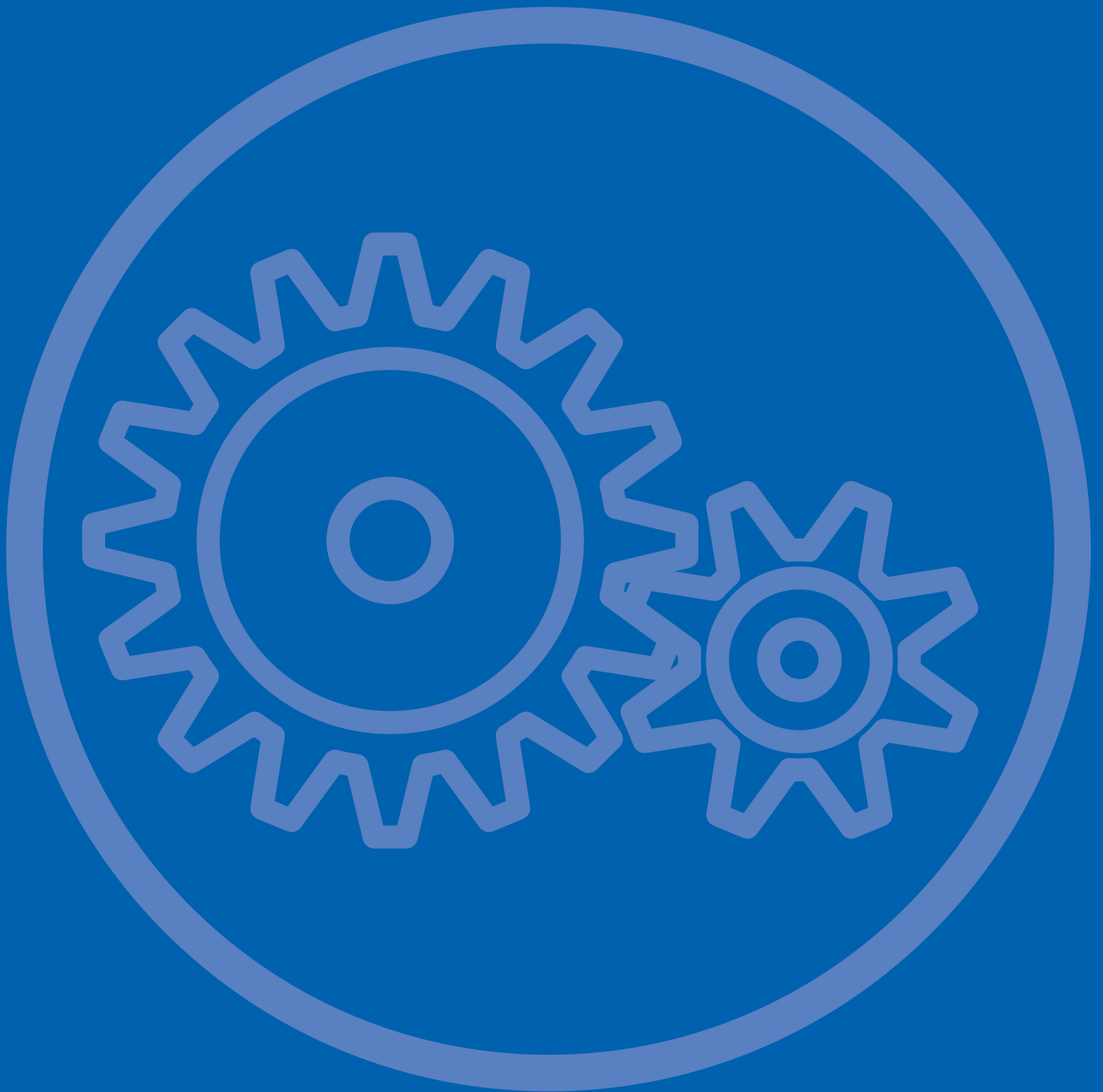




Workshop manual

K4000



English

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1 Introduction

1.1 Document description

This manual gives a full description of how to do maintenance and repair on the product. It also gives safety instructions that the personnel must obey.

1.2 Target group

This manual is for personnel with a general knowledge of how to do repair and do servicing. All personnel that do repair or do servicing on the product must read and understand the manual.

1.3 Revisions

Changes to the product can cause changes to the maintenance work and spare parts. Separate information is sent out for each change.

Read the manual together with all received information about changes to maintenance and spare parts for the product.

1.4 Safety



WARNING: All personnel that repair or do servicing on the product must read and understand the safety instructions in this workshop manual.

1.5 Servicing tools

The manual gives information about necessary servicing tools. Always use original tools from Husqvarna.

2 Safety

2.1 Safety definitions

The definitions below give the level of severity for each signal word.



WARNING: Injury to persons.



CAUTION: Damage to the product.

Note: This information makes the product easier to use.

2.2 General safety instructions

- You must not repair the product unless you have read and understood this workshop manual.
- The service center where the product is repaired must have safety equipment approved by local bylaws.
- The product is examined and approved only with the equipment given or recommended by the manufacturer.
- Service personnel must make sure that the service and repairs in this manual are done following legal requirements. This in order to avoid health and safety risks of the personnel doing the work.
- When possible, disconnect the power cable and make sure it cannot be connected until the service is completed.
- If you keep the product running during service, do not touch the wires. Electrical shock can cause injury.
- Follow the local waste regulations.
- Always make sure all nuts and bolts are correctly tightened.
- Do not lift the machine by holding the cable and do not pull the plug by pulling the cable.
- Check that the cables are not damaged and in good condition.
- Do not use the product if a cable is damaged.
- Use protective gloves and eye protection. Goggles must follow the ANSI Z87.1 for US or EN166 for EU countries.
- When using compressed air, do not point it to your body. Air can go in to the blood stream.
- Wear ear protection when test running.
- The product can make sparks and cause ignition of flammable materials.
- If a warning symbol decal on the product is damaged or missing, replace the warning symbol decal.

2.3 Symbols on the product



WARNING: Careless or incorrect use can result in injury or death to the operator or others.



Read the manual carefully and make sure you understand the instructions before using the product.



Always put on personal protective equipment:

- Hearing protection
- Protective goggles or a visor
- Breathing mask.



This product in compliance with applicable EC directives.



WARNING! Dust from cutting can cause breathing problems. Use breathing protection. Do not breathe exhaust fumes. Always make sure there is good airflow.



WARNING! Sparks from the cutting blade can cause a fire in materials such as, gasoline, wood, fabric and dry grass.



WARNING! Kickbacks can be sudden, fast and can cause injuries. Read and understand the instructions in the manual before using the product.



Make sure the cutting disc is not damaged.



WARNING! Do not use circular saw blades.

Note: Other symbols/decals on the product refer to special certification requirements for some markets.

