

ASCM 14; ASCM 14QX; ASCM 18; ASCM 18QX

Repair instructions



ASCM 14; ASCM 18



ASCM 14QX; ASCM 18QX





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**1. Models described**

These instructions describe how to repair the following models:

Model	Order number
ASCM 14	7 11 60 100 95 0
ASCM 14QX	7 11 60 200 95 0
ASCM 18	7 11 60 300 94 0
ASCM 18QX	7 11 60 400 94 0



2. Technical data

Technical data

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

Test data

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

Lubricants

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

Lists of spare parts

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



3. Notes and requirements

Note

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

Only use original FEIN spare parts!

Requirements

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

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

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

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

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



4. Tools required

Standard tools

Torx T10, T30

Nut 19 mm

Ratchet

Torque wrench

Cross-tip screwdriver PH 2

Circlip pliers 8-10 mm
10-25 mm

Internal puller

Bolts Diameter 9, 5 mm

Vice

Sleeve: Inner diameter ~15 mm

Outer diameter 22 mm

Arbor press

Unlocking tool
(see list of "Workshop equipment")

Special tools:

Test board 6 41 34 001 01 0



5. Lubricants and auxiliary substances required

Note

No lubricants or auxiliary substances are required for assembly of the ASCM 14, ASCM 14QX, ASCM 18 and ASCM 18QX.



6. Disassembly

Disassembling quick-clamping drill chuck (applies to: ASCM 14QX, ASCM 18QX)



1. Press in lower side of quick-clamping drill chuck (1) and pull chuck off screwdriver.



6. Disassembly

Disassembling quick-clamping drill chuck (applies to: ASCM 14, ASCM 18)



1. Unscrew screw from quick-clamping drill chuck (left-handed thread).
2. Engage fourth gear and use ratchet to rotate quick-clamping drill chuck down.
☞ If the chuck cannot be released, continue disassembly up to page 18.

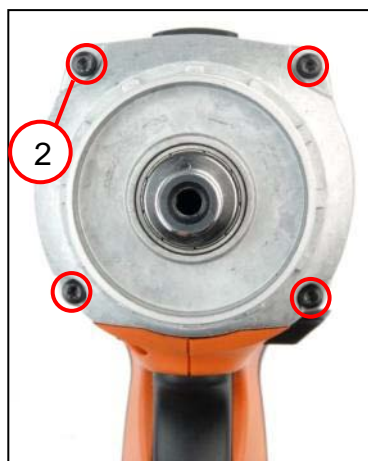
Tools:

- Torx T30
- Ratchet
- Nut 19 mm



6. Disassembly

Disassembling motor housing



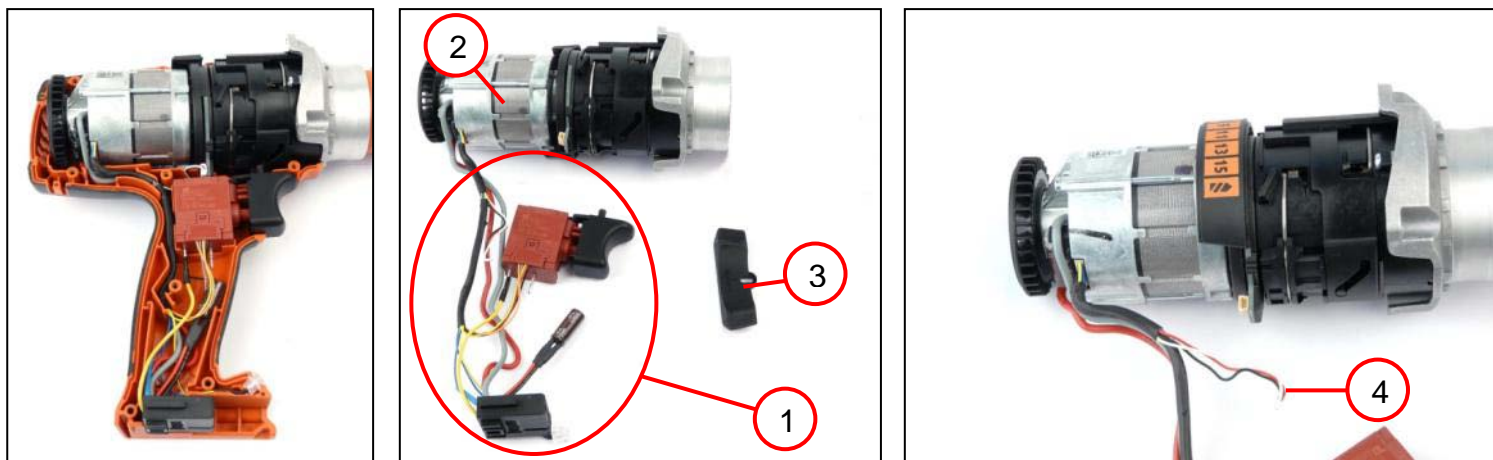
1. Press catch (1) and pull battery off tool.
2. Loosen the four screws (2).
3. Unscrew the eight screws (3) and take off motor housing.

