GWP 10

Repair instructions

Contents

1. Models described

These repair instructions describe how to repair the following models:

Model	Order number
GWP 10	7 209 38 .. .. .

2. Technical data

Technical data

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

Test data

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

Lubricants

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

Lists of spare parts

Lists of spare parts and exploded views are available online at www.fein.com

3. Notes and requirements

Please note

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

Only use original FEIN spare parts.

Provisions

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

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

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

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

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

4. Tools required

Standard tools	
Torx	T20
Cross-tip screwdriver	PH1, PH2
Slotted screwdriver (small)	
Combination pliers	
Plastic hammer	
Arbor press	
Punch	5 mm; 6 mm; 9 mm
Long-nosed pliers	
Slide hammer	
Inner puller	
Sleeve	11 mm inner diameter 26 mm outer diameter
	7 mm inner diameter 30 mm outer diameter
	19 mm inner diameter 30 mm outer diameter ~16 mm inner diameter 19 mm outer diameter
	8 mm inner diameter ~17 mm outer diameter

Special tools	
Assembly aid	6 41 22 121 01 0
Expansion wedge, 12 mm	6 33 05 009 01 3
Drawing-off socket cap	6 41 04 150 00 8
Chuck cone with 16 mm diameter	6 41 07 016 00 1
Chuck cone with 17 mm diameter	6 41 07 017 00 0
Chuck cone with 19 mm diameter	6 41 07 019 00 7

4. Tools required

Standard tools

Sleeve	8 mm inner diameter ~19 mm outer diameter

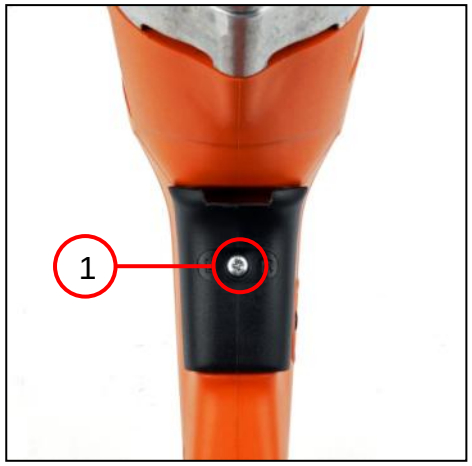
5. Lubricants and auxiliary substances required

Lubricants

Grease	0 40 101 0100 4	25 g	Housing

6. Removal

Removing the handle half shell



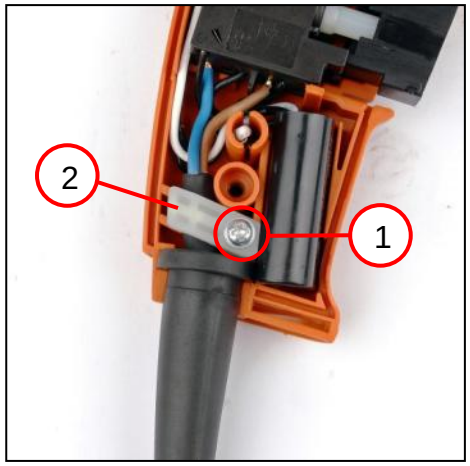
1. Unscrew the countersunk screw (1).
2. Remove the switch pushbutton (2).
3. Unscrew the three screws (3).
4. Remove the handle half shell (4).

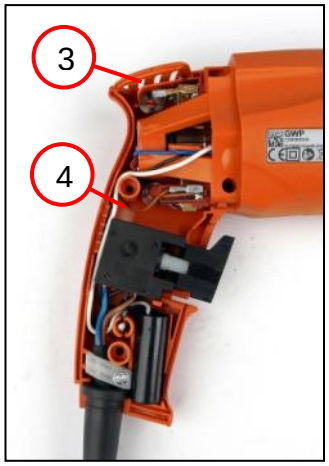
Tools:

- PH1 cross-tip screwdriver
- PH2 cross-tip screwdriver

6. Removal

Removing the handle half shell





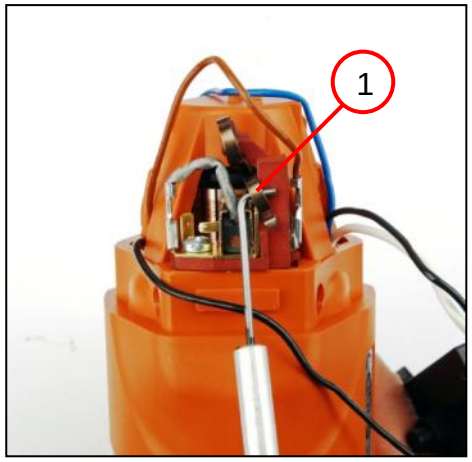
1. Unscrew the screw (1).
2. Remove the cable clamping piece (2).
3. Remove the cover (3).
4. Remove the handle half shell (4).

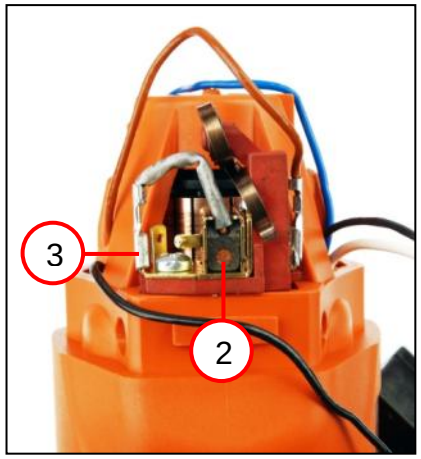
Tools:

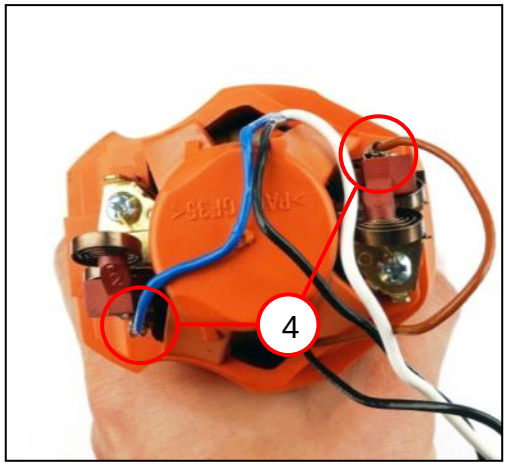
- PH2 cross-tip screwdriver

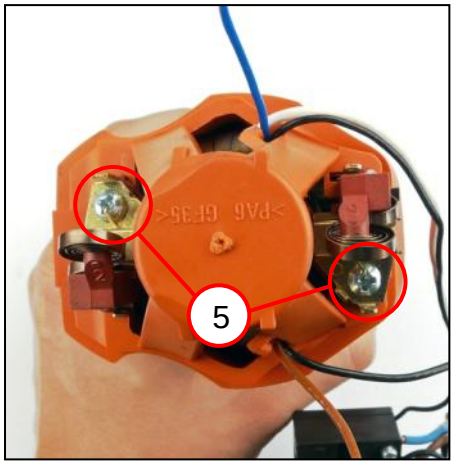
6. Removal

Removing the carbon brushes









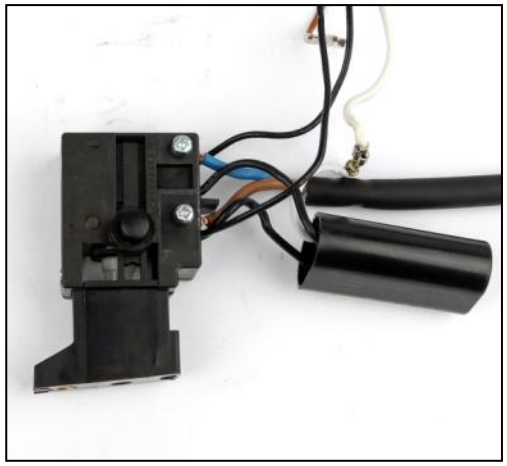
1. Lift the spring (1) to one side [on both sides].
2. Pull out the carbon brush (2) [on both sides].
3. Pull off the female push-on connector (3) [on both sides].
4. Pull off the two female push-on connectors (4).
5. Unscrew the respective screw (5).
6. Remove the carbon brush holders.