3 Servicing data

3.1 Symbols in the diagrams



Tightening torque



Grease



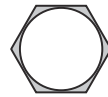
Thread lock



Torx



Allen



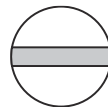
Bolt



Phillips

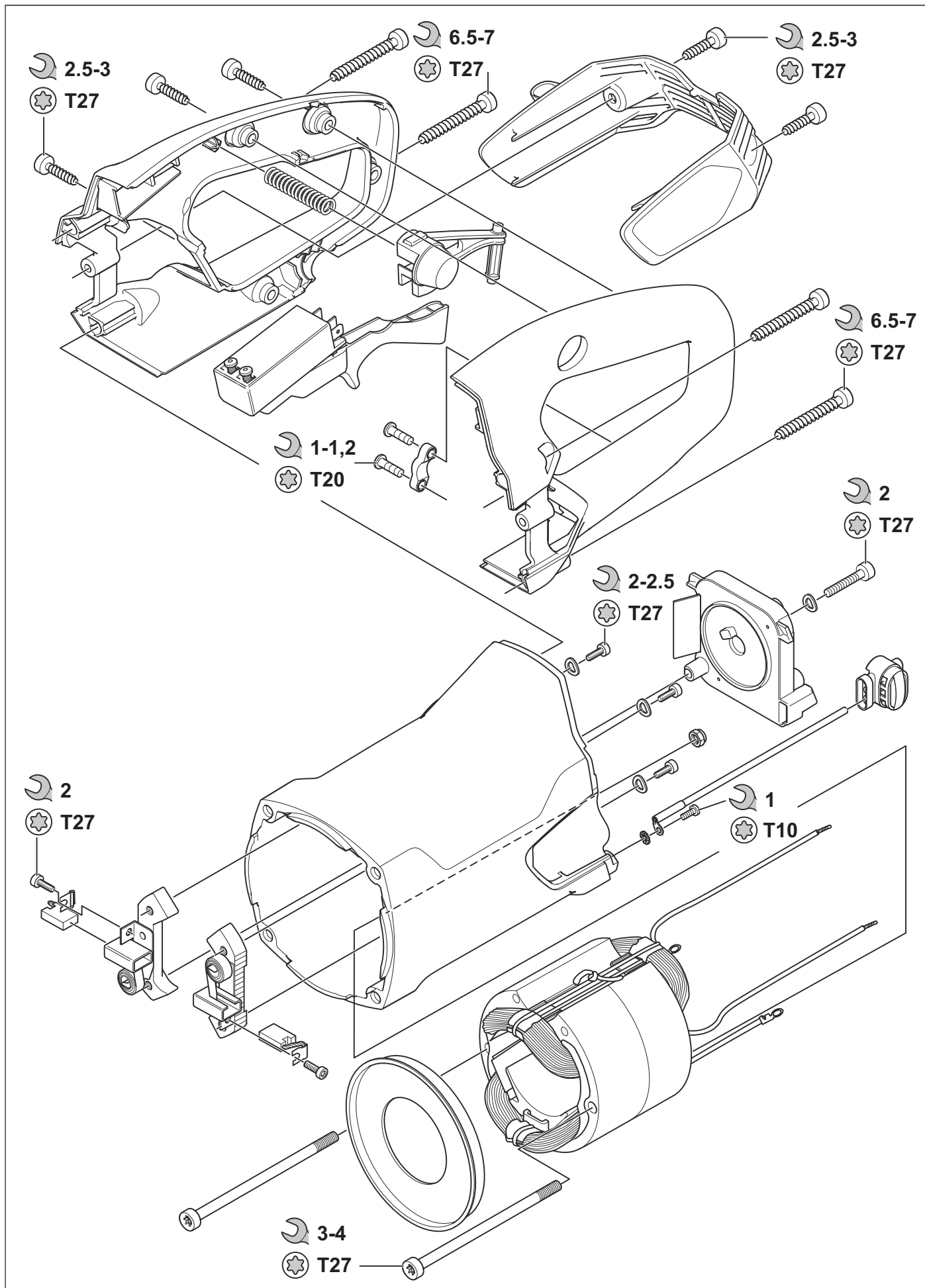


Pozidrive

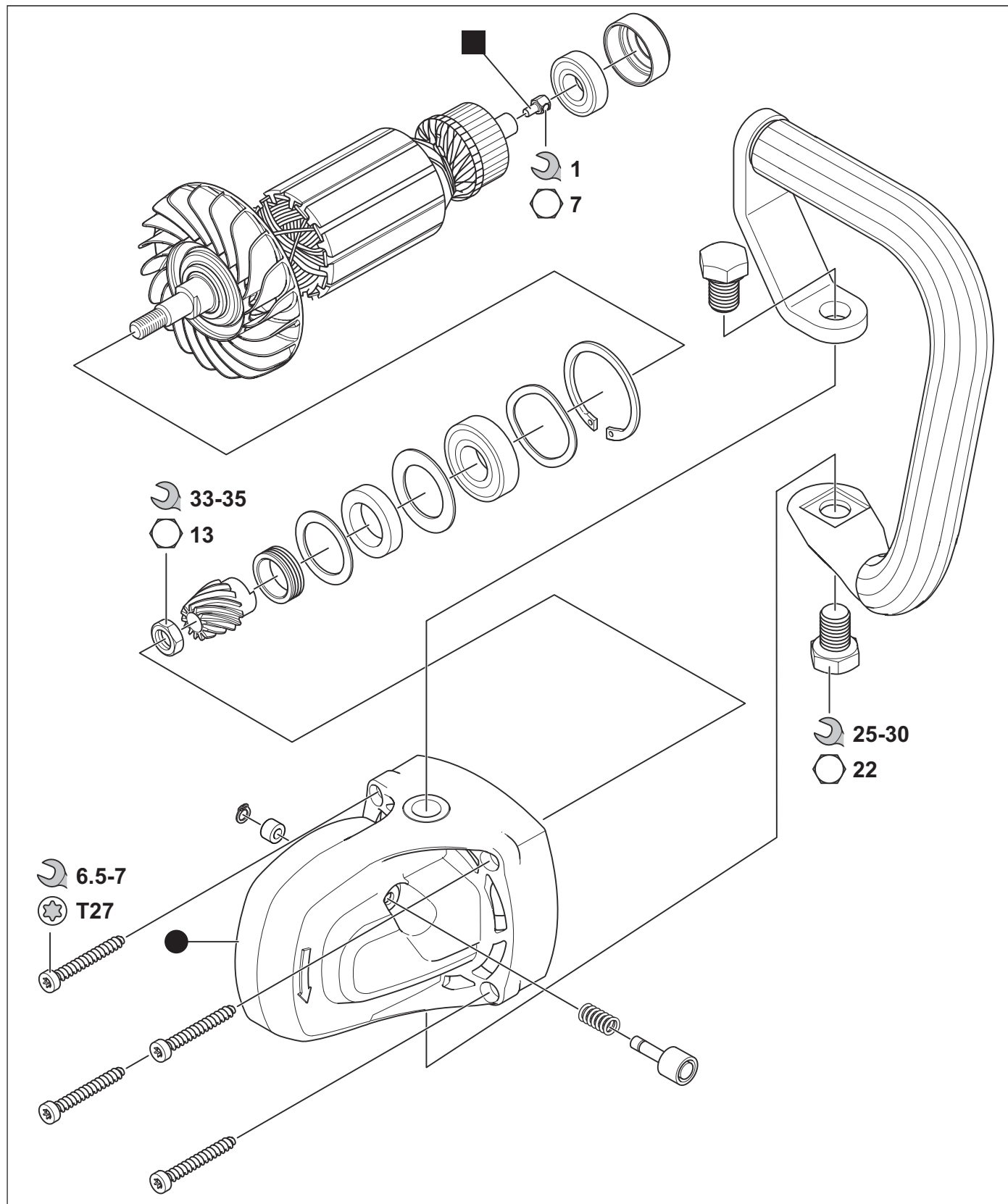


Track

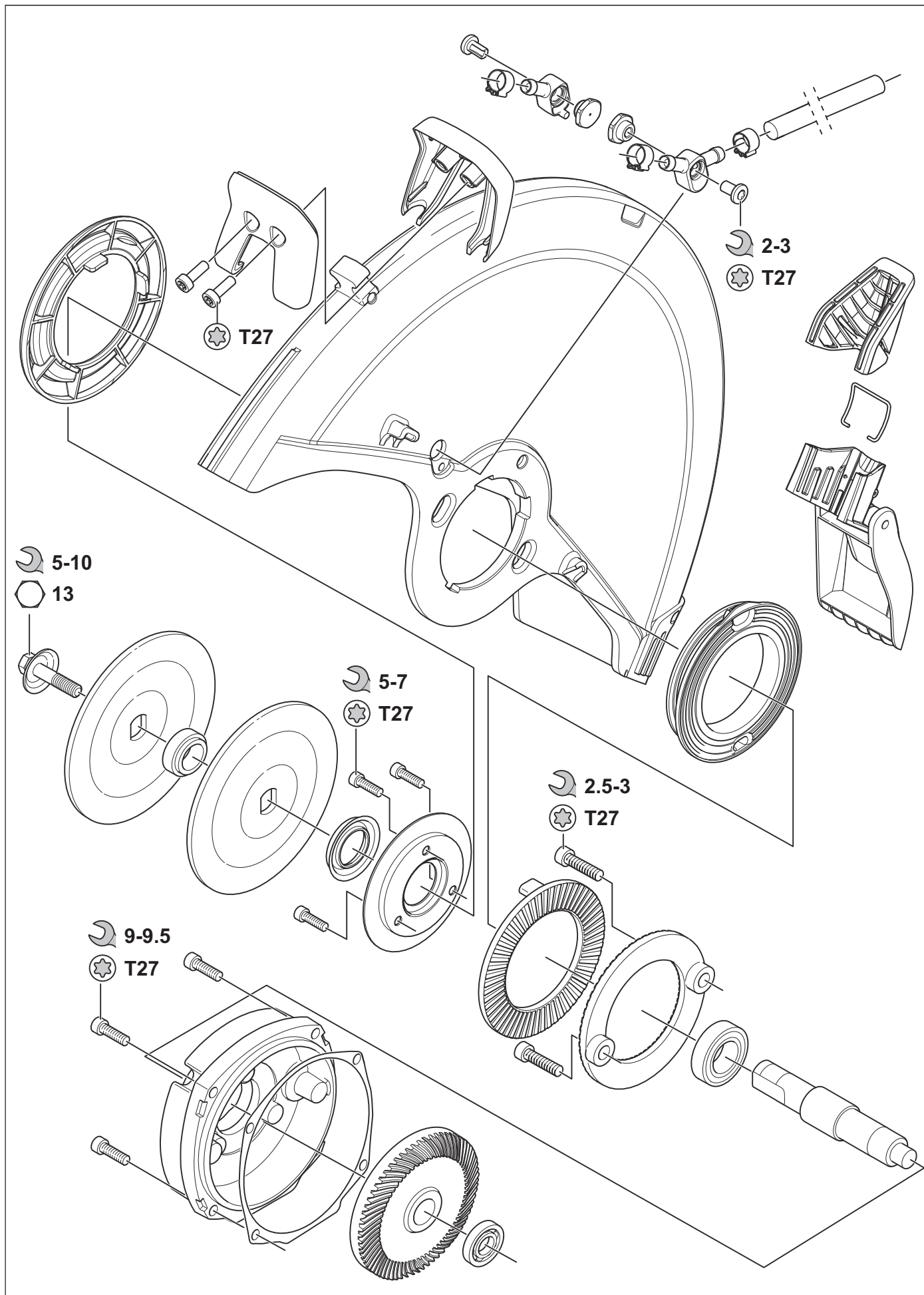
3.2 K4000 Wet/Cut-n-Break



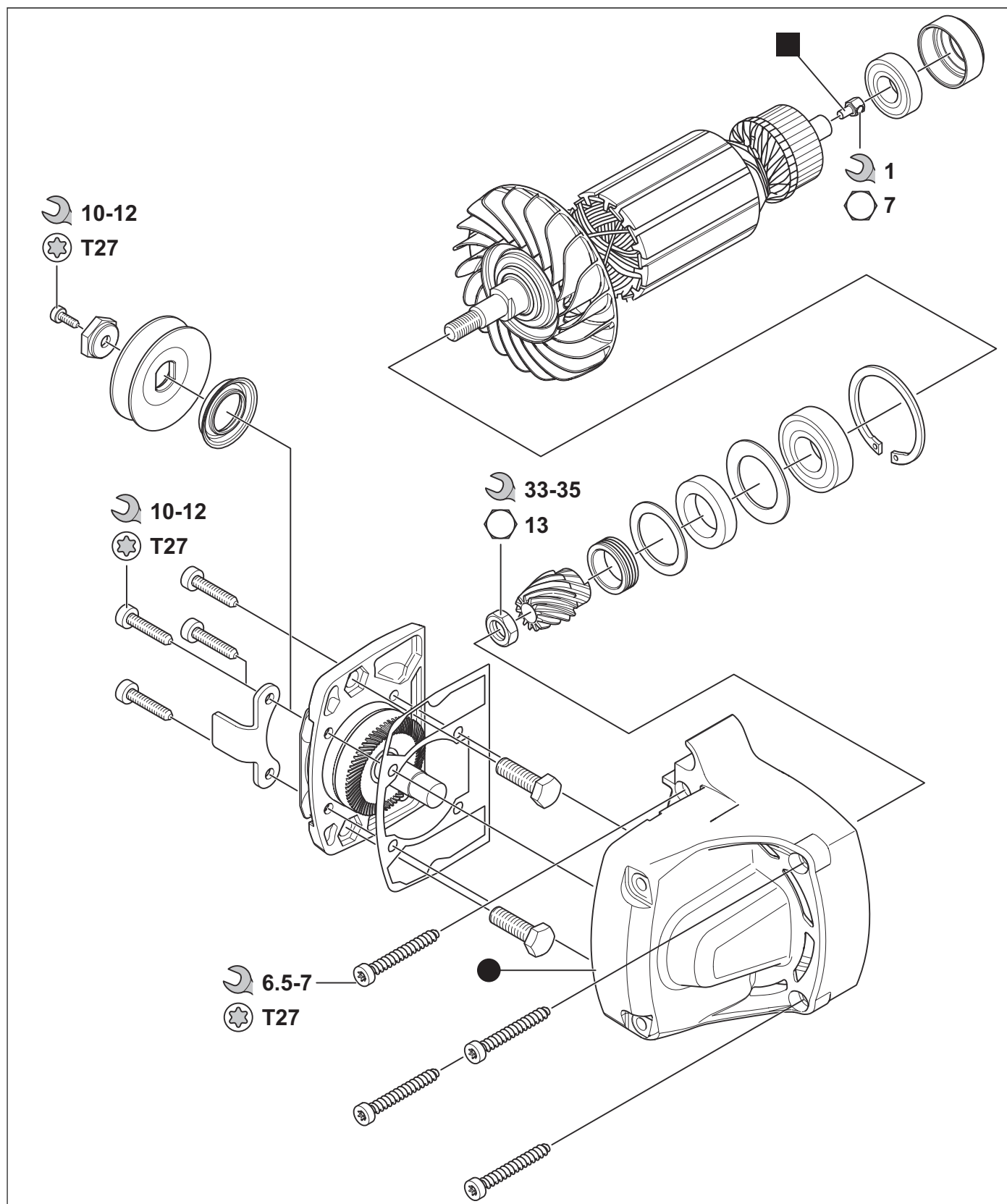
3.3 K4000 Wet



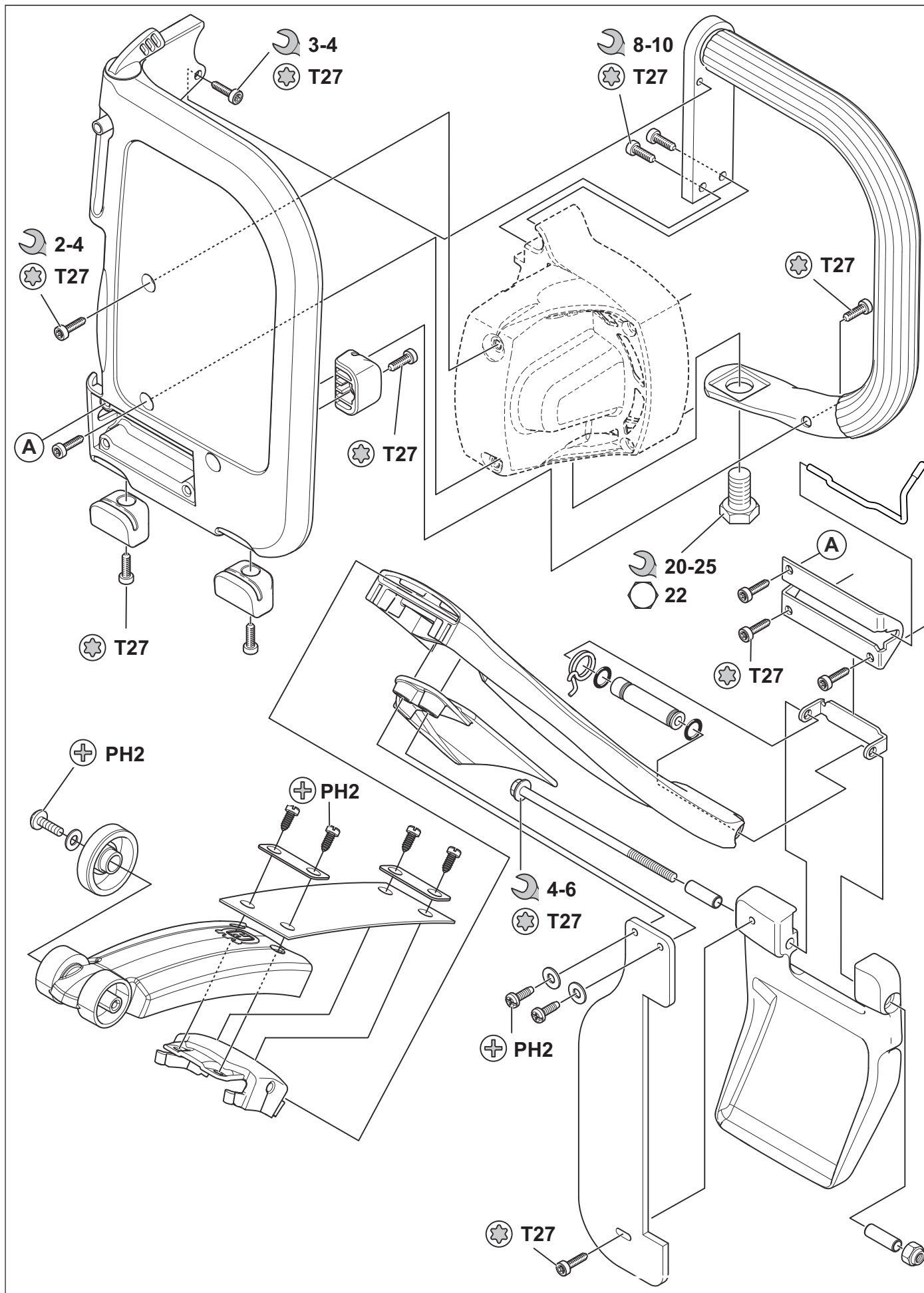
3.4 K4000 Wet



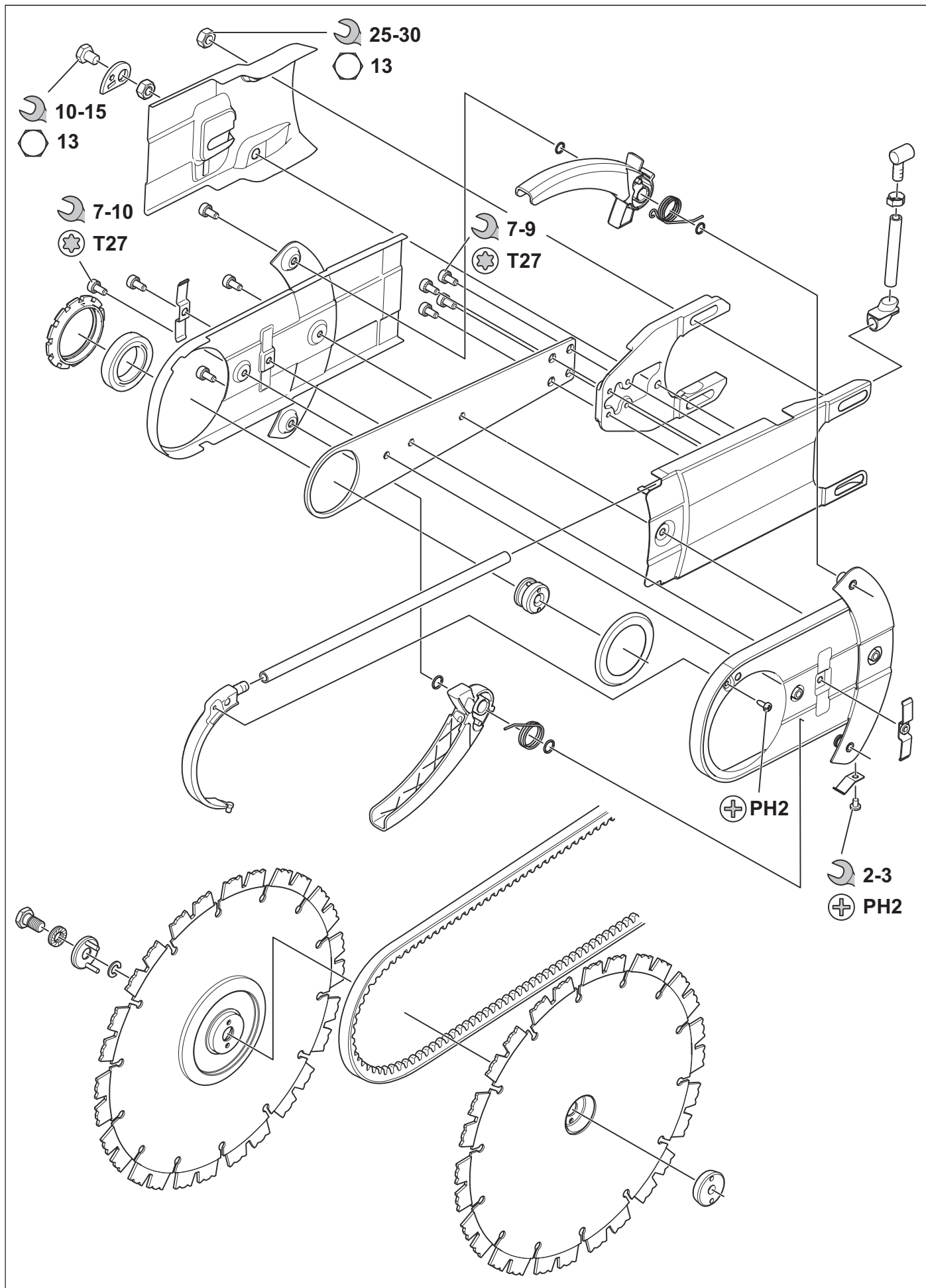
3.5 K4000 Cut-n-Break



3.6 K4000 Cut-n-Break

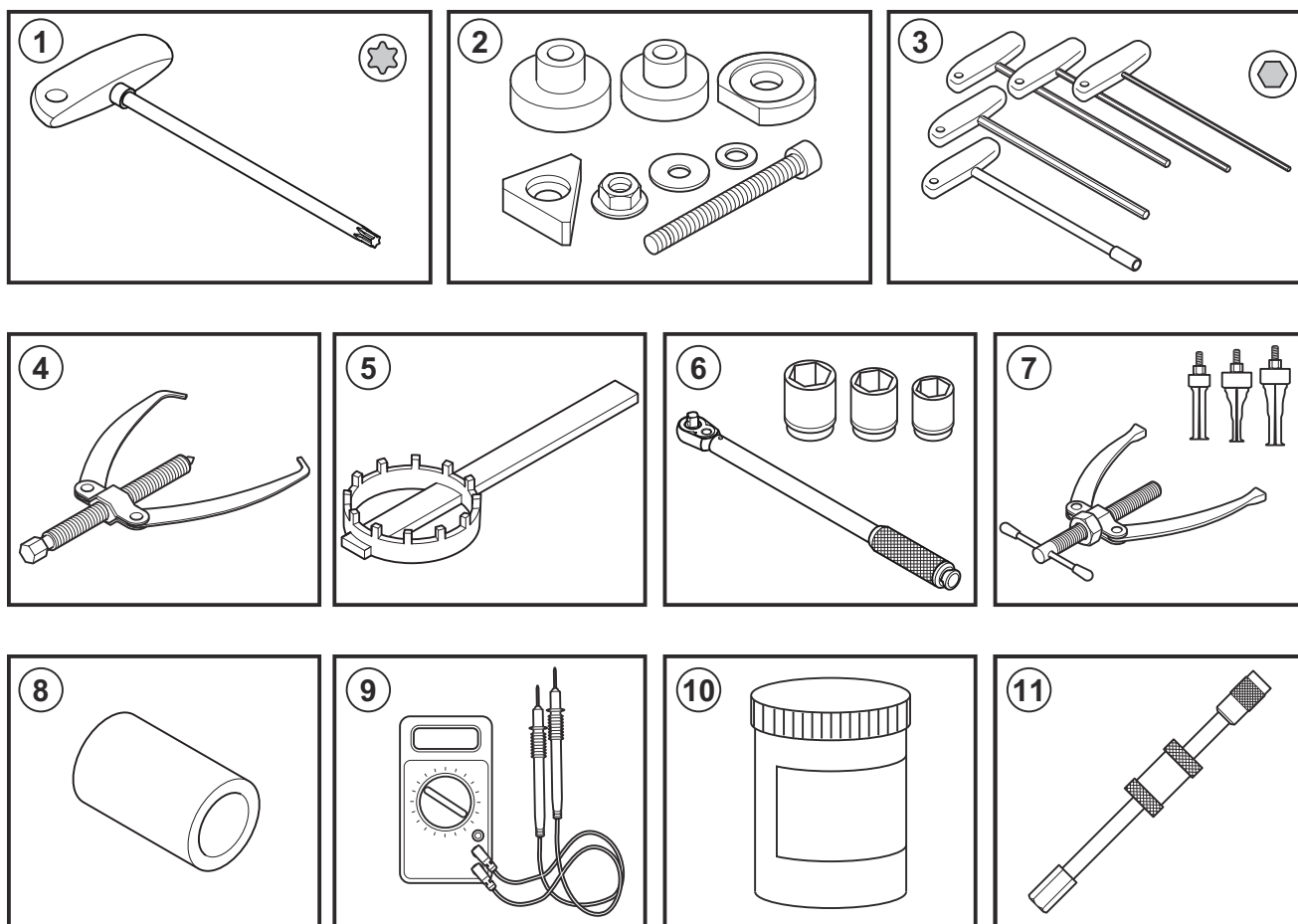


3.7 K4000 Cut-n-Break



4 Servicing tools

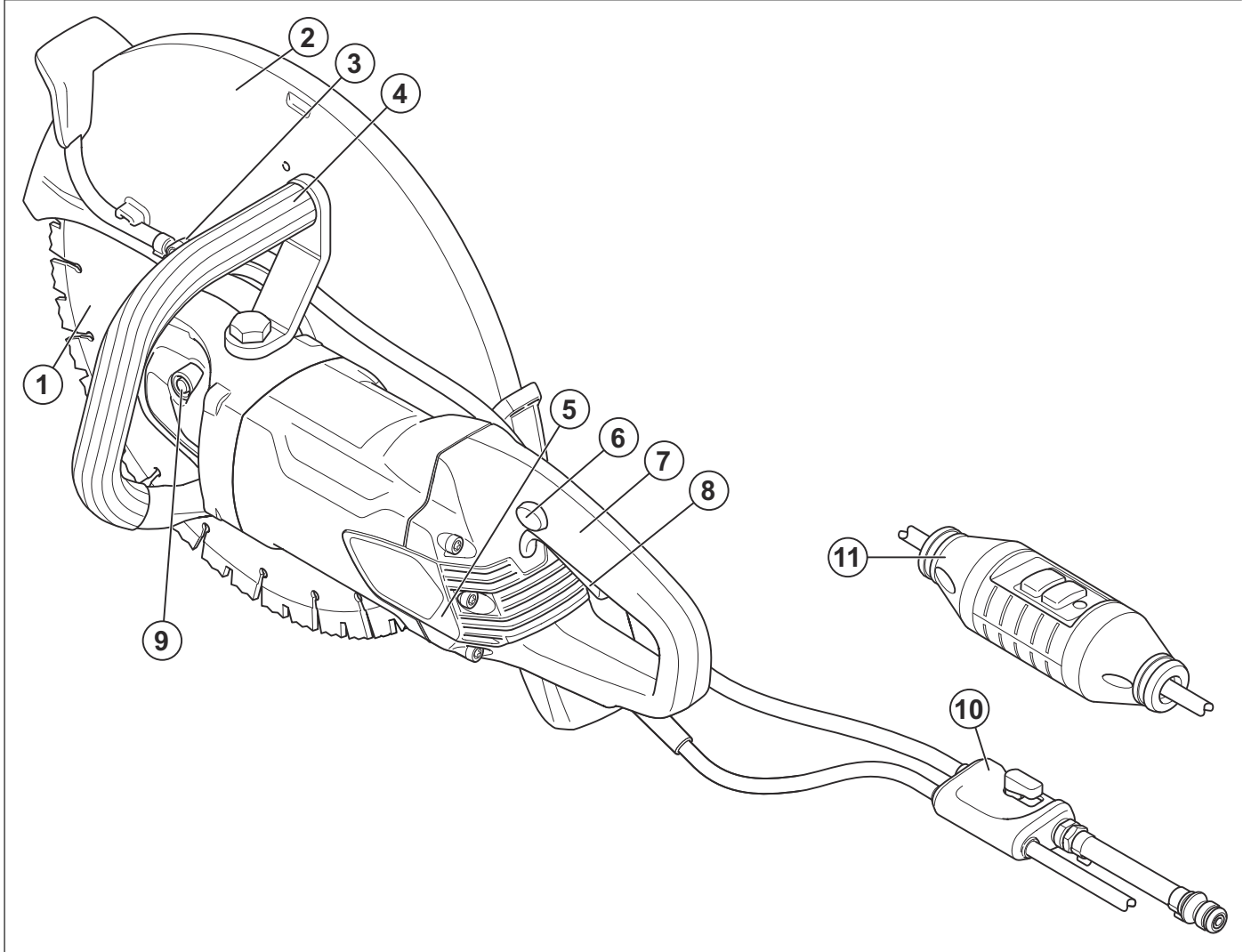
4.1 Servicing tools overview



Pos.	Designation	Used for	Order No./Source
1	Service Center key Torx T10, T20, T27	General	502 71 27-02
2	Bearing press	To put the gear housing bearing	506 37 61-02
3	Hex keys kit	General (Hex keys: 3, 4, 5 and 6 mm. Socket: 8 mm)	504 90 00-06
4	Universal puller	Wet: To install crown gear and bearing	504 90 90-02
5	Wrench	Cut-n-Break To remove and install the blade bearing	502 53 15-01
6	Torque wrench	Sockets sizes 7, 13, 22 mm	There are many manufacturers
7	Counter stay device	To remove the ball bearing and needle bearing in the gear housing	There are many manufacturers, for example: Kukko (Germany), Snap-On (USA)
8	Mounting sleeve	Wet To put the crown gear and seal ring	525 30 02-01
9	Multimeter	To control the functions of the electrical system	Amprobe 37XR-A or other model that can measure inductance
10	Grease	To lubricate the gear housing	503 97 64-01 - Wet / 574 20 30-01 Cut-n-Break
11	Slide Hammer	To remove the gear housing bearing	There are many manufacturers

5 Product overview for repair and servicing

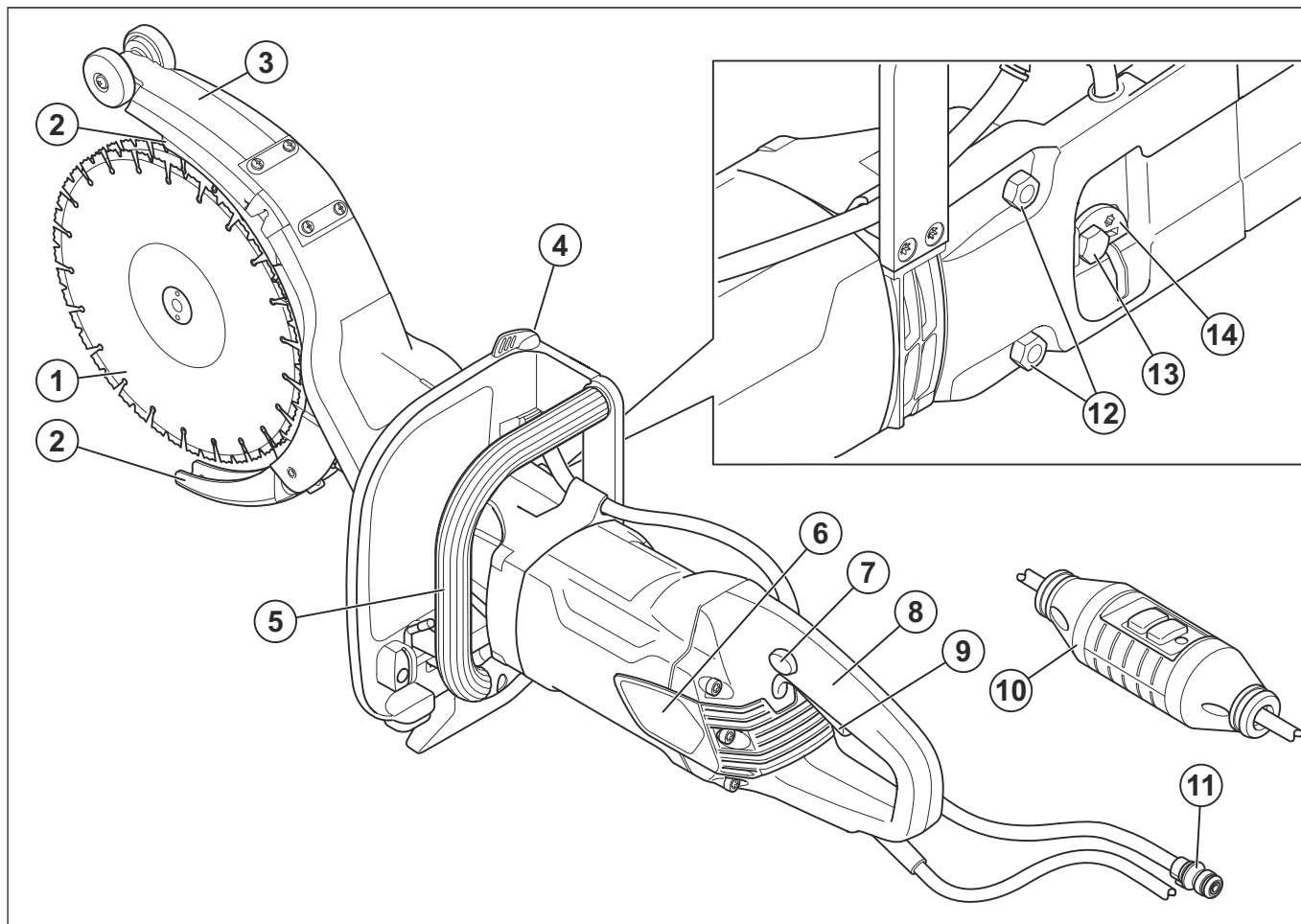
5.1 Components overview K4000Wetwet



1. Cutting blade (not supplied)
2. Blade guard
3. Spray nozzle on each side
4. Front handle
5. Inspection cover for carbon brushes
6. Starter lock
7. Rear handle

8. Circuit breaker
9. Spindle lock
10. Water coupling with valve
11. PRCD (Portable Residual Current Device) (Not for UK and Ireland)

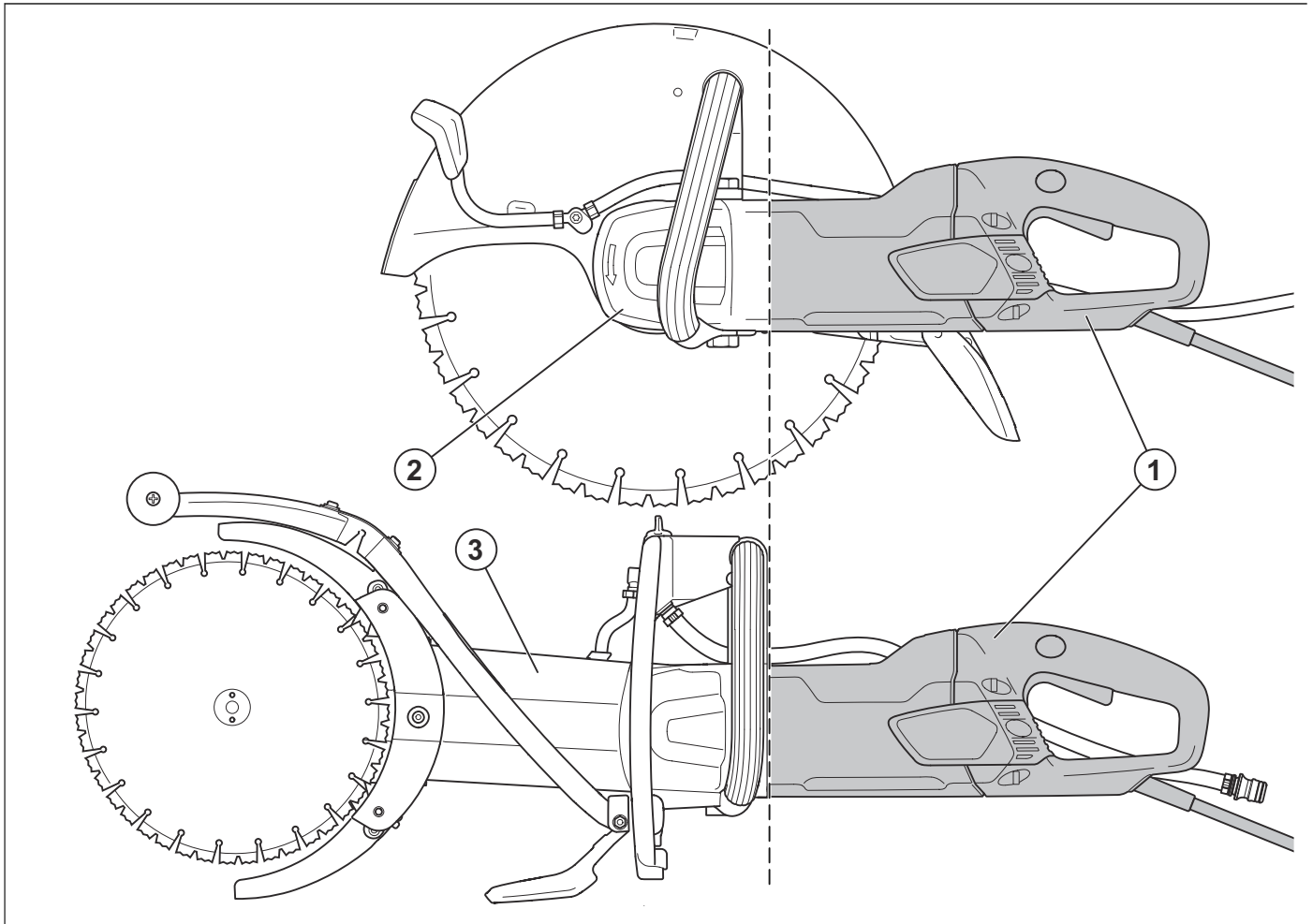
5.2 Components overview K4000Cut-n-Break



- 1. Cutting blades (not supplied)
- 2. Blade guard
- 3. Spray guard
- 4. Water valve
- 5. Front handle
- 6. Inspection cover for carbon brushes
- 7. Starter lock
- 8. Rear handle

- 9. Circuit breaker
- 10. PRCD (Portable residual Current Device) (Not for UK and Ireland)
- 11. Water coupling
- 12. Locknuts for belt adjustment
- 13. Locknut for belt tensioner
- 14. Belt tensioner

5.3 Basic structure



K4000Wet and Cut-n-Break have the same motor unit that makes wet cutting possible with small quantities of water. The workshop manual has the same sections for the motor and different sections for each type of machine.

1. Motor. The same unit for the two machines. Available for 230 V (220–240 V) and 120 V (100 - 120 V).
2. Wet. Blade water coolant. Blade diameter 350 mm
3. Cut-n-Break. Cutting unit with two blades. Blade water coolant. Blade diameter 230 mm, cutting depth 400 mm.

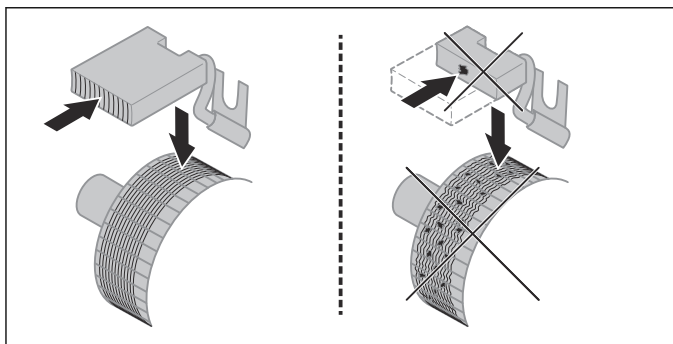
6 Repair and servicing

6.1 Carbon brushes

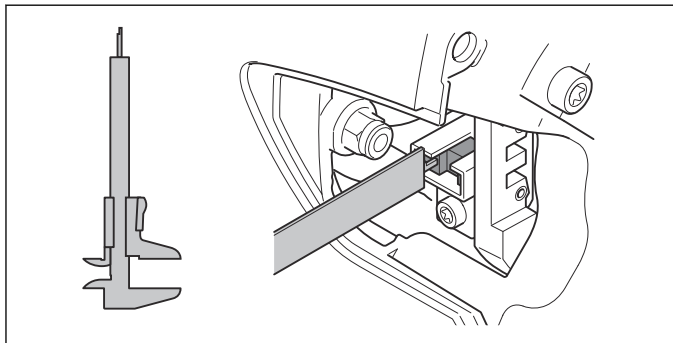
The carbon brushes transmit electric current to the rotor. The carbon brushes are wear parts and must be examined regularly.

6.1.1 To examine the carbon brushes

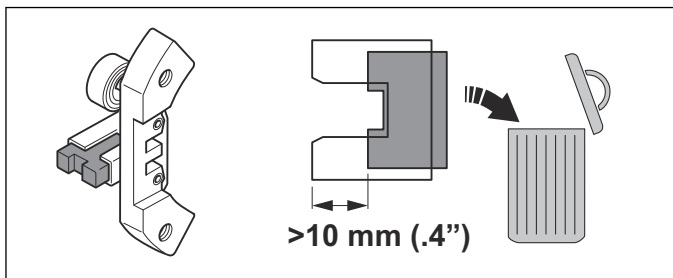
The illustration shows a brush that is worn but can be used. The brush and the collector only have small scratches in the direction of turning. The illustration also shows the results when the brush is worn. The spring no longer gives the brush the correct pressure. Sparks occurs which causes damage to the brushes and the collector in a very short time. Sparks can also occur if the brushes cannot move. This can be because of dirt. Running in new brushes can also cause sparks.



1. Examine the brush using a Vernier caliper.

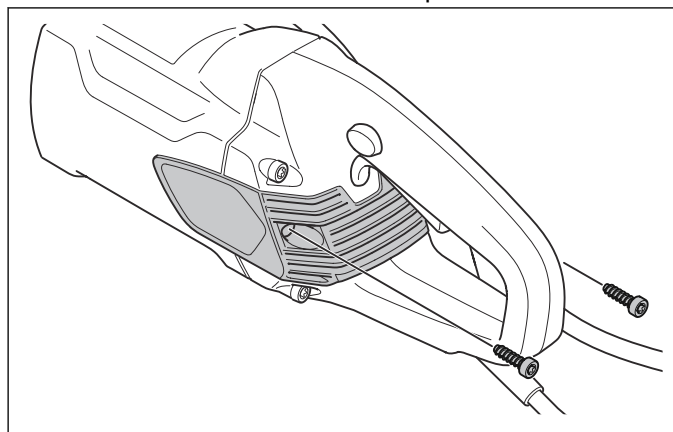


Replace the brushes when there is more than 10mm/.4in between the brush holder and the top of the brush.

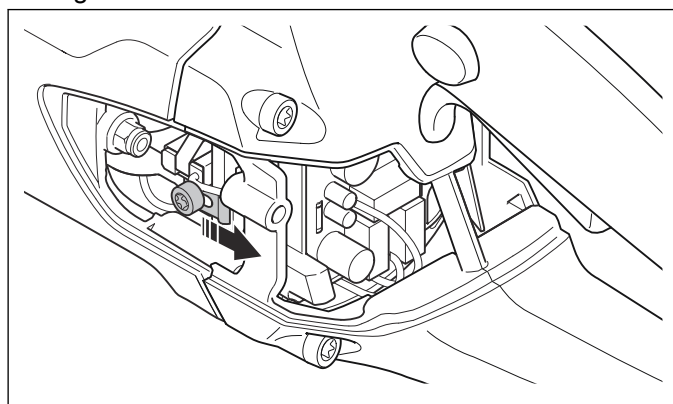


6.1.2 To remove the carbon brushes

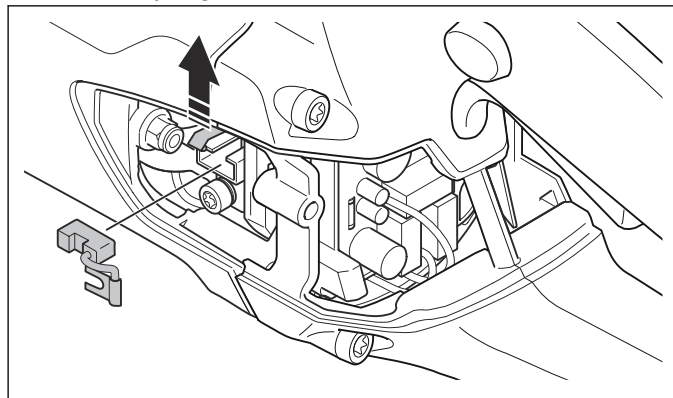
1. Remove the screws and the inspection cover.



2. Loosen the screw one turn and remove the cable lug.

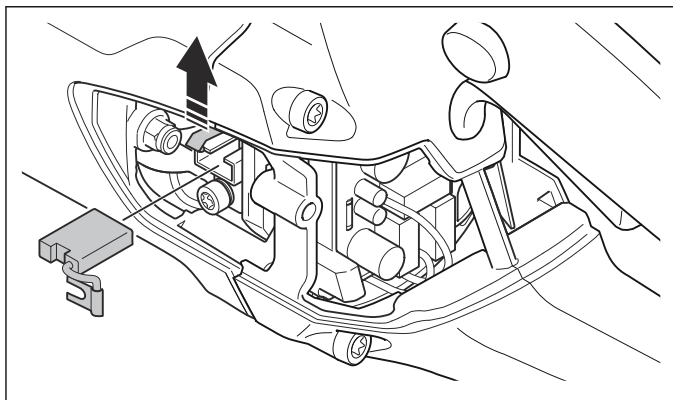


3. Lift the spring and remove the carbon brush.

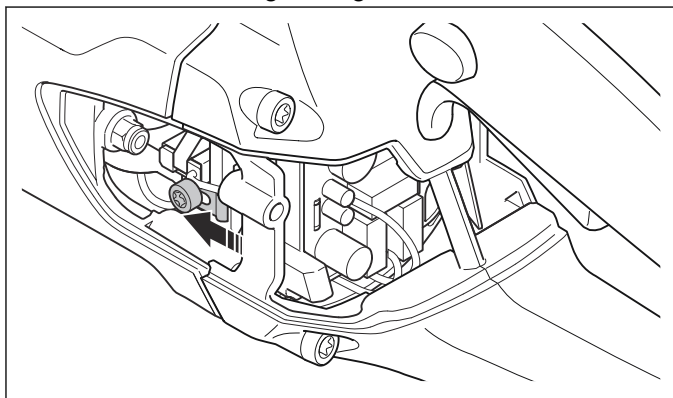


6.1.3 To install the carbon brushes

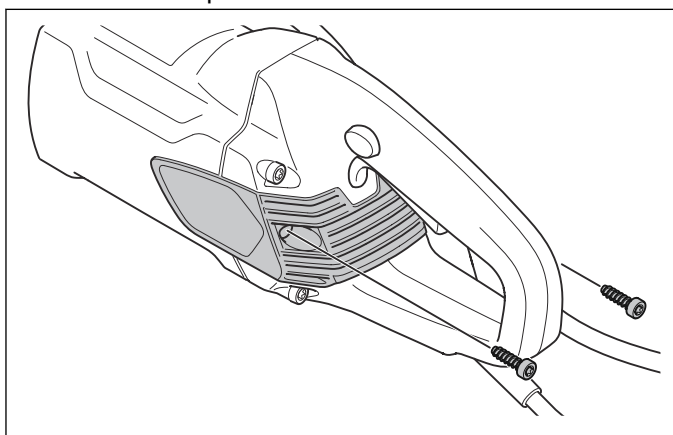
1. Clean the holder.
2. Install the new carbon brushes.



3. Install the cable lug and tighten the screw.



4. Install the inspection cover and screws.

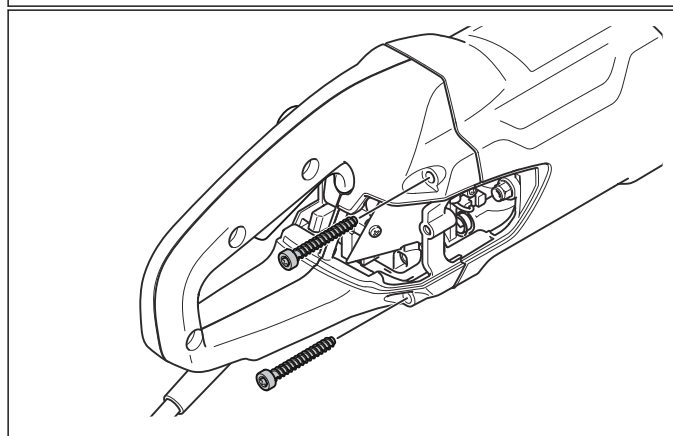
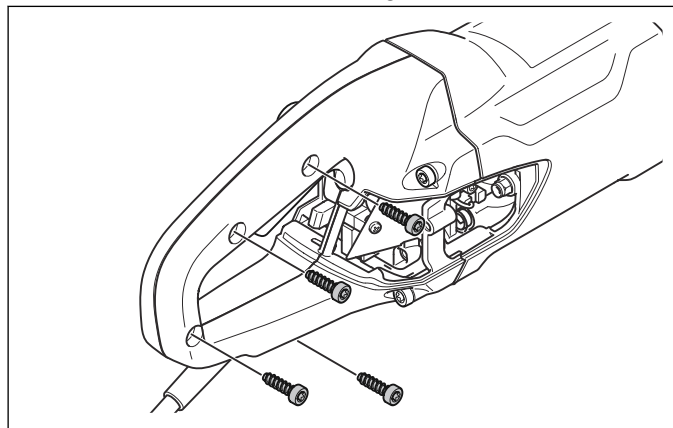


You must break in new carbon brushes. Run the machine for 30 minutes without a load.

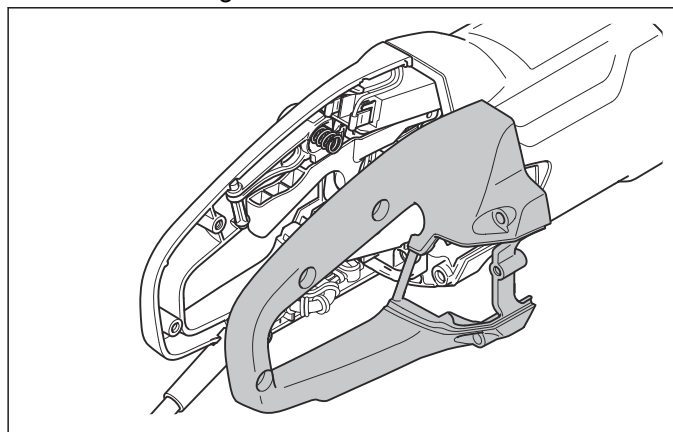
6.2 Carbon brush holders

6.2.1 To remove the carbon brush holders

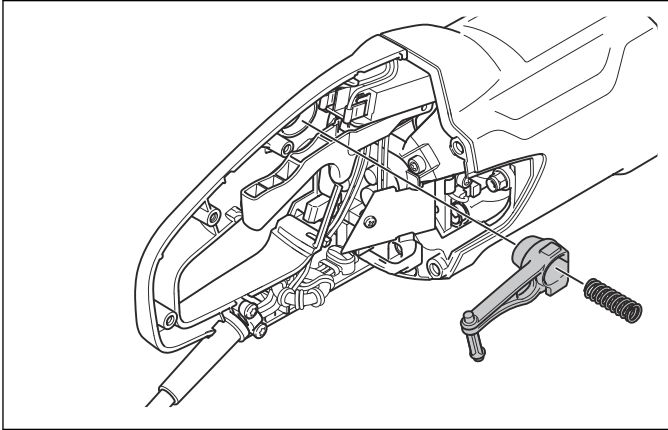
1. Remove the brushes. See *To remove the carbon brushes on page 16*
2. Remove the screws to the right handle.



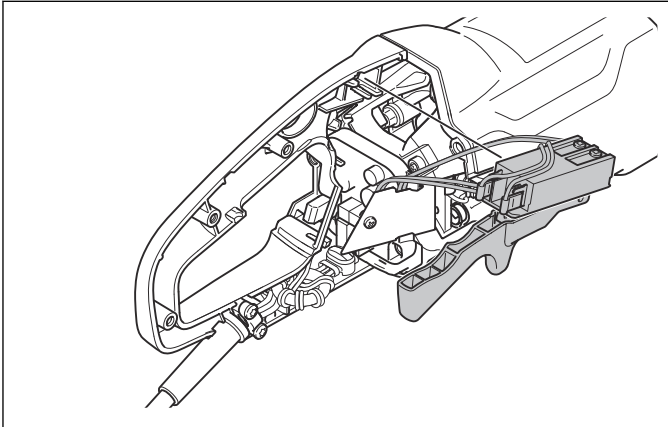
3. Remove the right handle.



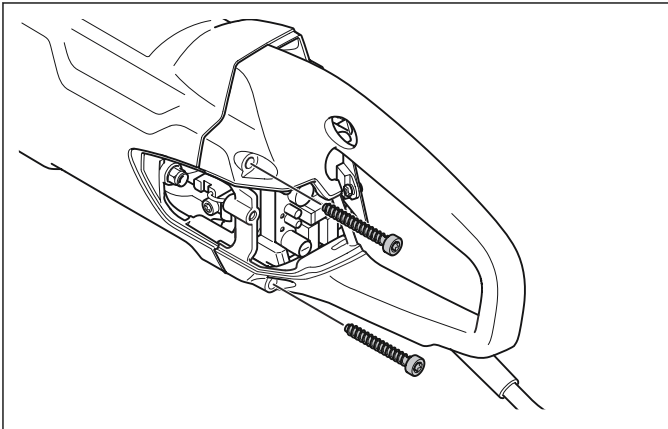
4. Remove the locking button and spring.



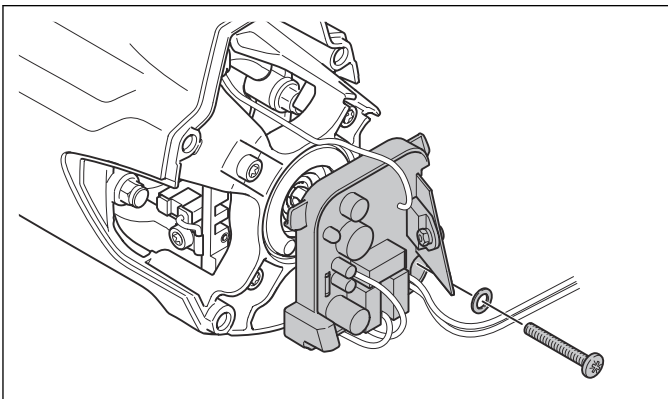
5. Remove the switch.



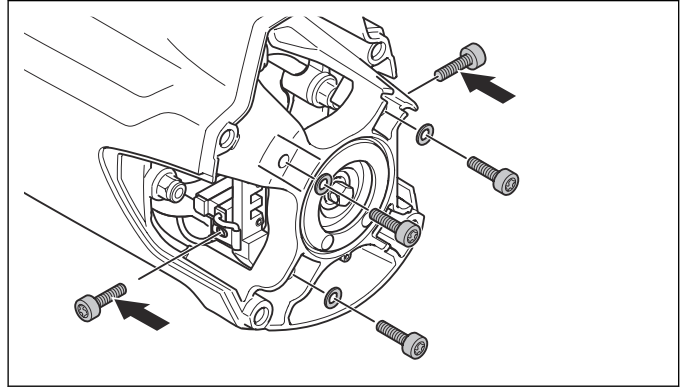
6. Remove the two screws for the left handle.



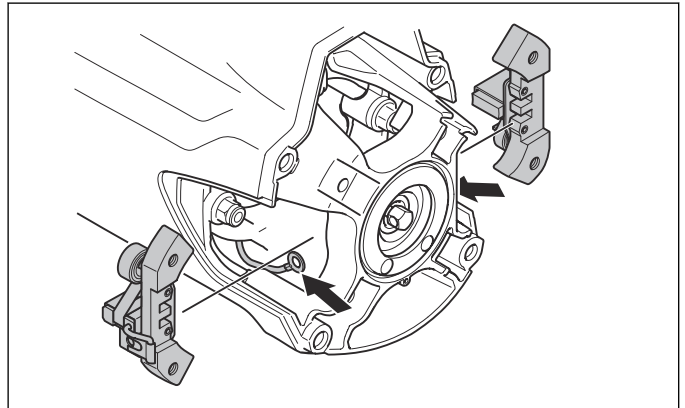
7. Remove the screw. Move the circuit board to the side.