Tools:

- Torx T10

6. Disassembly

Disassembling motor housing

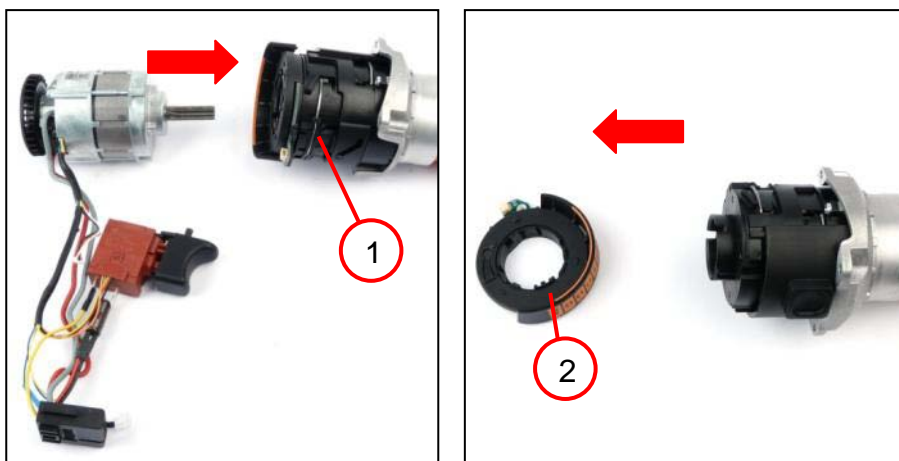


1. Remove switch (1), motor (2) and switch pushbutton (3) from motor housing.
2. Disconnect cable (4).



6. Disassembly

Disassembling gearbox

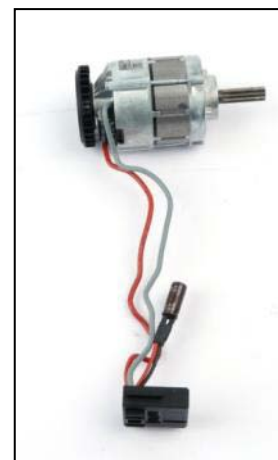
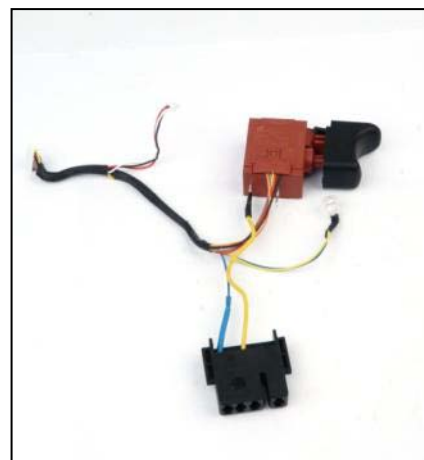
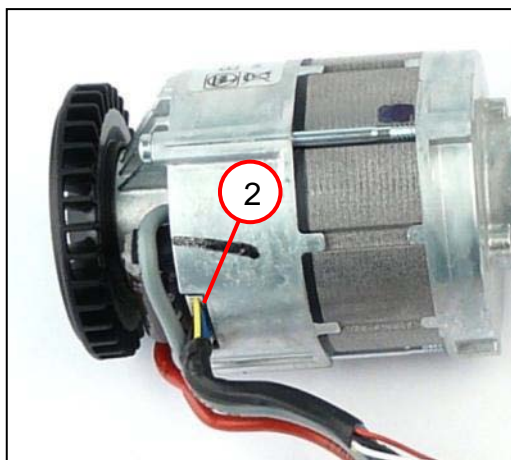
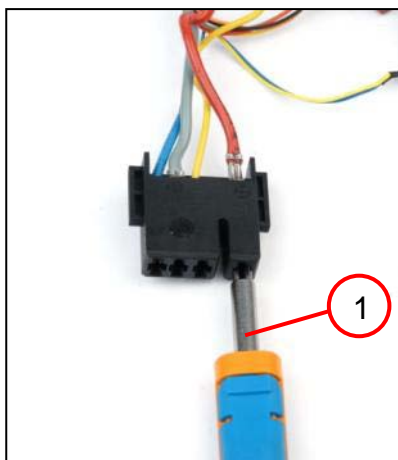


1. Remove gearbox (1) from motor.
2. Pull adjusting ring (2) off gearbox.



6. Disassembly

Disassembling motor



1. With unlocking tool (1), loosen cable.
2. Disconnect plug (2) from motor.

Tools:

- Unlocking tool



6. Disassembly

Disassembling gearbox



1. Unscrew the two screws (1) and pull housing (2) up and off.

Caution!

Do not hold gearbox (3) upside down, parts may fall out.

☞ If gear-wheels fall out of gearbox, see page 28.

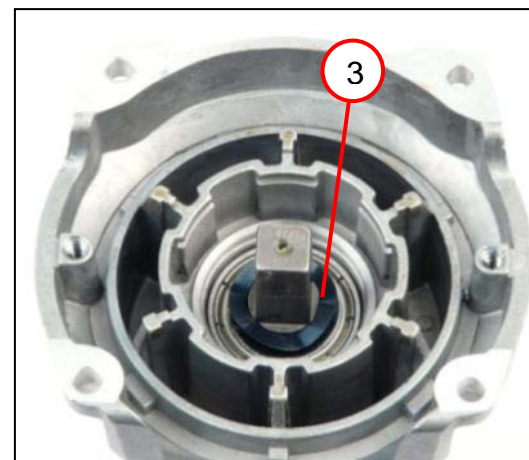
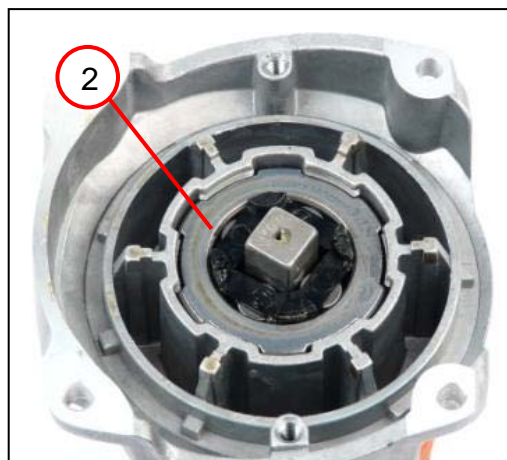
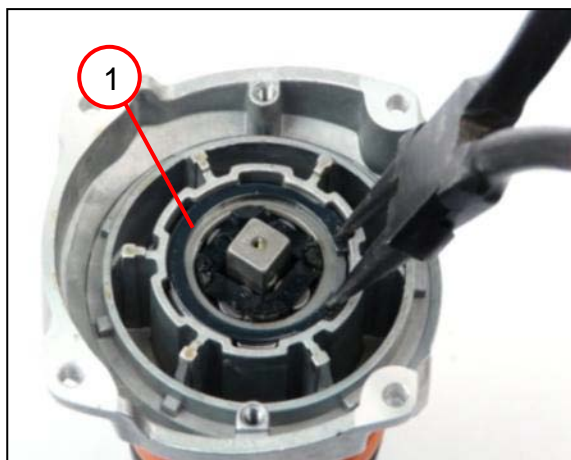
Tools:

