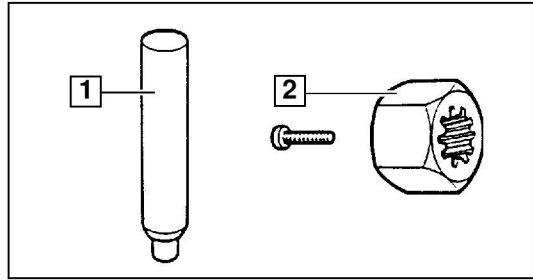


Service tools needed

- Torx screwdriver size 15, 20, 25
- Press tool 9170 0737 00 (1)
- Pinion nut 9170 0739 00 with screw (2)



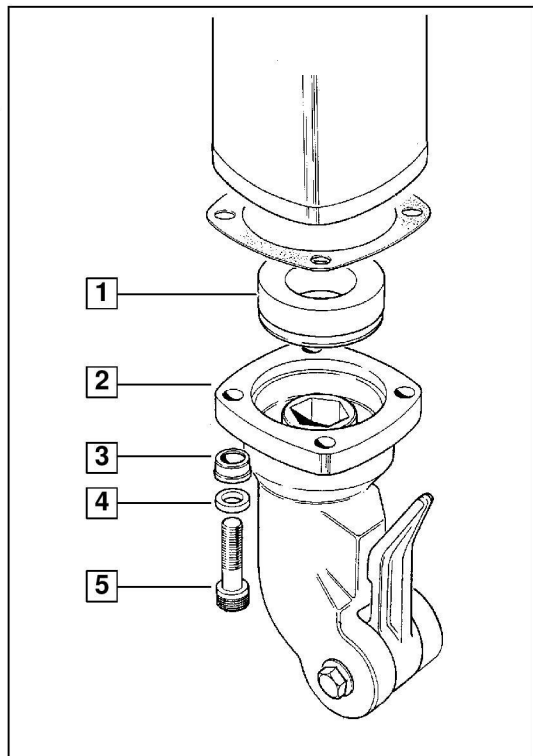
Important!

- Before maintenance carry out an introduction examination with high voltage check according to VDE (see. chapter Electrical and Mechanical Test Instruction).
- Always disconnect the plug from the socket before carrying out any work on the machine.

Dismantling

Removing the chisel reception

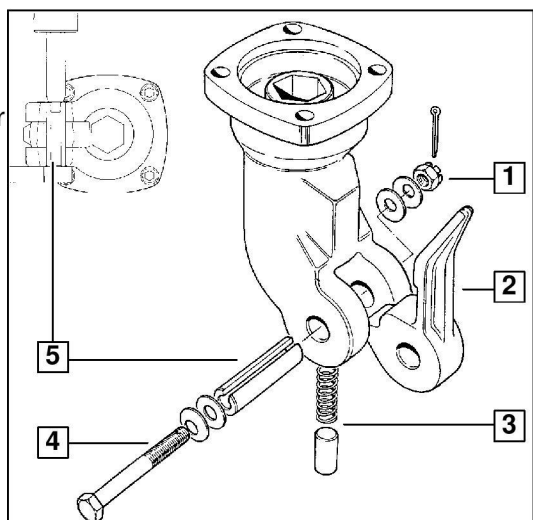
- 1 Remove the chisel reception (2) – undo the four Allen screws (5) with nylon washers (4) and washer cups (3).
- 2 Remove buffer (1) with aid of a screwdriver or by knocking the buffer on firm ground.



1

Dismantling the chisel reception

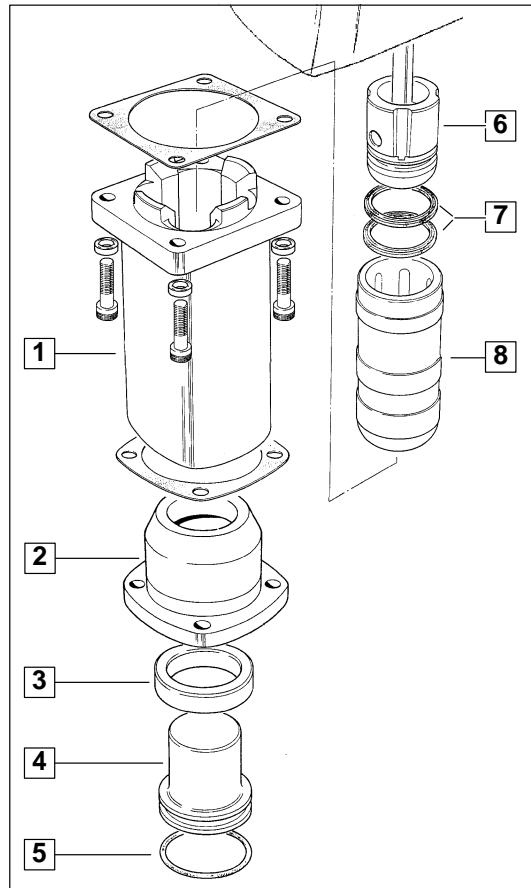
- 1 Take out split pin, loosen castellated nut (1) and remove the nut together with washer and spring washer.
- 2 Remove the screw (4) together with washer and spring washer.
- 3 Use the press tool to press out the tension pin (5).
- 4 Remove the latch (3) and take the latch plunger with the latch spring (3) out of the chisel reception.