8. Remove the screws.

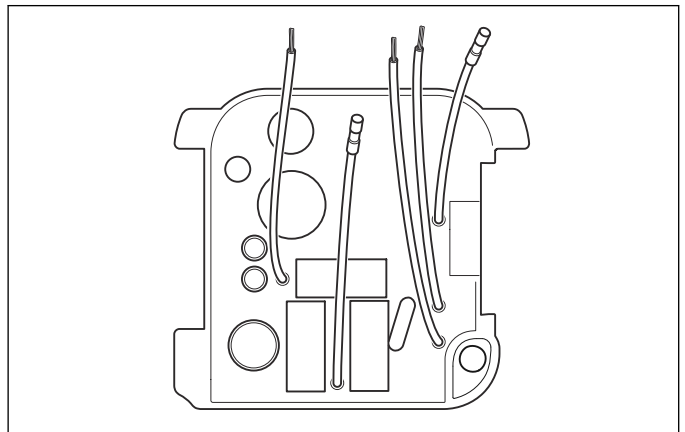


9. Remove the carbon brush holders.



6.3 Circuit board

The circuit board has two functions, Softstart and Elgard™. Softstart gives a soft start with less current. Elgard™ gives a warning by changing the speed if there is an overload.



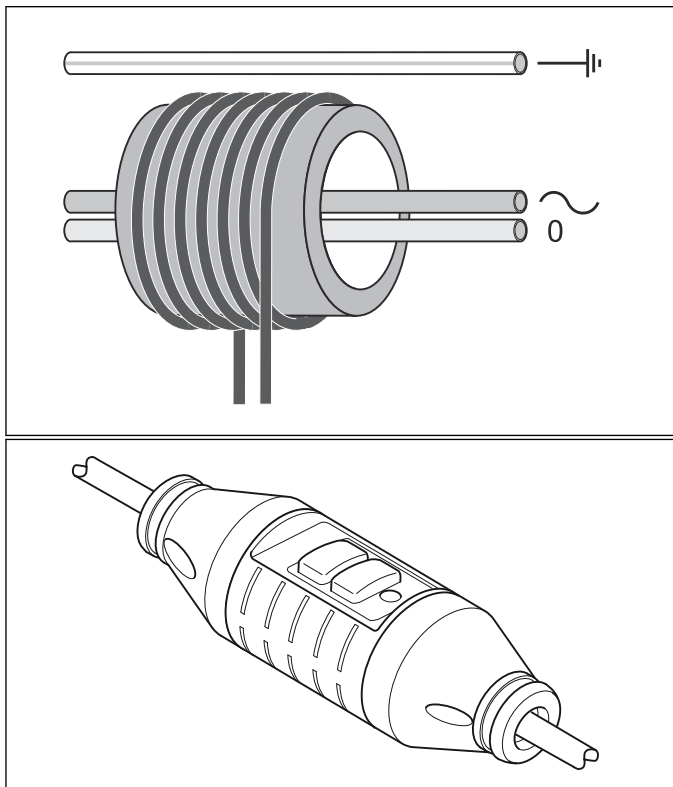
6.3.1 To examine the circuit board

1. To examine the circuit board, special equipment is necessary. As an alternative you can use a process of exclusion. Examine the Power supply, cables, switches, stator and rotor. If they are operating, the problem is with the circuit board. It must then be replaced.

6.4 PRCD (Portable Residual Current Device)

The current that comes in through the phase conductor must also go through the 0 conductor. The conductors run through a coil. If the same current goes in the two directions, there will be no current in the coil. If there is a

short circuit there will be more current going in through the coil than going out. If the current in the coil is more than 10mA, a circuit breaker will stop the current to the product.



6.4.1 To examine the PRCD

Each time the power plug is connected to the mains, the RESET button must be pressed. A relay connects the current and is held in position while there is mains current. A red light above the button shows that the current is connected. The TEST button is used to control that the PRCD works.

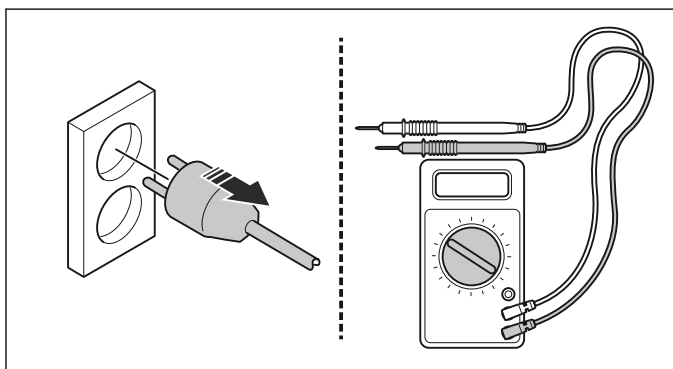
1. Start the machine and press the TEST button. The PRCD must stop the machine.

6.5 Electrical cables



WARNING: Do not make any controls when the product is connected to a mains socket.

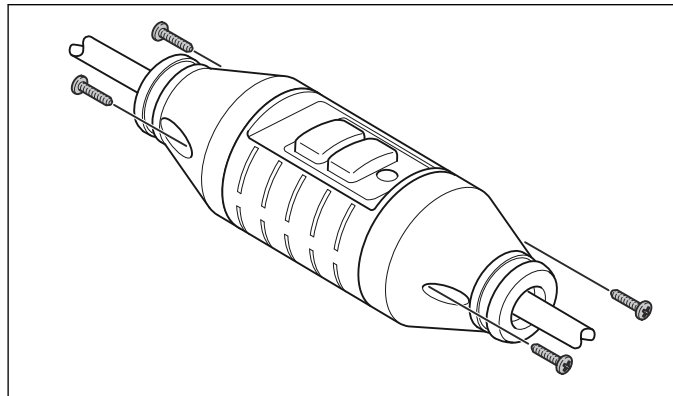
The electrical function is controlled with a multimeter.



6.5.1 To examine the electrical cables, contact - PRCD

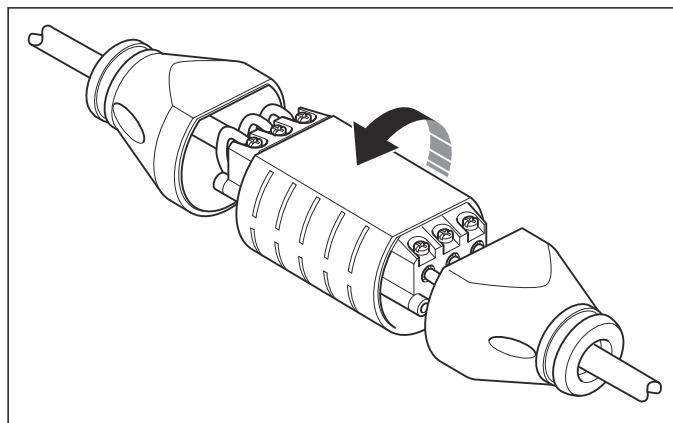
The PRCD only let through current when it is connected to the mains. To access the connection points to control the mains cable with a multimeter, pull apart the ends of the PRCD.

1. Remove the two screws on each end.

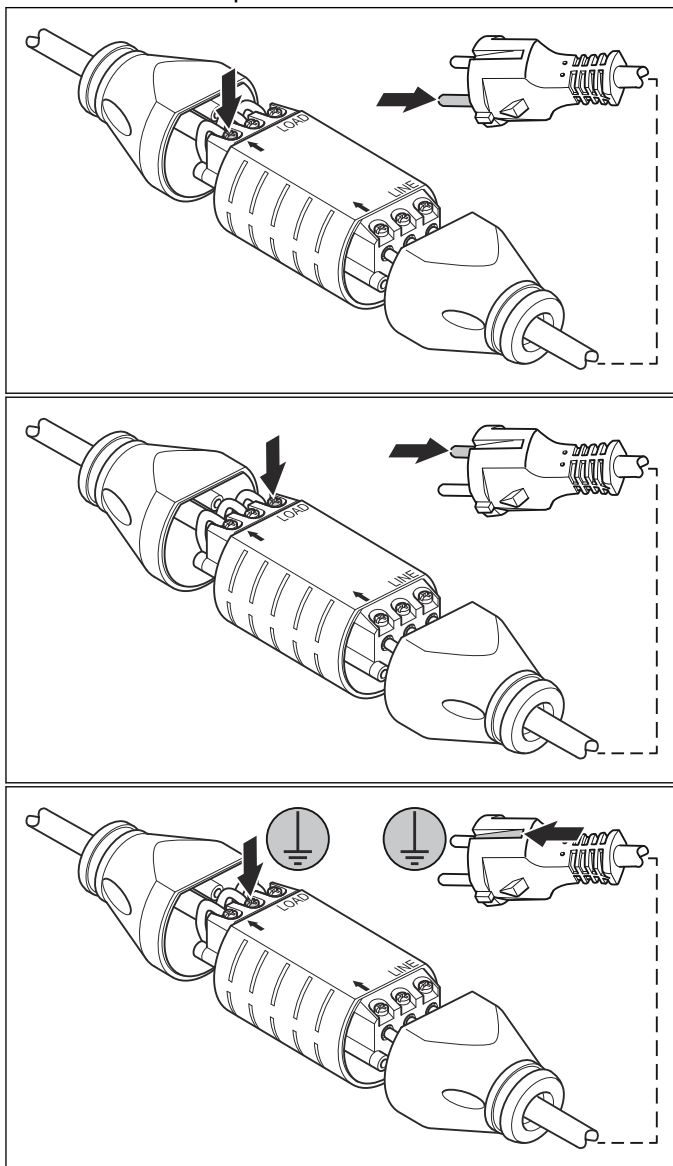


2. Pull out the ends.

3. Turn the PRCD.



4. Measure between the contact pins, ground and the related contact points on the PRCD.

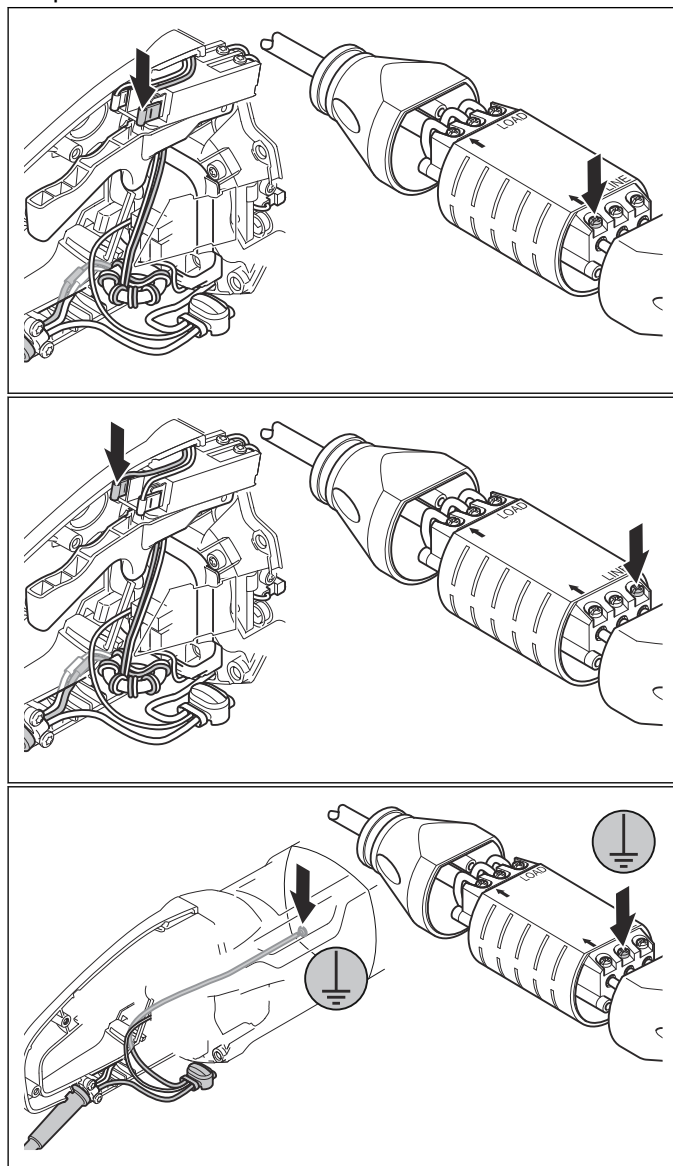


6.5.2 To examine the electrical cables, contact - switch

The PRCD only let through current when it is connected to the mains. To examine the mains cable with a multimeter, pull apart the ends of the PRCD. Then you can measure at the connection points.

1. Open the ends of the PRCD. See *To examine the electrical cables, contact - PRCD on page 19*
2. Remove the switch. See *To remove the carbon brush holders on page 17*
3. Divide the gear and motor housing See *To disassemble the gear housing on page 27*

4. Measure between the contact pins and their contact points on the switch.

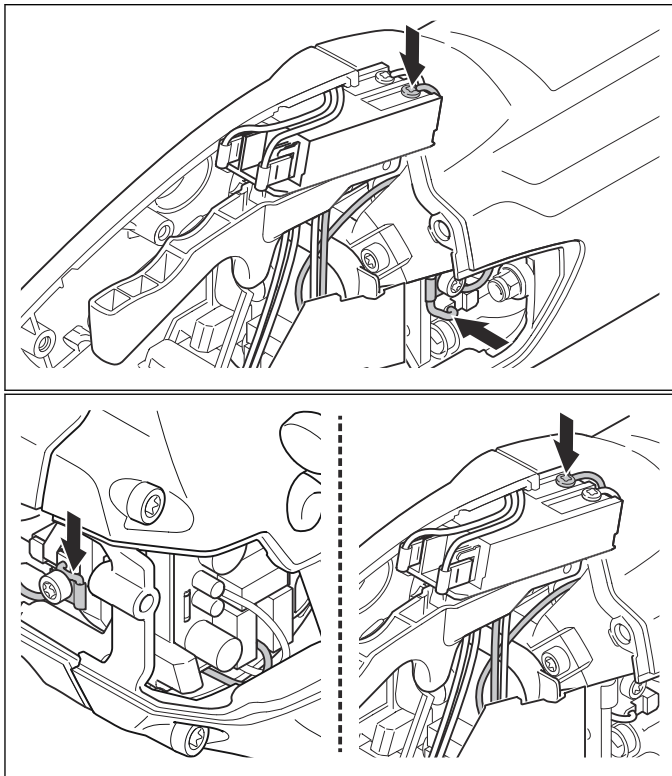


6.5.3 To examine the electrical cables, switch - motor

The cables from the switch to the motor goes through the circuit board. A probe from the multimeter cannot get in contact with a cable on the circuit board. The best is

to examine the cables by measuring them in series with the stator. Use the resistance setting, not the buzzer.

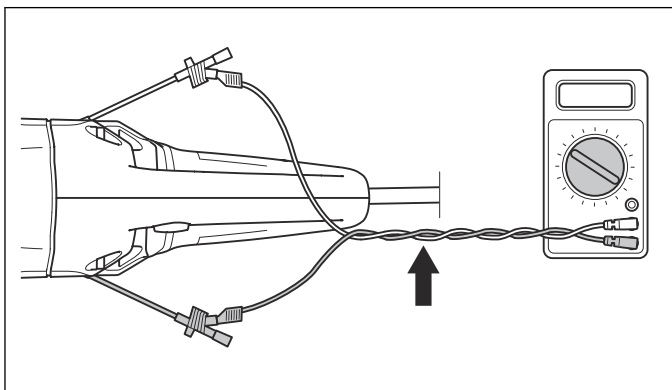
1. Measure between the switch and the carbon brushes as in the illustrations.



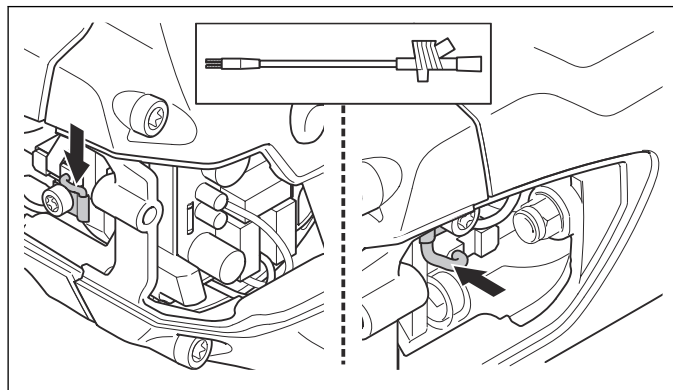
6.6 Rotor

6.6.1 To examine the rotor

To examine the rotor, control the inductance. Twist the cables to decrease the inductance from the multimeter and get more accurate results.



1. Remove the inspection cover to the carbon brushes. See *To remove the carbon brushes on page 16*
2. Connect the multimeter probes to the carbon brushes. The stator will not change the result since its circuit is broken at the circuit board.



3. Turn the rotor shaft by turning the blade slowly. Make sure you get values for each winding of the rotor.

230V: Typical measured value for a correct rotor is around 13–14 mH

120V: Typical measured value for a correct rotor is around 2.6–3.0 mH.

But the inductance values may be different between different measurement instruments and machines. Monitor the differences in the values during the test more than how close they are to typical values. Different values between the windings is a sign of a defective rotor.

6.6.2 To remove the rotor

To remove the rotor, see *To disassemble the gear housing on page 27*.

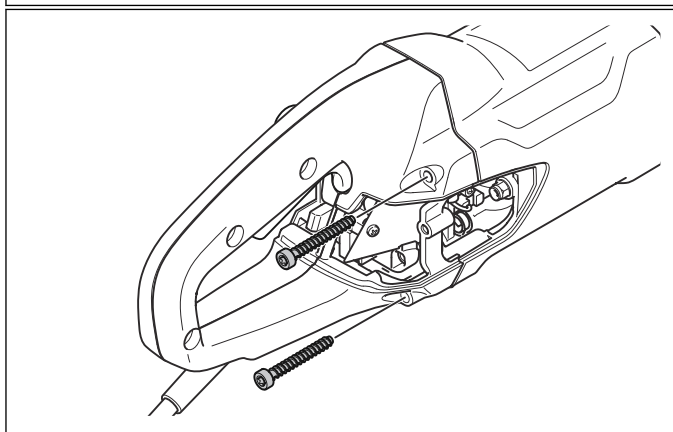
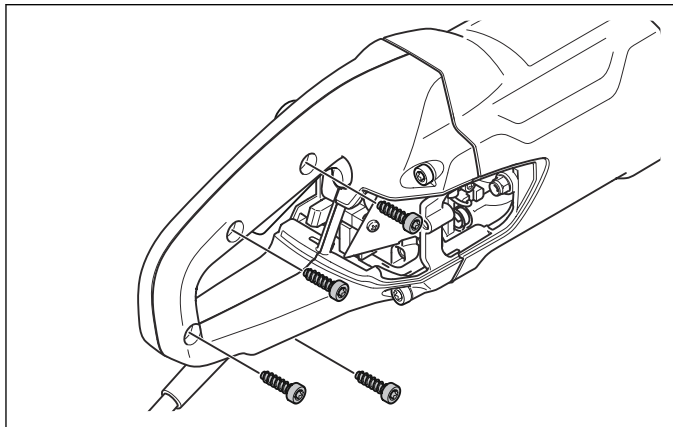
6.6.3 To install the rotor

To install the rotor, please see *To install the gear housing on page 32*.

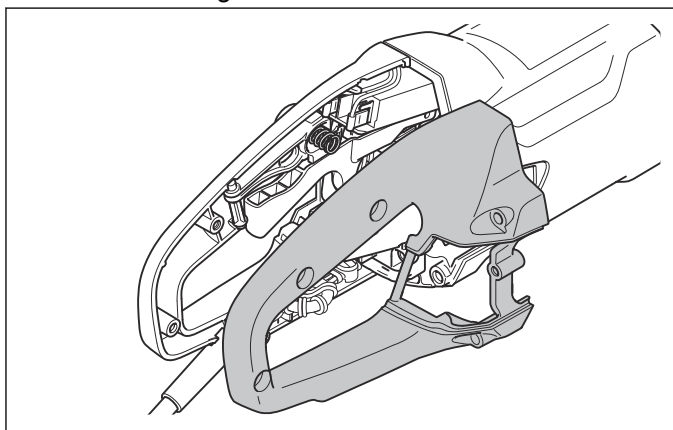
6.7 Stator

6.7.1 To remove the stator

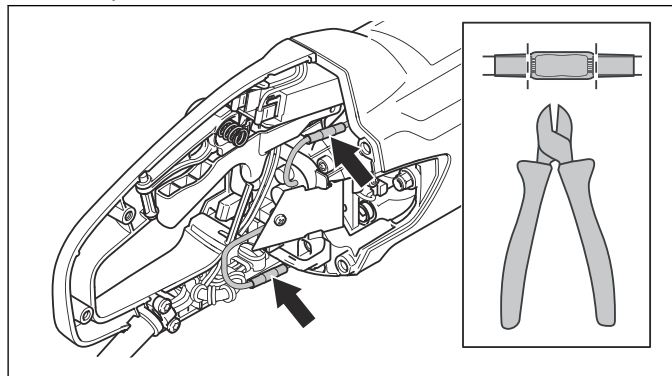
1. Remove the screws to the right handle.



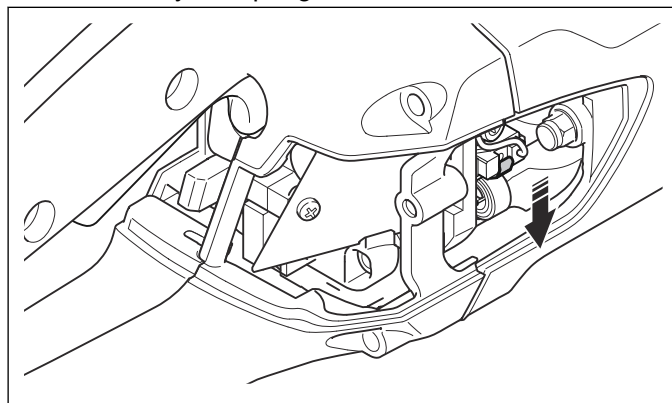
2. Remove the right handle.



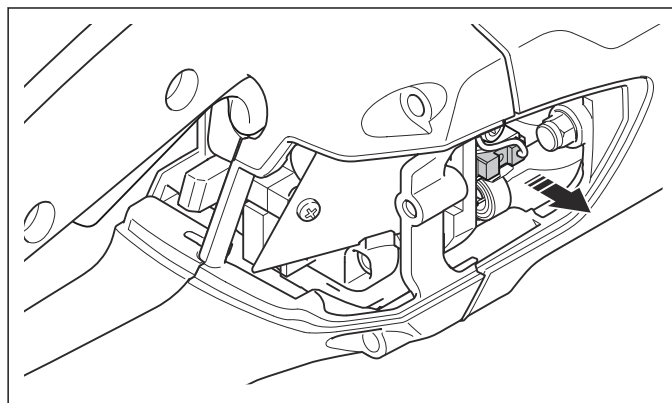
3. Cut the cables from the circuit board to the stator at the splices.



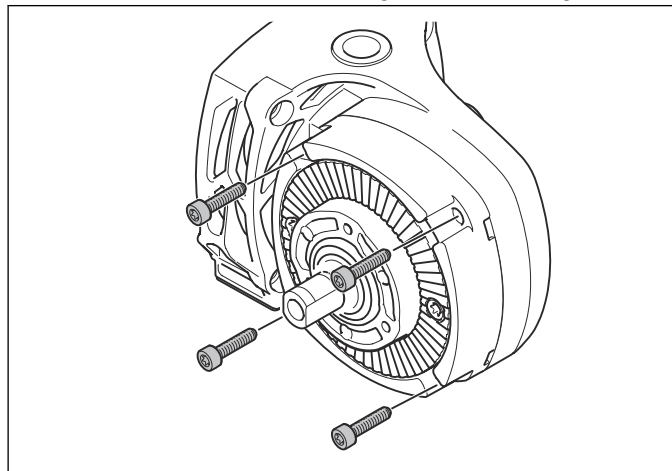
4. Move away the springs for the the brushes



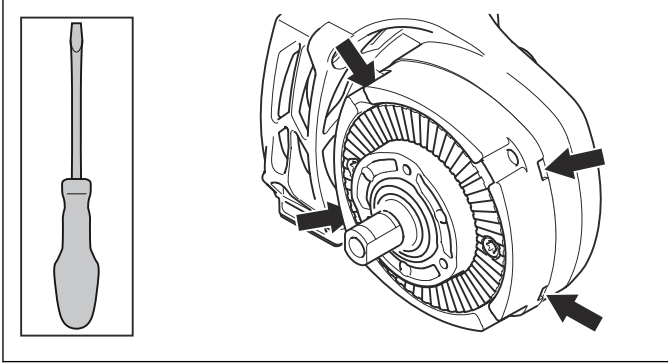
5. Pull out the brushes.



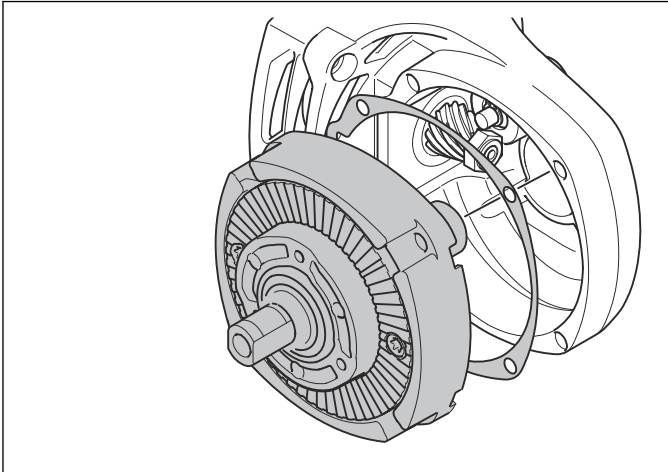
6. Remove the screws for the gear set housing.



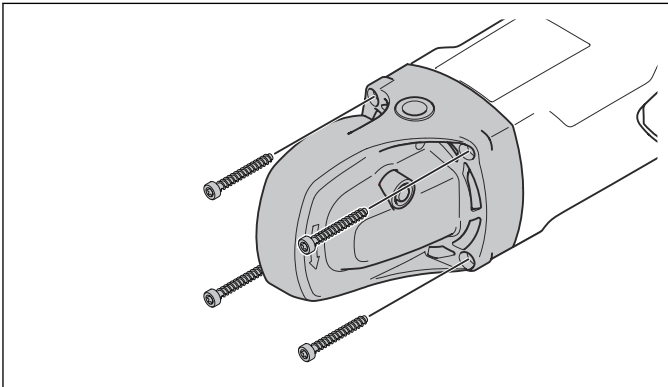
7. Open the gear housing with a screwdriver.



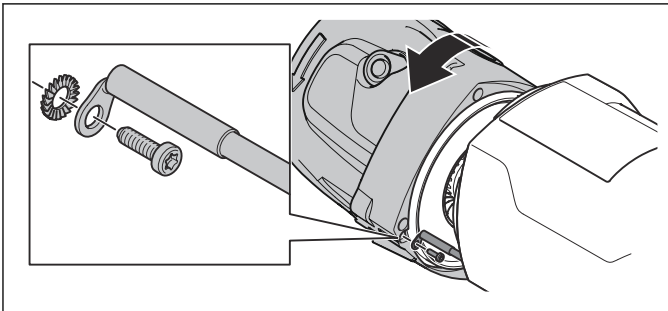
8. Remove the gear set housing



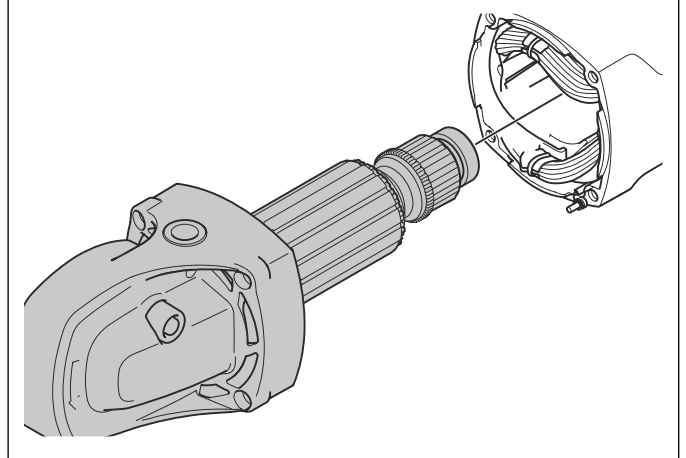
9. Remove the four screws to the gear housing.



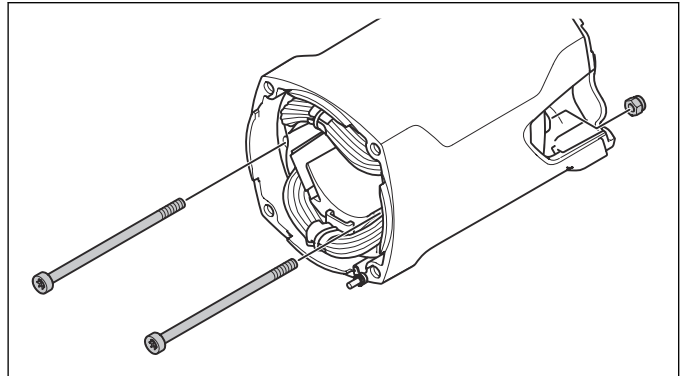
10. Remove the screw for the ground wire.



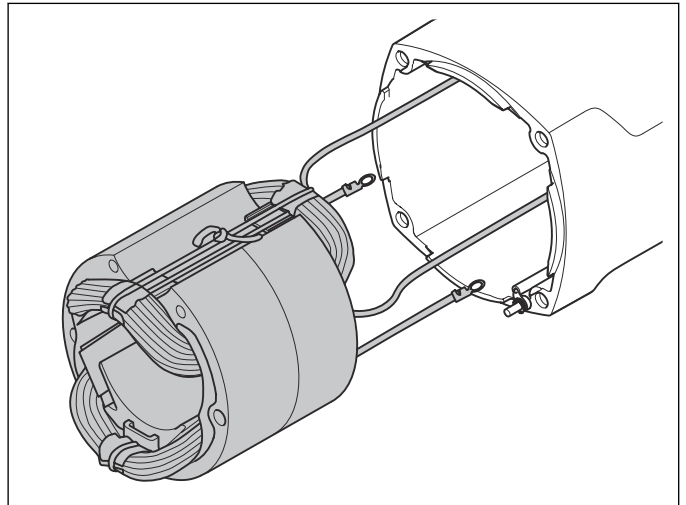
11. Remove the gear housing and the rotor.



12. Remove the two screws holding the stator.



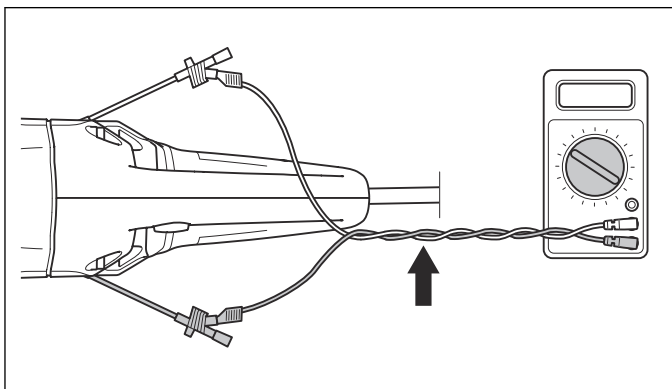
13. Remove the stator.