- Phillips bit 1.4" PH 2



6. Disassembly

Disassembling gearbox housing



1. Remove circlip (1) with circlip pliers.
2. Remove shaft barrier (2).
3. Remove disc (3).

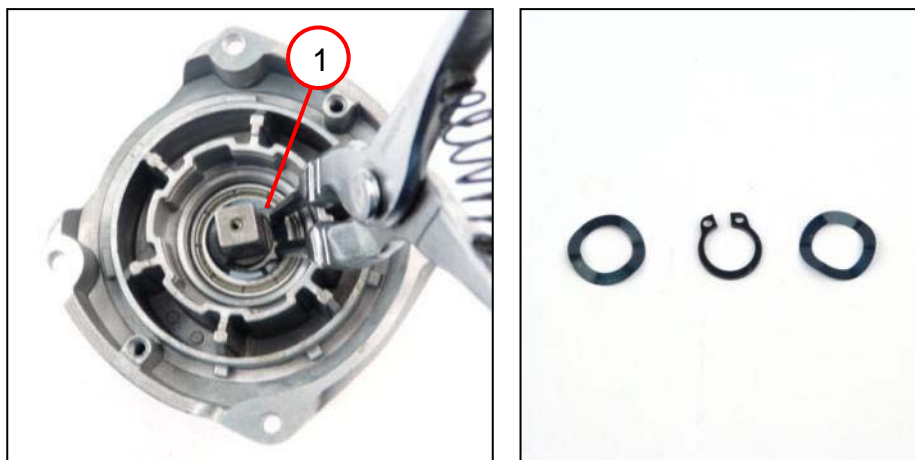
Tools:

- Circlip pliers 10-25 mm



6. Disassembly

Disassembling gearbox housing



1. Remove circlip (1) with circlip pliers and take out second disc.

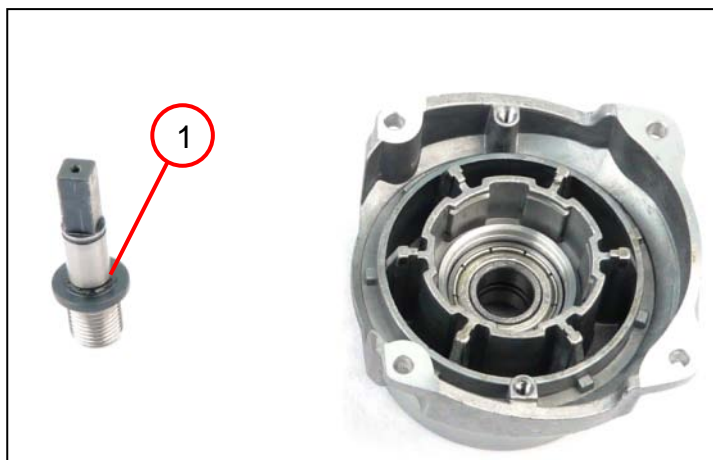
Tools:

- Circlip pliers 8-10 mm



6. Disassembly

Disassembling gearbox housing (applies to: ASCM 14QX, ASCM 18QX)



1. Pull shaft out of gearbox housing.



6. Disassembly

Disassembling quick-clamping drill chuck (applies to: ASCM 14, ASCM 18)



NOTE

Only applies if it was not possible to disassemble quick-clamping drill chuck at the beginning.

1. Clamp quick-clamping drill chuck in vice by shaft square.
2. Unscrew screw in quick-clamping drill chuck (left-handed thread).
3. With ratchet, turn chuck away from shaft.

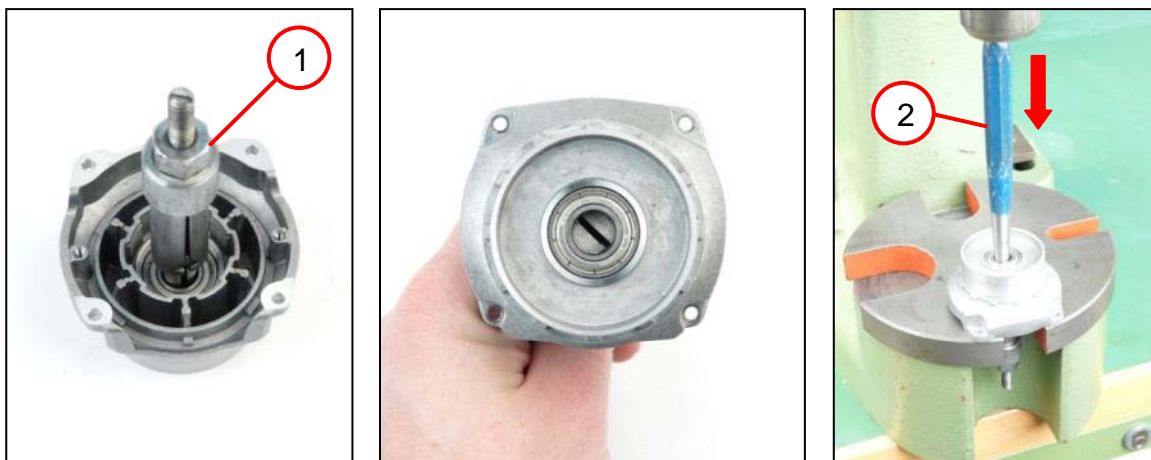
Tools:

- Torx T30
- Ratchet
- Nut 19 mm



6. Disassembly

Disassembling housing



1. Position internal puller (1) between grooved ball bearings.
2. Press with bolt (2) on internal puller and press out grooved ball bearing with arbor press.

