather key (**2**).
4. Screw in the three handles (**3**).



5. Position the spider (**4**).

9.3.3 Fitting the spider

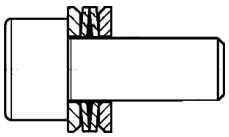


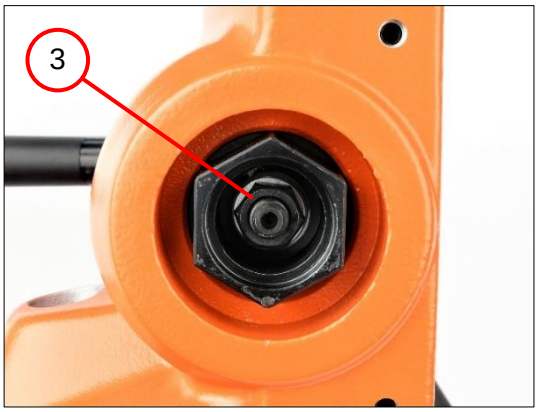
1. Position the clutch part (**1**).
2. Position the discs and cup springs (**2**).

INFORMATION

Ensure correct positioning during fitting.

Note the order of the discs and cup springs (**2**):
The curve of the discs faces the cup springs.





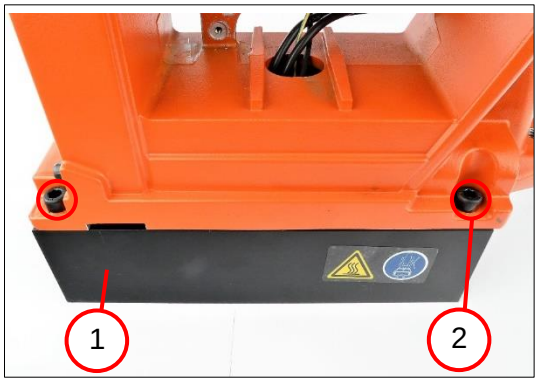
3. Apply Loctite 242 to the hex nut (**3**).
4. Screw in the hex nut (**3**) [1 Nm].

5. Position the plug (**4**).

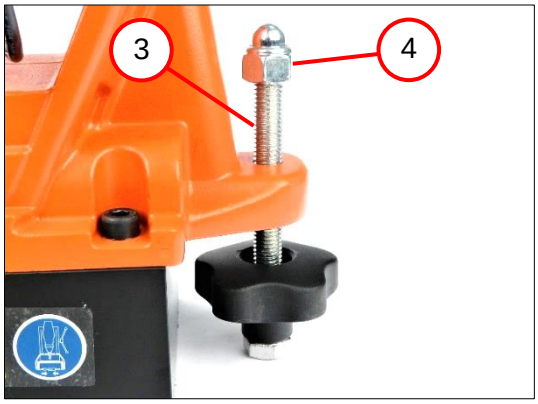
9.3.4 Fitting the magnetic foot

Tools:

- Socket head wrench, 6 mm
- Open-ended spanner 19 mm



1. Position the magnetic foot (**1**).
2. Screw in the two cylinder head screws [M8x22] (**2**).
3. Repeat step 2 on the opposite side of the machine.

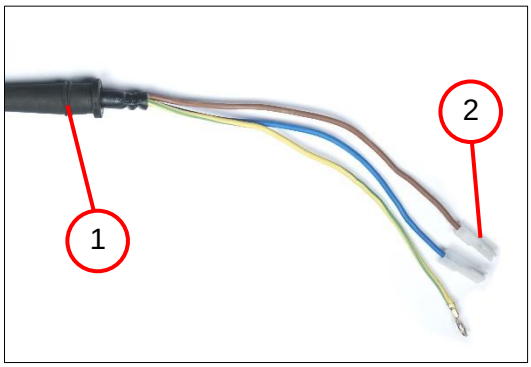


4. Screw in the screw (**3**).
5. Screw in the nut (**4**).

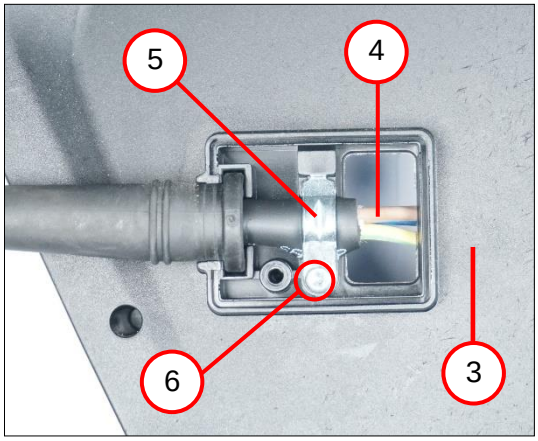
9.3.5 Fitting the network cable

Tools:

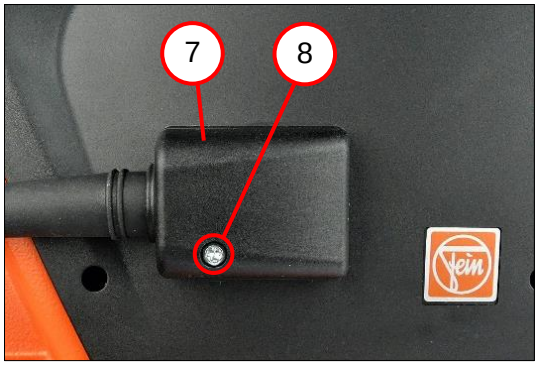
- Torx T15



1. Position the protective hose (**1**).
2. Position the two protective caps (**2**).



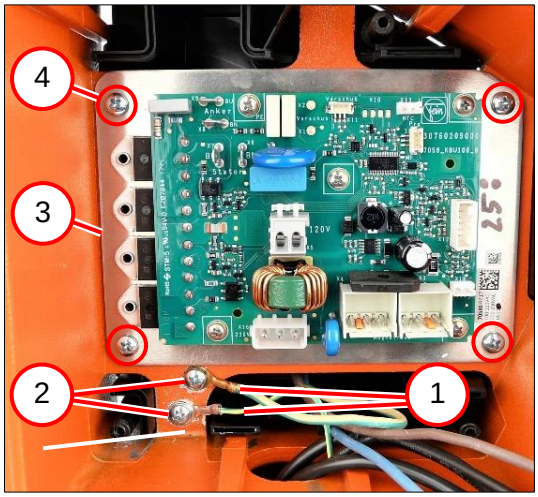
3. Position the cover (**3**).
4. Position the cable (**4**).
5. Position the cable clamping piece (**5**).
6. Screw in the screw (**6**).



7. Position the cover (**7**).
8. Screw in the screw (**8**).

9.3.6 Fitting the electronics

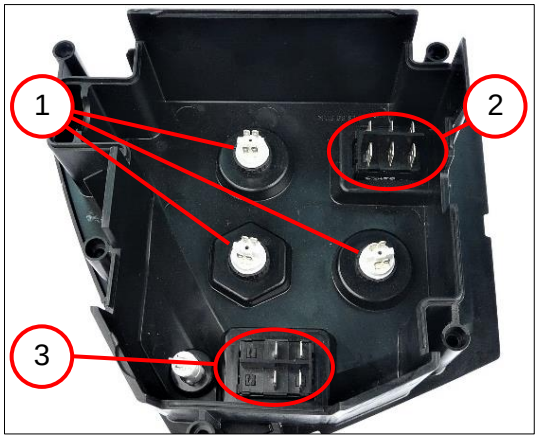
Steps that must be completed: - Fitting the network cable - Fitting the magnetic foot
Tools: - PH2 cross-tip screwdriver



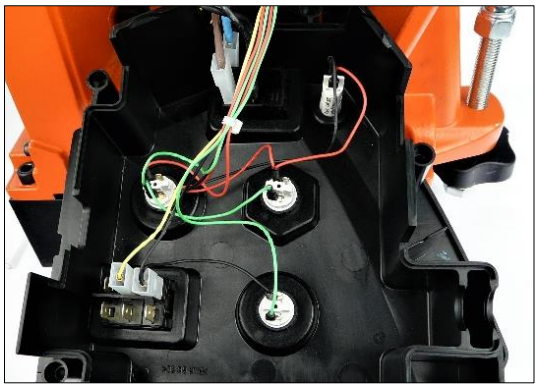
1. Position the two cables (**1**).
2. Screw in the two screws (**2**) [2.0 Nm].
3. Position the electronics (**3**).
4. Screw in the four screws (**4**) [1.5 Nm].

