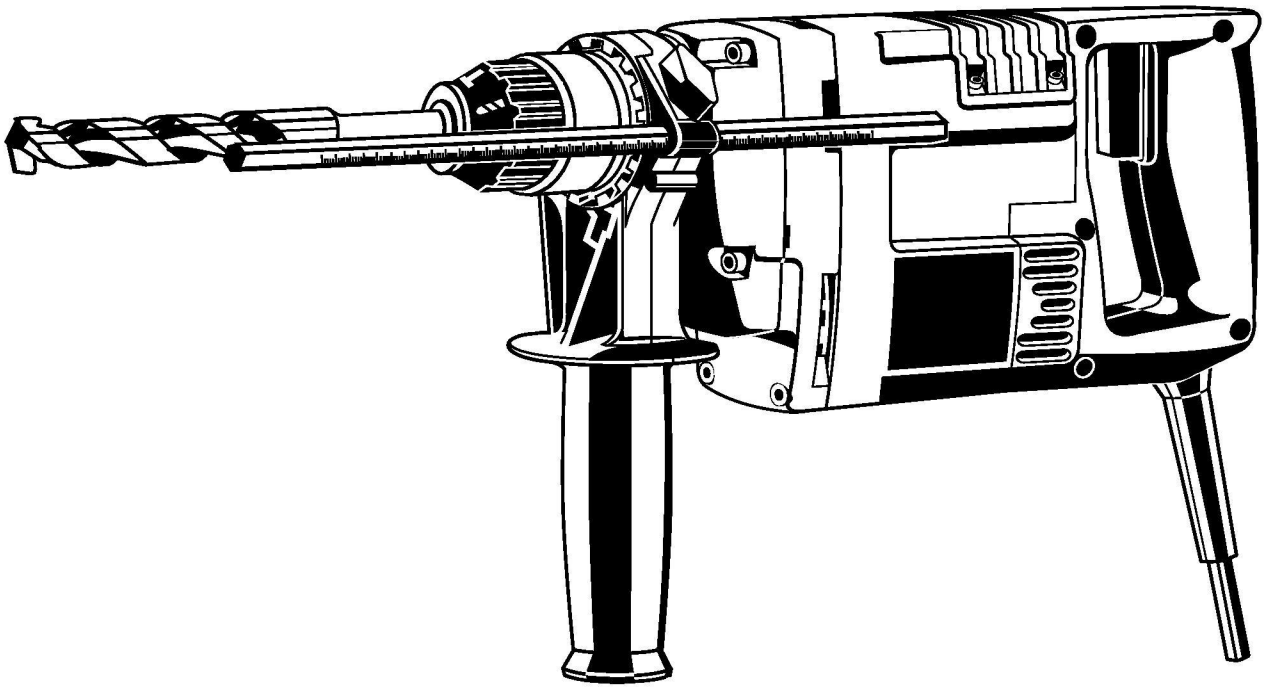
Atlas Copco
Electric Power Tools Ltd.

Repair Instructions No.163.01/96
PHE 20 / PHE 26 / PHE 200



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PHE 20 / PHE 26 / PHE 200

Special Tools Required

- Allen key
- (Dis-)assembly set 4931 599011
- Repair tool set 4931 599016

Important!

- Before beginning the maintenance work, perform an initial check with a high voltage test according to VDE (see chapter Electrical and Mechanical Test Instructions).
- Before all repair work, pull the power plug from the socket!

Disassembly

Dismantling the carbon brushes

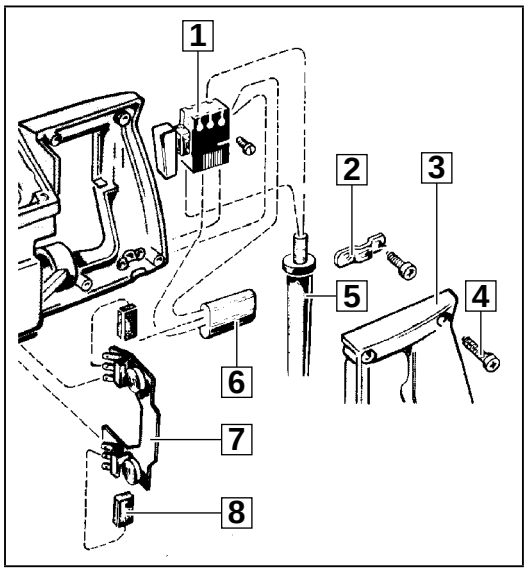
1 Loosen the five screws (4) and remove the upper handle cover (3).