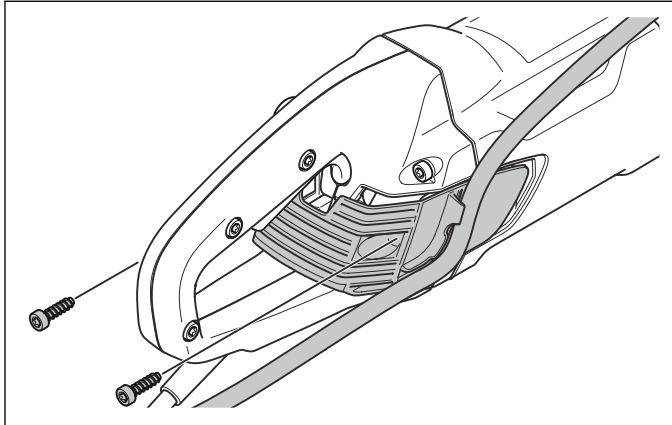
6.7.2 To examine the stator 230V

To examine the stator, you can measure resistance or inductance. A resistance test can show if the stator winding is damaged. But it does not show if only some windings have been short-circuited. An inductance test can show damages and short-circuits. Twist the cables

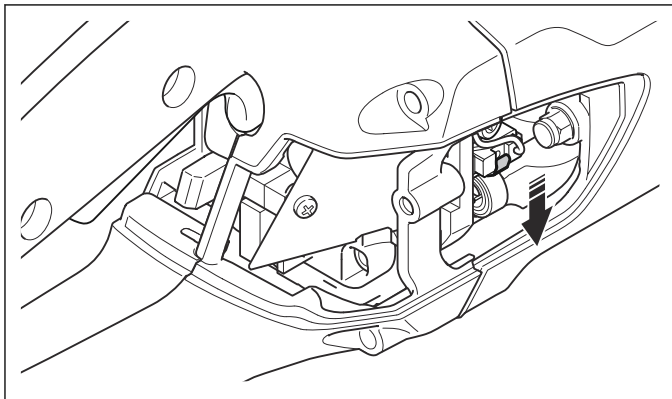
from the multimeter in order to decrease the inductance and get more accurate result.



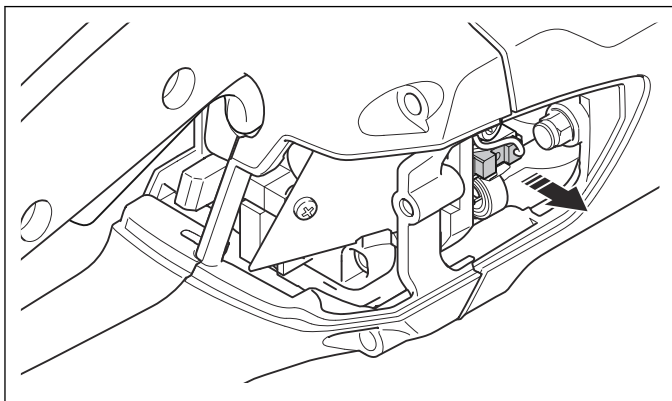
1. Remove the inspection cover to the carbon brushes.



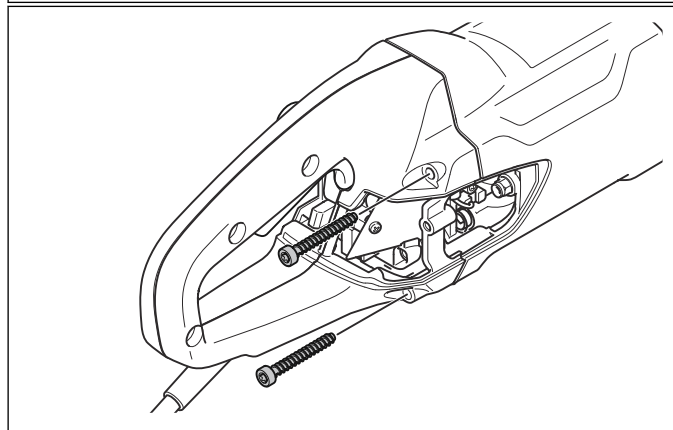
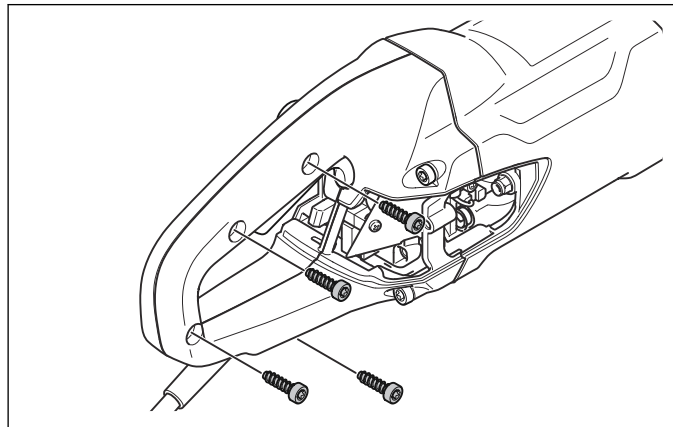
2. Move away the springs holding the brushes.



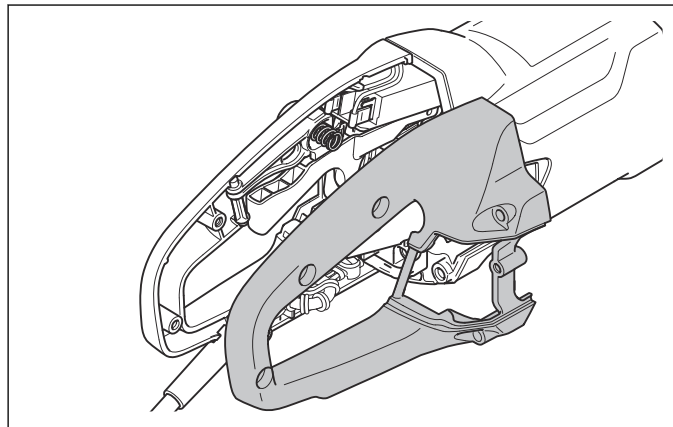
3. Pull out the brushes until they are not in connection with the rotor.



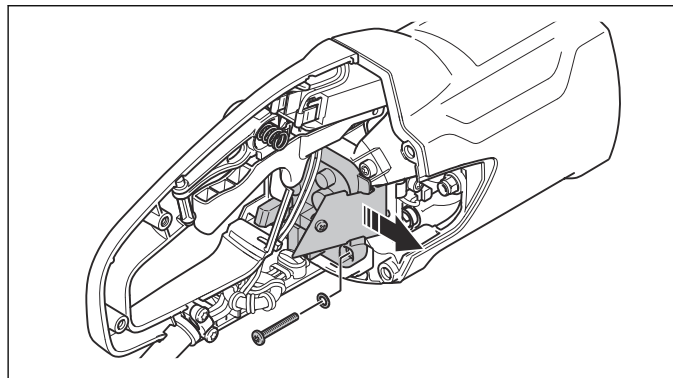
4. Remove the screws to the right handle.



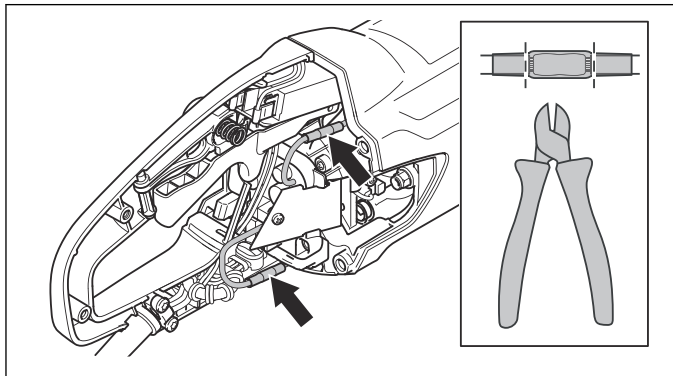
5. Remove the right handle.



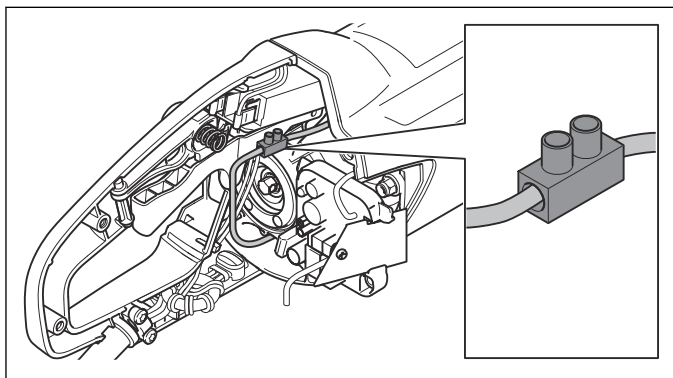
6. Loosen the screw and pull out the circuit board 3-4 cm.



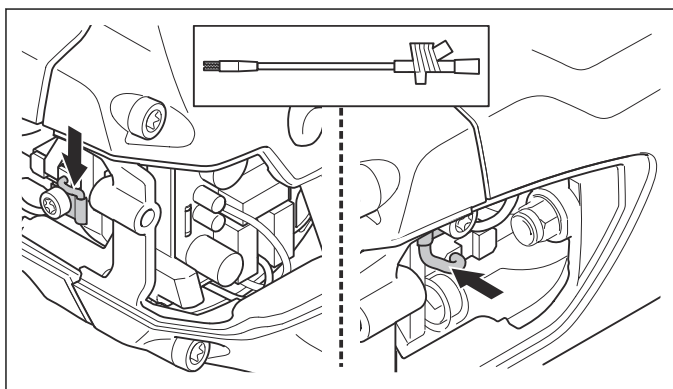
7. Cut the two cables going to the stator at the splices.



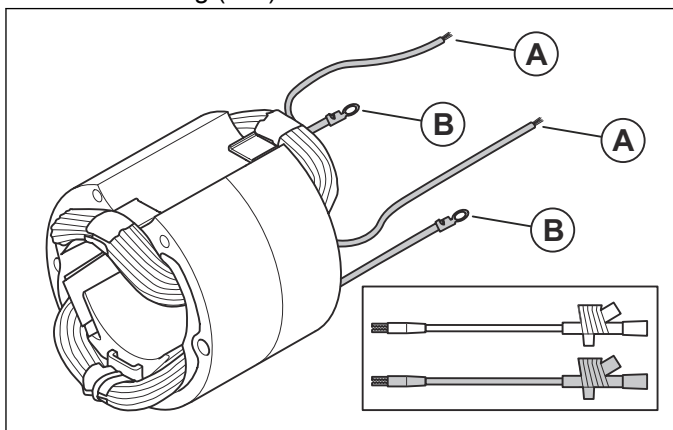
8. With a barrier strip, connect the two cables going to the stator.



9. Connect the multimeter probes to the cables of the carbon brushes.



10. If you have disassembled the stator, measure the windings one at a time. Connect the measurement cables to one of the cut off cable splices (A) and ring cable lugs (B) of one winding. Do the same on the other winding (A/B).



When a test is made with the stator on the product, the inductance must be 40 mH. Resistance must be around 8 Ω .

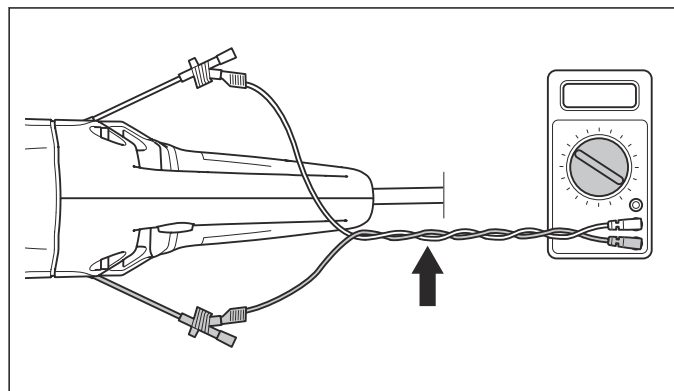
If the stator is broken, an inductance test gives 0 mH. A resistance test gives a maximum value.

If some windings are short-circuited, the inductance will decrease. If the value is 30% (30mH) below the typical, the stator must be replaced.

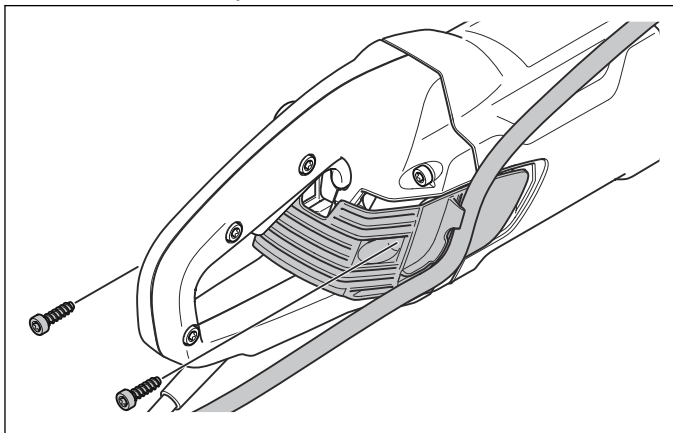
When a test is made on a disassembled stator, the inductance must be around 2.8 mH. Resistance values must be around 0.4 Ω . Large differences between the windings means the stator is defect.

6.7.3 To examine the stator 120V

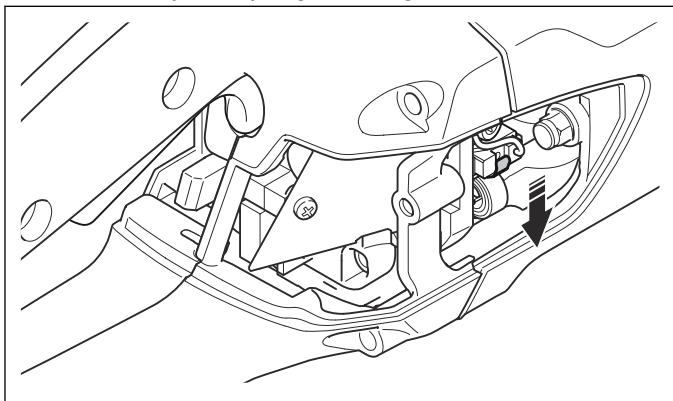
To examine the stator, you can measure resistance or inductance. A resistance test can show if the stator winding is damaged. But it does not show if only some windings have been short-circuited. An inductance test can show damages and short-circuits. Twist the cables from the multimeter in order to decrease the inductance and get more accurate result.



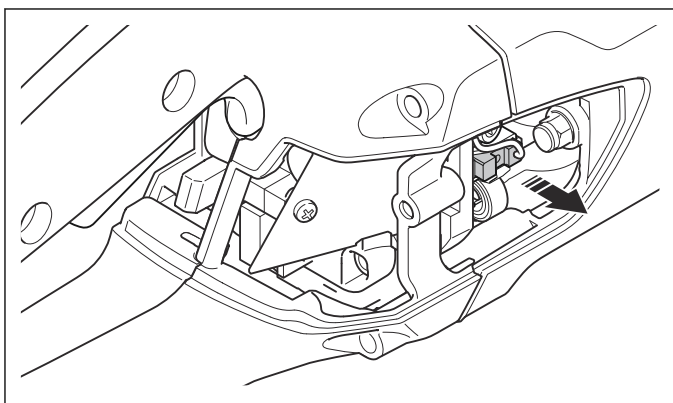
1. Remove the inspection cover to the carbon brushes.



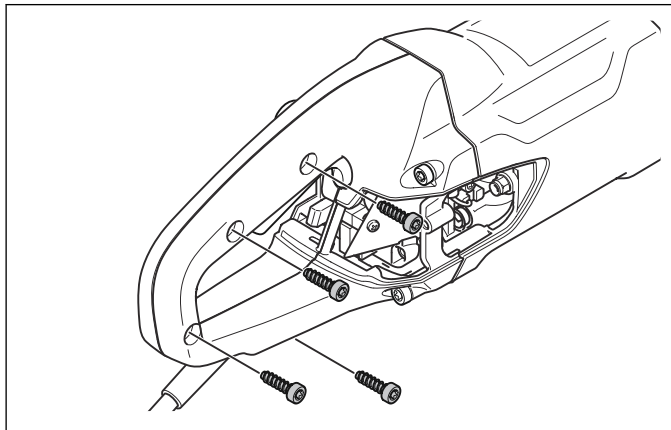
2. Move away the springs holding the brushes.



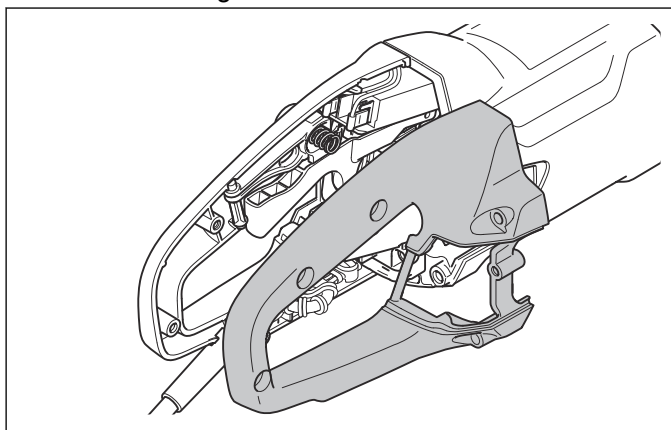
3. Pull out the brushes until they are not in connection with the rotor.



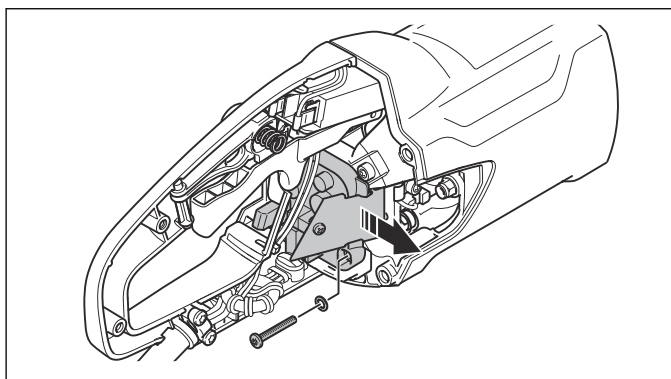
4. Remove the screws to the right handle.



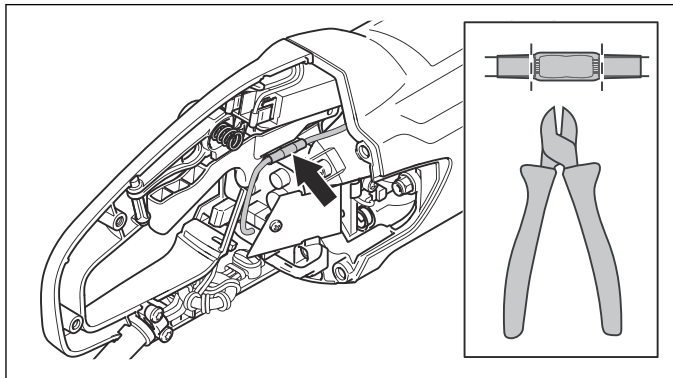
5. Remove the right handle.



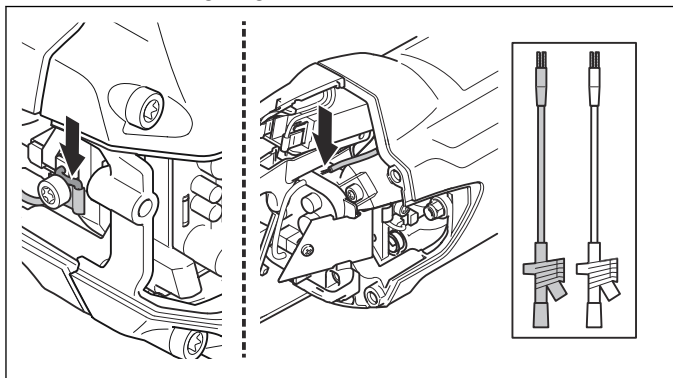
6. Loosen the screw and pull out the circuit board 3-4 cm.



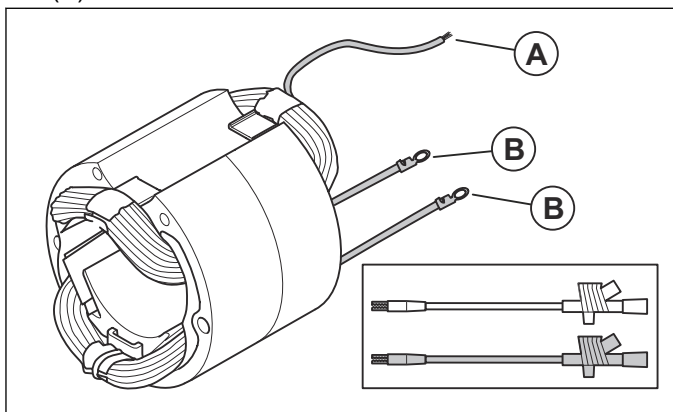
7. Cut the cable going to the stator at the splice.



8. Connect one of the multimeter probes to the cable for the carbon brush. Connect the other one to the cut off cable going to the stator.



9. A disassembled stator is best examined by measuring the stator and the windings one at a time. Connect one of the measurement cables to the gray cable with a cut off splice (A). Connect the one to one of the two black cables for the circuit breaker (B). Do the same on the other black cable.

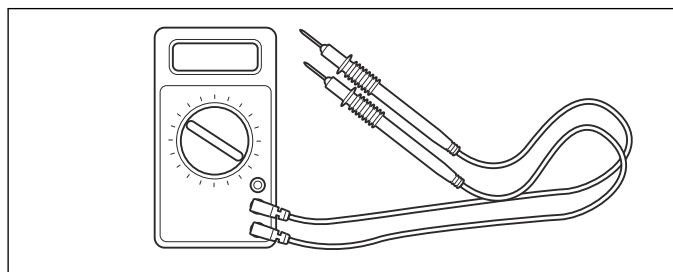


When a test is made with the stator on the product, the inductance must be 10-12 mH. Resistance must be around 0.2-0.3 Ω .

If the stator is broken, an inductance test gives 0 mH. A resistance test gives a maximum value.

If some windings are short-circuited, the inductance will decrease. If the value is 30% (7 mH) below the typical, the stator must be replaced.

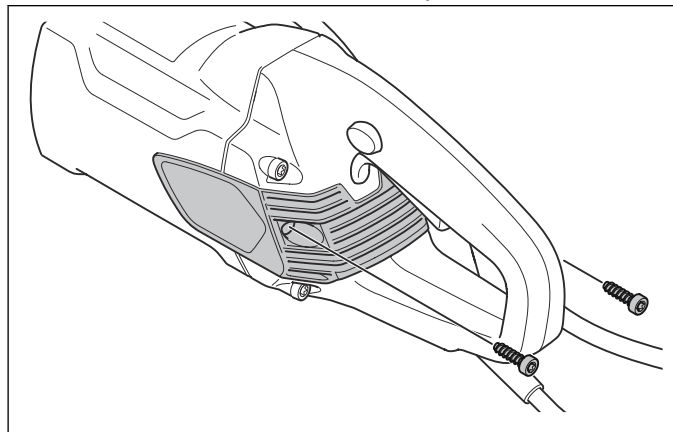
When a test is made on a disassembled stator, the inductance must be around 4-4.5 mH. Resistance values must be around 0.5-0.6 Ω . Large differences between the windings means the stator is defect



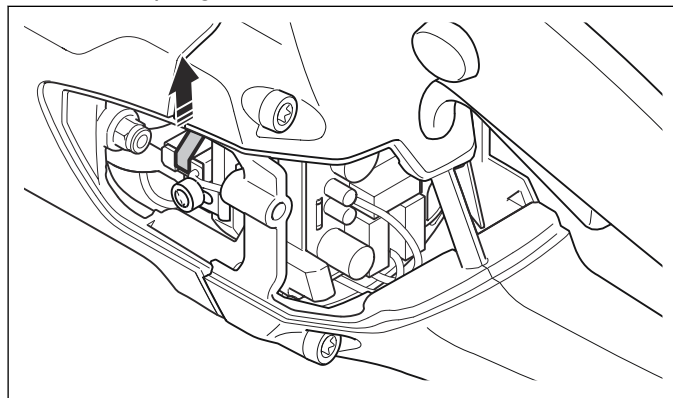
6.8 Gear housing Wet

6.8.1 To disassemble the gear housing

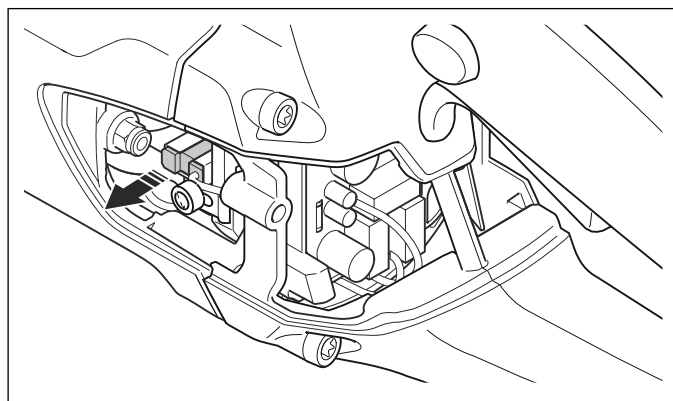
1. Remove the screws and the inspection cover.



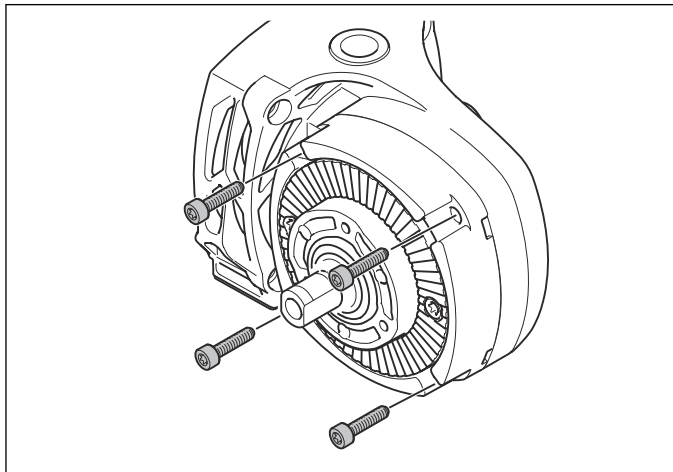
2. Lift the springs for the brushes



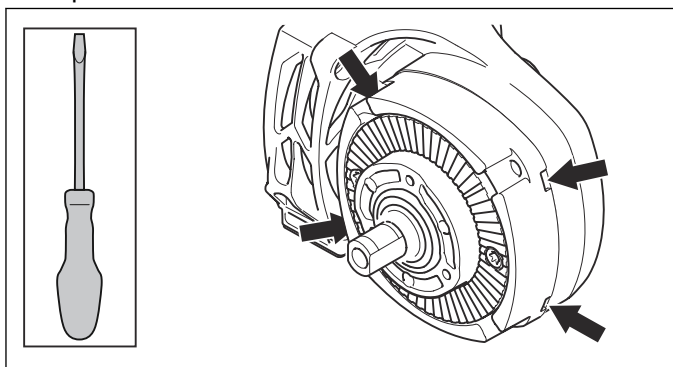
3. Pull out the brushes.



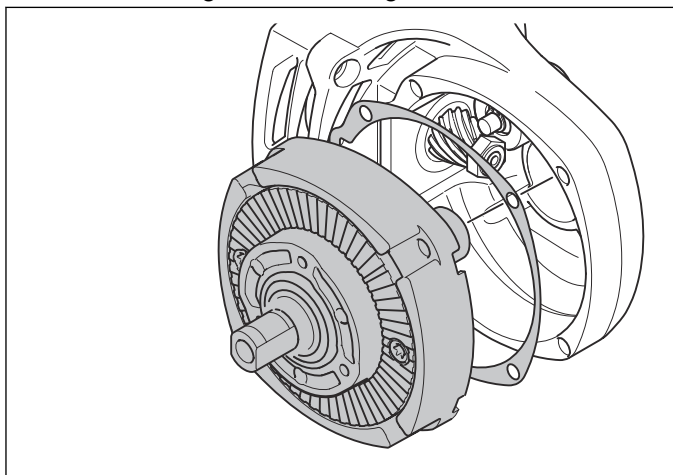
4. Remove the screws for the gear set housing.



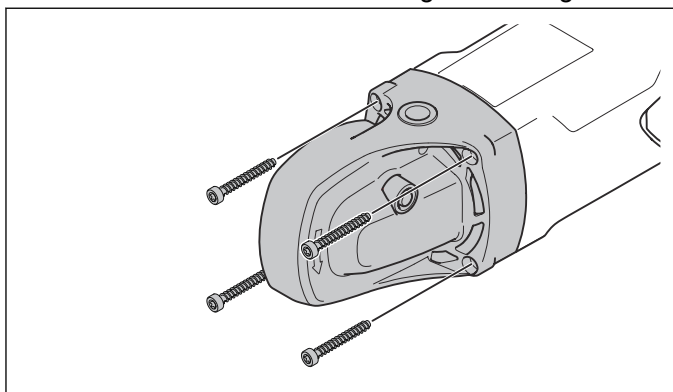
5. Open with a screwdriver.



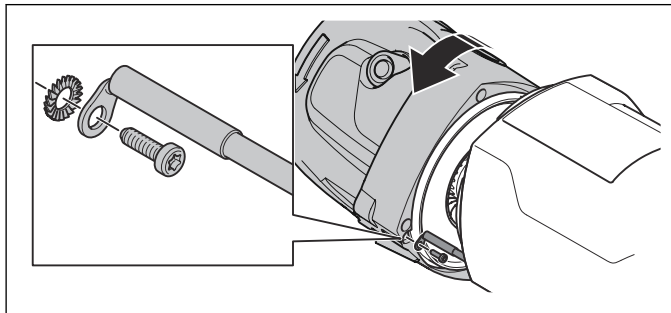
6. Remove the gear set housing



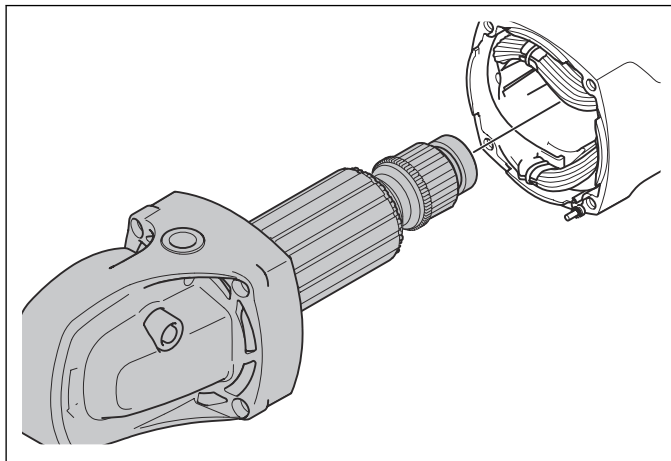
7. Remove the four screws to the gear housing.



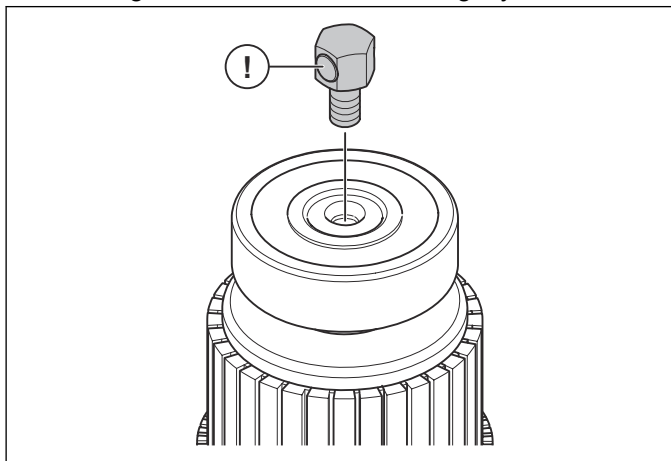
8. Remove the screw for the ground wire.