2

Dismantling the barrel

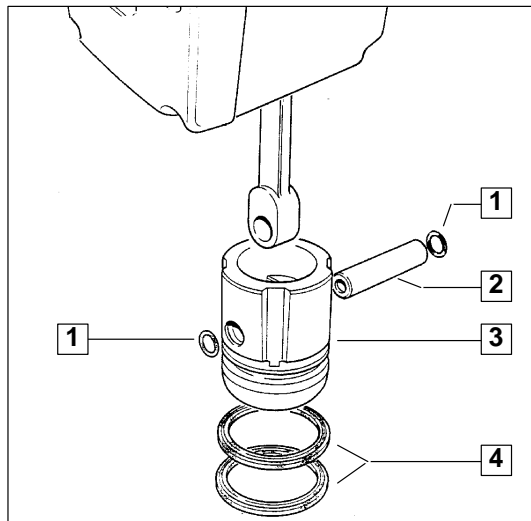
- 1** Remove the buffer housing (2) from the barrel (1), and remove the plunger (8).
- 2** Remove the recoil buffer (3) with aid of a screwdriver.
- 3** Remove the plunger O-ring from the plunger.
- 4** Remove the barrel (1) from the housing (four Allen screws, four plastic rings).
- 5** Remove the striker (8) from the piston (6).



3

Seperating the piston from the connecting rod

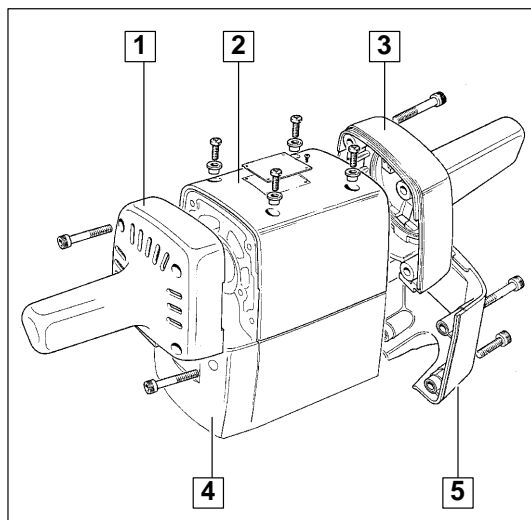
- 1** Remove the O-rings (1) and pull out the bolt (2).
- 2** Pull both four-lips-sealing-rings off the piston.



4

Dismantling the housing cover

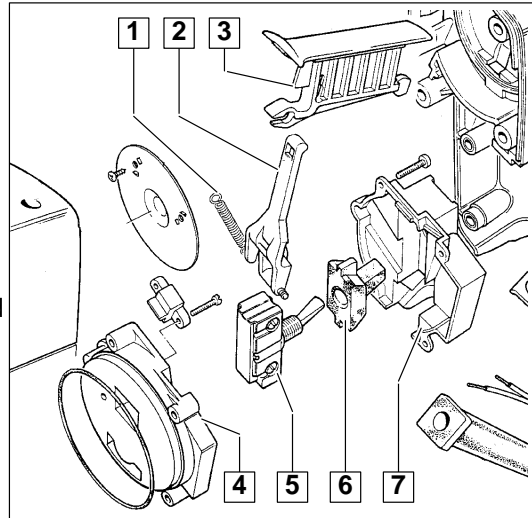
- 1** Remove the handle (1) (four Allen screws).
- 2** Remove the gear housing (4) (six Allen screws) and remove the gasket.
- 3** Remove the switch cover (5) (four Allen screws).
- 4** Remove the switch handle (four Allen screws).
- 5** Remove the cover (2) (four screws) to gain access to the openings for exchanging the carbon brushes.



5

Dismantling the switch

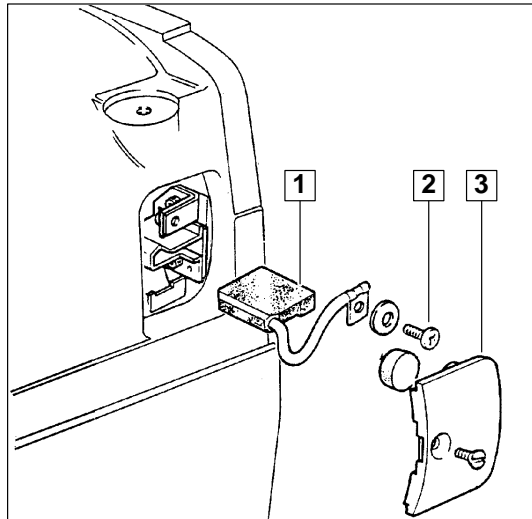
- 1** Unhinge the switch rod (2) from the switch adjustment springs (1) and pull it from the switch handle (3).
- 2** Remove the switch housing cover (7) (four Phillips screws).
- 3** Remove the dust protection (6) from the switch (5).
- 4** Disconnect two leads (motor side) and remove the switch cover (4) together with the switch (5). Remove the strain relief and disconnect the remaining two leads (line side).



6


Removing the carbon brushes

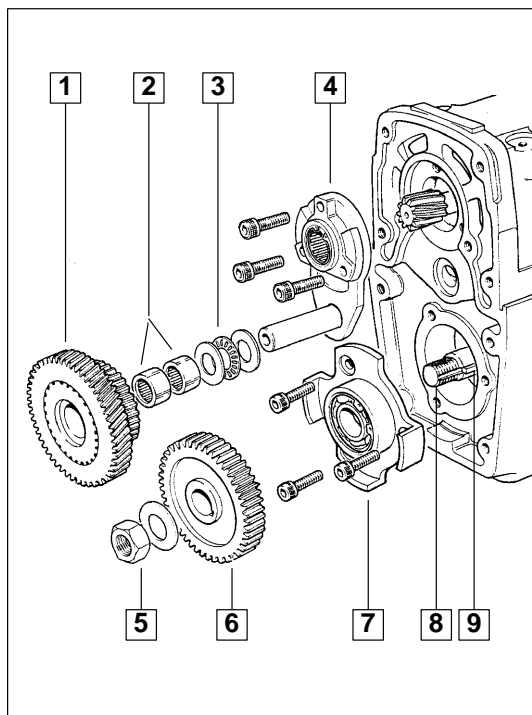
- 1** Remove the brush holder cover (3) (one Phillips screw).
- 2** Remove the screw (2), and the carbon brush (1) by pulling at the end of the lead.
- 3** Proceed as before to remove the carbon brushes at the opposite side of the tool.



