Husqvarna®

Workshop manual

LF 60i LAT

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

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.

WARNING: Apply a new warning label if a warning symbol on the product is damaged or missing.

The service center that repairs the product must have safety devices that obey local regulations. Warnings and cautions are used to point out specially important parts of the workshop manual.

2.3 Special safety instructions

- When you use compressed air, do not point the airflow in the direction of your body. Air can go into the blood circulation and kill you.
- Use eye protection when you do work on springs that have tension.
- Do not use accessories that are not approved by the manufacturer. Do not do changes that are not approved by the manufacturer. This can cause injury or death to the operator or other persons.
- Always use original spare parts and accessories.
- Use approved hearing protection. Noise from the product can result in permanent hearing loss.

2.4 Symbols on the product

WARNING: This product can be dangerous and cause 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.

Use heavy-duty slip-resistant boots.

Wear approved hearing protection.

To lift the product, attach lifting equipment to the lift point on the product.

Hot surface. Keep all parts of your body away.

If the product features wireless technology. The symbol will be marked on the product name label.

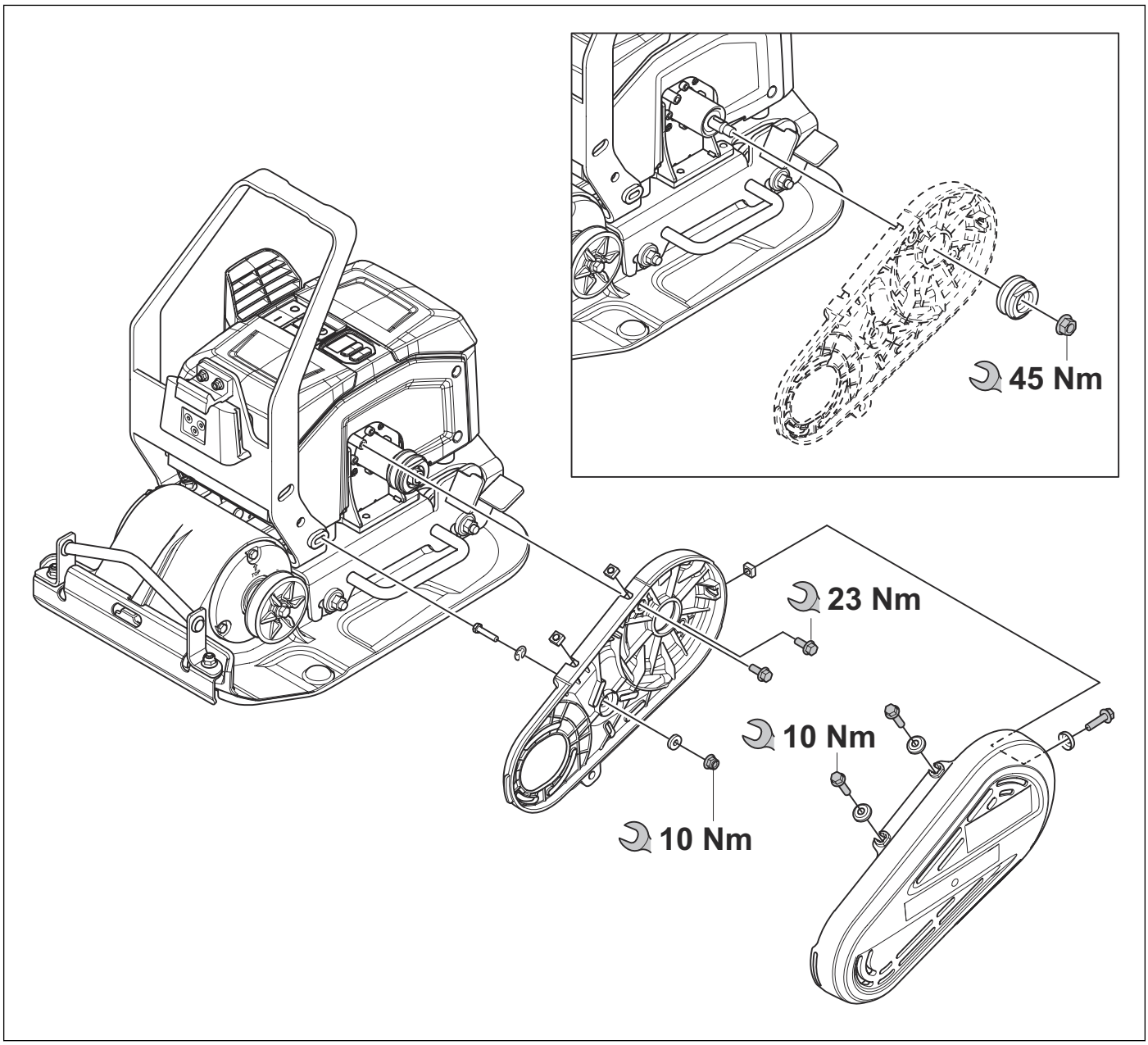
The product is not domestic waste. Recycle it at an approved disposal location for electrical and electronic equipment.

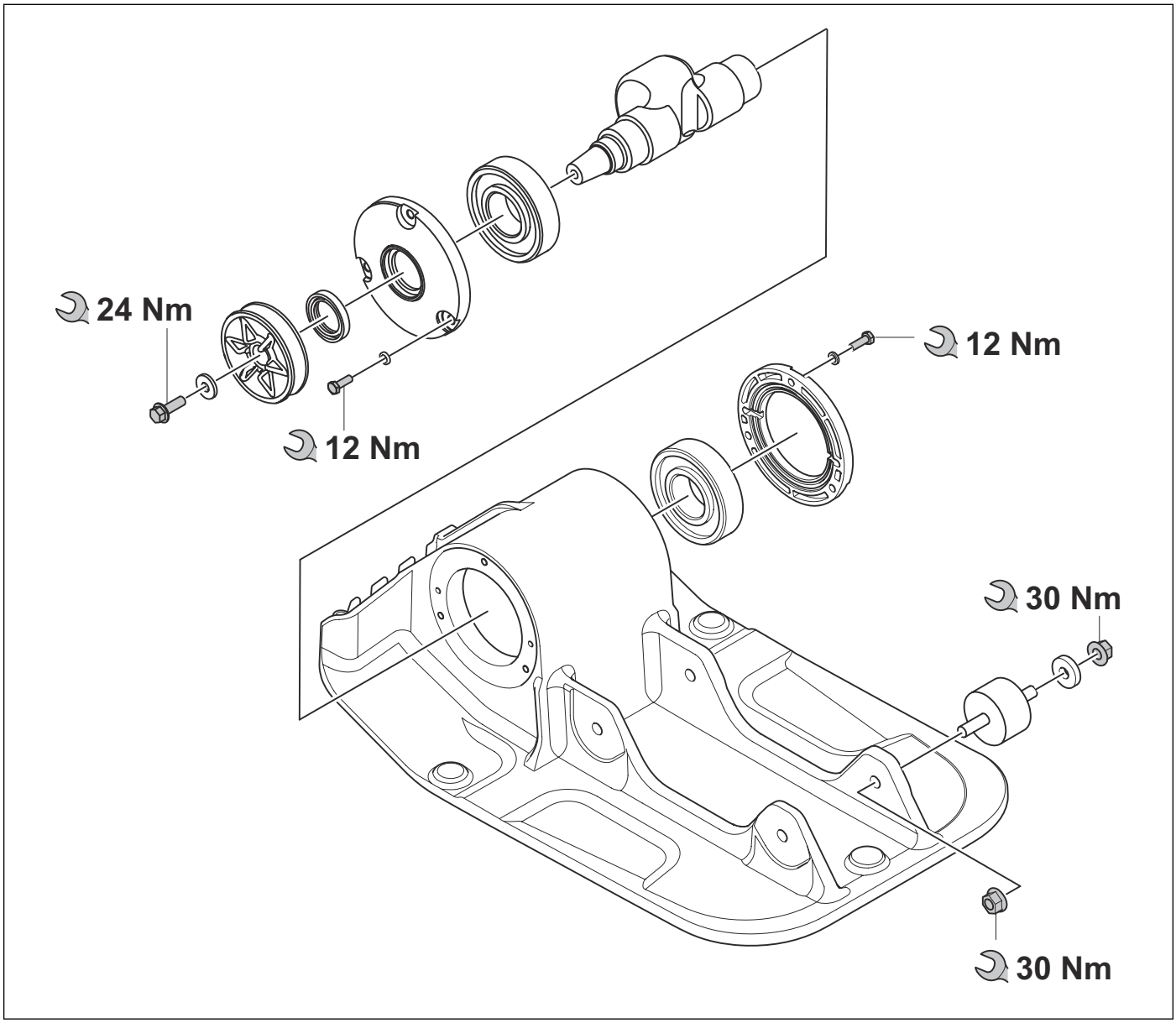
This product is in compliance with applicable EC directives.

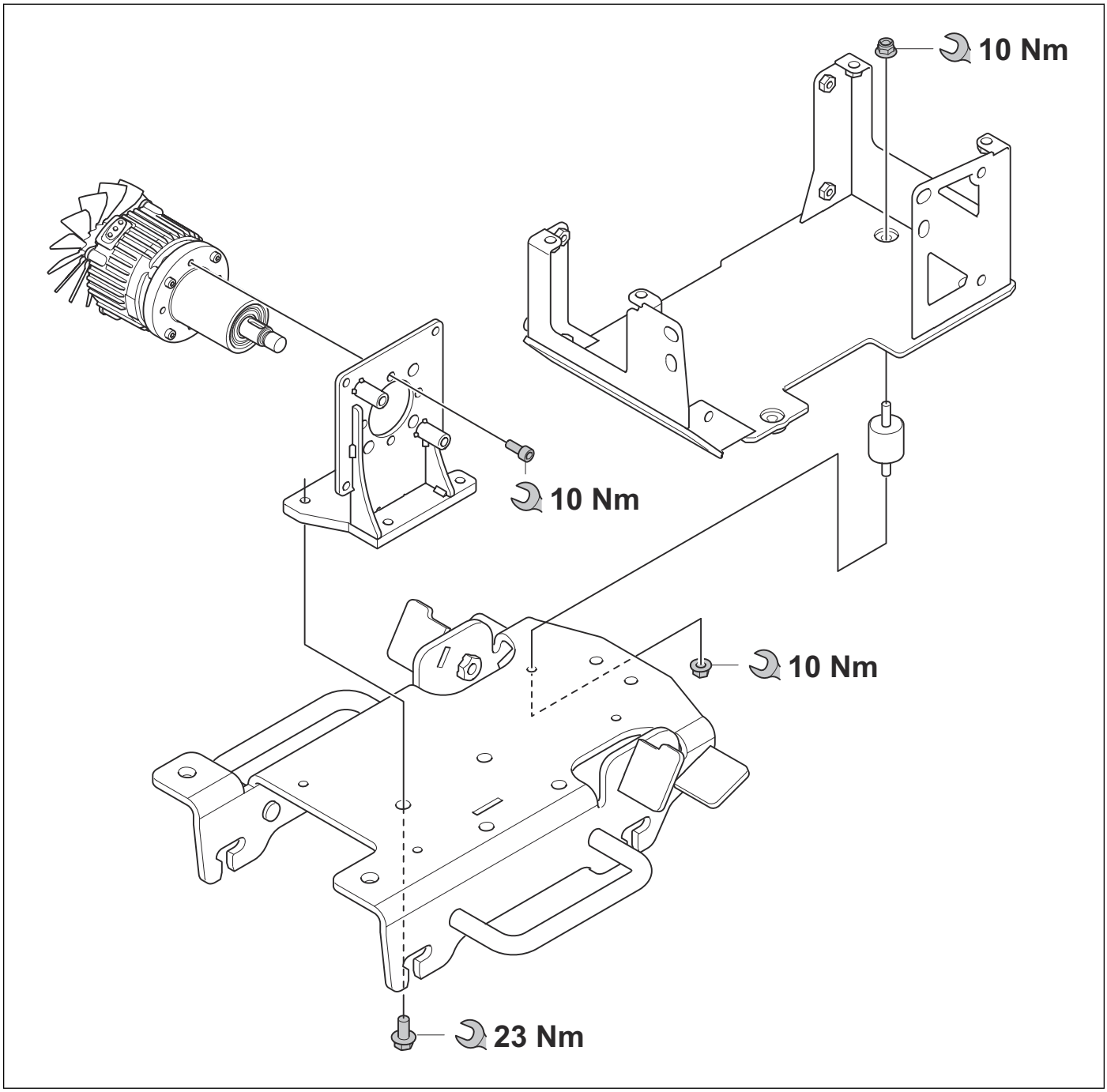
This product conforms to the applicable UK regulations.