9. Remove the gear housing and the rotor.

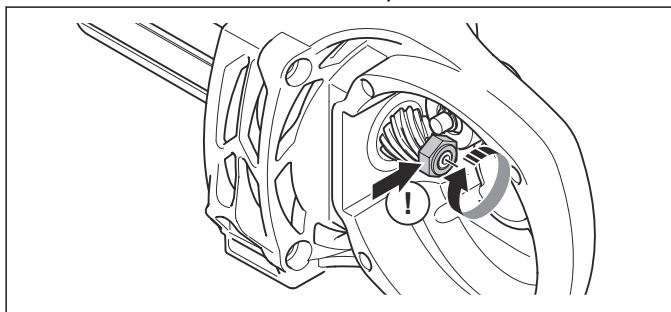


10. If the rear bearing does not come out of the motor housing, use a hammer and hit it lightly.



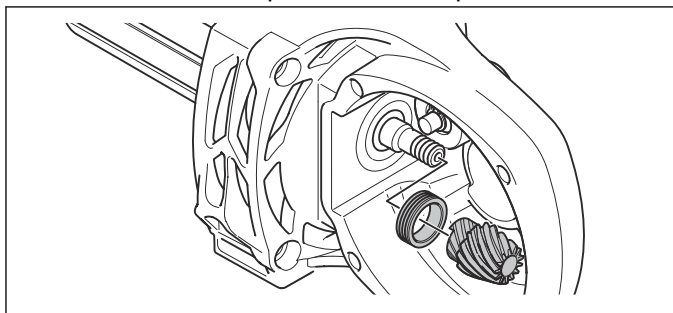
Note: Do not hit directly on the magnetic sensor. Use a socket as a sleeve and hit the socket. Or remove the sensor. When you put back the sensor, use threadlocker Loctite 243.

11. Remove the nut to the drive pinion.

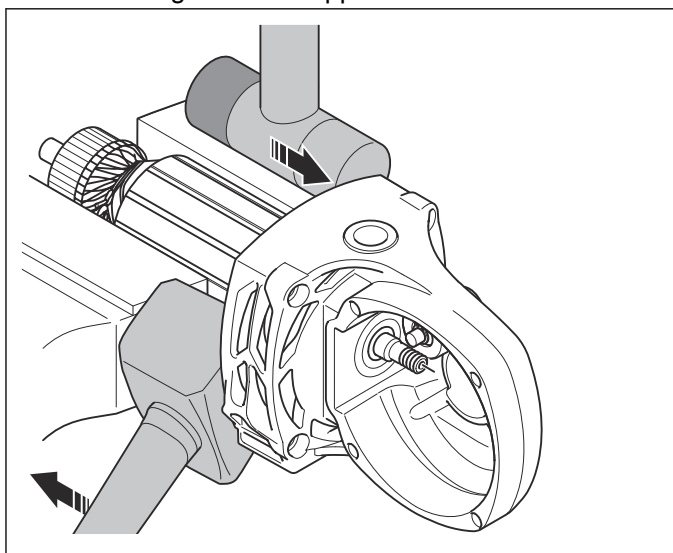


Note: The nut must be loosened in a clockwise direction.

12. Remove the drive pinion and the spacer.



13. Put the rotor in a vice with soft jaw guards.
14. Put a metal object against one corner of the gear housing. Apply force as in the illustration. Use a plastic hammer on the opposite side. If necessary, change position of the metal object and use the hammer again on the opposite side.

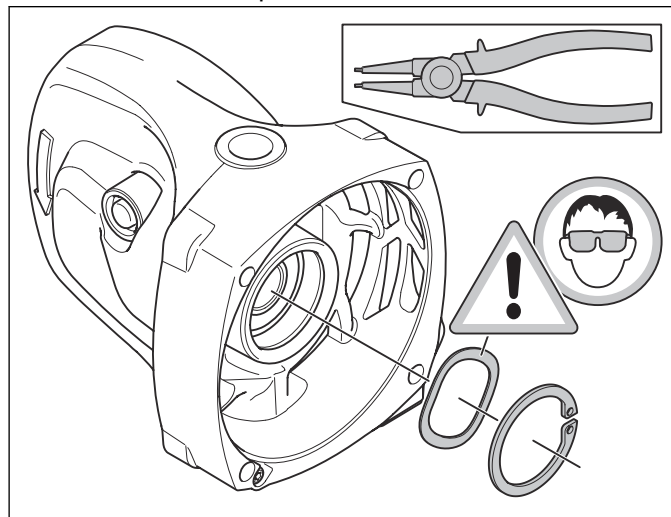


6.8.2 To remove the gear housing bearing

To remove the gear housing, see *To disassemble the gear housing on page 27*. To disassemble the bearing you must use an internal bearing extractor and a counter stay device. As an alternative to a counter stay device

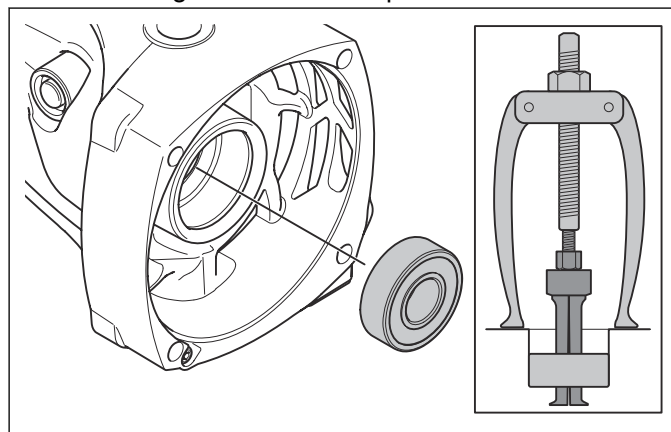
you can use a slide hammer. *Servicing tools overview on page 12*

1. Remove the circlip.

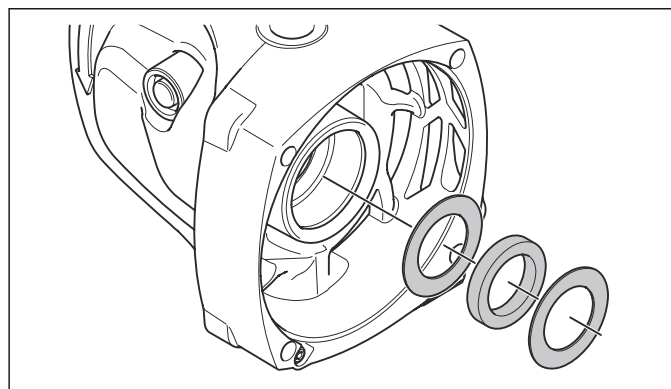


WARNING: There is a spring washer below the circlip. Use safety goggles!

2. Remove the bearing with a counter stay device or a slide hammer. If necessary, use a hot air gun around the bearing to decrease the press force.



3. Remove the felt seal and the washers

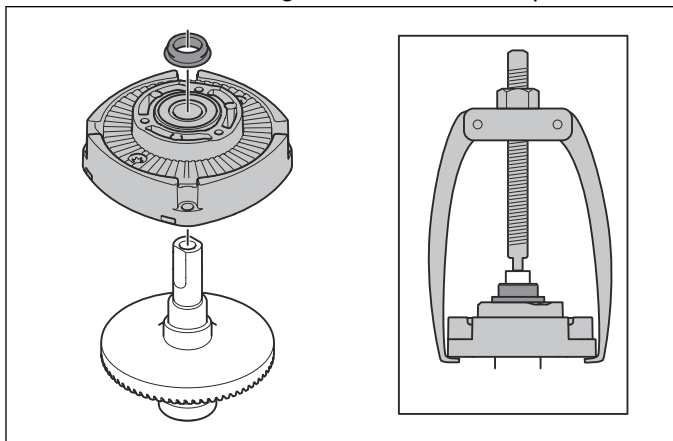


6.8.3 To remove the crown gear and bearing

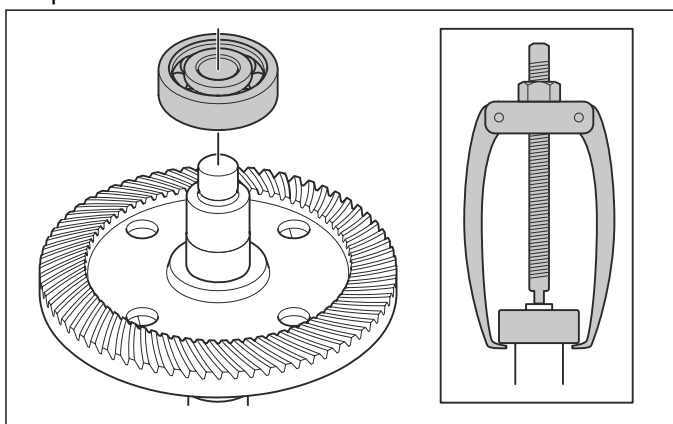
Instructions how to remove the gear housing can be found in *To disassemble the gear housing on page 27*.

To remove the crown gear and bearing you must use a universal puller. *Servicing tools overview on page 12*

1. Remove the crown gear with a universal puller.



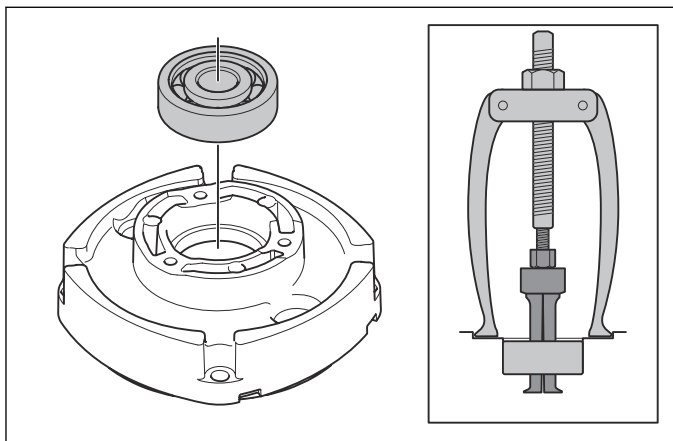
2. Remove the crown gear bearing with a universal puller.



6.8.4 To remove the gear cover bearing

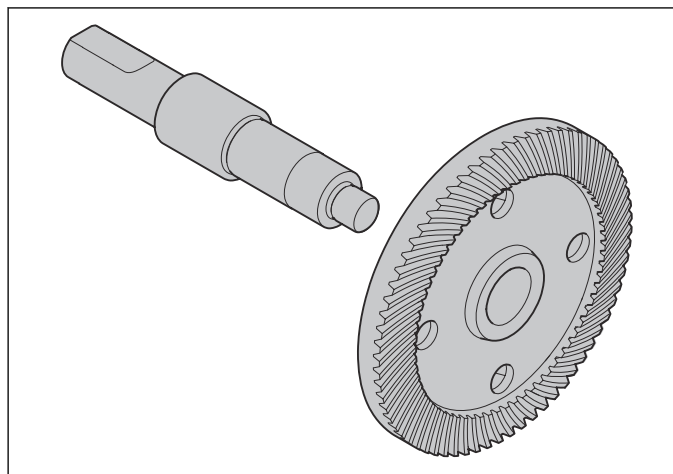
Instructions how to remove the gear housing can be found in *To disassemble the gear housing on page 27*. To remove the crown gear, see *To remove the crown gear and bearing on page 29*. To remove the bearing, use a counter stay device and an internal bearing extractor. As an alternative to the counter stay device you can use a slide hammer. *Servicing tools overview on page 12*

1. Remove the bearing in the cover with a counter stay device.



6.8.5 To remove the crown gear from the shaft

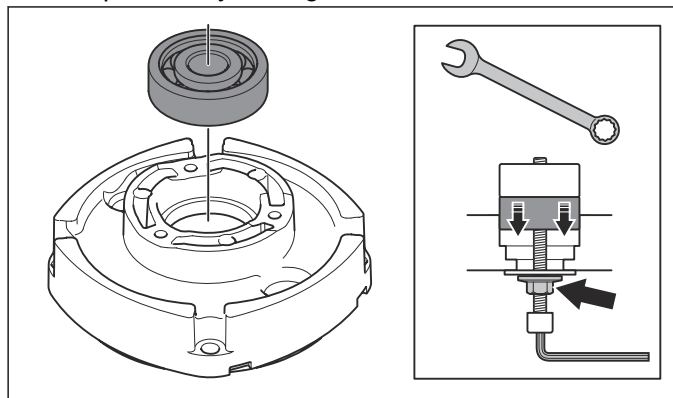
1. The crown gear and shaft are assembled in the factory through shrink-fitting. It has a hard fit and can only be removed with a hydraulic press. To decrease the press force, apply heat at the crown gear near the shaft.



6.8.6 To install the gear cover bearing

To install the gear cover bearing, use Husqvarna bearing press *Servicing tools overview on page 12*.

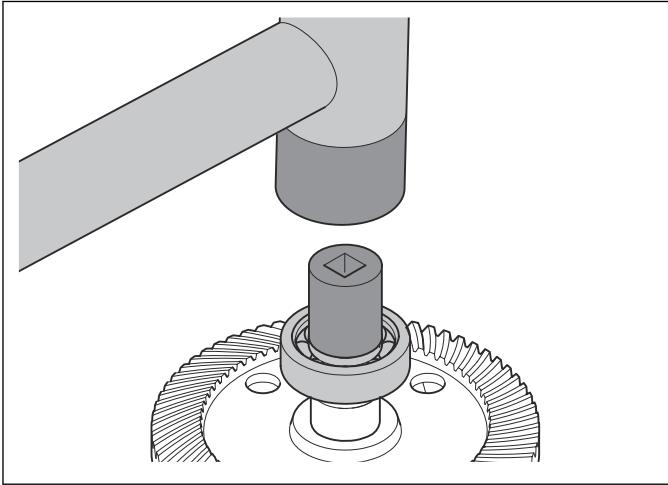
1. Add a large washer to help the nut. Pull the bearing into position by turning the nut.



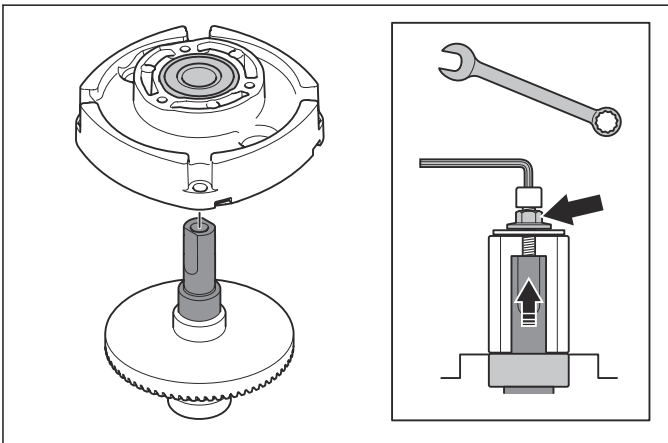
6.8.7 To install the crown gear and bearing

To install the gear cover bearing, use bearing press and mounting sleeve. See *Servicing tools overview on page 12*.

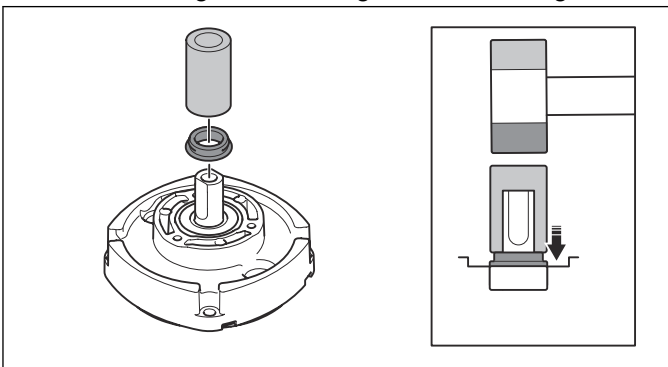
1. To install the crown bearing, press or hit on the inner ring of the bearing with a socket.



2. Put the socket 525 30 02-01 on the shaft. Put the screw with nut and washer. Turn the nut to pull the crown gear shaft in.



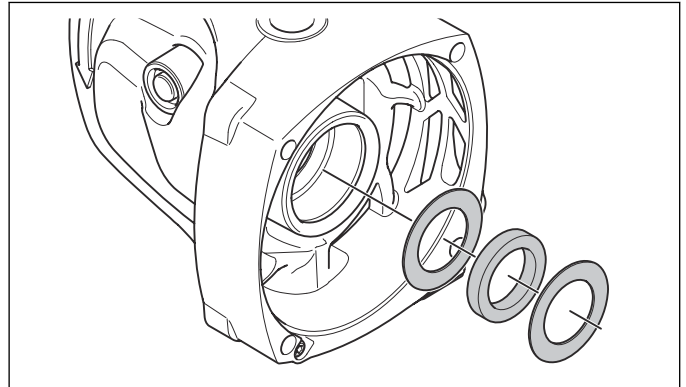
3. Put the seal ring with socket 525 30 22-01. Make sure the flange is turned against the bearing.



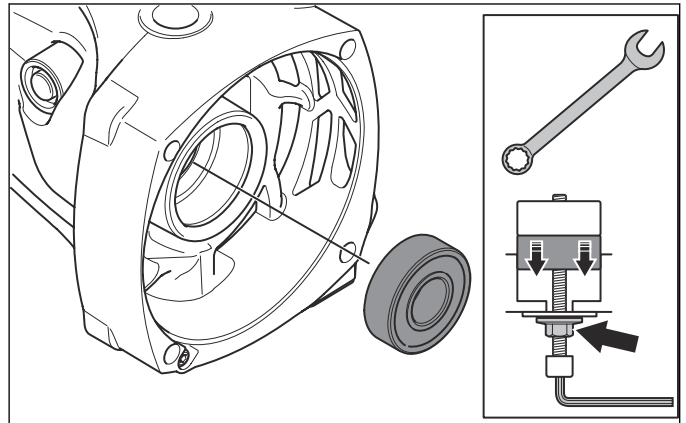
6.8.8 To install the gear housing bearing

To install the gear housing bearing, use Husqvarna bearing press and Husqvarna mounting sleeve. *Servicing tools overview on page 12*

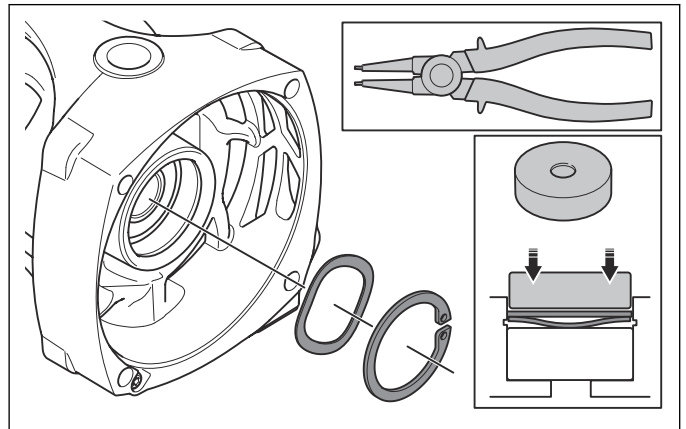
1. Put the washers and the new felt seal.



2. To install the gear housing bearing, use tool kit Bearing press *Servicing tools overview on page 12*. Put a large washer before the nut.

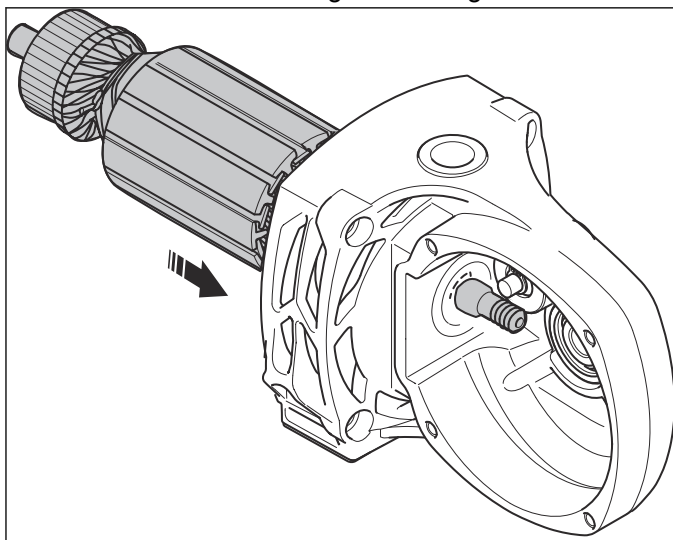


3. Put the wave spring, then put the circlip with a circlip pliers. Push the circlip into position with the tool.

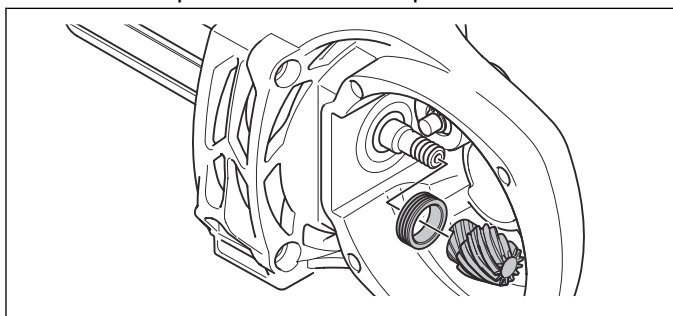


6.8.9 To install the gear housing

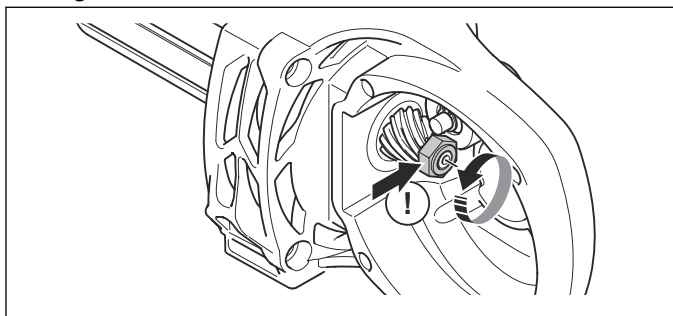
1. Push the rotor in to the gear housing.



2. Push the spacer and the drive pinion onto the shaft.

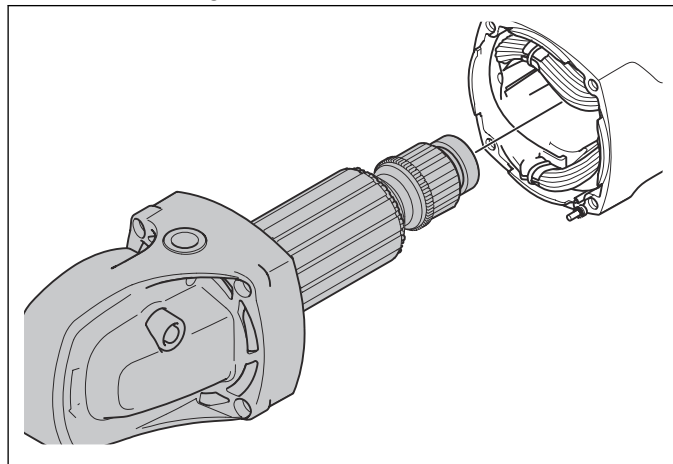


3. Tighten the nut.

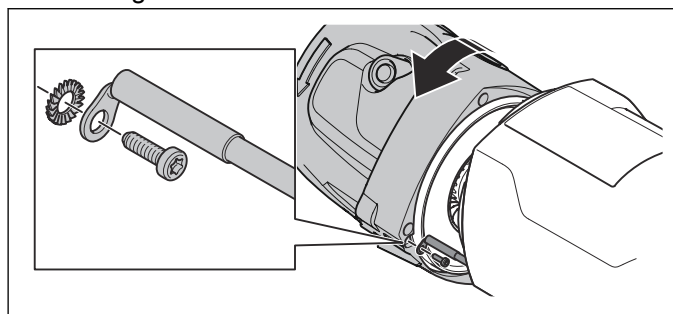


Note: The nut must be tightened in an counterclockwise direction. The tightening torque must be 33-35 Nm. Use an open end torque wrench

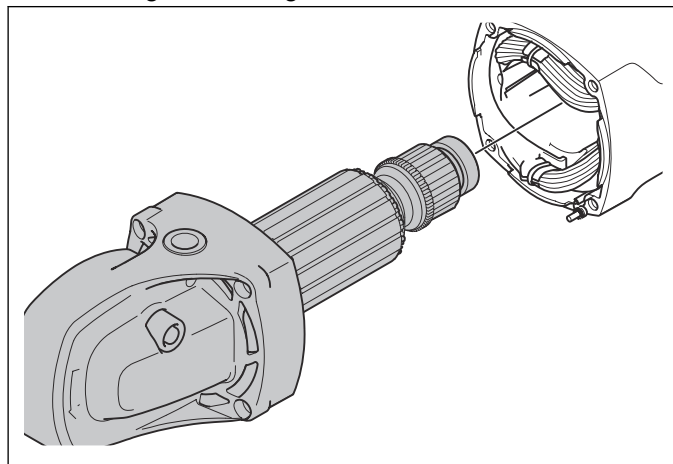
4. Put the gear housing and the rotor half into the motor housing.



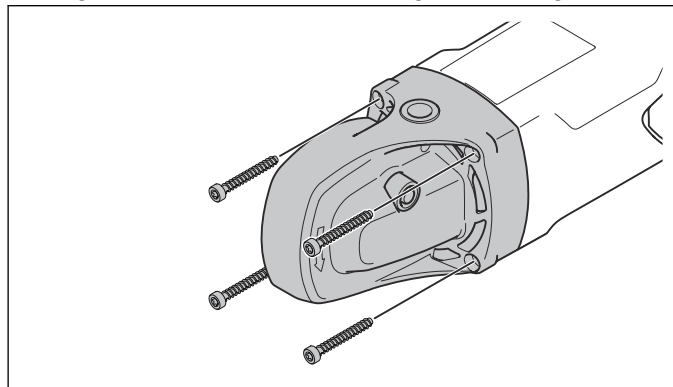
5. Tighten the screw for the ground wire from the motor housing.



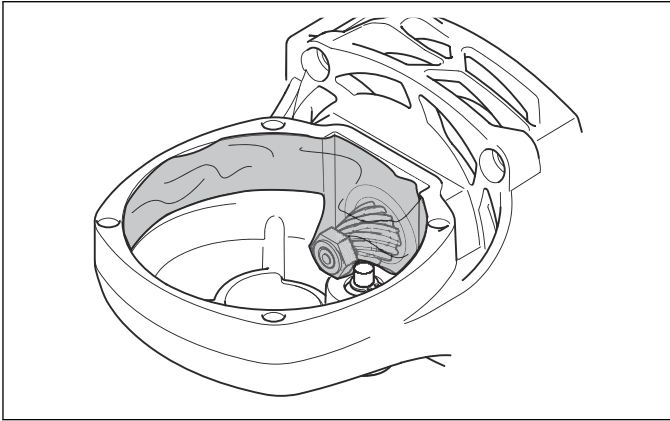
6. Put the gear housing and rotor.



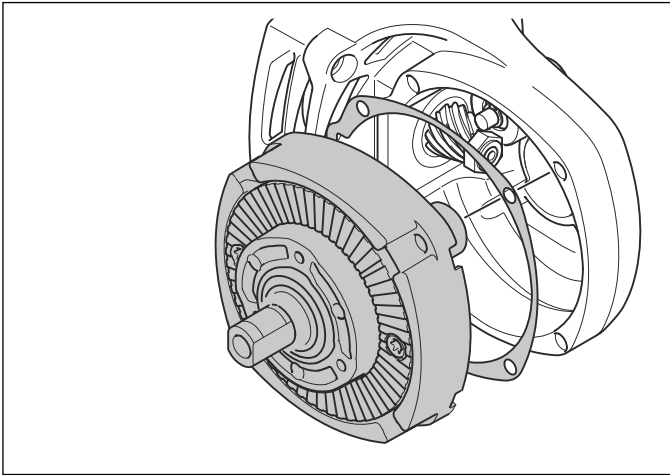
7. Tighten the four screws to the gear housing.



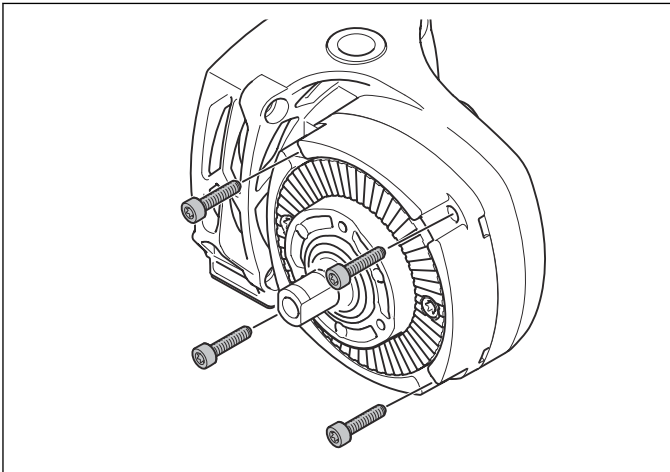
8. To apply grease, use Husqvarna grease. See *Servicing tools overview on page 12*. It has the correct type and quantity of grease. You can also apply 100g of Eco 100gr Bevel gear grease or equivalent. Make sure there is grease on the drive pinion and bearing.



9. Put the gear set housing and new gasket.



10. Tighten the four screws with a torque of 10-12 Nm.

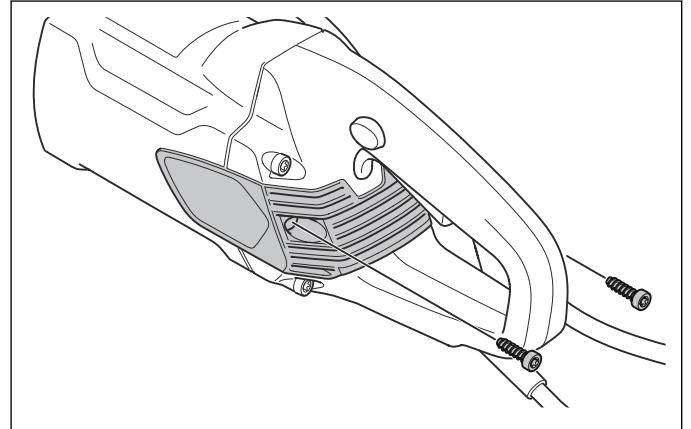


6.9 Gear housing Cut-n-Break

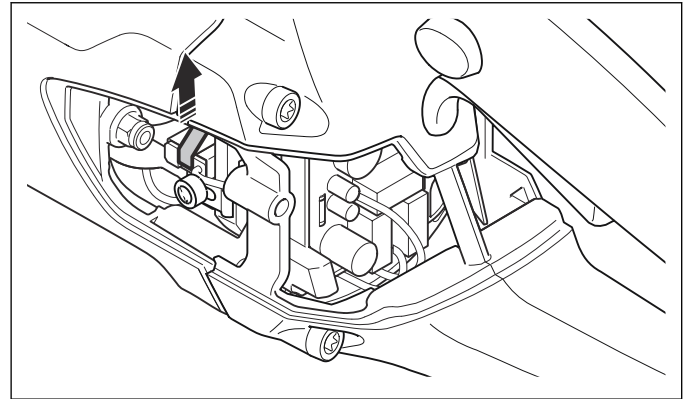
6.9.1 To disassemble the gear housing

Note: The crown gear unit cannot be disassembled. The unit must be replaced. When you replace the crown gear unit, replace the drive pinion at the same time.

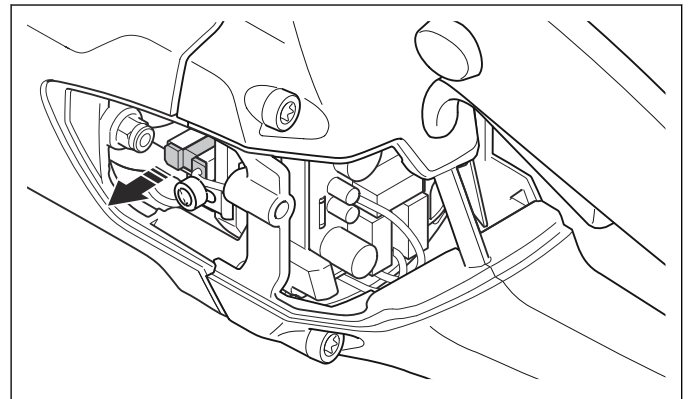
1. Remove the screws and the inspection cover.



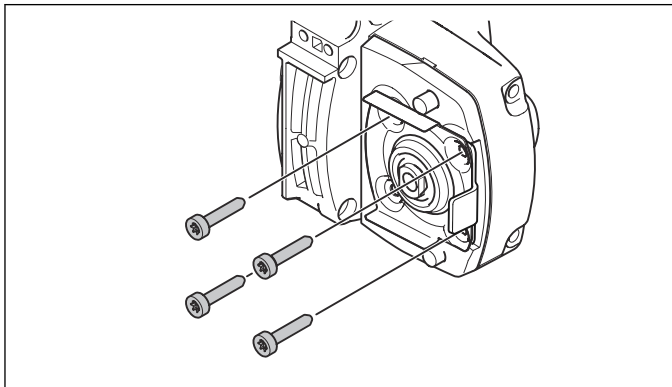
2. Lift the springs that hold the brushes.