7

Dismantling the gear

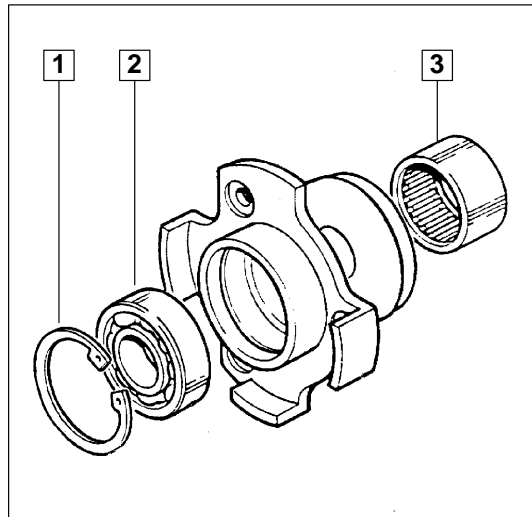
- 1** Remove the intermediate wheel (1) together with the thrust bearing (3) and the two washers.
- 2** Press the two thrust needle roller bearings from the intermediate wheel with a press tool.
- 3** Unscrew the locknut (5) with washer and remove the driven gear (6) from the eccentric shaft (8). Remove the feather key (9).
- 4** Hit the eccentric shaft lightly with a plastic hammer to remove it from the end shield (7).
-  Before removing the eccentric shaft the end shield (7) must be removed.
- 5** Remove the end shield (three Allen screws).
- 6** Unscrew the three Allen screws of the motor end shield (4) and lever it off with a screwdriver.



8

Dismantling the end shield of the eccentric shaft

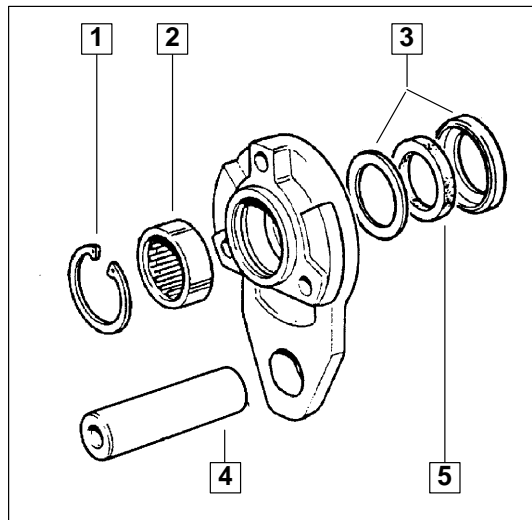
- 1** Remove the locking ring (1). Put the end shield with flange facing downwards on a screw press and press out needle bearing (3) with press tool.
- 2** Turn over the end shield and press out the needle bearing (3) with press tool.



9

Dismantling the motor end shield

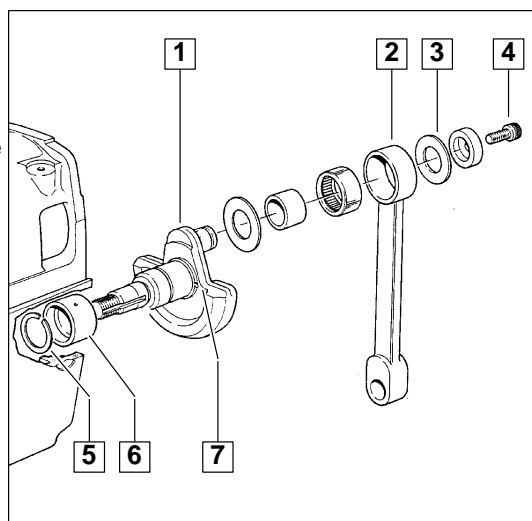
- 1** Press out the intermediate wheel shaft.
- 2** Lever off the washers (3) and the shaft seal (5) with a screwdriver.
- 3** Remove the locking ring (1).
- 4** Press out the needle bearing (2).



10

Dismantling the eccentric shaft

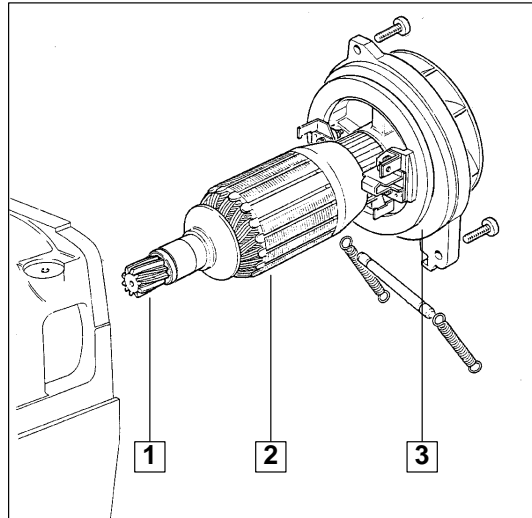
- 1** Remove the eccentric shaft (1) with the connecting rod (2) from the housing.
- 2** To separate the connecting rod from the eccentric shaft fix the eccentric shaft with the connecting rod facing upwards in a vice and loosen the Allen screw (4). Remove the cover (3) and lift off the connecting rod.
- 3** Remove the locking ring.
- 4** To dismantle the inner needle bearing (6) push two hardened pins through the holes (7) and press out.