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

3.1 Tightening torques




24 Nm
12 Nm
12 Nm
30 Nm
30 Nm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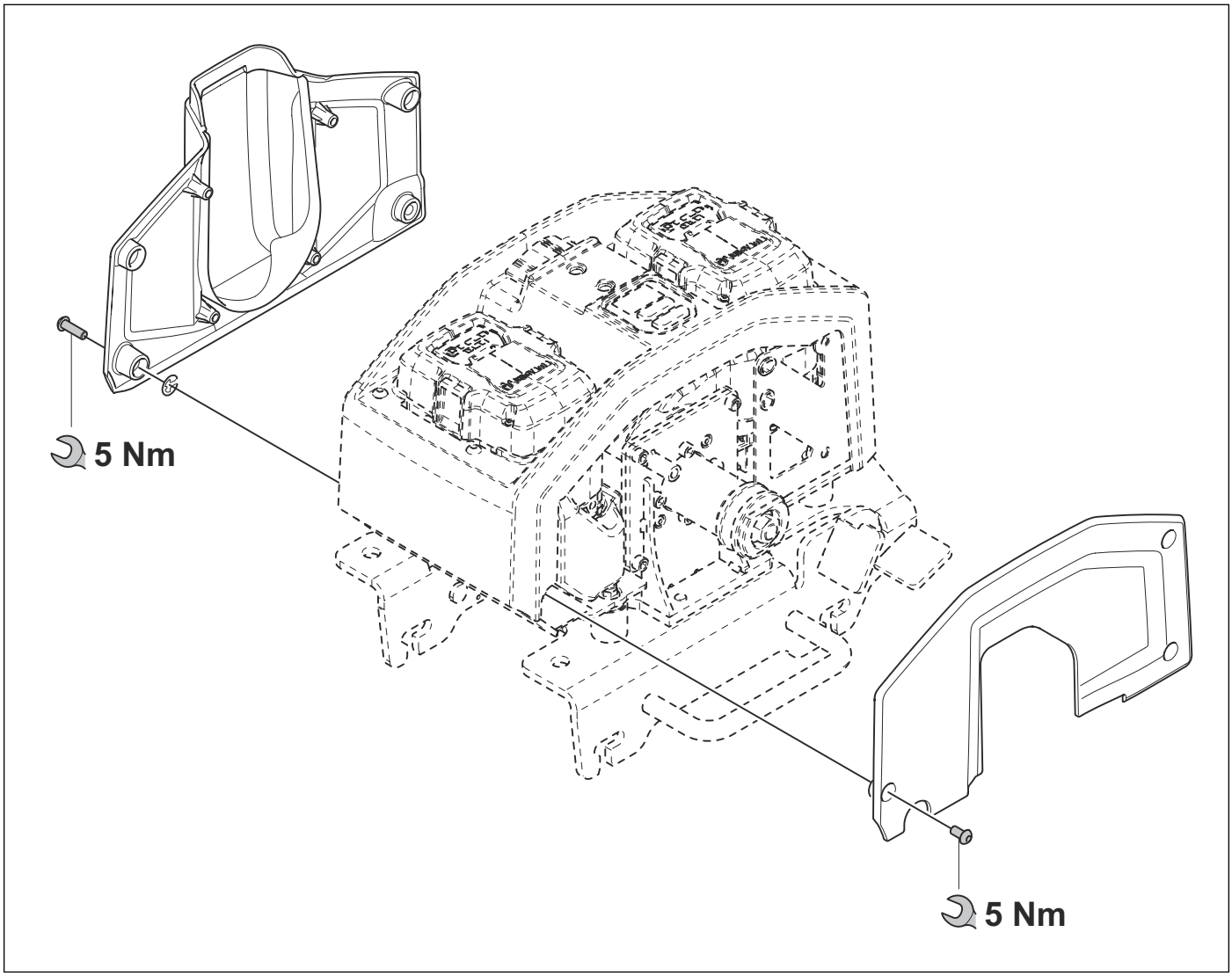
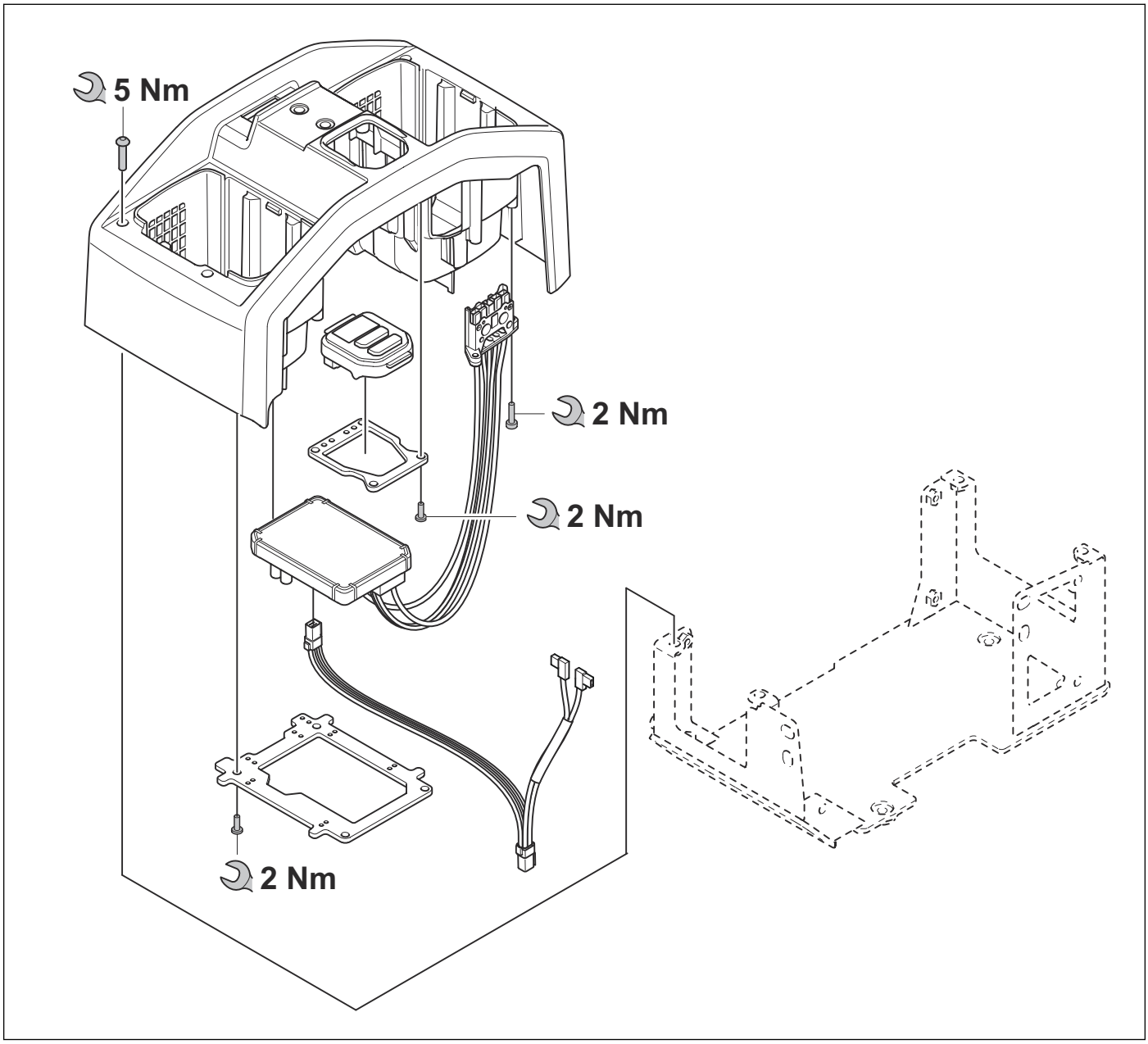
23 Nm


5 Nm
5 Nm


5 Nm
2 Nm
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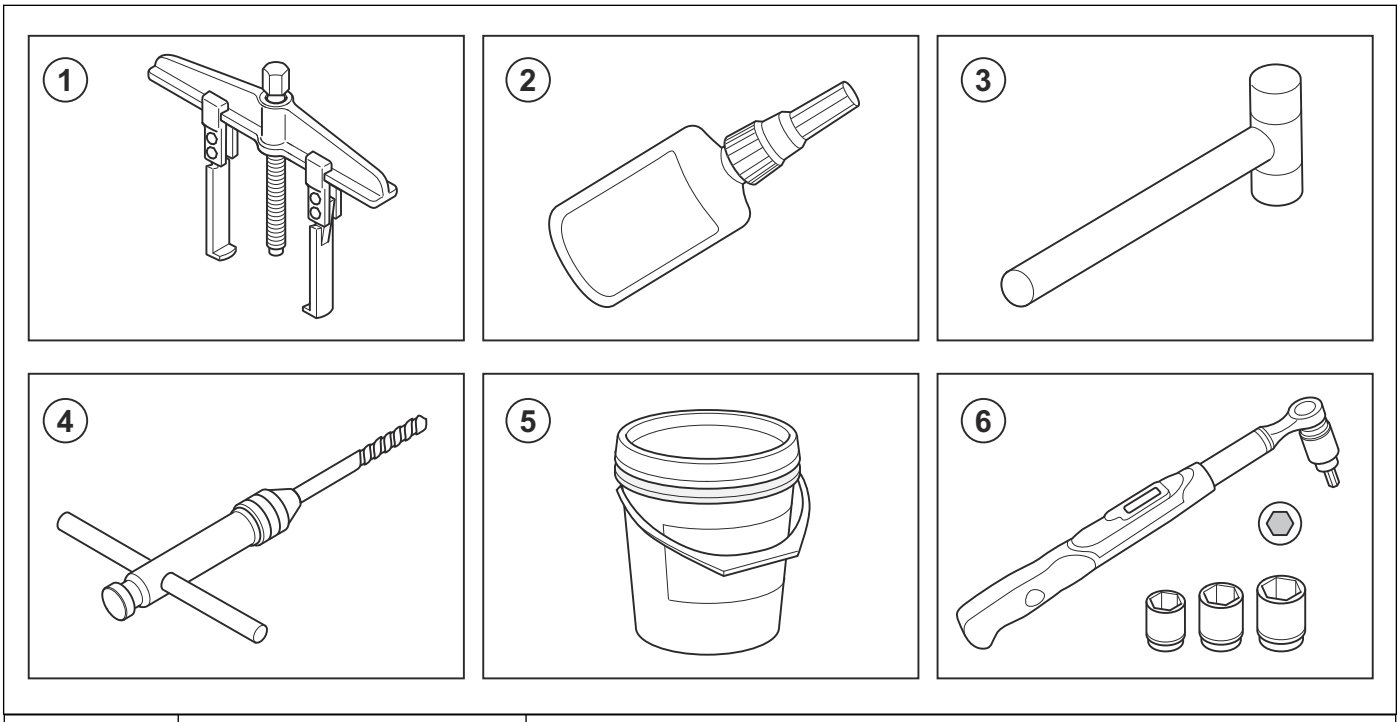
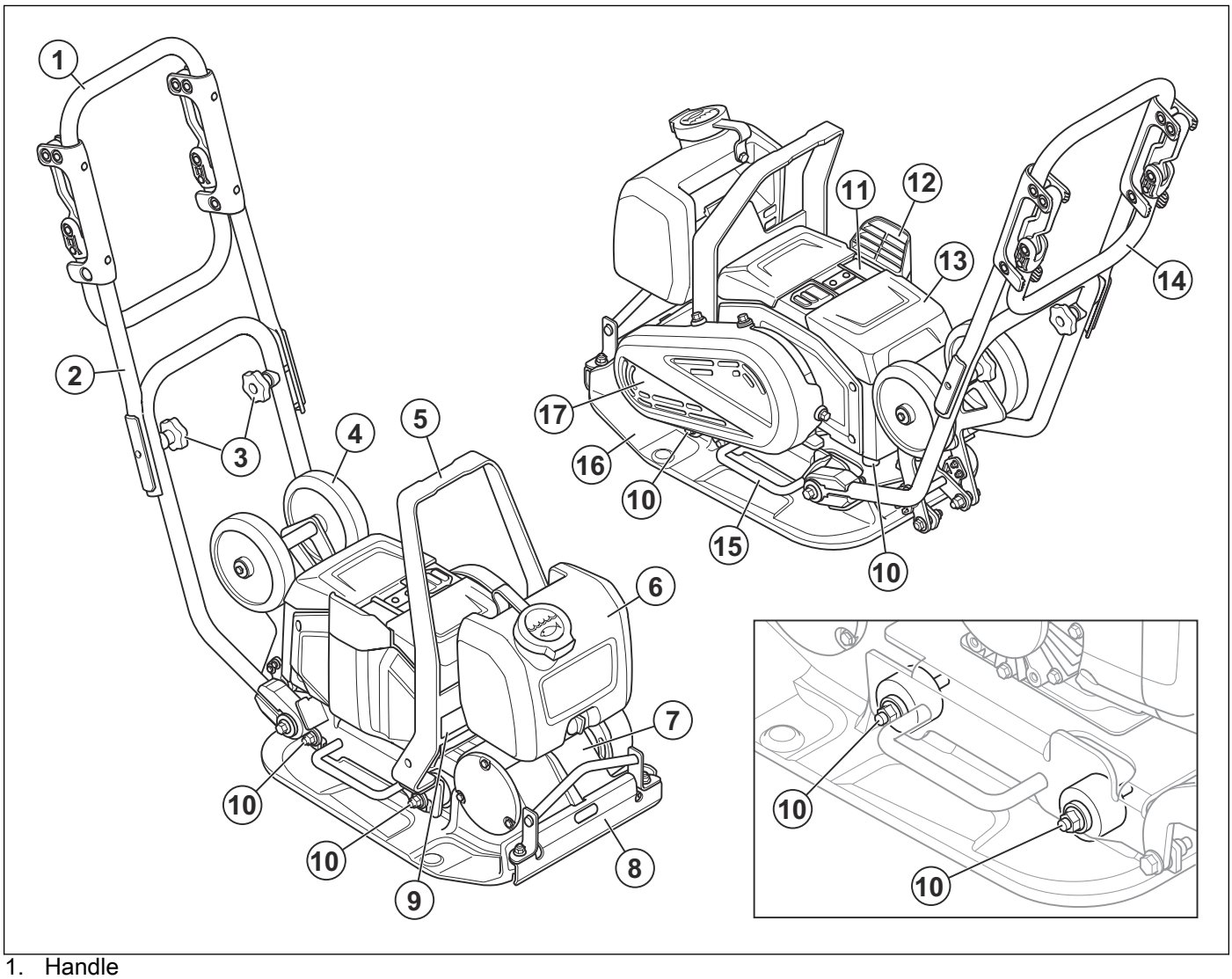
2 Nm

4 Servicing tools



Item	Description	Use
1	Bearing removal tool	To remove the inner bearing races.
2	Loctite 243 and Loctite 5188	To attach the screws and nuts.
3	Rubber mallet	General
4	Thread tap	To clean threaded holes.
5	Anti fretting grease	To lubricate the bearing covers of the eccentric element.
6	Wrench	General

5.1 Product overview



1. Handle
2. Upper handle
3. Handle knobs
4. Transportation wheel
5. Lifting point
6. Water tank
7. Eccentric element
8. Water supply
9. Type plate
10. Vibration damping units
11. Control panel
12. Air intake
13. Battery cover
14. Low vibration handle
15. Lifting handle
16. Bottom plate
17. V-belt cover

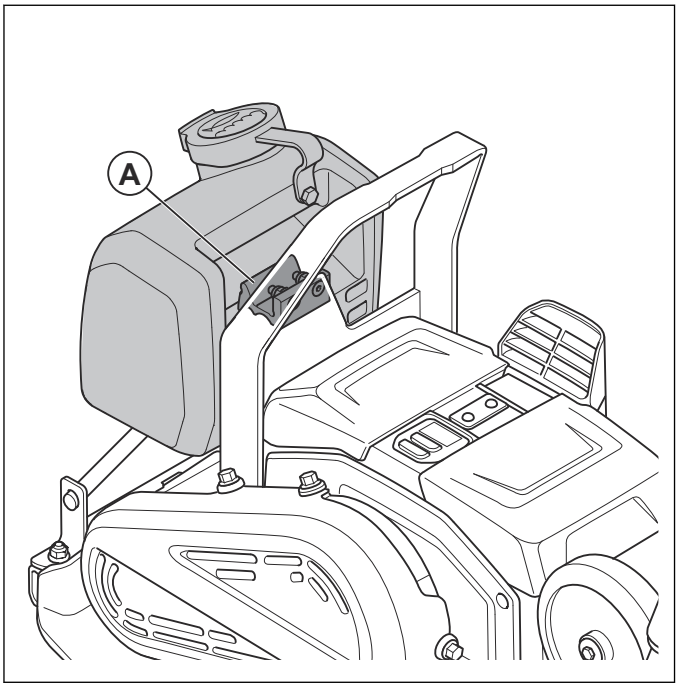
6 Repair instructions

6.1 To clean and examine the product parts

- Clean and examine all parts fully. You find more instructions in the chapter for each part if special tools or procedures are necessary.
- Replace damaged parts.
- Always use original spare parts.

