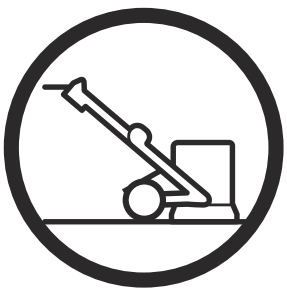
Husqvarna®

Workshop manual

PG 6 XR & PG 8 XR



English

2185 - 002 - 21.10.2024

Contents

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

Warnings, cautions and notes are used to point out specially important parts of the manual.

WARNING: Used if there is a risk of injury or death for the operator or bystanders if the instructions in the manual are not obeyed.

CAUTION: Used if there is a risk of damage to the product, other materials or the adjacent area if the instructions in the manual are not obeyed.

Note: Used to give more information that is necessary in a given situation.

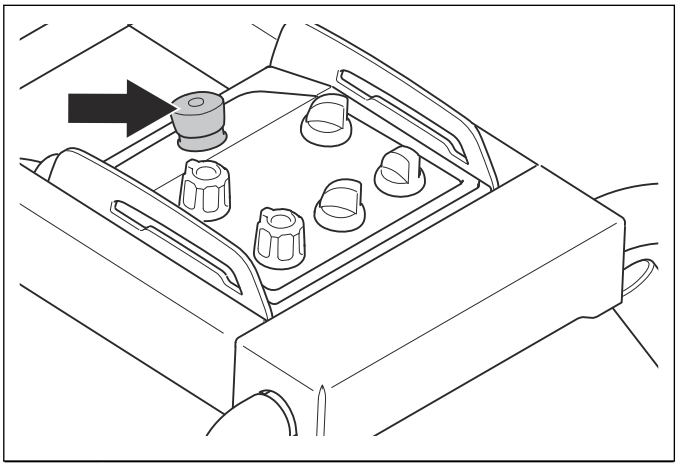
2.2 General safety instructions

WARNING: Read the warning instructions that follow before you use the product.

- Read and obey this workshop manual.
- Obey the local safety regulations when you repair or do servicing of the product.
- Use safety equipment that complies with local regulations.
- Use only the equipment that the manufacturer recommends.
- Use personal protective equipment.
- Use protective gloves and safety glasses. The safety glasses must obey the for US or for EU countries.
- Use earmuffs when the product is in operation.
- Always stop the product before you repair or do servicing of the product.
- Remove flammable materials from the work area. The product can cause sparks.
- Do not use the product if the power cord or cables are damaged.
- Disconnect the product from the mains socket.
- If possible, keep the power cord disconnected when you repair or do servicing of the product.
- Use cables adapted to outdoor operation.
- Do not touch the wires when the product is on. An electrical shock can cause injury.
- Do not point compressed air to your body. Compressed air can go into the blood stream.
- Always tighten the nuts and the bolts on the product correctly.
- Do not use the power cord to lift the product. Do not pull the power cord to disconnect the product.
- Make sure that no warning labels on the product are missing or damaged. Replace any missing or damaged warning labels.
- Always read the warning labels of product supplies.
- Obey the local waste regulations.

2.3 Special safety instructions

The product has an emergency stop button.



WARNING: Voltage remains in the product after the emergency stop button is pressed.

2.4 Symbols on the product

Risk of serious injury or death to the operator or others. Be careful and use the product correctly.

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

Always put on hearing protection, eye protection and breathing protection.

The dust can cause health problems. Use an approved respiratory protection. Always make sure that there is good airflow.

CE

This product is in compliance with applicable EC directives.

UK CA

This product conforms to applicable UK regulations.

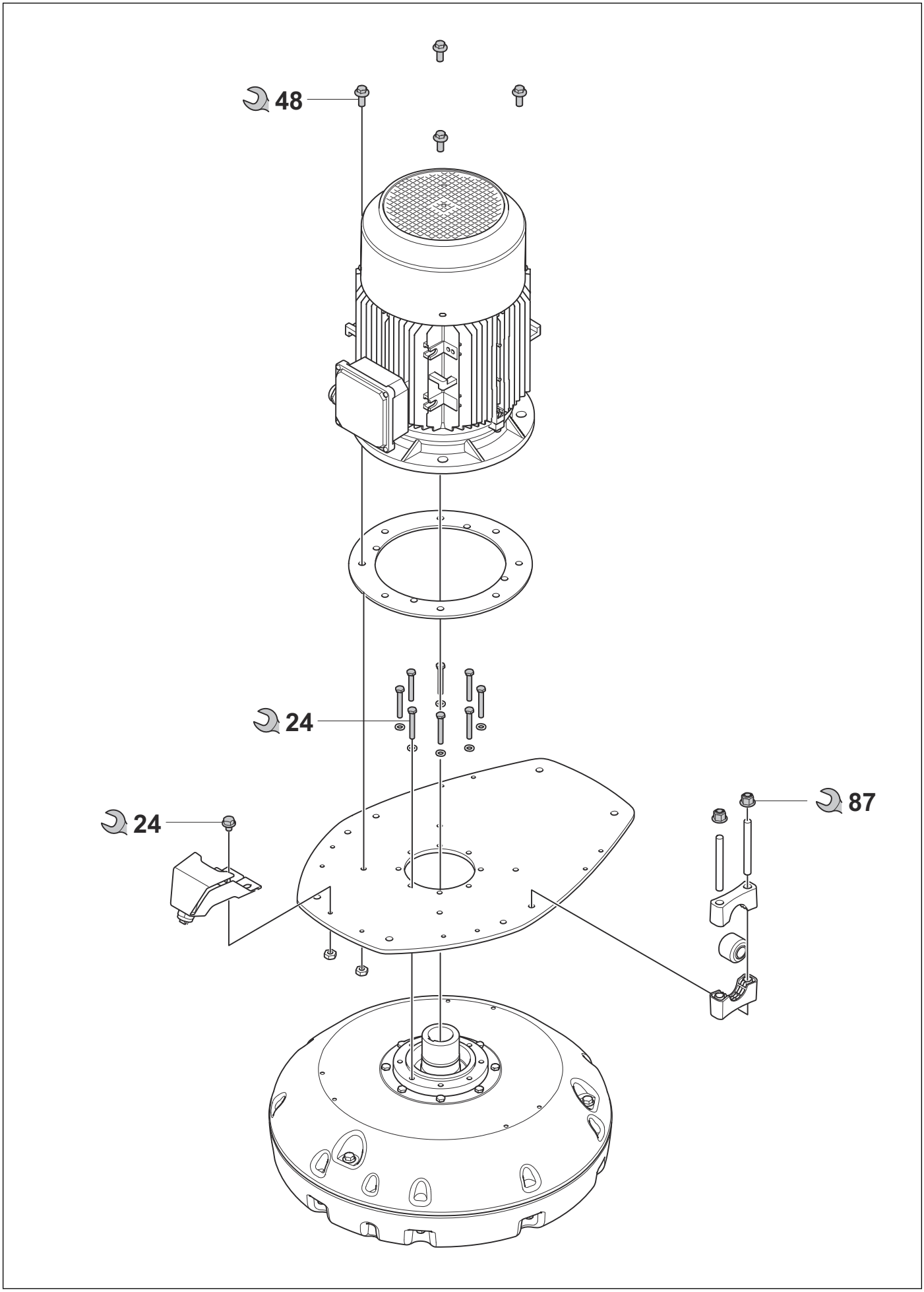
Note: Other symbols/decals on the product refer to special certification requirements for some markets.

3 Servicing data

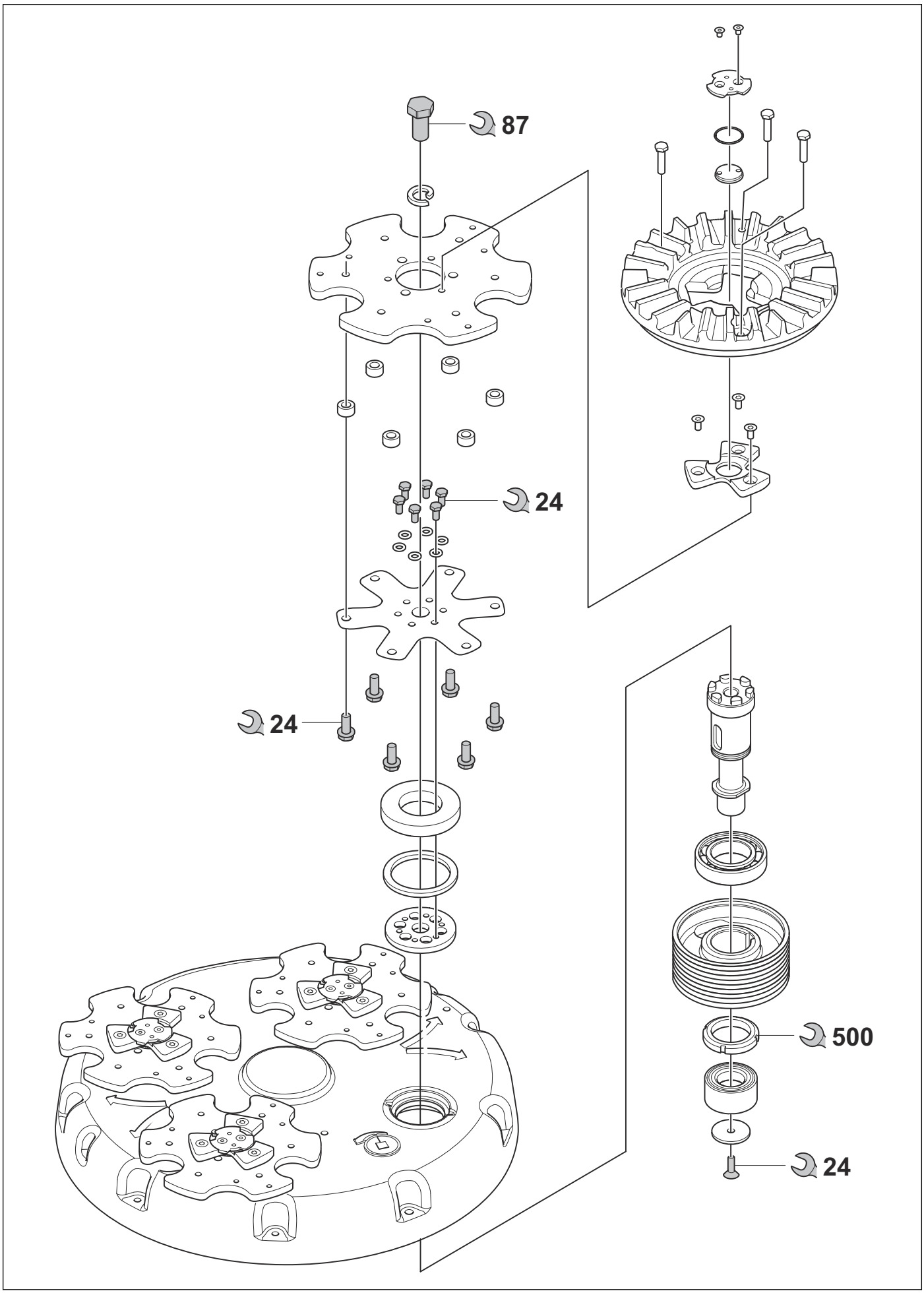
3.1 Symbols in the diagrams

Tightening torque, Nm

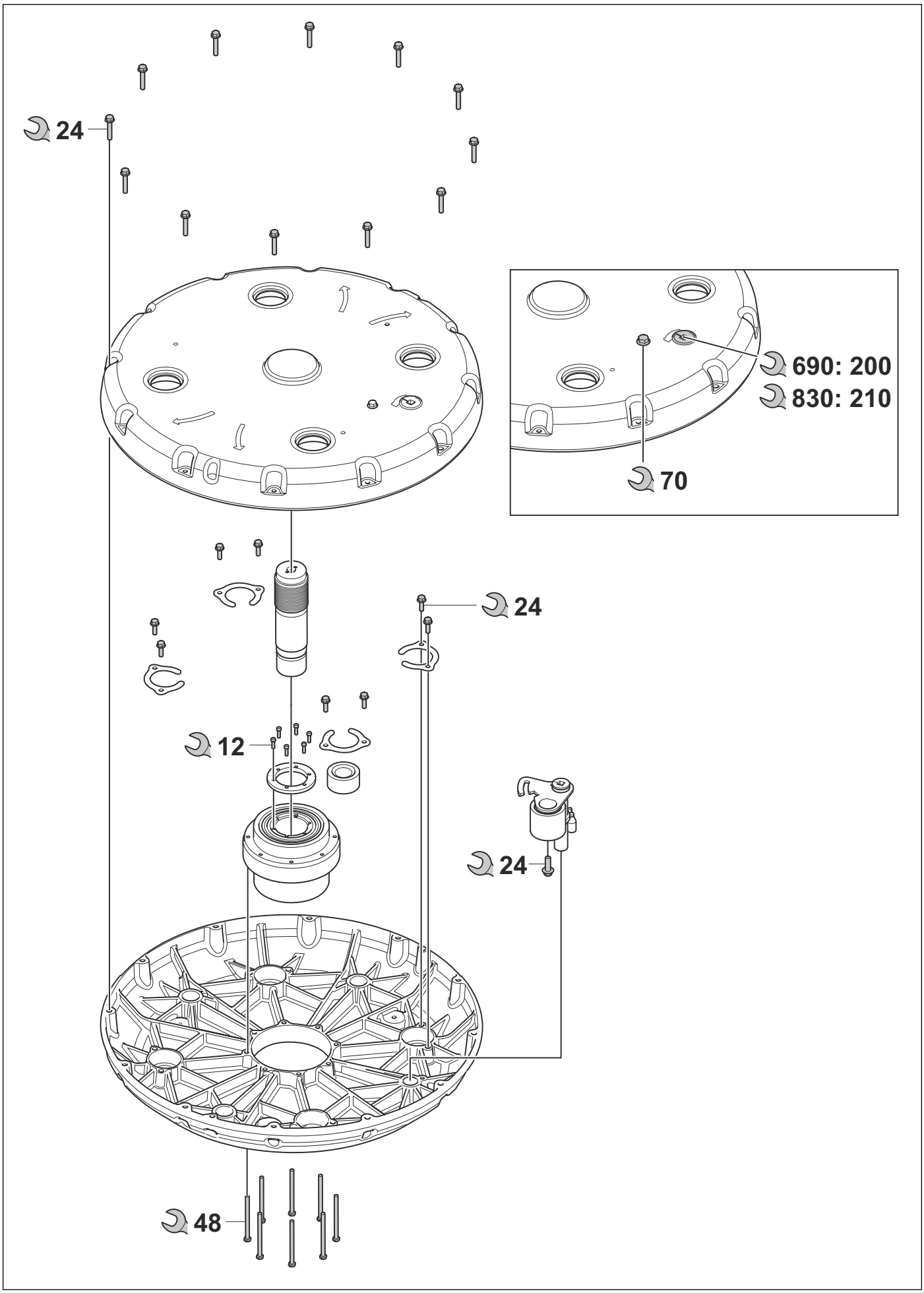
3.2 Tightening torques motor



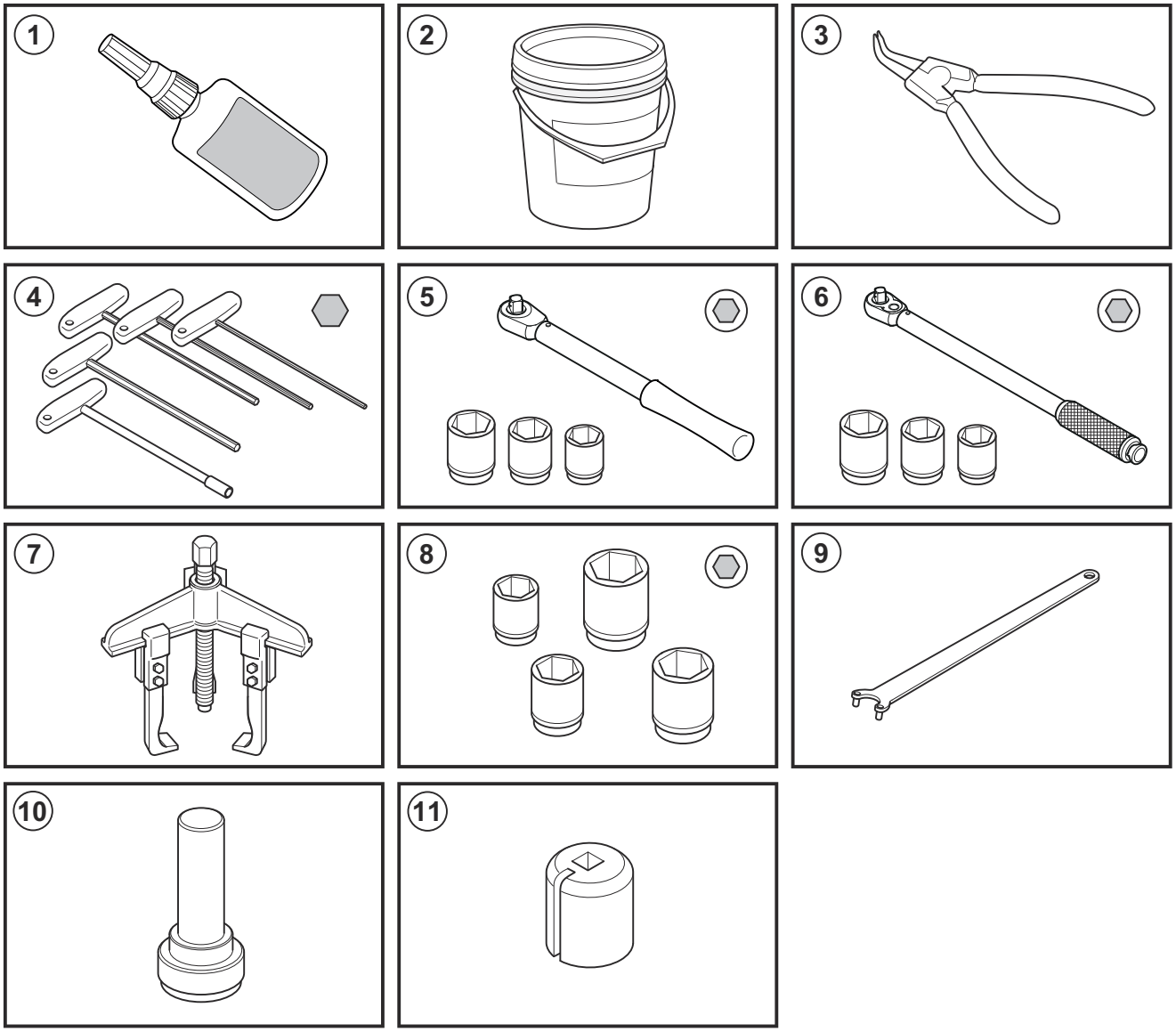
3.3 Tightening torques motor



3.4 Tightening torques grinding head



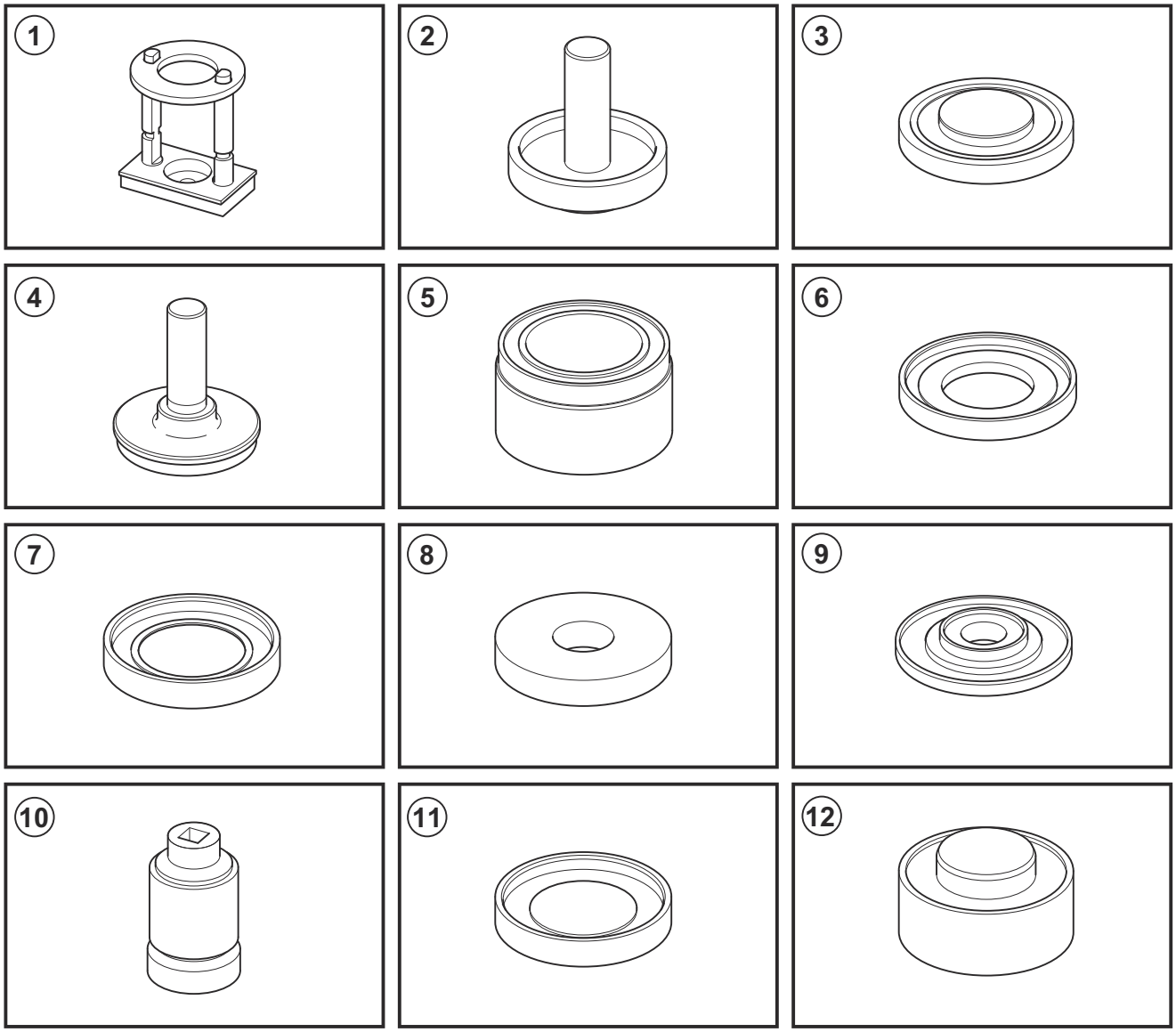
4.1 Servicing tools overview



Position	Designation	Used for	Order No./Source
1	Adhesive for threads	–	Amprobe 37XR-A
2	Grease	To assemble the motor and grinding head.	Loctite 243
3	Circlip pliers	General	–
4	Hex key, kit 2.5 - 10 mm	General	525 45 52-01
5	Socket wrench	General	531 11 95-32
6	Torque wrench 11- 110 Nm	General	–
7	Inner puller	To remove the bearing housing from the motor plate	There are many manufacturers, for example, KUKKO.
8	Socket 8-18mm	General	–
9	Pin wrench	To remove the motor from the grinding head.	593 63 27-01

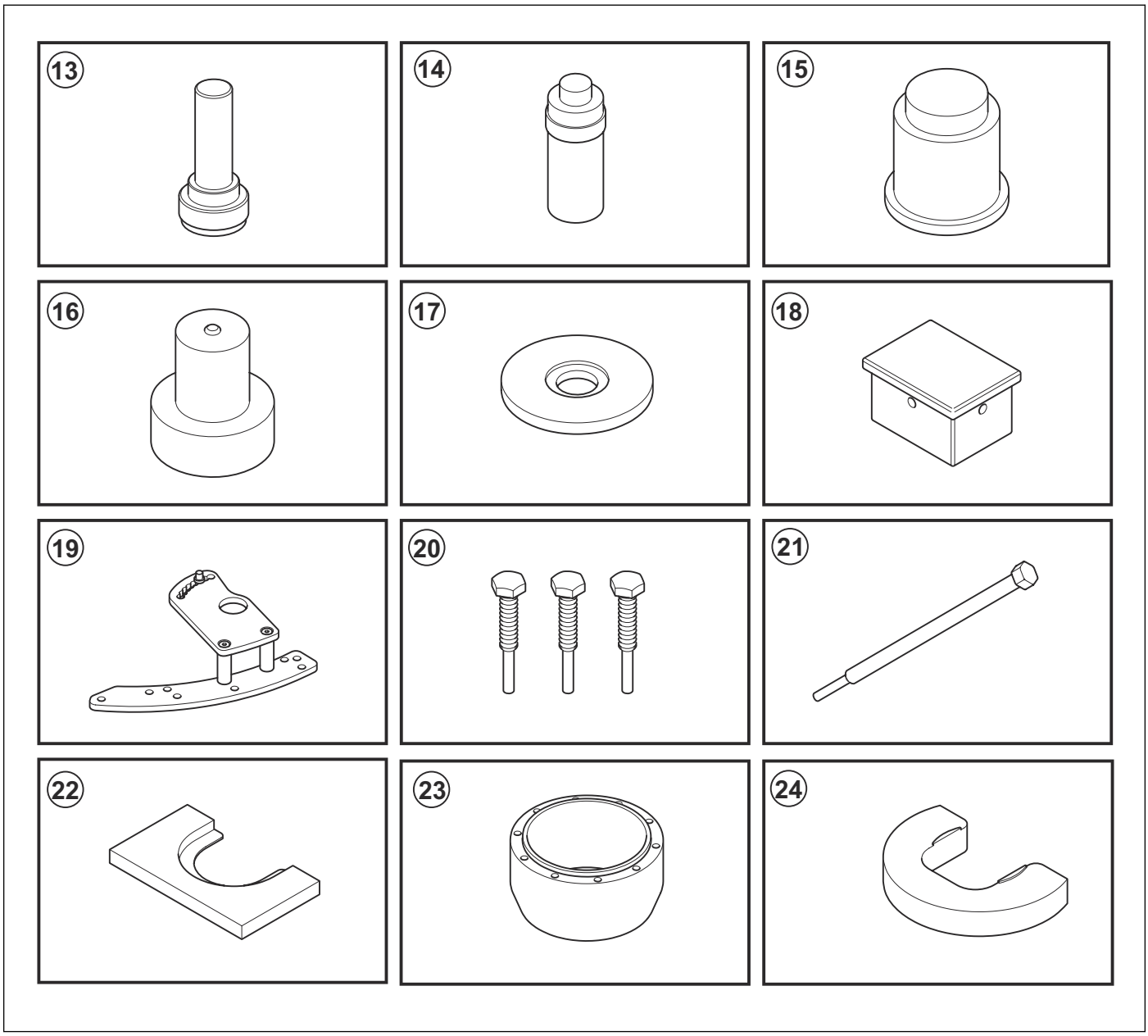
Position	Designation	Used for	Order No./Source
10	Press tool	To install the gamma rings on the grinding head.	547 133 801
11	Joystick socket	To install and remove the joystick on the remote control.	547 839 701

4.2 Servicing tools overview



Position	Designation	Order No./Source
1	Hub pulley tool	593 53 68-01
2	Press tool for the inner hub	593 54 09-01
3	Press tool for the outer center hub	595 75 94-01
4	Press tool for the radial seal	593 54 11-01
5	Press tool for the upper center hub	593 54 12-01
6	Press fixture for the center hub	593 54 13-01
7	Press tool for the center pulley	593 54 14-01
8	Press tool for the hub assembly	593 54 15-01
9	Press fixture for the hub assembly	593 54 16-01
10	Socket KM 10 clearance 90	593 54 17-01
11	Press tool for the hub	593 54 18-01
12	Press tool for the idler	593 54 19-01

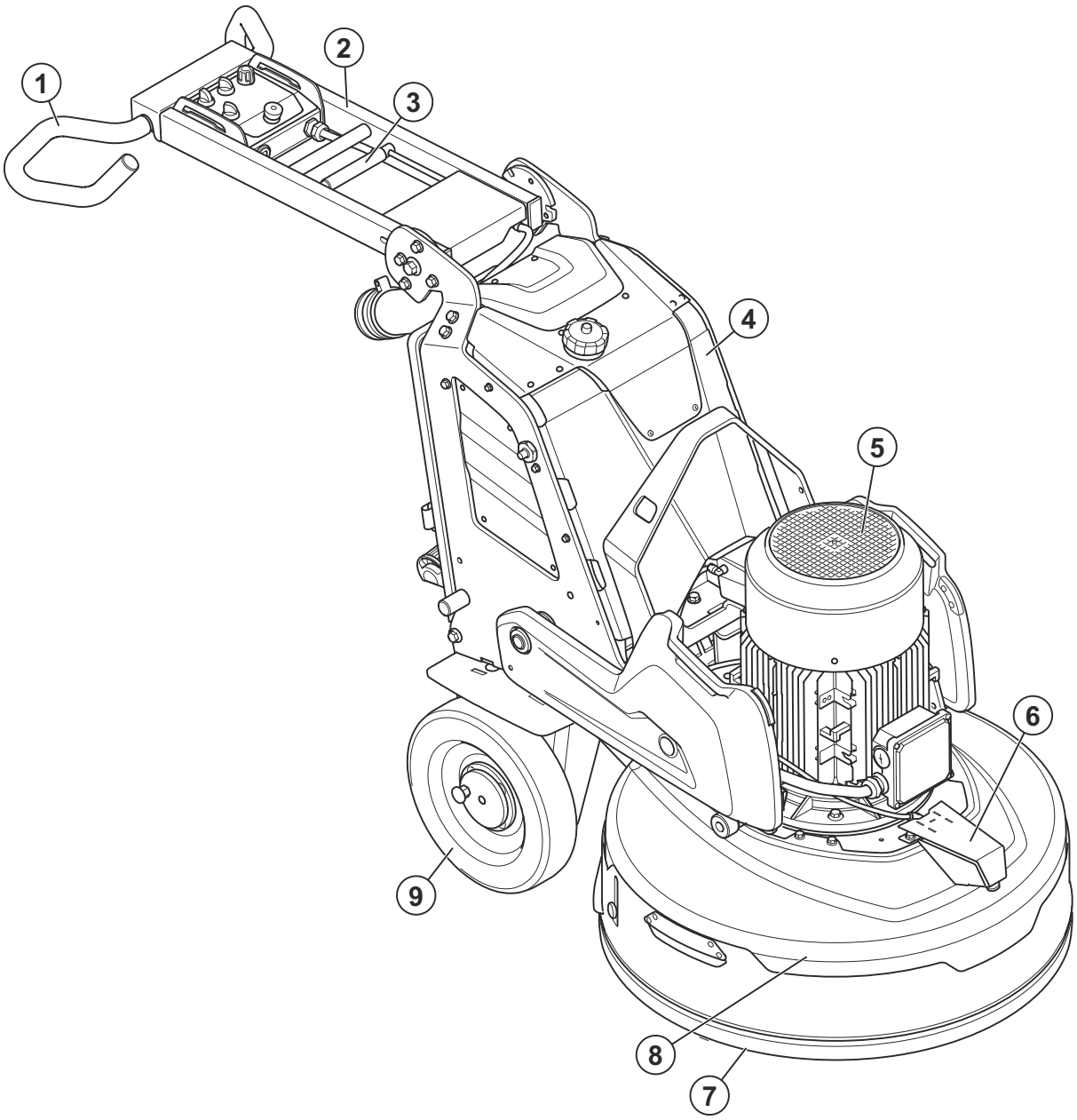
4.3 Servicing tools overview



Position	Designation	Order No./Source
13	Press tool for the radial seal	593 54 21-01
14	Press tool for the center hub	593 54 40-01
15	Press tool for the center pulley	593 54 41-01
16	Press tool for the hub assembly	593 54 42-01
17	Support for the hub assembly tool	593 54 43-01
18	Tilt support	593 58 41-01
19	Belt tension fixture	593 58 40-01
20	Tool used to disassemble the grinding head	593 54 45-01
21	Removal tool for the motor	595 76 16-01
22	Press tool for the hub assembly	593 54 30-01
23	Support cone for the center hub assembly	593 54 51-01
24	Fixture for the center pulley bearing	593 54 52-01

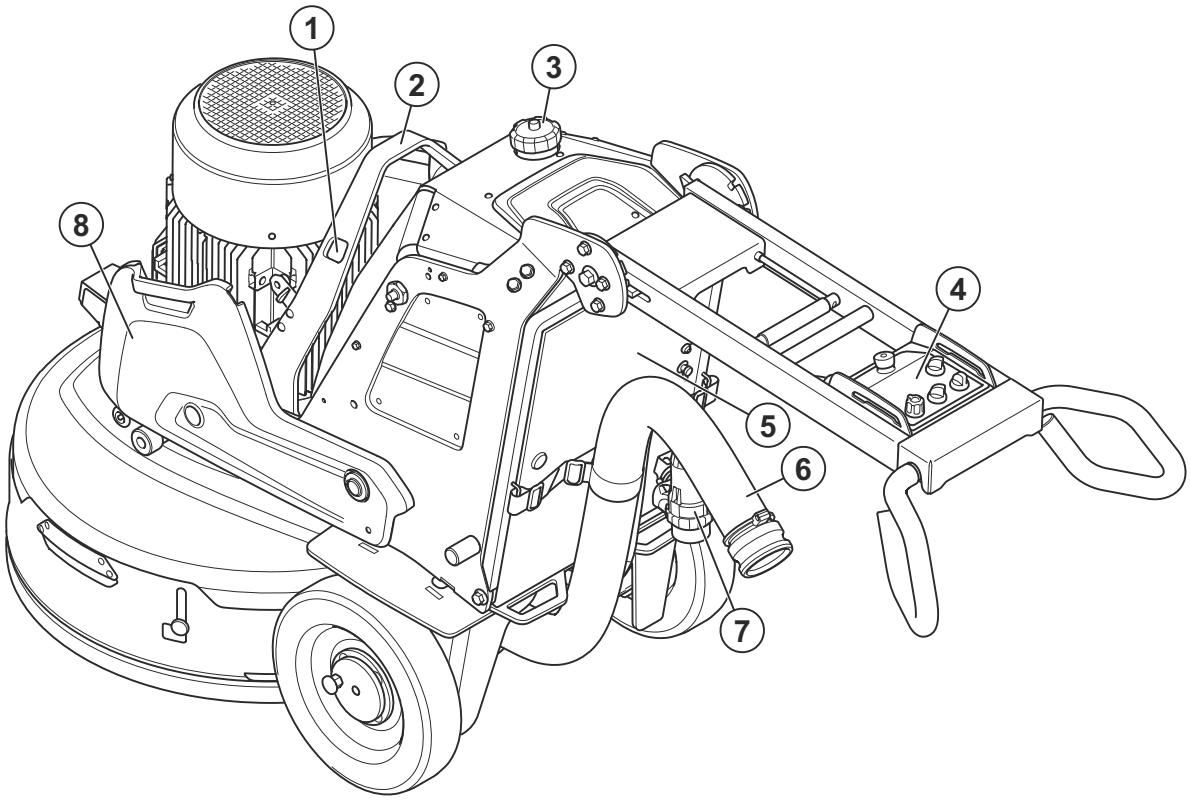
5 Product overview for repair and servicing

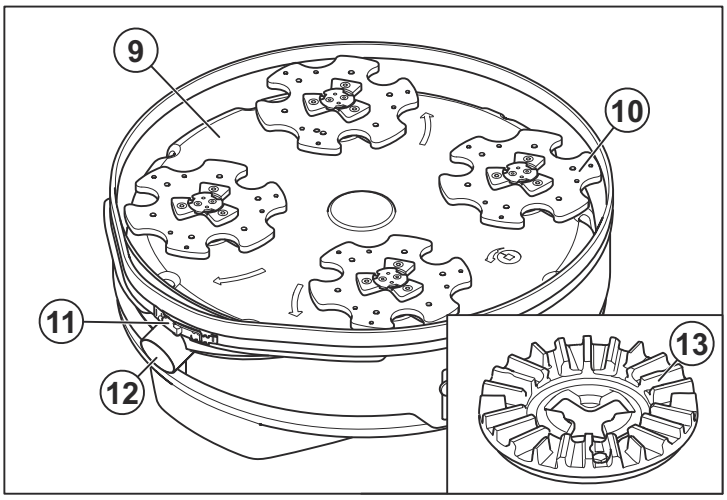
5.1 Component overview

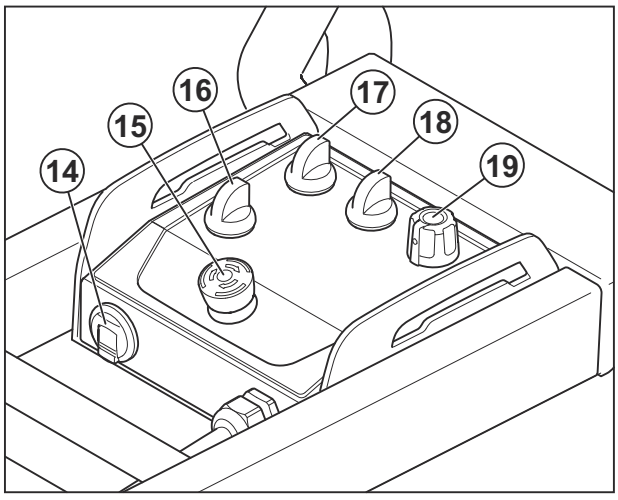


1. Handlebar
2. Handle
3. Lock lever for handle adjustment
4. Electrical enclosure
5. Grinding head motor
6. Nozzle for mist cooler system
7. Dust skirt
8. Cover
9. Wheel