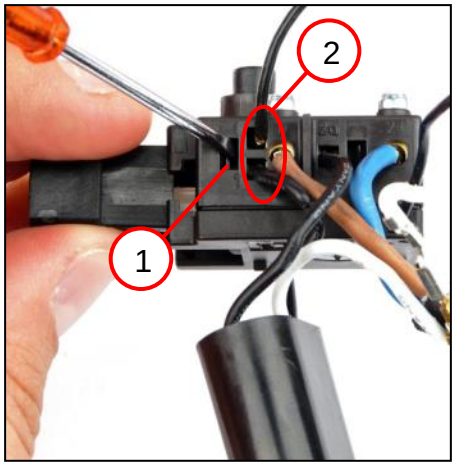
Tools:

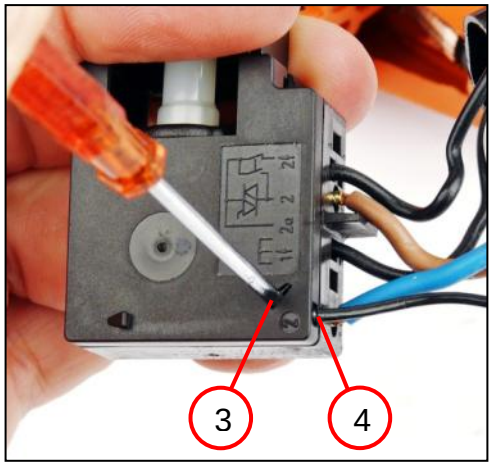
- Assembly aid
- Long-nosed pliers
- PH2 cross-tip screwdriver

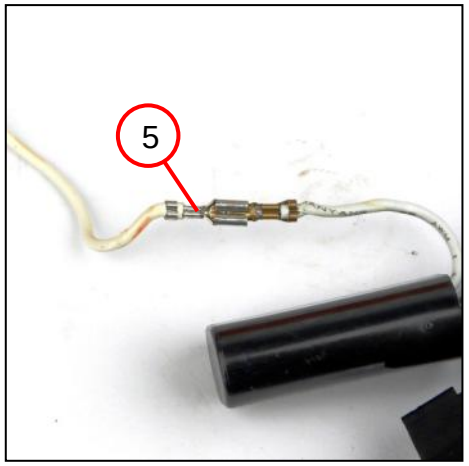
6. Removal

Removing the speed setting switch









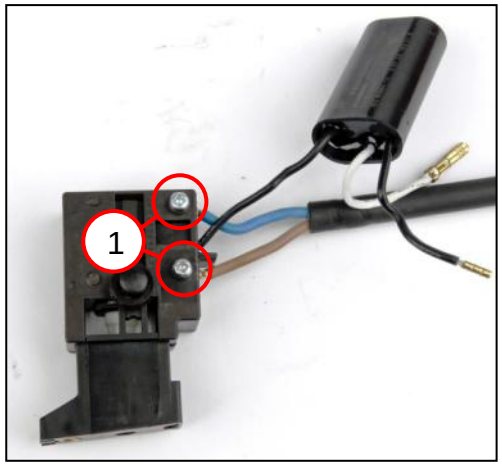
1. Actuate the terminal (1) and simultaneously pull out both stranded wires (2).
2. Actuate the terminal (3) and simultaneously pull out the stranded wire (4).
3. Separate the plug connection (5).

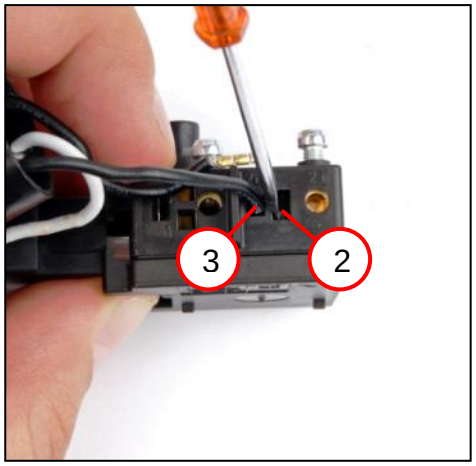
Tools:

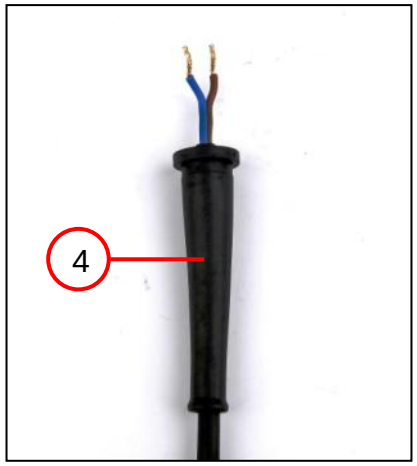
- Slotted screwdriver (small)

6. Removal

Removing the carbon brushes and carbon brush holders







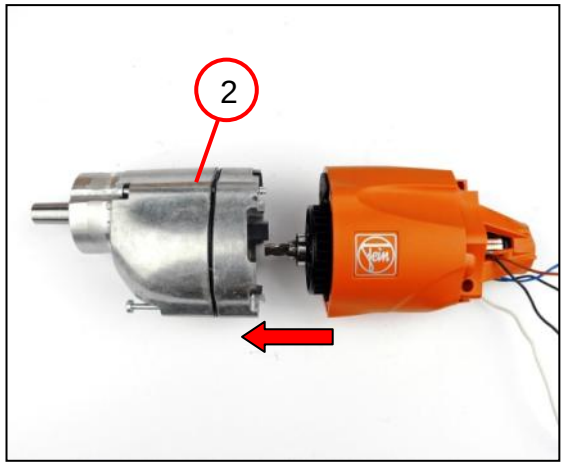
1. Loosen the two screws (1) and pull out the stranded wires.
2. Actuate the terminal (2) and simultaneously pull out the stranded wire (3).
3. Remove the cable grommet (4).

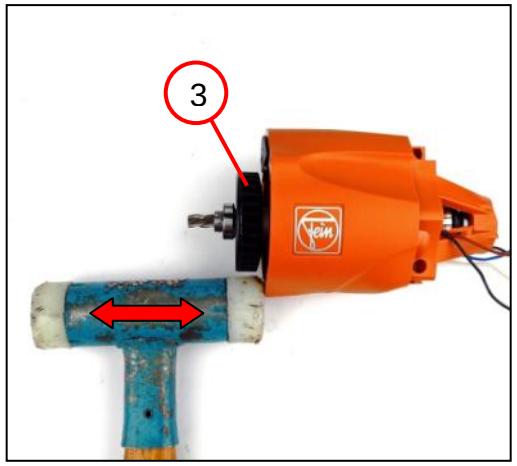
Tools:

- PH1 cross-tip screwdriver
- Slotted screwdriver (small)

6. Removal

Removing the motor housing





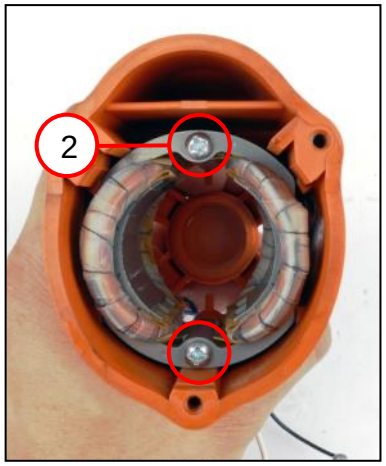
1. Unscrew the three screws (1).
2. Remove the gearbox head (2) together with the intermediate gearbox.
3. Remove the armature (3).