11

Removing the armature

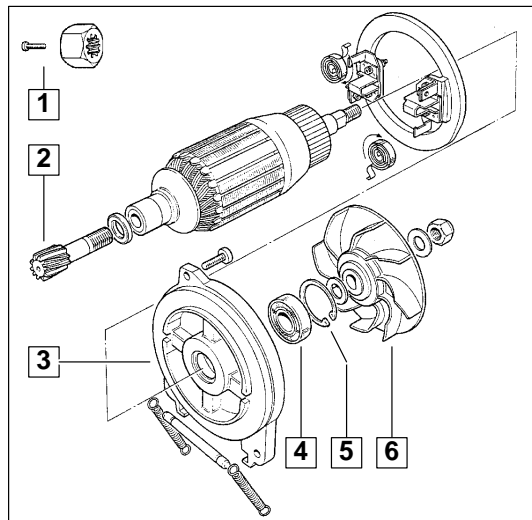
- 1** Remove the fan housing (3) (three screws).
- 2** To pull out the armature (2) with the fan housing hit the pinion lightly with a plastic hammer (1).



12

Dismantling the armature

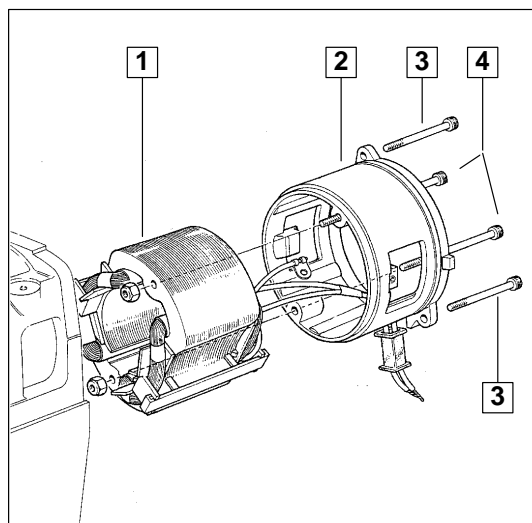
- 1** Remove the fan (4) (one nut).
- 2** Remove the fan housing (3) from the armature
- 3** Remove the locking ring (5) and press out bearing (4).
- 4** To remove the pinion apply service tool 9170 0739 00 (1) and fix it with a screw. Unscrew the service tool together with the pinion using a spanner.



13

Dismantling the field

- 1** Loosen the screws (3). Lever off the field housing (2) at the lugs with aid of two screwdrivers.
- 2** Check the field (1) and exchange if necessary. To do so loosen the screws (4) and remove the field.

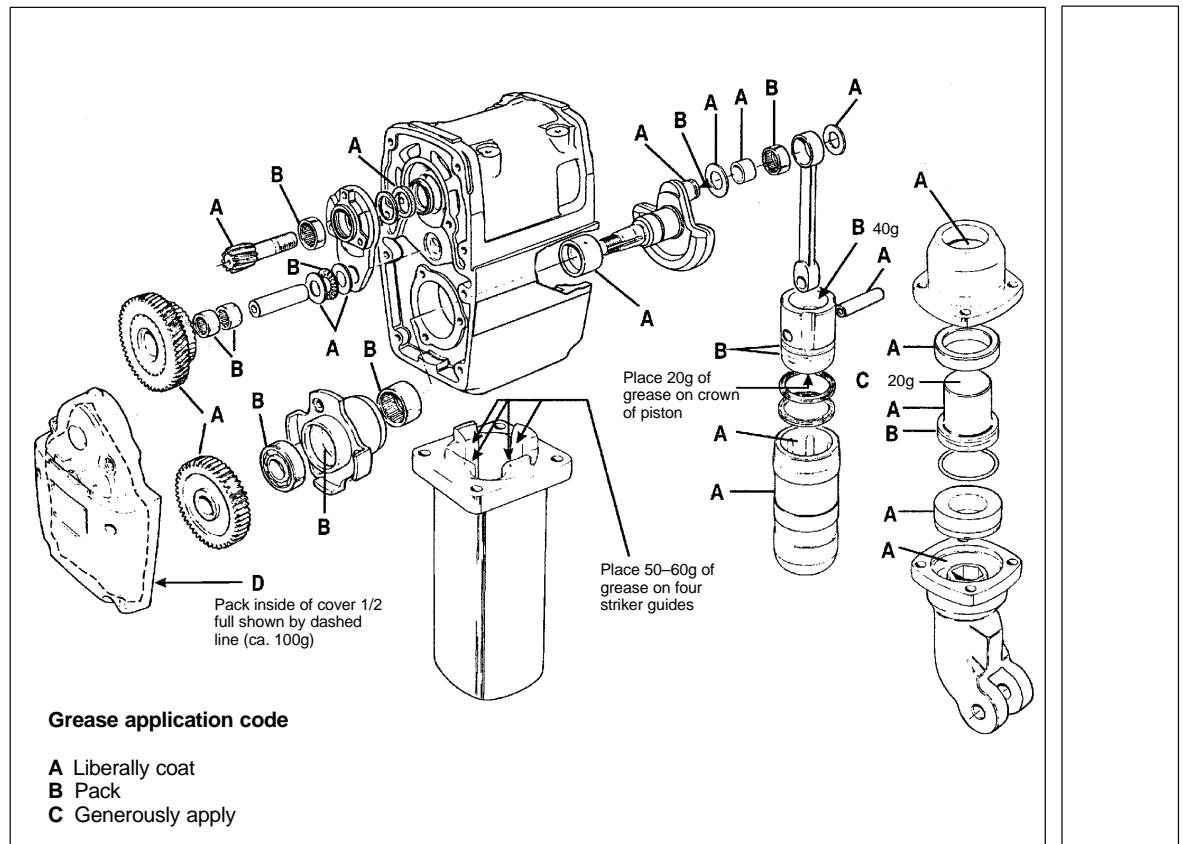


14

 The tool is now completely dismantled. Further dismantling is not possible.