2 Remove the cable collar (2).

3 Disconnect the power supply lead together with the cable entry sleeve (5) from the switch (1) and remove them.

4 Branch off all the strands from the switch (1), from the capacitor (6) and from the brush holder (7). Remove the switch (1) and the capacitor (6).

5 Pull the strands from the brush holder (7). Pull out the brush holder (7) and remove the carbon brushes (8).



1

Dismantling the wheel shaft

1

☞ Remove all **six gear screws**. Remove the gear box completely with the bearing end plate and the armature from the motor housing.

2 Loosen the four screws and remove the housing cover (1).

3 Pull the cylinder (3) together with the percussion body (4) from the motor housing. Remove the piston con-rod (5) from the wheel shaft (6) and take it out.

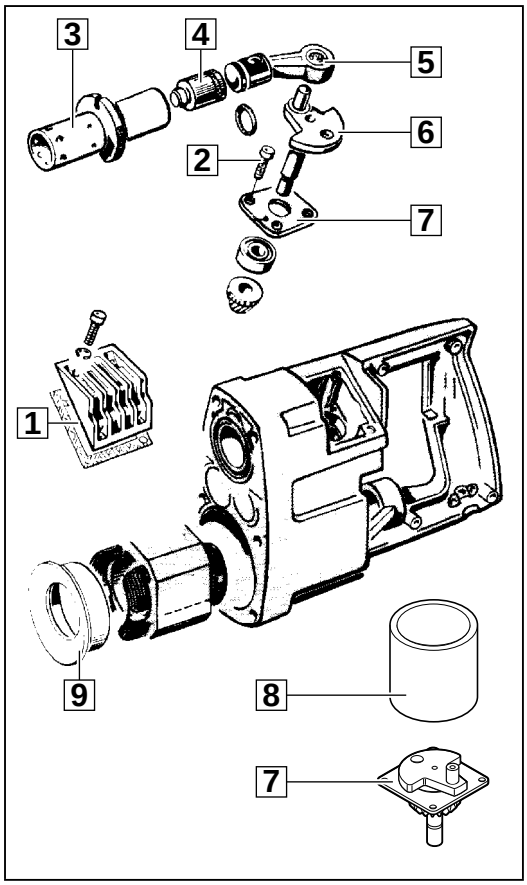
4 Remove the four cylinder screws (2) and completely remove the wheel shaft (6).

5 Push the sleeve (8) (special tool) onto the bearing cover (7). Press off the sun wheel and the ball bearing. The bearing cover (7) gets destroyed.

6 Remove the air deflector plate (9) from the motor housing.

7 Beat the field from the motor housing.

☞ Take care that the field was disconnected beforehand.



2

Dismantling the gear box

1 Carefully remove the bearing end plate (9) from the gear box (2) (lever it off with aid of a screwdriver).

2 Remove the gasket (3).

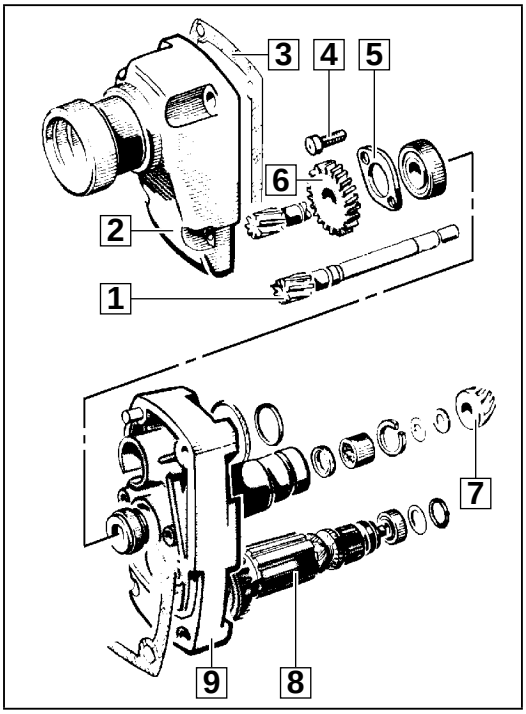
3 Expel the armature (8) by hitting the bearing end plate (9) lightly with a plastic hammer.