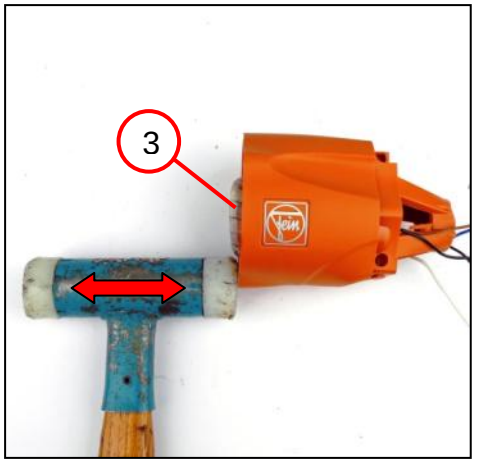
Tools:

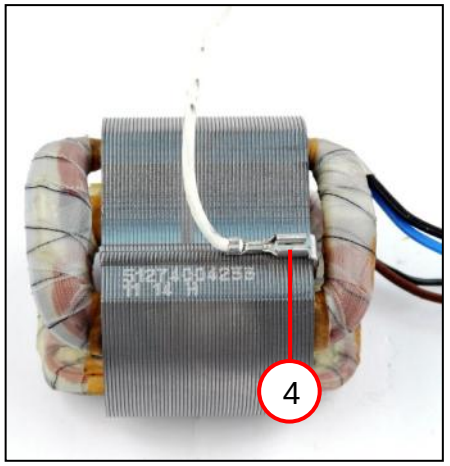
- Torx T20
- Plastic hammer

6. Removal

Removing the motor housing







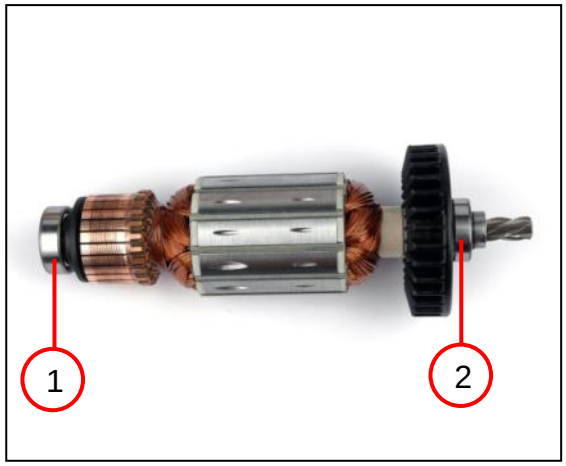
1. Remove the air guide ring (1).
2. Unscrew the two screws (2).
3. Remove the stator (3).
4. Pull off the connecting cable (4).

Tools:

- PH2 cross-tip screwdriver
- Plastic hammer

6. Removal

Removing the armature



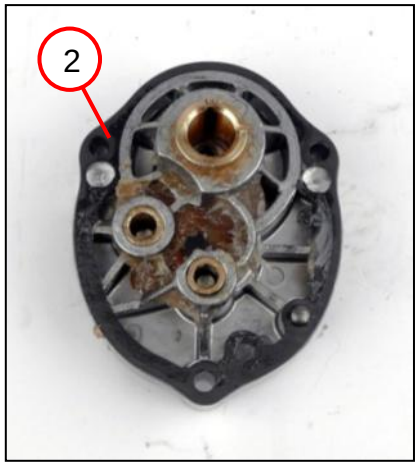
1. Pull off the grooved ball bearing (1).
2. Pull off the grooved ball bearing (2) together with the seal.

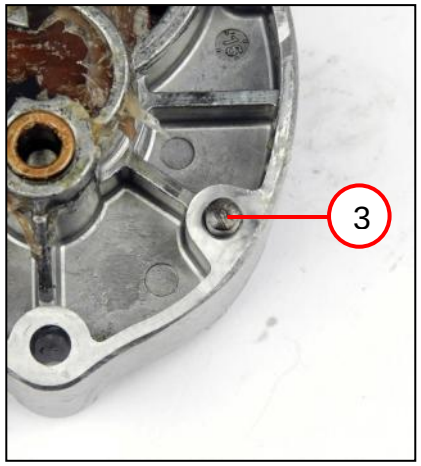
Tools:

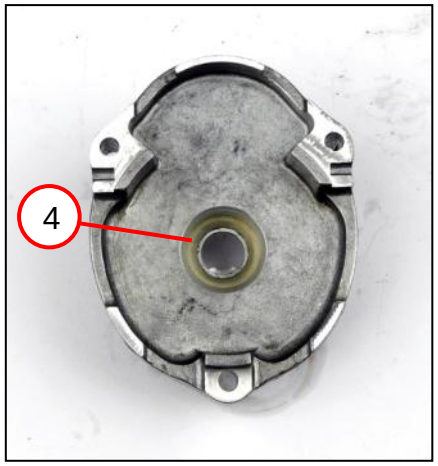
- Drawing-off socket cap
- Chuck cone with 17 mm diameter
- Chuck cone with 19 mm diameter

6. Removal

Removing the gearbox housing







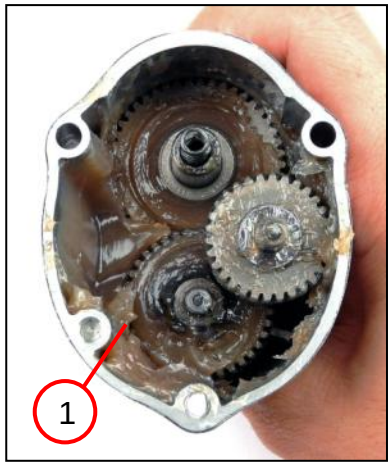
1. Pull off the intermediate gearbox (1).
2. Remove the seal (2).
   ☞ Replace the seal (2) after each removal.
3. Pull out the pin (3).
4. Remove the bush (4).
   ☞ Replace the bush (4) after each removal.