5.2 Component overview

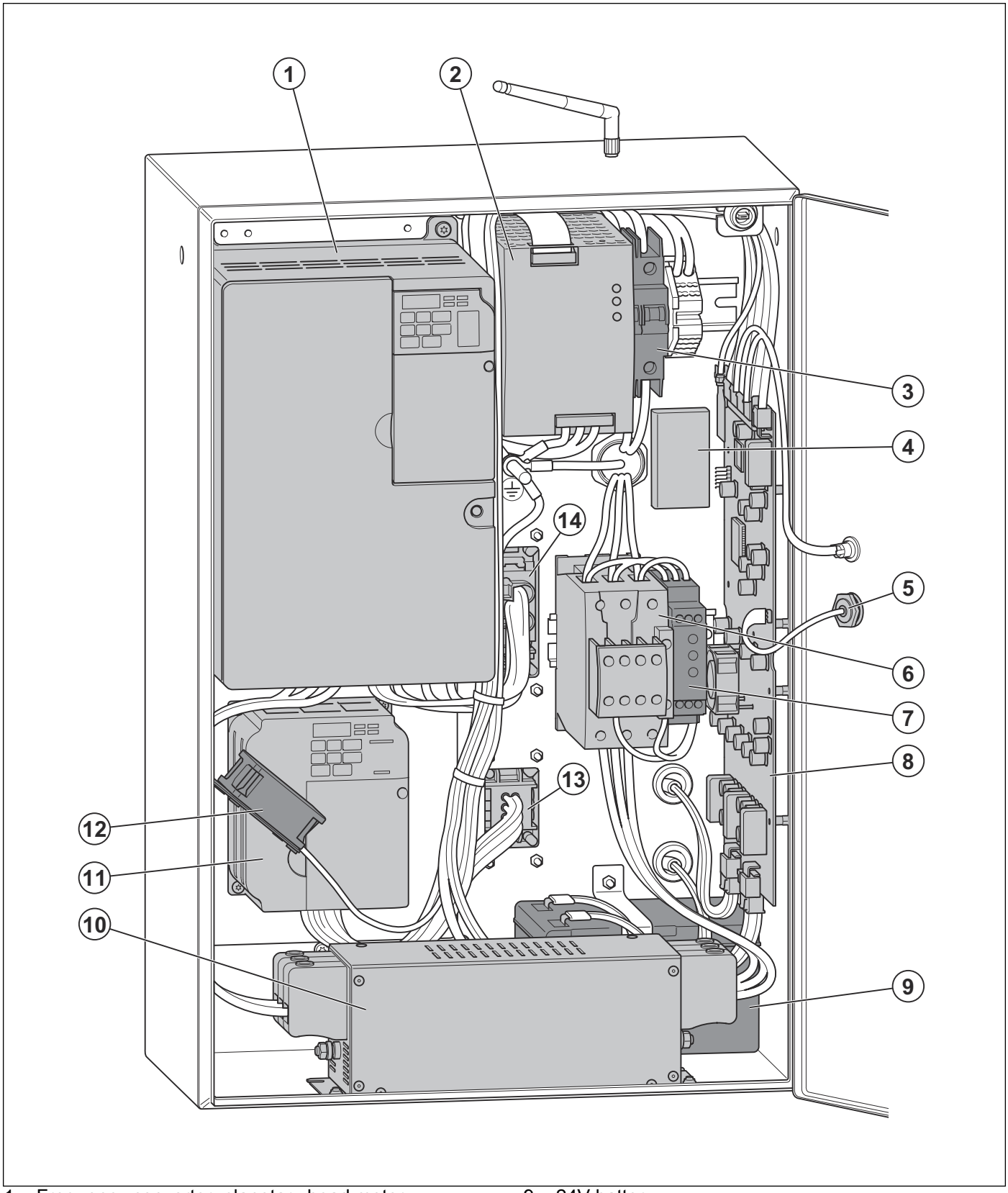






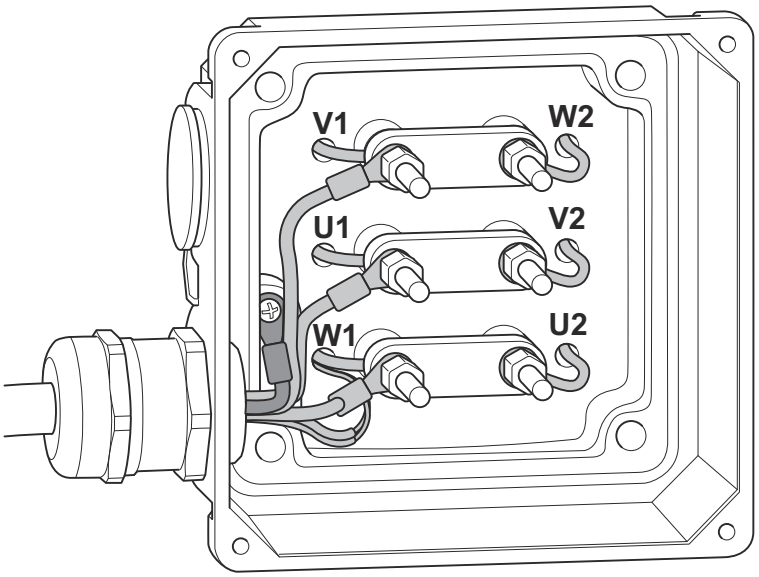
1. Holes for straps
2. Lifting eye
3. Water tank
4. Control panel
5. Door to electrical box
6. Connection for dust extractor
7. Wheel motor
8. Weight
9. Grinding head
10. Grinding disc
11. Dust skirt
12. Connection for dust extractor
13. Tool plate
14. USB port
15. Emergency stop button
16. Switch for selection of remote control operation or manual operation
17. ON/OFF switch
18. STOP/RUN switch
19. Knob for direction of rotation and speed, grinding disc

5.3 Electrical enclosure

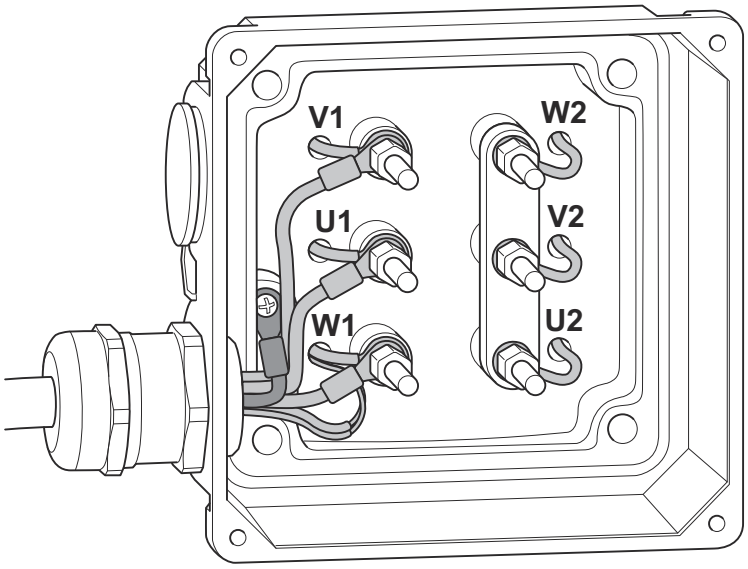


1. Frequency converter, planetary head motor
2. Transformer 24V DC
3. MCB
4. Battery for the circuit board
5. Socket for remote control
6. Contactor
7. Phase sequence relay
8. Circuit board
9. 24V battery
10. EMC filter
11. Frequency converter, grinding head motor
12. Circulation fan
13. Socket for the grinding head motor
14. Socket for the planetary head motor

5.4 Component overview motor connection box 220-240V



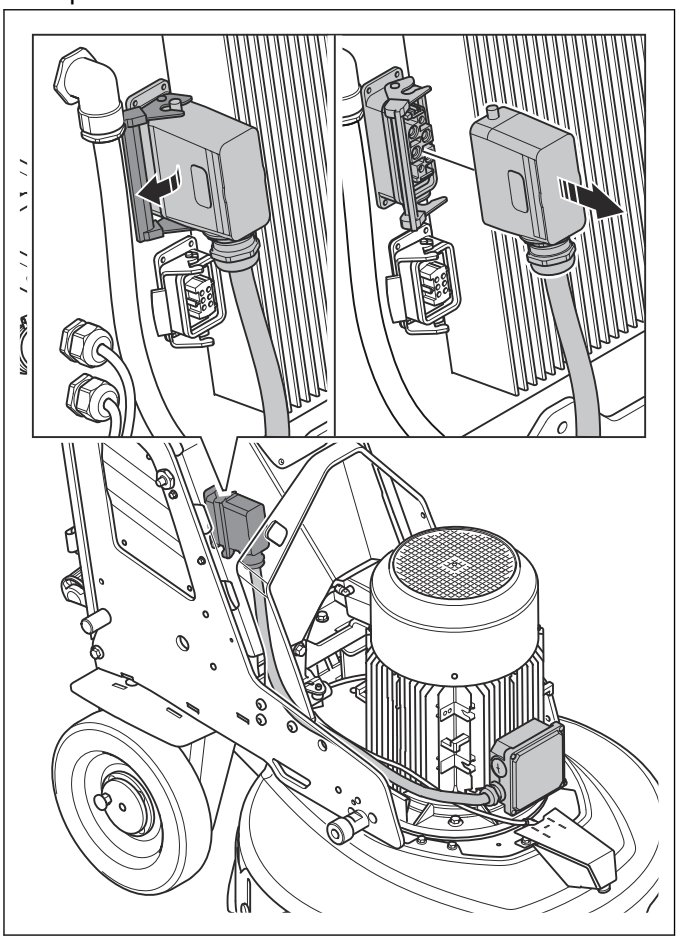
5.5 Component overview motor connection box 380-415V/440-480V



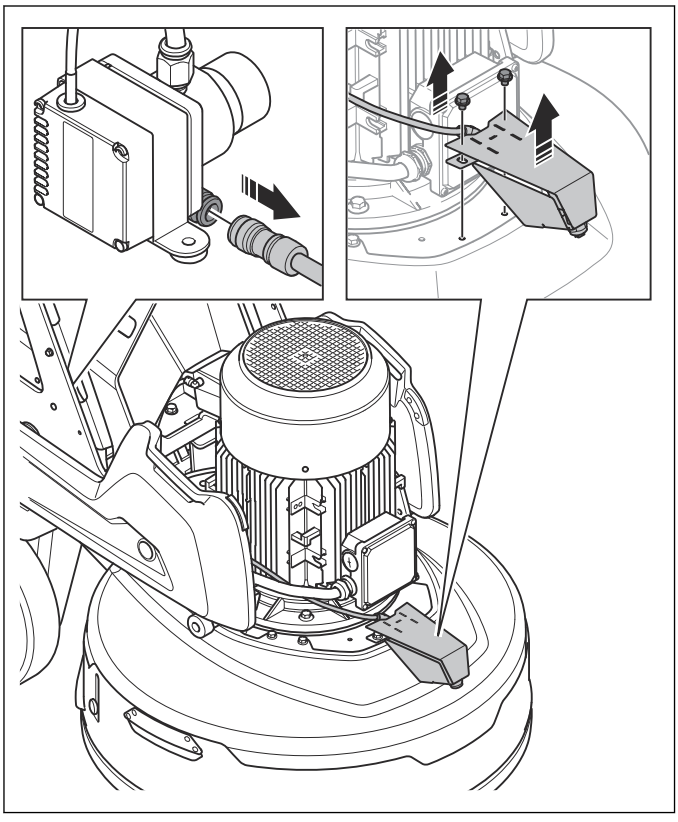
6.1 Motor

6.1.1 To remove the motor and the grinding head cover

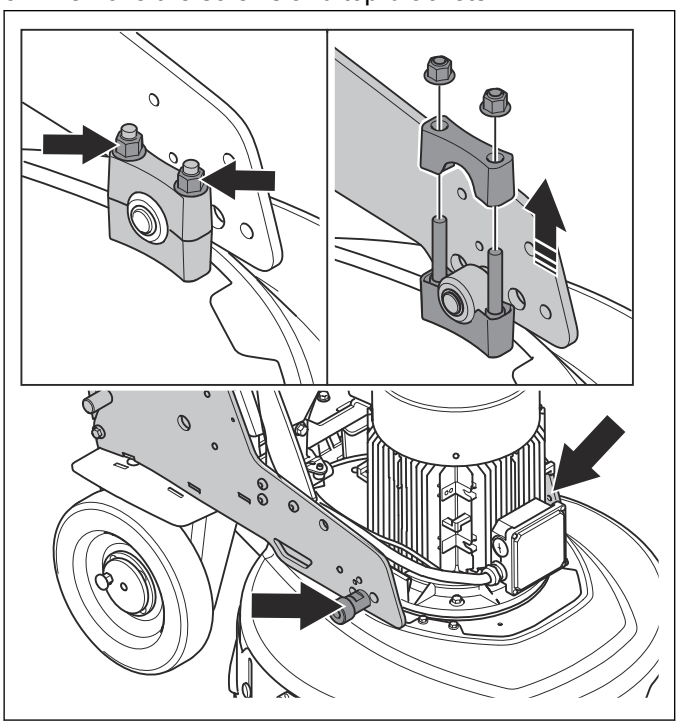
1. Open the locks and remove the wire harnesses.



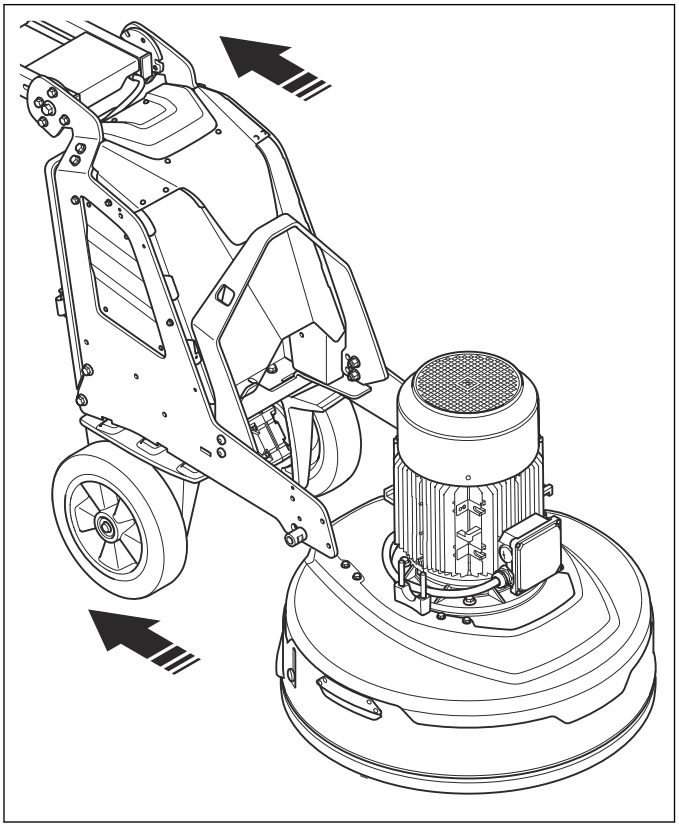
2. Remove the water hose and the mist nozzle.



3. Remove the screws and top brackets.

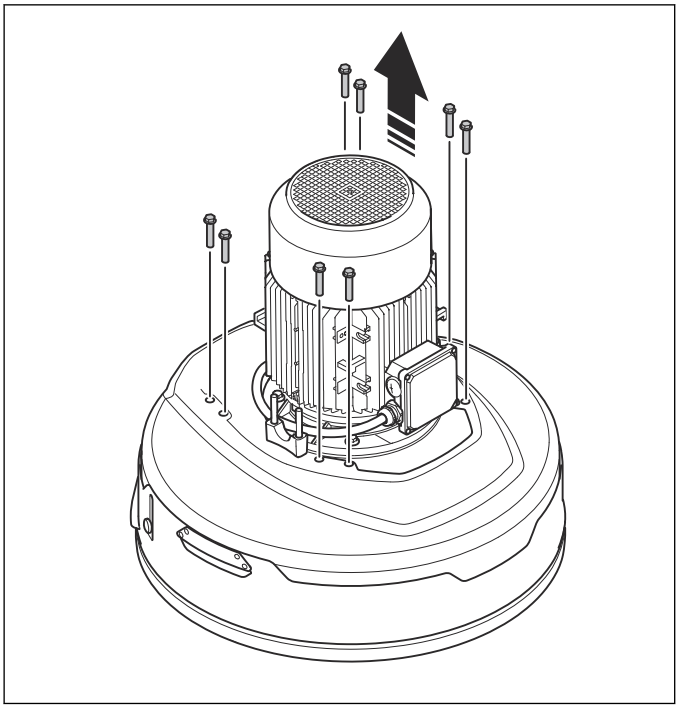


4. Remove the frame from the motor and grinding head.

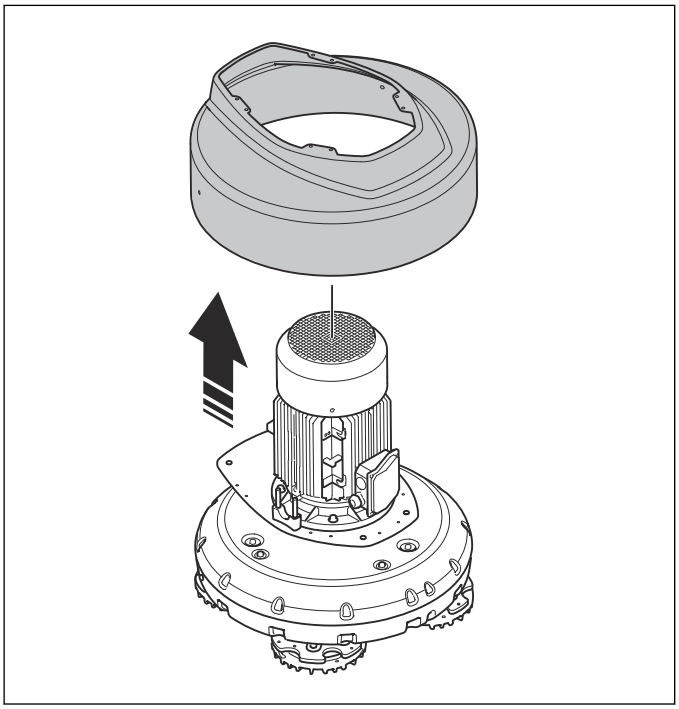


6.1.2 To remove the grinding head cover

1. Remove the screws.

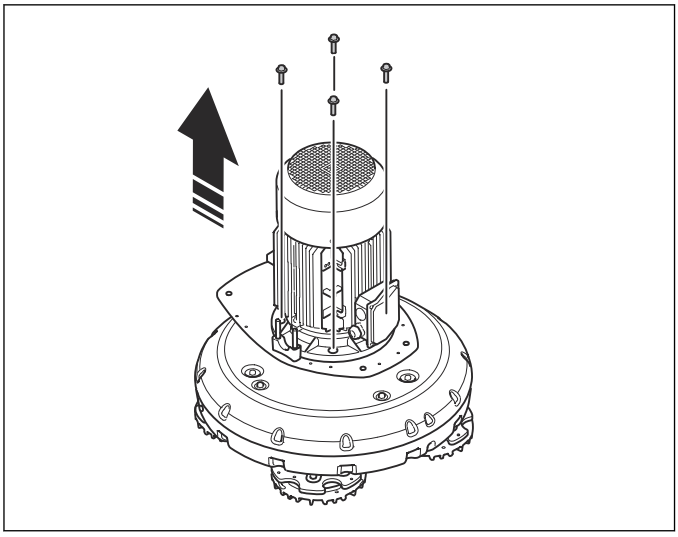


2. Remove the grinding head cover.

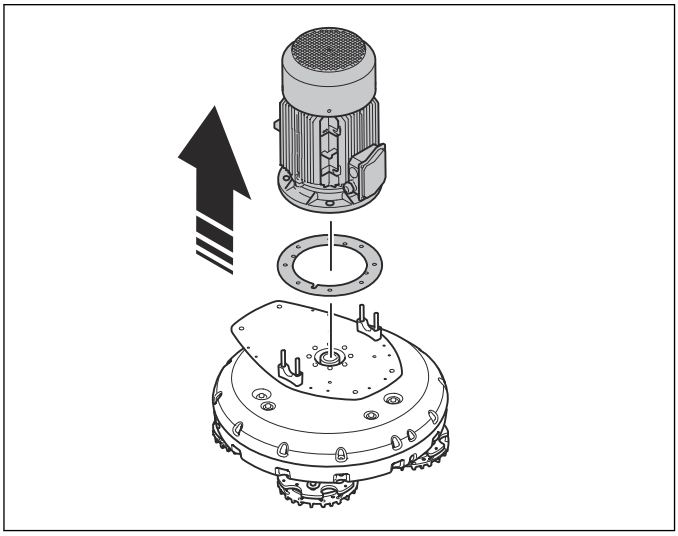


6.1.3 To remove and install the motor

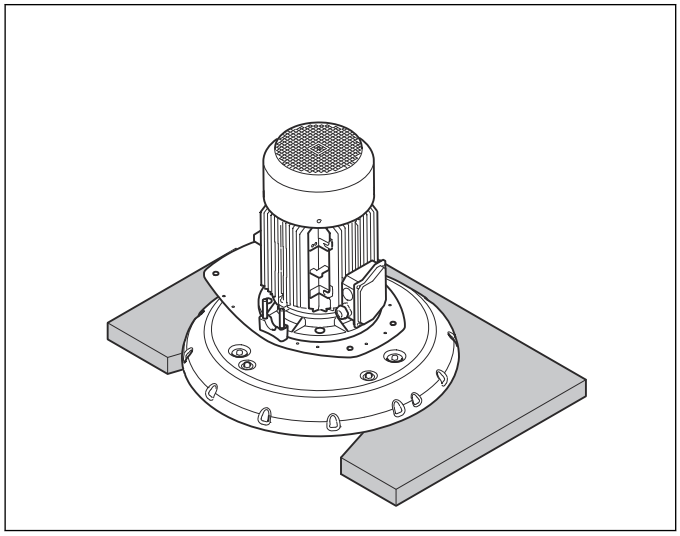
1. Remove the screws.



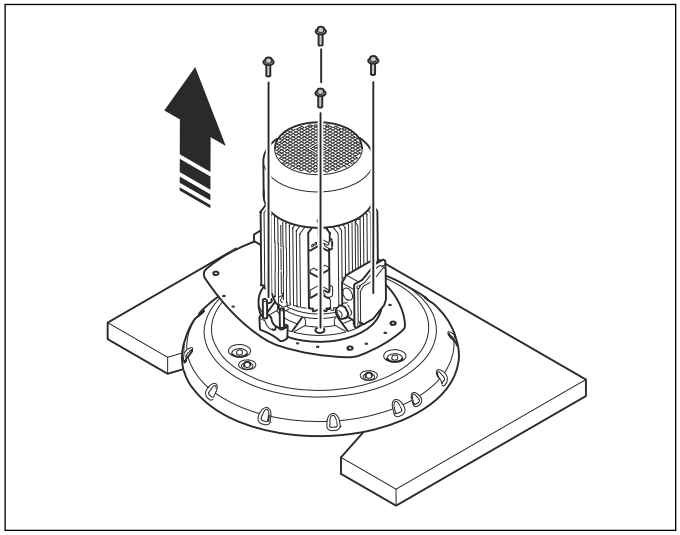
2. Remove the motor.



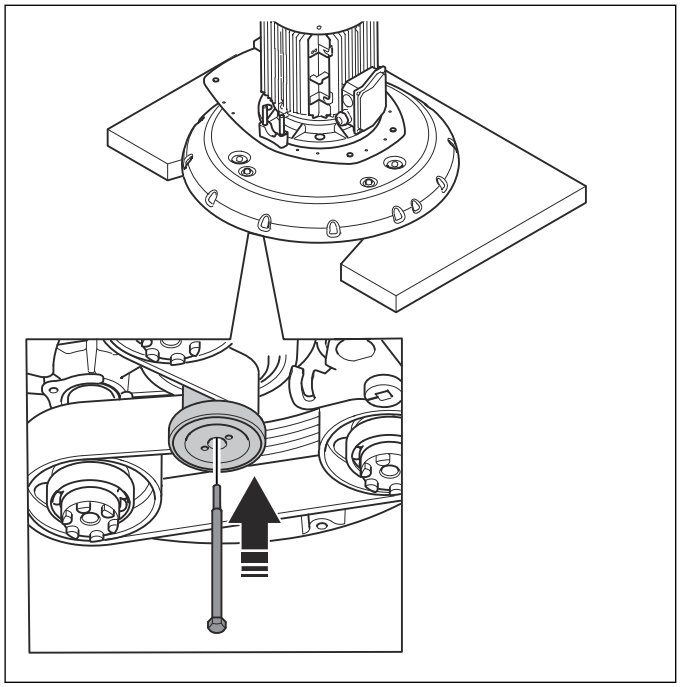
3. If the motor cannot be removed, use the removal tool and the pin wrench. Refer to *Servicing tools overview on page 11* and *Servicing tools overview on page 9*.
4. Remove the lid from the housing. Refer to *To open the grinding head on page 21*.
5. Remove the belt. refer to *To remove and install the belt on page 30*.
6. Put support below the grinding head. Make sure there is space for the removal tool.



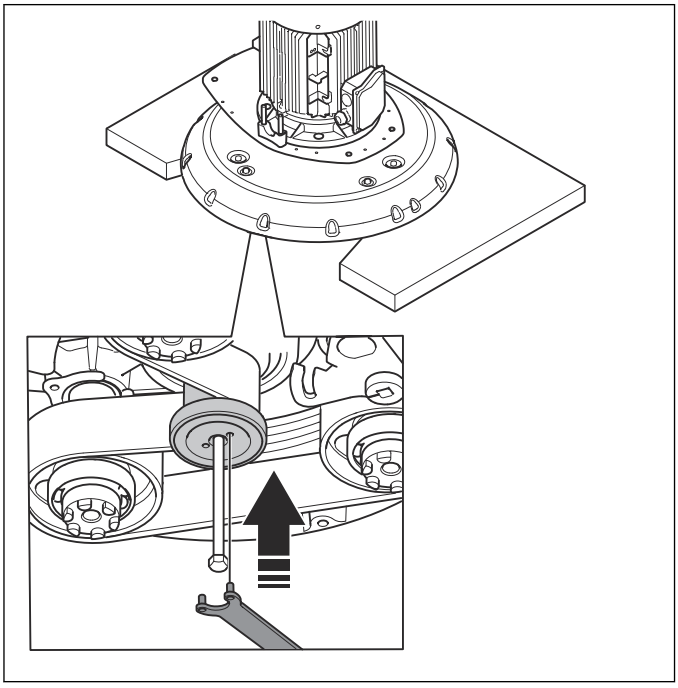
7. Remove the screws.



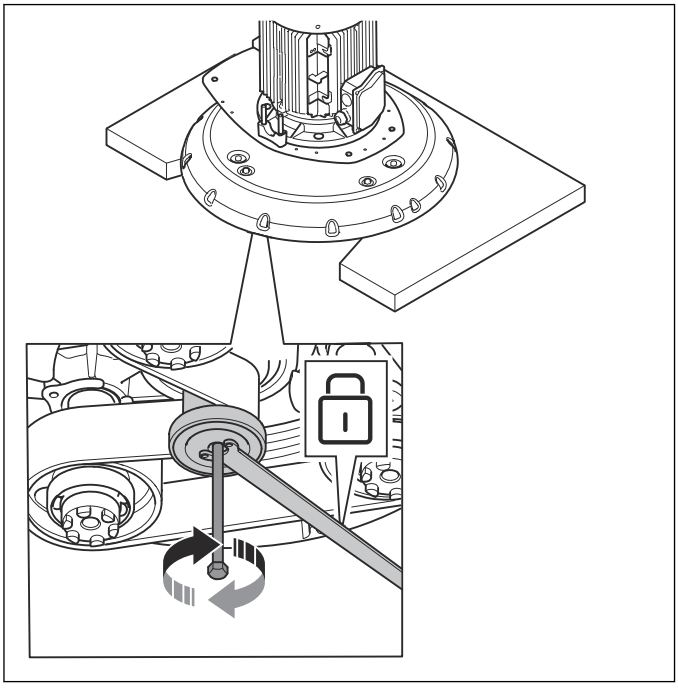
8. Put the removal tool into the center pulley.



9. Put the pin wrench into the center pulley.



10. Turn the removal tool to remove the motor.

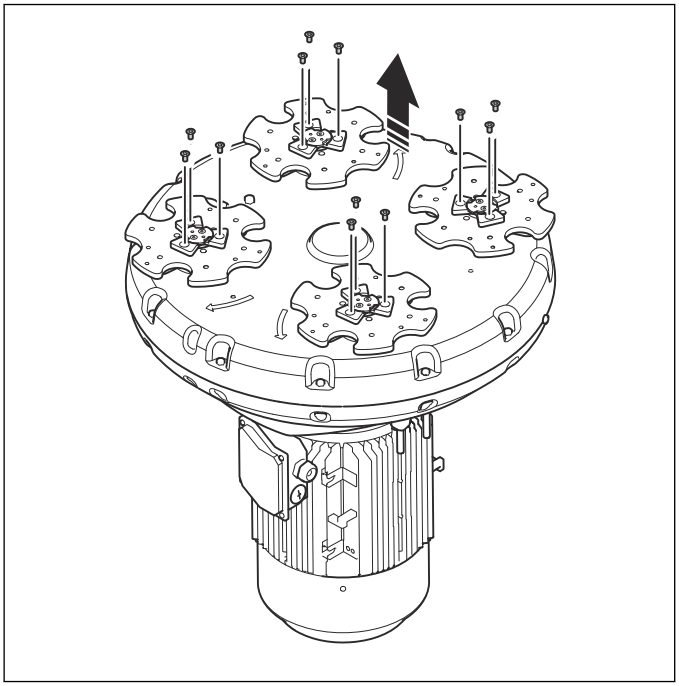


11. To install, do step 1 and 2 in opposite sequence.

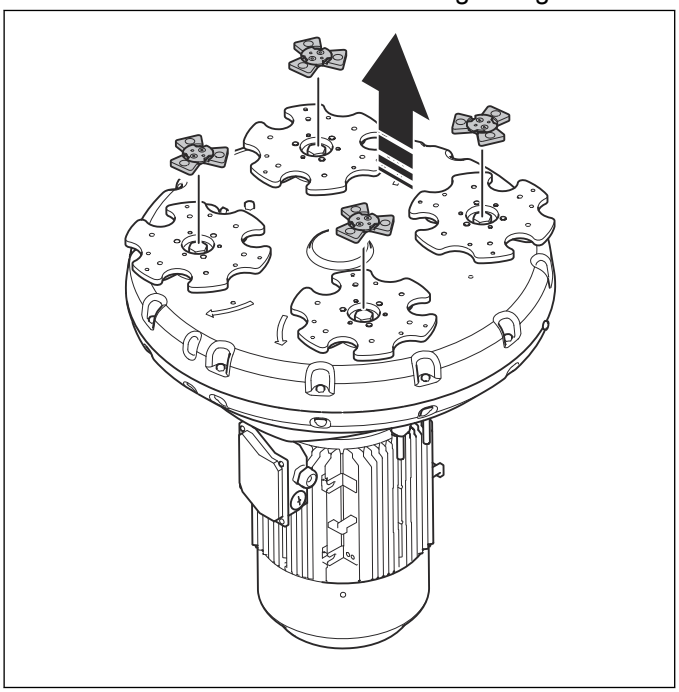
6.2 Grinding head

6.2.1 To remove the tool holders

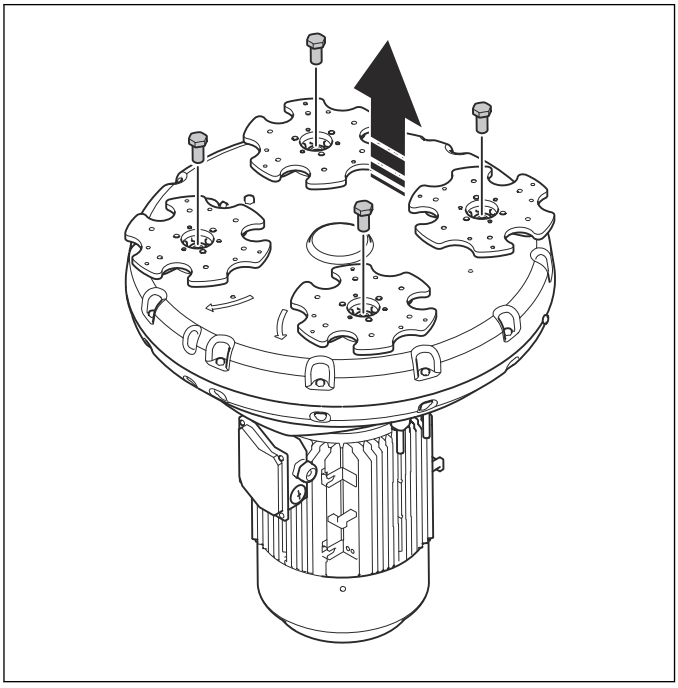
1. Remove the center screws from the tool crosses.



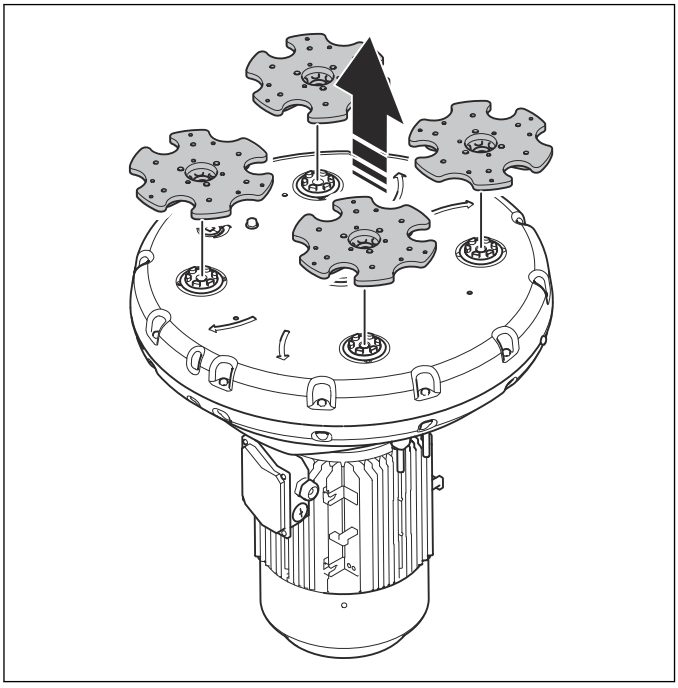
2. Remove the tool crosses from the grinding discs.



3. Remove the center bolts from the grinding discs.

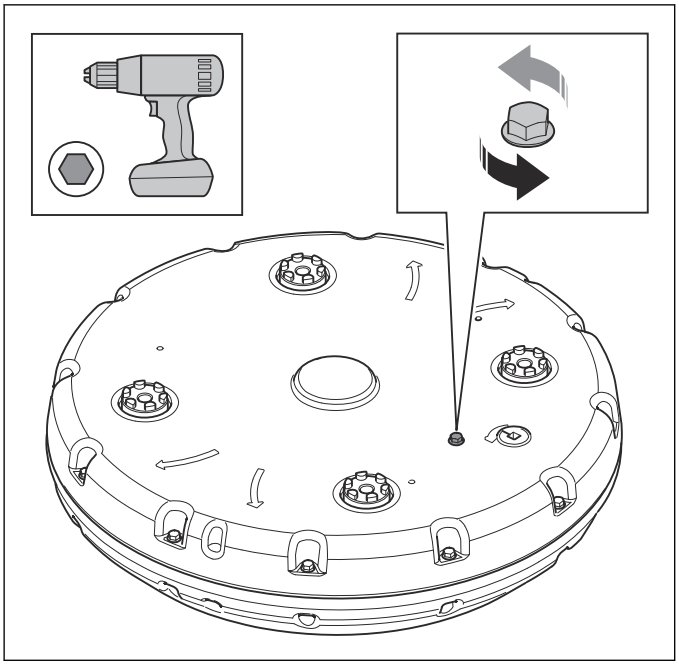


4. Remove the grinding discs from the grinding head.

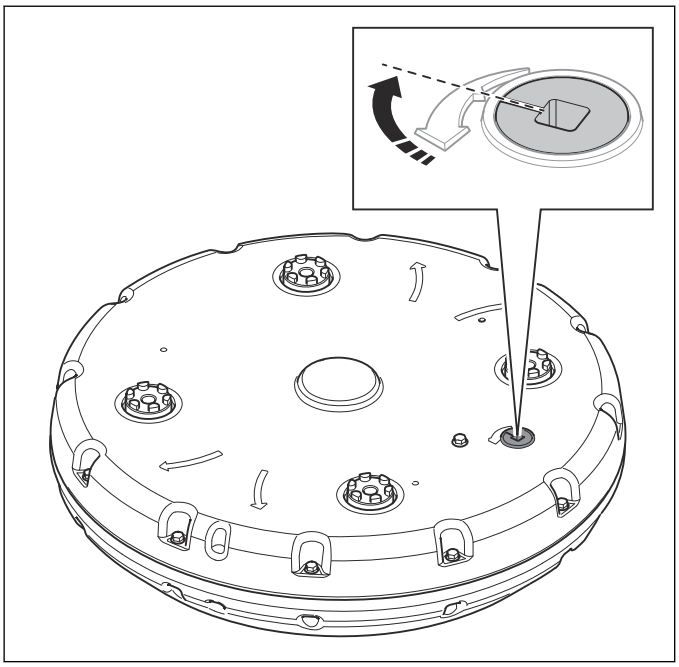


6.2.2 To open the grinding head

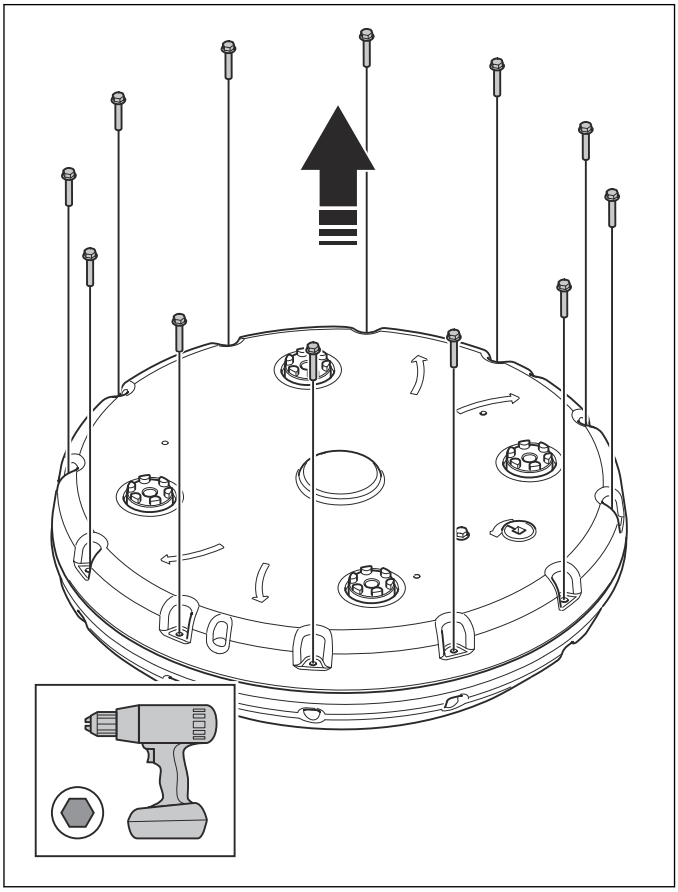
1. Loosen the belt tensioner screw.