6.2 To remove and install the water tank

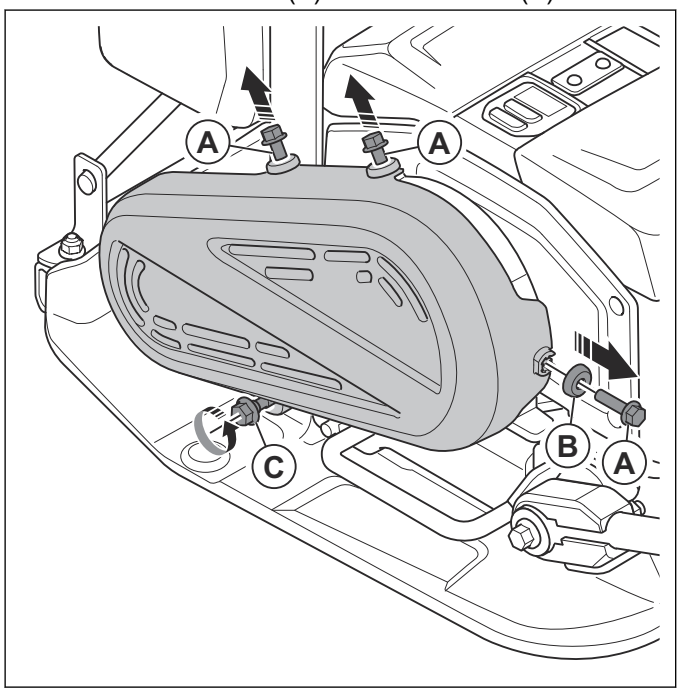
1. Empty the water tank.
2. Lift the front part of the rubber lock (A) and lift the water tank from the product.



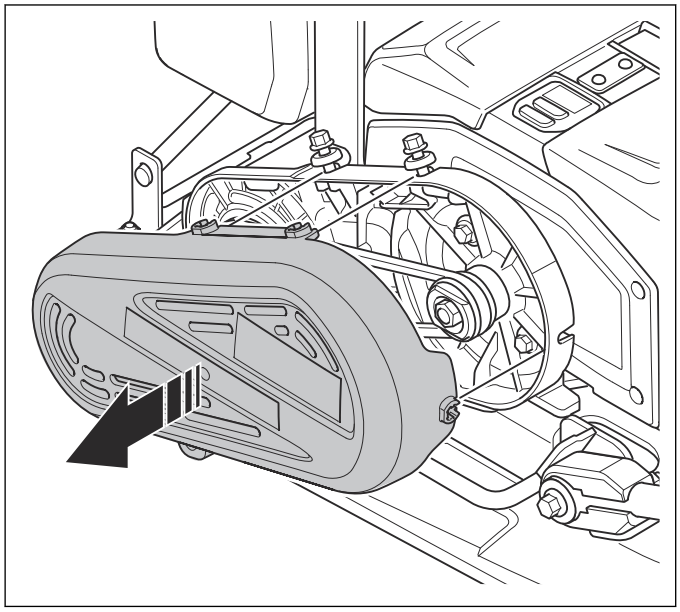
3. Install in the opposite sequence.

6.3 To remove and install the V-belt cover

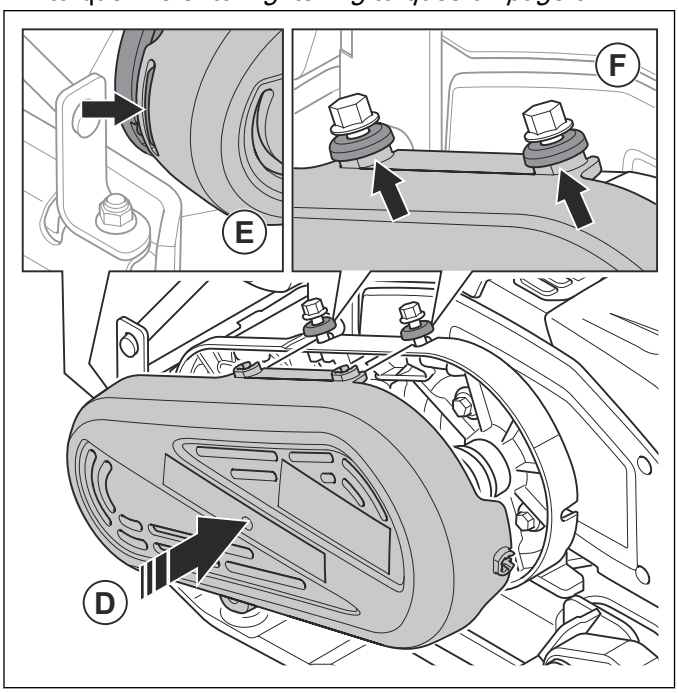
1. Remove the 3 bolts (A) and the washer (B).



2. Loosen the bolt (C).
3. Remove the V-belt cover.



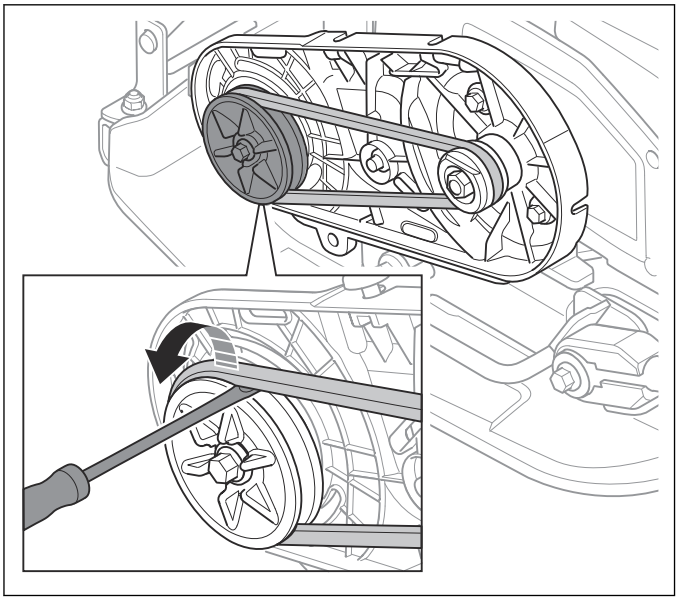
4. Install the V-belt cover (D) in the opposite sequence. Make sure that the V-belt cover is correctly aligned (E) before you tighten the bolts (F) to the correct torque. Refer to *Tightening torques on page 5*.



CAUTION: Do not tighten the screws too much. It can cause damage to the plastic.

6.4 To remove and install the V-belt

1. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
2. Bend with a flat screwdriver to remove the V-belt.

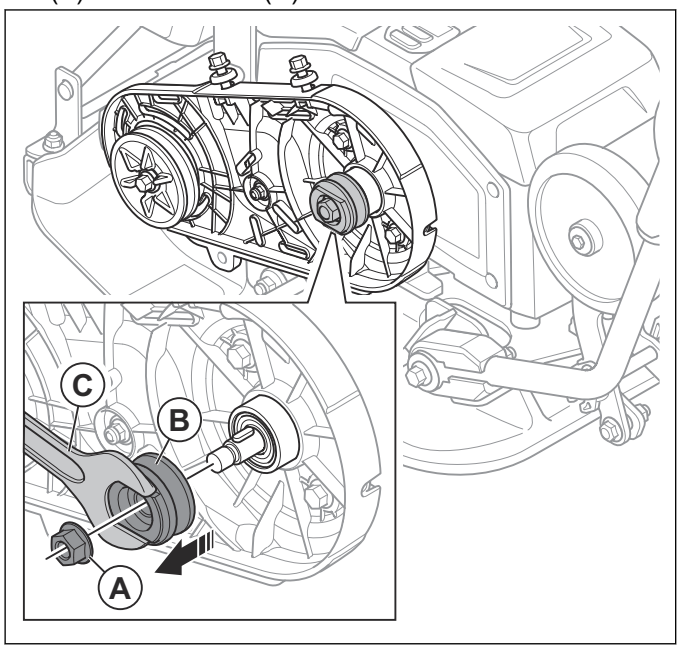


CAUTION: Put the screwdriver on the eccentric shaft pulley. If you put the screwdriver on the drive pulley, you can cause damage to the electric motor.

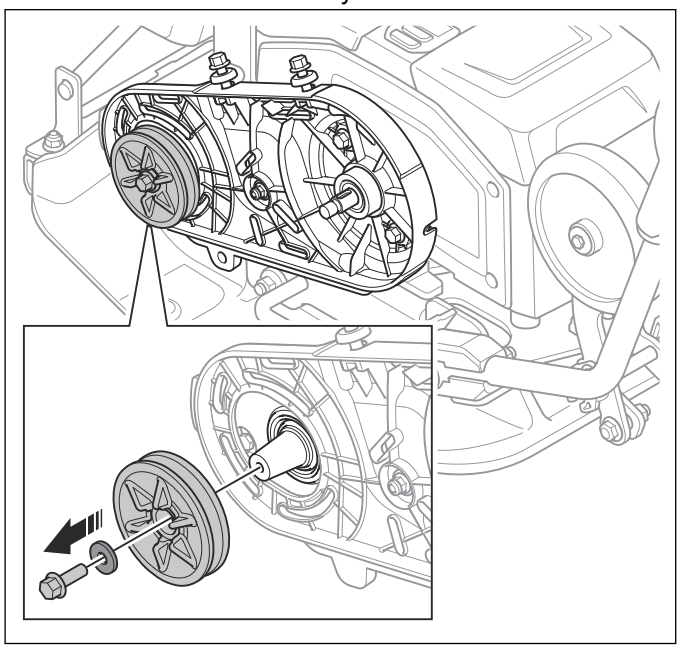
3. Install the V-belt in the opposite sequence.

6.5 To remove the V-belt housing

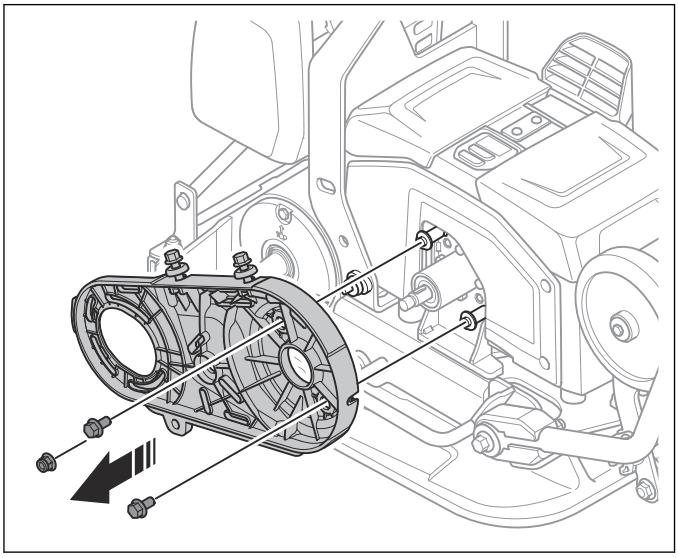
1. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
2. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
3. Remove the bolt (A) while you hold the drive pulley (B) with a wrench (C).



4. Remove the the drive pulley.
5. Remove the bolt, the washer and the eccentric shaft pulley. Use a puller if the eccentric shaft pulley cannot be removed easily.

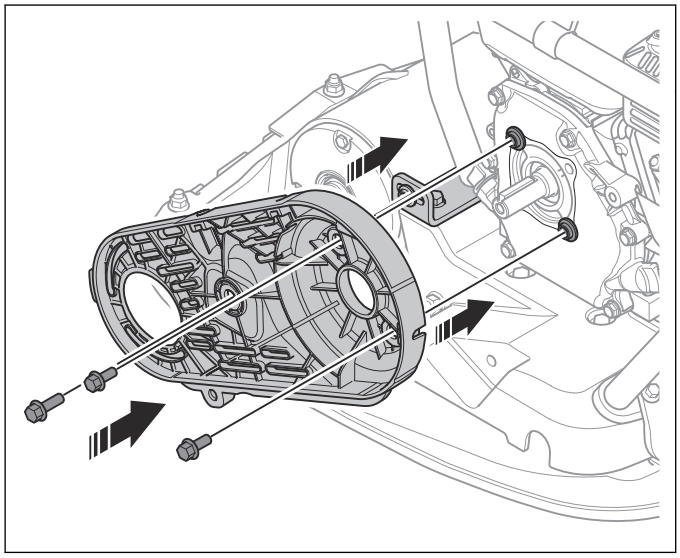


6. Remove the 2 bolts, the nut and the V-belt housing.

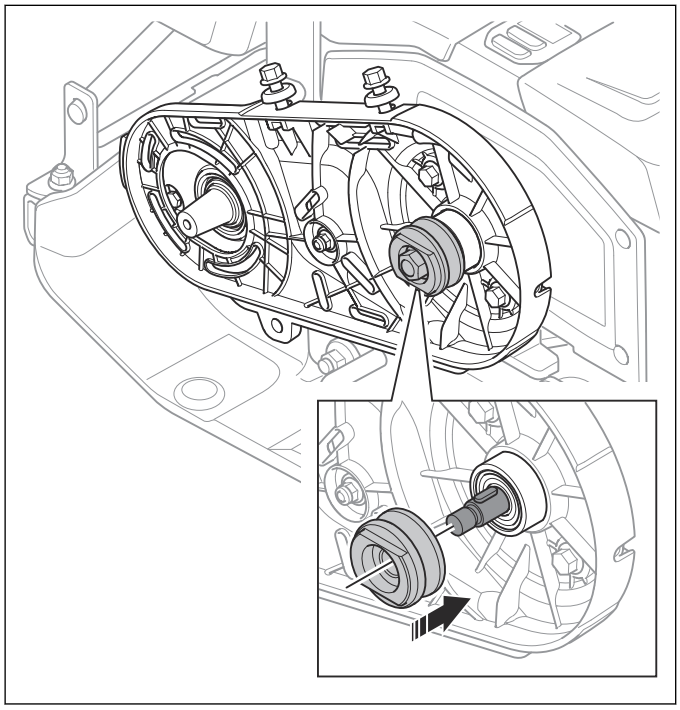


6.6 To install the V-belt housing

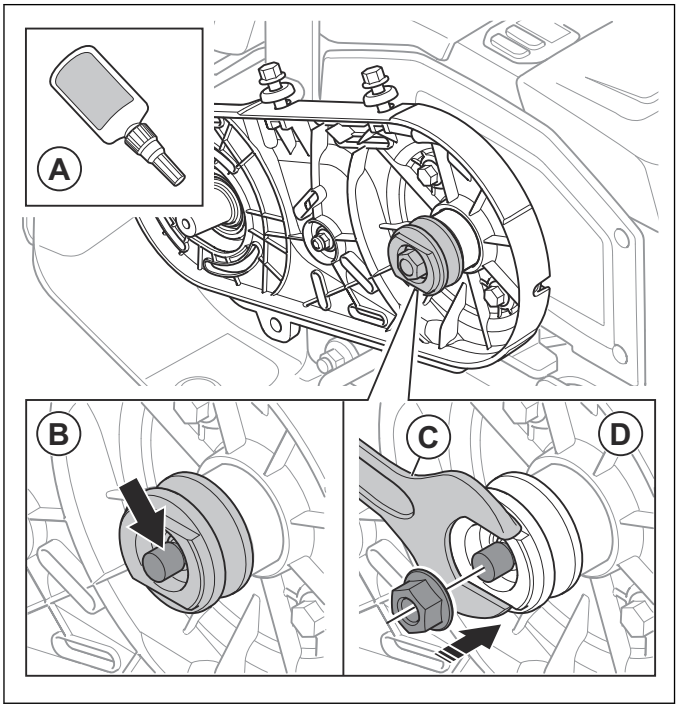
1. Install the V-belt housing, the 2 bolts and the nut. Tighten the bolts the nut to the correct torque, refer to *Tightening torques on page 5*.