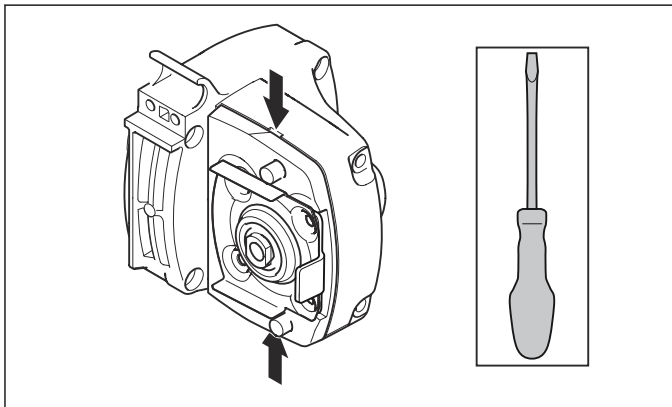
3. Pull out the brushes.



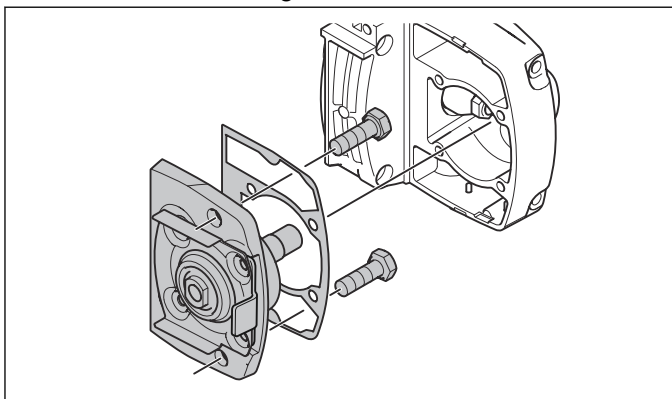
4. Remove the screws for the crown gear unit.



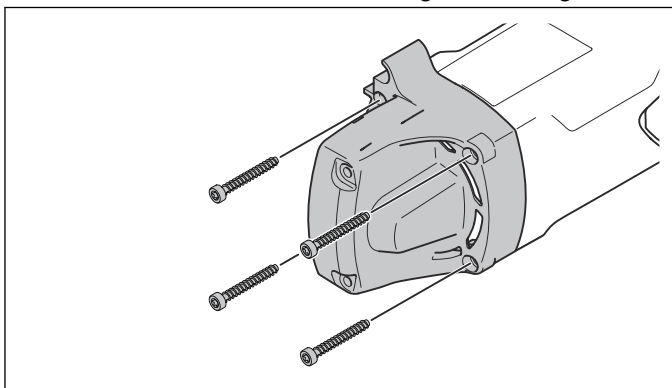
5. Open with a screwdriver.



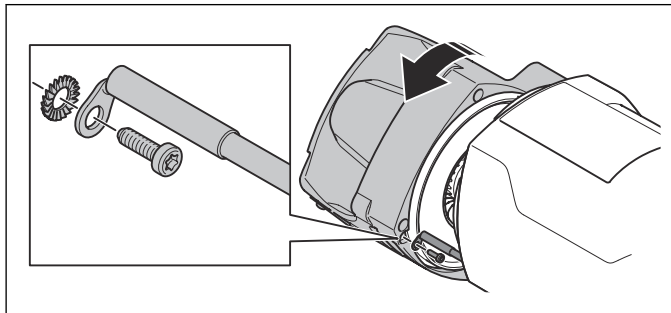
6. Remove the crown gear unit.



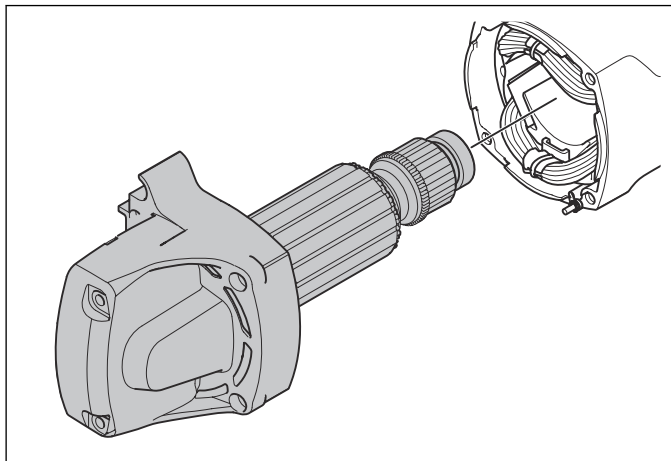
7. Remove the four screws to the gear housing.



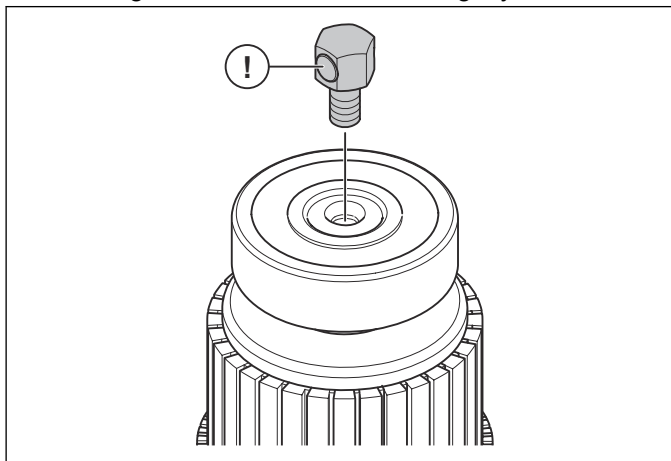
8. Remove the screw for the ground wire.



9. Remove the gear housing and the rotor.

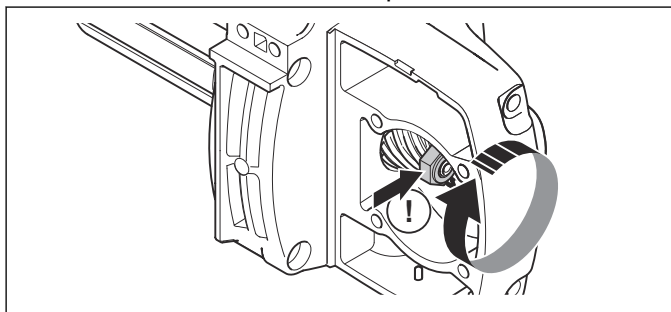


10. If the rear bearing does not come out of the motor housing, use a hammer and hit it lightly.



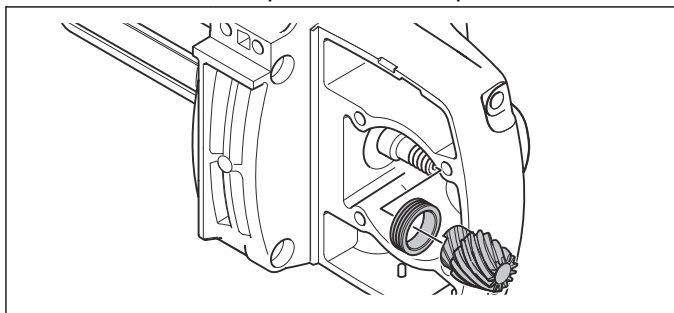
Note: Do not hit directly on the magnetic sensor. Use a socket as a sleeve and hit the socket. Or remove the sensor. When putting back the sensor, use threadlocker Loctite 243.

11. Remove the nut to the drive pinion.



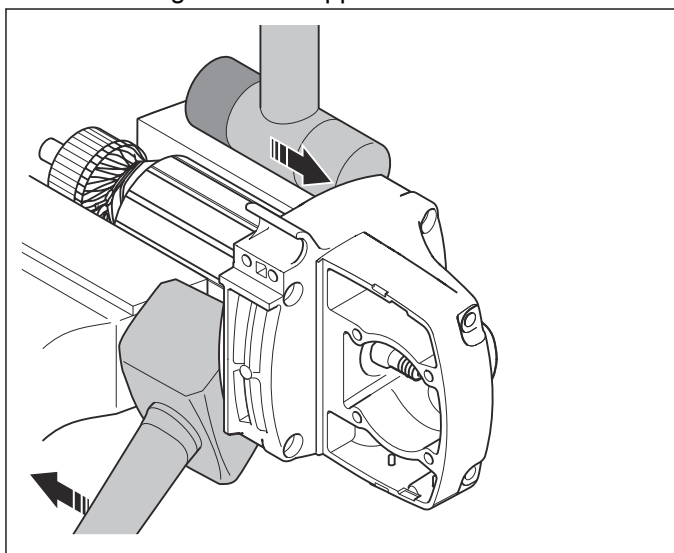
Note: The nut must be loosened in a clockwise direction.

12. Remove the drive pinion and the spacer.



13. Put the rotor in a vice with soft jaw guards.

14. Put a metal object against one corner of the gear housing. Apply force as in the illustration. Use a plastic hammer on the opposite side. If necessary, change position of the metal object and use the hammer again on the opposite side.

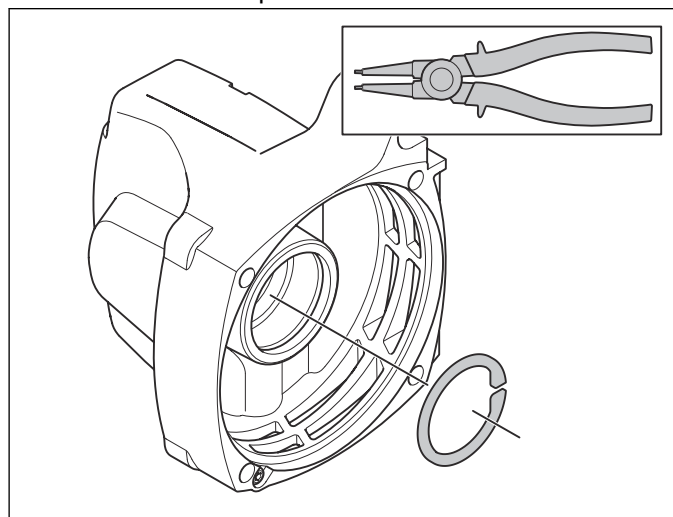


6.9.2 To remove the gear housing bearing

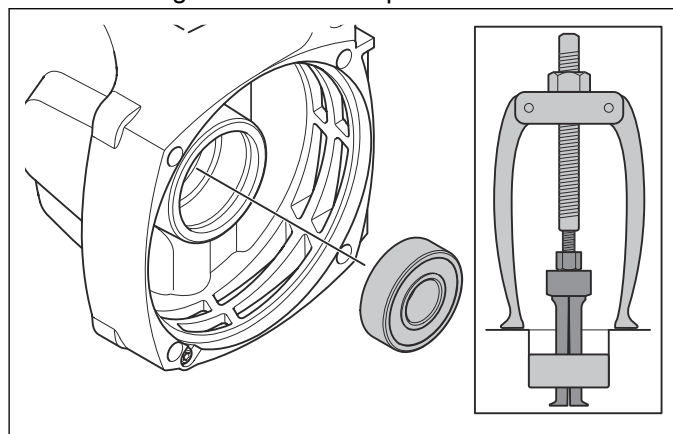
To remove the gear housing, see *To disassemble the gear housing on page 33*. To remove the bearing, use a counter stay device and an internal bearing extractor. As

an alternative to the counter stay device you can use a slide hammer. *Servicing tools overview on page 12*

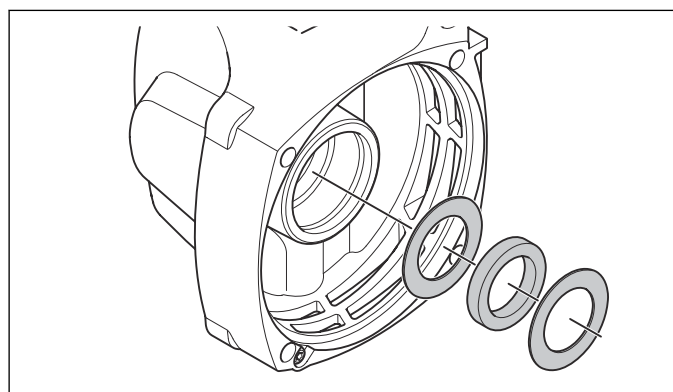
1. Remove the circlip.



2. Remove the bearing with a counter stay device or a slide hammer. If necessary, use a hot air gun around the bearing to decrease the press force.

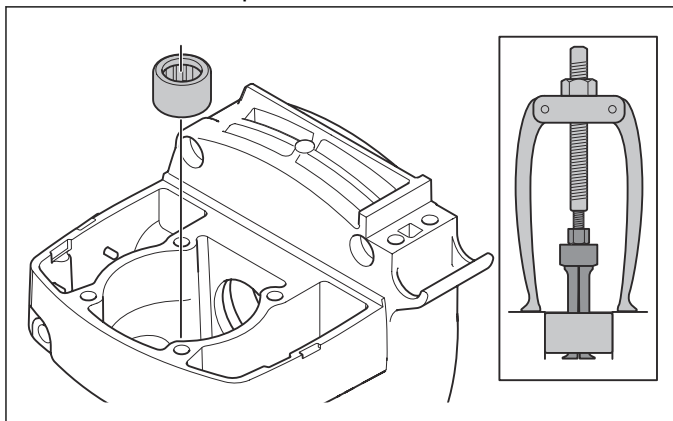


3. Remove the felt seal and the washers.



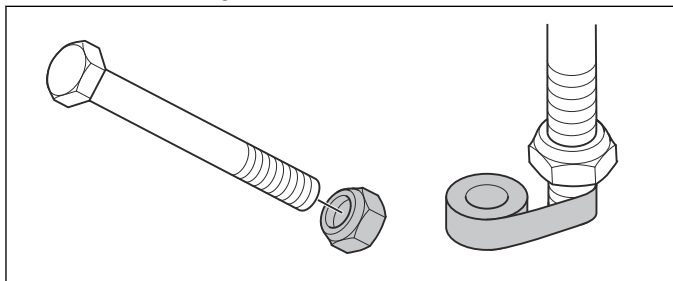
6.9.3 To remove the gear housing needle bearing

1. Remove the bearing with a counter stay device. If necessary, use a hot air gun below the bearing seat to decrease the press force.

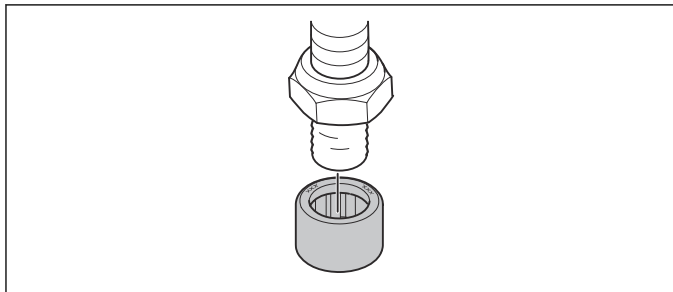


6.9.4 To install the gear housing needle bearing

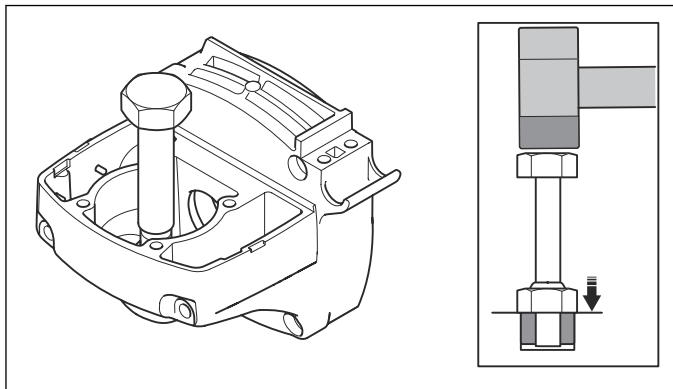
1. Make an assembly tool as in the illustration. Put tape or shrink tubing on the threads.



2. Turn the flat side of the bearing with the text up, against the nut.



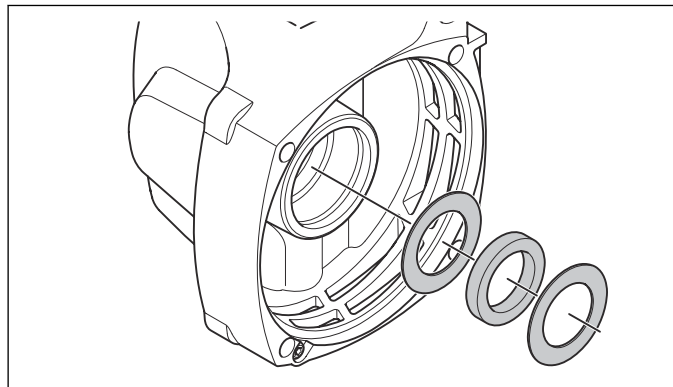
3. Apply heat to the bearing seat with a hot air gun, to around 100 °C (200 °F) and cool the bearing with coolant spray. Hit the assembly tool with a heavy and soft mallet until the bearing is level with the top edge of the bearing seat.



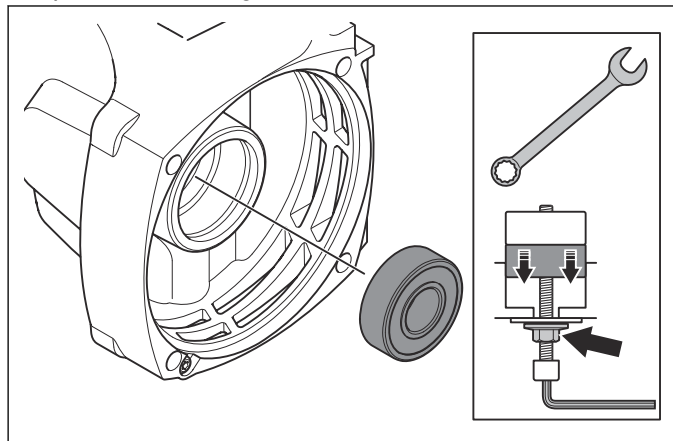
6.9.5 To install the gear housing bearing

To install the gear housing bearing, use Husqvarna bearing press and Husqvarna mounting sleeve. See *Servicing tools overview* on page 12

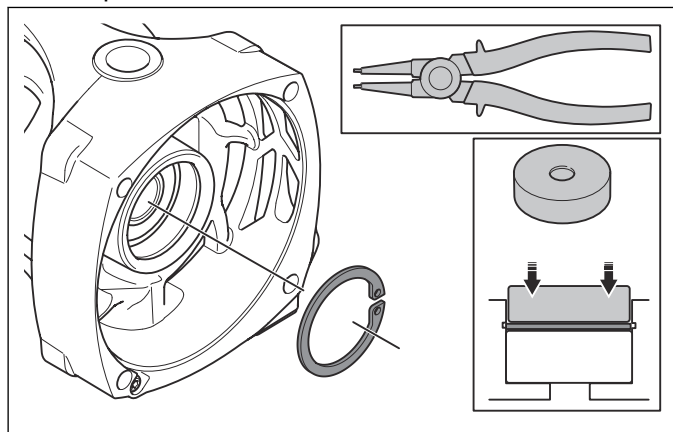
1. Put the washers and the new felt seal in the cavity for the bearing.



2. To install the gear housing bearing, use the bearing press . Put a large washer before the nut.

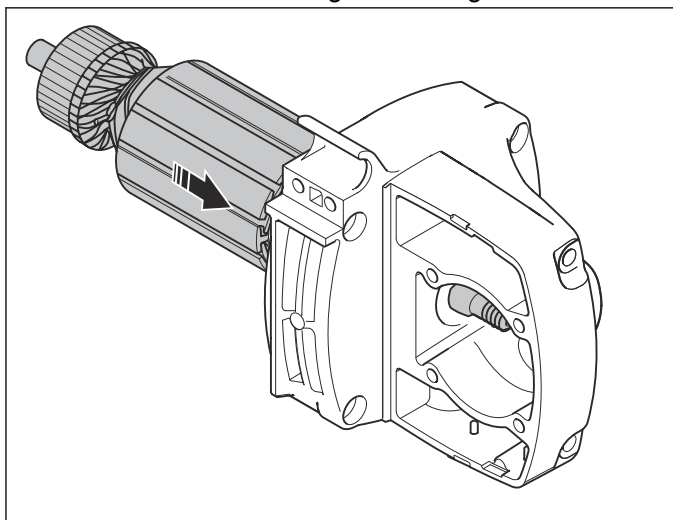


3. Put the circlip with a circlip pliers. Push the circlip into position with the tool.

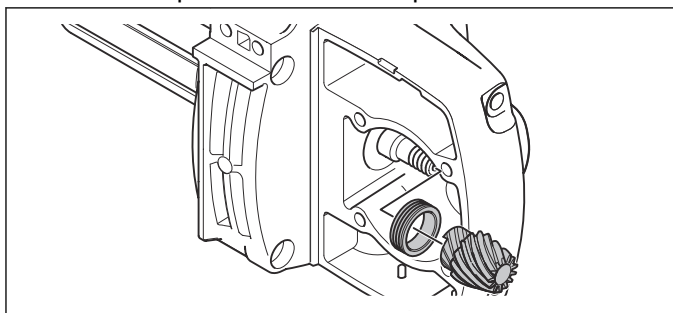


6.9.6 To install the gear housing

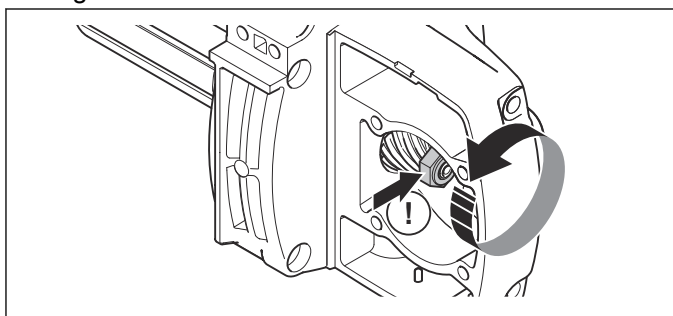
1. Push the rotor in to the gear housing.



2. Push the spacer and the drive pinion onto the shaft.

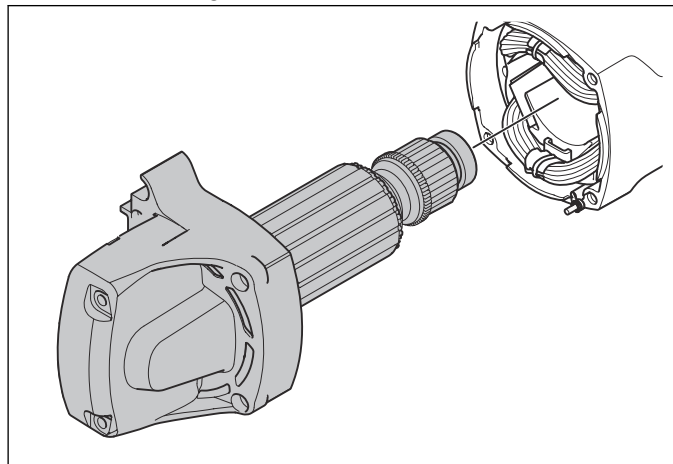


3. Tighten the nut.

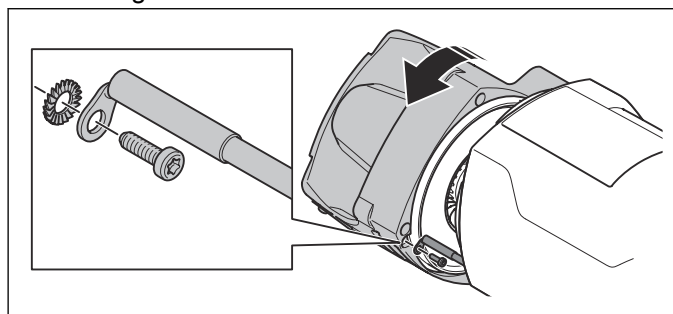


Note: The nut must be tightened in an counterclockwise direction. The tightening torque must be 33-35 Nm. Use a torque wrench with a u-grip since there is not space for a socket.

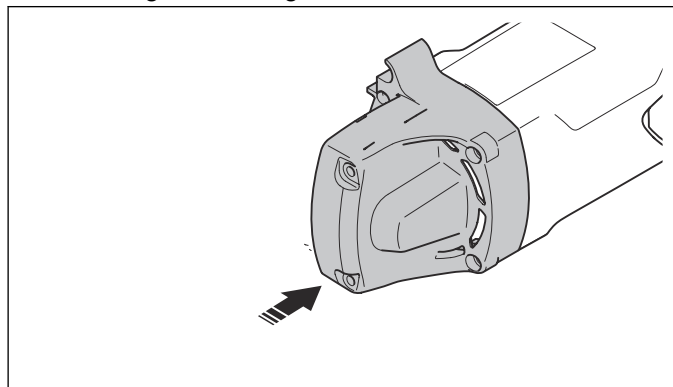
4. Put the gear housing and the rotor half into the motor housing.



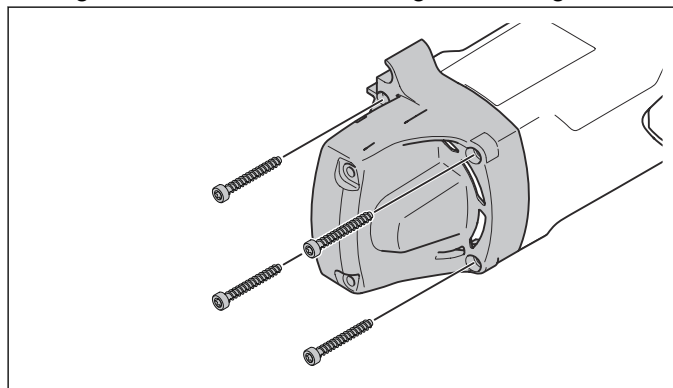
5. Tighten the screw for the ground wire from the motor housing.



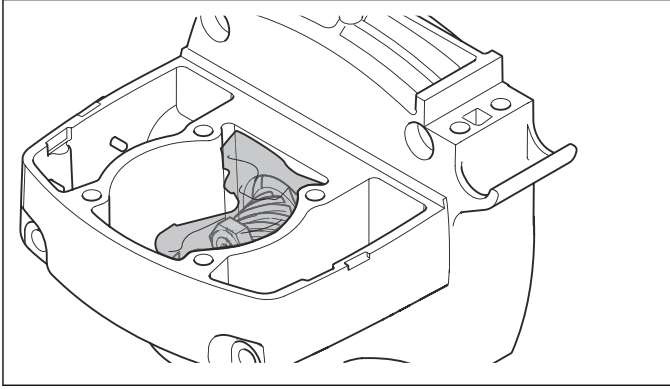
6. Put the gear housing and rotor.



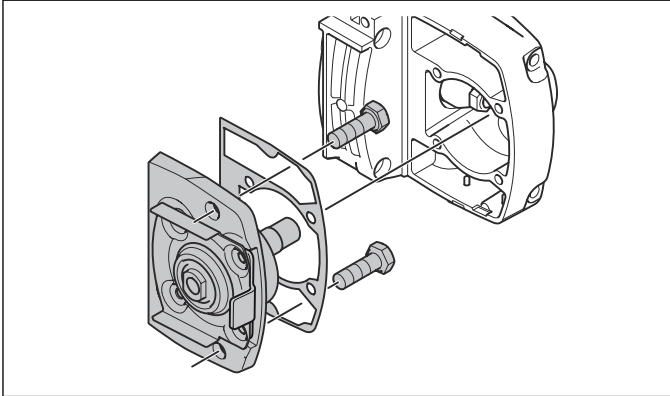
7. Tighten the four screws to the gear housing.



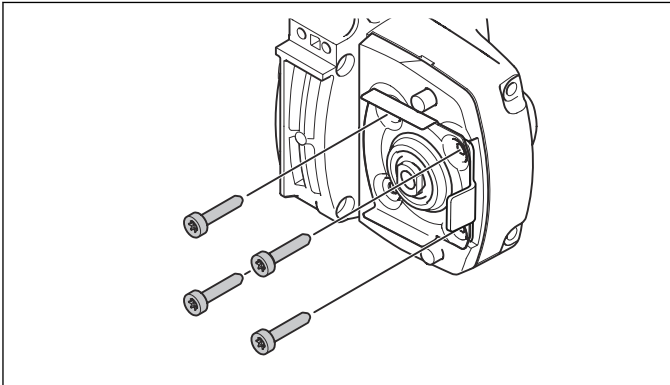
8. To apply grease, use Husqvarna grease, 25g. See *Servicing tools overview on page 12*. Do not use other types of grease. Apply it to the drive pinion and fill the needle bearing.



9. Put the crown gear unit and new gasket.



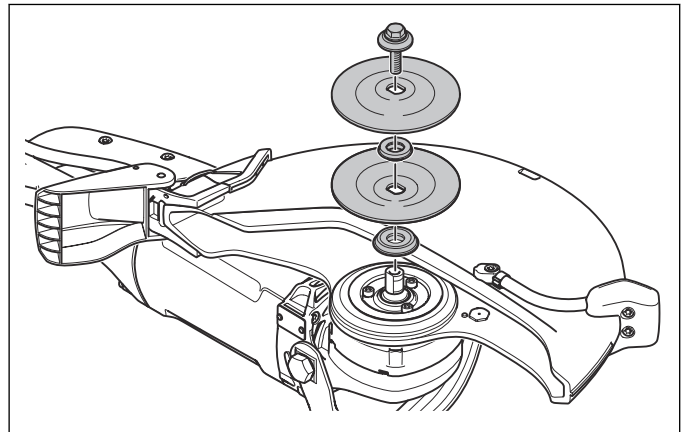
10. Tighten the four screws with a torque of 10-12 Nm.



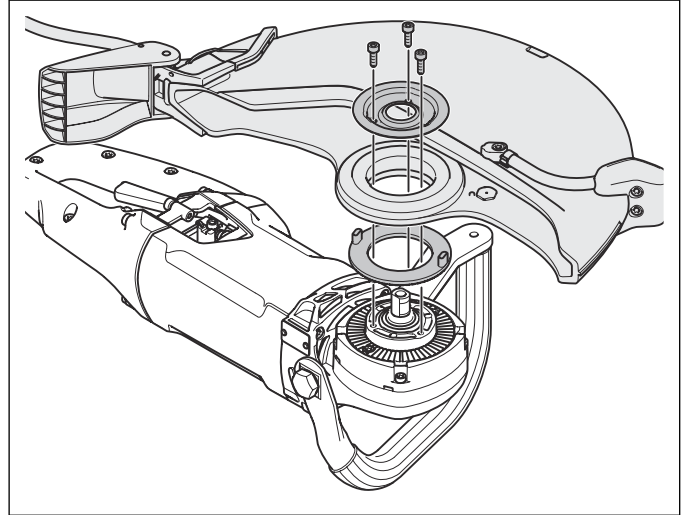
6.10 Blade guard

6.10.1 To remove the blade guard

1. Remove the center bolt, washers, spacer and plastic seal.



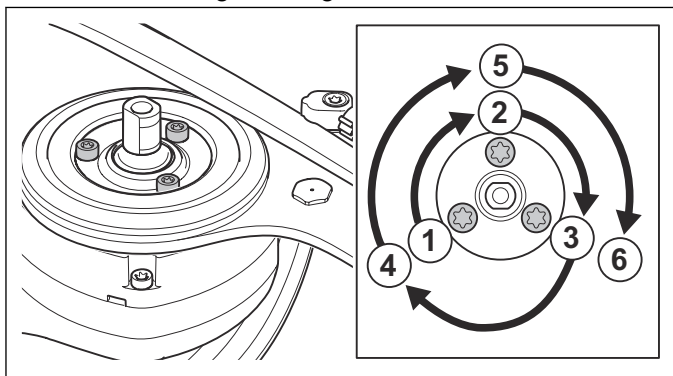
2. Remove the screws and the washer that hold the blade guard against the bearing housing.