9.3.7 Fitting the switches

Steps that must be completed: - Fitting the network cable - Fitting the magnetic foot - Fitting the electronics
Tools: - Torx T15



1. Position the three buttons (**1**).
2. Position the two switches (**2**).
3. Position the LED (**3**).



4. Connect all connectors as shown in the connection diagram.

9.3.8 Positioning the motor

Tools:

- 5 mm socket head wrench with pin

1. Lift the motor (**1**) into the guide.
2. Screw in the cylinder head screw (**2**).

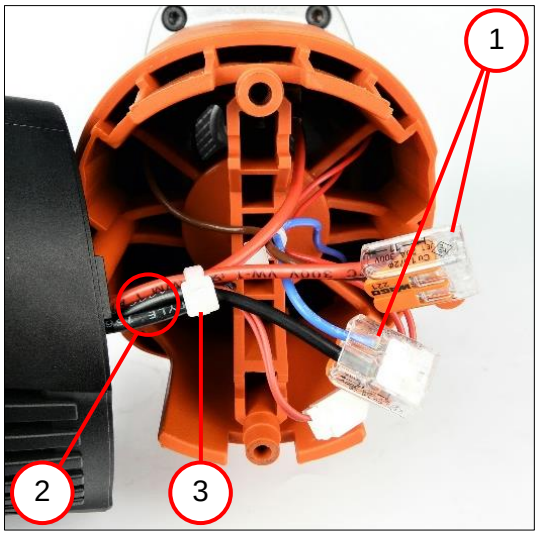
9.3.9 Fitting the protective hose

Steps that must be completed:

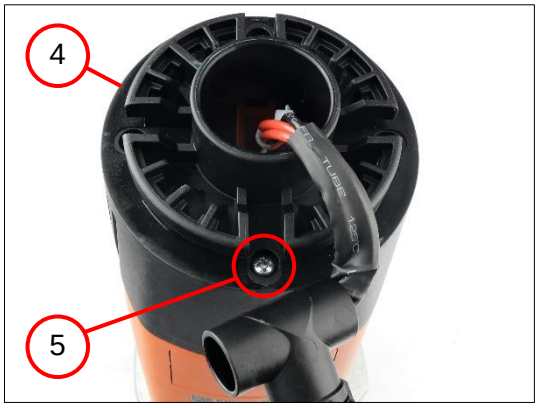
- Fitting the stator
- Fitting the grooved ball bearings
- Fitting the armature
- Fitting the sealing ring
- Fitting the electronics

Tools:

- Torx T15
- Socket head wrench

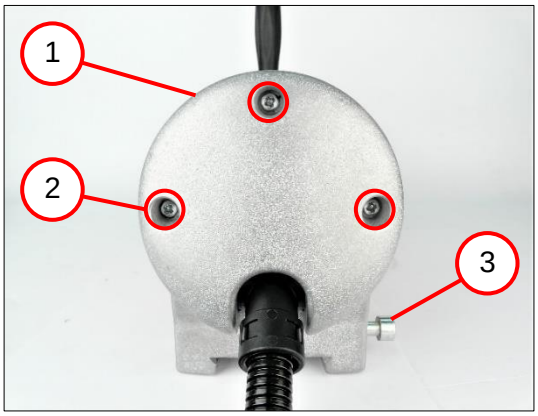


1. Position the two terminals (**1**).
2. Position the protective hose (**2**).
3. Connect all cables as shown in the connection diagram.
4. Position the cable tie (**3**).

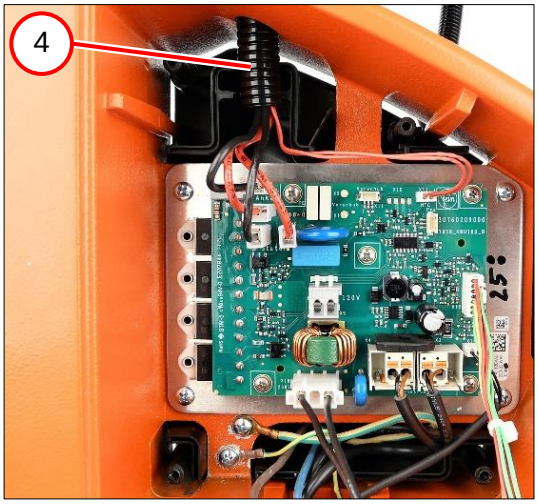


5. Position the housing (**4**).
6. Screw in the screw (**5**) [1.8 Nm].

9.3.9 Fitting the protective hose



7. Position the cover (**1**).
8. Screw in the three screws (**2**) [1.8 Nm].
9. Position the bolt (**3**).



10. Position the protective hose (**4**).
11. Connect all cables as shown in the connection diagram.

12. Position the cover (**5**).
13. Screw in the five screws (**6**) [2.0 Nm].

9.3.10 Fitting the container

1. Position the container (**1**).
2. Connect the hose (**2**) to the hose socket.

10 Troubleshooting

Currently unavailable.