4 Remove the two screws (4).

5 Put the bearing end plate (9) onto a pad. Press out the reduction gear shaft (1) through the sun wheel (7) with aid of a mandril.

6 Place the reduction gear wheel (6) to a sleeve (repair tool set; service tool). Press out the sun wheel (1) with aid of a screw press.

7 Remove the gear wheel (6), the bearing cover (5) and the bearing.



3

Dismantling the snap die

1 Remove the intermediate wheel (8) with aid of a plastic hammer and press off the ball bearings at both sides.

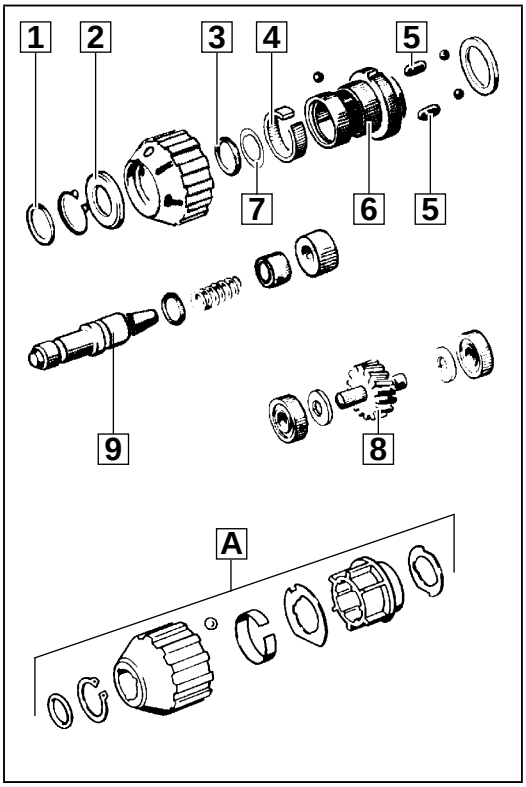
2 Completely remove the locking ring, the set collar (2), the O-ring (1), and the set collar from the spindle gear.

3 Remove the O-ring (3), the disc (7), the spring sleeve (4), the ball, and the sleeve (6).

4 Remove the rolls (5) and both balls.

5 Applicable for the new SDS-Plus-System (A): the rolls (5) are replaced by balls.

6 Press out the snap die (9).



4

Dismantling the spindle gear

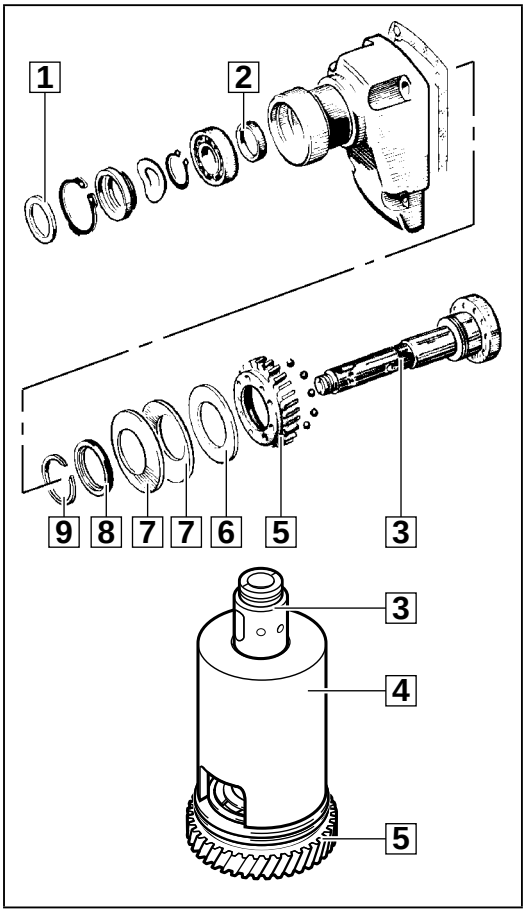
1 Remove the disc (1), as well as the locking ring, the bearing cover, the disc, the locking ring, the ball bearing, and the seal ring (2).