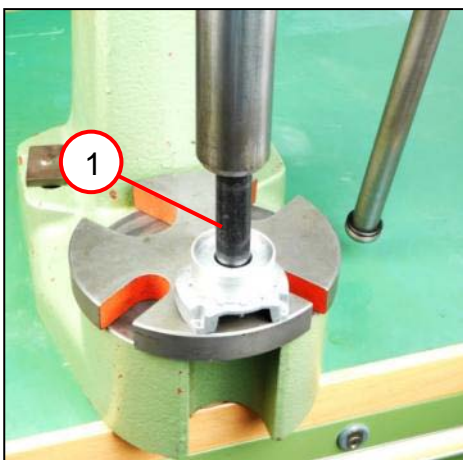
Tools:

- Bolt, diameter 9, 5 mm
- Internal puller
- Arbor press



6. Disassembly

Disassembling housing



1. Press out second grooved ball bearing with help of sleeve (1) and arbor press.
☞ Grooved ball bearings must be replaced during assembly.

Tools:

- Sleeve
internal diameter 15 mm
outer diameter 19 mm
- Arbor press



7. Assembly

Assembling housing



1. Press the two grooved ball bearings into each side of housing.
☞ Always use new bearings.

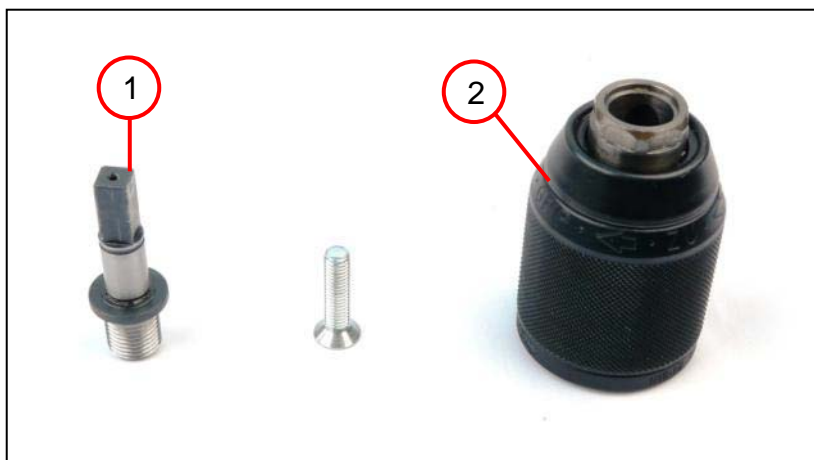
Tools:

- Arbor press
- Sleeve
inner diameter ~ 15 mm
outer diameter 22 mm



7. Assembly

Assembling quick-clamping drill chuck (applies to: ASCM 14, ASCM 18)



1. Clamp shaft (1) in vice by square.
2. Screw chuck (2) on to shaft.
 - 🔧 Tighten to tightening torque of 33 ± 3 Nm.

Tools:

- Socket wrench insert
19 mm
- Torque wrench



7. Assembly

Assembling quick-clamping drill chuck (applies to: ASCM 14, ASCM 18)



1. Turn screw into quick-clamping drill chuck (left-handed thread).
 - ☞ Tighten to tightening torque of 8 ± 1 Nm.
 - ☞ Always use a new screw.

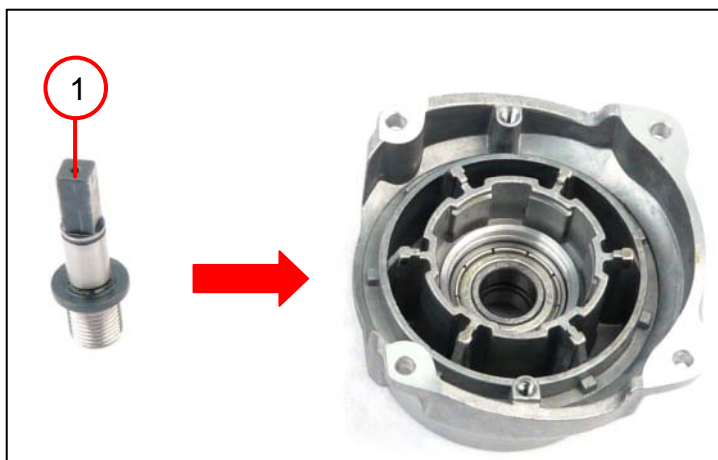
Tools:

- Socket wrench insert
Torx T30
- Torque wrench



7. Assembly

Assembling shaft (applies to: ASCM 14QX, ASCM 18QX)