Maintenance

General	It is recommended to submit the tool to maintenance after every 150 work hours. When carrying out maintenance all parts of the maintenance set 9170 3108 30 must be exchanged.
Cleaning	With the exception of the electrical parts all parts must be cleaned with cold cleanser. Attention! No cleanser must enter the encapsulated bearings. Clean the electrical parts with a dry brush.
Abrasion test	Check the dismantled parts for abrasion (visual check) and exchange if necessary.
Lubrication	At each maintenance the tool must be lubricated as shown in the lubrication chart. After having dismantled the entire tool remove the used grease completely and replace by new grease. Before assembly a total of 350 g of grease should be filled into a clean container. Exclusively use this clean grease for lubrication. Please pay attention to the following lubrication chart:



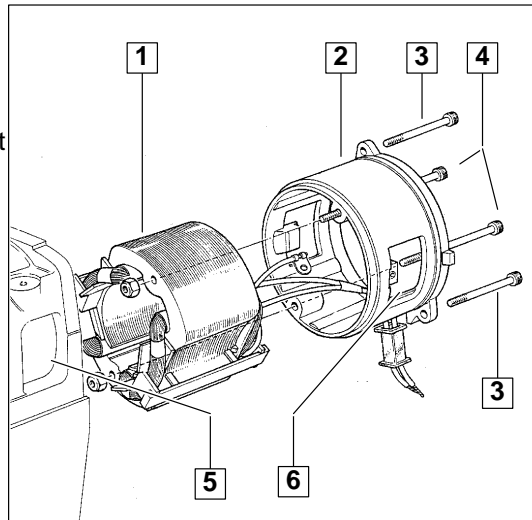
Torque	Barrel and striker 115 Nm
	Crankshaft locking nut 40 Nm
	Fan locking nut 40 Nm
	Handle screws 40 Nm
	Other screws 3 Nm

Electrical test	Before assembly submit all relevant parts to an electrical test (see chapter Electrical and Mechanical Test Instruction).
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Assembly

Assembling the field

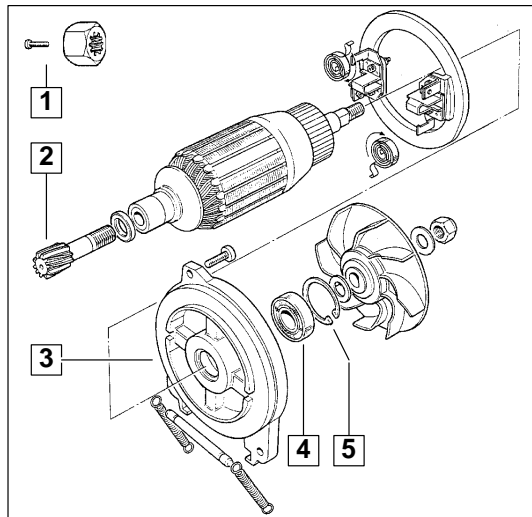
- 1** Fix the field (1) with the field housing (2) with screws.
- 2** Insert the field housing in the machine housing. Be careful not to insert it side-inverted: The carbon openings (6) must conform with the openings of the machine housing (5).
- 3** Fix the field housing with two screws (3).



1


Assembling the armature

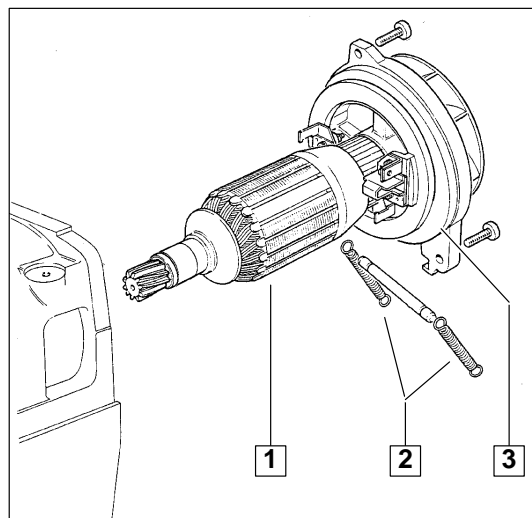
- 1** Screw on the pinion (2) to the armature shaft with service tool 9170 0739 00 (1).
- 2** Press the bearing (4) into the fan housing (3) and secure with the locking ring (5).
- 3** Mount the shaft seal, the fan, the washer, and the nut.



2


Mounting the armature

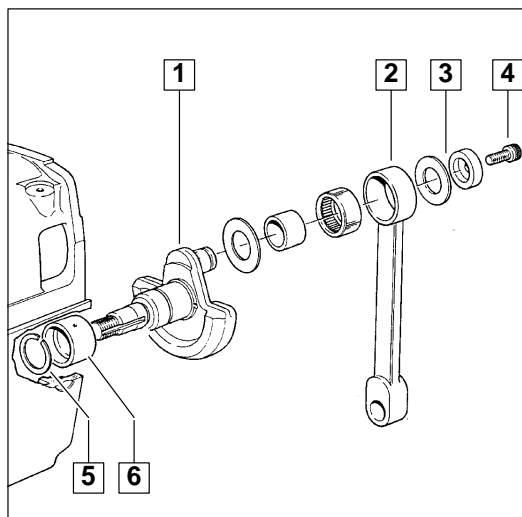
- 1** Insert the armature in the housing, secure the two switch adjustment springs (2), and screw on the fan housing (3) with three screws.
-  Insert the bolt with springs before fixing the fan housing.