2 Press the complete spindle (3) from the gear box.

3 Push back the ring (8) and the cup springs (7) with aid of the disassembly tool (4) (service tool) and remove the locking ring (9) with aid of special pliers.

4 Remove the disassembly tool (4) from the spindle (3) and remove the locking ring.

5 Remove the ring (8), the cup springs (7), the disc (6), the balls, and the spindle gear (5).



5

Maintenance

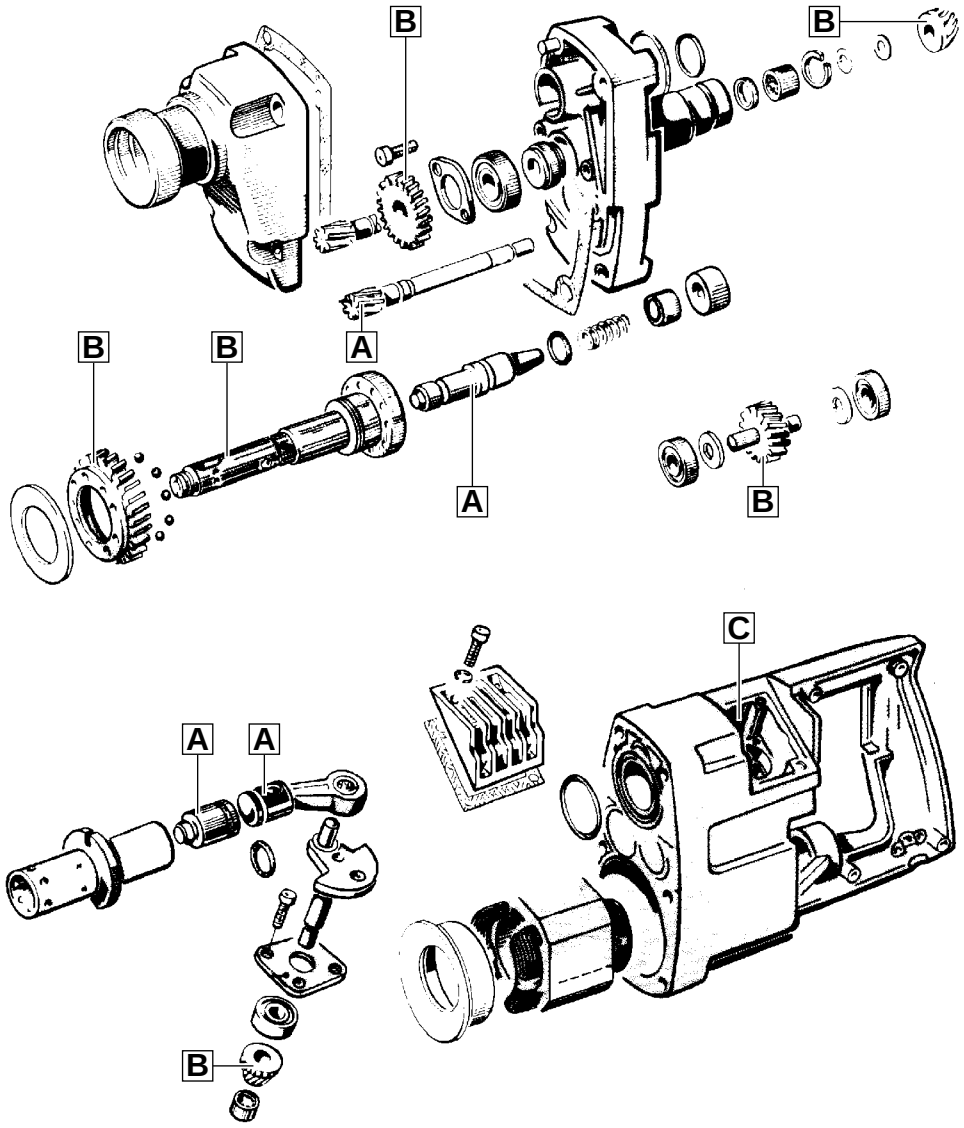
General	It is recommended to regularly submit the tool to maintenance, or as soon as the hammer mechanism gets weak, or when the carbon brushes switch off. When carrying out maintenance all parts of the maintenance set must be exchanged. Use the respective maintenance set provided for each machine.
Cleaning	Clean all parts – with the exception of the electrical parts – with cold cleaning agent. **Caution!** No cleaning agent should penetrate into the bearing. Clean the electrical parts with a dry brush.
Check for wear	Check the disassembled parts for wear (visual inspection) and replace worn parts.
Electrical tests	Before reassembling, perform an electrical test on all relevant parts (see chapter Electrical and Mechanical Test Instructions).