2. Install the drive pulley on the shaft.

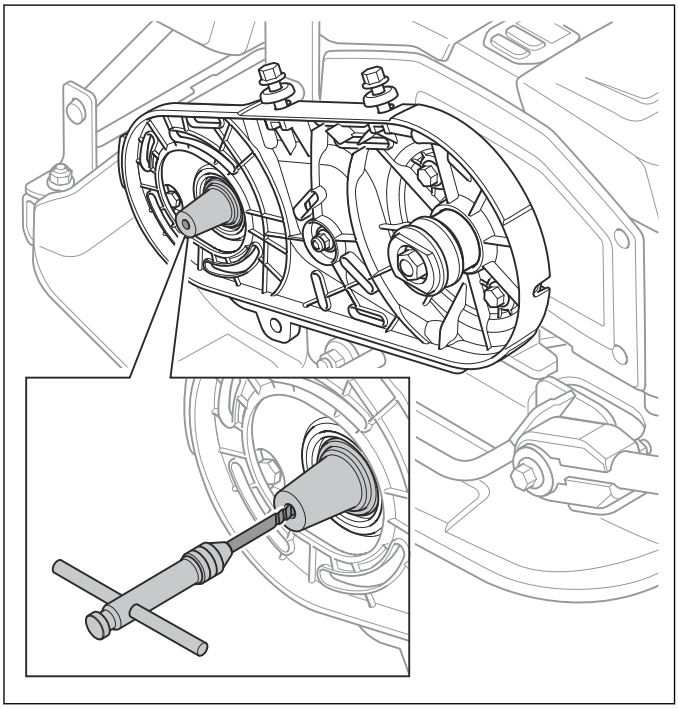


3. Apply Loctite 243 (A) to the threads (B).



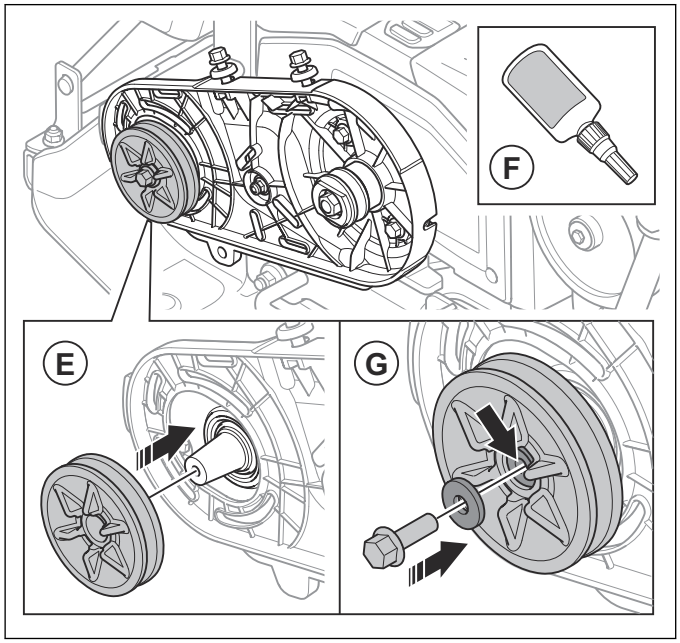
4. Hold the drive pulley with a wrench (C) and install the nut (D). Tighten the nut to the correct torque, refer to *Tightening torques on page 5*.

5. Clean the threads in the eccentric shaft with a thread tap.



CAUTION: Be careful when you use the thread tap. The thread tap can cause damage to the threads if you do not use it correctly.

6. Install the eccentric shaft pulley (E).

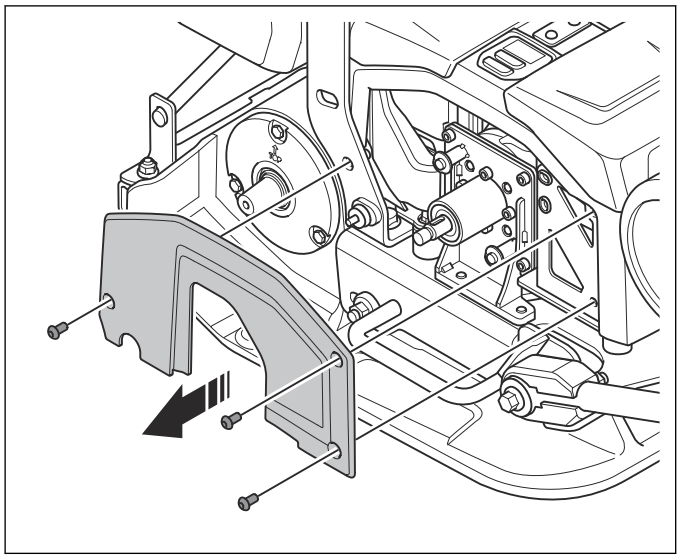


7. Apply Loctite 243 (F) to the hole with threads.

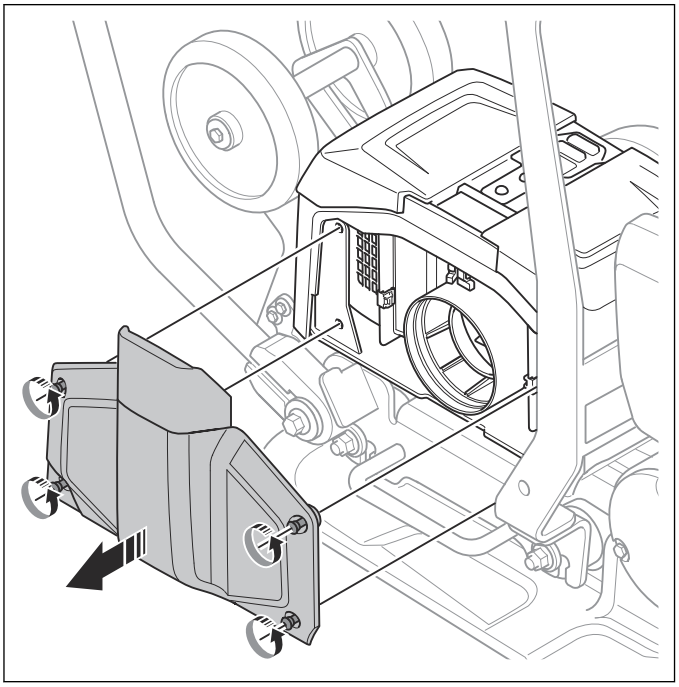
8. Install the washer and the bolt (G). Tighten the bolt to the correct torque, refer to *Tightening torques on page 5*.

6.7 To remove the battery compartment

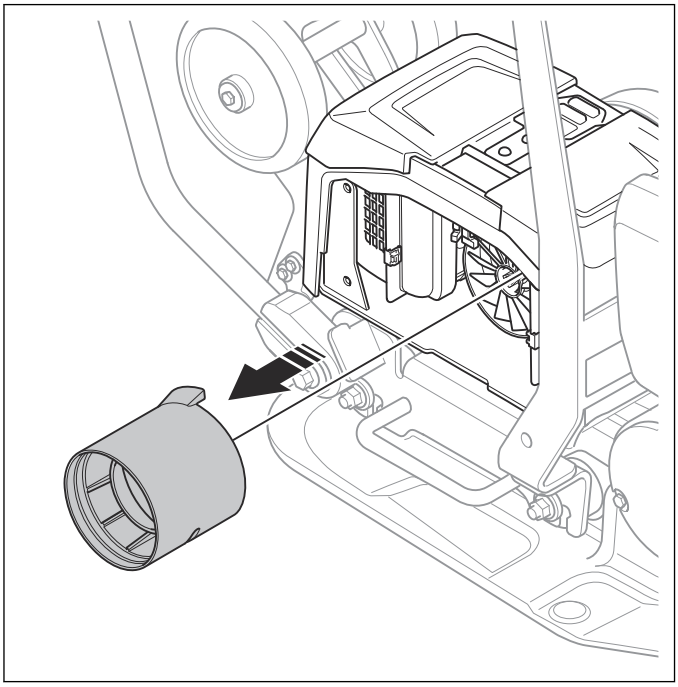
1. Remove the batteries.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the 3 screws and the left side cover.



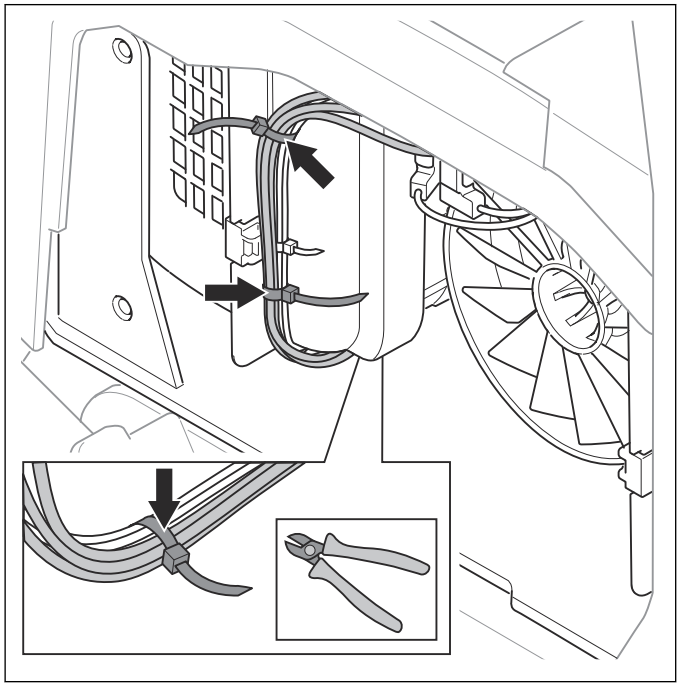
6. Loosen the 4 screws and remove the right side cover.



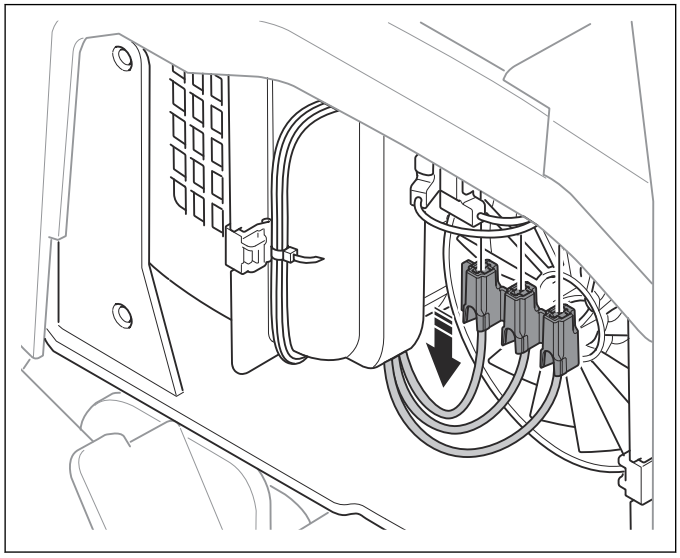
7. Pull out the air intake pipe.



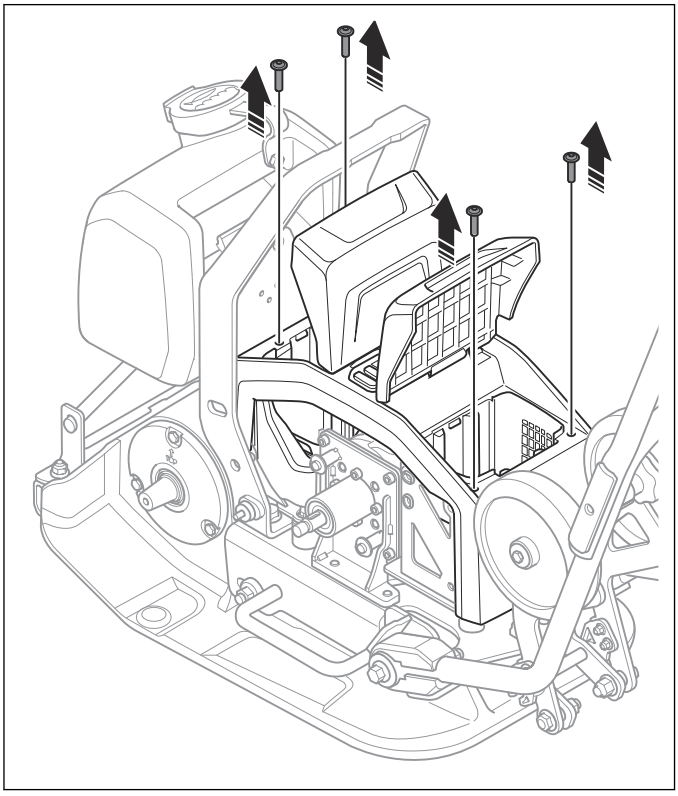
8. Cut the 3 cable ties.