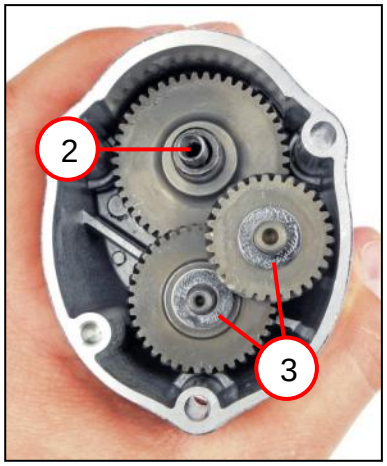
Tools:

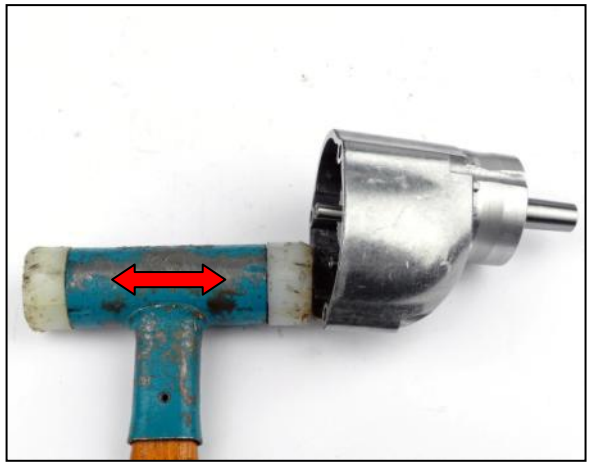
- Combination pliers

6. Removal

Removing the gearbox housing







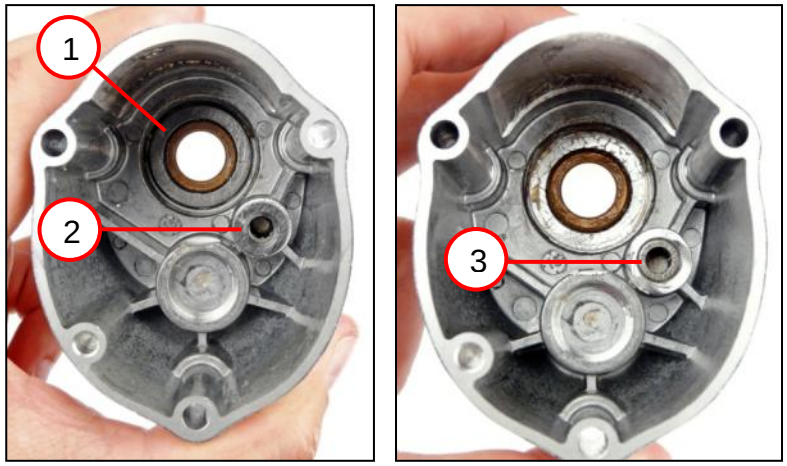
1. Remove the grease (1).
2. Remove the spiral spring (2).
3. Remove the two discs (3).
4. Remove the gearbox from the gearbox head.

Tools:

- Plastic hammer

6. Removal

Removing the gearbox



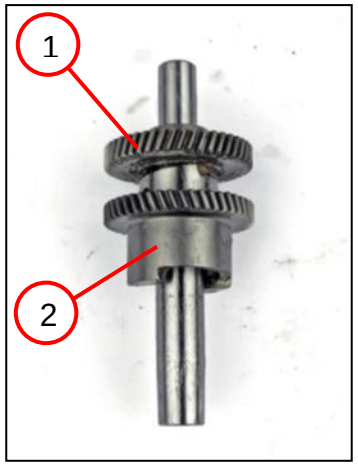
1. Remove the disc (1).
2. Remove the disc (2).
3. Remove the needle sleeve (3).
   ☞ Remove only defective needle sleeves because the needle sleeve is destroyed during removal.

Tools:

- Slide hammer
- Inner puller

6. Removal

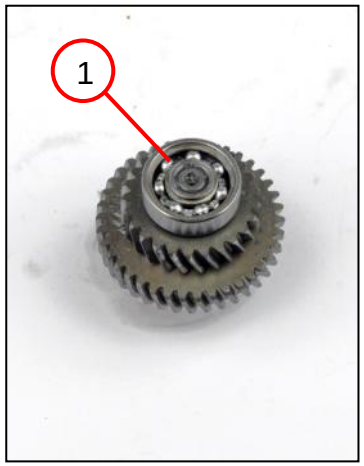
Removing the shaft



1. Remove the gear-wheel [z=46] (1).
2. Remove the gear-wheel [z=46] (2).

6. Removal

Removing the gear-wheel



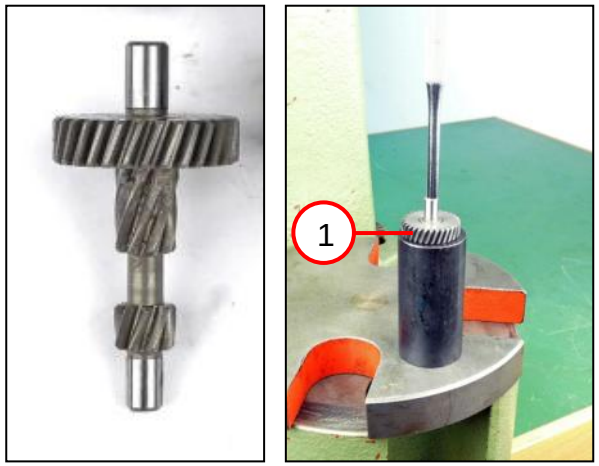
1. Pull off the grooved ball bearing (1).
2. Press the two gear-wheels [Z=25; Z=38] (2) off the shaft.

Tools:

- Drawing-off socket cap
- Chuck cone 16 mm
- Arbor press
- Punch 5 mm
- Sleeve
  11 mm inner diameter
  20 mm outer diameter

6. Removal

Removing the gear-wheel



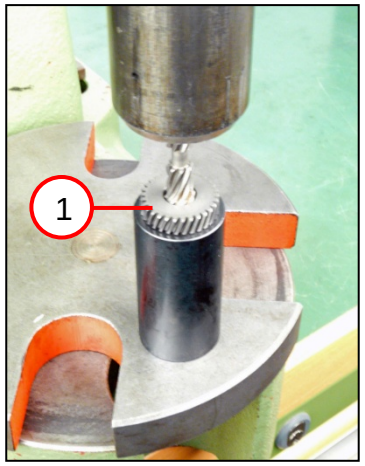
1. Press the gear-wheel [Z=30] (1) off the shaft [Z=8].

Tools:

- Arbor press
- Punch 6 mm
- Sleeve
  11 mm inner diameter
  26 mm outer diameter

7. Fitting

Fitting the gearbox



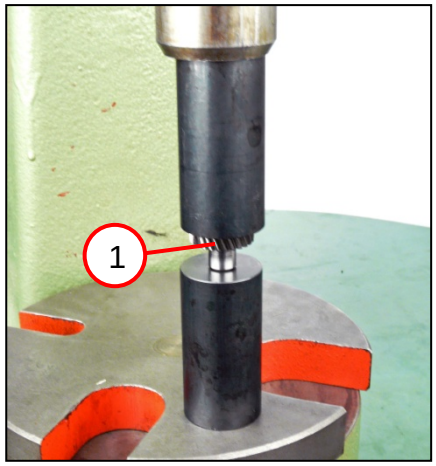
1. Press the gear-wheel [z=30] (1) onto the shaft [z=8].
   ☞ Press on the gear-wheel up to the relief groove (2).