Lubrication

Each time maintenance is performed, the machine is to be lubricates as stated in the lubrication plan. After the machine is fully disassembled, completely remove the old grease and replace with new grease. The grease must be applied to the machine as indicated in the lubrication plan.

Legend

A Cover with grease 10 g Tivela
B Cover with grease 10 g Darina
C Fill with grease Tivela



Torques

Gear box screws (additionally secure with screw locking device)	3,0 Nm
Housing screws (plastic)	2,0 Nm

Assembly

Pre-assembling the reduction gear shaft

1 Pre-assemble the reduction gear shaft (1), the reduction gear wheel (2), the bearing cover (3), and the ball bearing (4).

2 Press the pre-assembled components into the bearing end plate (7). Fasten it with additionally secured screws (Omnifit).

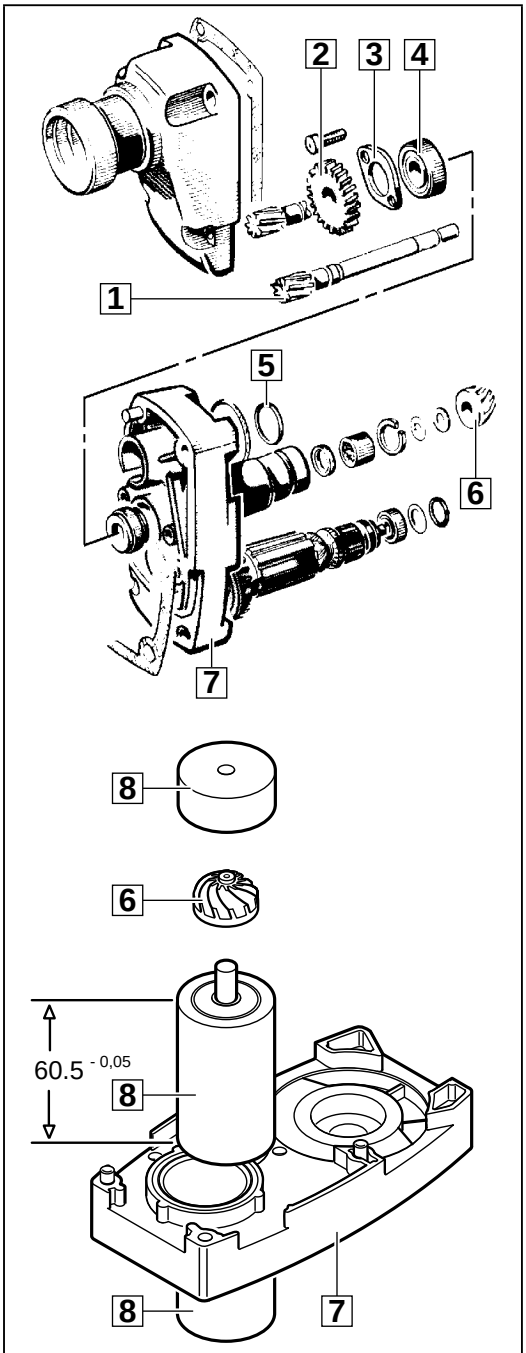
3 Measure the center distance of the sun wheel (6). If necessary, correct the distance with washers.

☞ Set the center distance with aid of the sleeve (8) (repair tool set; special tool) to 60,5 - 0,05 mm. Check the distance between the upper and the lower part with aid of a feeler gauge and set the tolerance to - 0,05 mm with washers.