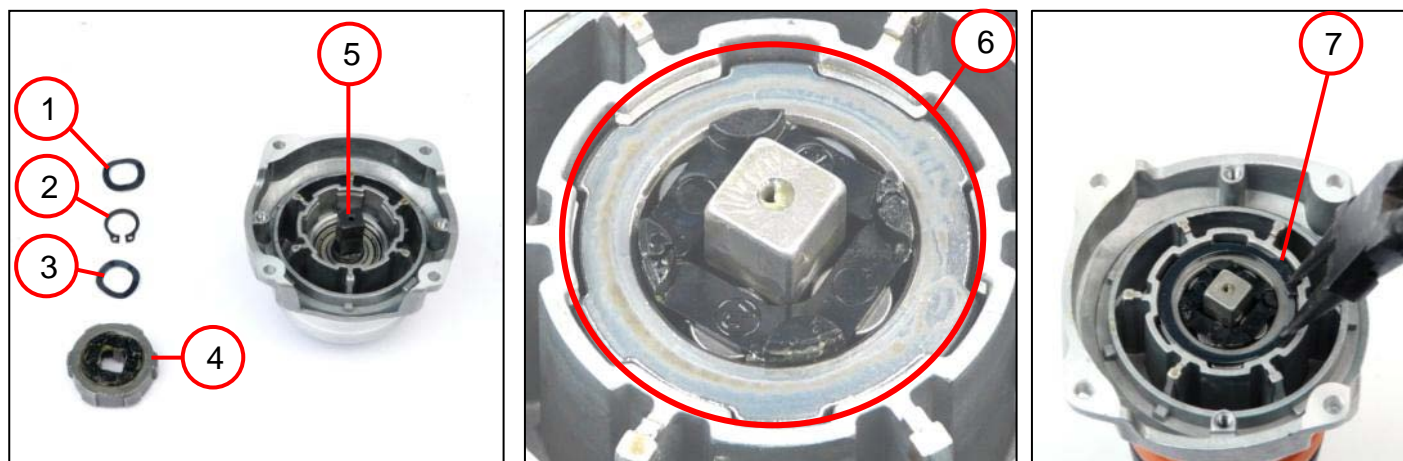


1. Insert shaft (1) in gearbox housing.



7. Assembly

Assembling gearbox housing



1. Slide disc (1) on to shaft (5).
☞ Use a new disc.
2. Mount circlip (2) on shaft.
☞ Circlip will audibly click into place.
3. Slide disc (3) on to shaft.
☞ Use a new disc.
4. Insert shaft barrier (4) in correct position (6).
5. Mount circlip (7) on shaft barrier.

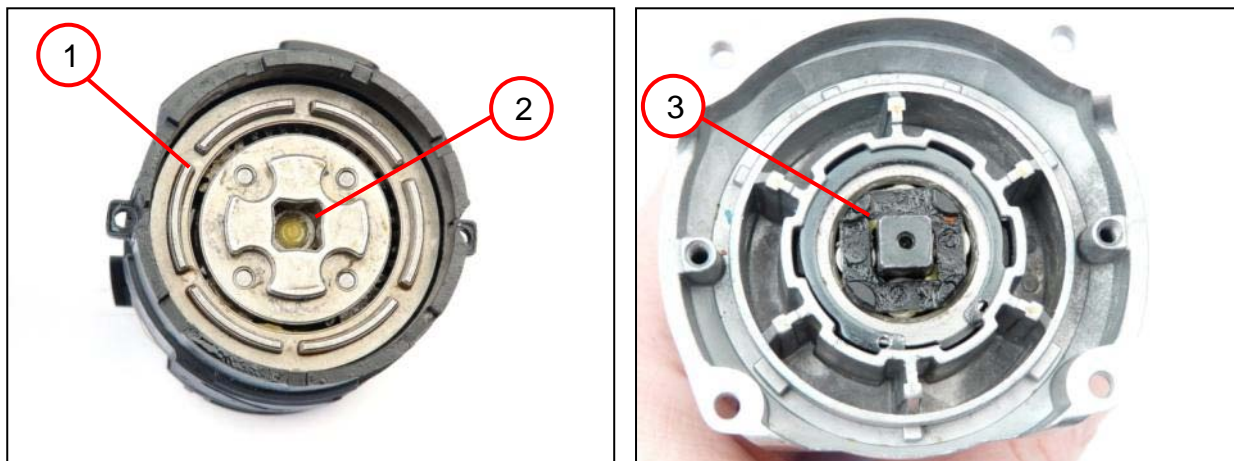
Tools:

- Circlip pliers 8-10 mm
- Circlip pliers 10-25 mm



7. Assembly

Assembling gearbox housing

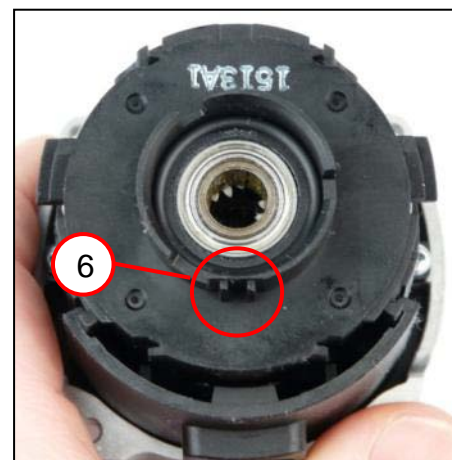
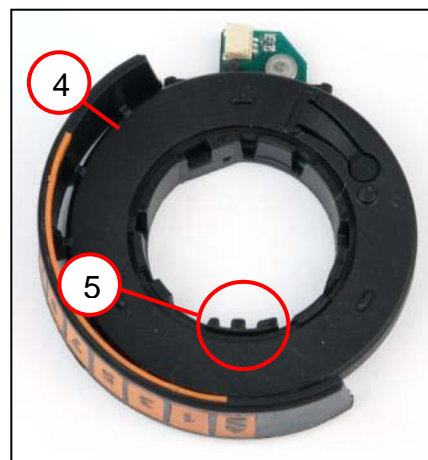


1. Align locking disc (1), planetary carrier (2) and shaft barrier (3) as shown in picture.
☞ Engage fourth gear to make gearbox alignment easier.



7. Assembly

Assembling gearbox



1. Fit housing (1) on gearbox (2) and secure with the two screws (3).
 ⚙ Tighten screws to tightening torque of 0.9 ± 0.2 Nm.
2. Fit adjusting ring (4) with groove (5) on prominence (6) of gearbox.