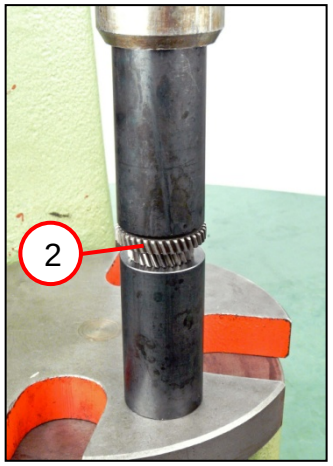
Tools:

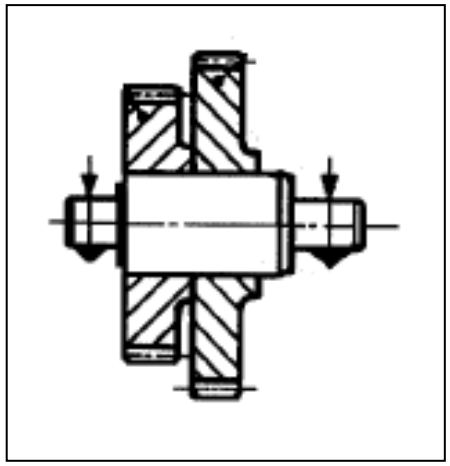
- Arbor press
- Punch 6 mm
- Sleeve
  7 mm inner diameter
  30 mm outer diameter

7. Fitting

Fitting the gearbox







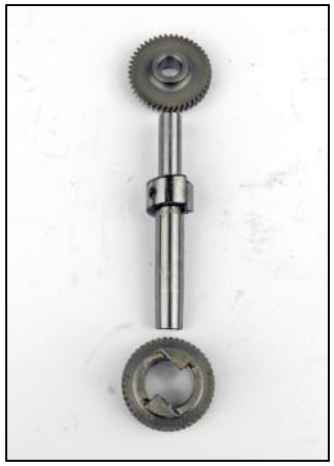
1. Press the two gear-wheels [Z=25] (1) onto the shaft.
   ☞ Press the gear-wheel flush onto the shaft.
2. Press the two gear-wheels [Z=38] (2) onto the shaft.
3. Press the grooved ball bearing (3) onto the shaft.

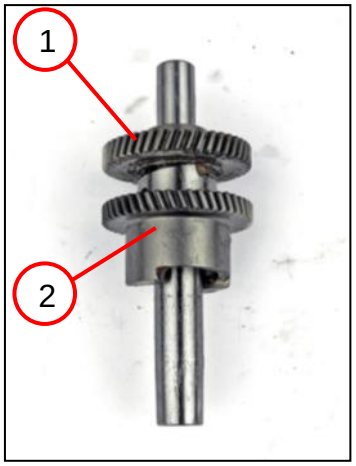
Tools:

- Arbor press
- Punch 6 mm
- Sleeve
  7 mm inner diameter
  30 mm outer diameter
- Sleeve
  19 mm inner diameter
  30 mm outer diameter

7. Fitting

Fitting the gearbox

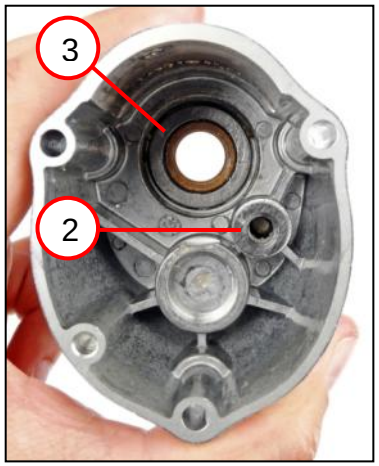




1. Slide the gear-wheel [z=46] (1) onto the shaft.
2. Slide the gear-wheel [z=46] (2) onto the shaft.

7. Fitting

Fitting the gearbox



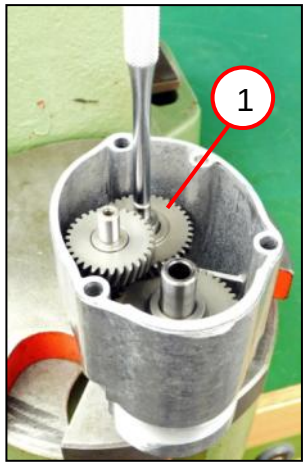
1. Press in the needle bearing (1).
2. Position the disc (2) on the needle bearing.
3. Position the disc (3).

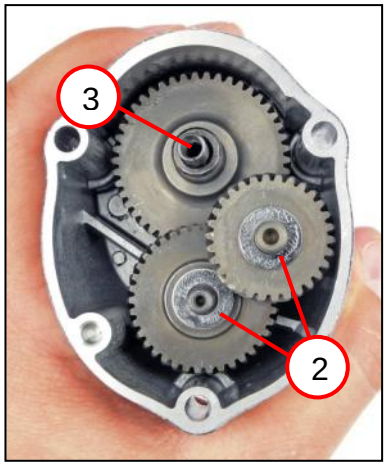
Tools:

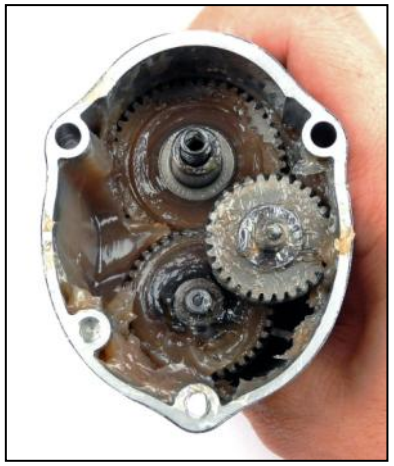
- Arbor press
- Punch 9 mm

7. Fitting

Fitting the gearbox housing







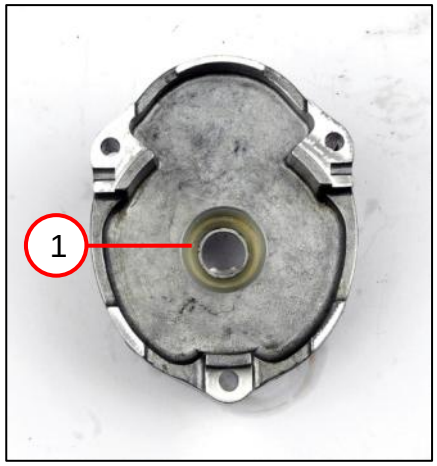
1. Insert all gearbox parts into the gearbox housing.
2. Press in the gear-wheel (1).
3. Insert the two discs (2).
4. Insert the spring (3).
5. Fill the gearbox housing with grease.

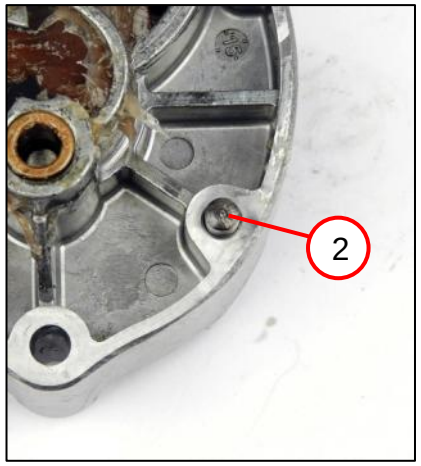
Tools:

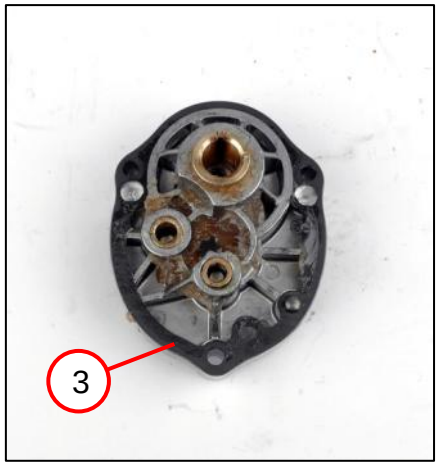
- Arbor press
- Punch 5 mm

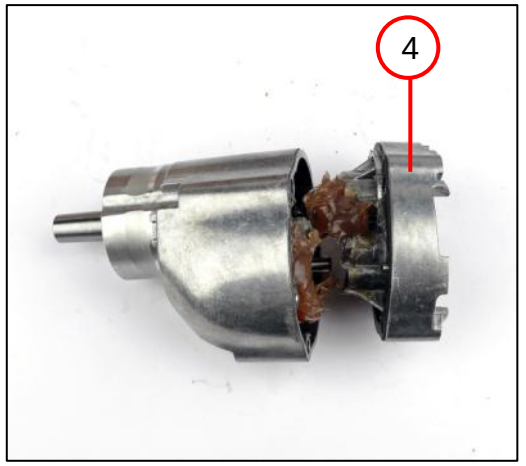
7. Fitting

Fitting the gearbox housing









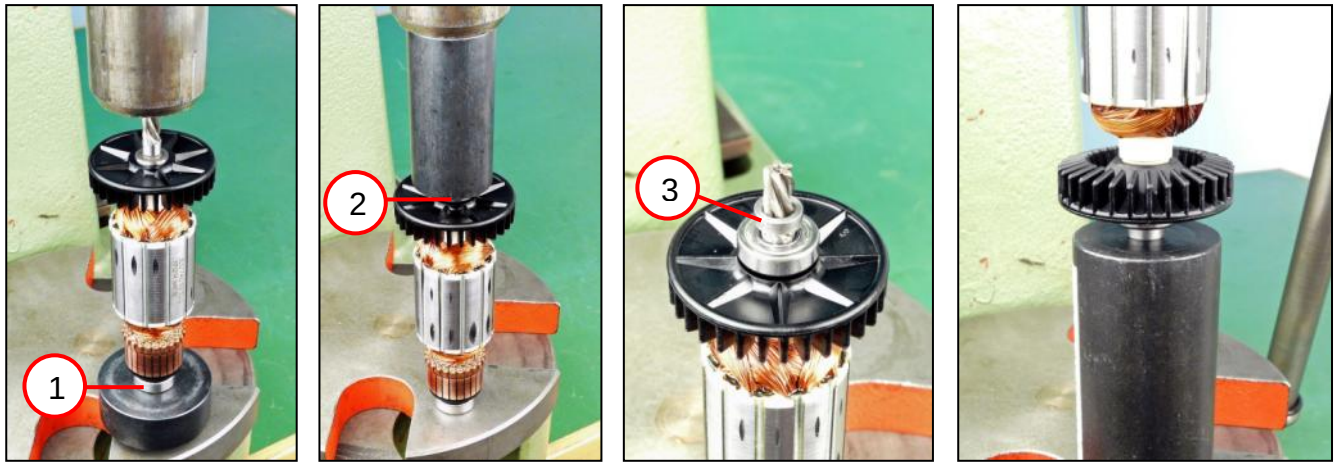
1. Press in the sleeve (1).
   ☞ Always use a new sleeve during each fitting.
2. Insert the dowel pin (2).
3. Place the seal (3) on the intermediate gearbox in the correct position.
   ☞ Always use a new seal during each fitting.
4. Place the intermediate gearbox (4) on the gearbox housing.

Tools:

- Arbor press
- Sleeve
  ~16 mm inner diameter
  19 mm outer diameter

7. Fitting

Fitting the armature



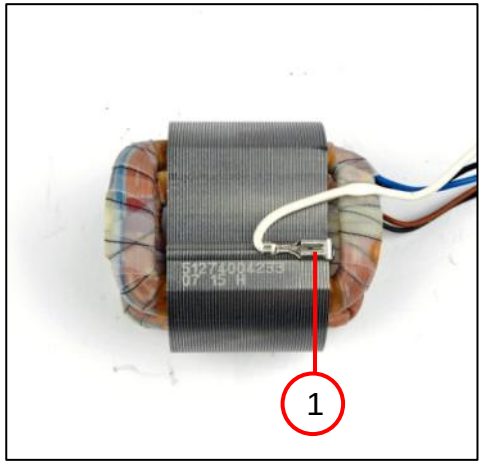
1. Press on the grooved ball bearing (1).
2. Press on the grooved ball bearing (2).
3. Press on the sealing ring (3).

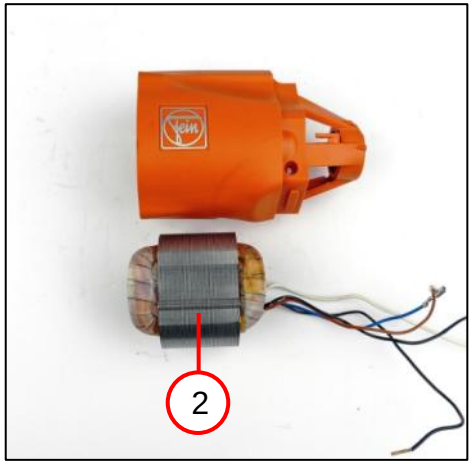
Tools:

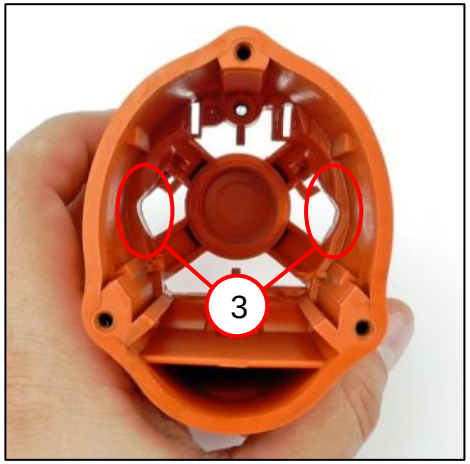
- Arbor press
- Sleeve
  8 mm inner diameter
  ~17 mm outer diameter
- Sleeve
  8 mm inner diameter
  ~19 mm outer diameter

7. Fitting

Fitting the motor housing



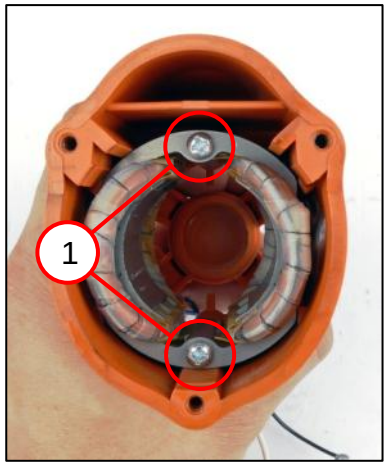




1. Connect the connecting cable (1).
2. Position the stator (2) in the motor housing.
3. Thread all stranded wires through the recesses (3).
   ☞ Position the connecting cable so that it is not crushed.

7. Fitting

Fitting the motor housing



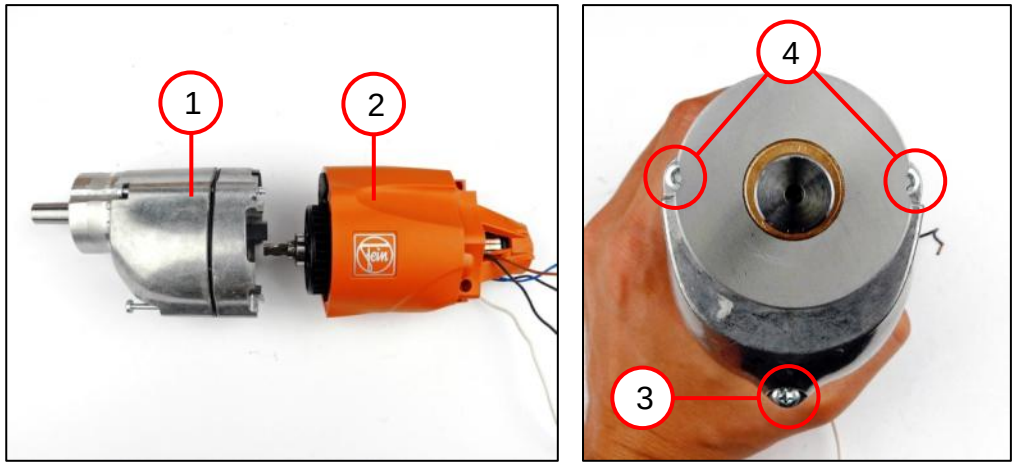
1. Drive in the two screws (1) [$1.0^{+0.4}$ Nm].
2. Position the air guide ring (2).
3. Press the armature (3) into the housing.