4 Press on the sun wheel (6) with aid of the repair tool set (8) (service tool).

5 Fit the complete armature to the bearing end plate (7). Mind the right position.

6 Insert the O-ring (5) into the bearing end plate (7).



1

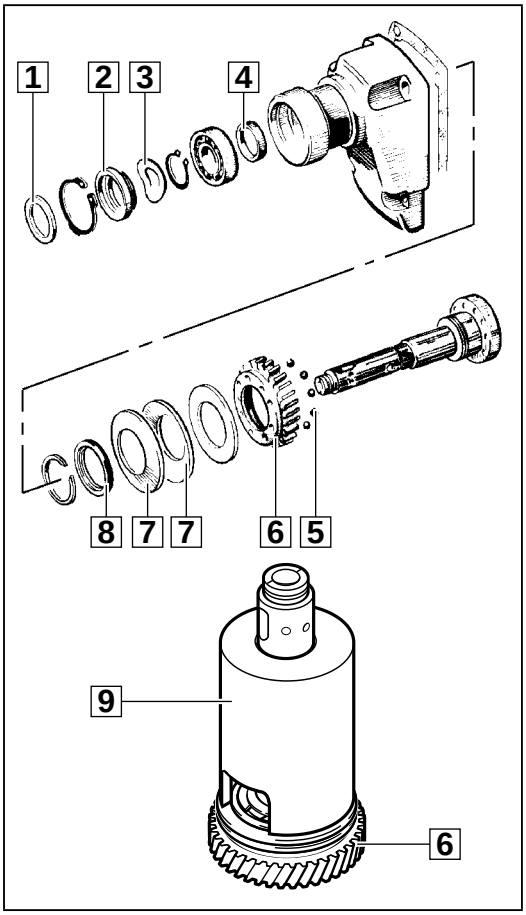
Mounting the spindle gear

1 Push the spindle gear (6) completely with greased balls (5), disc, cup springs (7), ring (8), and locking ring onto the spindle.

2 Push back the ring (8) as well as the cup springs (7) with aid of the assembly tool (9) (service tool) and mount the locking ring with aid of special pliers.

3 Insert the complete spindle into the gear box.

4 Mount the seal ring (4), the ball bearing, the locking ring, the disc (3), bearing cover (2), the locking ring, as well as the disc (1).



2

Mounting the set collar

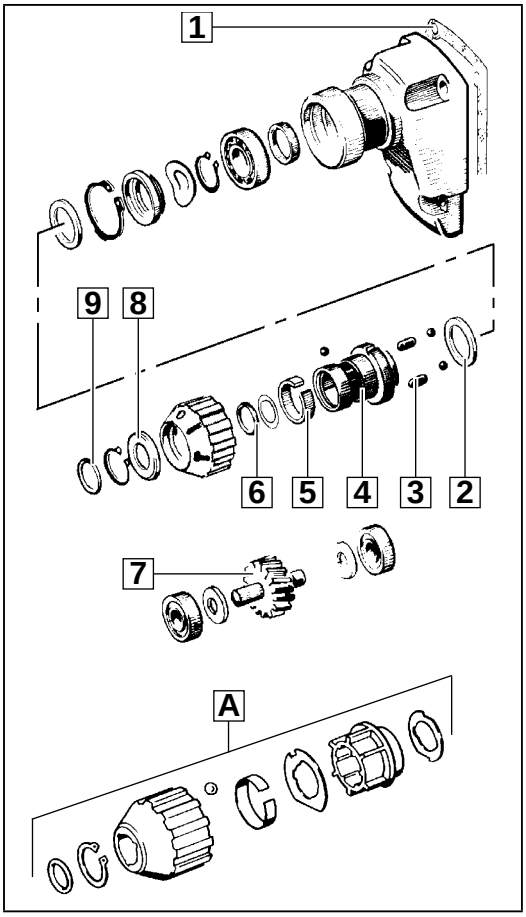
1 Insert the disc (2). Insert the rolls (3) with grease.

2 Applicable for the new SDS-Plus-System (A): the rolls (5) are replaced by balls.

3 Slide on the sleeve (4) together with the ball.

4 Mount the spring sleeve (5), the disc, the O-ring (6), the set collar, the cover (8), the locking ring, and the O-ring (9).

5 Insert the small intermediate wheel (7) into the gear box and fit it together with the gasket (1) to the bearing end plate.