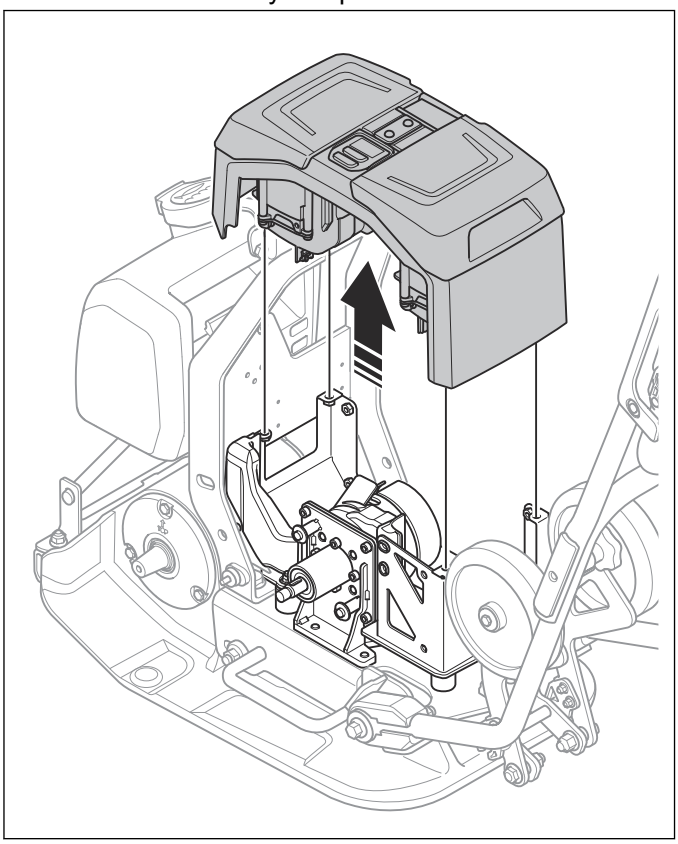
9. Disconnect the connector.



10. Remove the 4 screws.

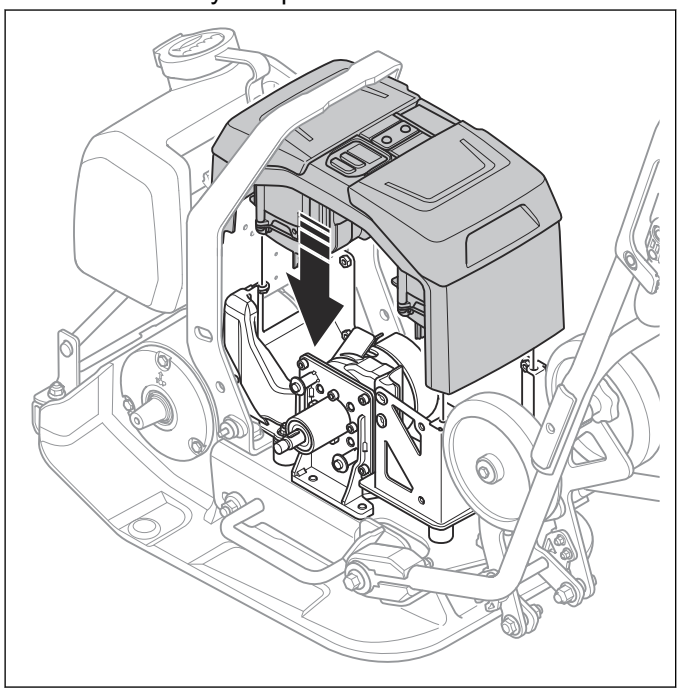


11. Remove the battery compartment.

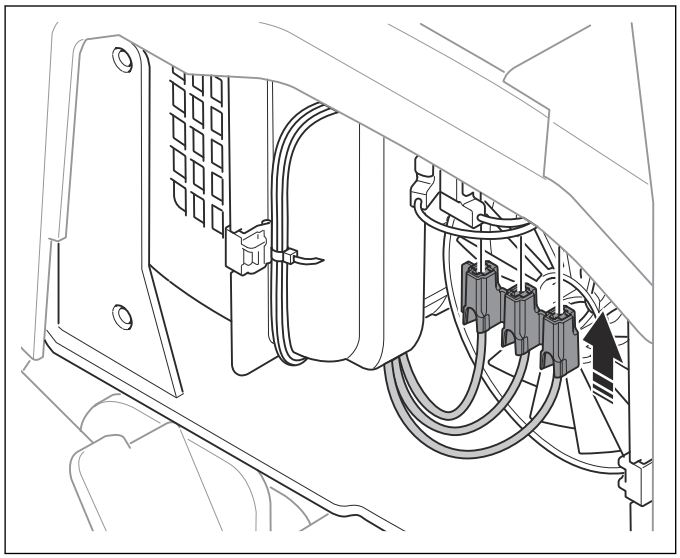


6.8 To install the battery compartment

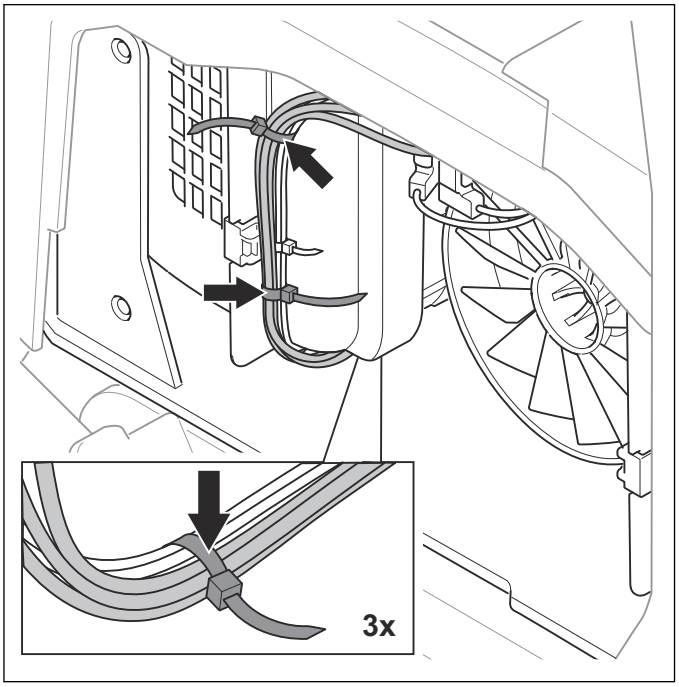
1. Put the battery compartment on the frame.



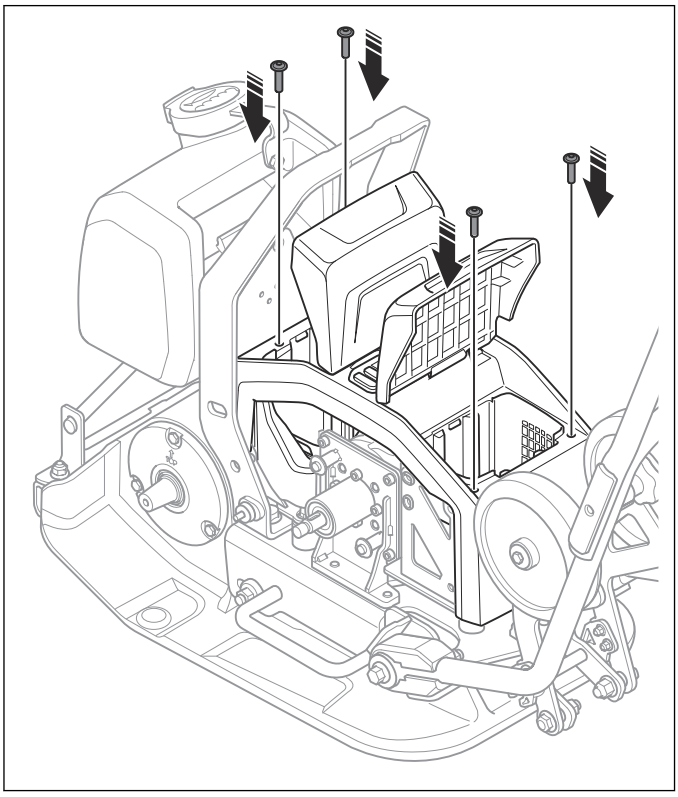
2. Connect the connector.



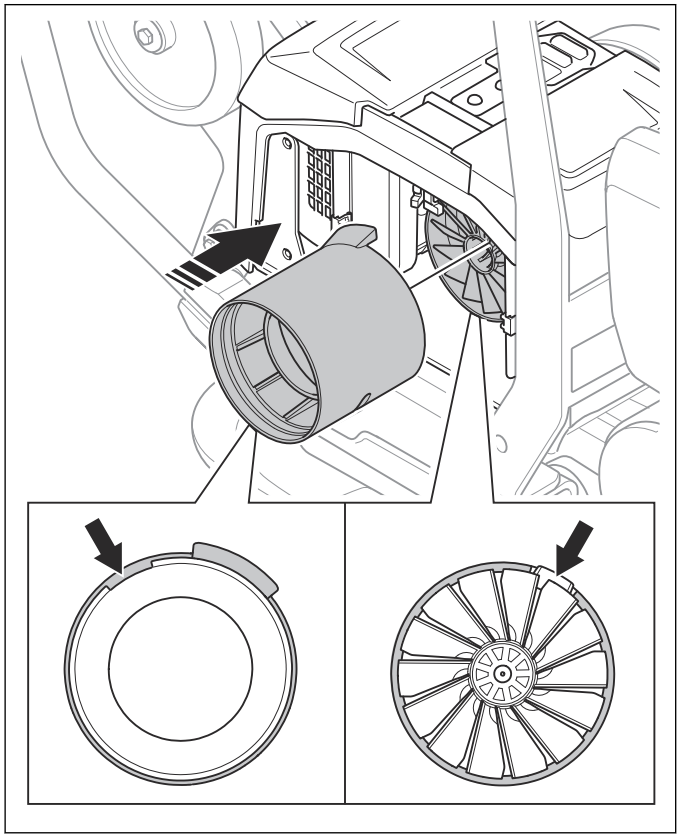
3. Attach the cables to the electrical motor to the battery compartment with 3 cable ties.



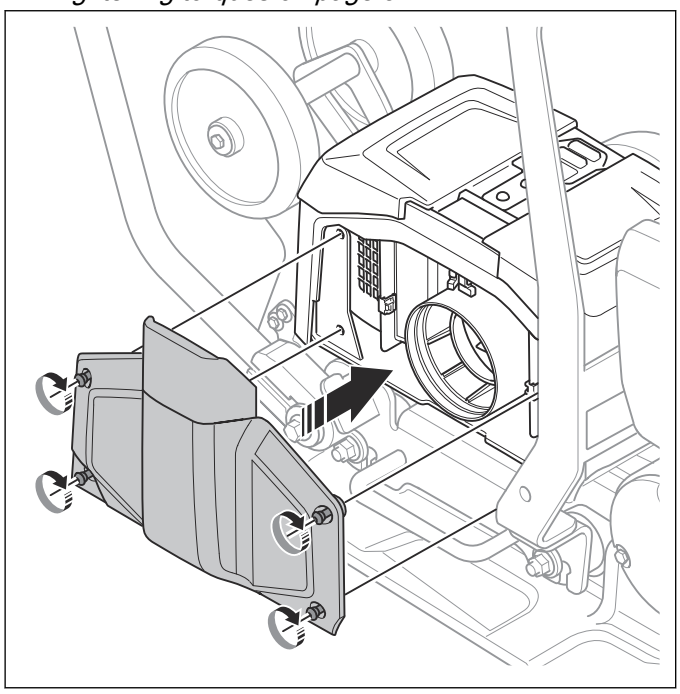
4. Install the 4 screws. Tighten the screws to the correct torque, refer to *Tightening torques on page 5*.



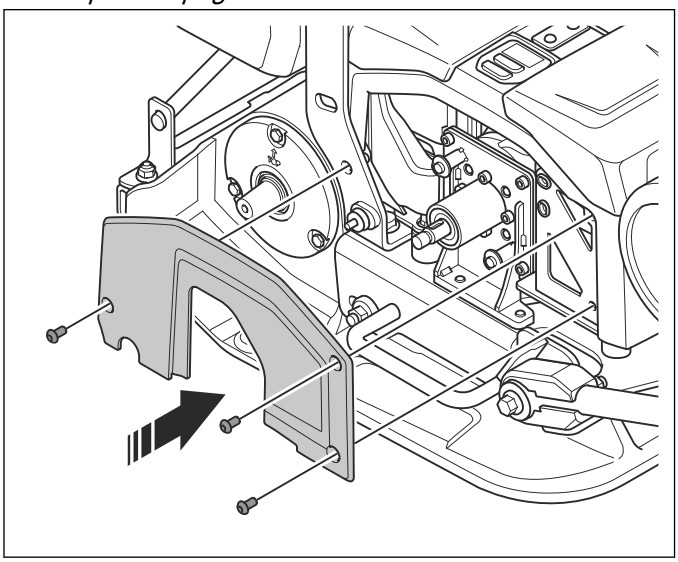
5. Install the air intake pipe. Align the key on the air intake pipe with the notch on the fan.



6. Install the right side cover and tighten the 4 screws. Tighten the screws to the correct torque, refer to *Tightening torques on page 5*.

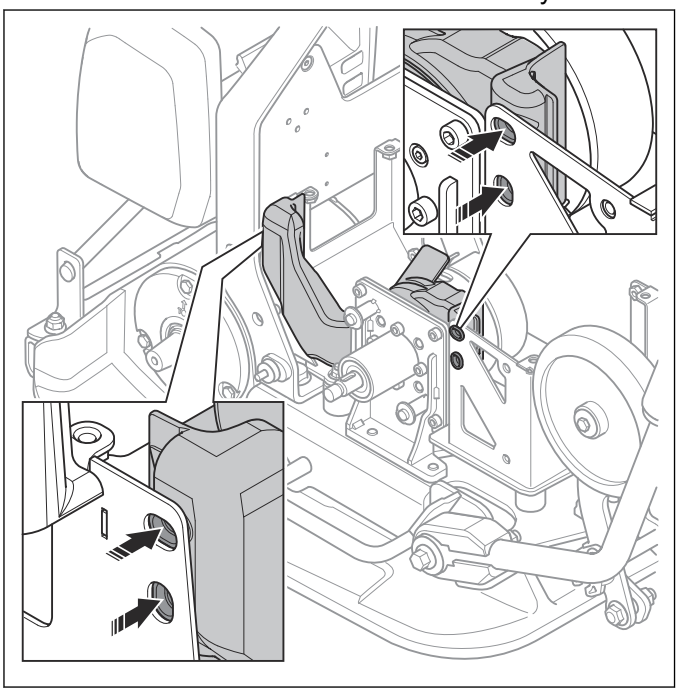


7. Install the left side cover and the 3 screws. Tighten the screws to the correct torque, refer to *Tightening torques on page 5*.