Tools:

- PH2 cross-tip screwdriver

7. Fitting

Fitting the housing



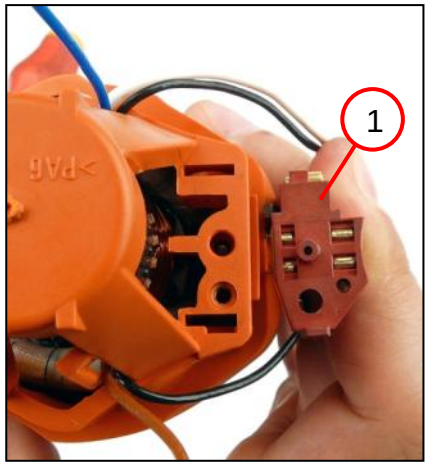
1. Place the gearbox housing (1) on the motor housing (2).
2. Drive in the screw [68 mm] (3) [$1.8^{+0.2}$ Nm].
3. Secure the two screws [55 mm] (4) [$1.8^{+0.2}$ Nm].

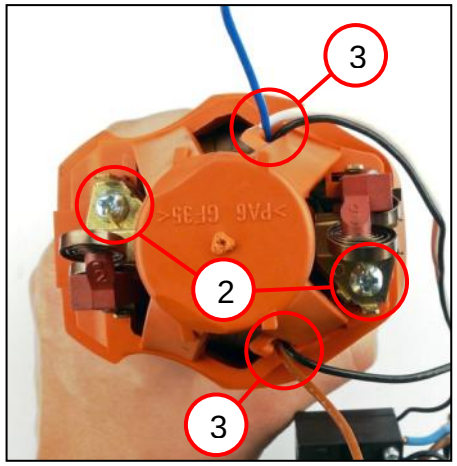
Tools:

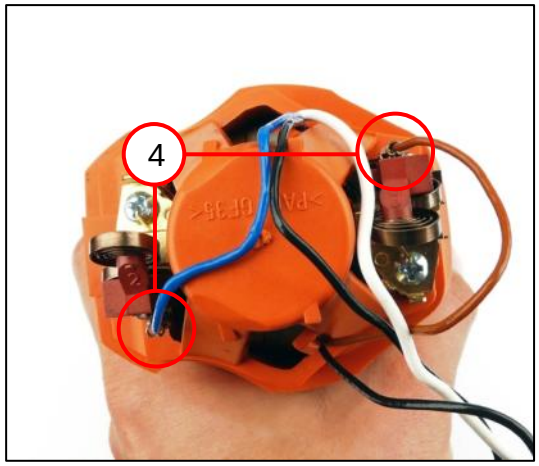
- Torx T20

7. Fitting

Fitting the carbon brush holders







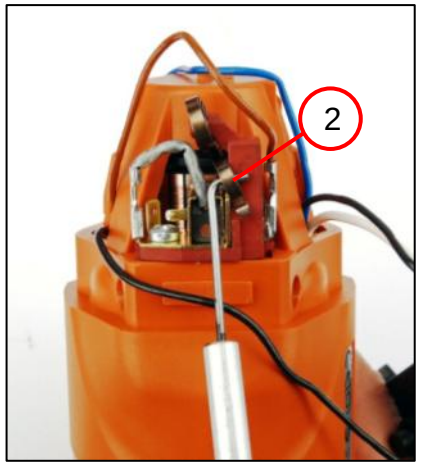
1. Place the carbon brush holder (1) on the motor housing in the correct position [on both sides].
2. Fasten the carbon brush holders with the two screws (2) [$0.6^{+0.1}$ Nm].
3. Fit the stranded wires (3) in the motor housing.
4. Connect the stranded wires (4) to the carbon brushes as shown in connection diagram.

Tools:

- PH2 cross-tip screwdriver

7. Fitting

Fitting the carbon brush



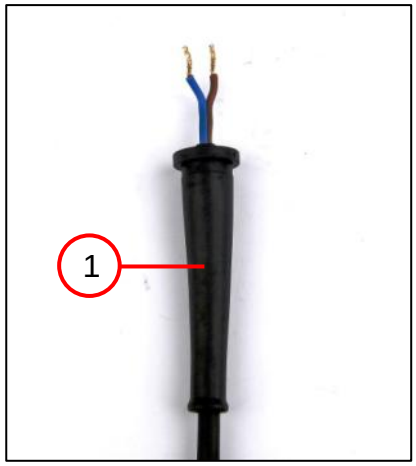
1. Insert and connect the carbon brush (1) [on both sides].
2. Place the spring (2) on the carbon brush.

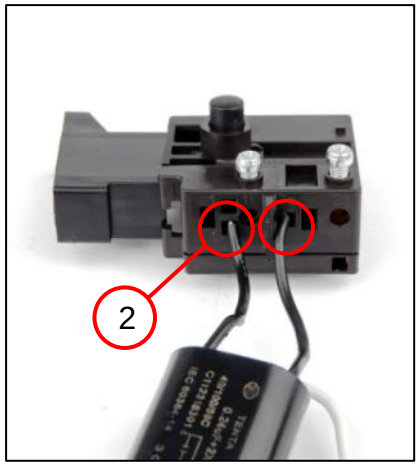
Tools:

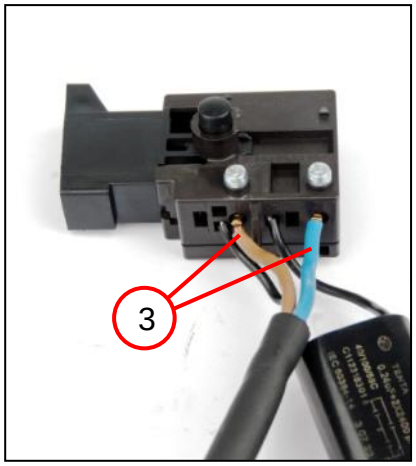
- Assembly aid

7. Fitting

Fitting the electronics







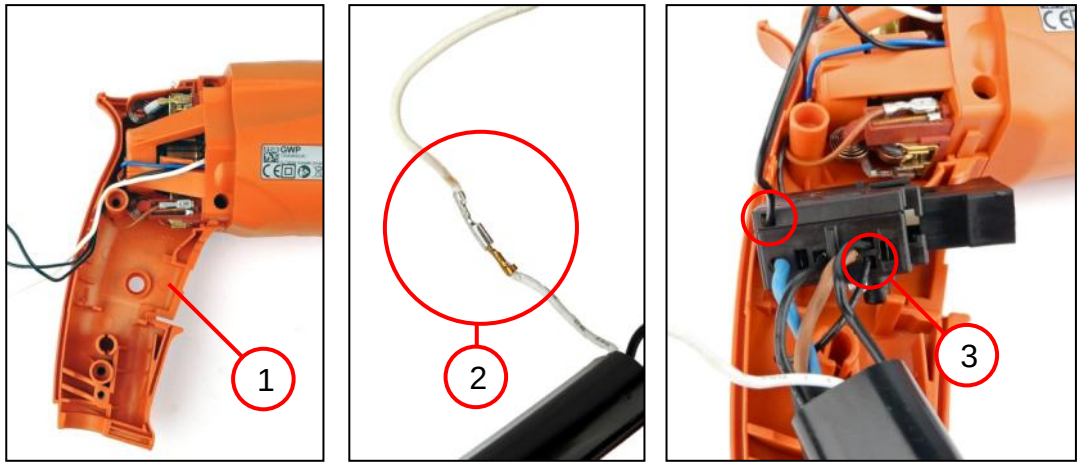
1. Slide the cable grommet (1) onto the cable with plug.
2. Connect the capacitor (2) to the speed setting switch as shown in connection diagram.
3. Connect the cable (3) to the speed setting switch as shown in connection diagram.