3

Mounting the wheel shaft

1 Completely assemble the wheel shaft (6) and press the reduction gear flush onto the wheel shaft.

☞ Use a new bearing cover (7).

2 Insert the complete wheel shaft into the motor housing (8) and fasten it with screws. Additionally secure the screws with screw locking device.

3 Insert the percussion body (4) and the piston con-rod (5) together with the four-lip-seal-ring into the cylinder (3).

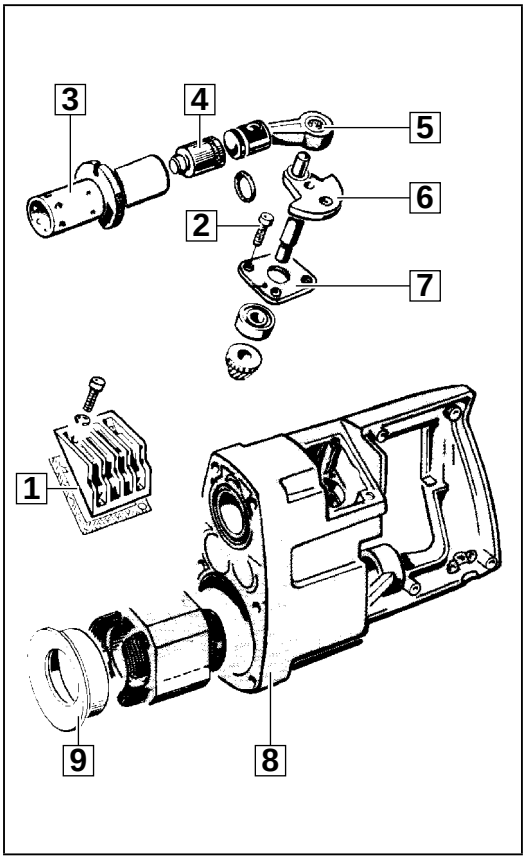
4 Insert the cylinder (3) into the motor housing (8) and insert the con-rod into the wheel shaft tappet.

5 Insert the field and the air deflector plate (9) into the motor housing (8).

6 Fasten the pre-assembled bearing end plate with screws to the gear box. Additionally secure the screws with Omnifit.

7 Fasten the completed gear box to the motor housing (8) with screws. Additionally secure the screws with Omnifit.

8 Fit the housing cover (1) together with the gasket and fasten it with screws.



4

Mounting the carbon brushes

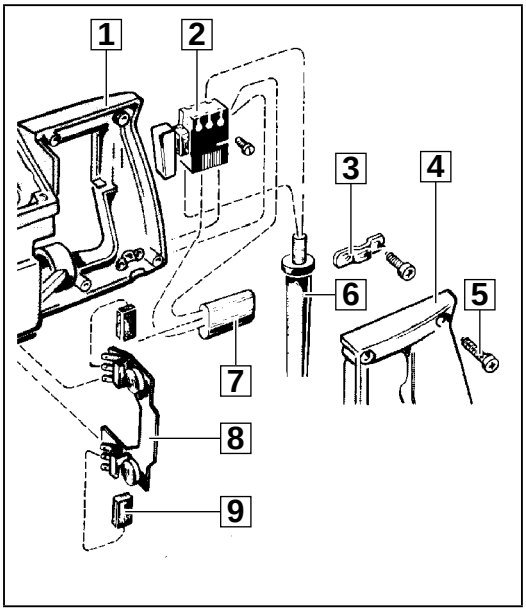
1 Insert the carbon brushes (9) into the brush holders (8) and mount the plug contacts.

2 Insert the brush holders (8) with the carbon brushes (9) above the armature collector into the reliefs of the lower handle shell (1). Take care that the strands of the armature collector keep free.

3 Install the switch (2) and the capacitor (7) together with all the strands into the provided reliefs of the handle shell (1) and connect them according to the wiring diagram.

4 Mount the power supply lead and the cable entry sleeve (6) with the cable clip (3). Connect the power supply lead according to the wiring diagram.

5 Fasten the upper handle shell (4) with the five screws (5).



5

Test Run Check the direction of rotation!

Let the machine run-in.

Electrical Test Perform an electrical test on the machine (see chapter Electrical and Mechanical Test Instructions).