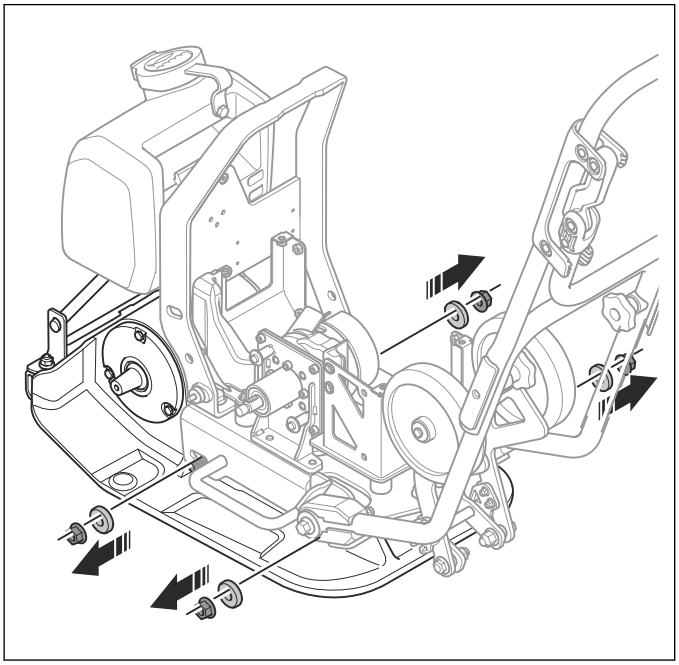


6.9 To remove and install the electrical motor assembly

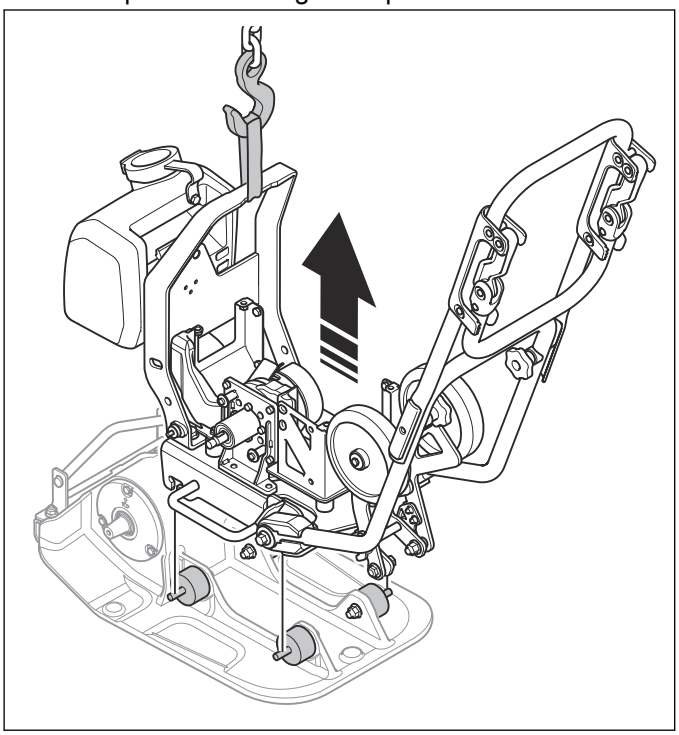
1. Remove the batteries.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the battery compartment. Refer to *To remove the battery compartment on page 15*.
6. Loosen the 2 rubber ducts from the battery frame.



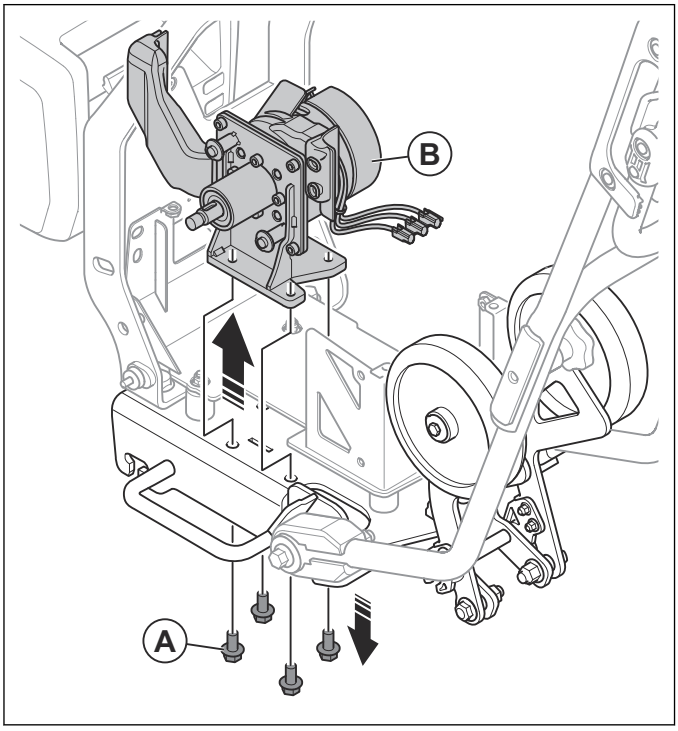
7. Remove the 4 bolts and the 4 washers.



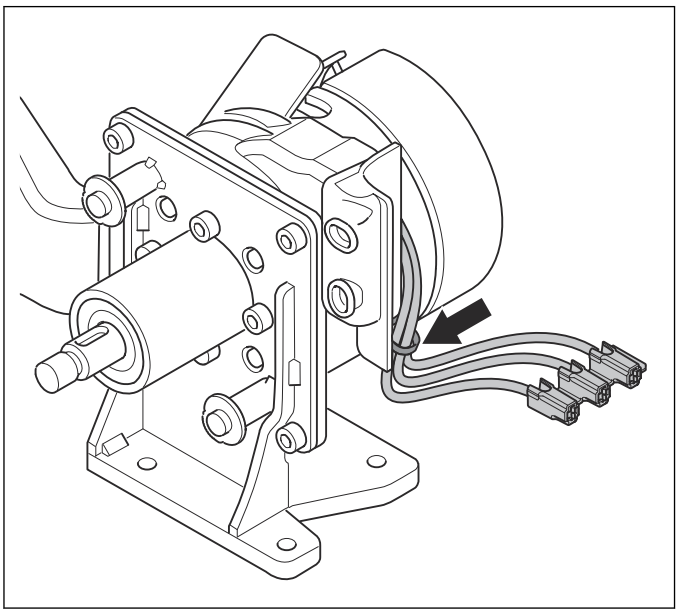
8. Attach lifting equipment to the lifting point. Lift the motor plate from the ground plate.



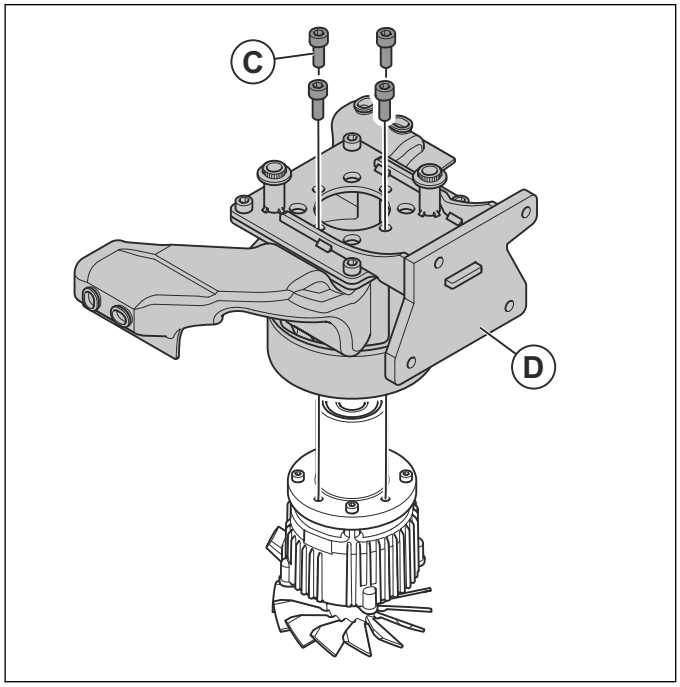
9. Remove the 4 bolts (A).



10. Remove the electrical motor assembly (B).
11. Put the electrical motor assembly on a work table with the fan down.
12. Cut the cable tie.



13. Remove the 4 screws (C) and the housing of the electrical motor assembly (D).



CAUTION: Do not pull the cables when you remove the housing of the electrical motor assembly.

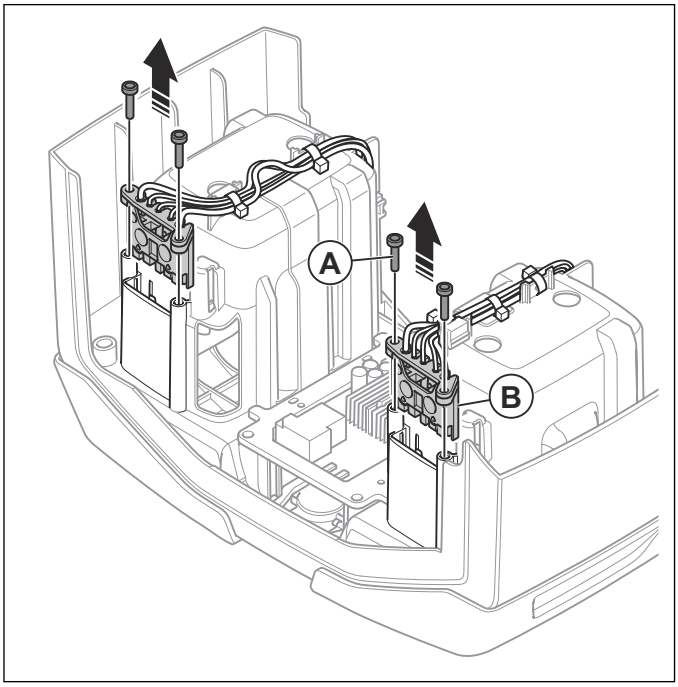
14. Install the electrical motor assembly in the opposite sequence.

Note: Apply Loctite 243 to all screws and bolts before you install them and tighten them to the correct torque. Refer to *Tightening torques on page 5*.

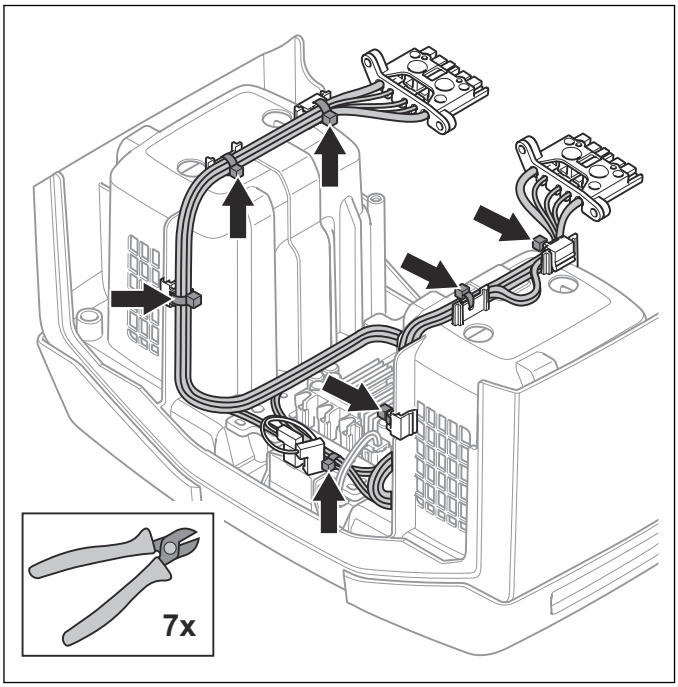
6.10 To remove the electronic control unit (ECU)

1. Remove the batteries.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the battery compartment. Refer to *To remove the battery compartment on page 15*.

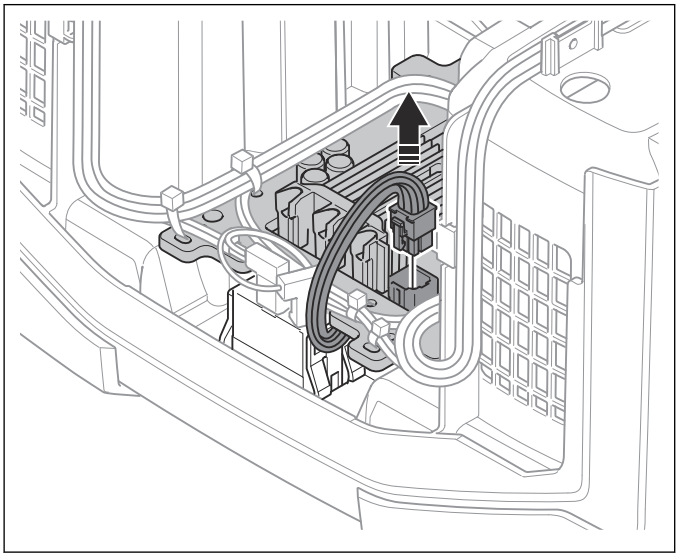
6. Remove the 4 screws (A).



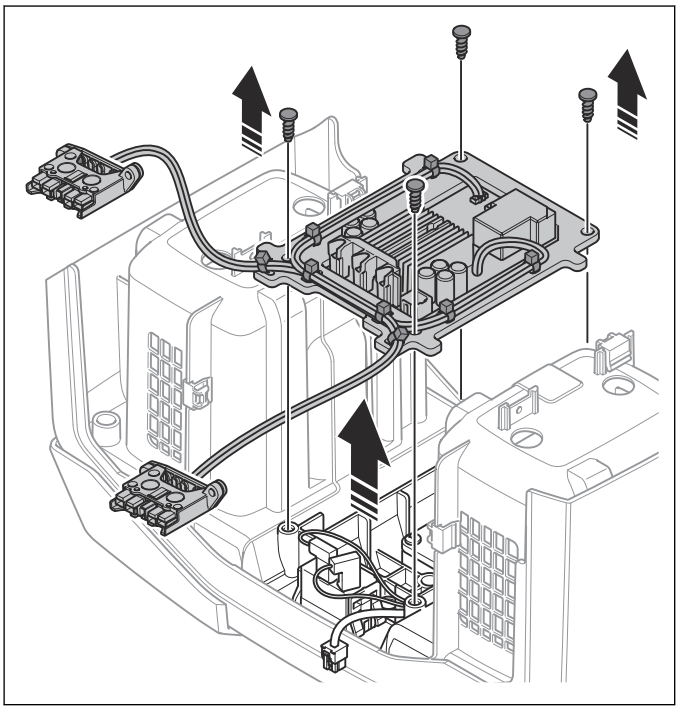
7. Disconnect the 2 connectors (B).
8. Cut the 7 cable ties.