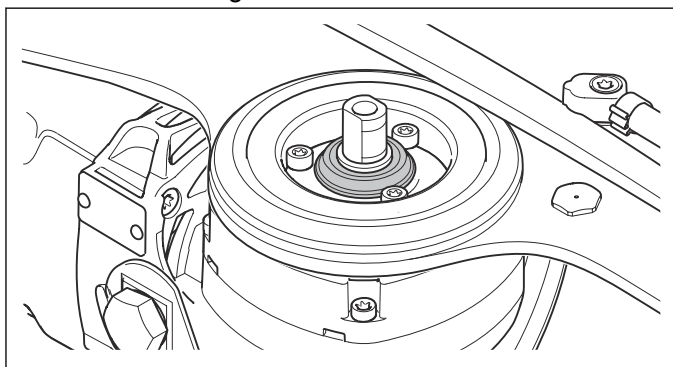
6.10.2 To install the blade guard

The screws must be tightened gradually in sequence as in the illustration. This is in order not to damage the rubber ring below the washer.

1. Put the blade guard. Tighten the screws.



2. Put the seal ring.

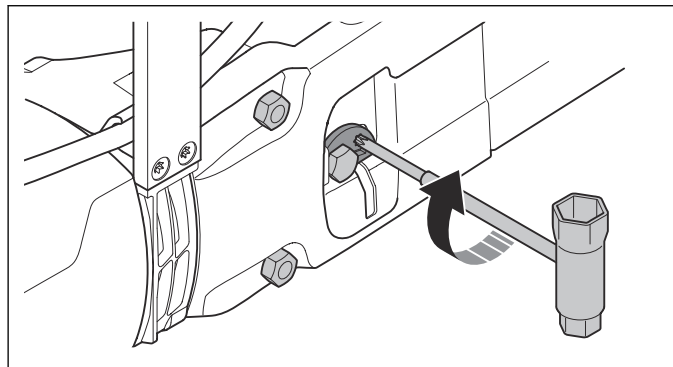


6.11 Cut-n-Break

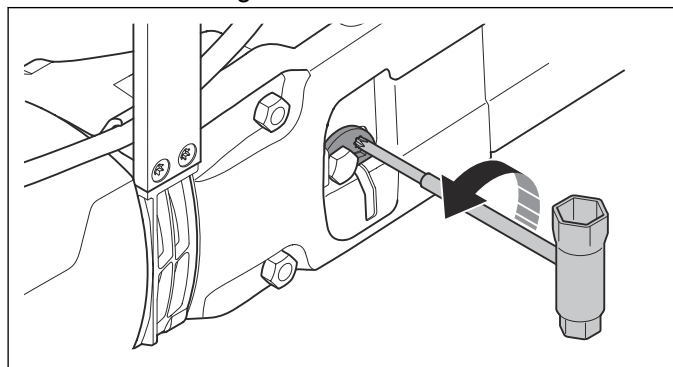
6.11.1 Blades

6.11.1.1 To remove the blade Cut-n-Break

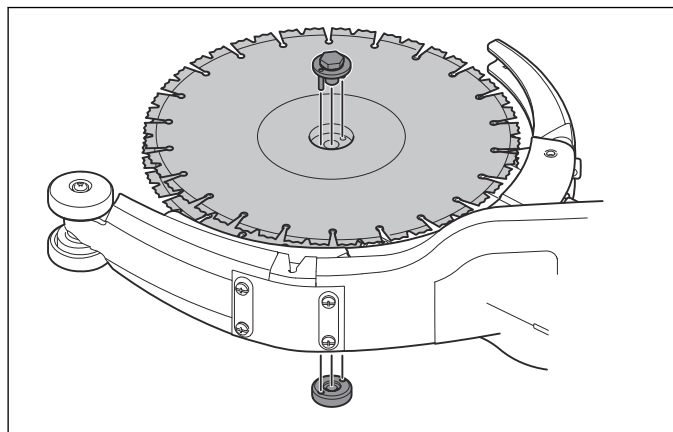
1. Loosen the nuts and the screw. Turn the adjustment washer clockwise.



2. Press the cutting arm back.

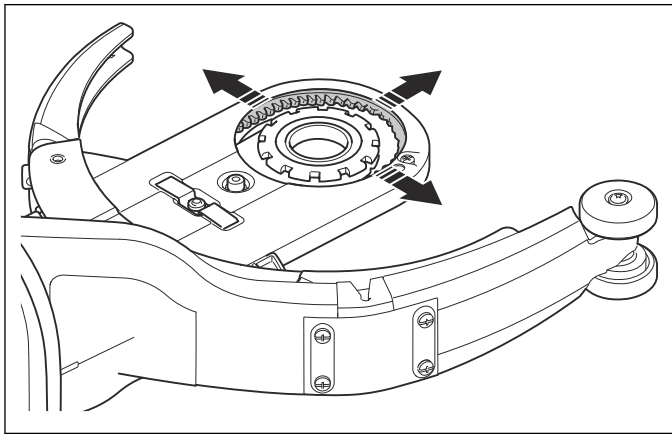


3. Remove the screw and the nut.

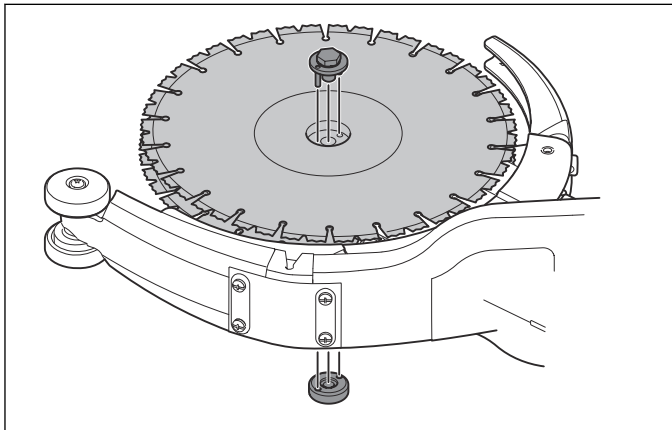


6.11.1.2 To install the blade Cut-n-Break

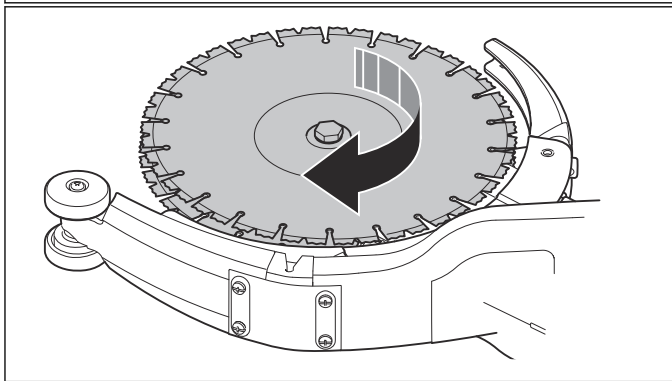
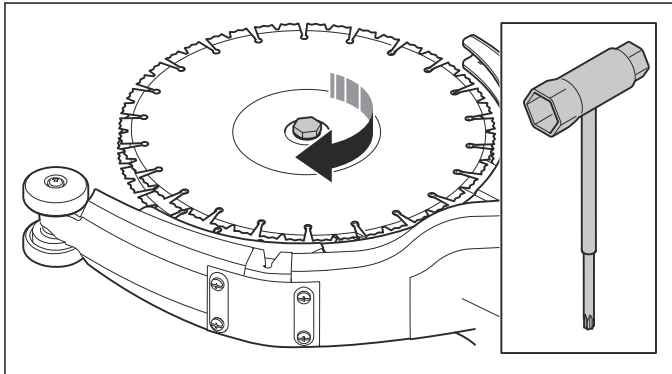
1. Push the belt out from the center of the blade.



2. Put one blade with the nut below the cutter bar. Put the other blade with the screw on top.



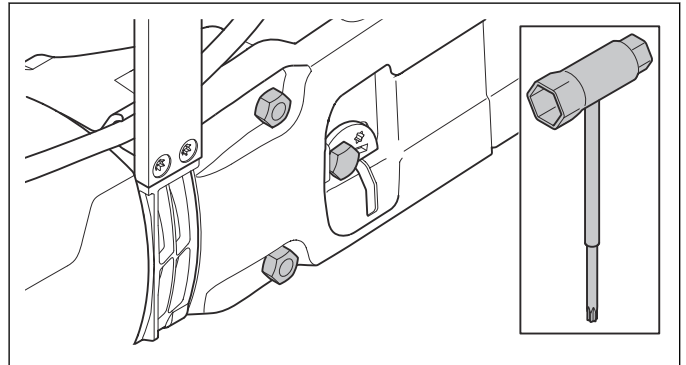
3. To prevent the belt getting blocked between the blades, tighten the center screw a bit then rotate the blade. Do this again until the blade is fully tightened.



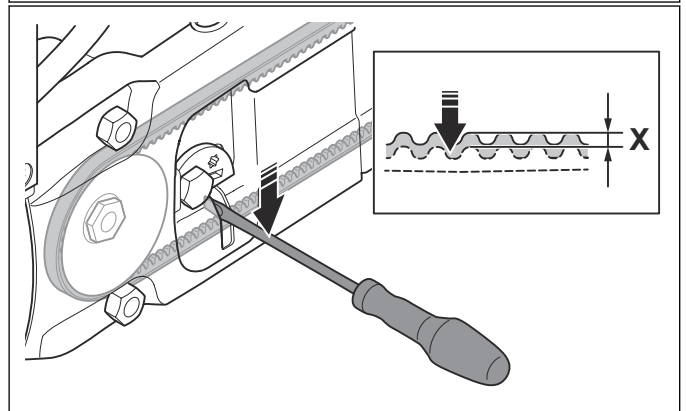
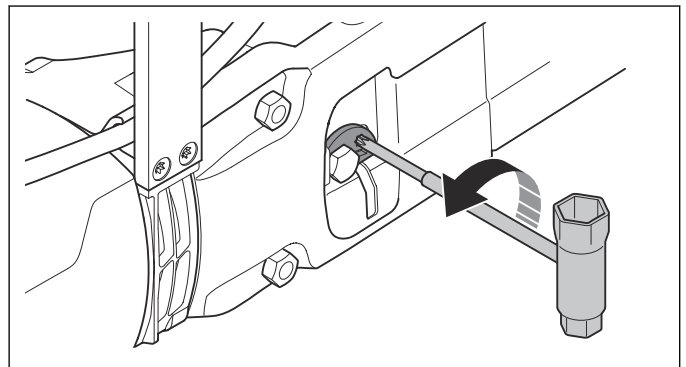
6.11.2 Belt

6.11.2.1 To tighten the belt Cut-n-Break

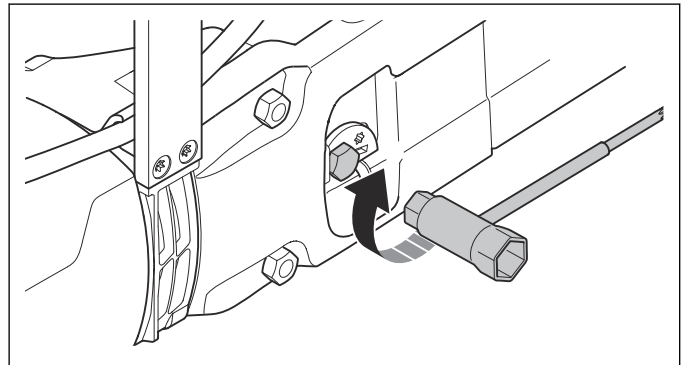
1. Loosen the nuts that hold the cutting arm and the screw that locks the adjustment washer.



2. Turn the adjustment washer to a point where the belt can be pressed down 5mm (3/16in) with a screwdriver.

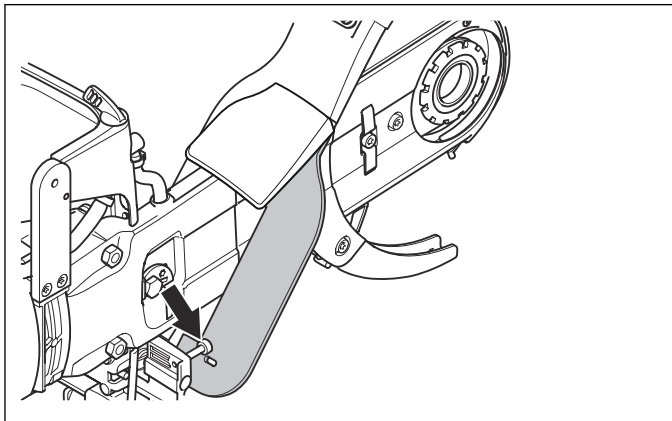


3. Tighten the adjustment screw.

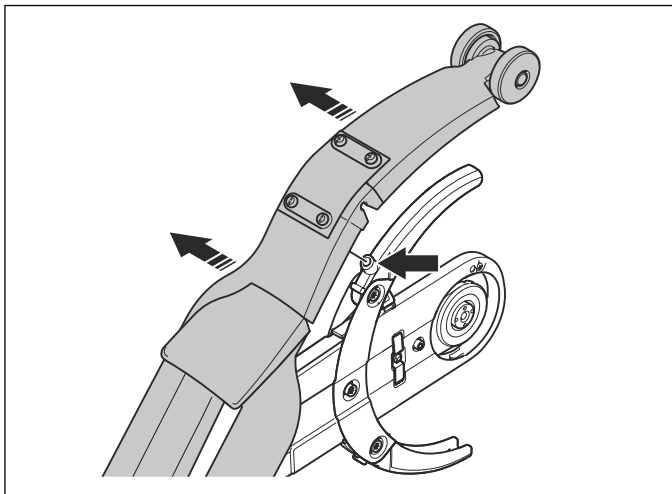


6.11.2.2 To remove the belt Cut-n-Break

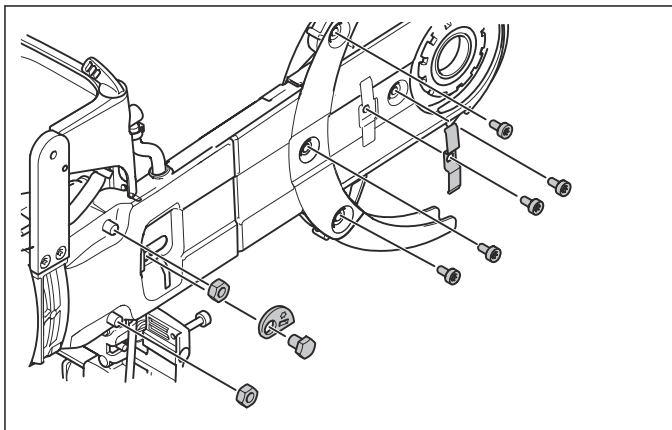
1. Remove rubber guard from the screw.



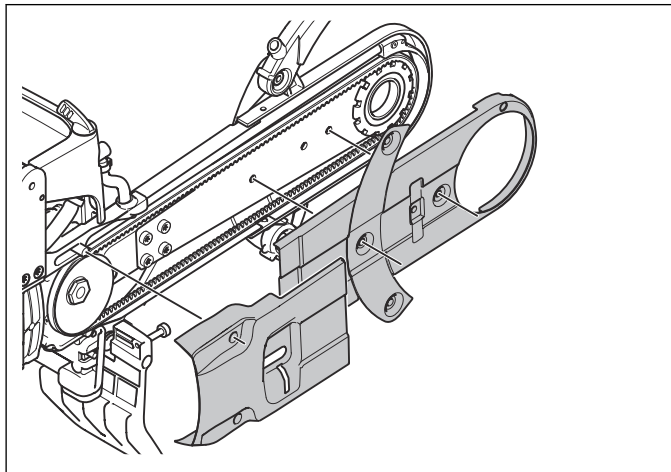
2. Move the spray guard to the side.



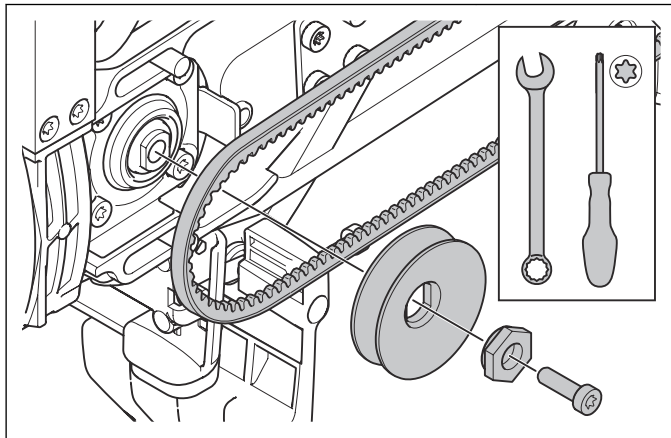
3. Remove the screws and nuts.



4. Remove the plates.

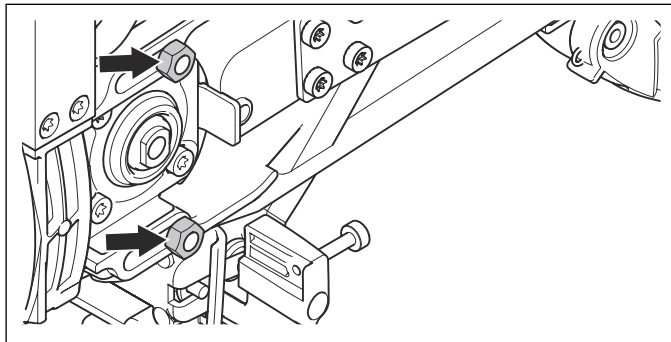


5. Lock the nut and remove the center screw. Remove the pulley wheel and the belt.

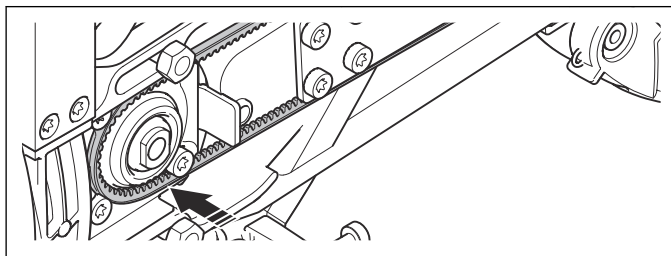


6.11.2.3 To install the belt Cut-n-Break

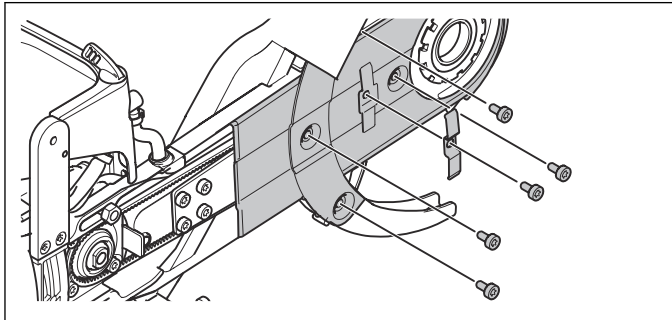
1. Put the cutting arm temporary with the two nuts.



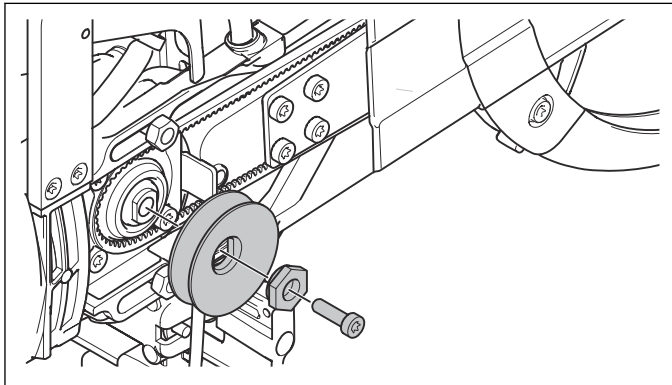
2. Put the belt.



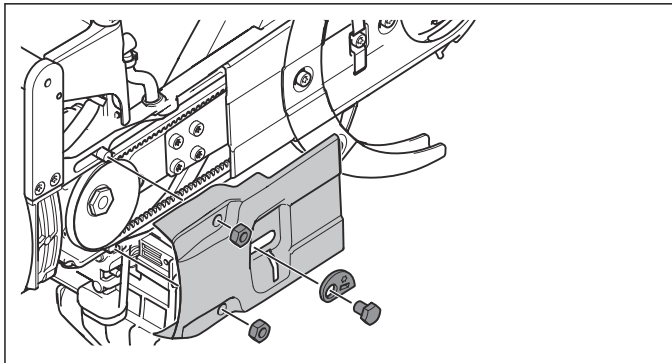
3. Put the front guard.



4. Put the pulley wheel.



5. Put the rear belt guard.

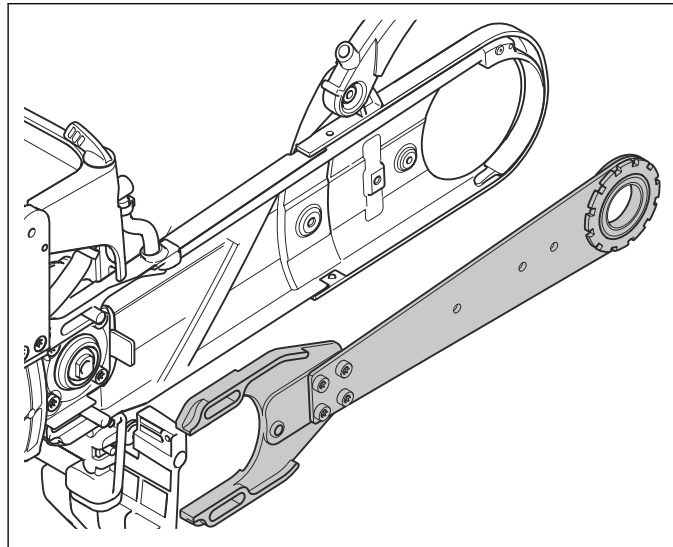


6.11.3 Bearing

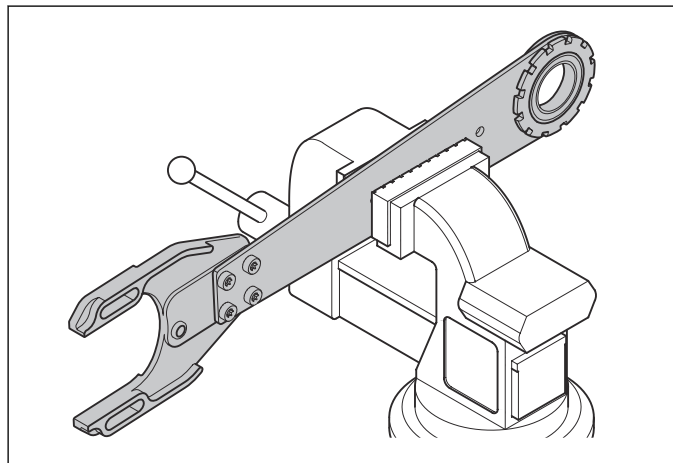
6.11.3.1 To remove the bearing Cut-n-Break

To remove the bearing, use Husqvarna wrench. See *Servicing tools overview on page 12*

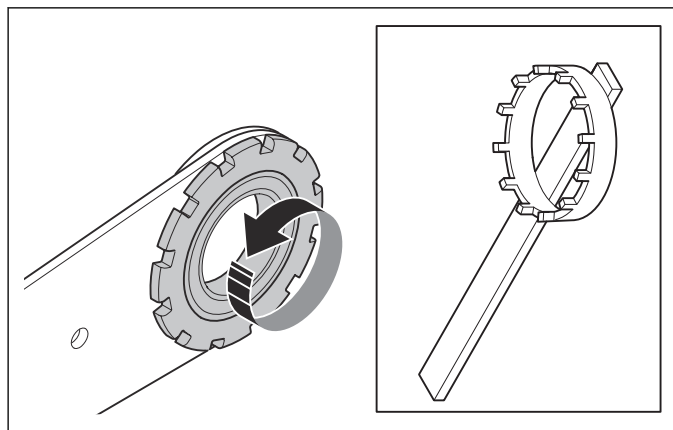
1. Remove the belt guard.



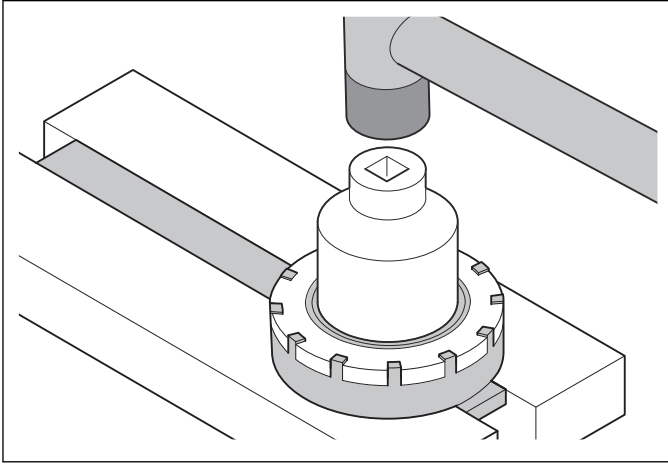
2. Put it in a vice.



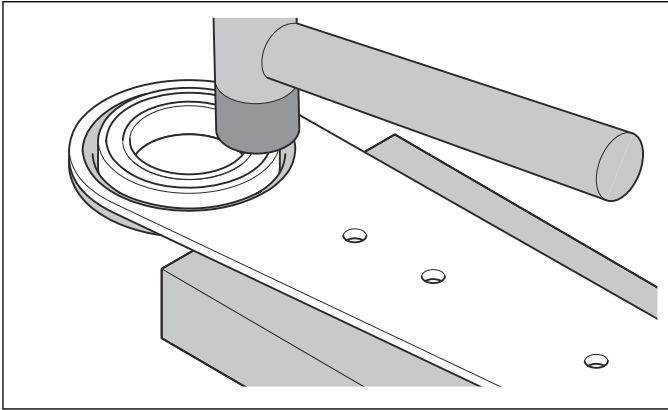
3. Remove the bearing cage with the Husqvarna wrench



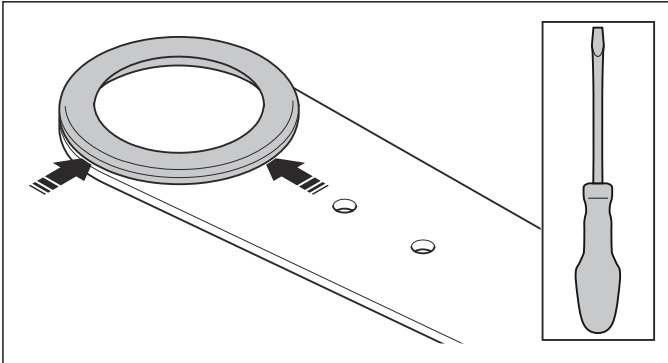
4. Put the wrench as in the illustration. Push out or hit the bearing with a socket.



5. The bushing is put with a force fit. To remove it, put it out from the edge of a wooden block. Put the used bearing on the holder and hit it until there is a space between it and the cutting arm.



6. Remove the bushing with a screwdriver.

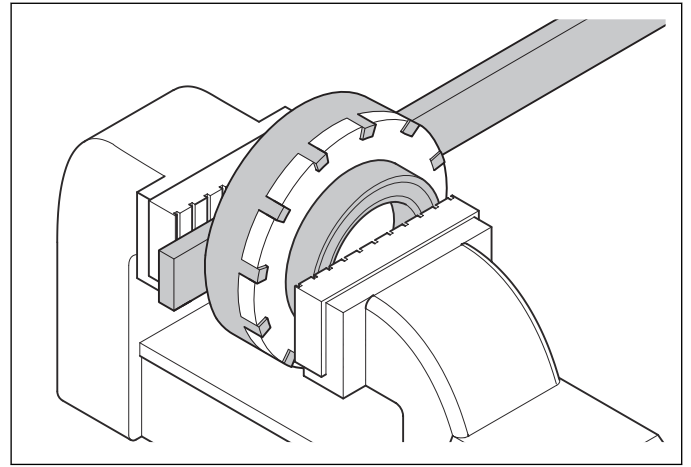


6.11.3.2 To install the bearing Cut-n-Break

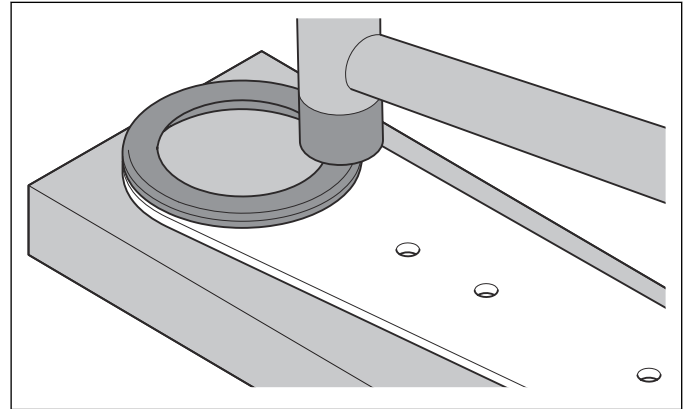
To install the bearing, use Husqvarna wrench.

See *Servicing tools overview* on page 12

1. To put the new bearing, use a press. Apply press force to the outer ring of the bearing. You can also put the bearing with a vice. Put the bearing cage in the Husqvarna wrench.



2. Use a press to put the bushing. You can also use a small plastic mallet.

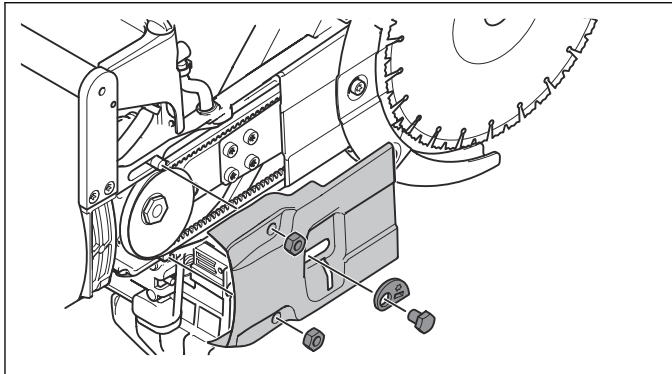


6.11.4 Cutting unit Cut-n-Break

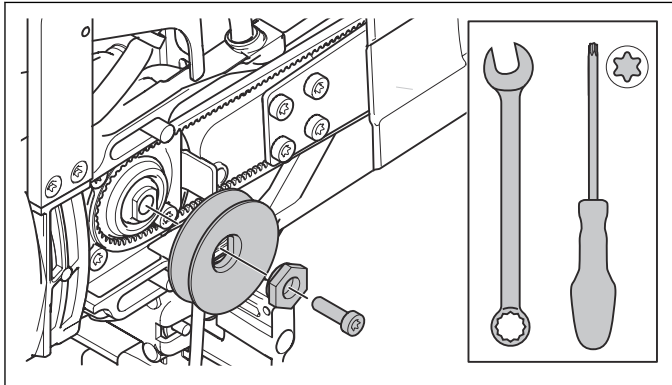
6.11.4.1 To remove the cutting unit

The cutting unit can be disassembled to make repairs easier. For example if you are repairing the gear housing or if you are dividing the motor.

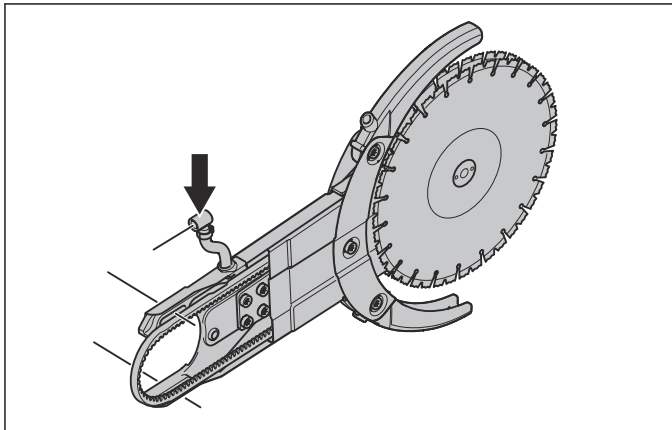
1. Remove the belt tensioner and the belt guard nuts.