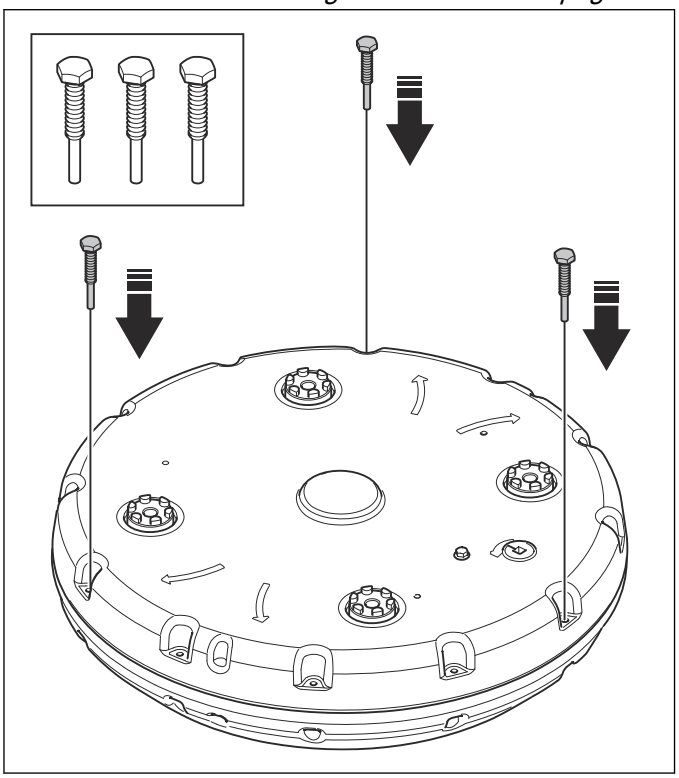
2. Make sure that the line on the belt tensioner aligns with the mark on the arrow.



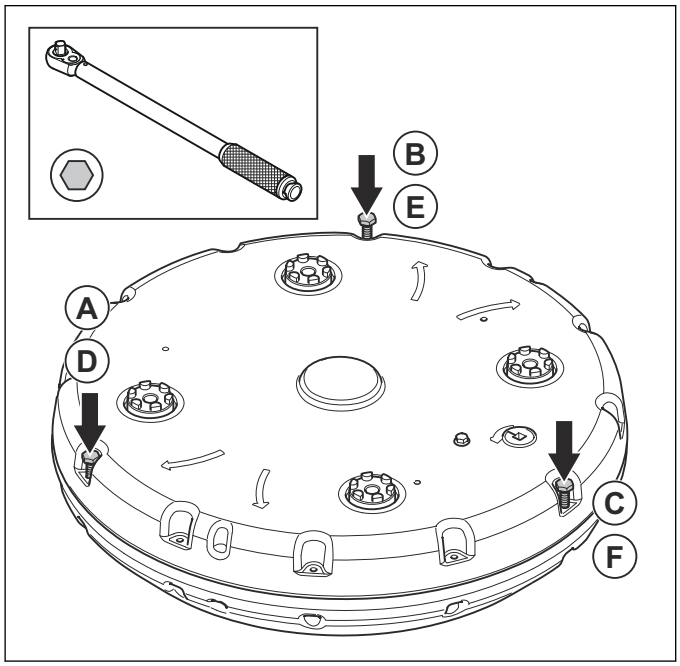
3. Remove the screws from the lid.



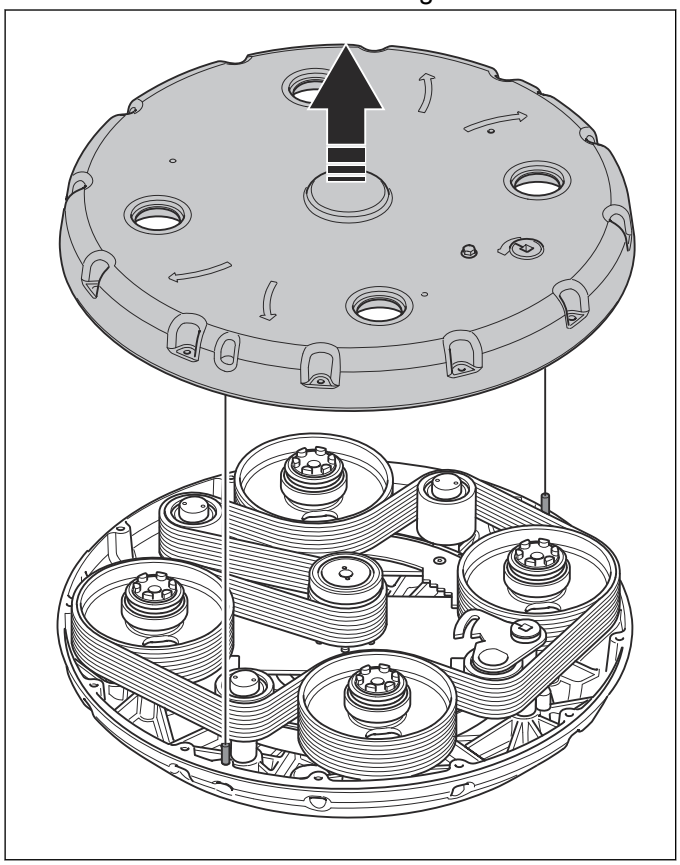
4. Put a removal tool for the grinding head in 3 of the holes. Refer to *Servicing tools overview on page 11*.



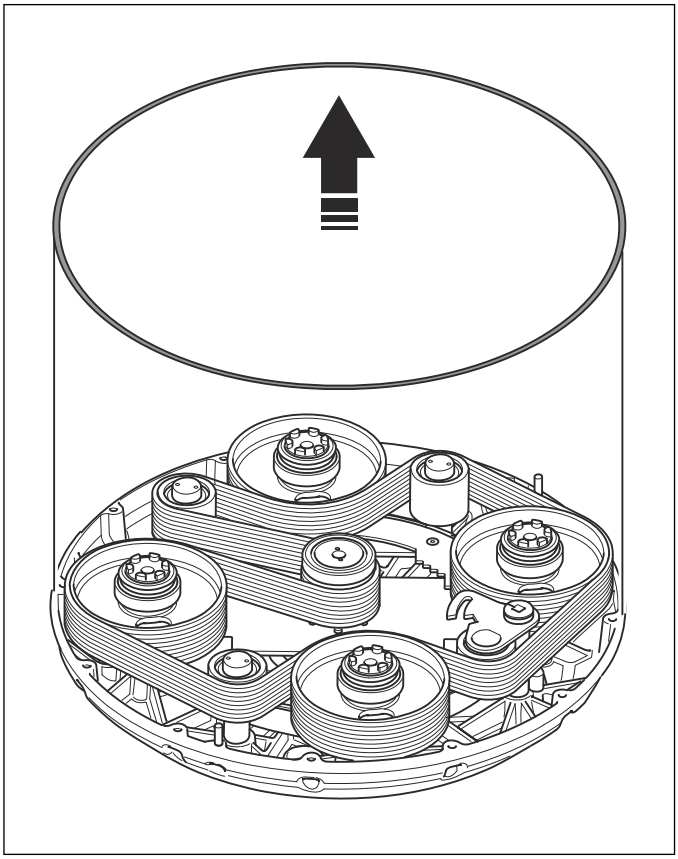
5. Tighten the removal tools for the grinding head. Refer to the picture and tighten in sequence from A to F.



6. Remove the lid from the housing.



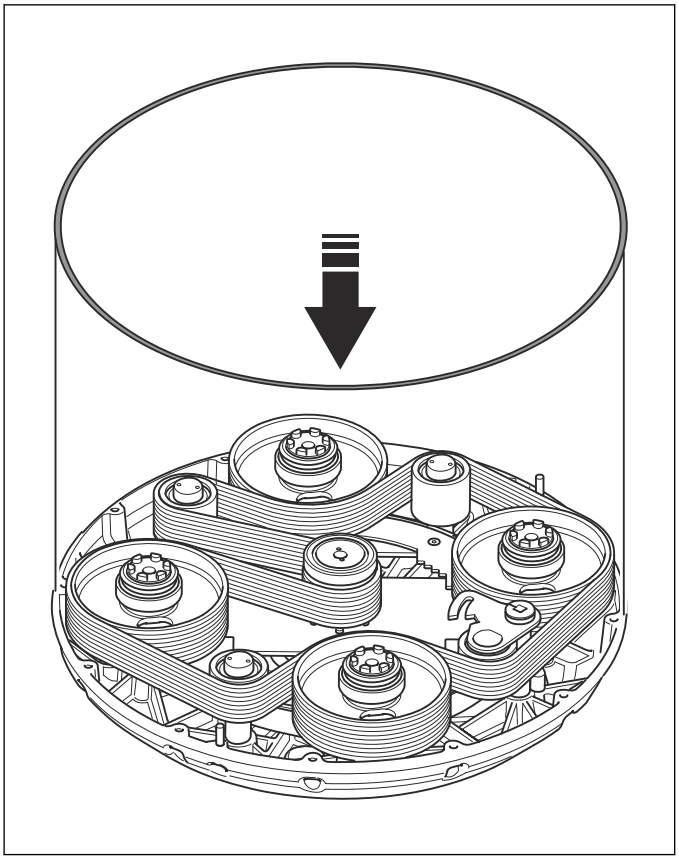
7. Remove the O-ring from the housing.



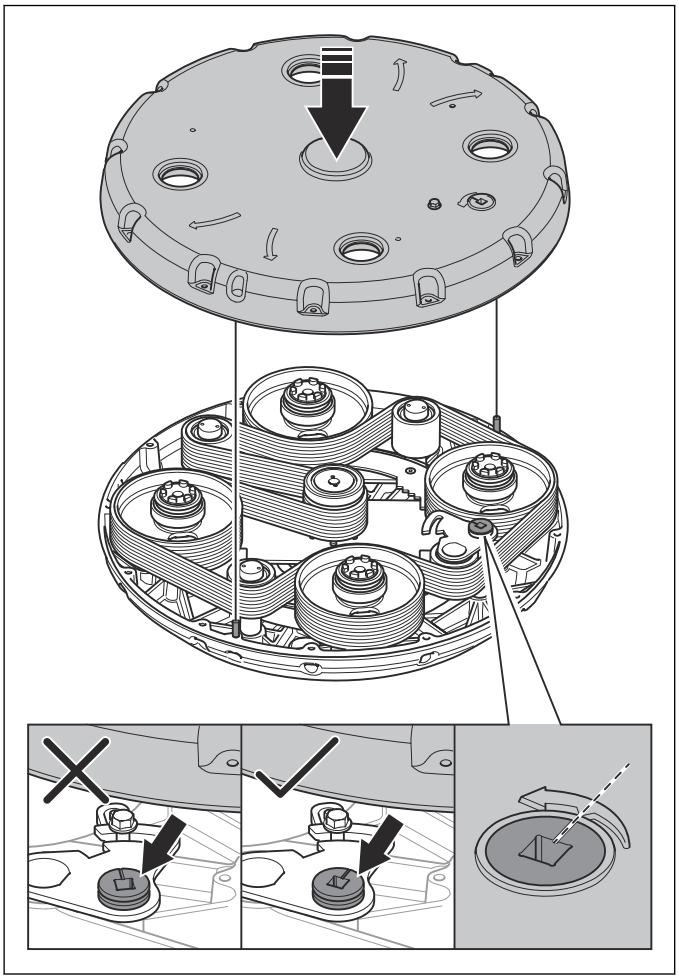
8. Discard the O-ring.

6.2.3 To close the grinding head

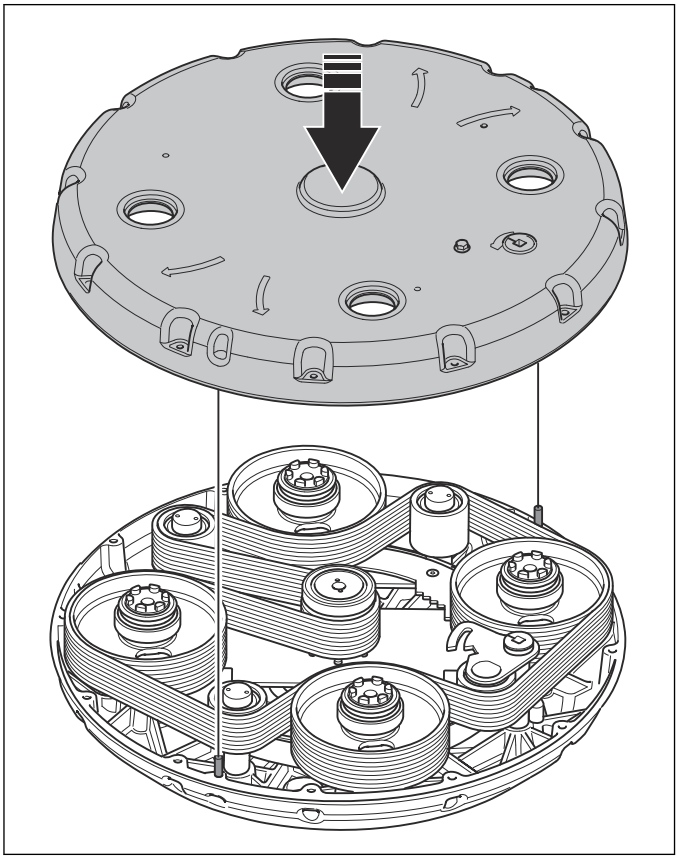
1. Install the new O-ring on the housing.



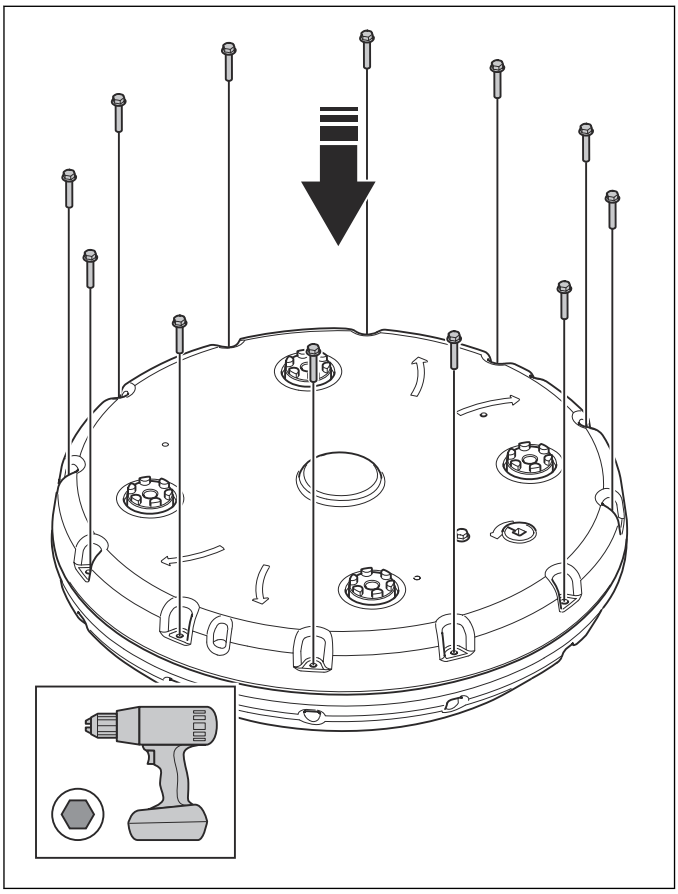
2. Make sure that the line on the belt tensioner aligns with the mark on the arrow.



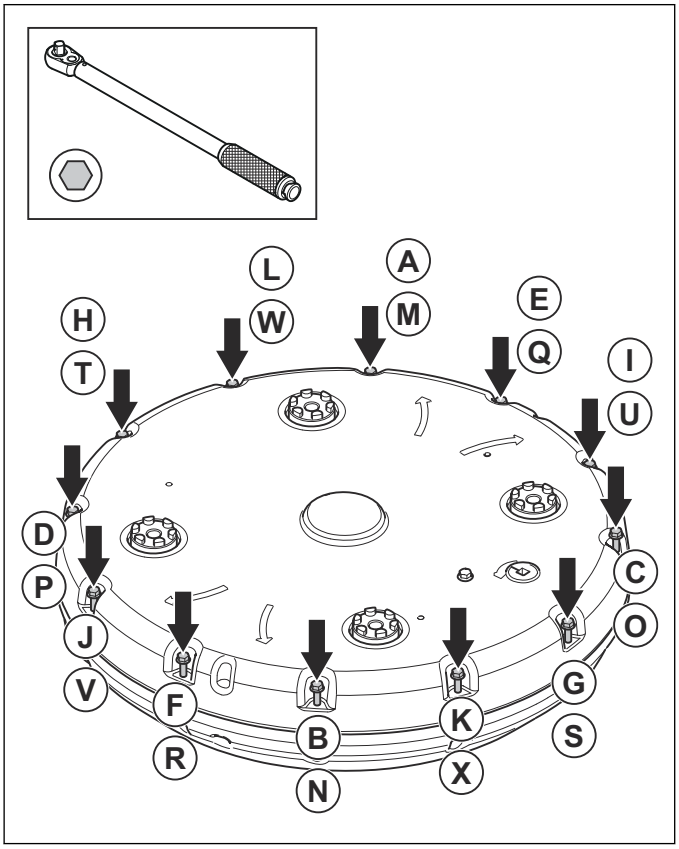
3. Put the lid on the housing.



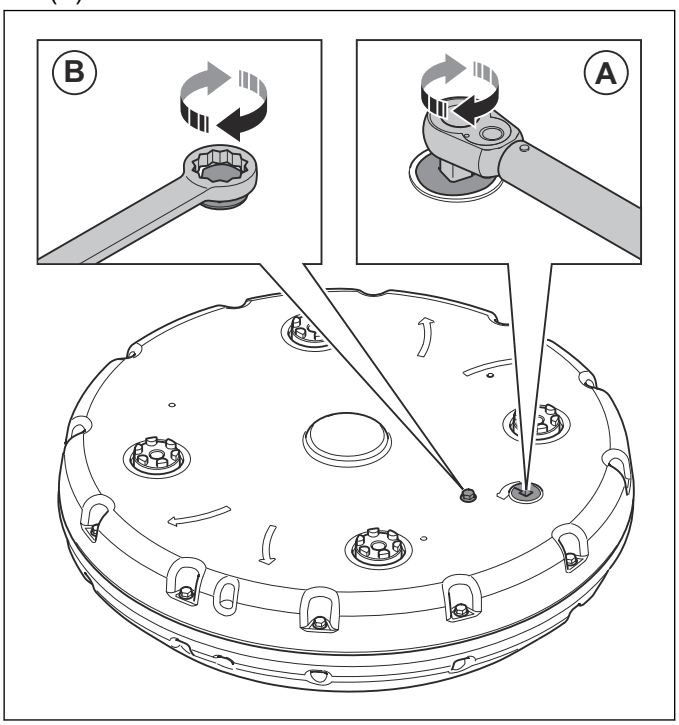
4. Put the screws in the holes.



5. Tighten the screws. Use a torque wrench. Refer to the picture and tighten in sequence from A to X.



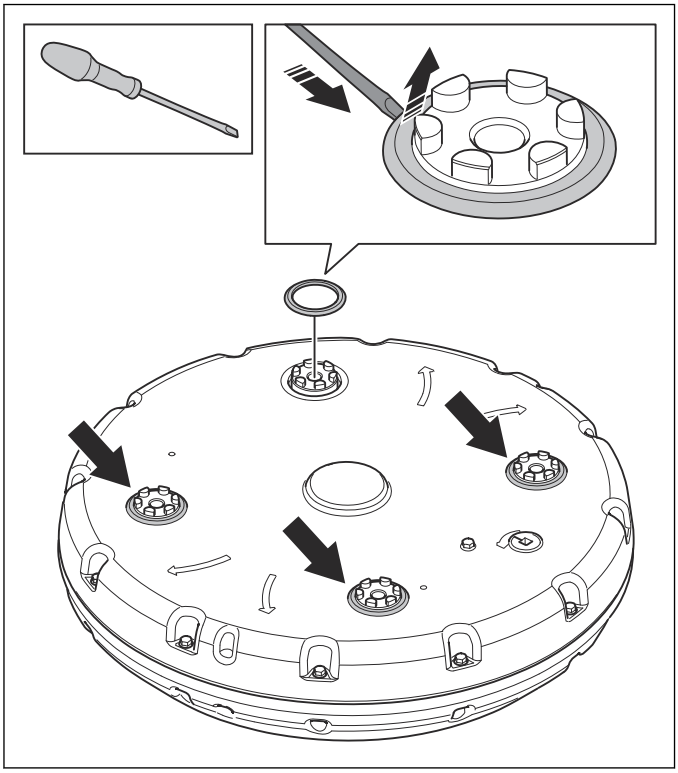
6. Use torque wrenches to adjust the belt tensioner. Hold the belt tensioner (A) and tighten the locknut (B).



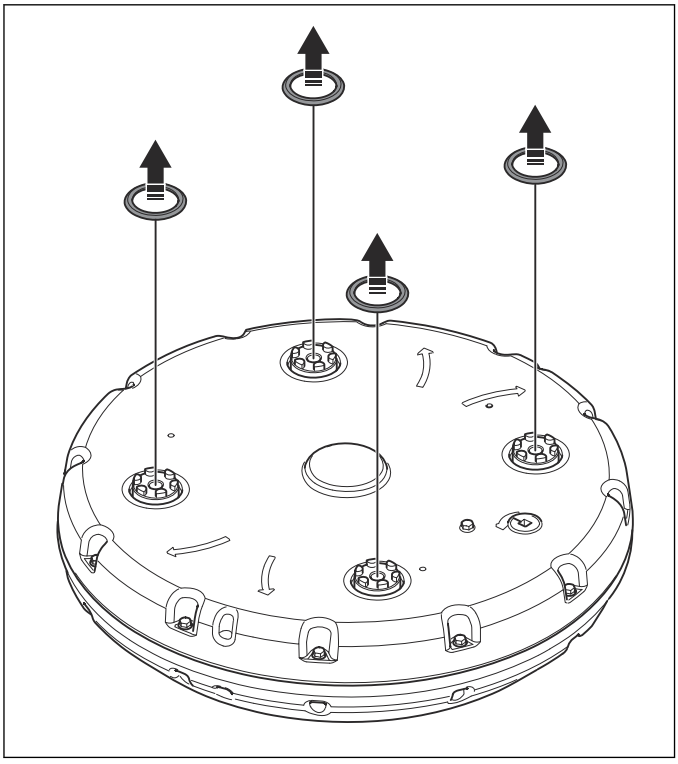
6.3 Gamma rings

6.3.1 To remove the gamma rings

1. Remove the gamma rings. Use a screwdriver.

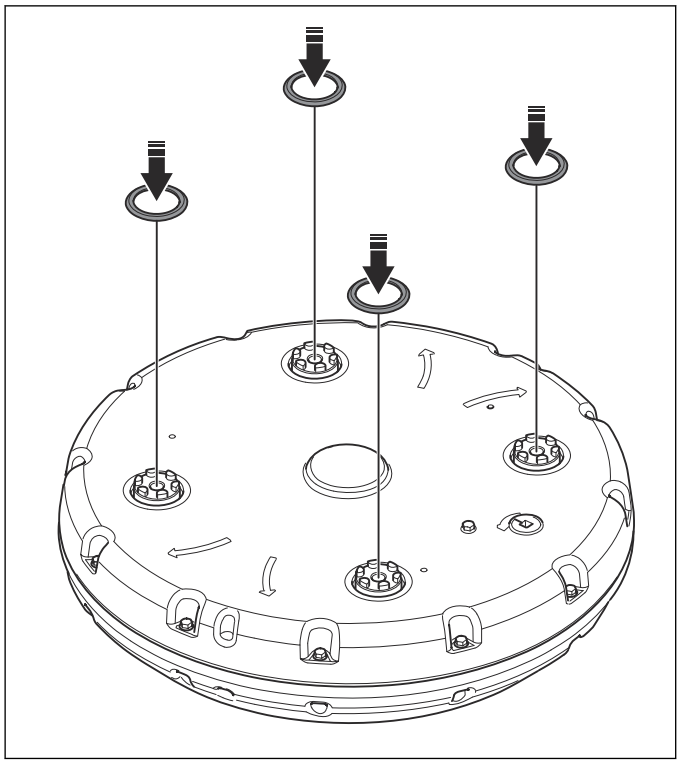


2. Discard the 4 gamma rings.

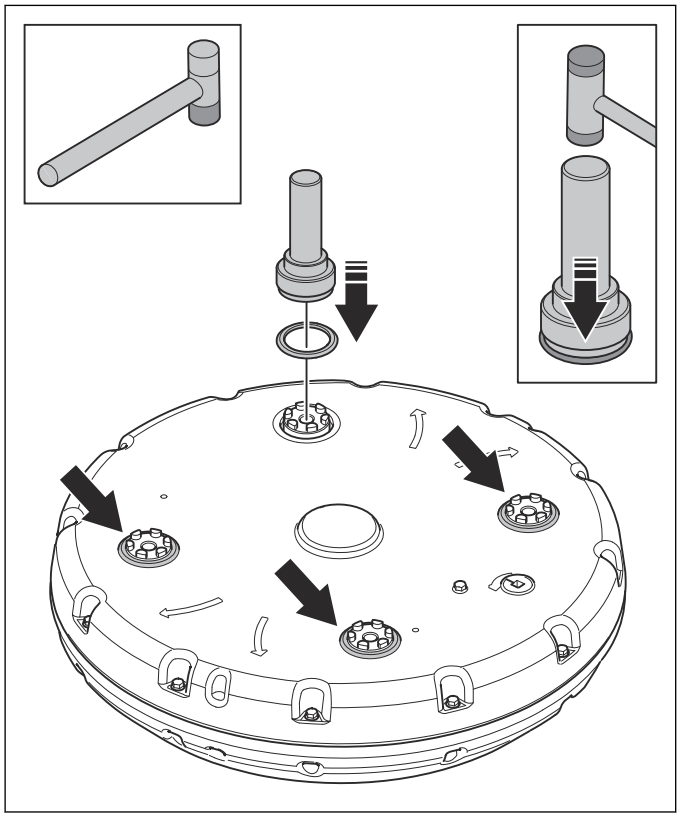


6.3.2 To install the gamma rings

1. Put 4 new gamma rings on top of the hubs on the lid.



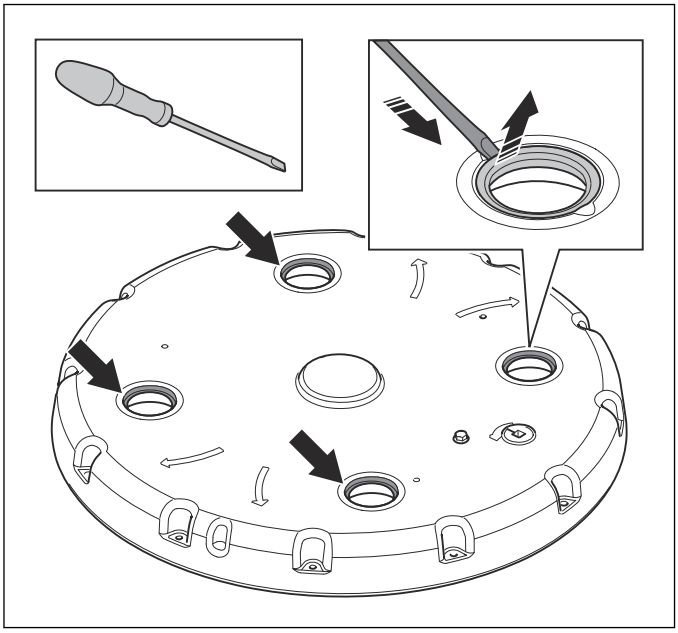
2. Knock the gamma rings in position. Use a plastic hammer and a press tool for the gamma rings. Refer to *Servicing tools overview on page 11*.



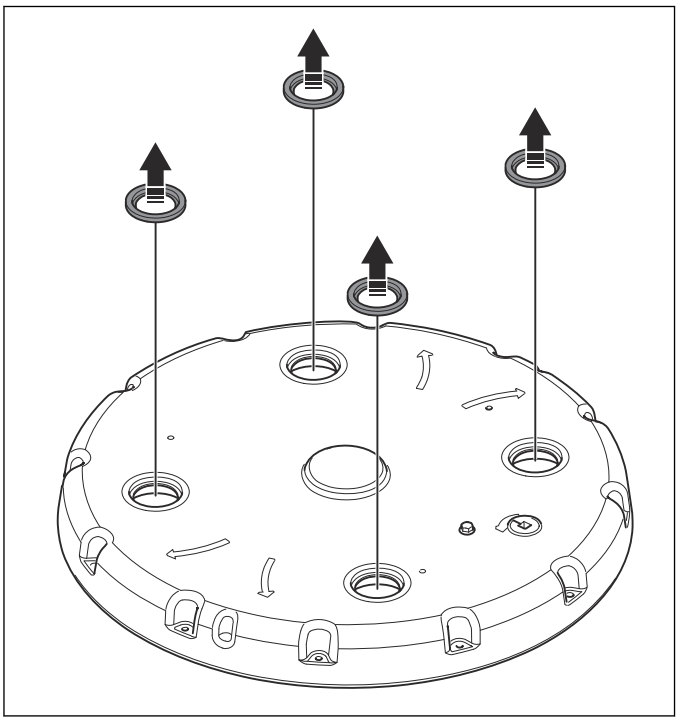
6.4 Radial shaft seal

6.4.1 To remove the radial shaft seals

1. Remove the radial shaft seals. Use a screwdriver.

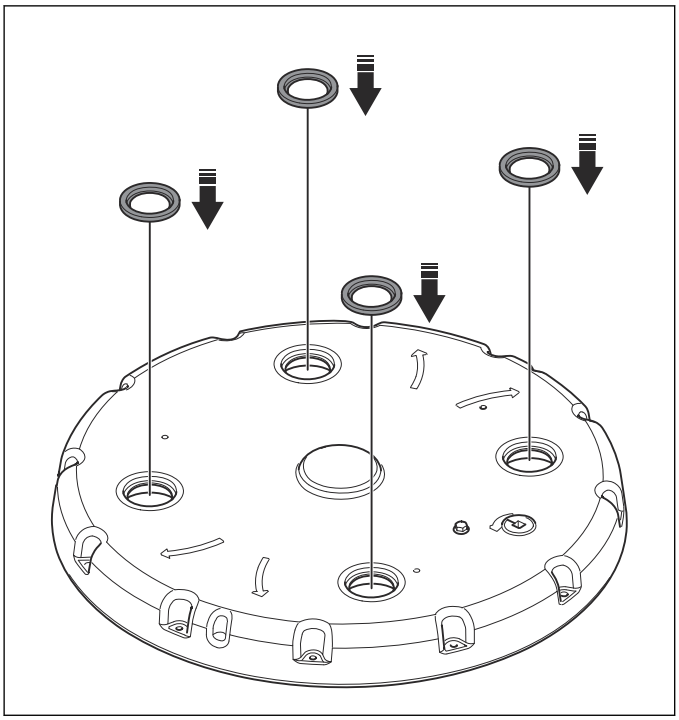


2. Discard the radial shaft seals.



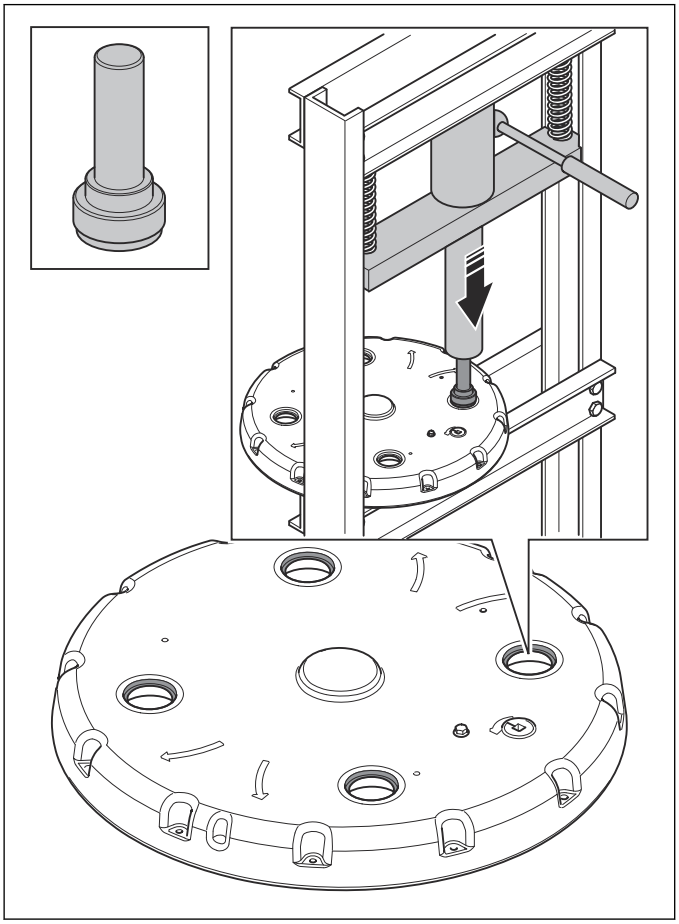
6.4.2 To install the radial shaft seals

1. Put 4 new radial shaft seals on top of the holes in the lid.

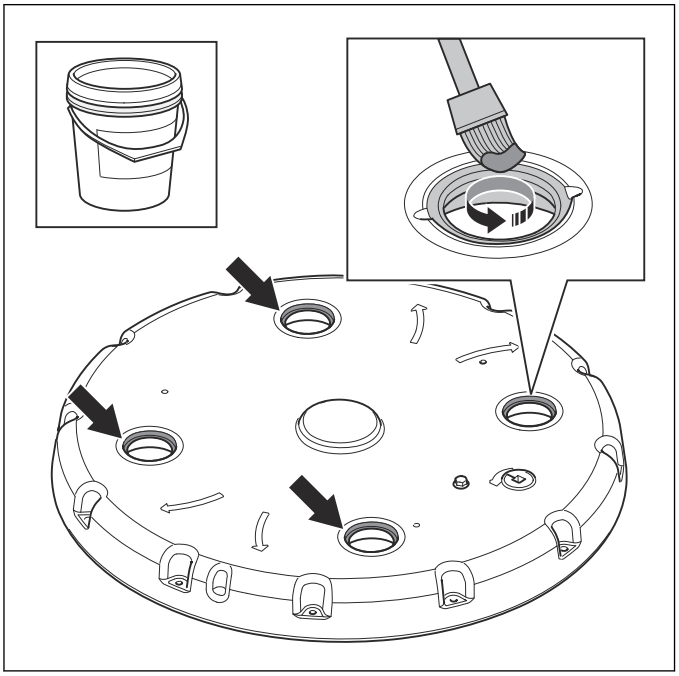


Note: Make sure that the flat side of the radial shaft seal points down in the lid. Refer to the picture.

2. Push the radial shaft seals into the holes. Use a press and a press tool for the radial seals. Refer to *Servicing tools overview on page 11*.



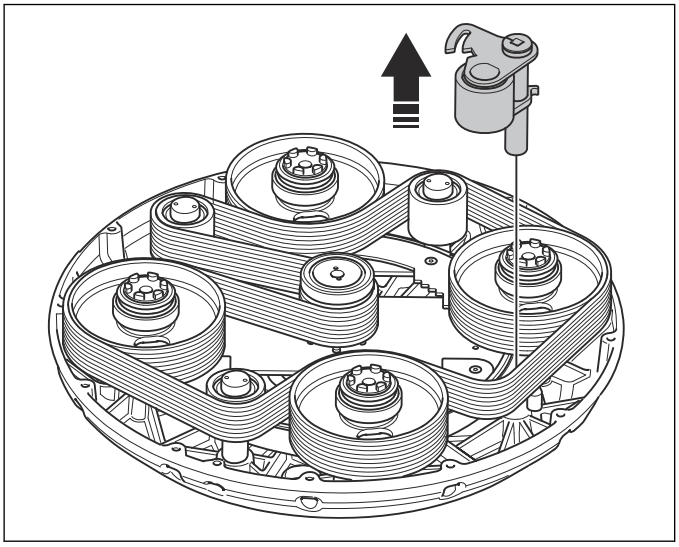
3. Apply grease. Refer to *Servicing tools overview on page 9*.