Tools:

- Torque screwdriver
- Phillips bit 1.4" PH 2



7. Assembly

Assembling gearbox



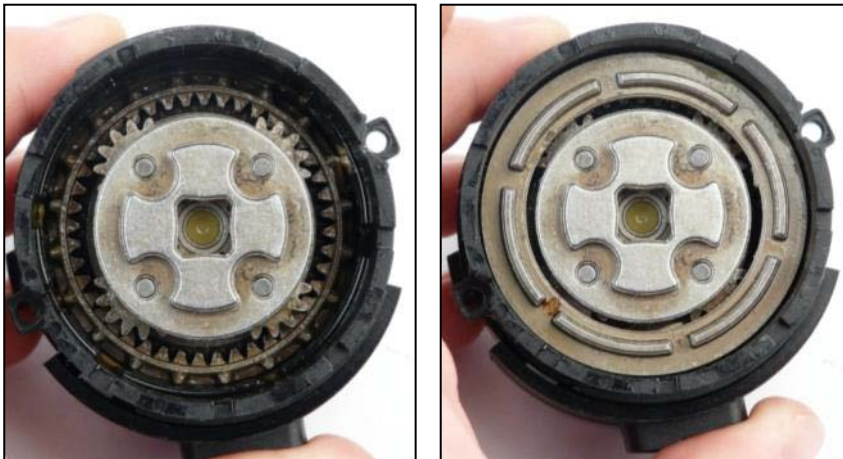
NOTE

If the gearbox falls apart, reassemble as shown in the picture.



7. Assembly

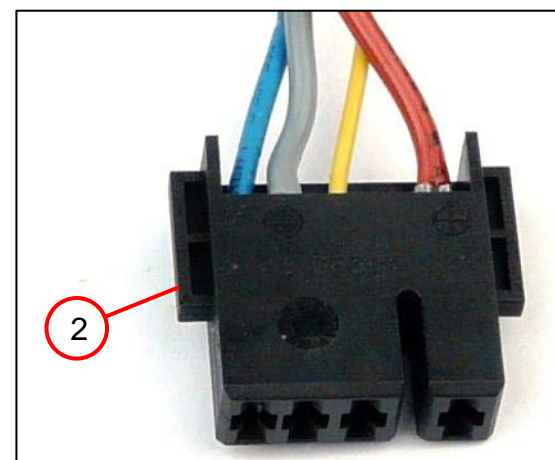
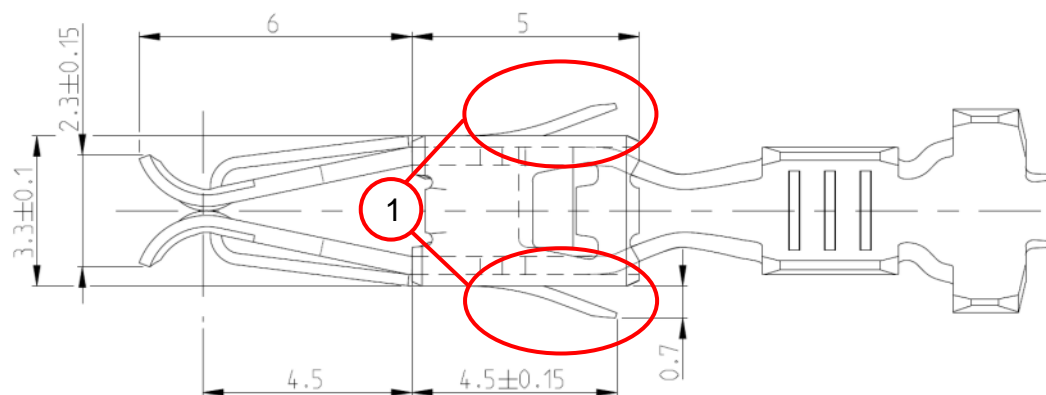
Assembling gearbox





7. Assembly

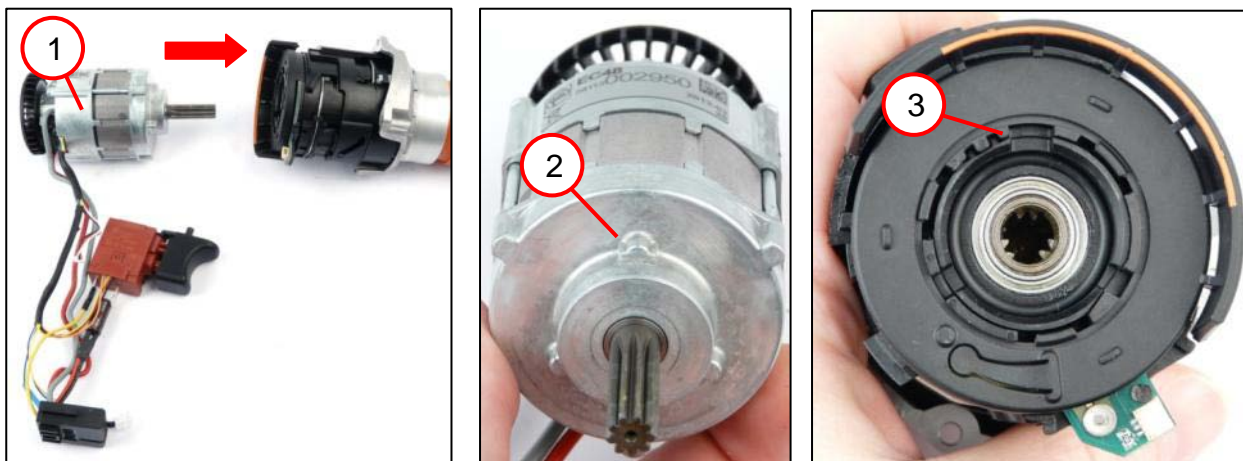
Assembling motor



1. Bend the mountings (1) of the female push-on connector to the specified dimension.
 - ☞ The mountings must be bent before assembly, otherwise the connectors will not engage with the plug.
2. Connect the four cables to plug (2).
 - ☞ Always use a new plug for all assembly work involving the motor or switch.