3

Mounting and assembling the eccentric shaft

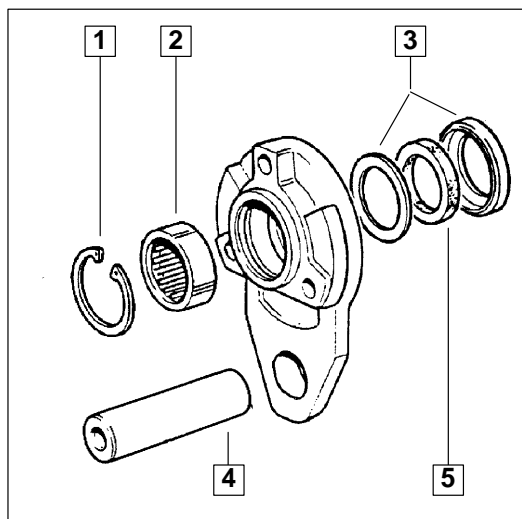
- 1** Press needle bearing (6) on eccentric shaft (1) and secure with locking ring (5).
 Put the press tool on the **inner** ring of the needle bearing.
- 2** For mounting the connecting rod (2) to the eccentric shaft (1) fix the eccentric shaft in a vice (eccentric shaft facing upwards) and place the connecting rod (with the large heel facing the eccentric shaft; the connecting rod must not graze the eccentric shaft). Place the distance washer (3) and fix with the Allen screw (4).
- 3** Insert the eccentric shaft with the connecting rod in the housing.



4

Assembling the motor end shield

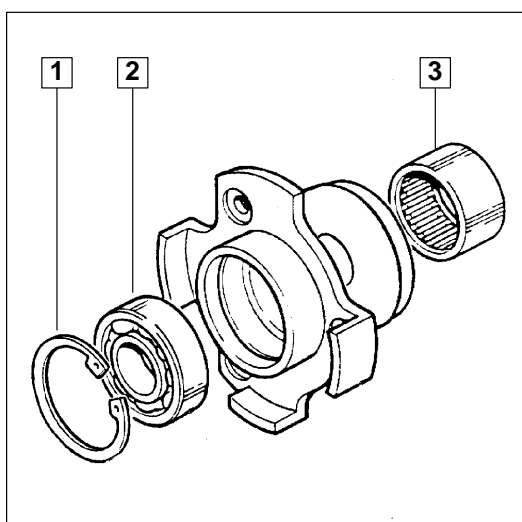
- 1** Press in the needle bearing (2) to stop.
- 2** Insert locking ring (1).
- 3** Grease the shaft seal (3) and insert it (with felt facing outwards) together with the washers (3).
- 4** Press in the intermediate wheel shaft.



5

Assembling the end shield of the eccentric shaft

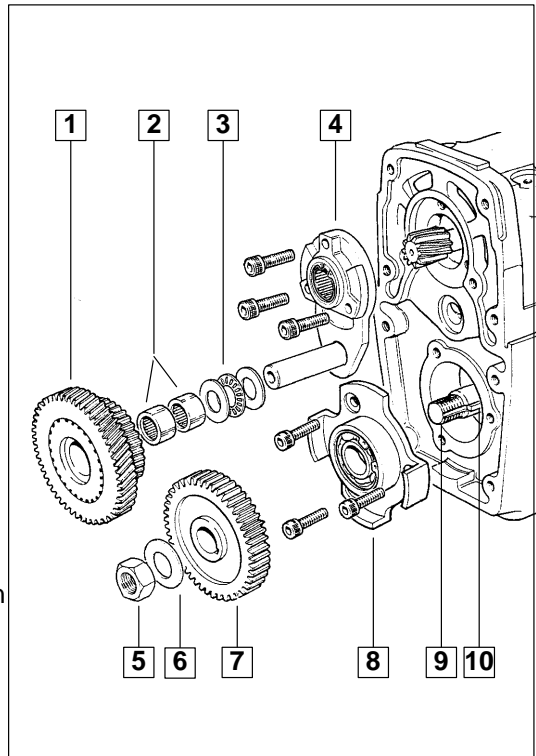
- 1** Press in the needle bearing (3) with the aid of a suitable assembly press tool.
- 2** Turn the end shield over and press in the roller bearing (2).
- 3** Mount the locking ring (1).



6

Assembling the gear box

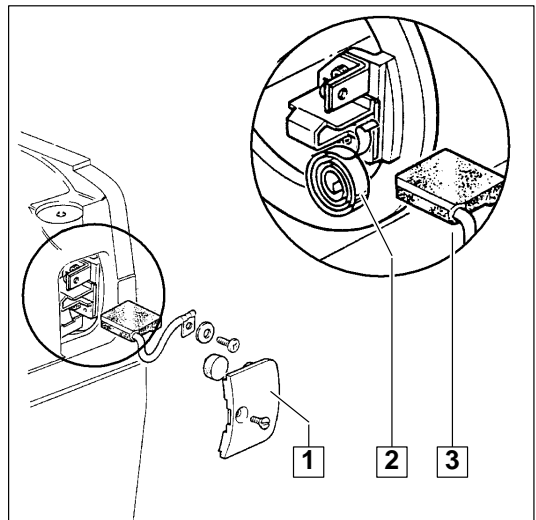
- 1** Fix the motor end shield (5) (three screws).
- 2** Fix the end shield (9) (three screws).
- 3** Insert the eccentric shaft (10) in the end shield.
- 4** Insert the feather key (11) in the groove of the eccentric shaft.
- 5** Push the driven gear (8) on the eccentric shaft with the larger collar facing the housing.
- 6** Press the needle bearings (2) with the flat sides facing outwards centrally in the intermediate wheel (1).
- 7** First put the thrust bearing (4) together with both washers on the shaft (3), then the intermediate wheel (1).
- 8** Fix the washer with the vault facing outwards on the eccentric shaft, then fasten the nut (6).