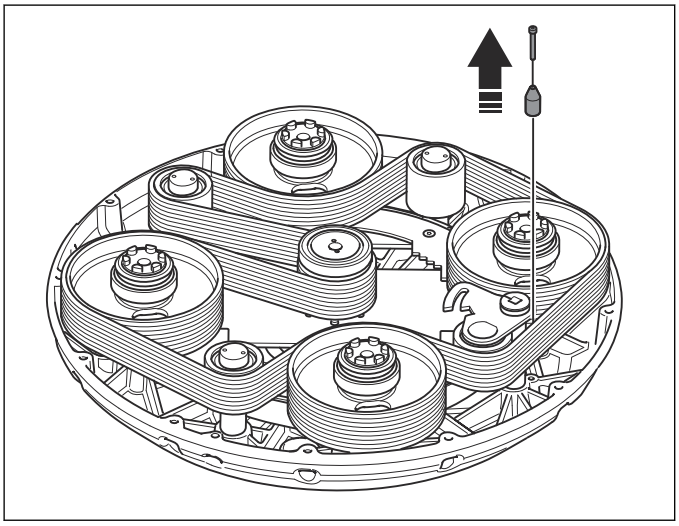
6.5 Belt tensioner

6.5.1 To remove the belt tensioner

1. Remove the belt tensioner from the housing.

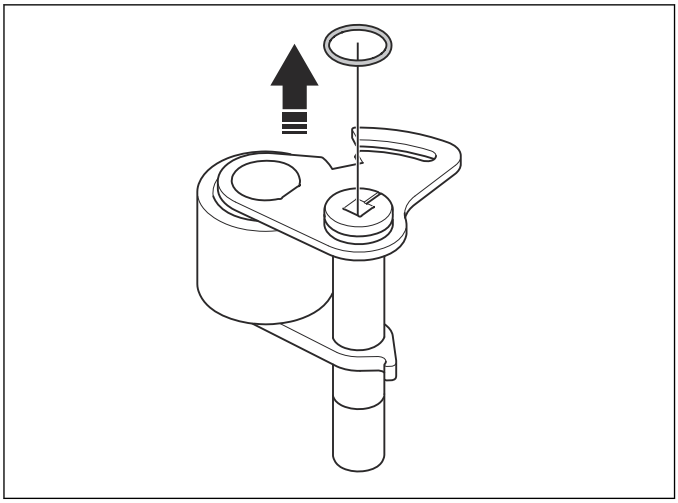


2. Remove the belt tensioner stop.

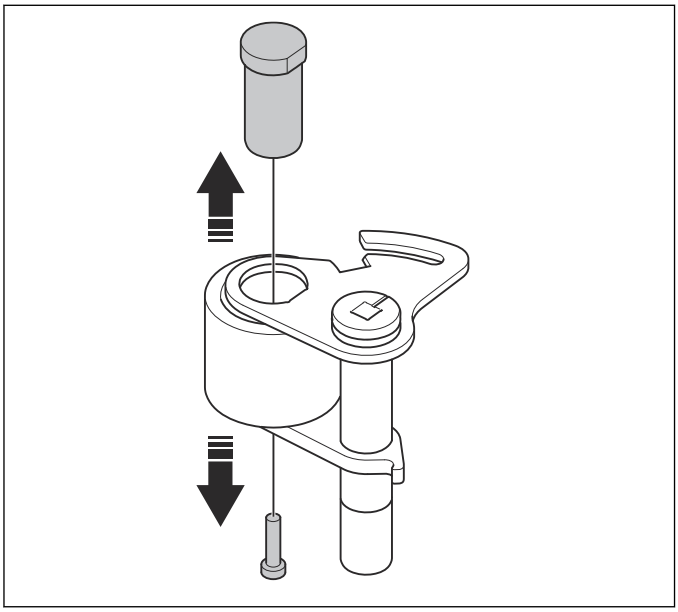


6.5.2 To disassemble the belt tensioner

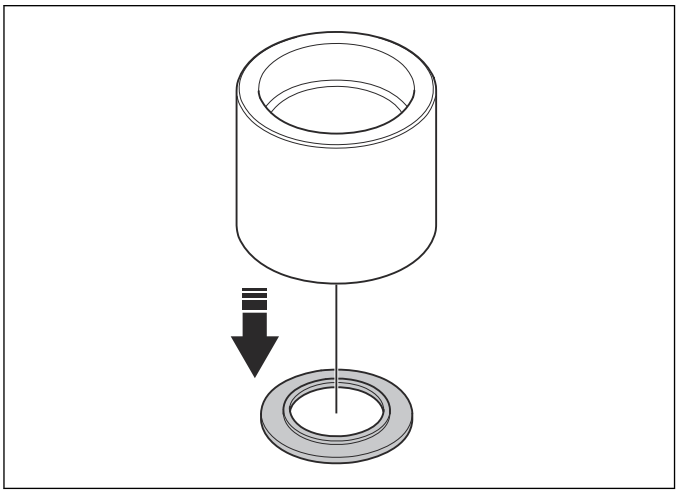
1. Remove the O-ring from the belt tensioner.



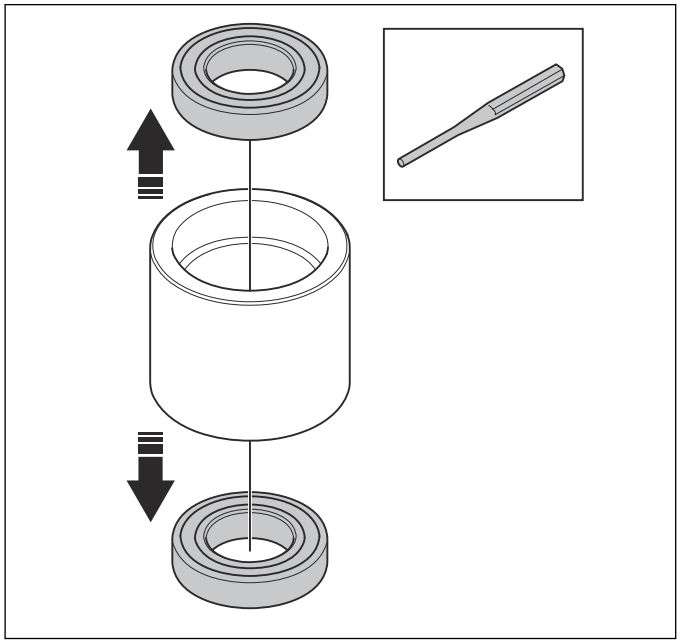
2. Remove the idler shaft.



3. Remove the washer.

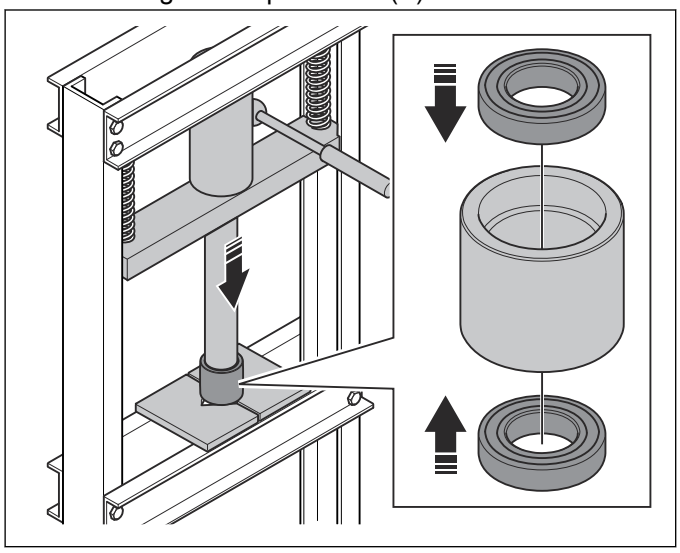


4. Remove the bearings from the idler pulley. Use a mandrel.



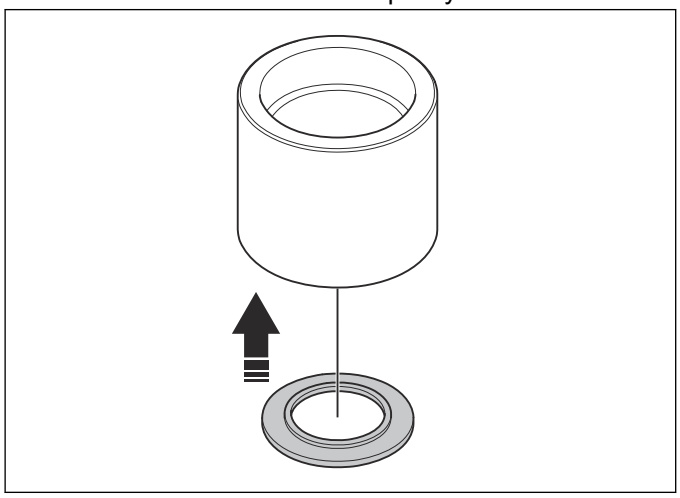
6.5.3 To assemble the belt tensioner

1. Push the bearings into the idler pulley. Use a force of 2000 kg. Use a press tool (A).

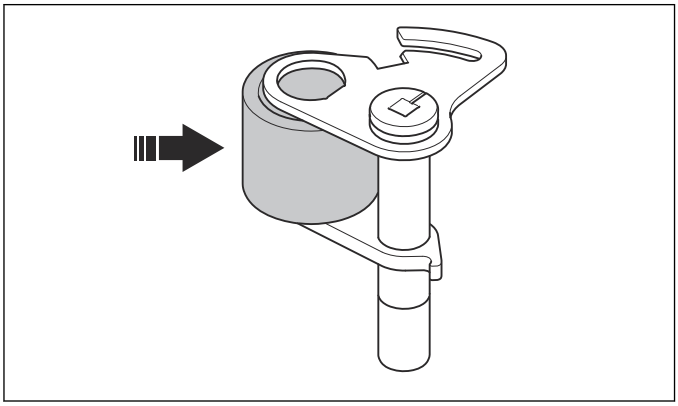


Tool number: 593 54 19-01.

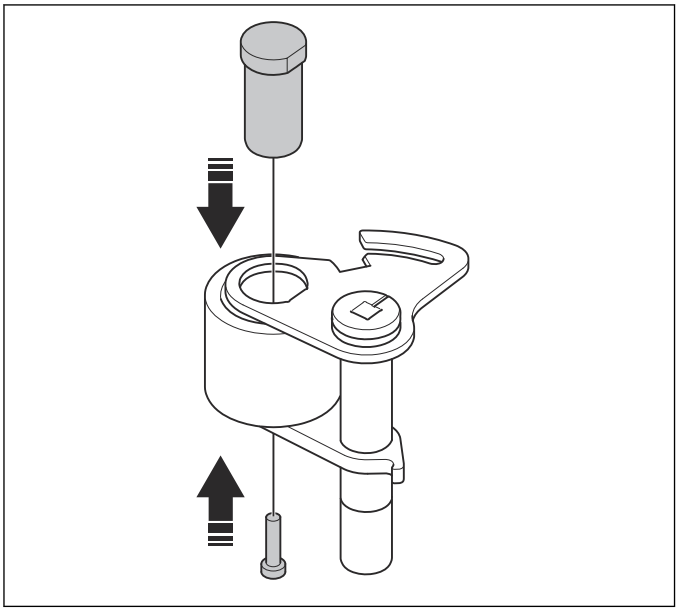
2. Put the washer into the idler pulley.



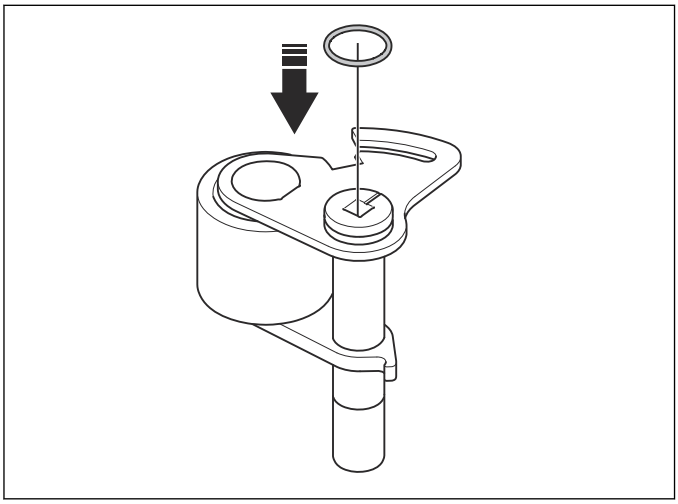
3. Put the idler pulley into the belt tensioner.



4. Put the idler shaft into the belt tensioner.

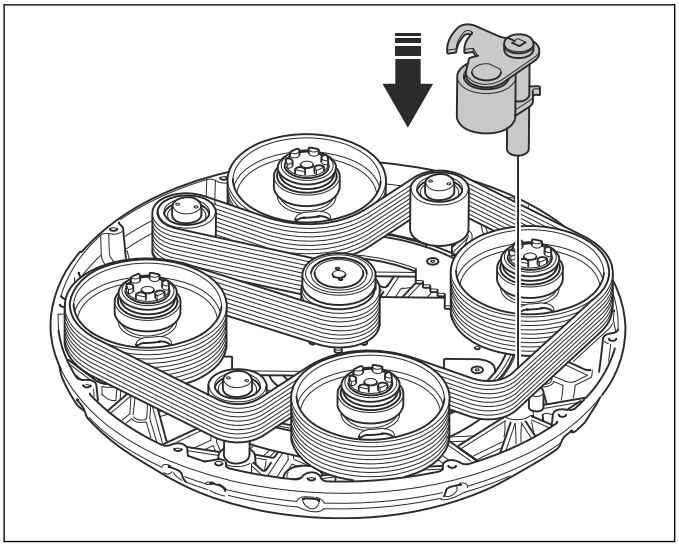


5. Put the O-ring onto the belt tensioner.

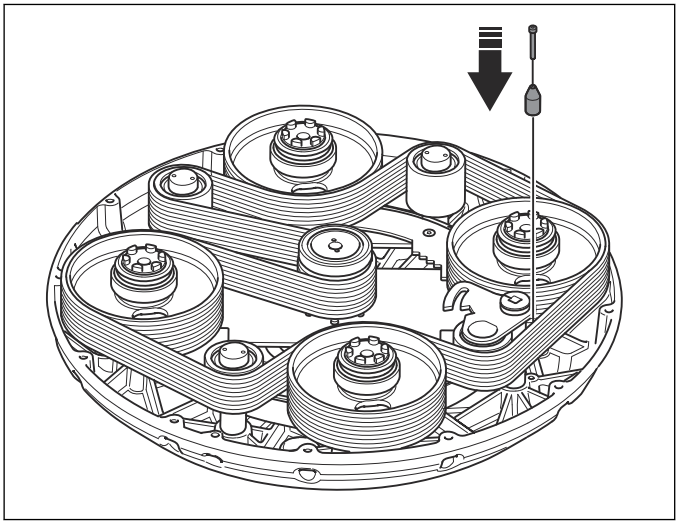


6.5.4 To install the belt tensioner

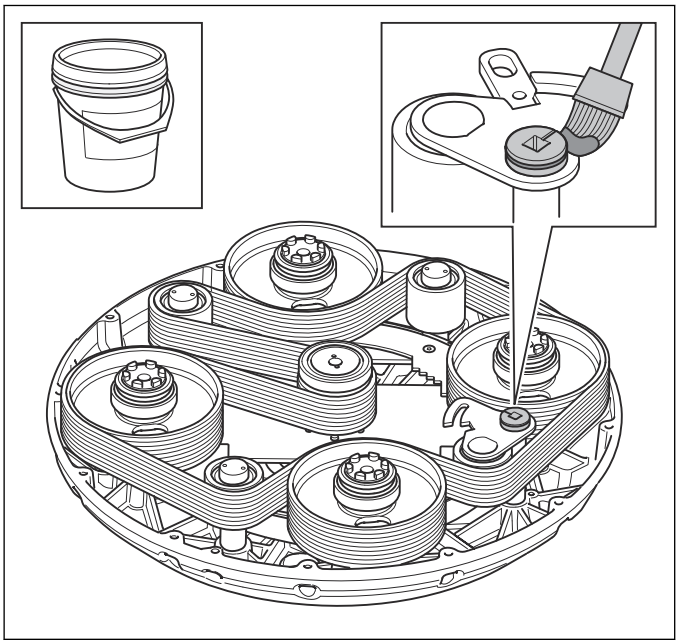
1. Install the belt tensioner in the housing.



2. Install the belt tensioner stop.



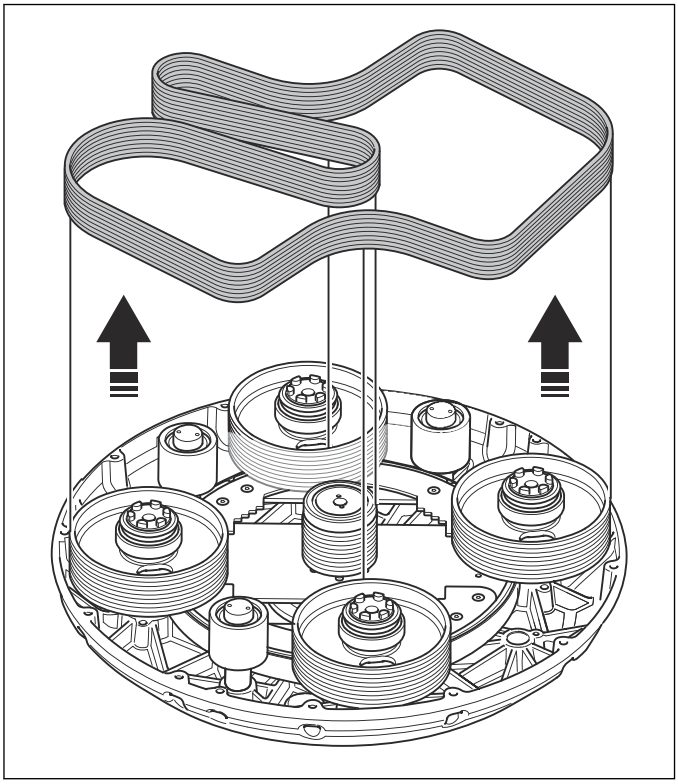
3. Apply grease around the O-ring.



6.6 Primary belt

6.6.1 To remove and install the belt

1. Remove the primary belt from the housing.



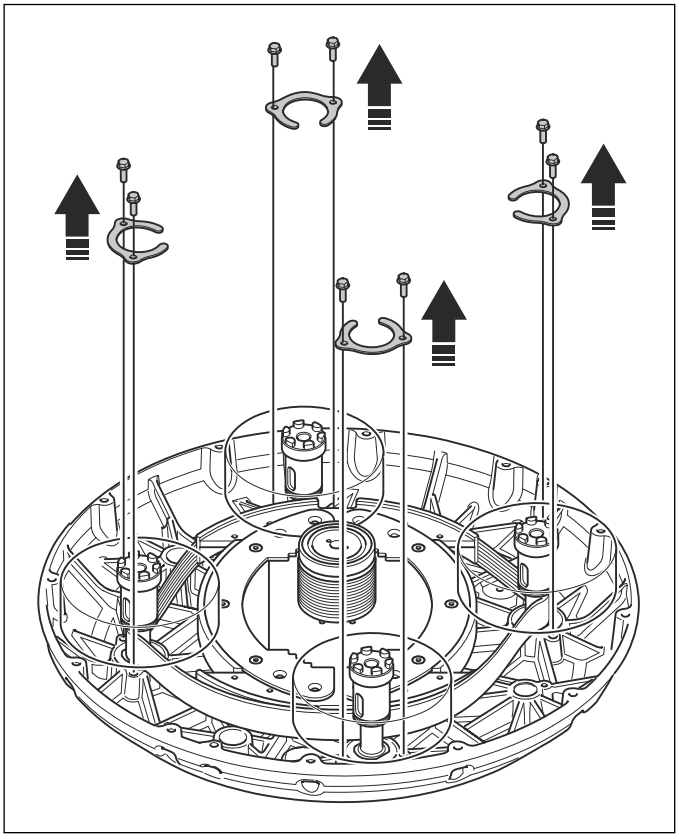
2. Install in opposite sequence.

Note: Make sure that the drive belt ribs align with the grooves on the pulley.

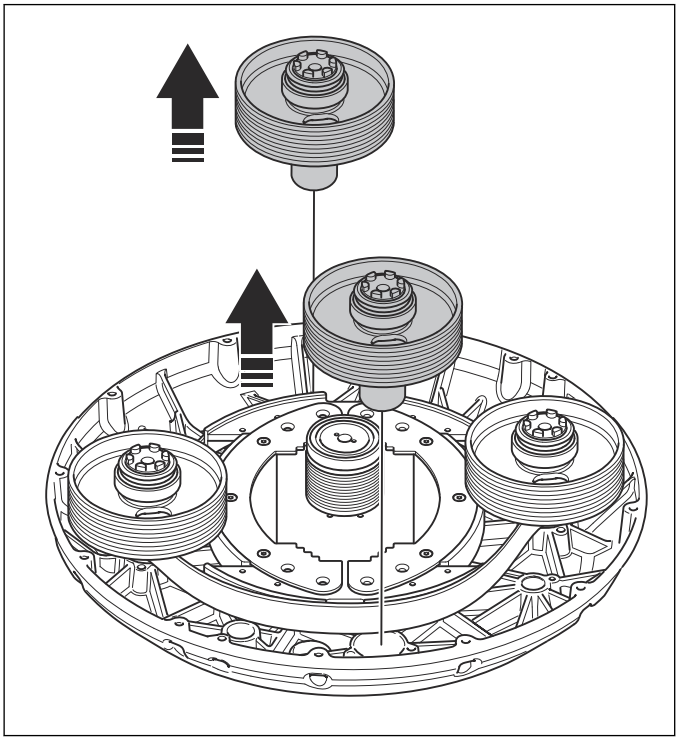
6.7 Hub assemblies

6.7.1 To remove and install the hub assemblies

1. Remove the screws and the washers.



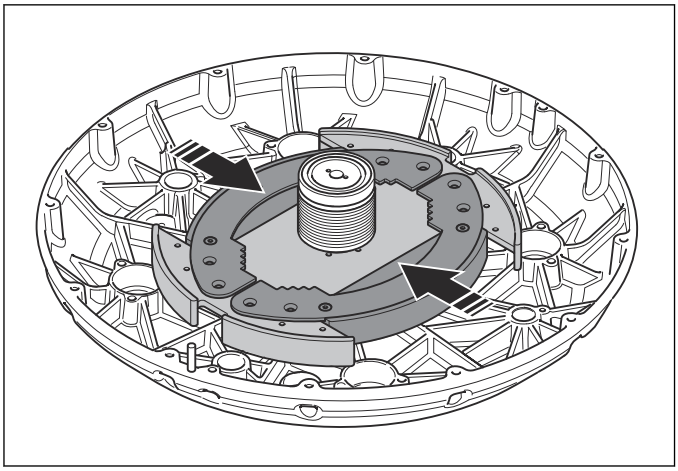
2. Remove hub assemblies.



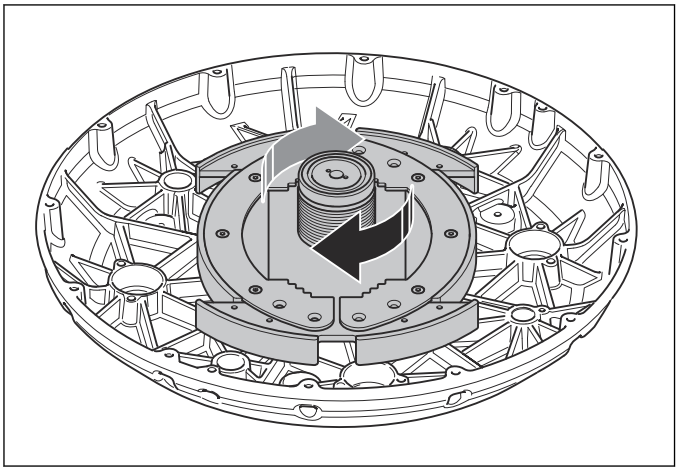
3. Install in opposite sequence.

6.7.2 To install the hub assemblies

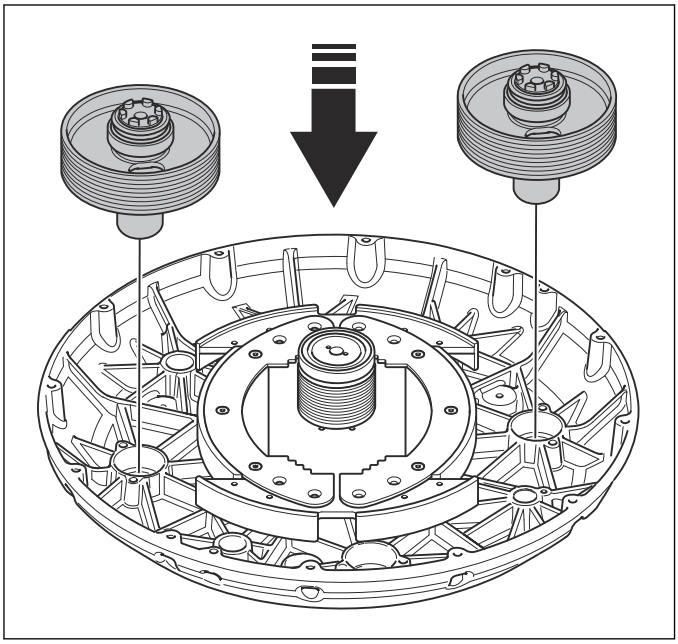
1. Push in the locking plates.



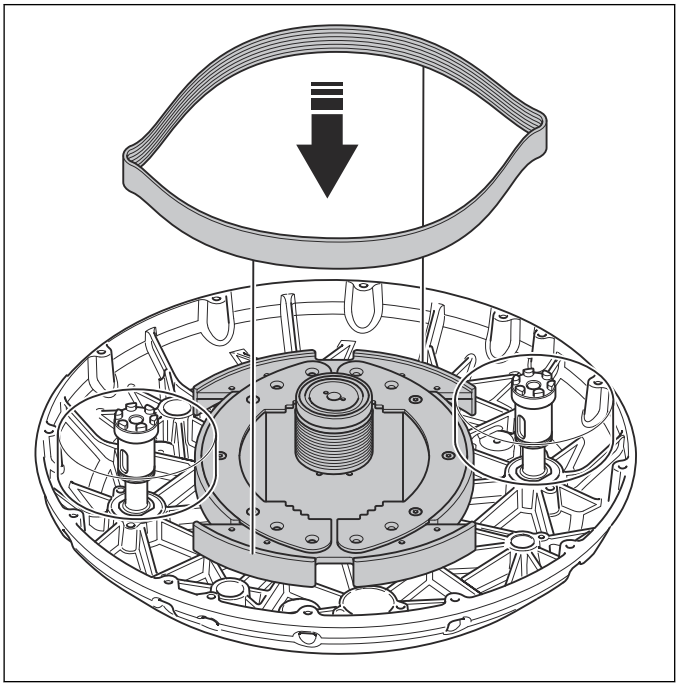
2. Move the secondary pulley into a position where you can install 2 hub assemblies in the housing.



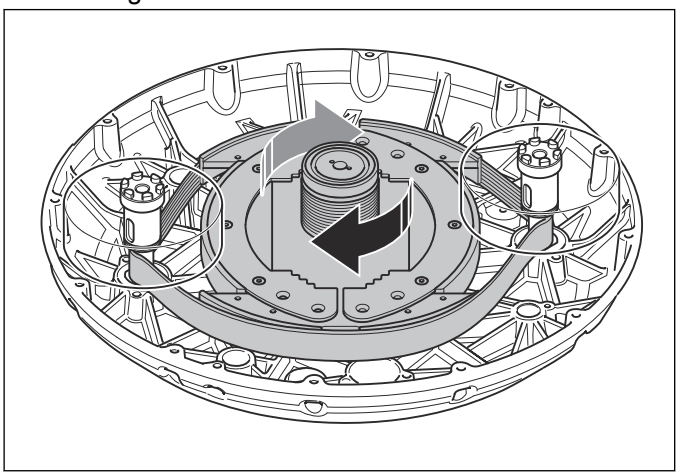
3. Install 2 hub assemblies.



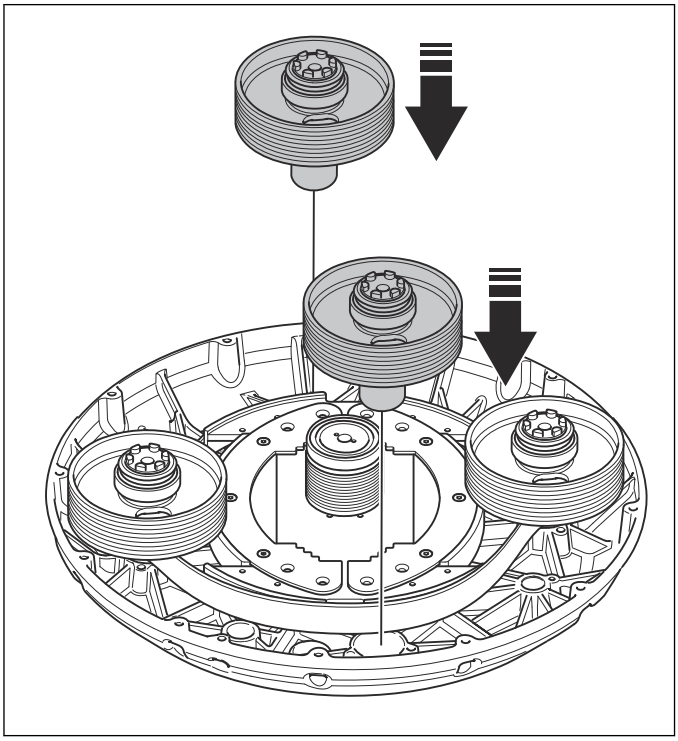
4. Install the secondary belt.



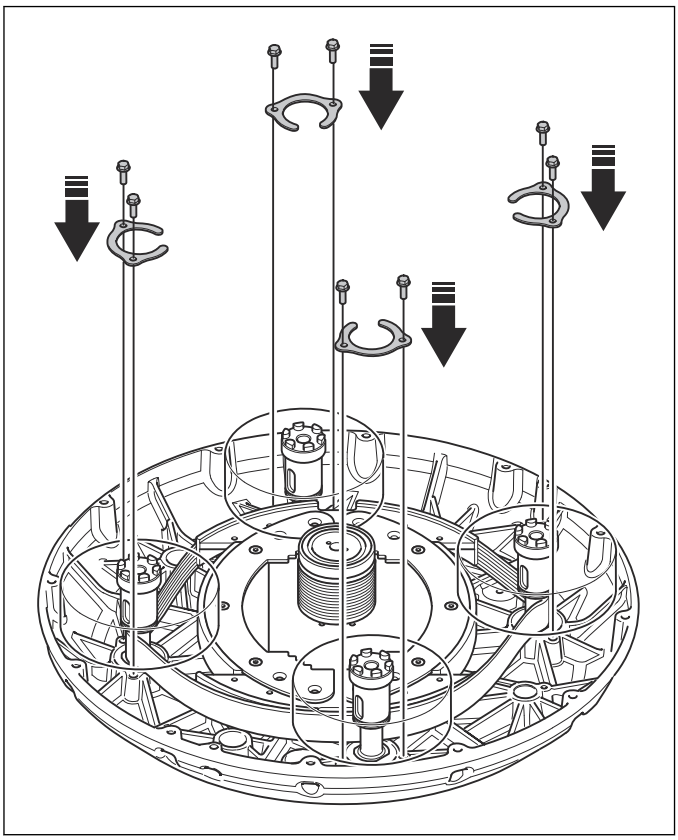
5. Move the secondary pulley into a position where you can install the 1 remaining hub assembly in the housing.



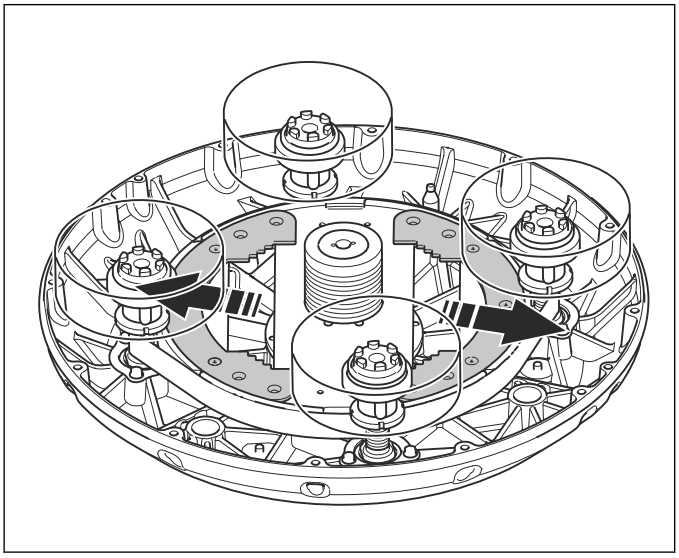
6. Install the remaining hub assembly.



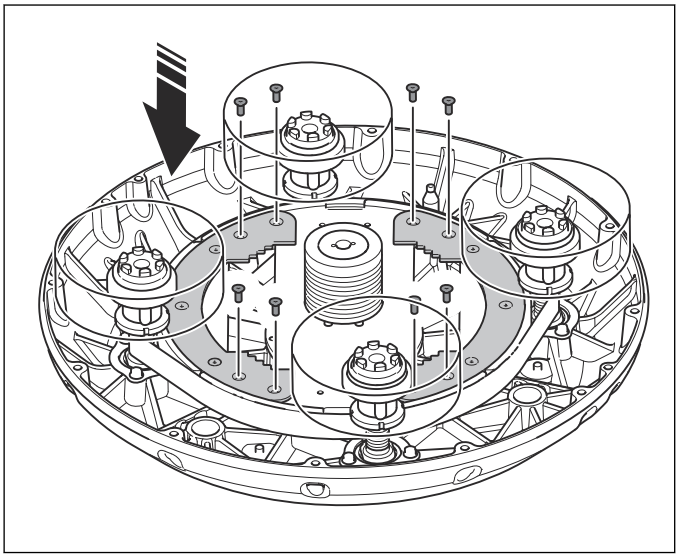
7. Install the screws and the washers.



8. Pull out the locking plates.

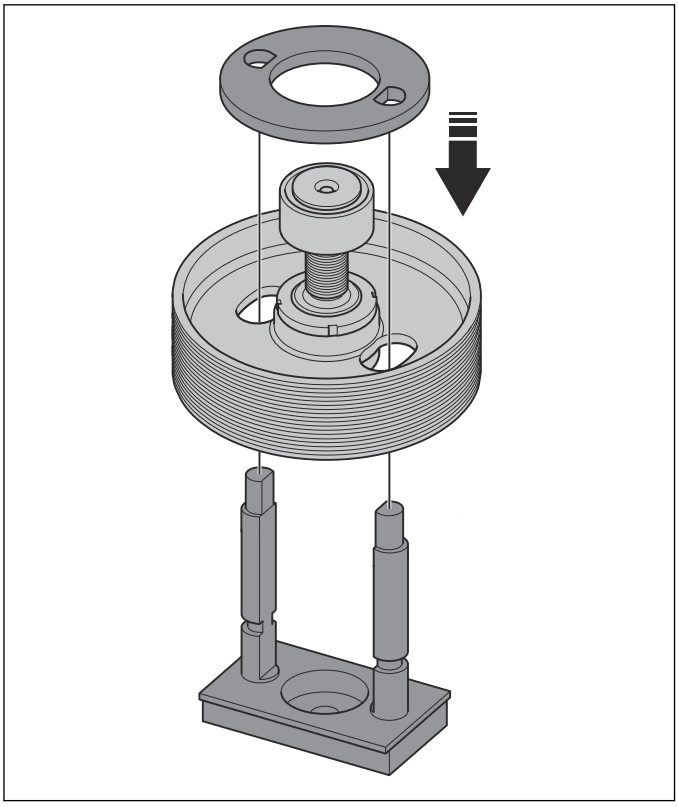


9. Install the screws for the locking plates.



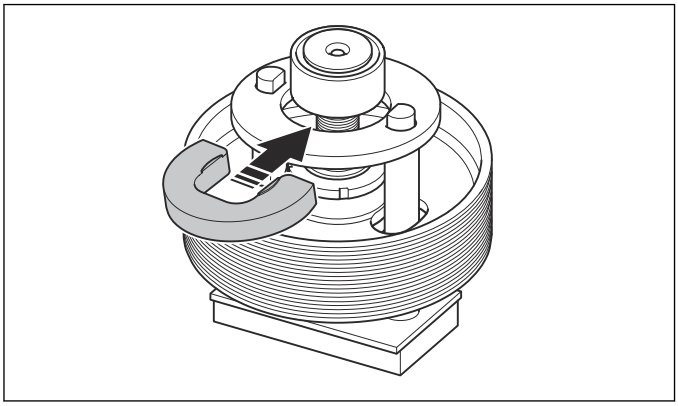
6.7.3 To disassemble the hub assembly

1. Put the hub assembly in the hub pulley tool.



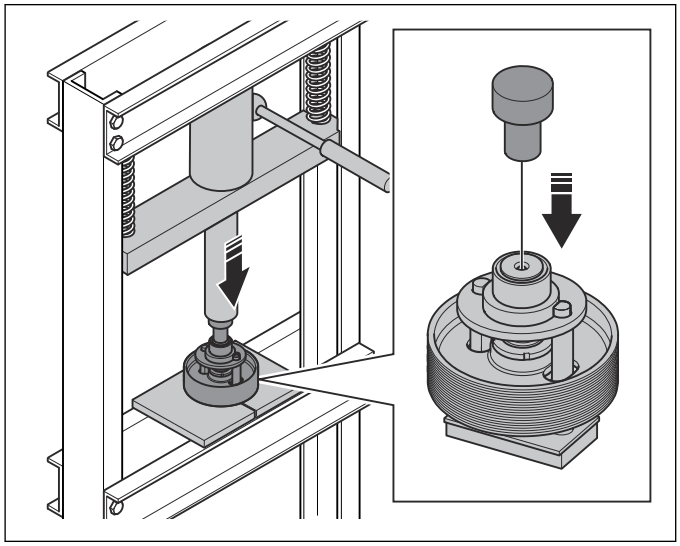
Tool number: 593 53 68-01

2. Install the bearing extractor bracket.

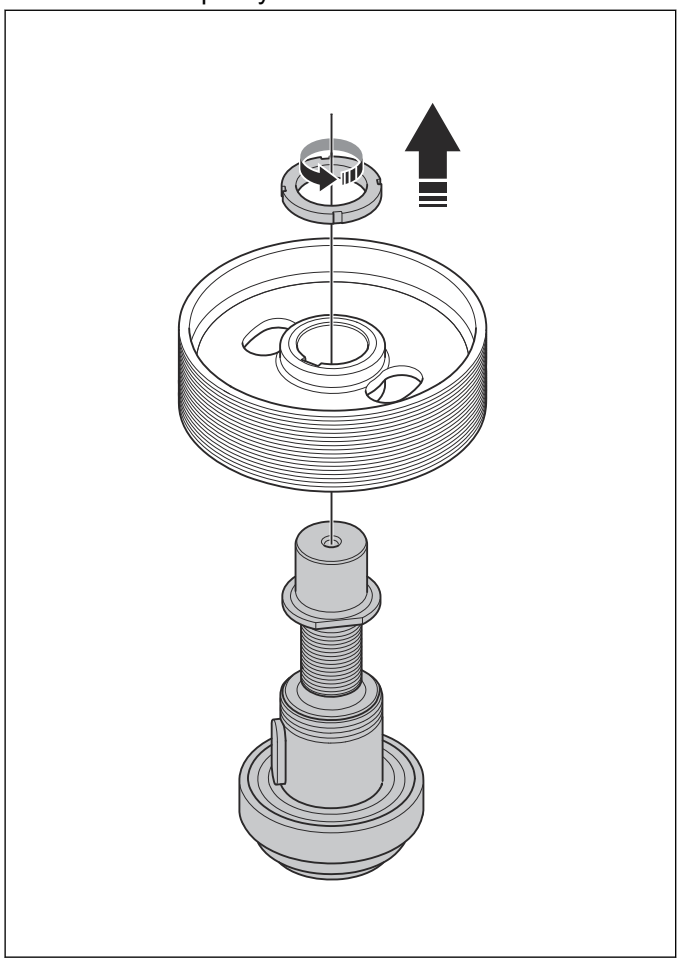


Tool number: 593 54 52-01

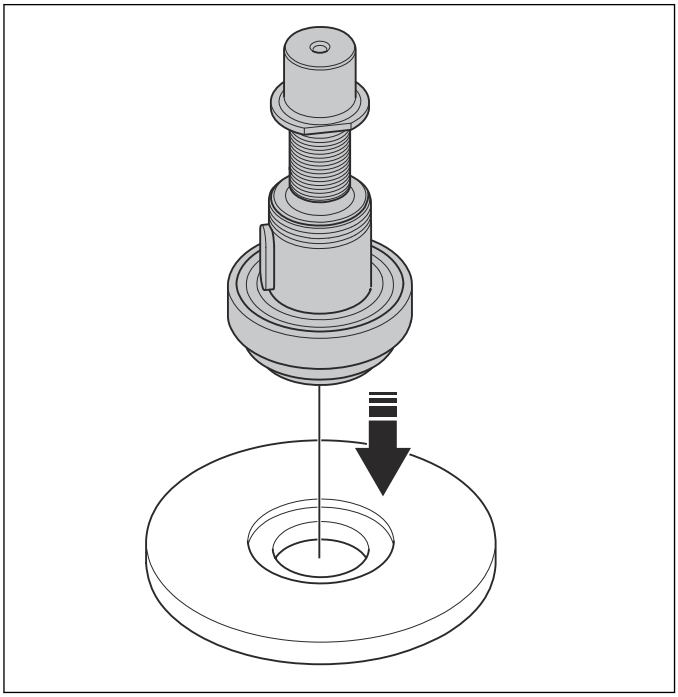
3. Put the assembly in a press. Push in the bearing with the mandrel.