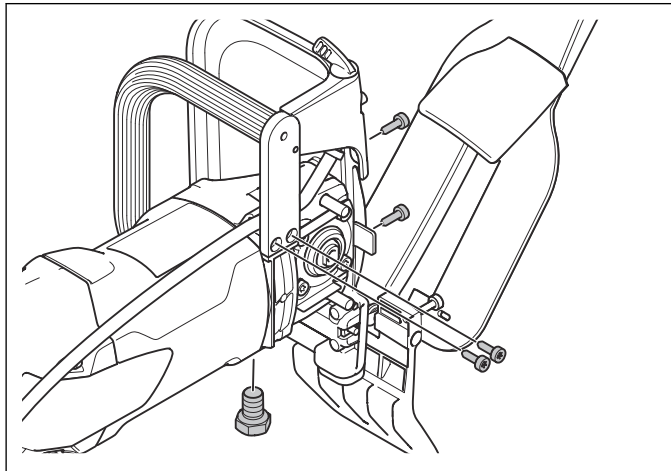
2. Lock the nut and remove the center screw. Remove the nut and pulley wheel.



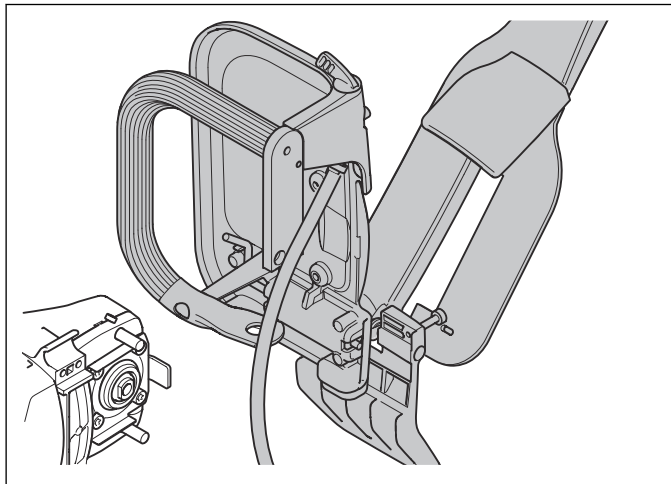
3. Remove the hose connector from the water valve and remove the cutting unit.



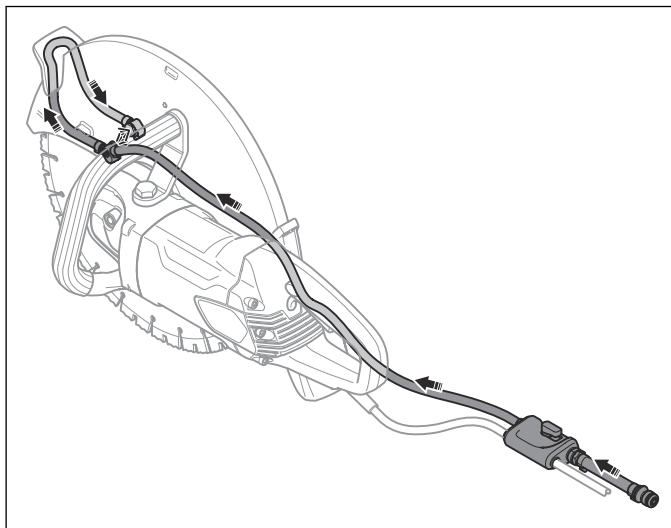
4. Remove the screws on the spray guard, on the handle and at the bottom of the gear housing.

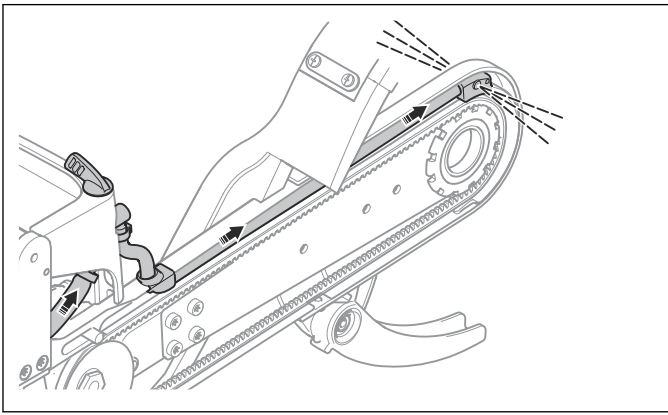


5. Remove the cutting unit.



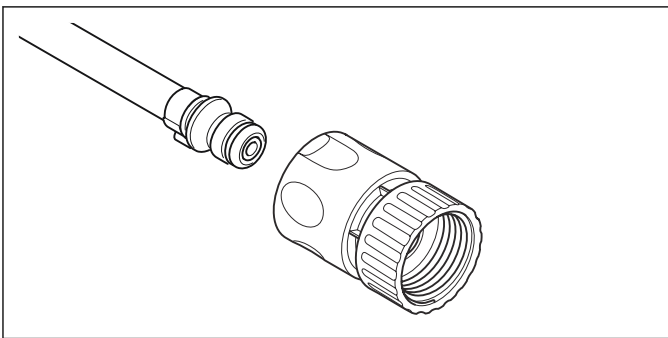
6.12 Water system





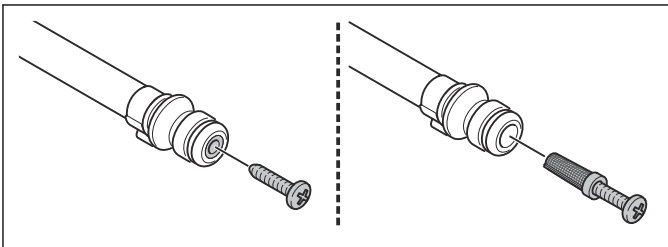
6.12.1 Water coupling

The water coupling is adapted to the Gardena® system. The flow control adjusts a constant and low flow when the water pressure changes. A filter in the water coupling prevents particles of dirt to stop the flow. The water flow is stopped by the valve on the hose.



6.12.2 To remove the water filter

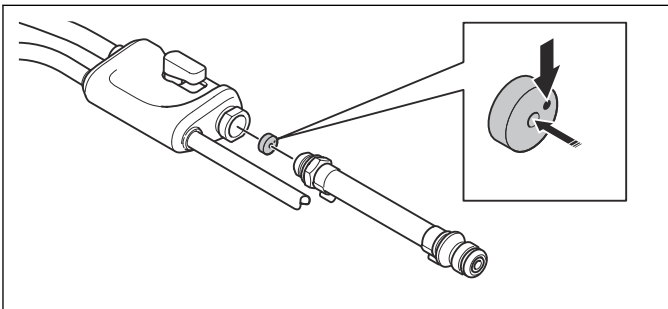
1. Remove the water filter with a wood screw.



6.12.3 Flow control

The flow control is made of a rubber cylinder with a hole for the water. The hole changes dimension with the pressure of the water coming in. The flow control is at the water valve.

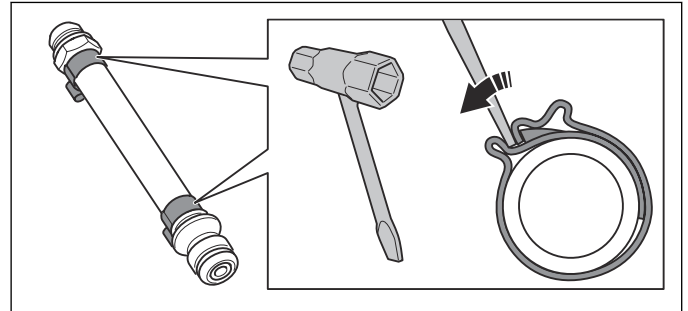
1. The side with a mark and text must be turned to the side where the water is coming in.



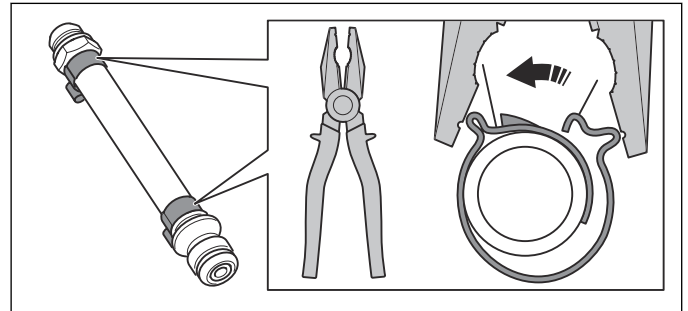
6.12.4 Hose clips

The hose clip can be used again after it has been removed.

1. Open the hose clip with a screwdriver.



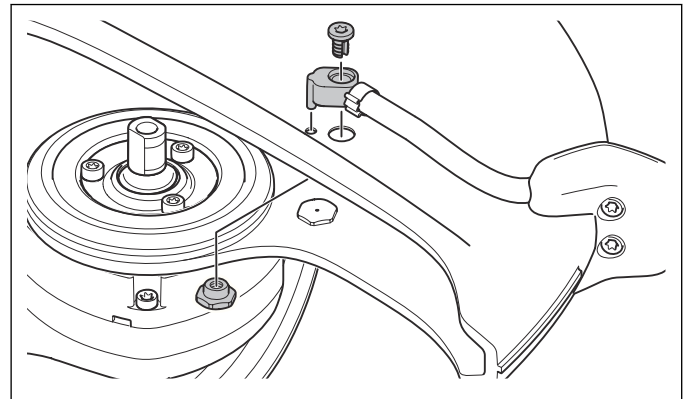
2. Close the hose clip using pliers.



6.12.5 To remove the spray nozzle - Wet

The spray nozzles are on each side of the blade guard. The water hits the blade near the center. The outward moving force moves it out in the direction of the edge of the blade. The spray nozzles have a smaller diameter compared to the gasoline cutters in order to limit the quantity of water.

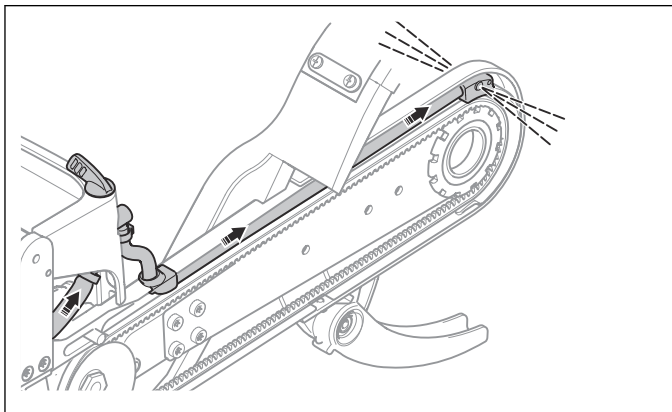
1. Lock the spray nozzle with a 15mm wrench. Remove the screw.



6.12.6 To remove the spray nozzle Cut-n-Break

The spray nozzle is in the blade guard. The water hits the blades near the center. The outward moving force moves the water to the edges of the blades. The spray

nozzle has a smaller diameter compared to the gasoline cutters in order to limit the quantity of water.



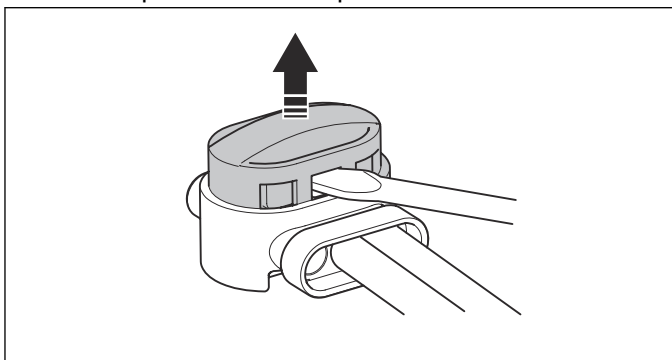
1. To remove the spray nozzle, the belt guards must first be removed. See *To remove the belt Cut-n-Break* on page 41

6.13 Cables

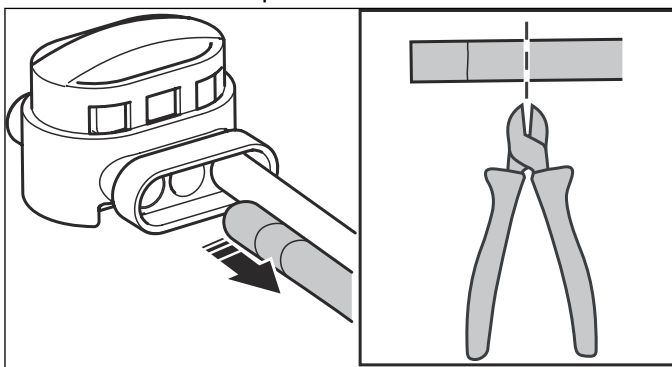
6.13.1 To remove cables from the terminal bar

The terminal bar is used to connect the ground wires. It must not be used again if cables have been removed from it. The terminal bar has a sealing gel which prevents moisture get through to the contact surfaces.

1. Break up the contact strip with a screwdriver.

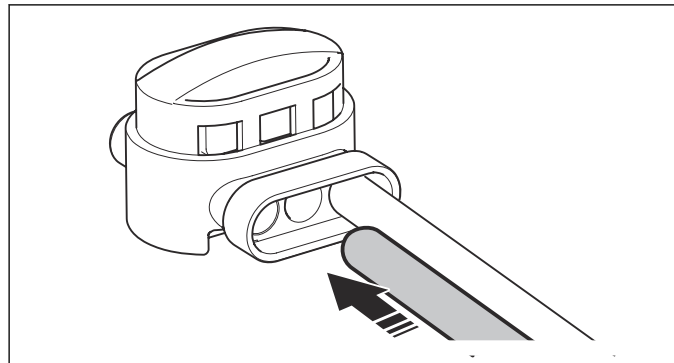


2. Pull out all cables. The cables must be cut by approx. 5 mm in order to make new contact surfaces for the contact strip

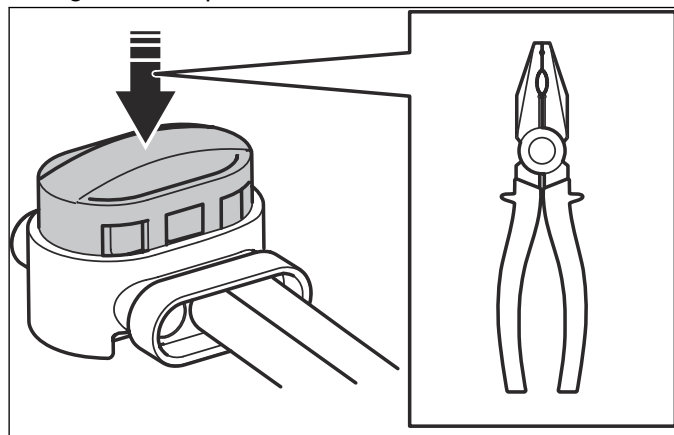


6.13.2 To put cables into the terminal bar

1. Put the cables all the way to the bottom of the terminal bar. Note that the cables must not be stripped.



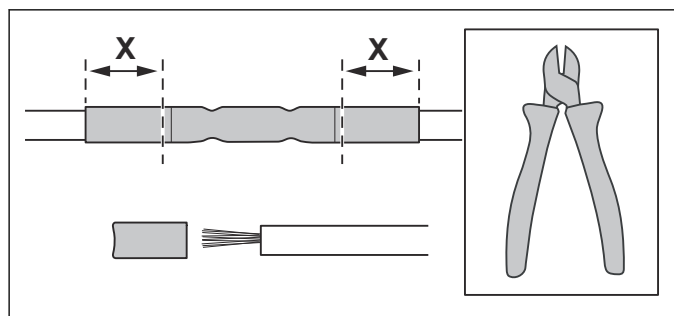
2. Push together the splice sleeve using a pair of pliers. Pull the cables to make sure they are locked against the splice sleeve.



6.13.3 To remove splices

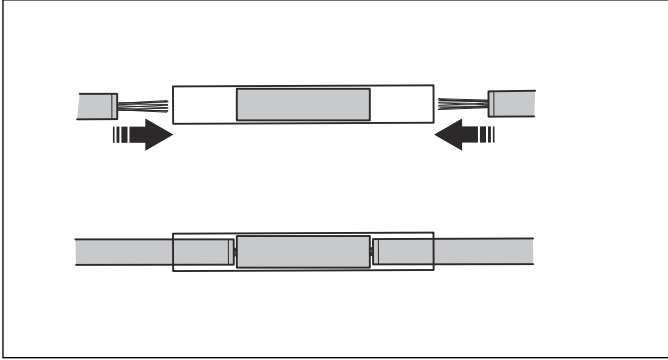
Moisture proof splice sleeves are installed on the cables from the circuit board to the stator. It is necessary to cut the splice points if you must change the stator or circuit board.

1. Cut the cable by approx. 7 mm from the outer ends of the splice sleeve.
2. Strip the two parts of the sleeve and cable at the same time.

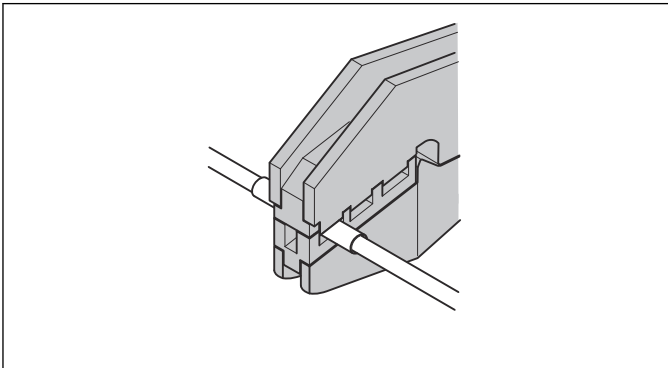


6.13.4 To install splices and sleeves

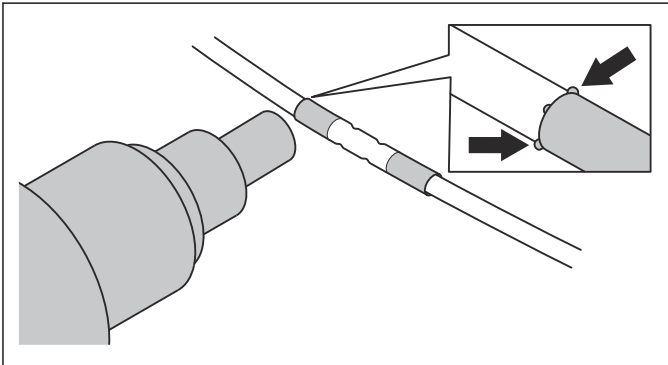
1. Remove the cable insulation by approx. 7 mm at the two ends of the cable. Put the cables in the splice sleeve.



2. Push together the splice sleeve with a pliers for cable clips. Pull the cables to make sure they are locked against the splice sleeve.

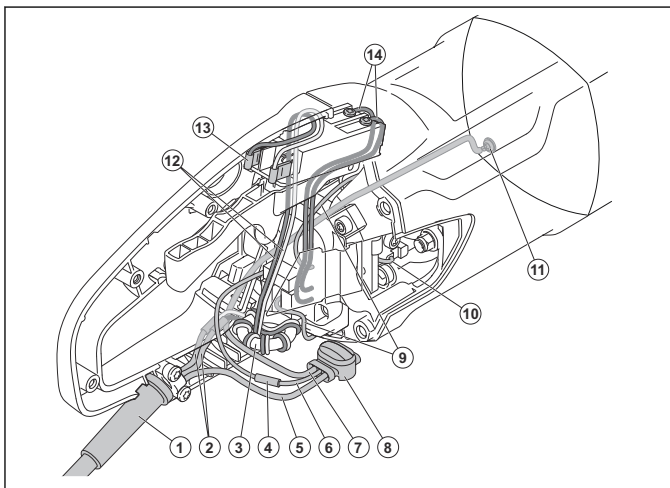
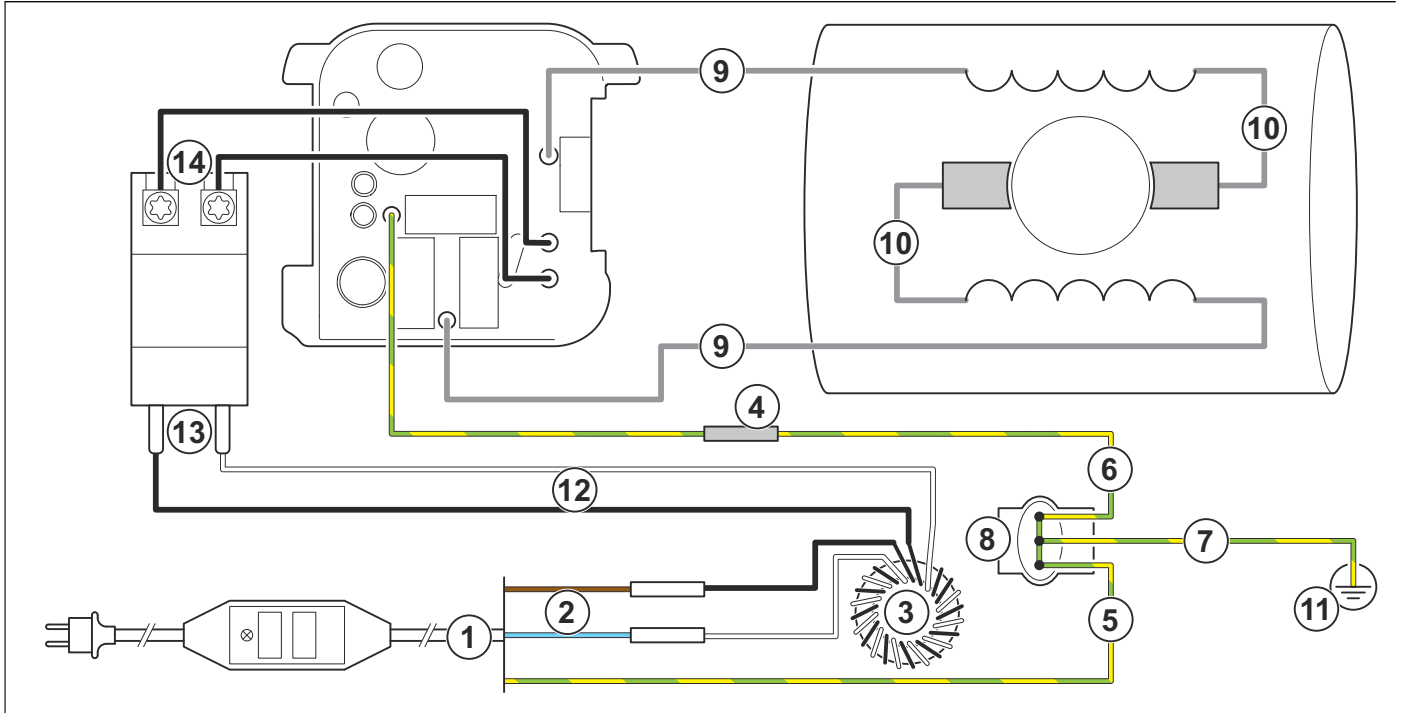


3. The splice sleeve is put with hot melt sealant and the casing shrinks when hot. Use a hot air gun, approx. 150 °C (300 °F). Apply heat until the casing closes tightly around the cable and some sealant is coming out.



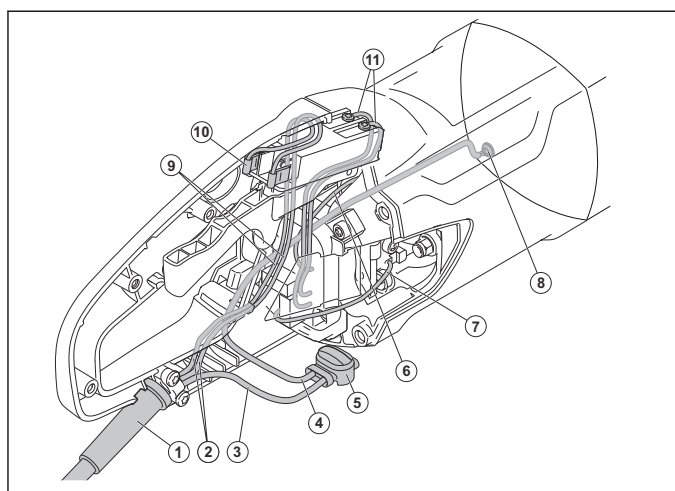
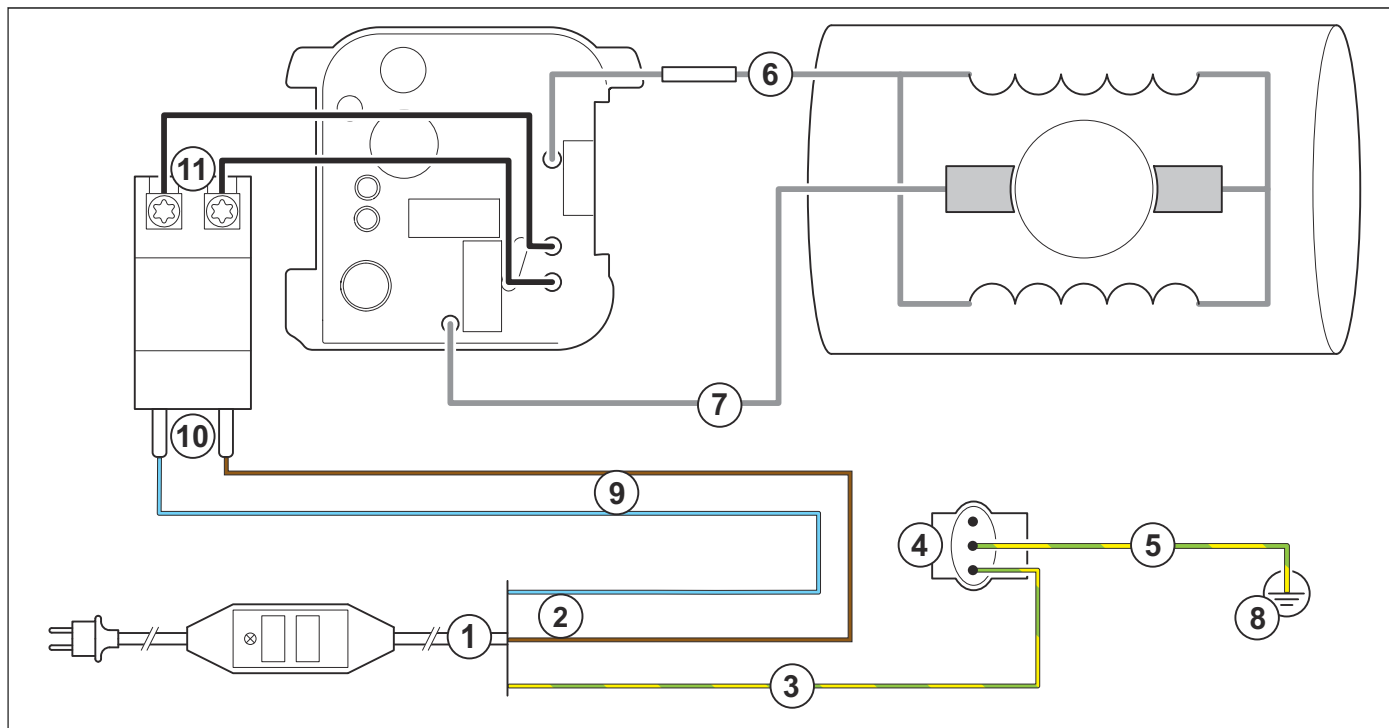
7 Diagrams

7.1 Wiring diagram 230V



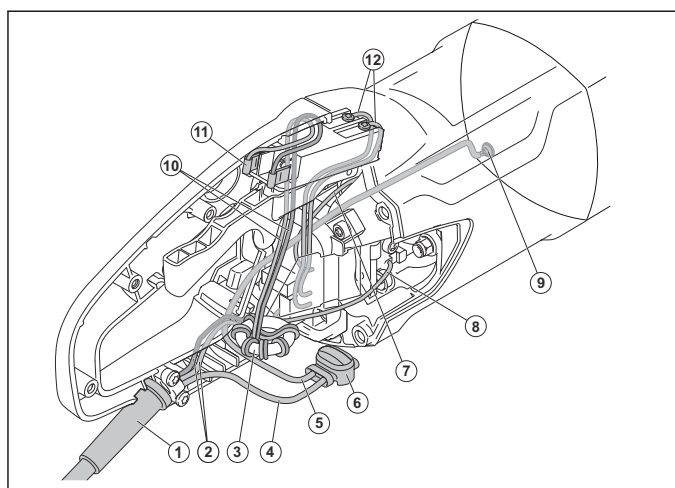
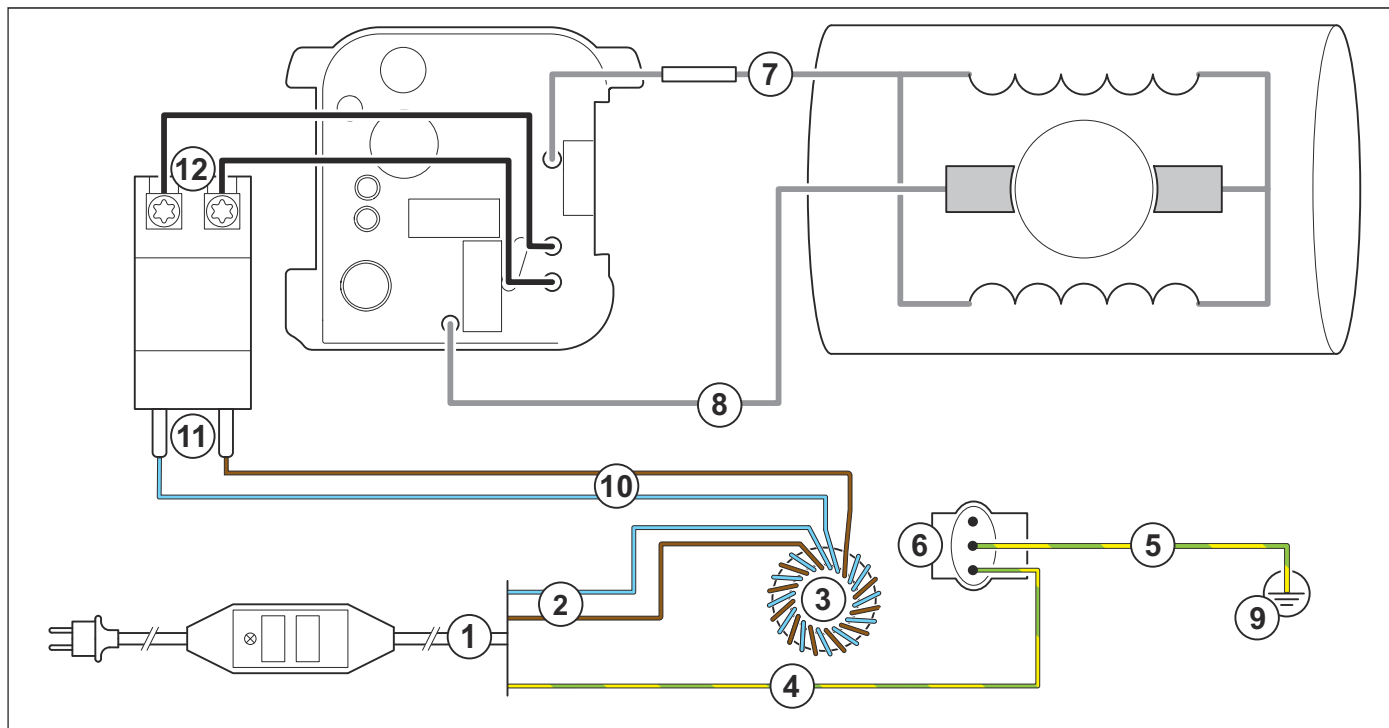
1. To mains plug
2. Live cables
3. Emc filter
4. Emc filter
5. Ground cable: mains input - terminal bar
6. Ground cable: terminal bar - circuit board
7. Ground cable: terminal bar - front of machine
8. Terminal bar
9. Live cables: circuit board - stator
10. Live cables: stator - rotor
11. Ground point front of machine
12. Live cables: toroid filter - circuit breaker
13. Live cables: circuit breaker - circuit board

7.2 Wiring diagram 120V



1. To mains plug
2. Live cables
3. Ground cable: mains input - terminal bar
4. Terminal bar
5. Ground cable: terminal bar - front of machine
6. Live cable: circuit board - stator
7. Live cable: stator - rotor
8. Ground point front of machine
9. Live cables: circuit breaker - circuit board

7.3 Wiring diagram 120V UK and Ireland



1. To mains plug
2. Live cables
3. Emc filter
4. Ground cable: mains input - terminal bar
5. Terminal bar
6. Ground cable: terminal bar - front of machine
7. Live cable: circuit board - stator
8. Live cable: stator - rotor
9. Ground point front of machine
10. Live cables: circuit breaker - circuit board



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