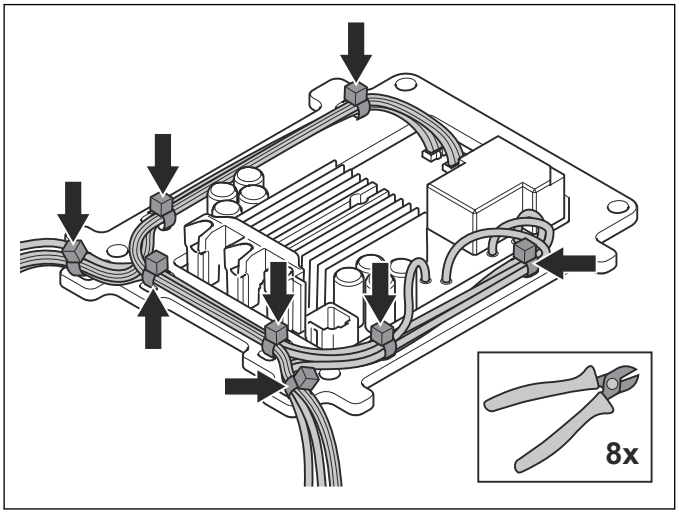
9. Disconnect the connector.



10. Remove the 4 screws, the aluminum frame and the ECU.



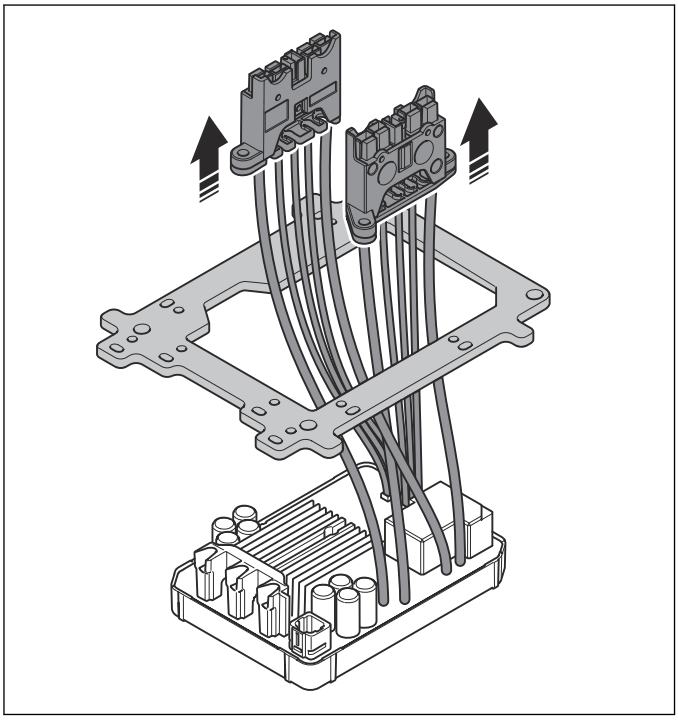
11. Cut the 8 cable ties.



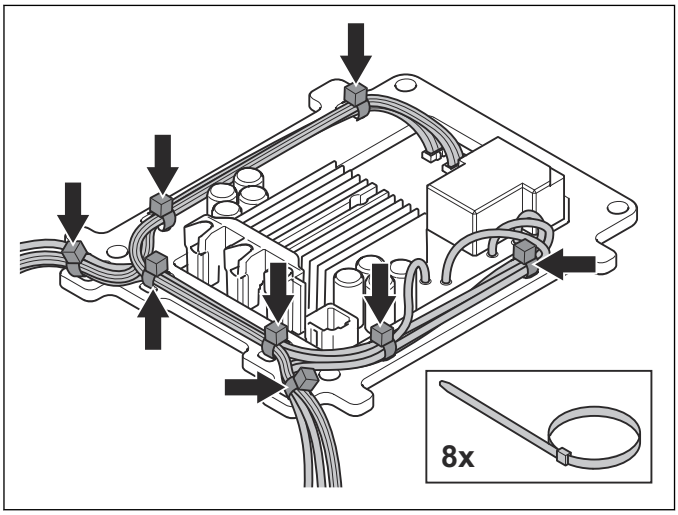
12. Remove the ECU.

6.11 To install the electronic control unit (ECU)

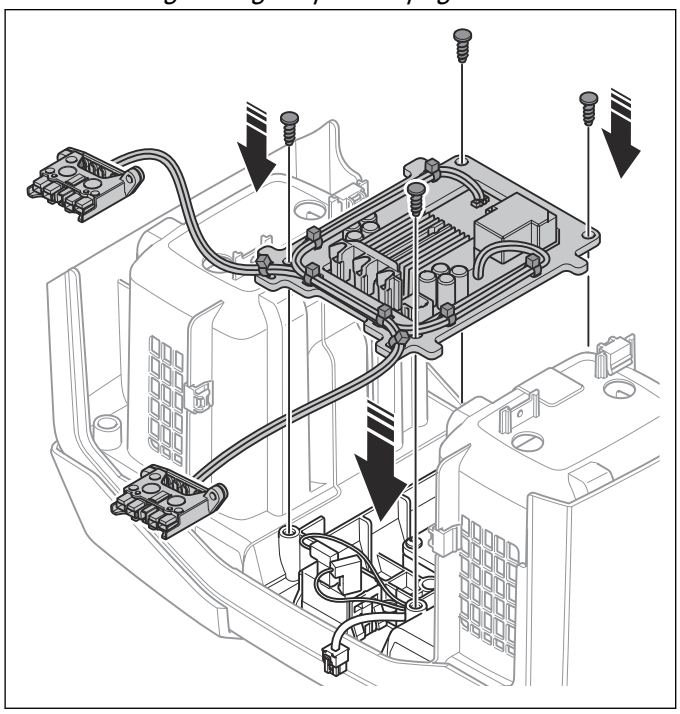
1. Put the cables of the ECU through the aluminum frame.



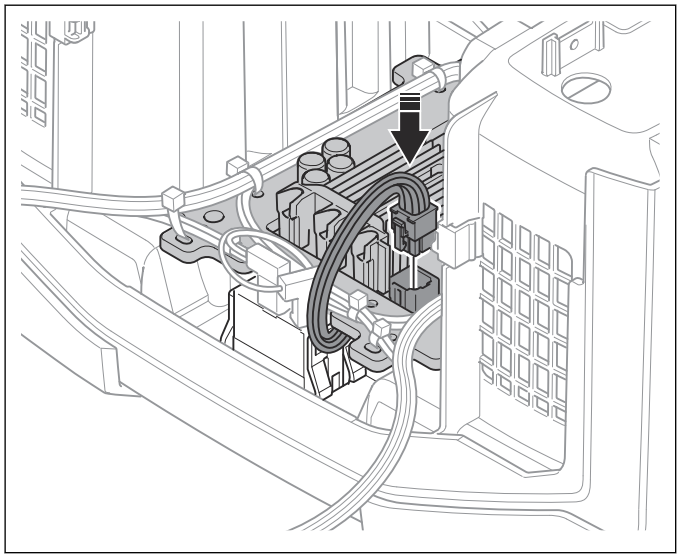
2. Attach the cables to the aluminum frame with 8 cable ties.



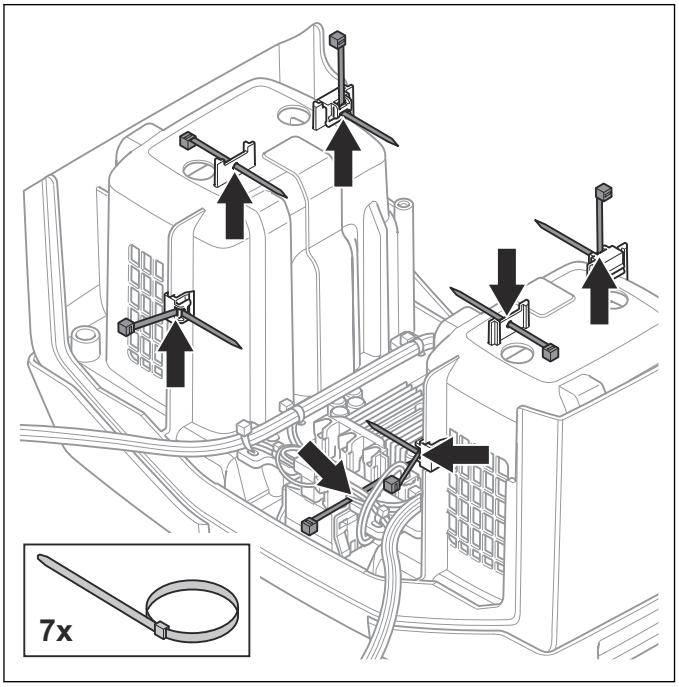
3. Install the ECU, the aluminum frame and the 4 screws. Tighten the screws to the correct torque, refer to *Tightening torques on page 5*.



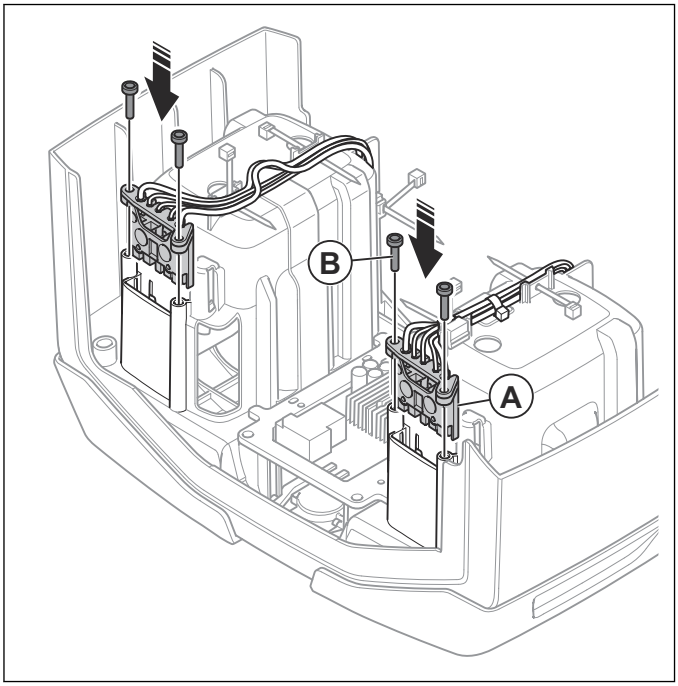
4. Connect the connector.



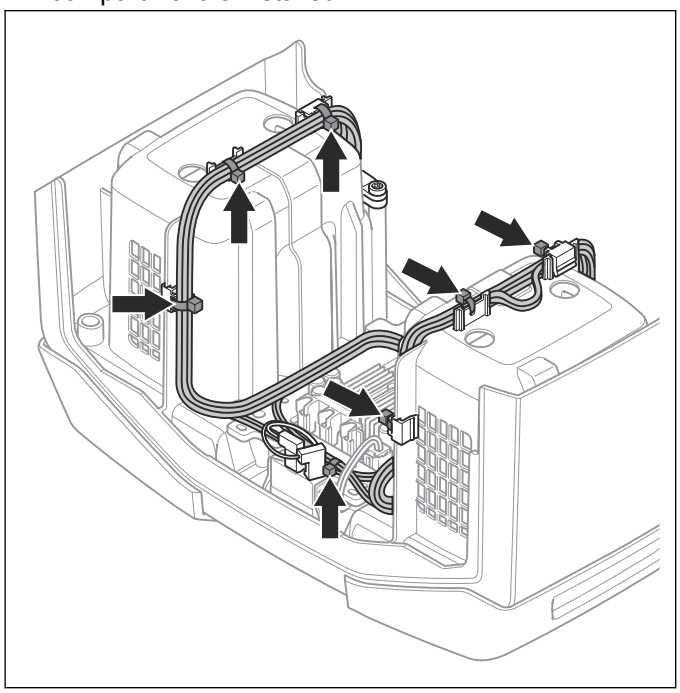
5. Put 7 cable ties in the slots in the battery compartment.



6. Put the batteries in the battery slots.
7. Connect the 2 connectors (A).

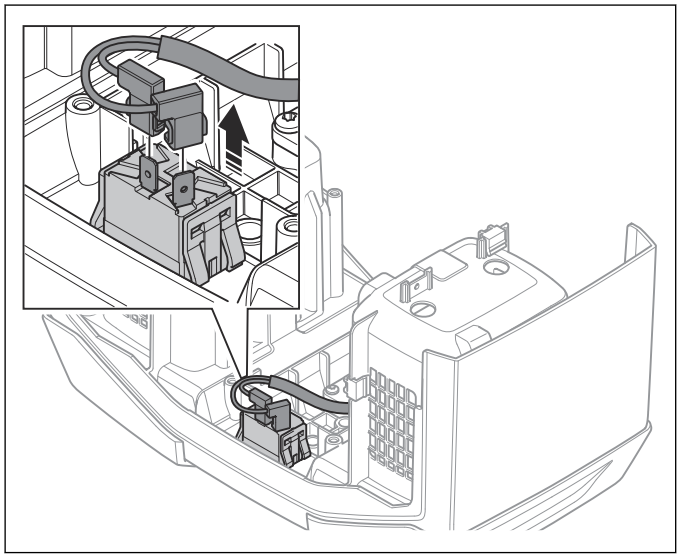


8. Install the 4 screws (B). Tighten the screws to the correct torque, refer to *Tightening torques on page 5*.
9. Remove the batteries from the battery slots.
10. Tighten the 7 cable ties around the cables. Bend the cables as shown in the illustration to make sure that the cables do not touch the frame when the battery compartment is installed.

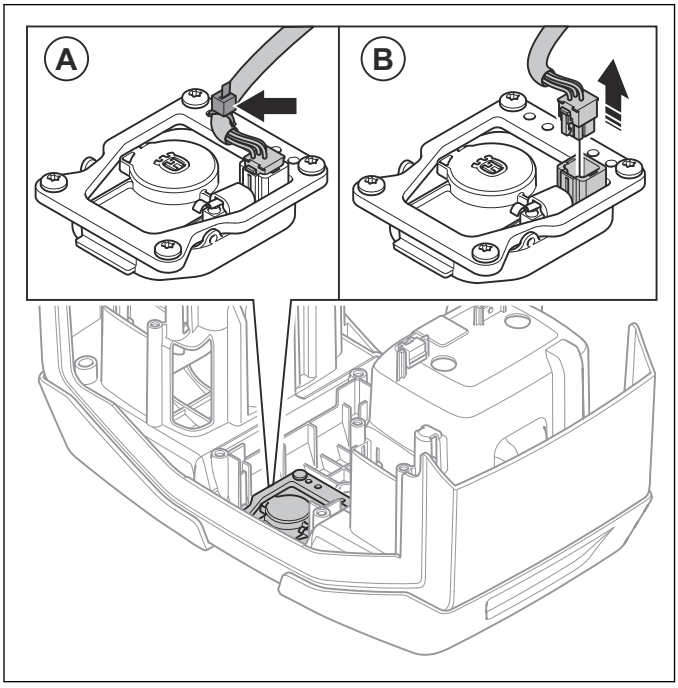


6.12 To remove and install the HMI

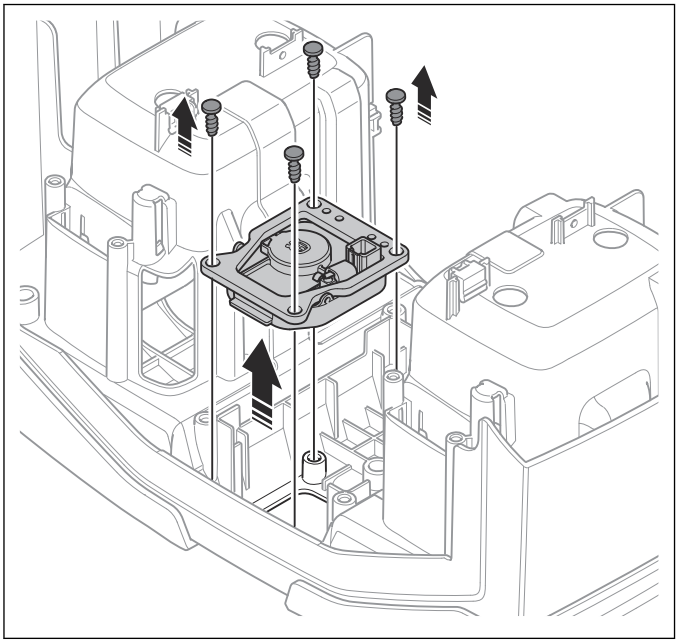
1. Remove the batteries.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the battery compartment. Refer to *To remove the battery compartment on page 15*.
6. Remove the ECU. Refer to *To remove the electronic control unit (ECU) on page 20*.
7. Disconnect the 2 connectors.