4. Remove the pulley.

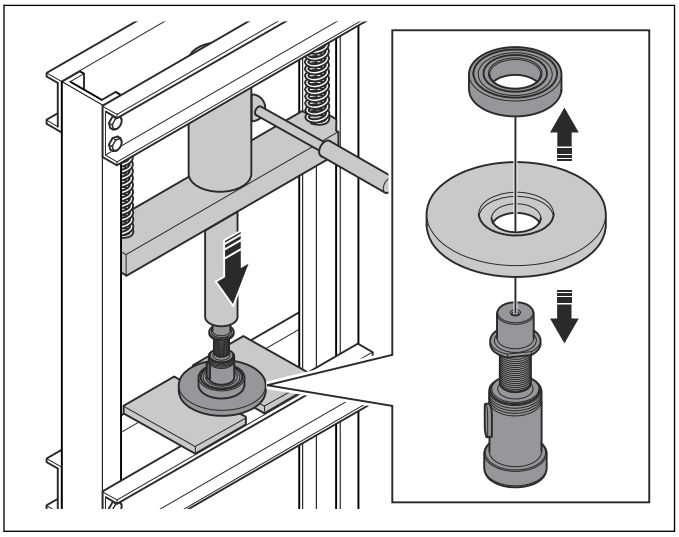


5. Put the shaft on the support.



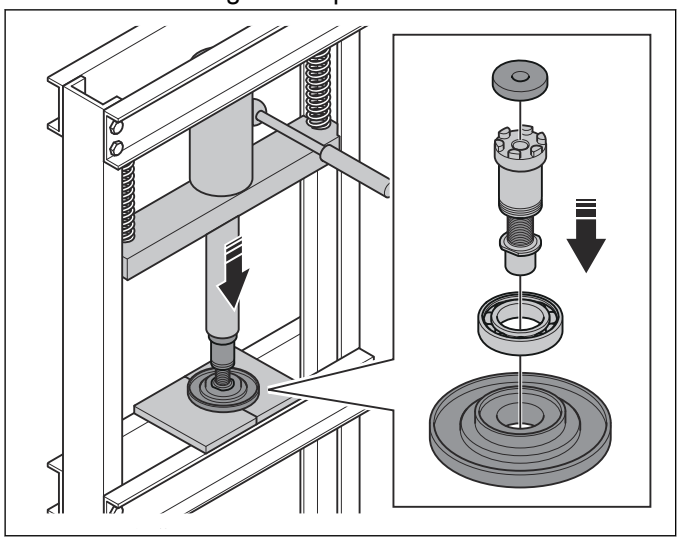
Tool number: 593 54 43-01

6. Remove the bearing with a press.



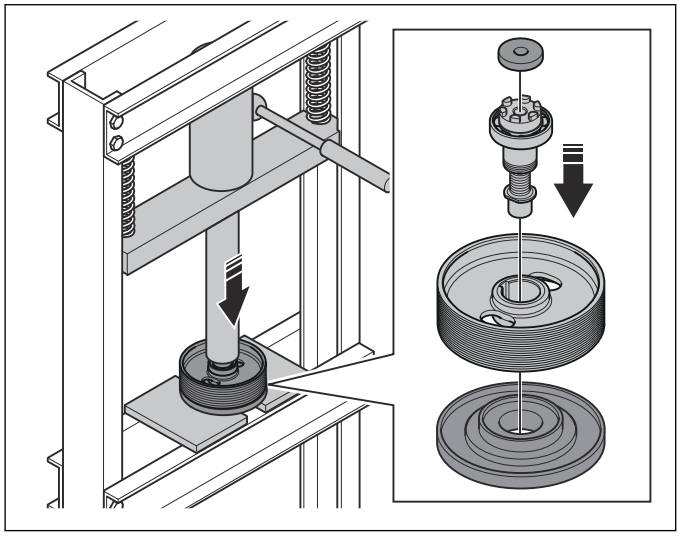
6.7.4 To assemble the hub assembly

1. Push the bearing onto the hub assembly. Use a force of 2000 kg. Use a press tool.

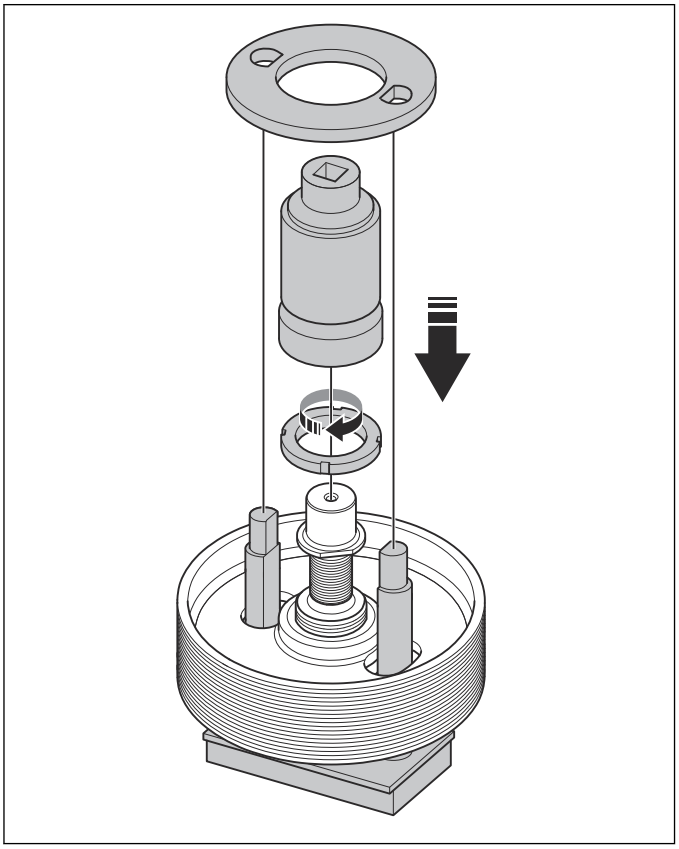


Tool number: 593 54 16-01

2. Push the pulley wheel onto the grinding shaft. Use a force of 2000 kg.

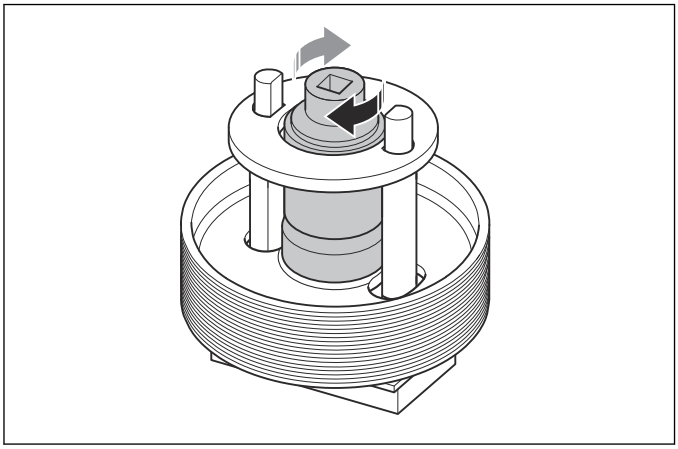


3. Put the hub assembly, the nut and the socket in the tool.

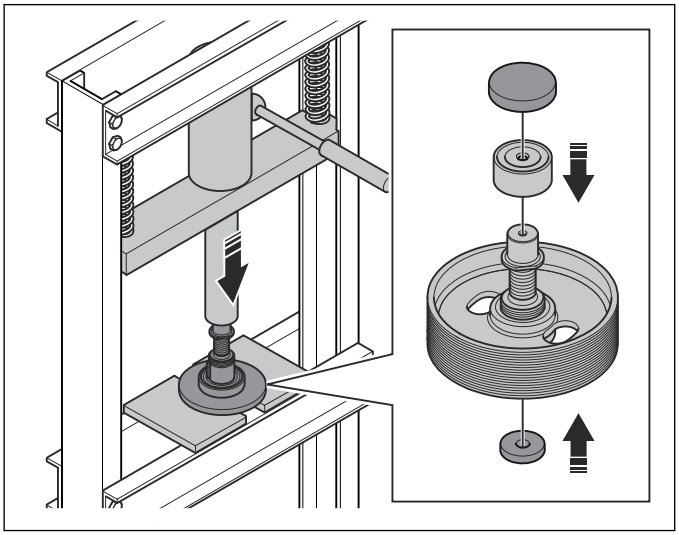


Tool number: 593 54 17-01

4. Tighten the nut with a torque wrench.

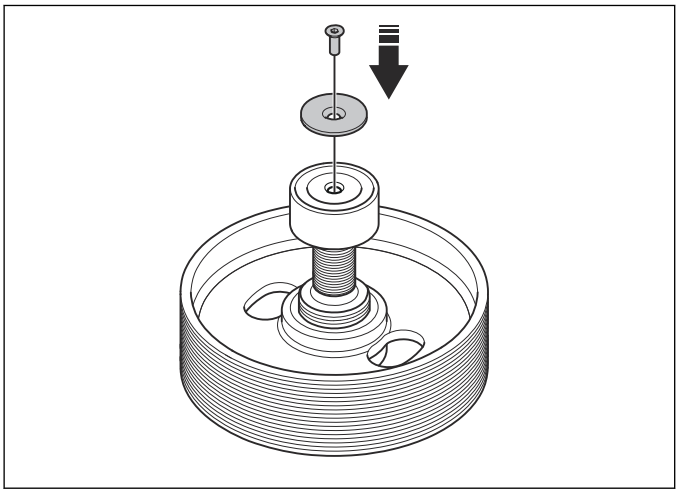


5. Push the bearing with a support and a mandrel.



Tool number: 593 54 18-01

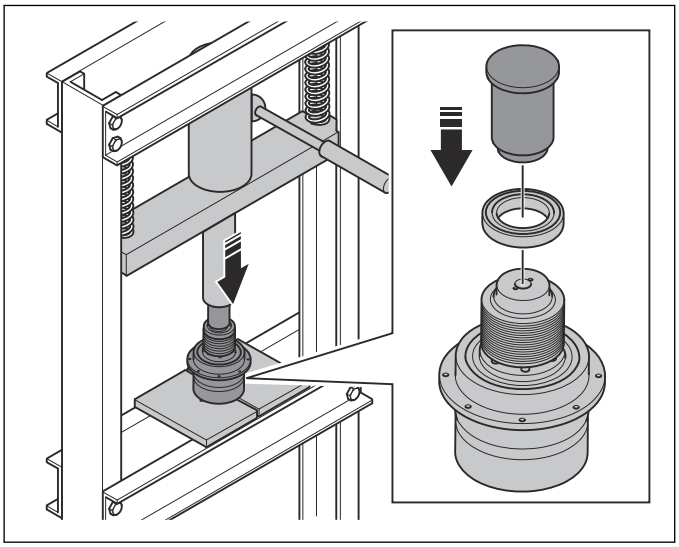
6. Install the washer and the nut.



6.8 Center pulley

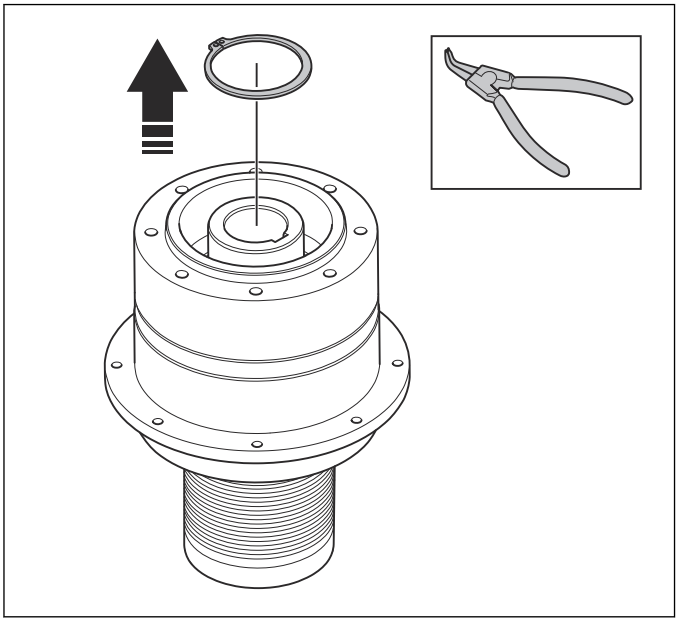
6.8.1 To disassemble the center pulley

1. Remove the bearing from the pulley center.

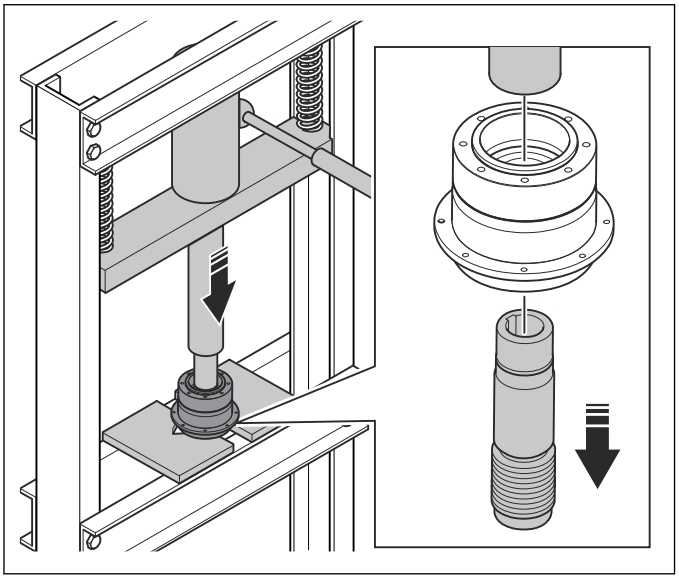


Tool number: 593 54 30-01

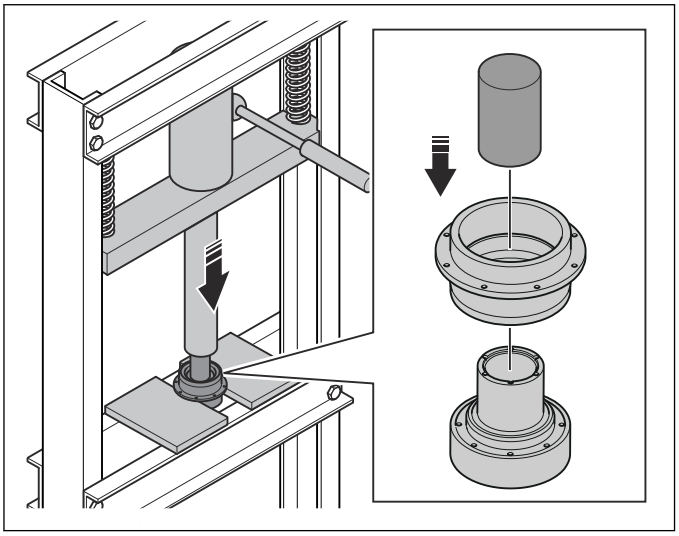
2. Remove the snap ring.



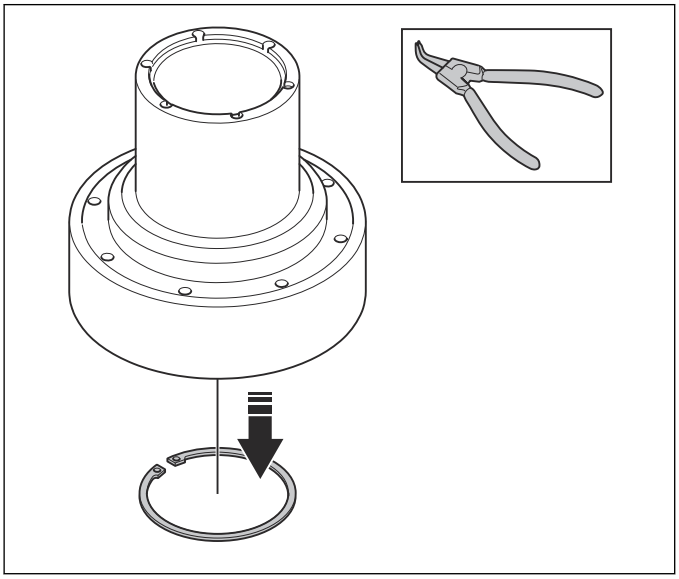
3. Push out the center pulley.



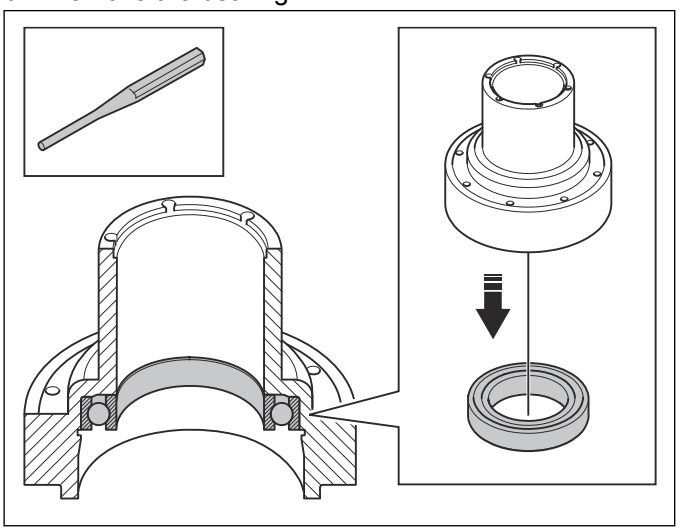
4. Push out the inner center hub.



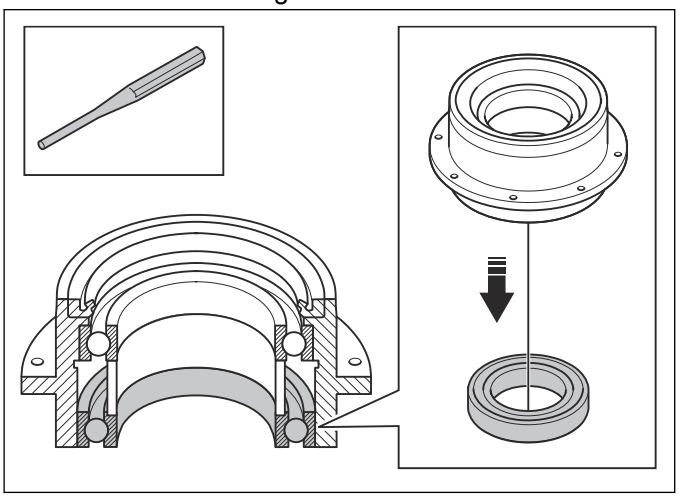
5. Remove the snap ring.



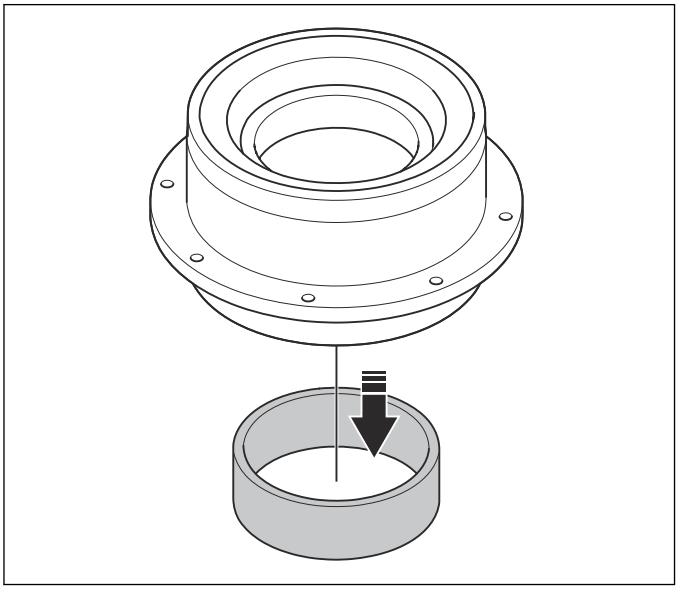
6. Remove the bearing.



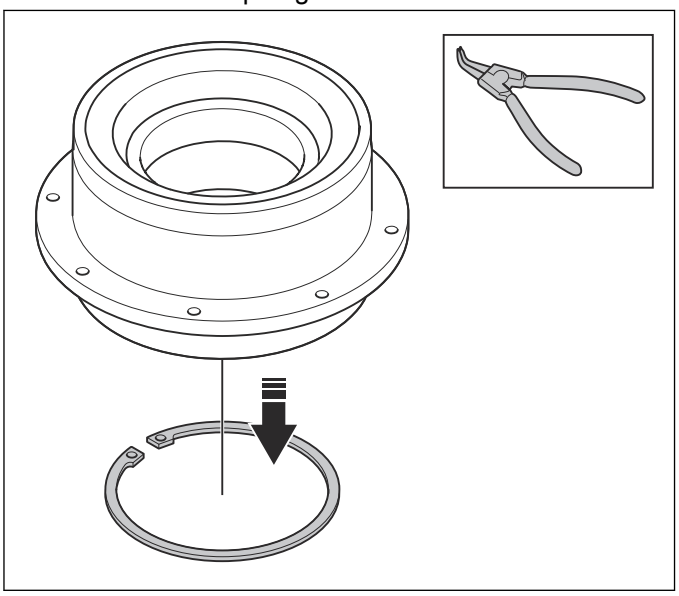
7. Remove the bearing with a mandrel.



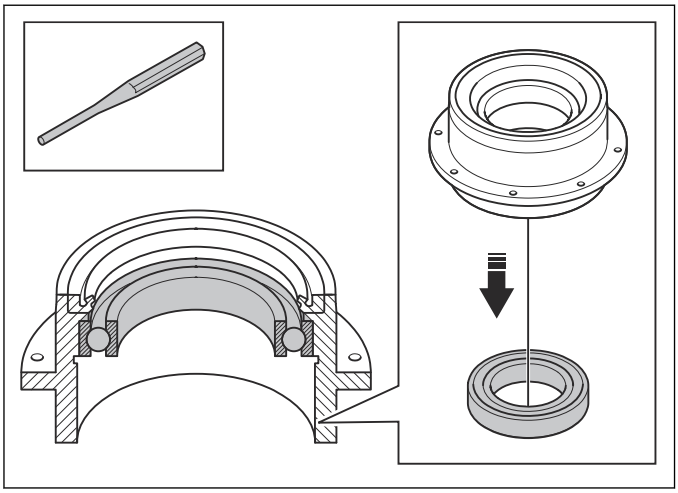
8. Remove the spacer.



9. Remove the snap ring.

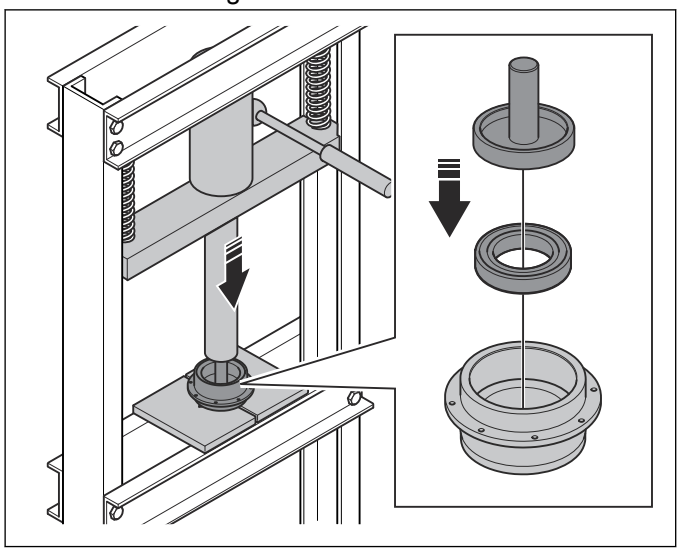


10. Remove the second bearing with a mandrel.



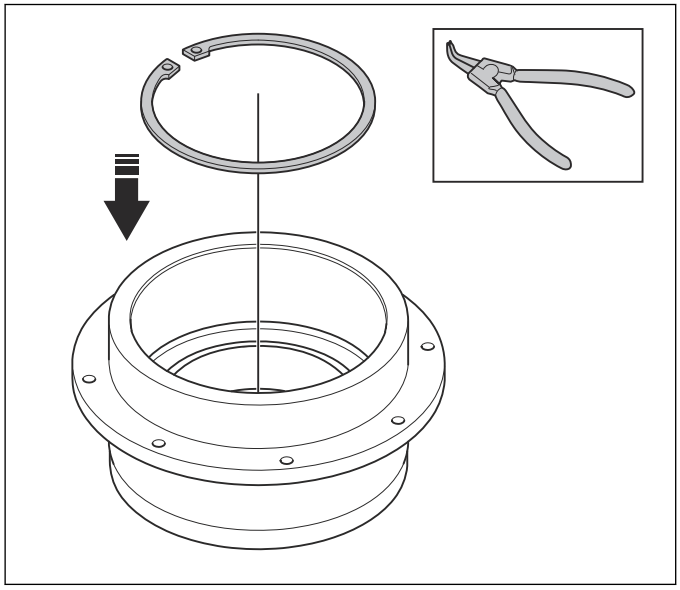
6.8.2 To assemble the center pulley

1. Push the bearing into the outer center hub with a force of 2000 kg.

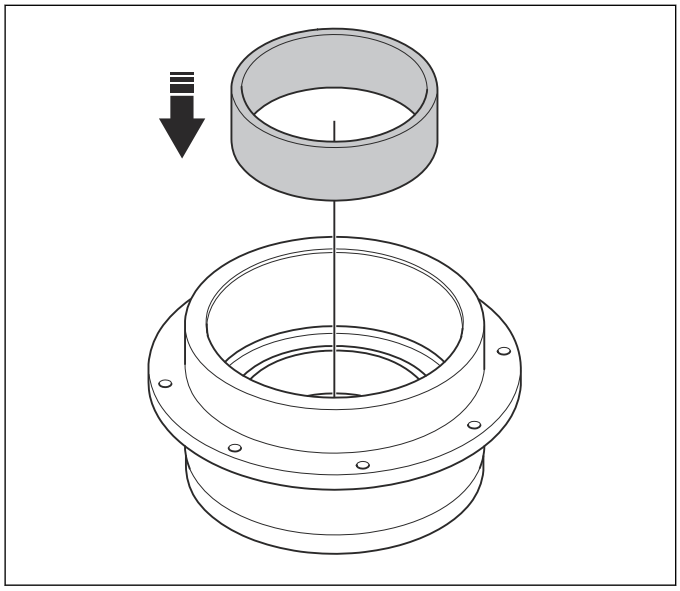


Tool number: 593 54 09-01

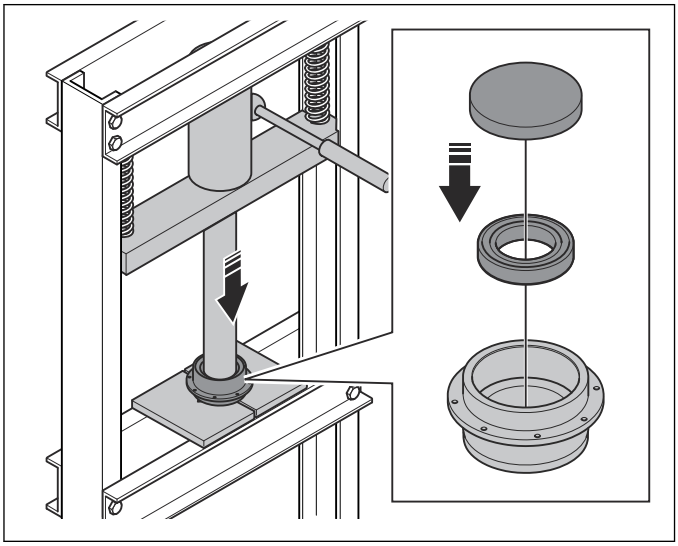
2. Install the snap ring.



3. Install the spacer.

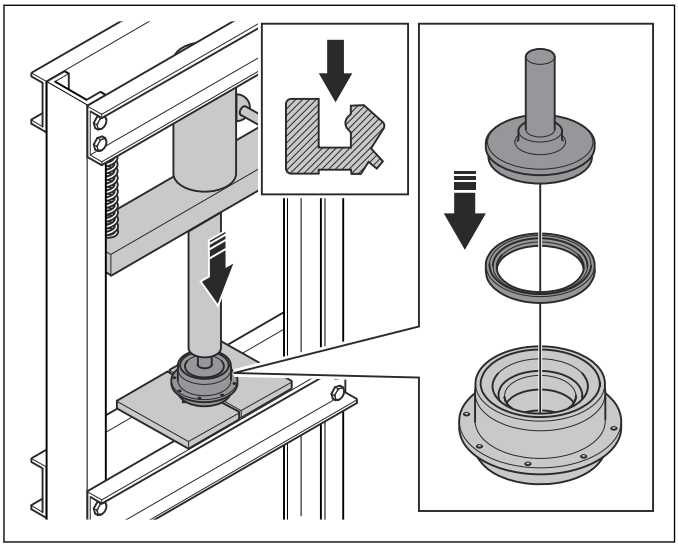


4. Push the bearing with a force of 2000 kg.



Tool number: 595 75 94-01

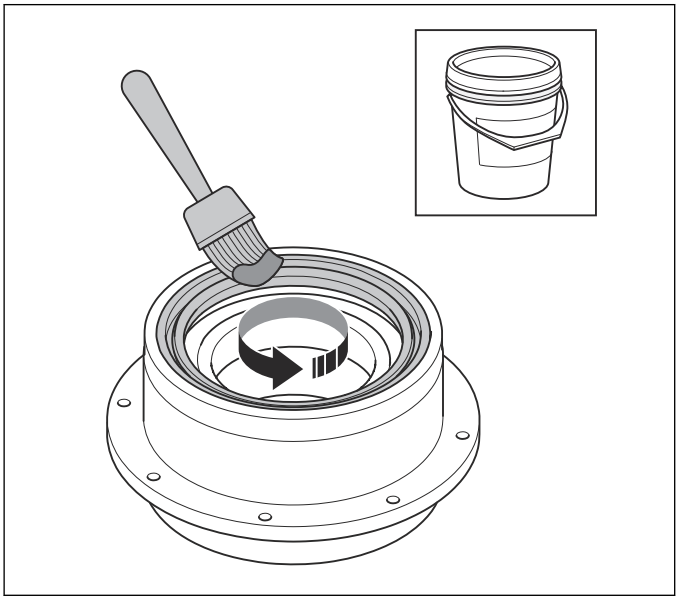
5. Push the radial seal with a force of 2000 kg.



Note: Make sure that the flat side of the radial shaft seal points down into the center hub.

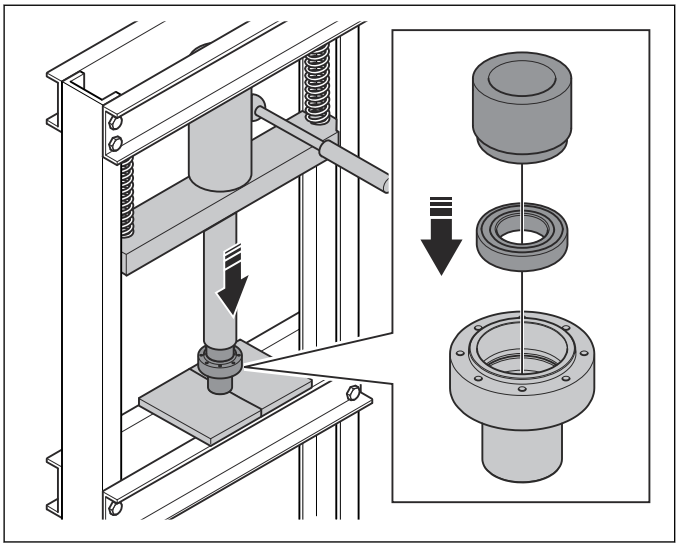
Tool number: 593 54 11-01

6. Put grease on the radial seal.



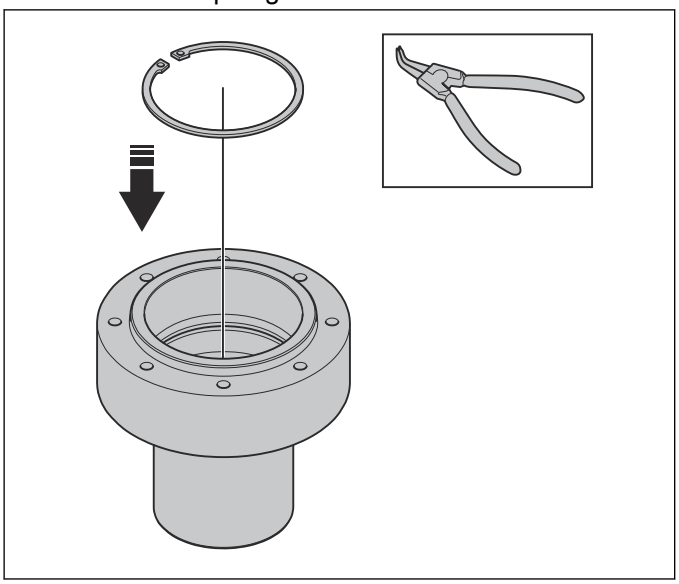
Use Molykote W2 Multipurpose grease

7. Push the bearing into the center hub.

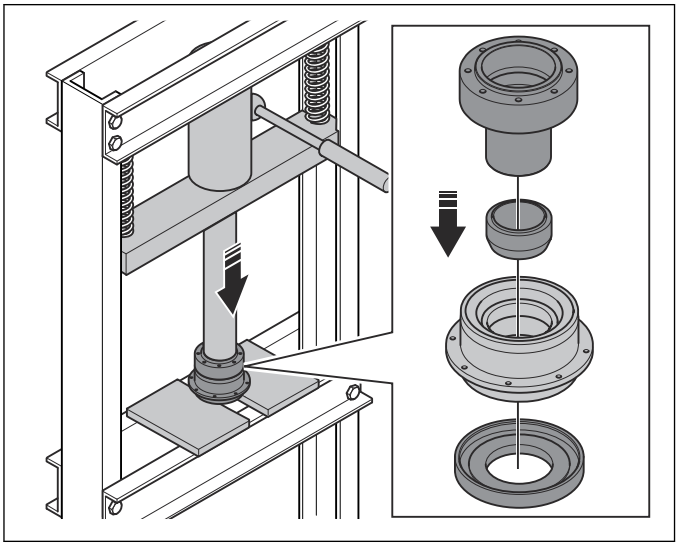


Tool number: 593 54 12-01.