Tools:

- PH1 cross-tip screwdriver

7. Fitting

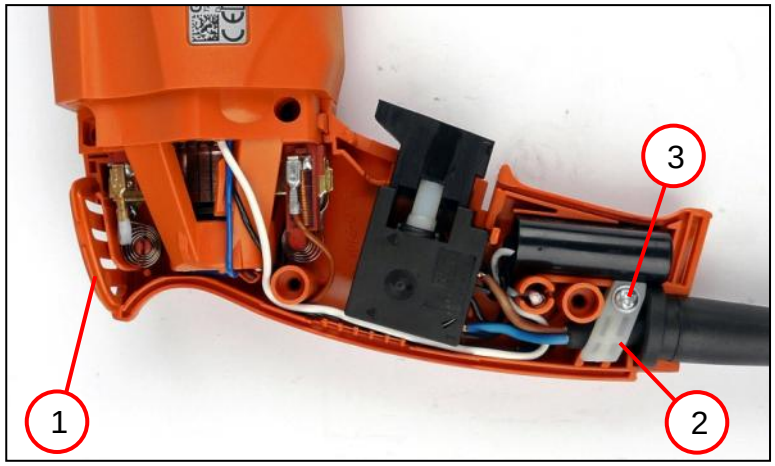
Fitting the switch

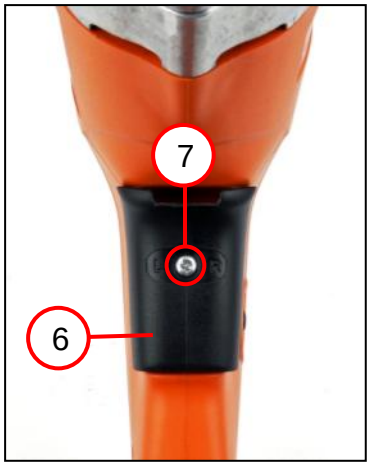


1. Fit the handle half shells (1) to the motor housing.
2. Connect the connecting cable to the capacitor (2).
3. Connect the stranded wires from the stator to the speed setting switch (3) as shown in connection diagram.

7. Fitting

Fitting the handle





1. Position the cover (1).
2. Position all electronic components in the handle half shell.
3. Lay all cables.
4. Insert the cable clamping piece (2) and use the screw (3) to screw it in place [$0.7^{+0.1}$ Nm].
5. Fit the second housing half.
6. Tighten the two screws 9x22 (4) [$1.2^{+0.2}$ Nm].
7. Tighten the screw 4x30 (5) [$1.2^{+0.2}$ Nm].
8. Fit the switch pushbutton (6) and use the countersunk screw (7) to fasten it [$0.6^{+0.2}$ Nm].

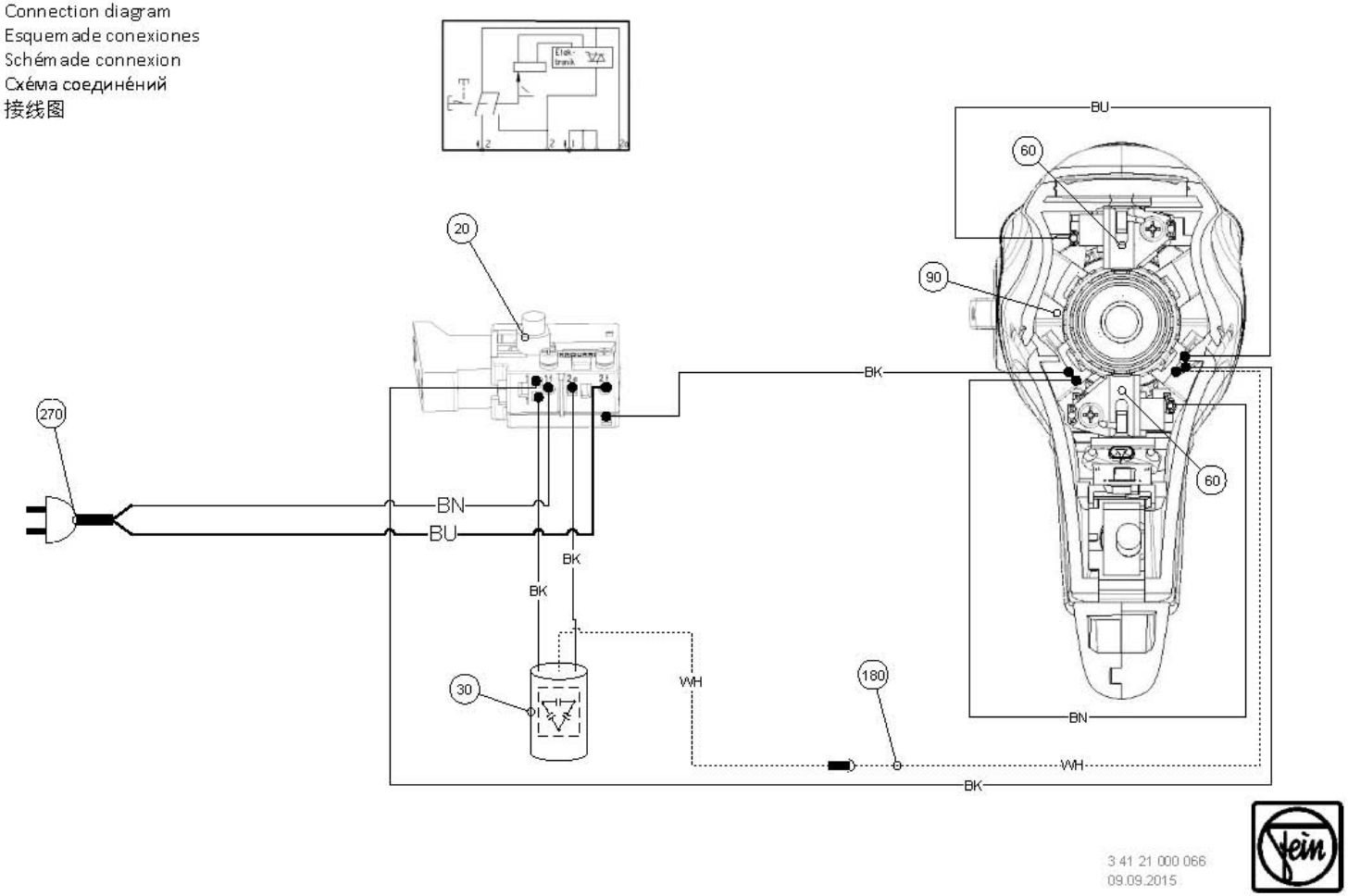
Tools:

- PH1 cross-tip screwdriver
- PH2 cross-tip screwdriver

8. Connection diagram

Anschlussplan
Connection diagram
Esquema de conexiones
Schéma de connexion
Схéма соединéний
接线图

7 209 38 – GWP / 230V 50Hz



8. Connection diagram

Anschlussplan
Connection diagram
Esquema de conexiones
Schéma de connexion
Схéма соединéний
接线图

7 209 38 – GWP / 120V 60Hz