7

Mounting the carbon brushes

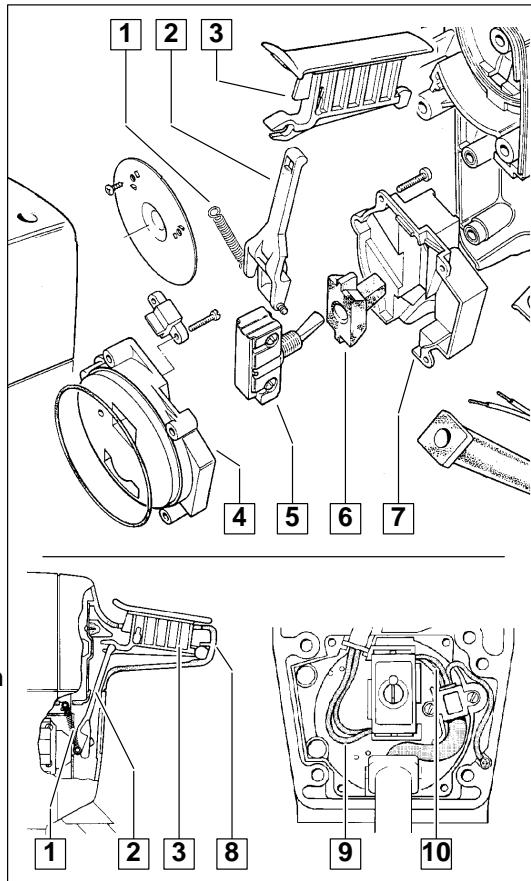
- 1** Pull the feather key (2) of the carbon brush (3) upwards, hold it there, insert the carbon brush (with the sloping side facing the feather), and latch it applying light pressure to the feather key.
- 2** Screw down the leads.
- 3** Fix the carbon brush cover (1).
- 4** Proceed as before to mount the carbon brushes at the opposite side of the tool.



8

Assembling the switch

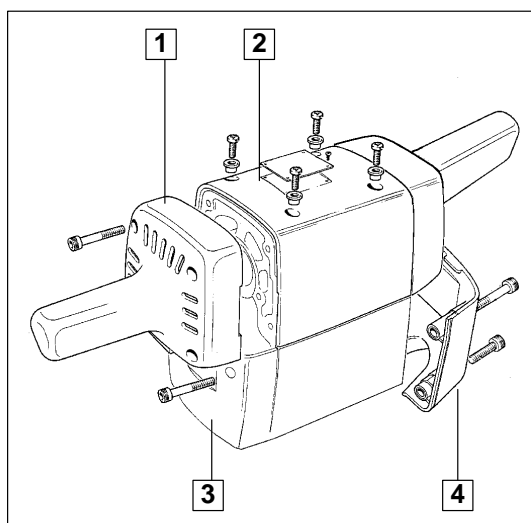
- 1 Screw on the cable connections (10) of the line side and the strain relief. Mount the switch (5) to the switch housing (4) and fix the cable connections (9) of the motor side.
- 2 Fit the switch housing (4) in the machine housing.
- 3 Fix the dust protection (7) to the switch (5).
- 4 Put the switch housing cover (7) on the switch housing (4) and fasten the four screws.
- 5 Insert switch rod (2) through the opening in the switch handle (8) and secure to the switch pusher.
- 6 Fasten the adjustment spring (1) with the switch rod (2).
- 7 Press down the switch pusher (3) and fix the switch handle (8) to the machine housing. At the same time put the switch rod on the switch dust protection.
- 8 Mount the switch handle (8) and fasten with four screws.



9


Mounting the housing cover

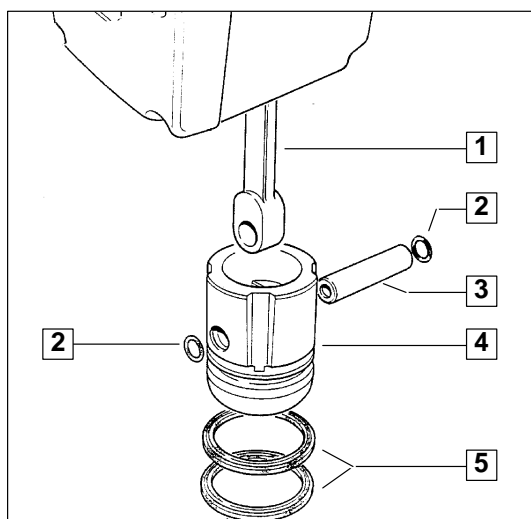
- 1 Mount the motor housing and fasten with four screws with plastic shells.
- 2 Put the gaskets on the machine housing.
- 3 Fasten the switch cover (4) with four Allen screws.
- 4 Fasten the gear housing (3) with six Allen screws.
- 5 Fasten the handle (1) with four Allen screws.



10


Assembling the piston

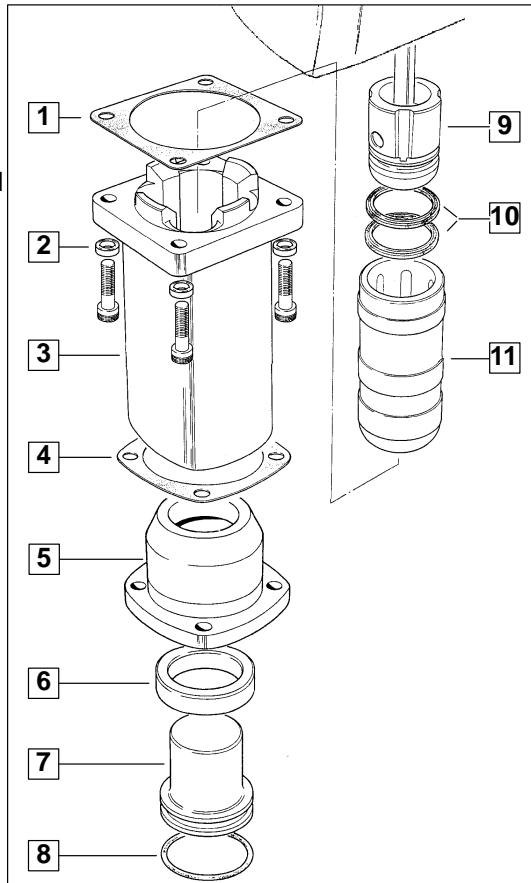
- 1 Grease the inner and the outer side of the piston (4).
- 2 Put both four-lips-sealing-rings (5) on the piston.
-  Check for proper fit of the piston rings. If necessary, push a screwdriver between ring and piston and align the four-lips-sealing-rings by circling the screwdriver around the piston.
- 3 Fix the piston (4) with bolt (3) to the connecting rod (1). Insert the O-rings (2) at both sides of the bolt openings.