8. Install the snap ring.

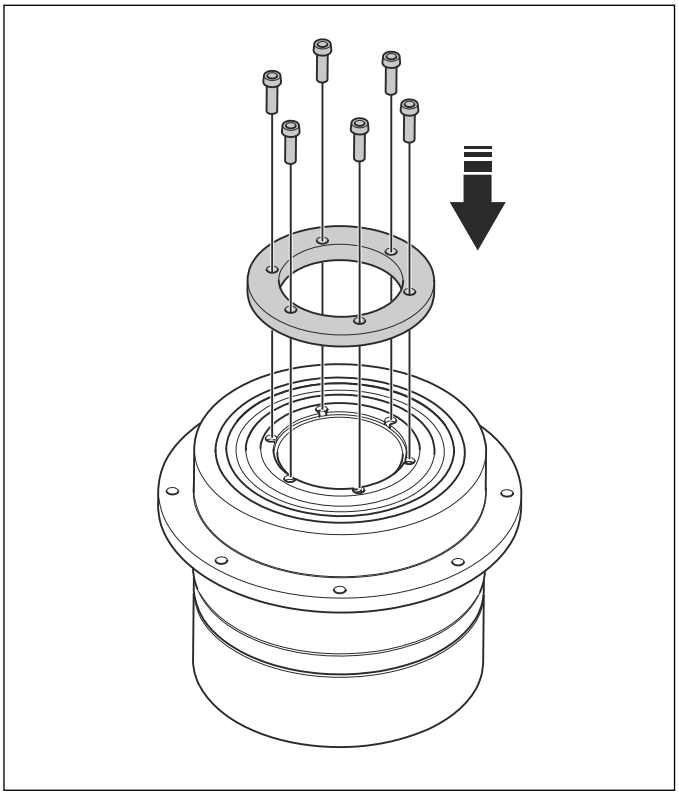


9. Push the inner and outer center hubs. Use the support cone and support.

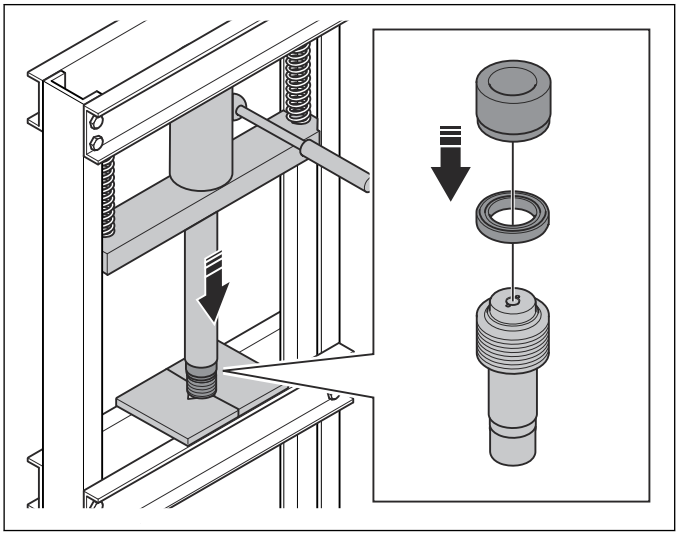


Tool numbers: 593 54 51-01, 593 54 13-01.

10. Install the plate.

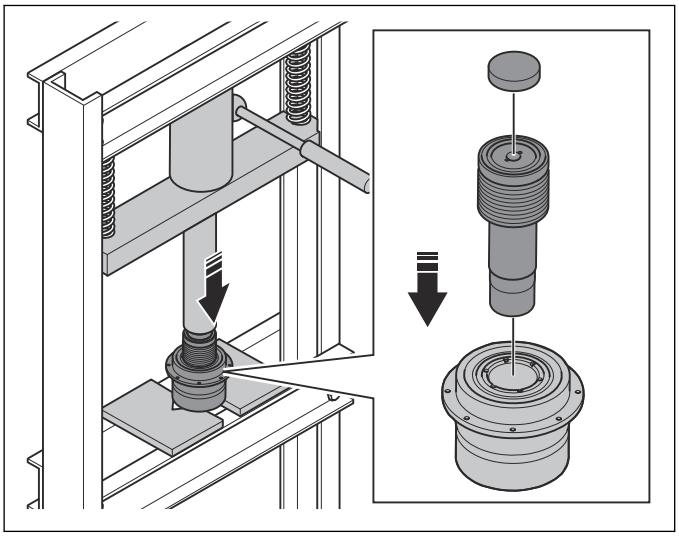


11. Push the bearing onto the center pulley.

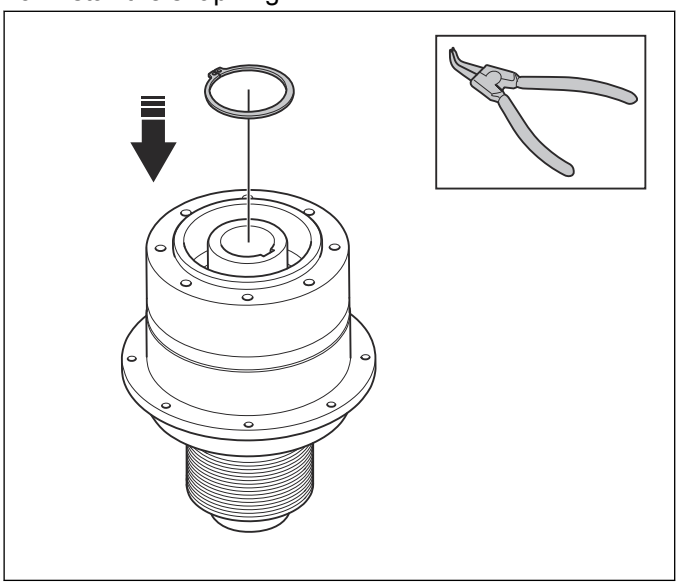


Tool number: 593 54 12-01

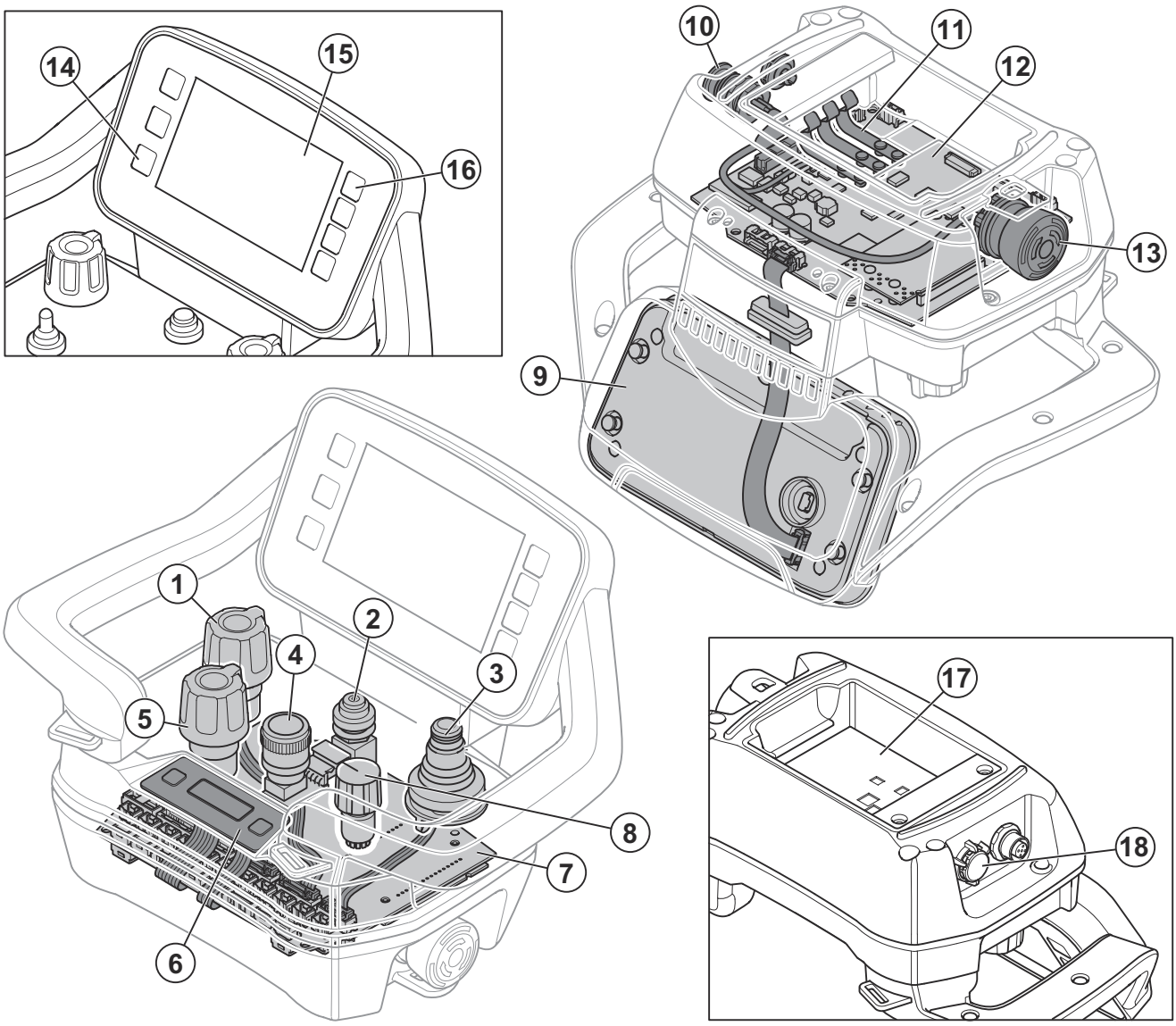
12. Install the secondary pulley on the center hub.



13. Install the snap ring.



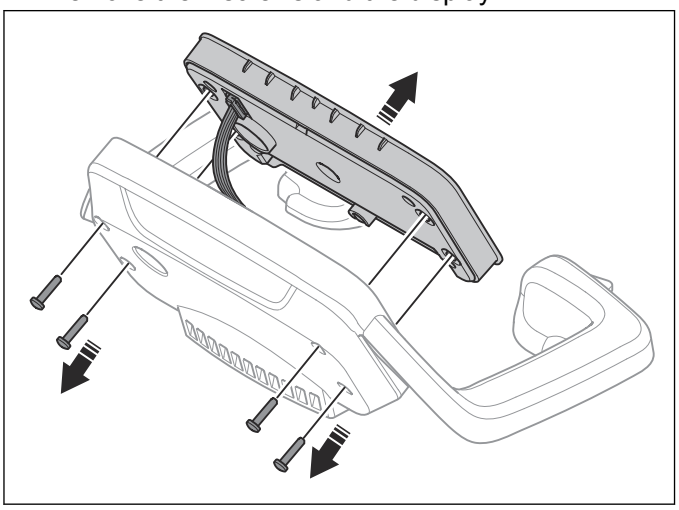
6.8.3 Remote control overview



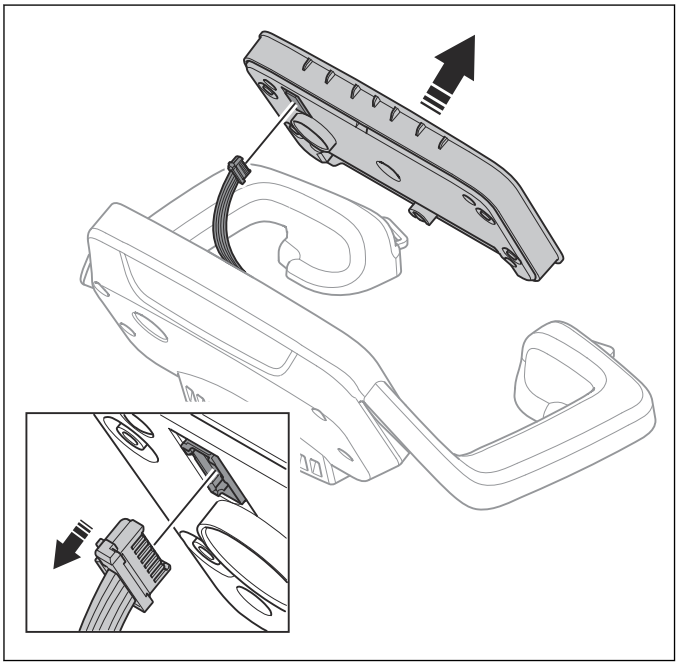
1. Potentiometer for speed and direction of rotation, grinding head
2. ON/OFF button
3. Joystick
4. Encoder
5. Potentiometer for speed and direction of rotation, grinding disc (It is not used for PG 6 XR and PG 8 XR)
6. Information center display
7. Circuit board
8. Stop/transport/grind switch
9. Main display
10. CAN connector
11. Battery terminals
12. Circuit board
13. Emergency stop button
14. Buttons to navigate the display
15. HMI display
16. Buttons to navigate the display
17. Battery holder
18. Connector for the CAN bus cable

6.8.3.1 To remove and install the main display

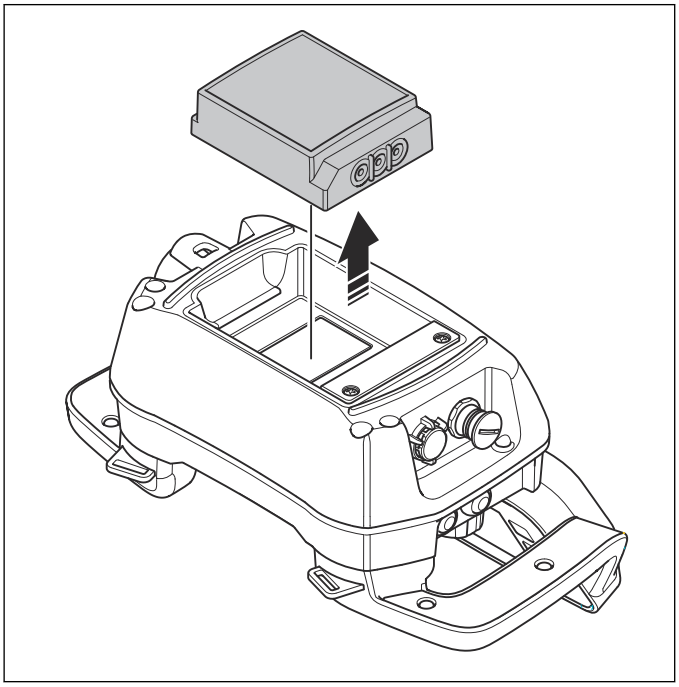
1. Remove the 4 screws and the display.



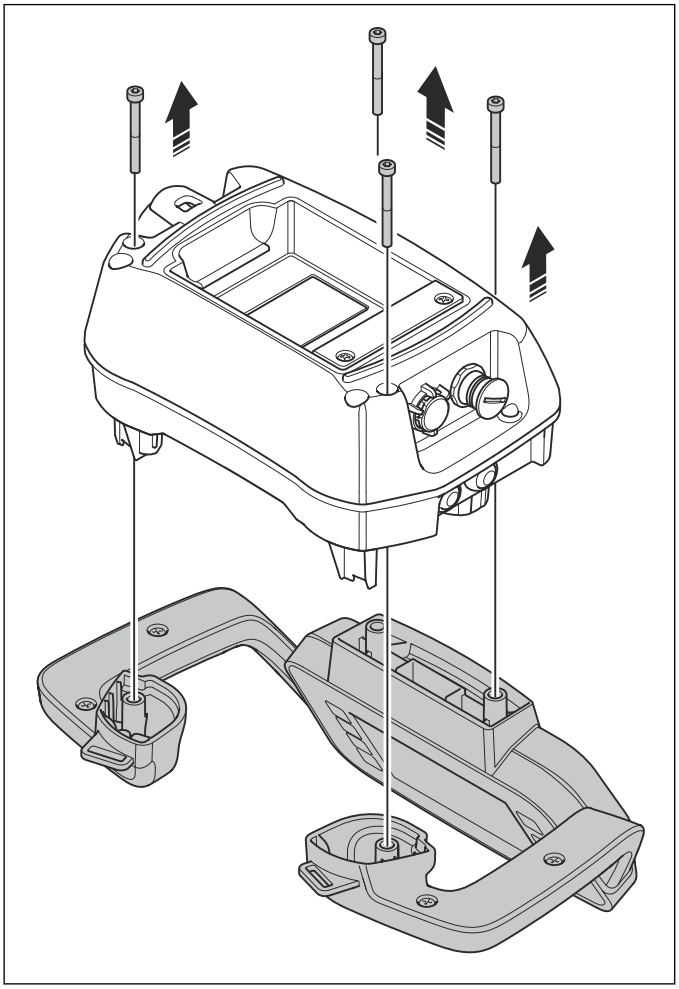
2. Disconnect the connector.



3. Remove the battery.



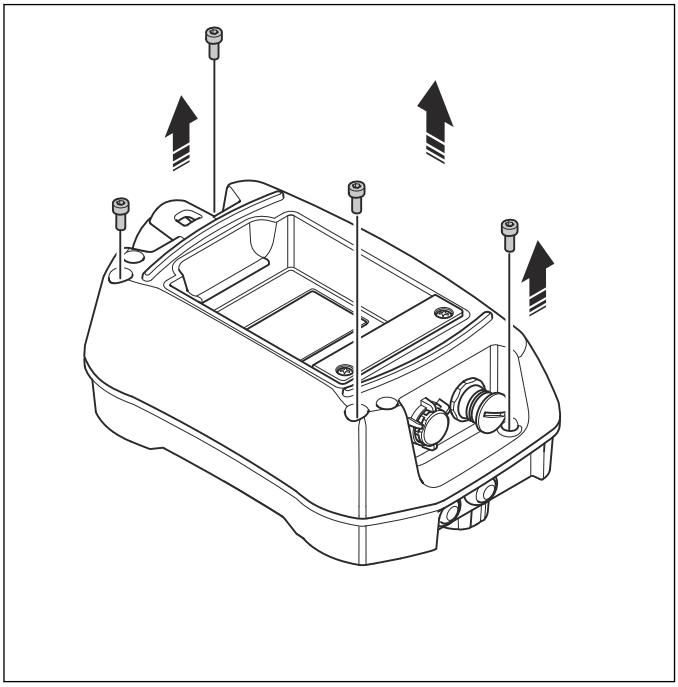
4. Remove the 4 screws and the top part of the remote control.



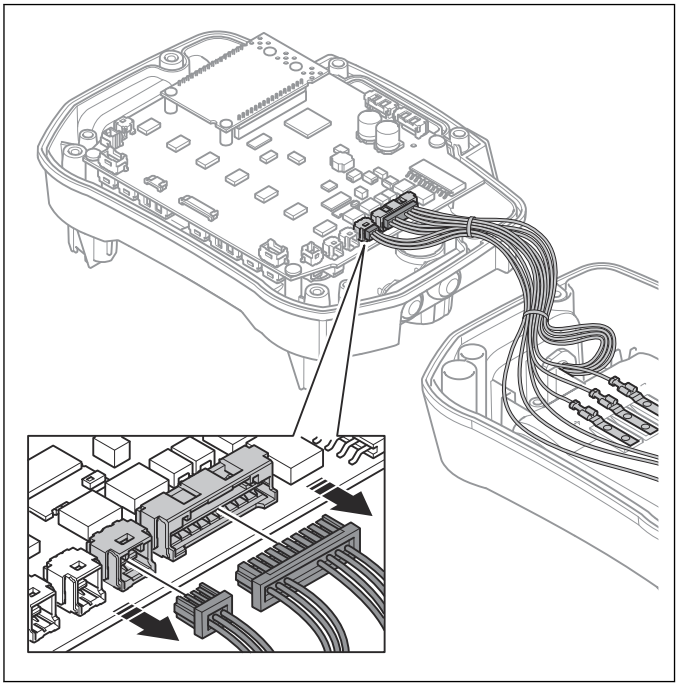
5. Install in the opposite sequence.

6.8.3.2 To remove and install the rear cover

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the 4 screws for the rear cover.



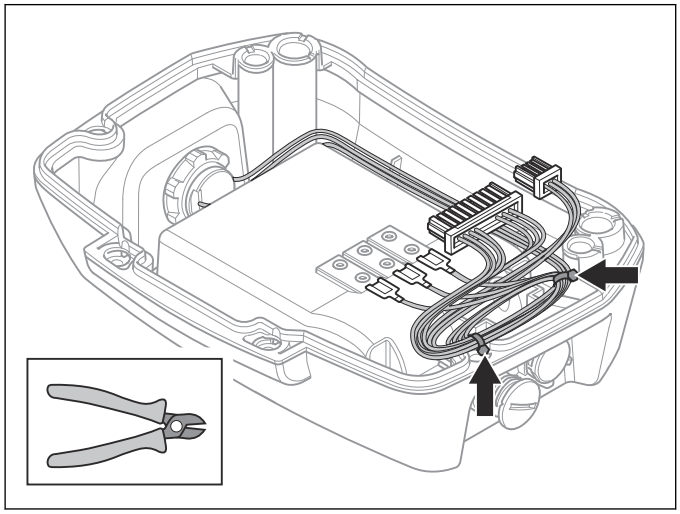
3. Disconnect the 2 connectors and remove the rear cover.



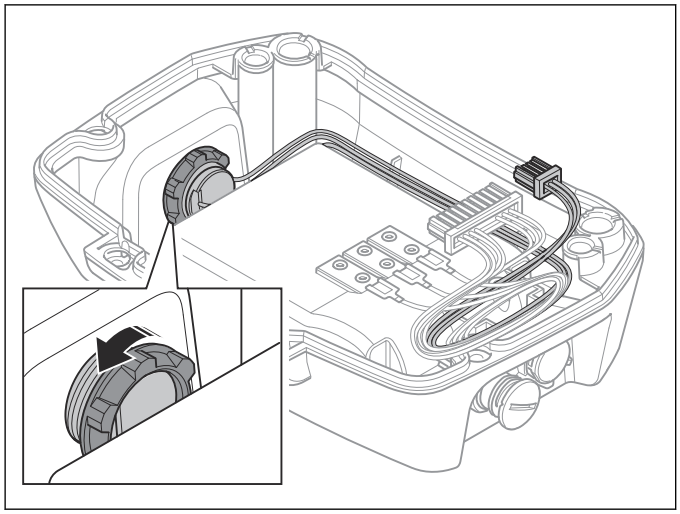
4. Assemble in the opposite sequence.

6.8.3.3 To remove and install the emergency stop button

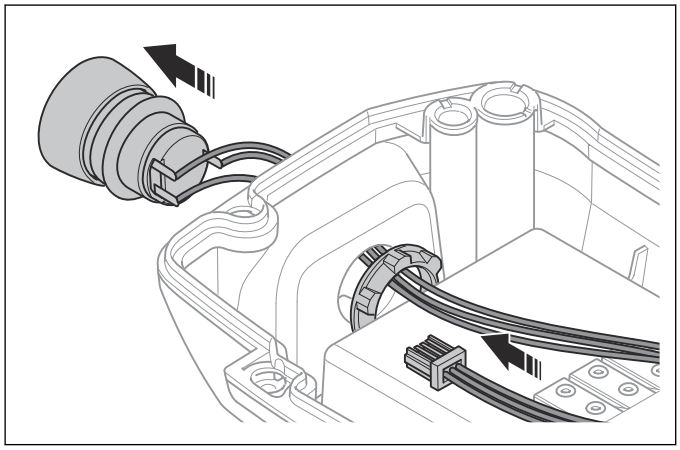
1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Cut the 2 cable ties.



4. Loosen the screw nut.



5. Remove the emergency stop button.

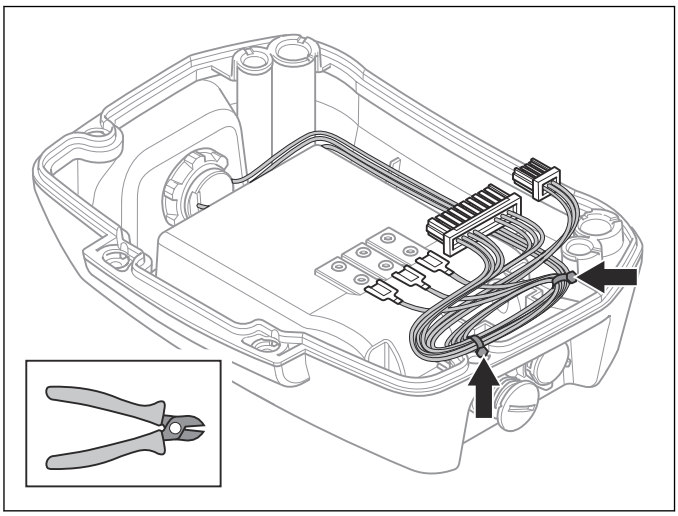


6. Install in the opposite sequence.

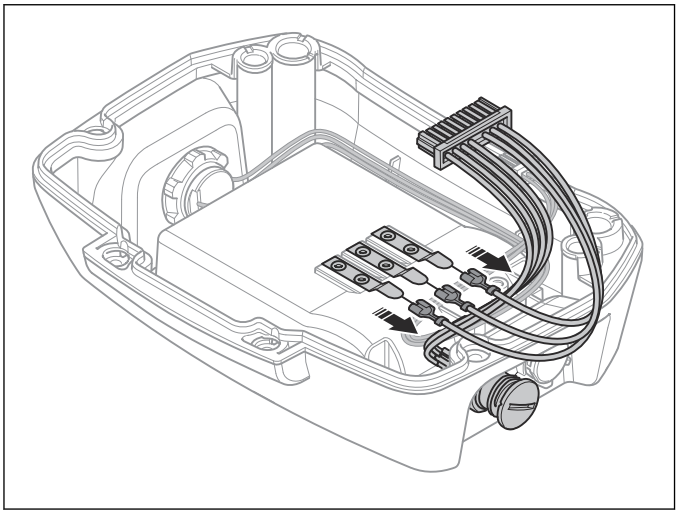
CAUTION: Make sure that there is no space between the emergency stop button and the remote control. There is a risk that water comes in to the remote control.

6.8.3.4 To remove and install the CAN connector

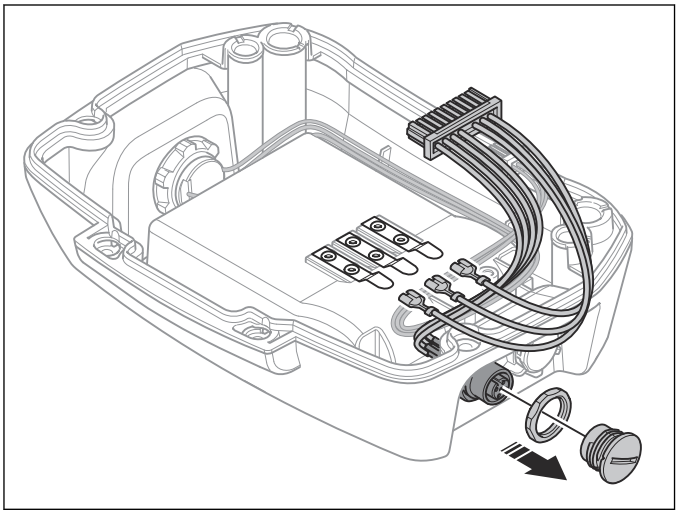
1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Cut the 2 cable ties.



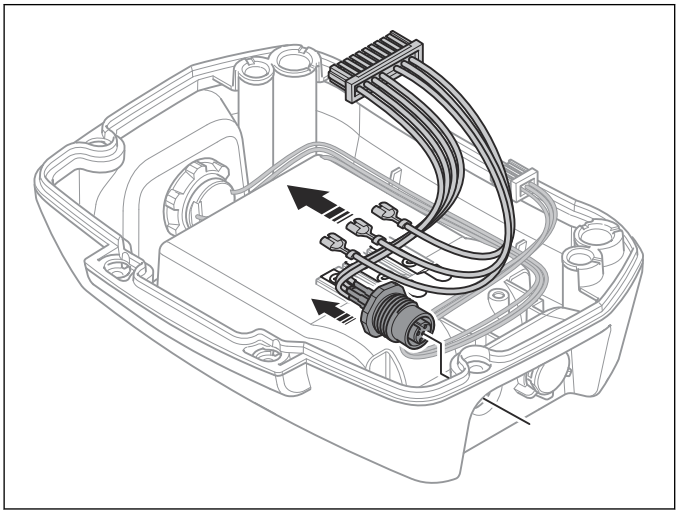
4. Disconnect the connector to the battery.



5. Remove the cover for the CAN connector and the screw nut.



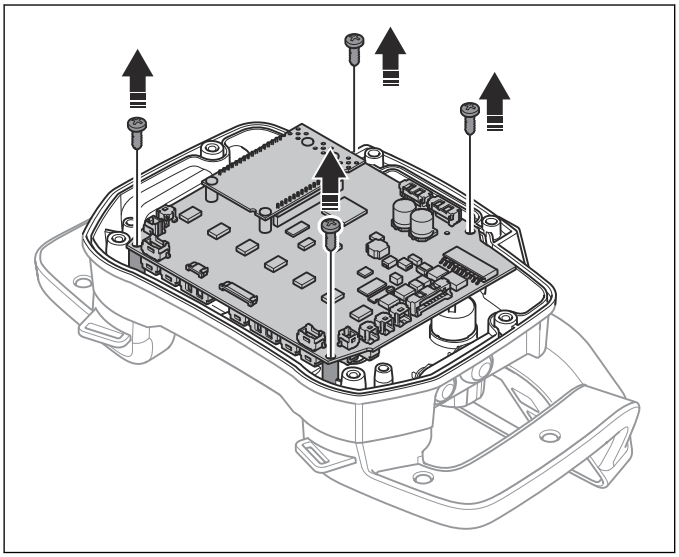
6. Remove the CAN connector.



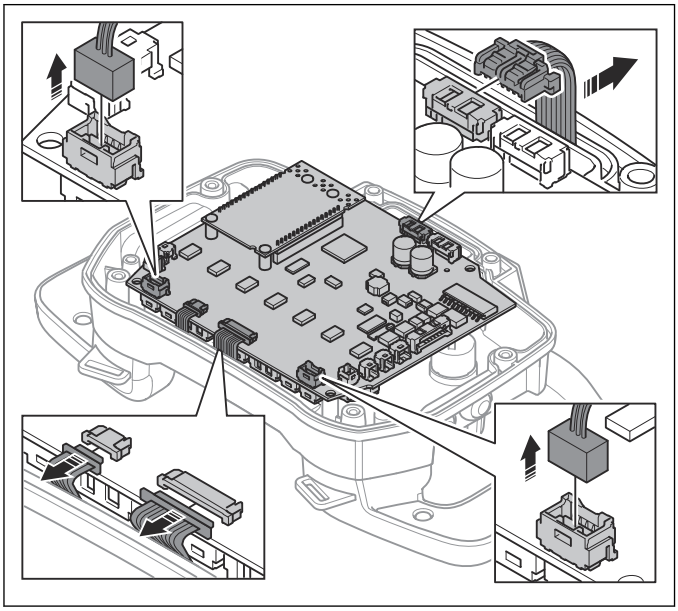
7. Install in the opposite sequence.

6.8.3.5 To remove and install the circuit board

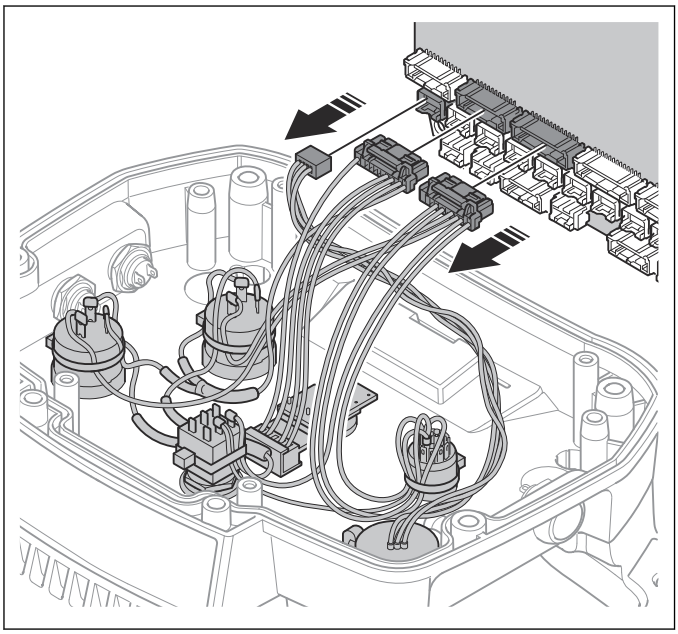
1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the 4 screws.



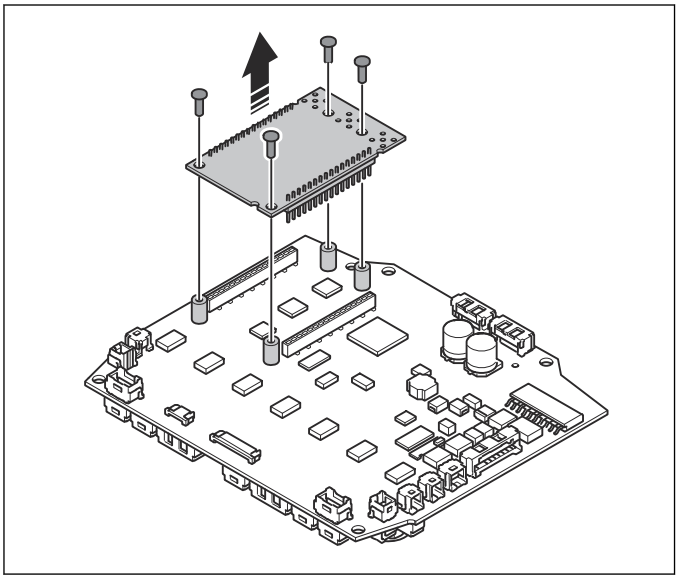
4. Disconnect the 5 connectors.



5. Flip the circuit board around and disconnect the 3 connectors.



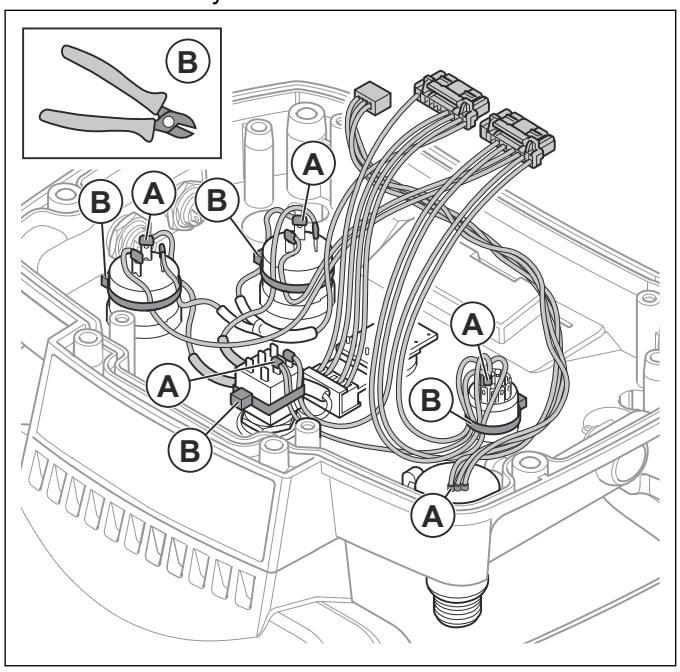
6. Remove the 4 screws and the small circuit board.



7. Install in the opposite sequence.

6.8.3.6 To disconnect and connect the cables to the switches and dials

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.
4. Desolder the cables (A) that are connected to the switch or dial you want to remove.



5. Cut the cable ties (B) that holds the cables that are connected to the switch or dial you want to remove.

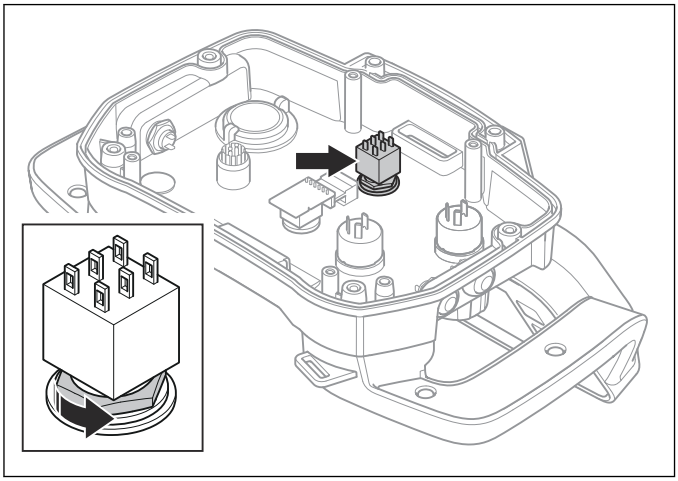
   Note: Refer to *To remove and install the ON/OFF button on page 44*, *To remove and install the potentiometer for speed and direction of rotation, grinding head on page 45*, *To remove and install the joystick on page 45*, *To remove and install the stop/transport/grind switch on page 46* and *To remove and install the encoder on page 46* for information on how to remove the switches and dials.

6. Connect the cables in the opposite sequence.

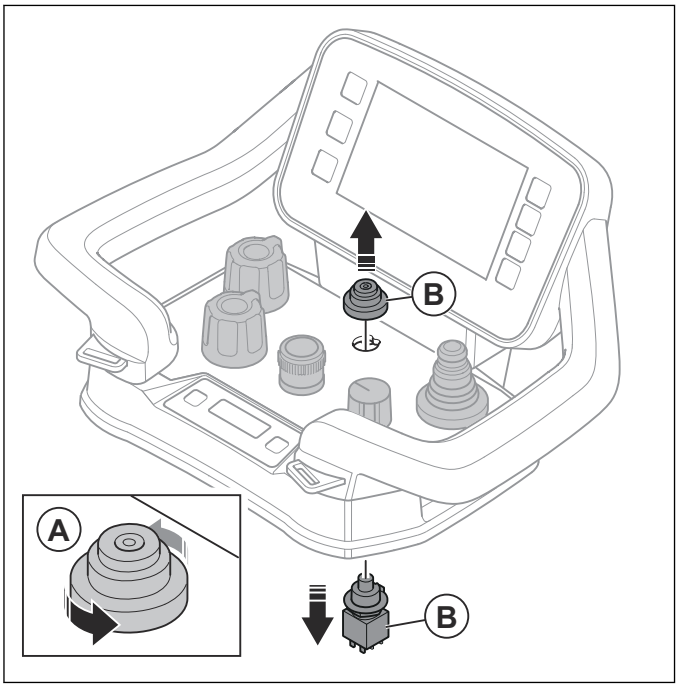
6.8.3.7 To remove and install the ON/OFF button

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.

4. Disconnect the cables to the ON/OFF button. Refer to *To disconnect and connect the cables to the switches and dials on page 44*.
5. Loosen the screw nut.



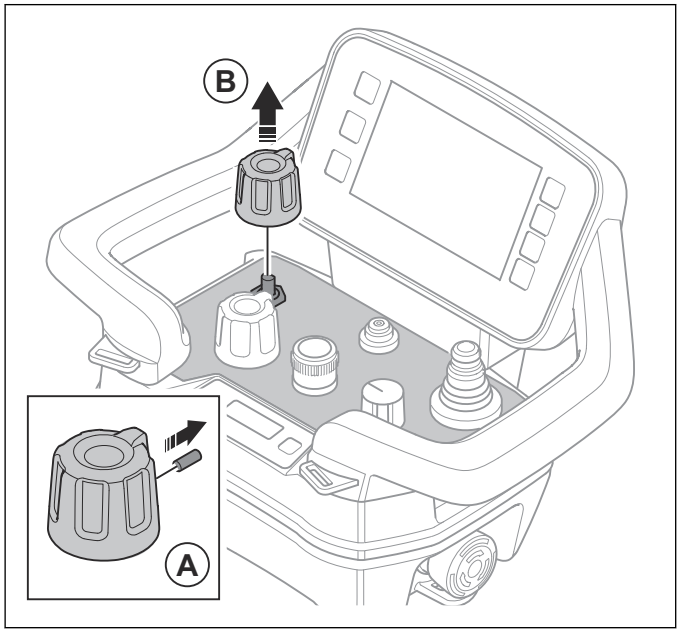
6. Loosen the ON/OFF button (A).