7. Assembly

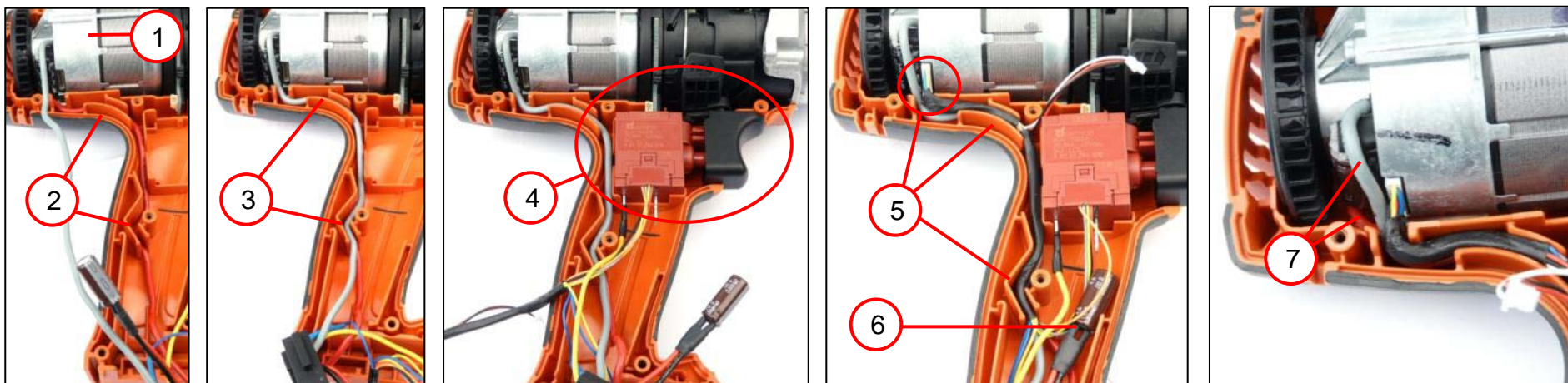
Assembling the motor



1. Insert motor (1) with larger projection (2) in larger recess of gearbox.
☞ The motor must not turn or wobble after connecting.

7. Assembly

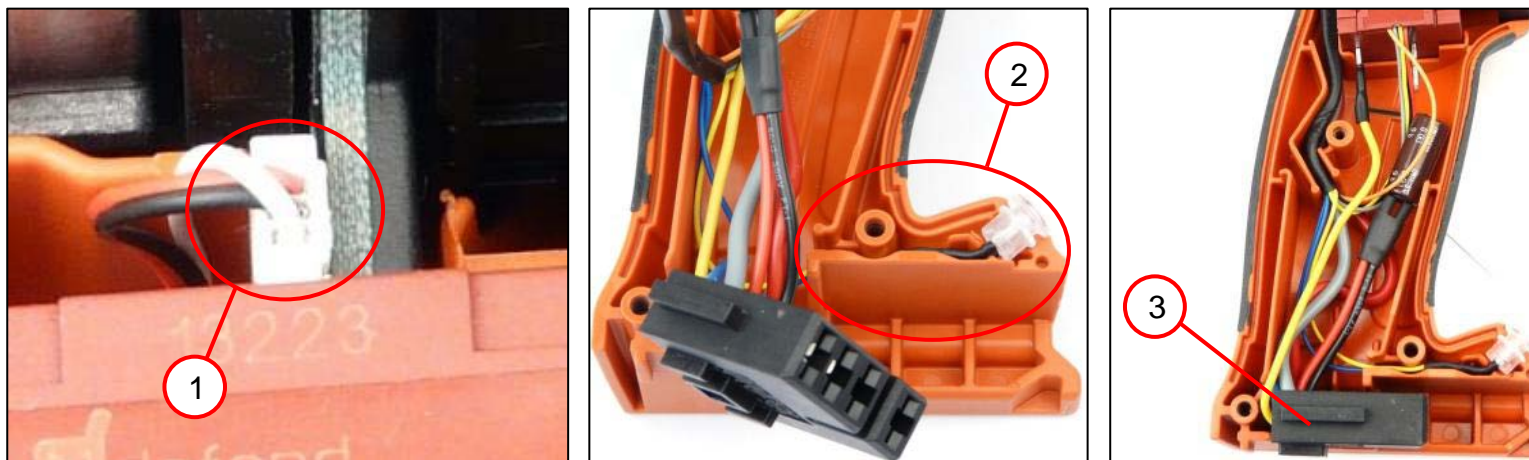
Assembling gearbox



1. Insert motor (1), with gearbox.
2. Route red cable (2) in cable guides provided.
3. Route grey cable (3) in cable guides provided.
4. Insert switch (4).
5. Connect black cable (5) to motor and route in cable guides provided.
 - ☞ Check that plug is seated correctly.
6. Position capacitor (6).
 - ☞ When routing cables, make sure motor cable (7) is not too close to fan wheel.