11

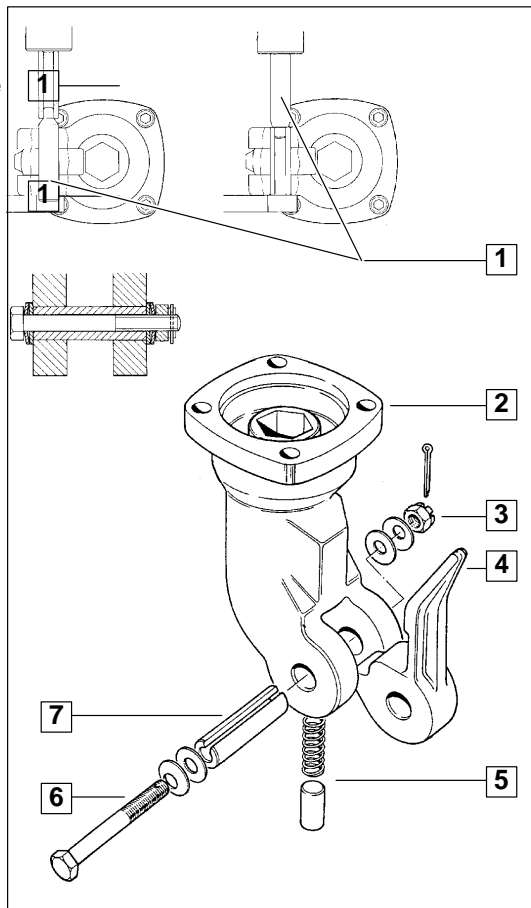
Assembling the barrel

- 1** Put on the gasket (1).
 - 2** Lubricate the inner side of the barrel (3) with plenty of grease. Place the barrel vertically and let the striker (11) fall through it in order to spread the grease evenly.
 - 3** Grease the inner side of the striker (11) and push it over the piston (9).
 - 4** Push the barrel (3) over the striker (11), align it with the gear openings, insert the four plastic sealing rings (2), and fix the barrel to the housing with four screws.
 - 5** Attach a new sealing ring to the plunger (7) and check for proper fit.
 - 6** Grease the inner side of the buffer (6) and insert it with the plunger (7) in the buffer housing (5).
 - 7** First put the gasket (4) then the buffer housing on the barrel (3).
-  Do not yet fix the buffer housing.



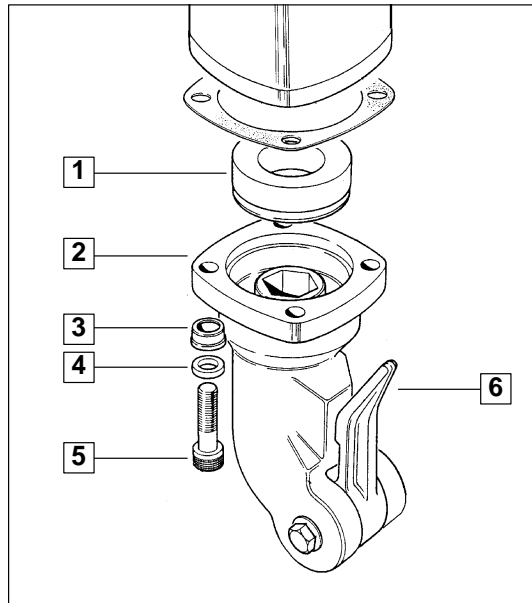
Assembling the chisel reception

- 1** Insert the latch plunger and the latch spring (5).
- 2** Insert the latch (4) and press it down so the press tool (1) (service tool 9170 0737 00) can be pushed through the openings of the nose piece (2) and the latch. This fixes the latch in the nose piece.
- 3** Press in the tension pin (7) which pushes out the press tool (1).
- 4** Apply the press tool again and press the tension pin in its final position.
- 5** Put the spring washer and the washer on the screw (6) and push the screw in the tension pin.
- 6** Put the washer, spring washer, and castellated nut (3) on the screw and fasten the castellated nut.
- 7** Secure the castellated nut with the split pin.



Mounting the chisel reception

- 1** Put the buffer (1) on the chisel reception and mount the chisel reception in the proper position (the latch (6) must face the switch).
- 2** Fix the chisel reception with four Allen screws (5), nylon washers (4), and washer cups (3).



14

Test run and electrical examination

Carry out a test run and check for strange noises.
Carry out an electrical examination. (See chapter electrical and mechanical examination).

Possible defects and their causes

Defect	Causes
Motor fails to run	Faulty supply socket Faulty coupling socket Defect connection lead Fuses blown Carbon brushes are jammed Defective switch Armature or field coil defective Defective internal wiring
Speed of rotation of motor too low	Too low supply voltage Armature defective
Speed of rotation of motor too high	Too high supply voltage Failure of pneumatic hammer mechanism Field coil defect
Motor too hot or sparks excessively	Failure of pneumatic hammer mechanism Ventilating slots choked Worn-out brushes Incorrect assembly Brushes are jammed Worn-out commutator Armature or field coil defective Voltage too high Armature is rubbing in the field coil
Motor runs correctly but no hammer blows are struck, or blows are weak	Machine is cold, grease too thick Defective hammer mechanism