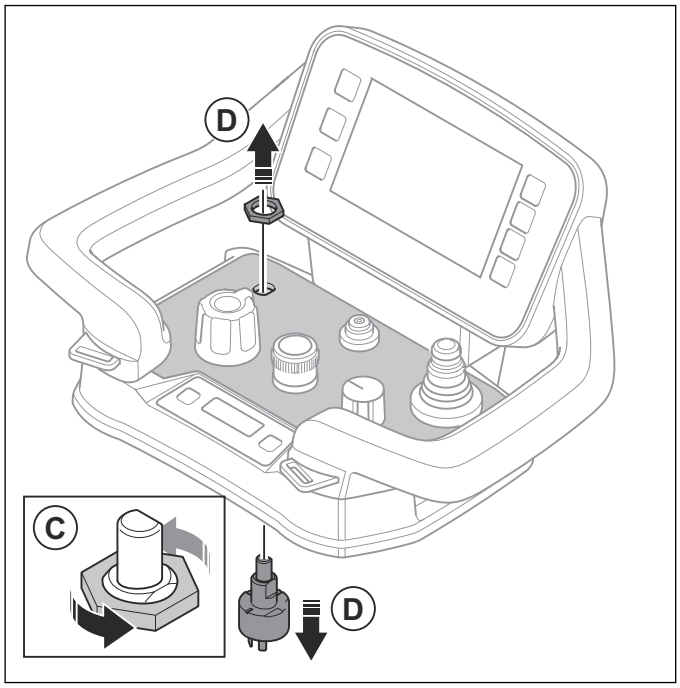
7. Remove the ON/OFF button (B).
8. Install in the opposite sequence.

6.8.3.8 To remove and install the potentiometer for speed and direction of rotation, grinding head

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.
4. Disconnect the cables to the potentiometer for speed and direction of the grinding head. Refer to *To disconnect and connect the cables to the switches and dials on page 44*.
5. Remove the pin (A).



6. Remove the potentiometer (B).
7. Loosen the screw nut (C).

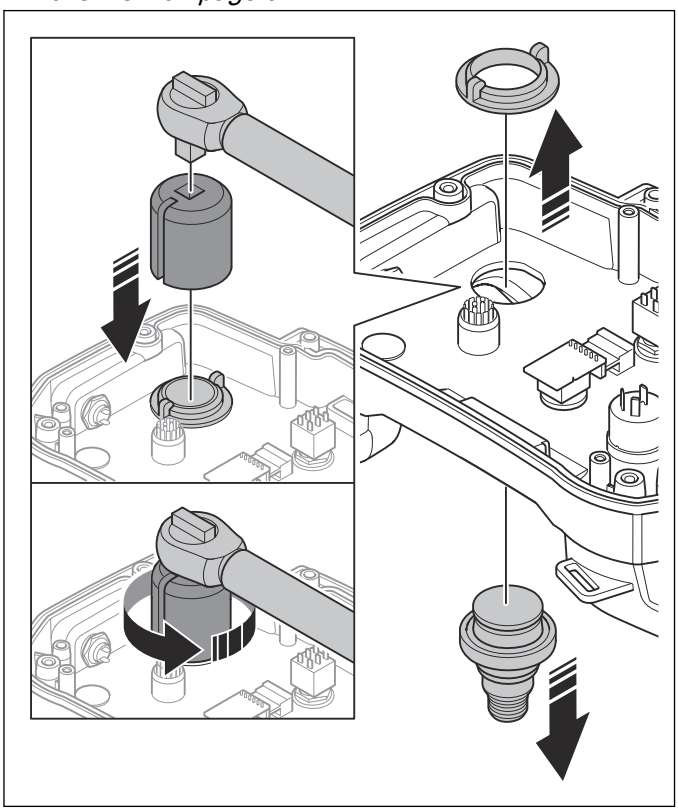


8. Remove screw nut and the dial for the potentiometer (D).
9. Install in the opposite sequence.

6.8.3.9 To remove and install the joystick

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.

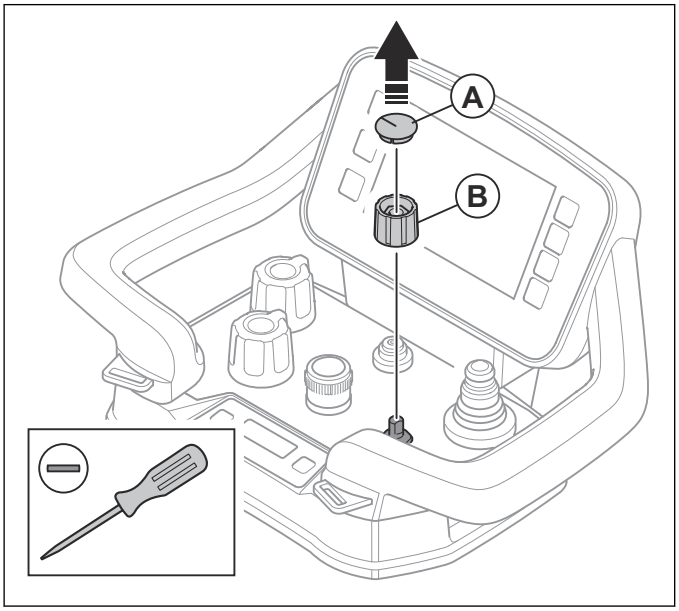
4. Disconnect the cables to the joystick. Refer to *To disconnect and connect the cables to the switches and dials on page 44*.
5. Use a socket wrench and the joystick socket to remove the joystick. Refer to *Servicing tools overview on page 9*.



6. Install in the opposite sequence. Make sure to tighten the joystick with 1.0 Nm.

6.8.3.10 To remove and install the stop/transport/grind switch

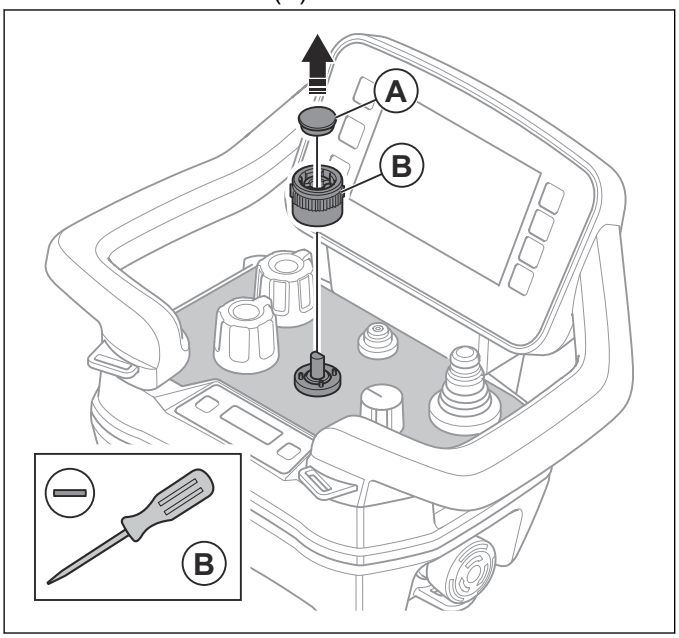
1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.
4. Disconnect the cables to the switch. Refer to *To disconnect and connect the cables to the switches and dials on page 44*.
5. Remove the cover (A).



6. Remove the switch (B).
7. Install in the opposite sequence.

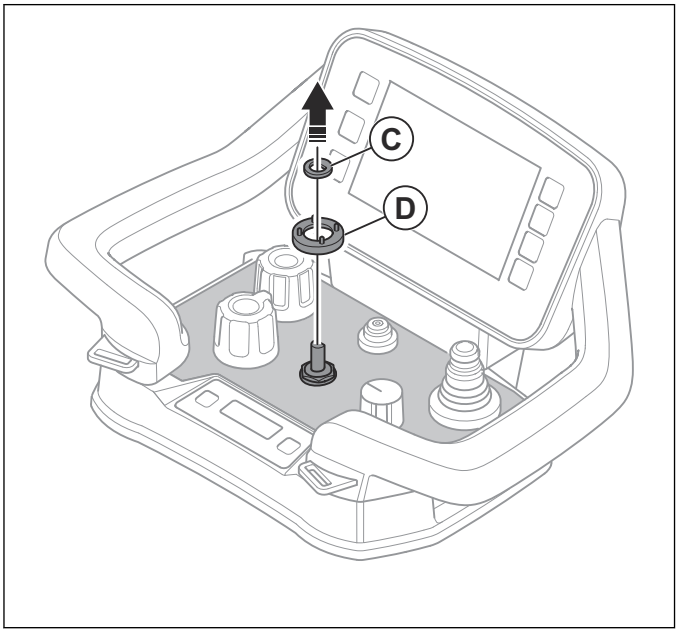
6.8.3.11 To remove and install the encoder

1. Remove the main display. Refer to *To remove and install the main display on page 41*.
2. Remove the rear cover. Refer to *To remove and install the rear cover on page 42*.
3. Remove the circuit board. Refer to *To remove and install the circuit board on page 43*.
4. Disconnect the cables to the encoder. Refer to *To disconnect and connect the cables to the switches and dials on page 44*.
5. Remove the cover (A).

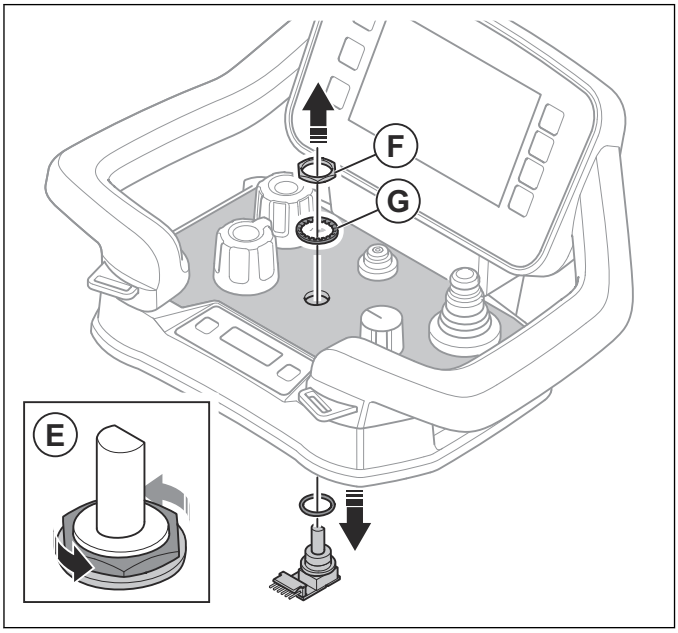


6. Remove the encoder (B).

7. Remove the 2 washers (C) and (D).



8. Loosen the lock nut (E).



9. Remove the lock nut (F), the washer (G) and the dial for the encoder.
10. Install in the opposite sequence.

6.9 GCU firmware programming

If a new GCU circuit board is installed or a new firmware version have been released it is necessary to update the product. Use the instructions for the Husqvarna Service Hub to install the update.

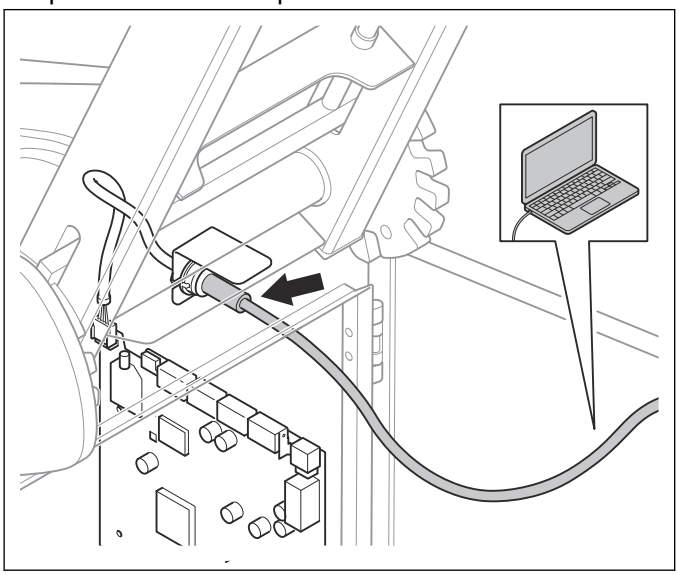
6.9.1 To update the GCU circuit board

Note: Make sure to disconnect the 3-phase power from the product.

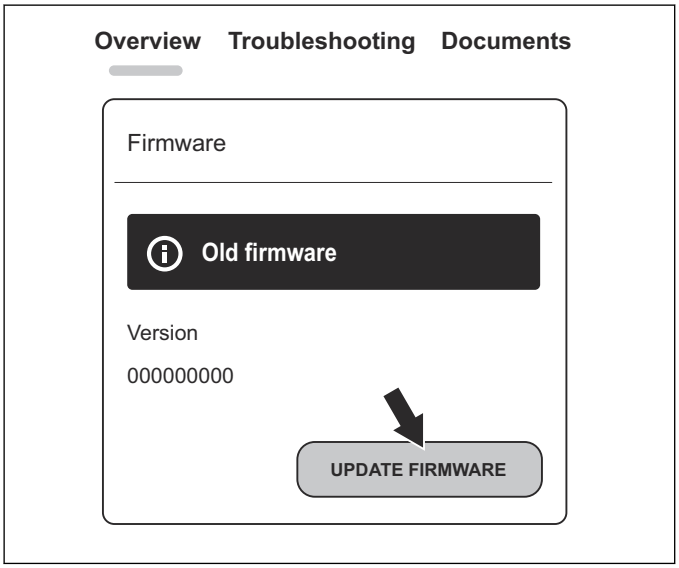
Note: Make sure that the 24V battery is fully charged for the product.

Note: Make sure that the laptop that is used for the update is fully charged.

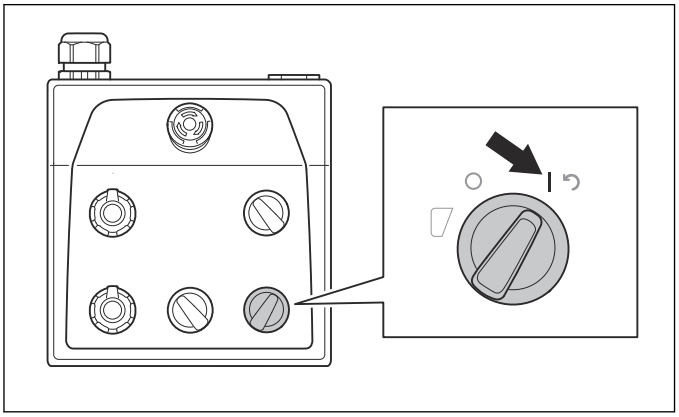
1. Start the Husqvarna Service Hub program on your laptop.
2. Connect the USB cable from the laptop to the products mini USB port.



3. The Husqvarna Service Hub program will connnect to the product and show the new version for the firmware that is available for update.



4. Hold the On/Off switch of the product in the ON position (I).

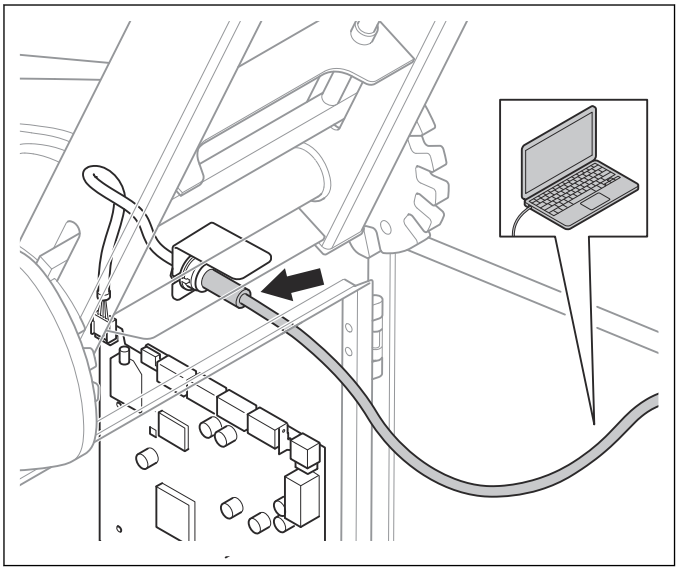


5. Click on the button "UPDATE FIRMWARE" in the Husqvarna Service Hub.

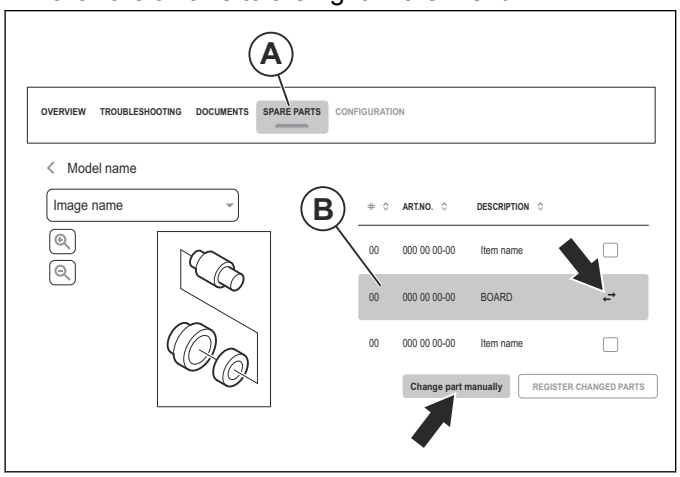
6. When the firmware update is complete release the ON/OFF switch.
7. Disconnect the USB cable and start the product.

6.9.2 To replace the GCU circuit board

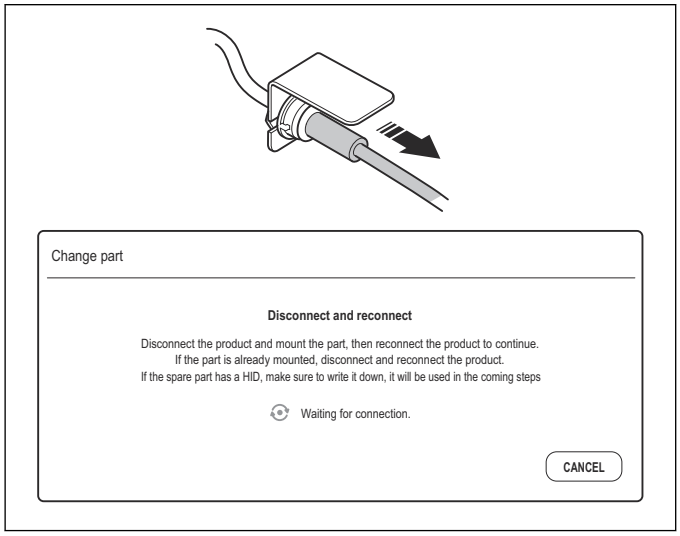
1. Start the Husqvarna Service Hub program on your laptop.
2. Connect the USB cable from the laptop to the products mini USB port.



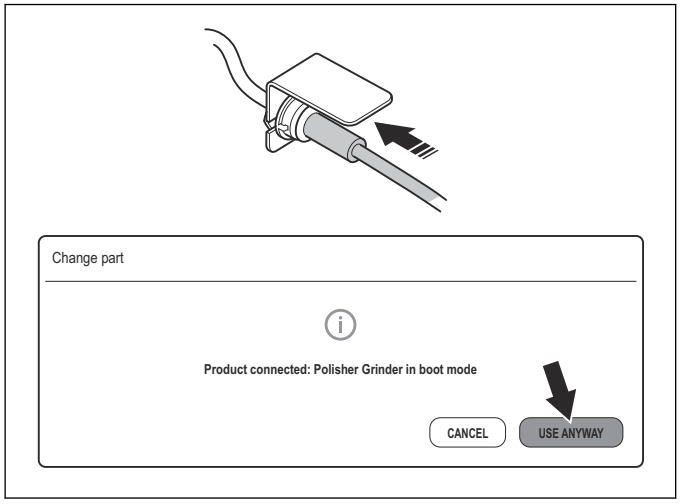
3. The Husqvarna Service Hub program will connect to the product. Navigate in the program to spare parts (A) and in the menu navigate to "BOARD" (B) and click the arrows to the right in the menu.



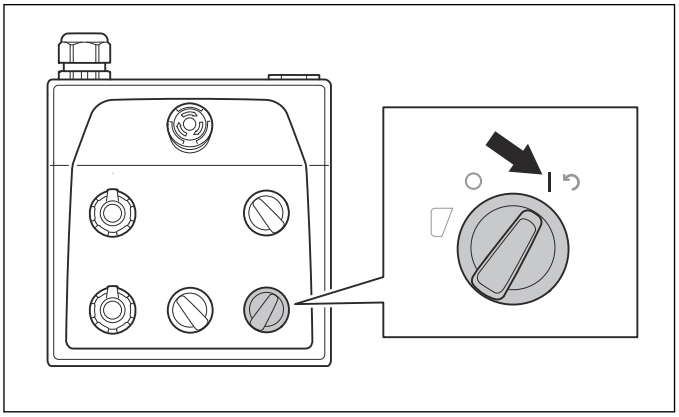
4. If the arrows do not show in the Husqvarna Service Hub menu click the button "Change part manually".
5. Disconnect the the USB from the product and install the new ciruit board to the product.



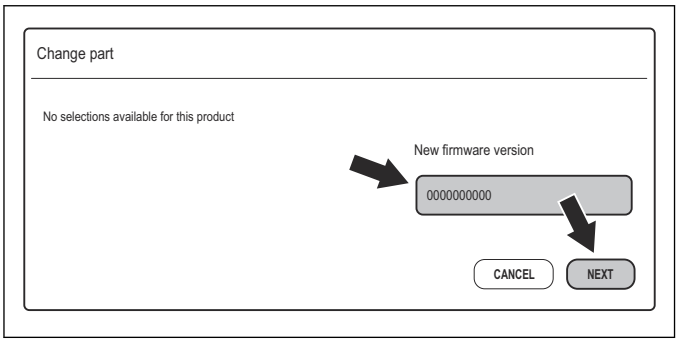
6. Connect the USB to the product and wait for the installation screen to show. Click on the button "USE ANYWAY" to continue with the firmware installation.



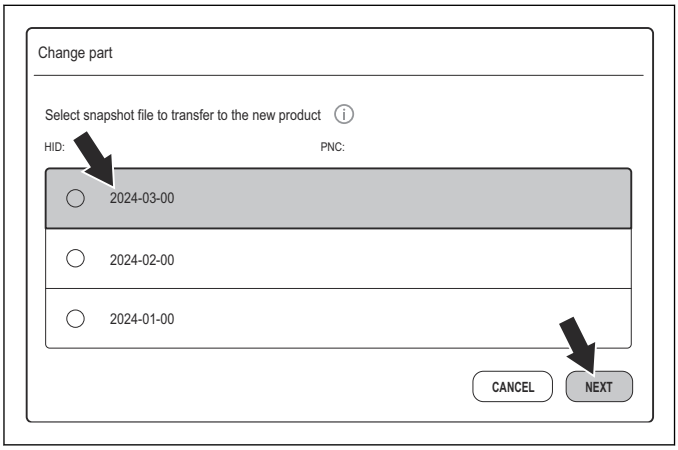
7. Hold the On/Off switch of the product in the ON position (I).



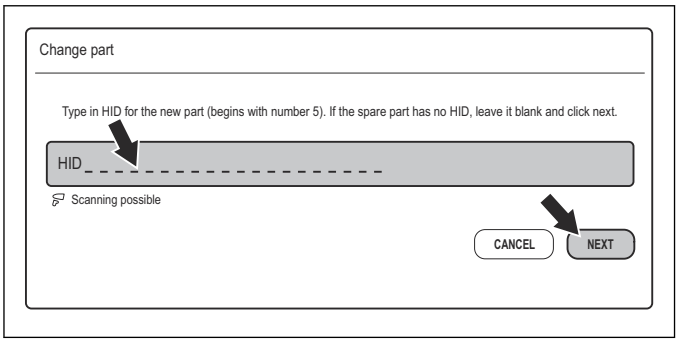
8. Select the latest version of the firmware and click on the button "NEXT" to start the installation of the new firmware.



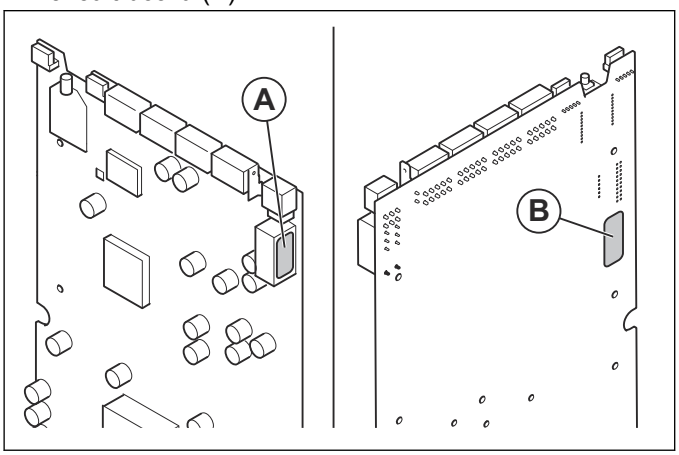
9. Select the latest date and time to download the product information to the product and click on the "NEXT" button.



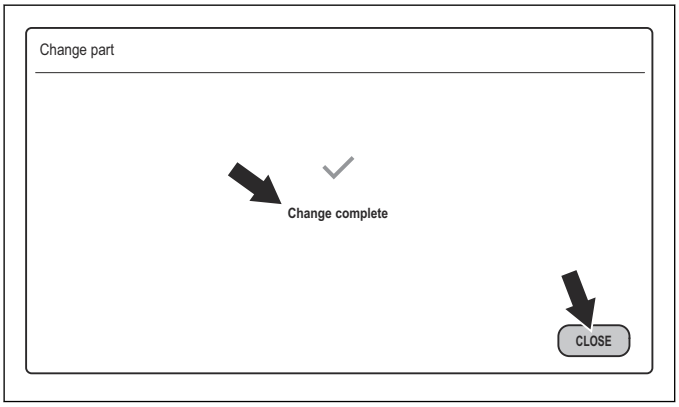
10. The last step is to type in the Husqvarna ID for the GCU circuit board.



11. The Husqvarn ID for the GCU circuit board is available as a QR-code on the side of the circuit board (A) or you find the number on the back of the circuit board (B).



12. Close the program and disconnect the USB from the product. Make sure to calibrate the potentiometers on the product HMI after the update.



7.1 To do a function test of the grinding head

1. Put the product down to get access to the grinding disc.
2. Rotate the grinding disc by hand. Make sure that it can move freely and stable without friction and noise.
3. Examine the brush strip.
4. Examine all parts of the vibration damping system.
5. Examine the tool holder for wear.
6. Tighten the screws.
7. Put the product back to its upright position.

7.2 To do a function test of the electrical system

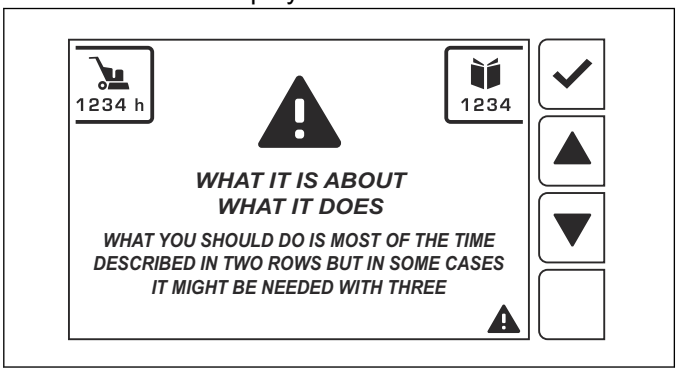
1. Put the product in upright position.
2. Examine the external cable, plug and connectors.
3. Connect the product to a power outlet with the correct voltage and rated value of the fuse.
4. Make sure the hour meter shows the correct run time.

7.3 To do a function test of the motor

1. Push the handle down to release the pressure between the grinding head and the floor. Make sure the grinding head touches the floor.
2. Turn the on/off switch to "1" to start the motor. The motor must then be at its operation speed in less than 5 seconds.
3. Examine the product for noise and vibrations while the motor operates.
4. Let the motor operate for approximately 1 minute. Examine the hour meter.
5. Push the emergency stop button.
6. Start the motor again. Stop it with the on/off switch.

7.4 Error messages

If there are errors, an error code and an error message are shown on the display of the remote control.



7.5 Error codes

Error code radio display	Error code inverter display	Description
1		After establishing initial communication, the connection was lost.
2		Too much current drawn from battery charger. Could be cable or battery issue.
3		Battery is broken and must be replaced.
4		Estimated battery has voltage below 23V.
5		Check the battery connection.
6		Check wheel and gearbox for obstacle.
7		Cable or connector damage. Motor problem.
8		Insert traction motor springs.
9		Radio module failure/unmounted.
10		Electrical issue on GCU.
11		Wait for the machine to cool down.
12		The machine is too cold to operate.

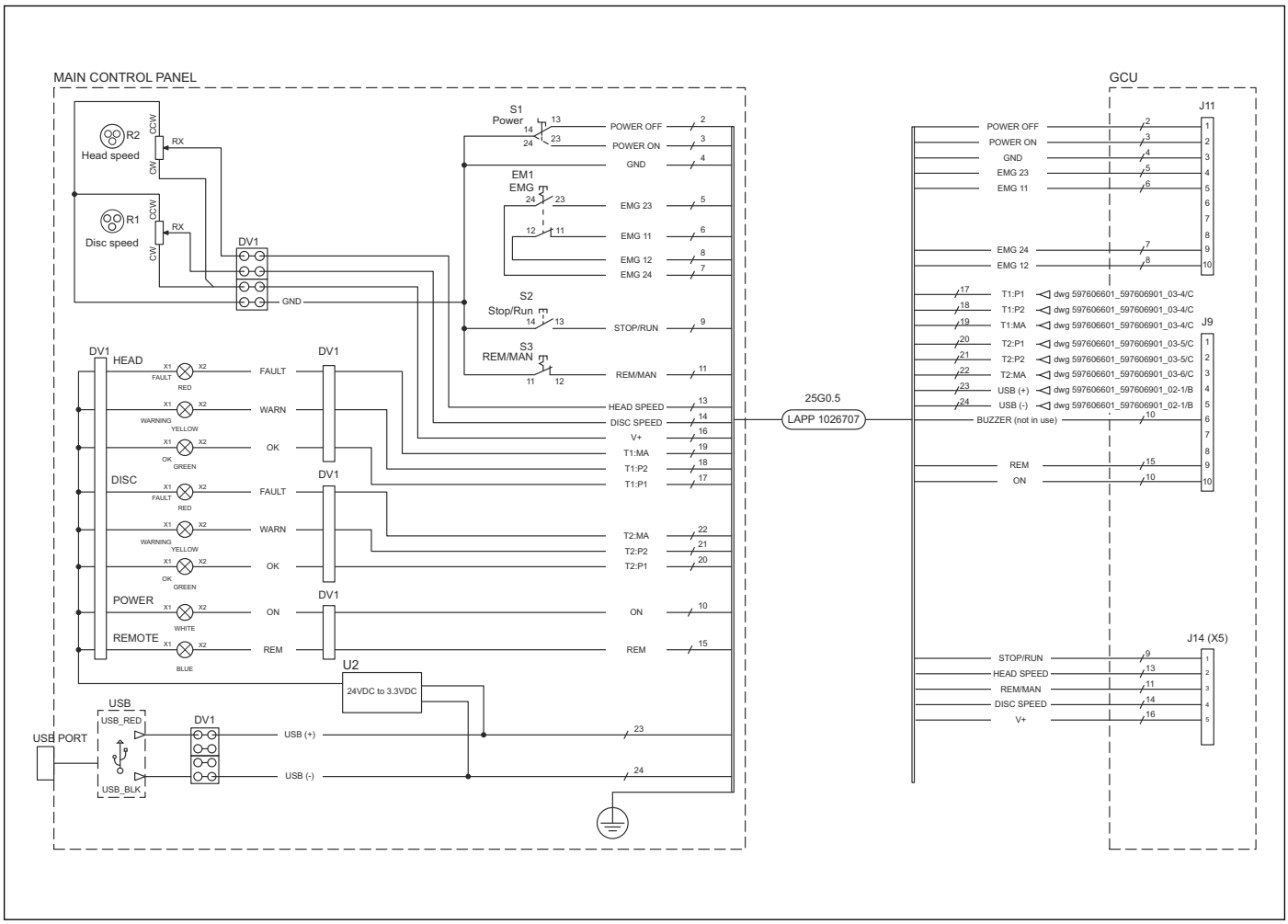
Error code radio display	Error code inverter display	Description
13		Error in communication with VFD. Check cable and connectors.
14		Unexpected error.
15	Uv2	Voltage is too low for the control drive input power.
16	Uv1	Undervoltage.
17	uV3	Charge Fault.
18		IGBT Short Circuit.
19	GF	Ground Fault.
20		Voltage in the DC bus has exceeded the overvoltage detection level.
21	oH	Heatsink Overheat.
22	oC	Drive sensors have detected an output current greater than the specified overcurrent level.
23		Overspeed (Simple V/f with PG).
24	oL3	Drive output current (or torque in OLV) was greater than the preset limit.
25	oL4	Drive output current (or torque in OLV) was greater than the preset limit.
26		The built-in dynamic braking transistor failed.
27		Braking resistor overheat/Braking resistor protection was triggered.
28	oH1	Heatsink overheat.
29	FbL	The PID feedback input is lower than the preset level.
30	UL3	Drive output current (or torque in OLV) less than preset value.
31	UL4	Drive output current (or torque in OLV) less than preset value.
32	oL7	The output frequency stayed constant longer than the preset time, during the High-slip Braking.
33	oFx	Hardware Fault.
34	LF2	One or more of the phases in the output current is lost.
35	Sto	Motor pull out or step out has occurred. Motor has exceeded its pull out torque.
36	oL1	The electrothermal sensor tripped overload protection.
37	oL2	The thermal sensor of the drive triggered overload protection.
38	EF3	External Fault.
39	EF4	External Fault.
40	EF5	External Fault.
41	EF6	External Fault.
42	EF7	External Fault.
43	dEv	According to the pulse input (RP), the speed deviation is greater than the preset value.
44	Pgo	No PG pulses are received for longer than the preset time.
45	PF	Drive input power has an open phase or has a large imbalance of voltage between phases.
46	LF	Phase loss on the output side of the drive.
47	oH3	oH3 - Motor overheat alarm (PTC Input).
48	oPr	External digital operator connection fault.

Error code radio display	Error code inverter display	Description
49	Err	Data does not match the EEPROM being written to.
50	oH4	Motor overheat fault (PTC input).
51		Control data was not received correctly for two seconds.
52		After establishing initial communication, the connection was lost.
53	CF	A torque limit was reached.
54	Pgo	No PG pulses are received for longer than the preset time.
55	EF1	External Fault.
56	EF2	External Fault.
57	oL5	Weakening detection.
58	uL5	Weakening detection.
59	CoF	Current offset fault.
60	CPF03	PWM data fault.
61	Uv	Undervoltage.
62	oV	Voltage in the DC bus has exceeded the overvoltage detection level.
63	oH	Heatsink overheat.
64	oH2	Drive overheat.
65	oL3	Drive output current (or torque in OLV) was greater than the preset limit.
66	oL4	Drive output current (or torque in OLV) was greater than the preset limit.
67	EF	Both forward run and reverse run closed simultaneously for over 0.5 s.
68	EF3	External fault.
69	EF4	External fault.
70	EF5	External fault.
71	EF6	External fault.
72	EF7	External fault.
73	oS	Pulse input (RP) indicates that motor speed feedback exceeded preset value.
74	dEv	According to the pulse input (RP), the speed deviation is greater than the preset value.
75	PGo	No PG pulses are received for longer than the preset time.
76	CE	Control data was not received correctly for two seconds.
77	CALL	Communication has not yet been established.
78	oL1	The electrothermal sensor tripped overload protection.
79	oL2	The thermal sensor of the drive triggered overload protection.
80	CALL2	Transmission communication has not yet been established.
81	UL3	Drive output current (or torque in OLV) less than preset value.
82	UL4	Drive output current (or torque in OLV) less than preset value.
83	SE	MEMOBUS/Modbus communication test mode error.
84	oH3	Motor overheat.
85	EF1	External fault.
86	EF2	External fault.