7. Assembly

Assembling gearbox

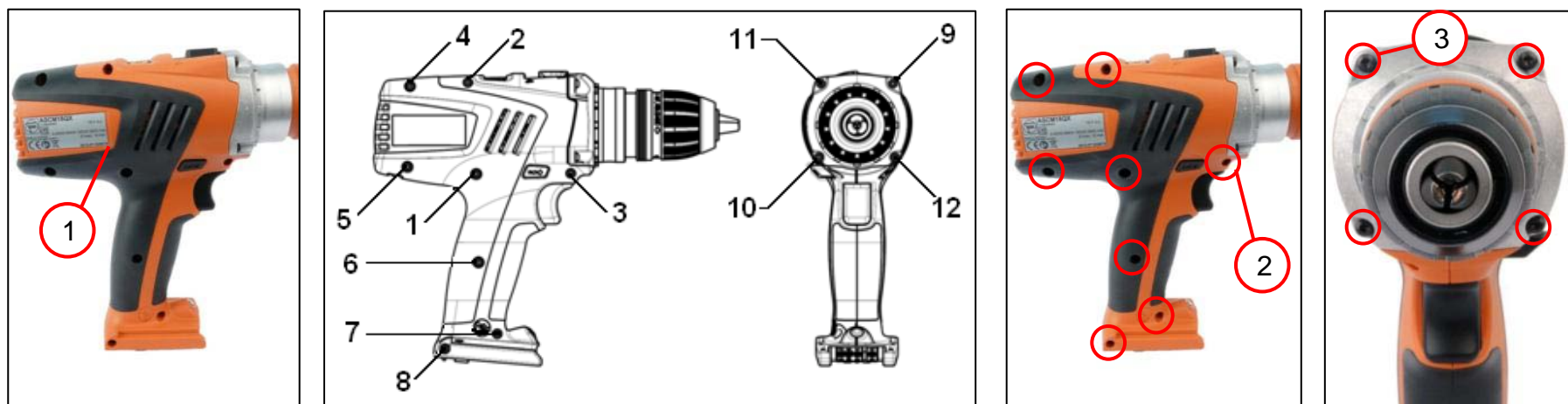


1. Connect plug (1).
2. Insert LED and route LED cable in cable guides provided (2).
3. Insert plug (3).



7. Assembly

Assembling motor housing



1. Fit motor housing (1).
2. Screw the eight screws (2) into motor housing.
 - ☞ Observe sequence shown in second picture.
 - ☞ Tighten to tightening torque of 1.2 ± 0.1 Nm.
3. Screw the four screws (3) into motor housing.
 - ☞ Observe sequence shown in second picture.
 - ☞ Tighten to tightening torque of 1.2 ± 0.1 Nm.

Tools:

- Torque wrench
- Socket wrench insert
Torx T10



7. Assembly

Assembling motor housing



1. Slide battery on to tool.



8. Troubleshooting

Fault	Cause	Remedy
Motor not running	Motor / electronics defective	Check electrics with test board
	Switch is defective	Check electrics with test board
	Battery plug contacts have come loose	Check components
Unusual noise (rattling)	Gearbox is defective	Replace gearbox
Motor only turning in one direction	Plug on motor has come loose or is not secure	Check cable
Torque shutting off at drilling level or too early	Adjusting ring is defective	Replace adjusting ring

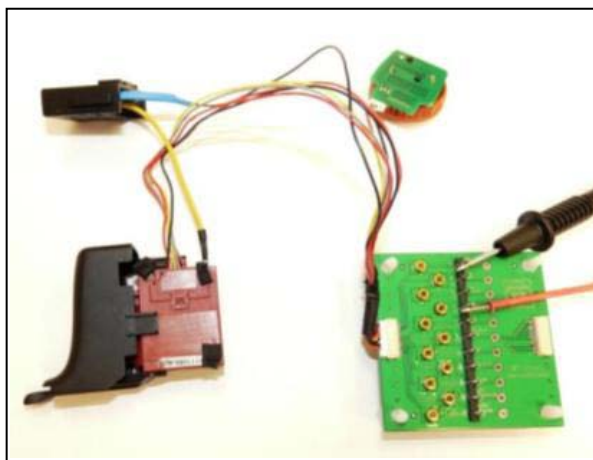


8. Troubleshooting

Test board



Test setup



FEIN recommends using the test board (special tool) for electrical troubleshooting.

Since the motor cannot be tested directly, you can use the test board to check the functions of switches and torque potentiometers (if present).

The test steps and nominal values for use with the test board are provided on the next page.

Tool:

- Test board
- Multimeter



8. Troubleshooting

Test object	Test method	Nominal value	Measurement line +	Measurement line -
General tests				
Battery Sense	Passage	Switch not pressed: $= \infty \Omega$ Switch pressed: $< 10 \Omega$	Battery Sense (yellow)	Pin 1
Battery data	Passage	$< 10 \Omega$	Battery data (blue)	Pin 6
Right-left	Passage	Position 1: $= \infty \Omega$ Position 2: $< 10 \Omega$	Pin 4	Pin 5
Speed potentiometer Total resistance	Resistance	$20\text{k}\Omega \pm 4 \text{ k}\Omega$	Pin 4	Pin 2
Speed potentiometer Resistance range	Resistance	0Ω to $20 \text{ k}\Omega \pm 4 \text{ k}\Omega$ (proportional to potentiometer travel) Switch not pressed: 0Ω Switch pressed: $20 \text{ k}\Omega \pm 4 \text{ k}\Omega$	Pin 4	Pin 3



8. Troubleshooting

Test object	Test method	Nominal value	Measurement line +	Measurement line -
Tool-dependent test				
Torque potentiometer Total resistance	Resistance	Drilling level 1: 9.5 k Ω \pm 5% Drilling level 15: 5 k Ω \pm 5%	Pin 7	Pin 9
Torque potentiometer Resistance range	Resistance	Drilling level 1: 0.2 k Ω \pm 5% Level 1: 1.1 k Ω \pm 10% Level 2: 1.5 k Ω \pm 10% Level 5: 2.5 k Ω \pm 5% Level 10: 3.7 k Ω \pm 5% Level 14: 4.4 k Ω \pm 5% Level 15: 4.6 k Ω \pm 5% Drilling level 15: 4.9 k Ω \pm 5% (proportional to potentiometer travel)	Pin 7	Pin 8
LED	Diode test	2.5V \pm 0.3V	Pin 11	Pin 10

9. Connection diagram