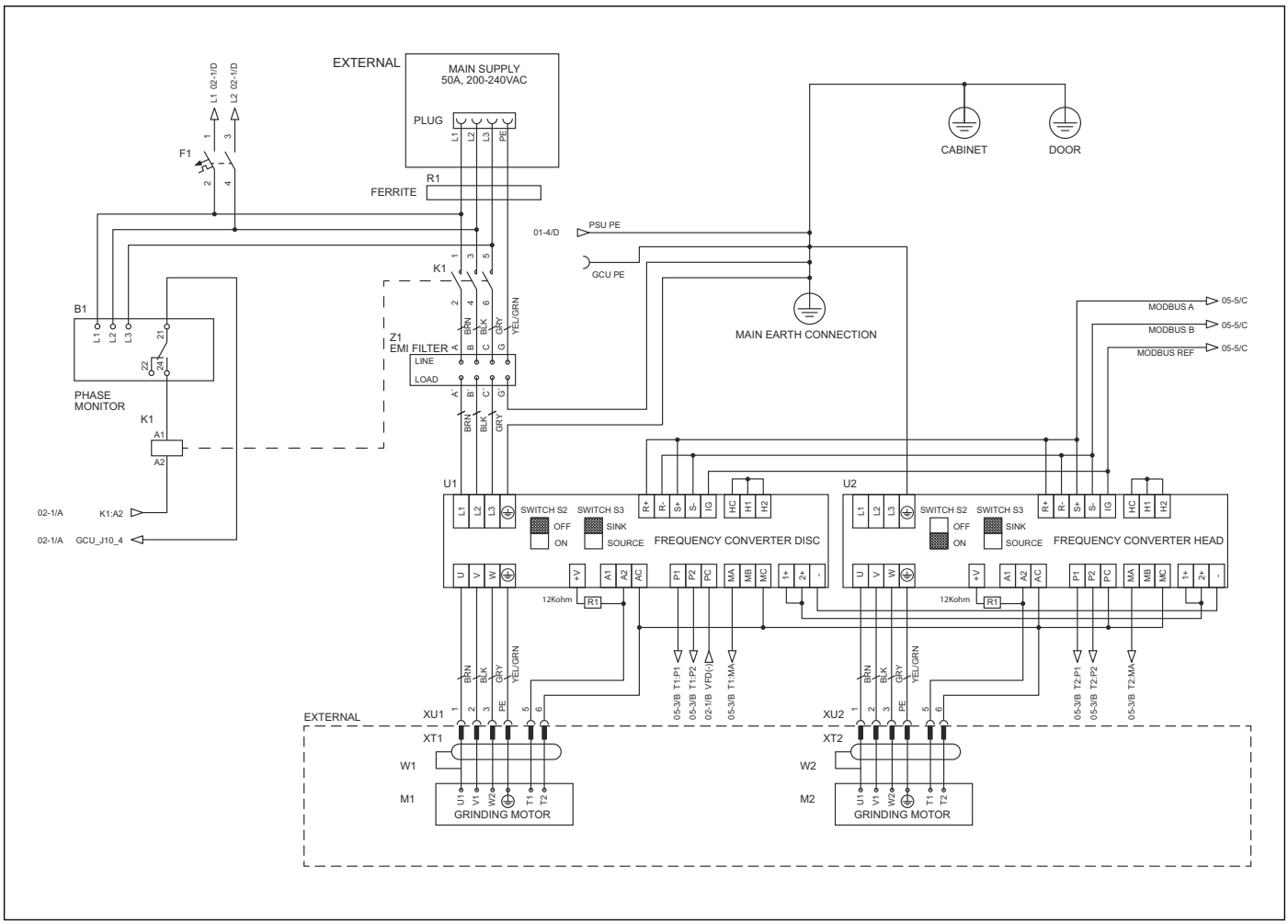
Error code radio display	Error code inverter display	Description
87	HbbF	The safe disable input hardware is damaged.
88	Hbb	The safe disable input channel is open.
89		Unexpected error.
90	Uv2	Voltage is too low for the control drive input power.
91	Uv1	DC bus undervoltage.
92	Uv3	The inrush prevention circuit has failed.
93	SC	IGBT short circuit.
94	GF	Ground fault.
95	ov	Voltage in the DC bus has exceeded the overvoltage detection level.
96	oH	Heatsink overheat
97	oC	Drive sensors have detected an output current greater than the specified overcurrent level.
98	oS	Overspeed (Simple V/f with PG).
99	oL3	Drive output current (or torque in OLV) was greater than the preset limit.
100	oL4	Drive output current (or torque in OLV) was greater than the preset limit.
101	oH1	Heatsink overheat.
102	FbL	The PID feedback input is lower than the preset level.
103	UL3	Drive output current (or torque in OLV) less than preset value.
104	UL4	Drive output current (or torque in OLV) less than preset value.
105	oL7	The output frequency stayed consant longer than the preset time, during the High-slip Braking.
106	oFx	Hardware fault.
107	LF2	One or more of the phases in the output current is lost.
108	Sto	Motor pull out or step out has occurred. Motor has exceeded its pull out torque.
109	oL1	The electrothermal sensor tripped overload protection.
110	oL2	The thermal sensor of the drive triggered overload protection.
111	EF3	External fault.
112	EF4	External fault.
113	EF5	External fault.
114	EF6	External fault.
115	EF7	External fault.
116	dEv	According to the pulse input (RP), the speed deviation is greater than the preset value.
117	PGo	No PG pulses are received for longer than the preset time.
118	PF	Drive input power has an open phase or has a large imbalance of voltage between phases.
119	LF	Phase loss on the output side of the drive.
120	oH3	Motor overheat alarm (PTC input).
121	oH4	Motor overheat fault (PTC input).
122	CE	Control data was not received correctly for two seconds.

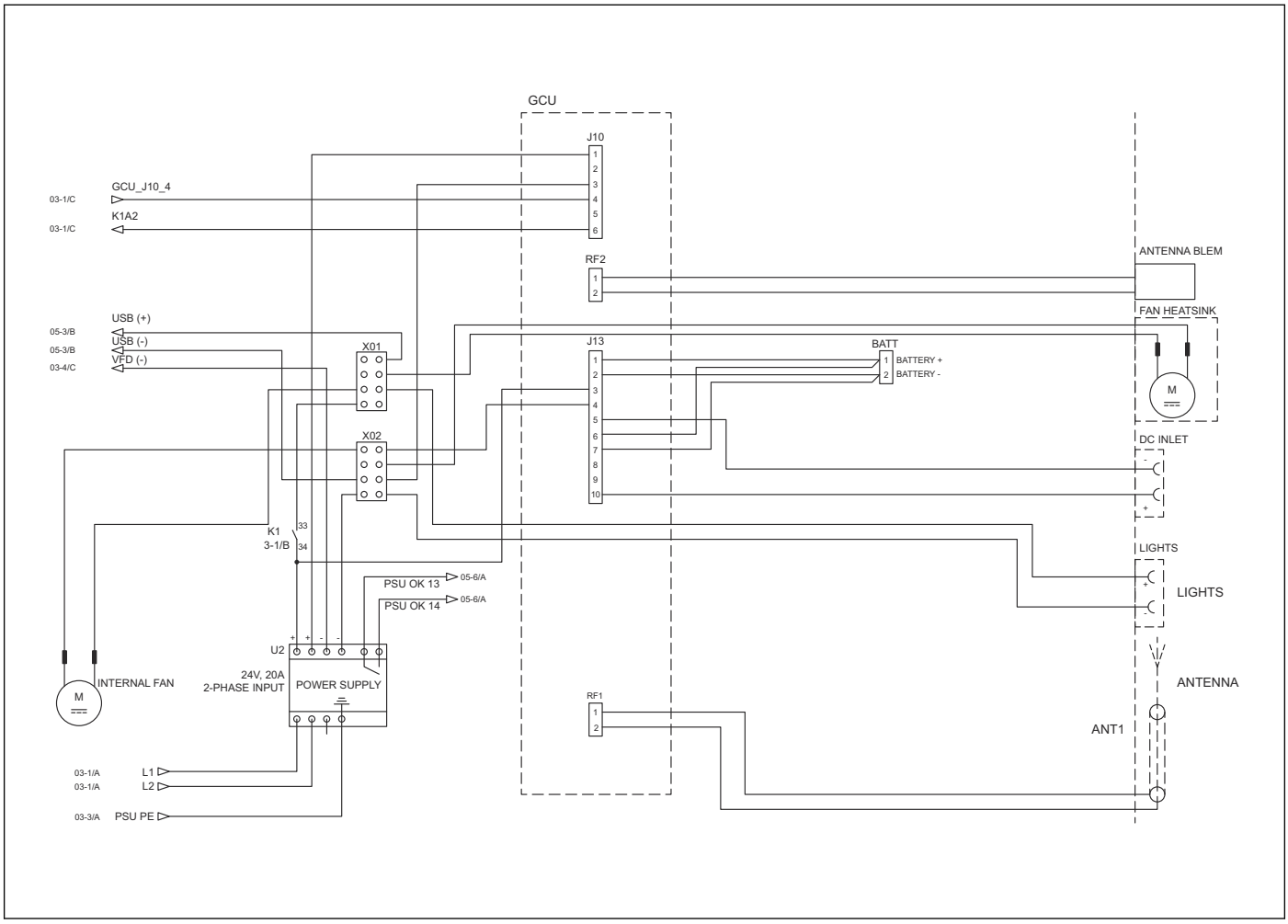
Error code radio display	Error code inverter display	Description
123	EF1	External fault.
124	EF2	External fault.
125	Uv	Check incoming power supply.
126	ov	Voltage in the DC bus has exceeded the overvoltage detection level.
127	oH	Check cooling fans.
128	oH2	Drive overheat warning.
129	oL3	Drive output current (or torque in OLV) was greater than the preset limit.
130	oL4	Drive output current (or torque in OLV) was greater than the preset limit.
131	EF	Both forward run and reverse run closed simultaneously for over 0.5 s.
132	bb	Drive output interrupted as indicated by an external baseblock signal.
133	EF3	External fault.
134	EF4	External fault.
135	EF5	External fault.
136	EF6	External fault.
137	EF7	External fault.
138	oS	Pulse input (RP) indicates that motor speed feedback exceeded preset value.
139	dEv	According to the pulse input (RP), the speed deviation is greater than the preset value.
140	PGo	No PG pulses are received for longer than the preset time.
141	oPr	External digital operator connection fault.
142	CE	Control data was not received correctly for two seconds.
143	bUS	After establishing initial communication, the connection was lost.
144	CALL	Communication has not yet been established.
145	oL1	The electrothermal sensor tripped overload protection.
146	oL2	The thermal sensor of the drive triggered overload protection.
147	rUn	A command to switch motors was entered during run.
148	CALL2	Transmission communication has not yet been established.
149	UL3	Drive output current (or torque in OLV) less than preset value.
150	UL4	Drive output current (or torque in OLV) less than preset value.
151	SE	Modbus test mode fault.
152	oH3	Motor overheat alarm (PTC input).
153	FbL	The PID feedback input is lower than the preset level.
154	FbH	The PID feedback input is higher than the preset value.
155	dnE	Drive disabled
156	HCA	Drive current exceeded overcurrent warning level (150% of the rated current).
157	EF1	External fault.
158	EF2	External fault.
159	HbbF	The safe disable input hardware is damaged.
160	Hbb	The safe disable input channel is open.

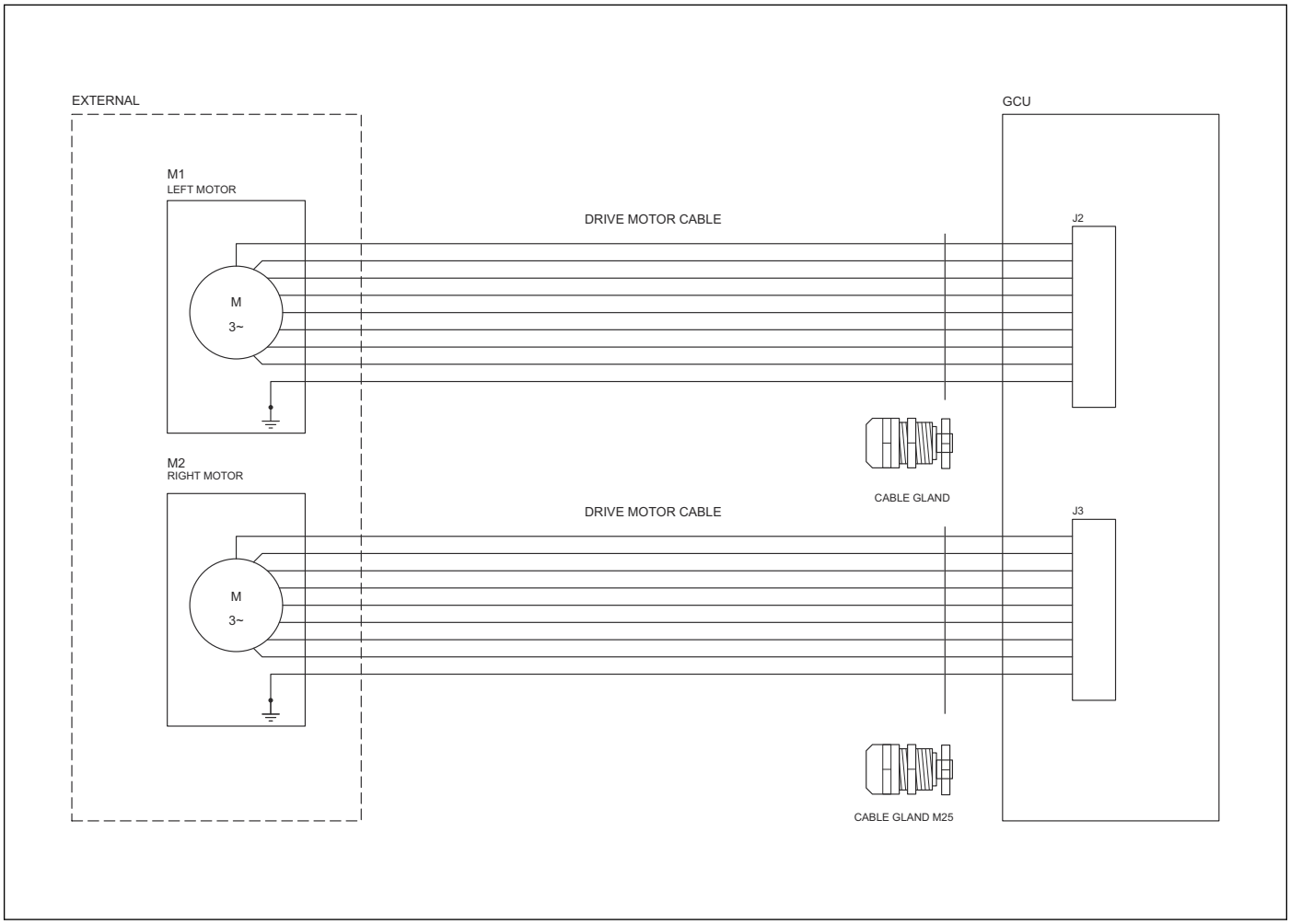
8.1 Control panel



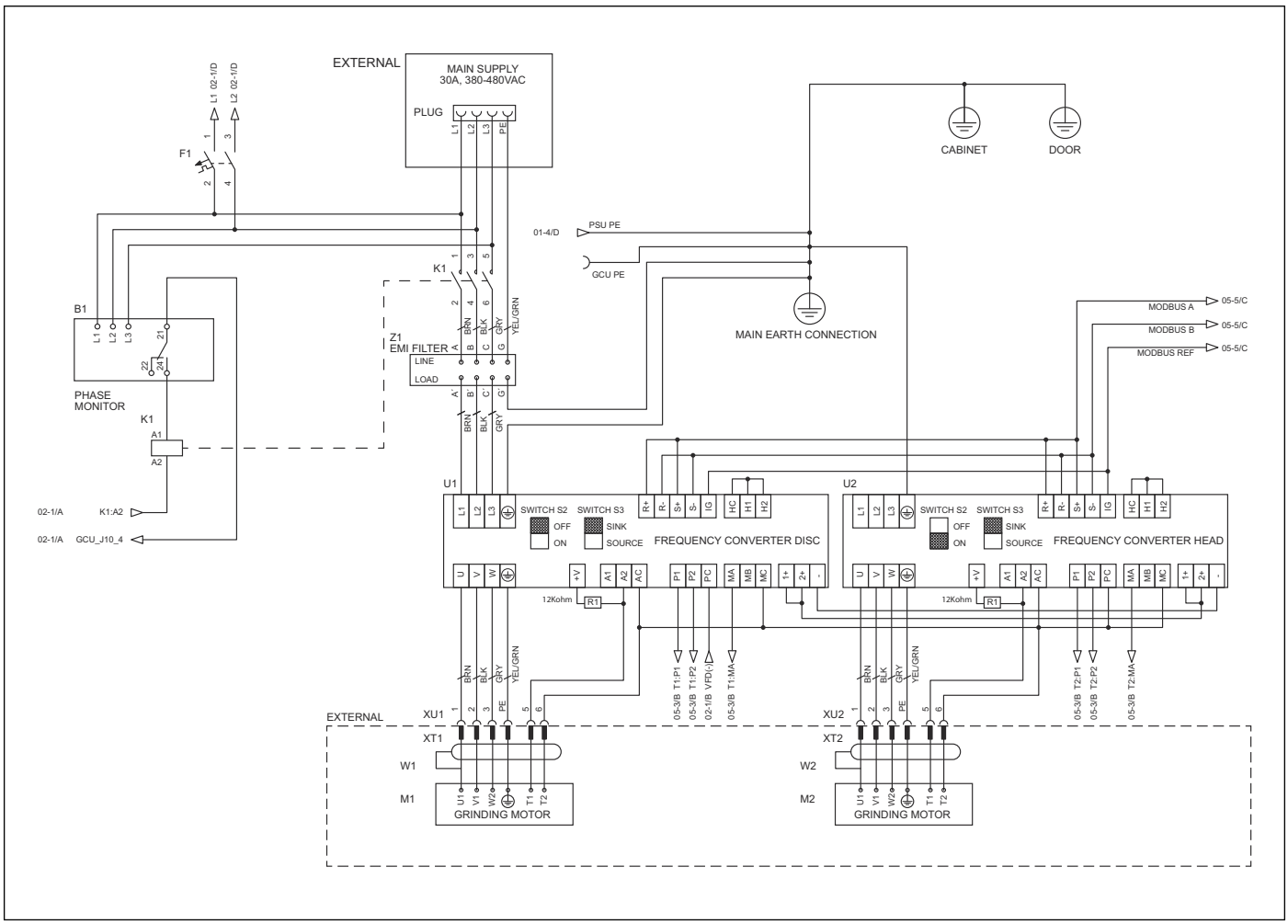
8.2 3x200-240V, 11 & 1.5kW, 50A

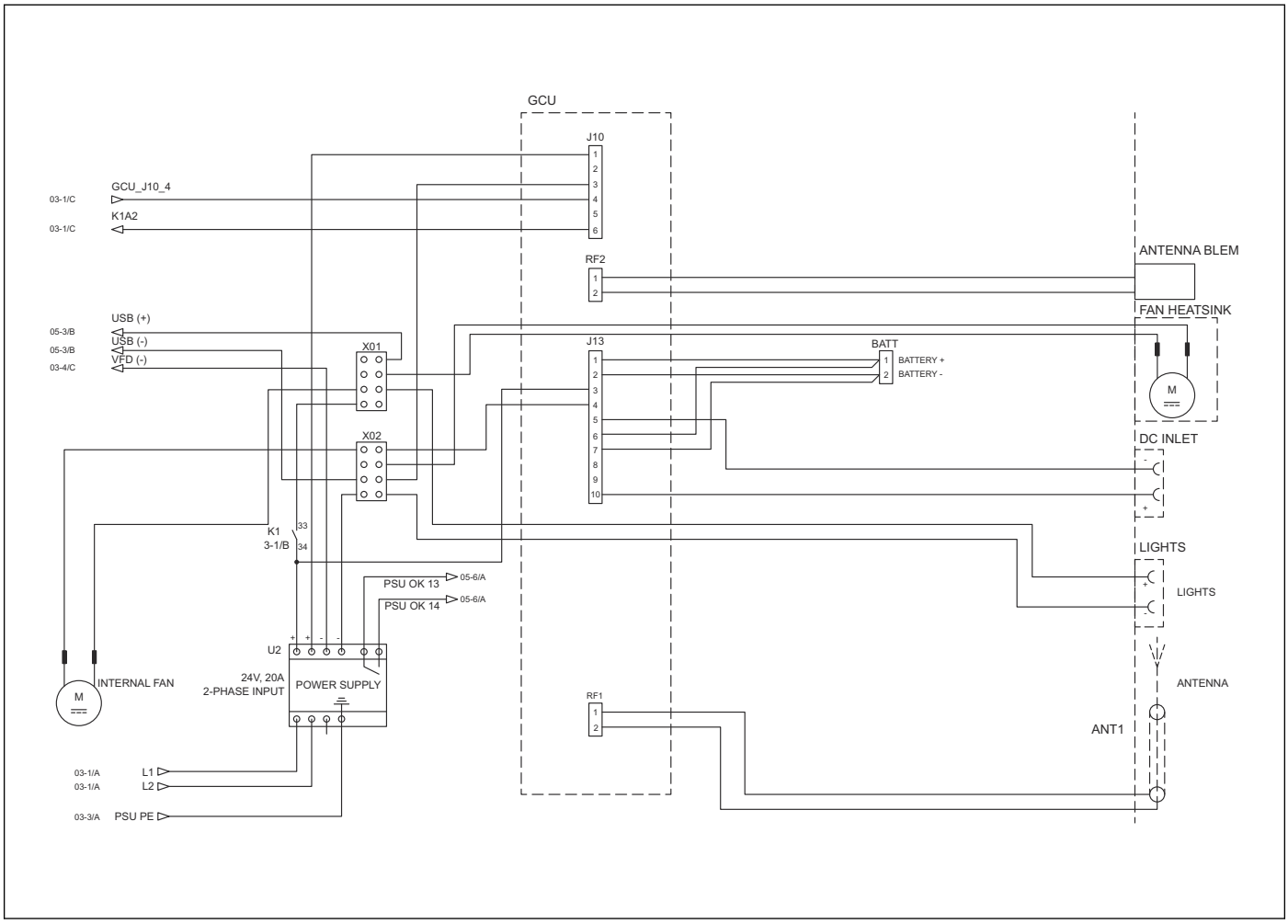


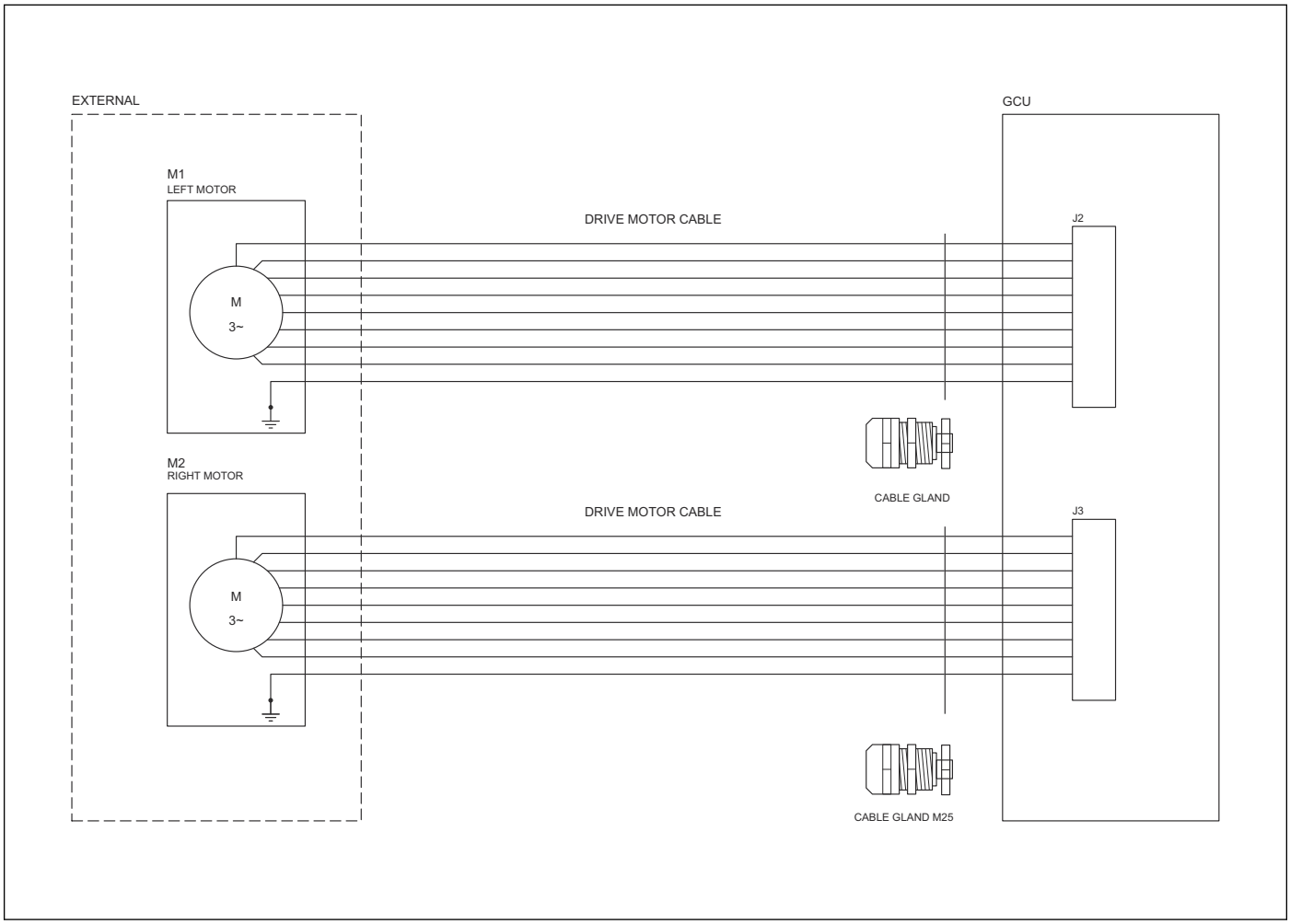

GCU
J10
GCU_J10_4
03-1/C
K1A2
03-1/C
RF2
ANTENNA BLEM
FAN HEATSINK
USB (+)
05-3/B
USB (-)
05-3/B
VFD (-)
03-4/C
X01
J13
BATT
BATTERY +
BATTERY -
M
X02
DC INLET
K1
3-1/B
33
34
LIGHTS
PSU OK 13
05-6/A
PSU OK 14
05-6/A
U2
24V, 20A
2-PHASE INPUT
POWER SUPPLY
INTERNAL FAN
ANTENNA
RF1
ANT1
03-1/A
L1
03-1/A
L2
03-3/A
PSU PE


EXTERNAL
GCU
M1
LEFT MOTOR
DRIVE MOTOR CABLE
J2
M
3~
CABLE GLAND
M2
RIGHT MOTOR
DRIVE MOTOR CABLE
J3
M
3~
CABLE GLAND M25

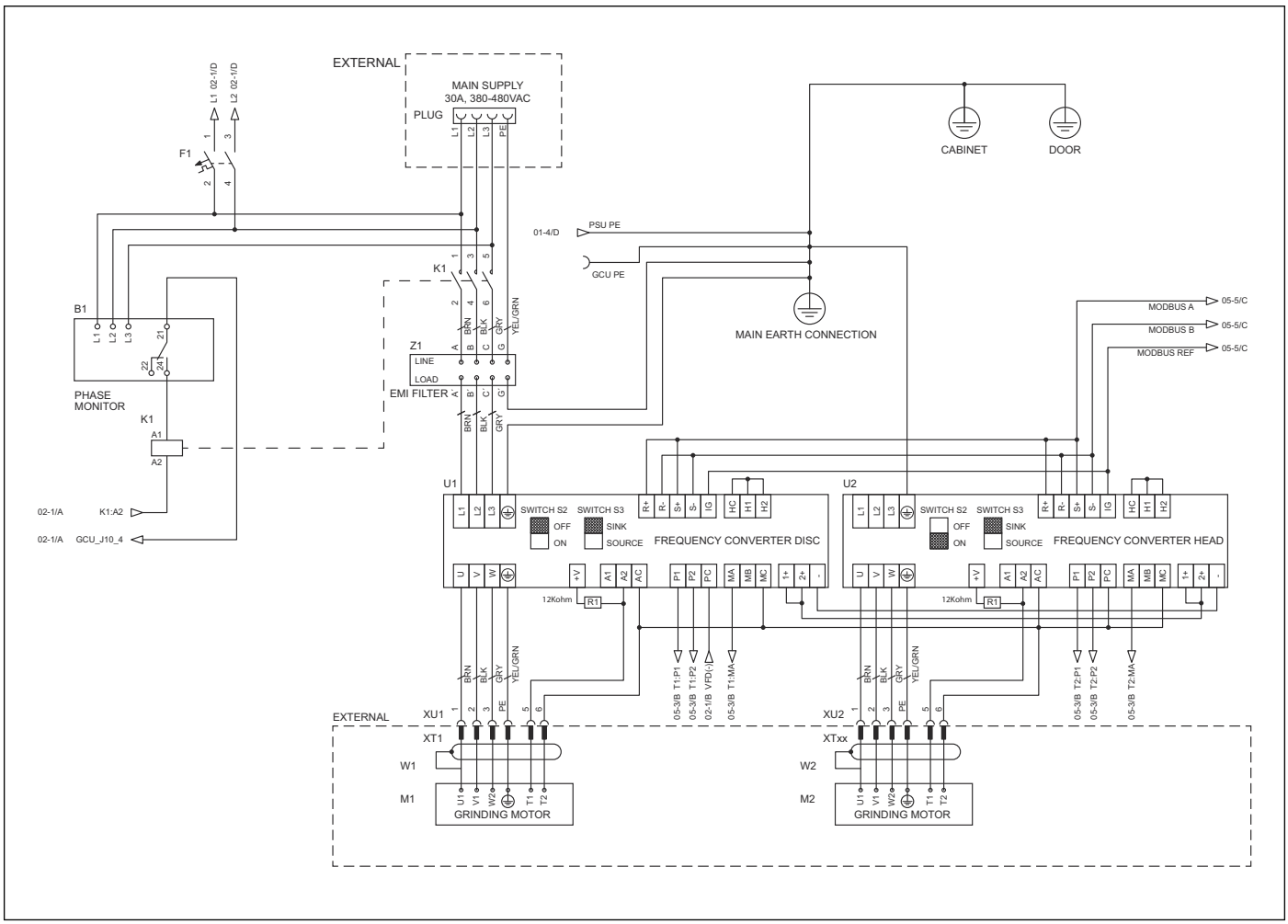
8.3 PG 690 RC, 3x200-240V, 11 & 1.5kW, 30A

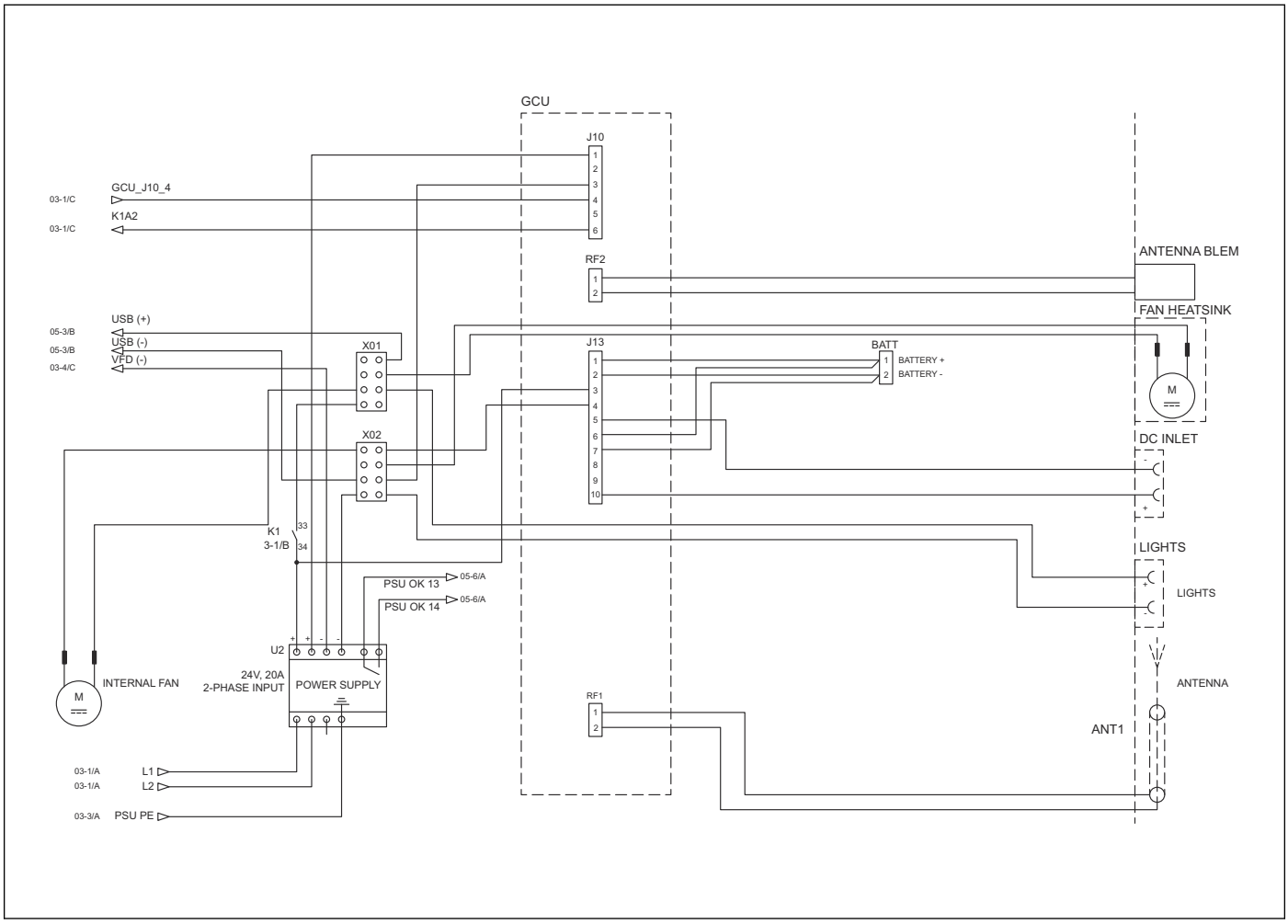


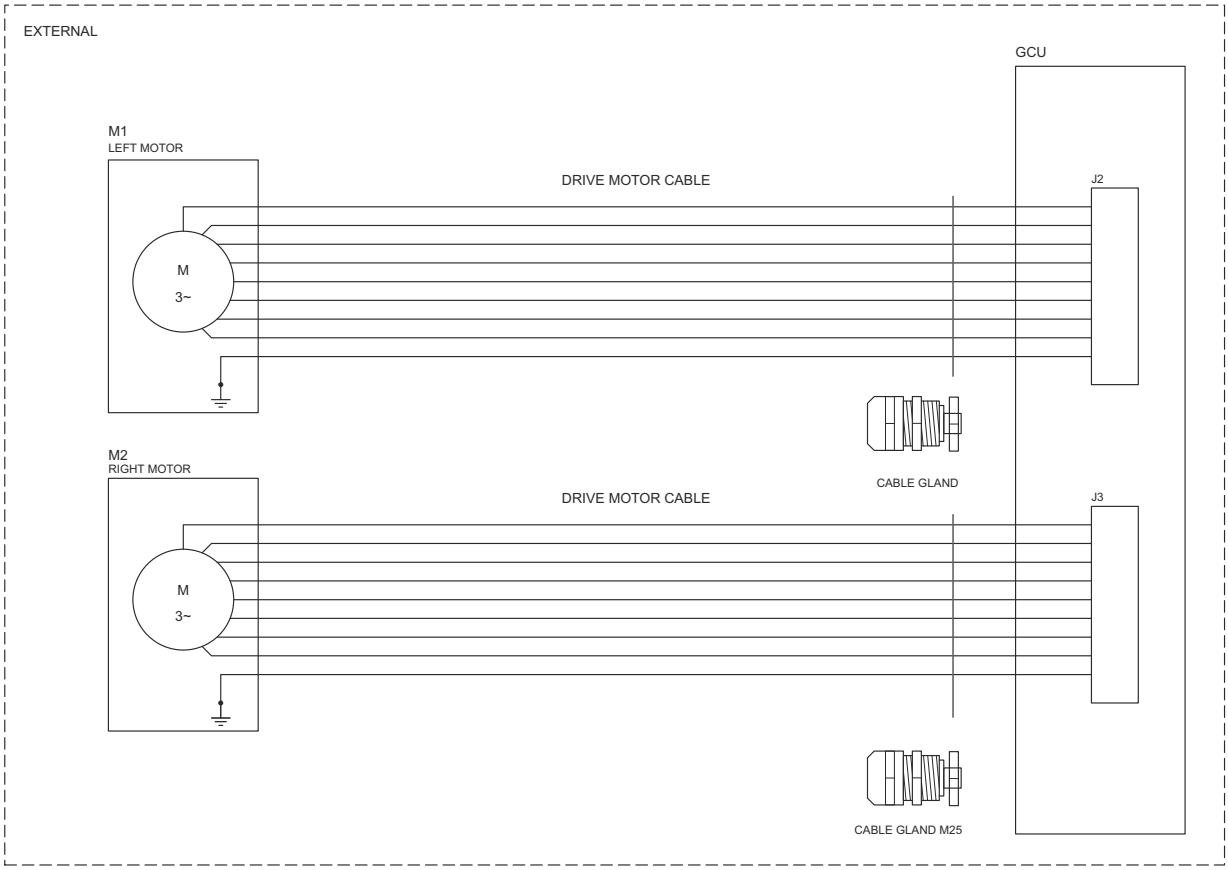

GCU
J10
GCU_J10_4
03-1/C
K1A2
03-1/C
RF2
ANTENNA BLEM
FAN HEATSINK
USB (+)
05-3/B
USB (-)
05-3/B
VFD (-)
03-4/C
X01
J13
BATT
BATTERY +
BATTERY -
M
DC INLET
X02
K1
3-1/B
33
34
LIGHTS
PSU OK 13
05-6/A
PSU OK 14
05-6/A
U2
INTERNAL FAN
24V, 20A
2-PHASE INPUT
POWER SUPPLY
RF1
ANTENNA
ANT1
03-1/A
L1
03-1/A
L2
03-3/A
PSU PE


EXTERNAL
GCU
M1
LEFT MOTOR
DRIVE MOTOR CABLE
J2
M
3~
CABLE GLAND
M2
RIGHT MOTOR
DRIVE MOTOR CABLE
J3
M
3~
CABLE GLAND M25

8.4 PG 830 RC, 3x380-415V, 15 & 1.5kW, 30A




GCU
J10
GCU_J10_4
03-1/C
K1A2
03-1/C
RF2
ANTENNA BLEM
FAN HEATSINK
USB (+)
05-3/B
USB (-)
05-3/B
VFD (-)
03-4/C
X01
J13
BATT
BATTERY +
BATTERY -
M
X02
DC INLET
K1
3-1/B
33
34
LIGHTS
PSU OK 13
05-6/A
PSU OK 14
05-6/A
LIGHTS
U2
ANTENNA
INTERNAL FAN
24V, 20A
2-PHASE INPUT
POWER SUPPLY
RF1
ANT1
03-1/A
L1
03-1/A
L2
03-3/A
PSU PE


EXTERNAL
GCU
M1
LEFT MOTOR
DRIVE MOTOR CABLE
J2
M
3~
CABLE GLAND
M2
RIGHT MOTOR
DRIVE MOTOR CABLE
J3
M
3~
CABLE GLAND M25

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