8. Cut the cable tie (A).



9. Disconnect the connector (B) and remove the cable.
10. Remove the 4 screws, the aluminum frame and the HMI.

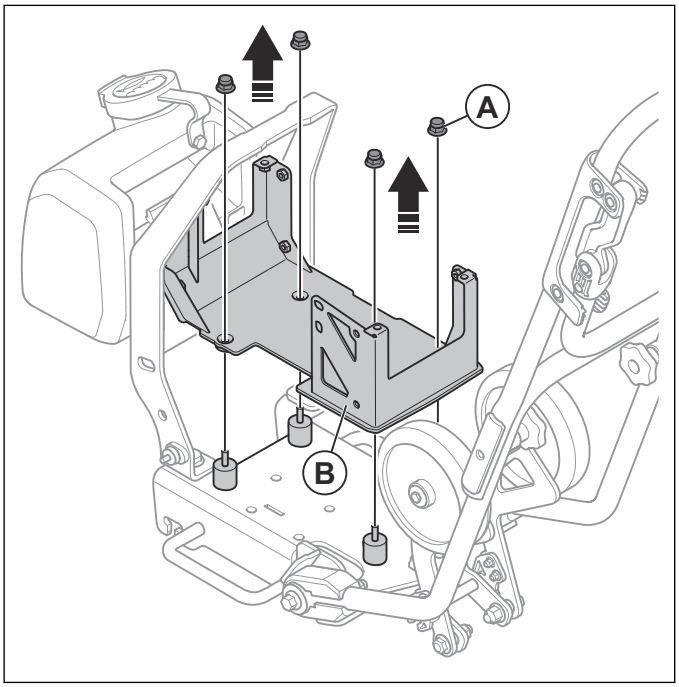


11. Install in the opposite sequence. Tighten the 4 screws to the correct torque, refer to *Tightening torques on page 5*.

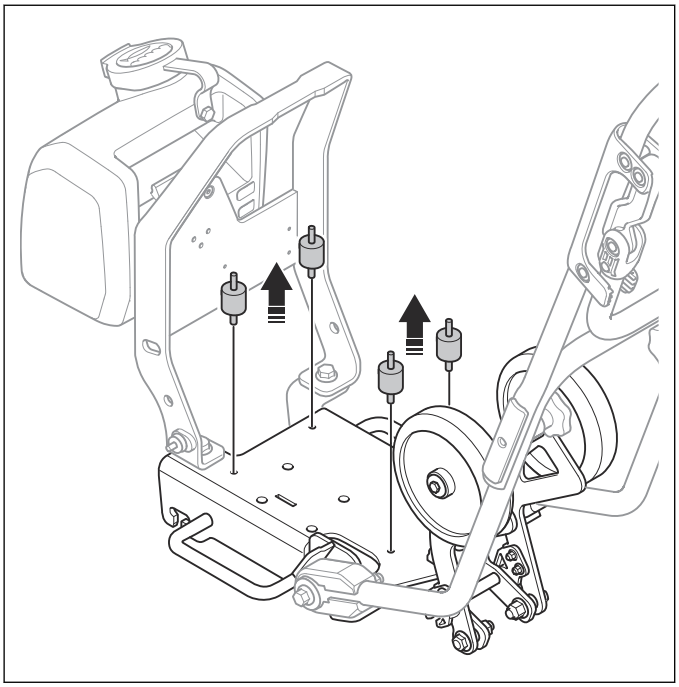
Note: Put a new cable tie in the aluminum frame before you install the aluminum frame.

6.13 To remove and install the vertical vibration damping units

1. Remove the batteries.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the battery compartment. Refer to *To remove the battery compartment on page 15*.
6. Remove the electric motor assembly. Refer to *To remove and install the electrical motor assembly on page 19*.
7. Remove the 4 lock nuts (A).



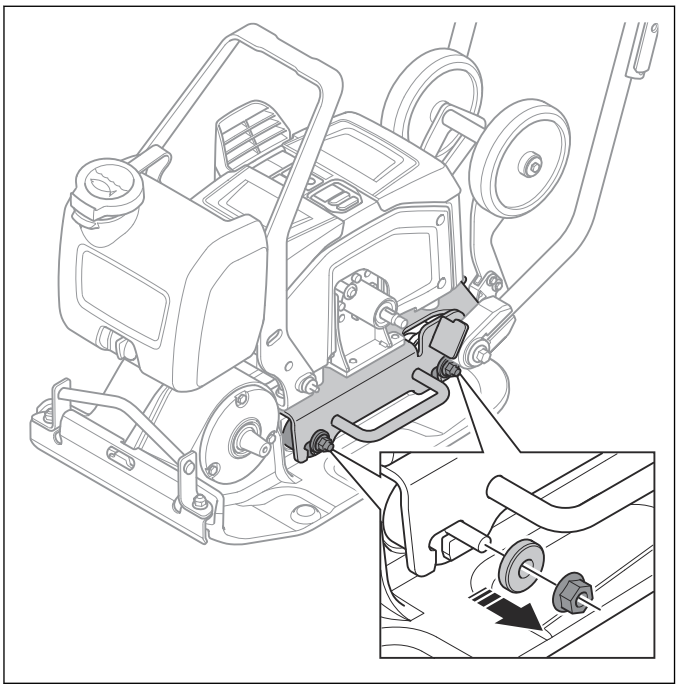
8. Lift the engine plate (B) from the bottom plate.
9. Remove the 4 vertical vibration damping units.



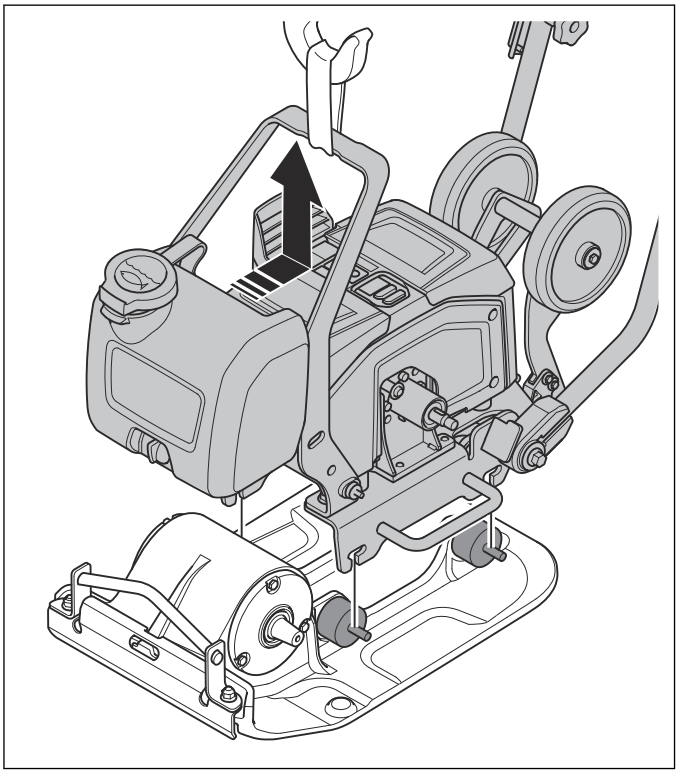
10. Install in the opposite sequence. Tighten the 4 lock nuts to the correct torque, refer to *Tightening torques on page 5*.

6.14 To remove and install the horizontal vibration damping units

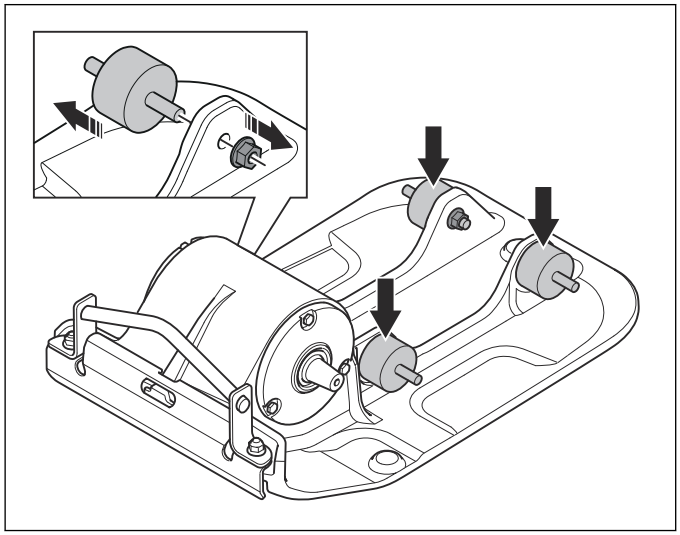
1. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
2. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
3. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
4. Remove the 2 nuts and 2 washers on each side.



5. Attach the lifting equipment to the lifting points on the product.
6. Lift the engine plate from the bottom plate.



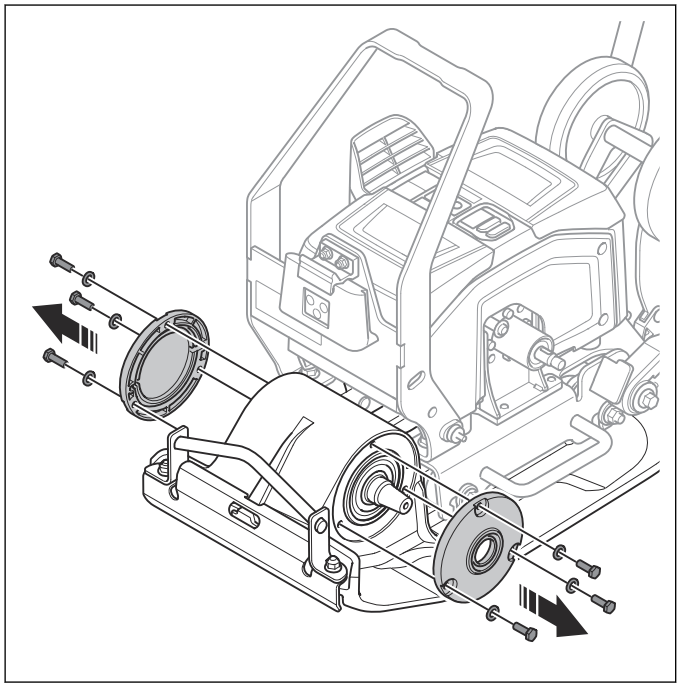
7. Remove the 4 horizontal vibration damping units.



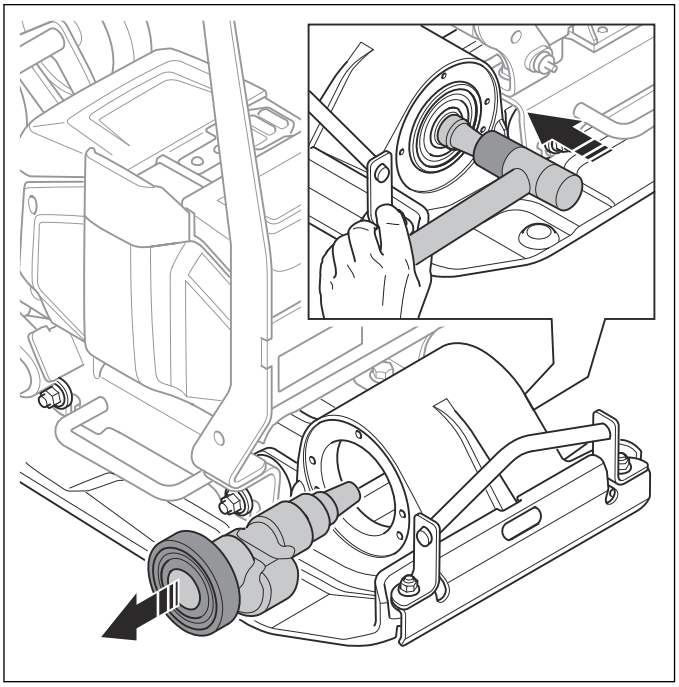
8. Install in the opposite sequence. Apply Loctite 243 to the threads and install the nuts. Tighten the nuts to the correct torque, refer to *Tightening torques on page 5*.

6.15 To disassemble the eccentric element

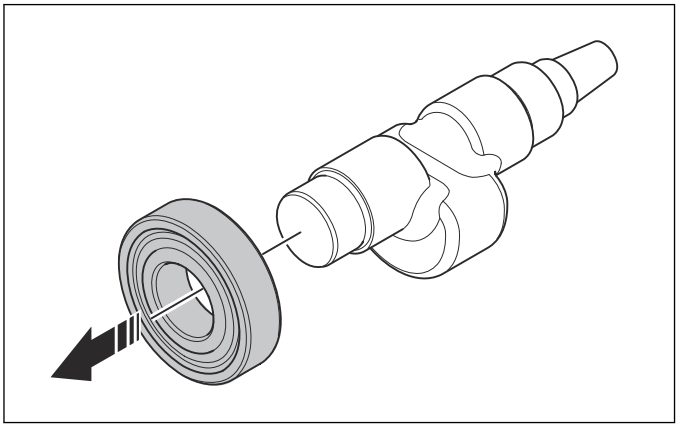
1. Remove the water tank. Refer to *To remove and install the water tank on page 12*.
2. Remove the V-belt cover. Refer to *To remove and install the V-belt cover on page 12*.
3. Remove the V-belt. Refer to *To remove and install the V-belt on page 13*.
4. Remove the V-belt housing. Refer to *To remove the V-belt housing on page 13*.
5. Remove the 6 bolts, the 6 washers and the 2 bearing covers.



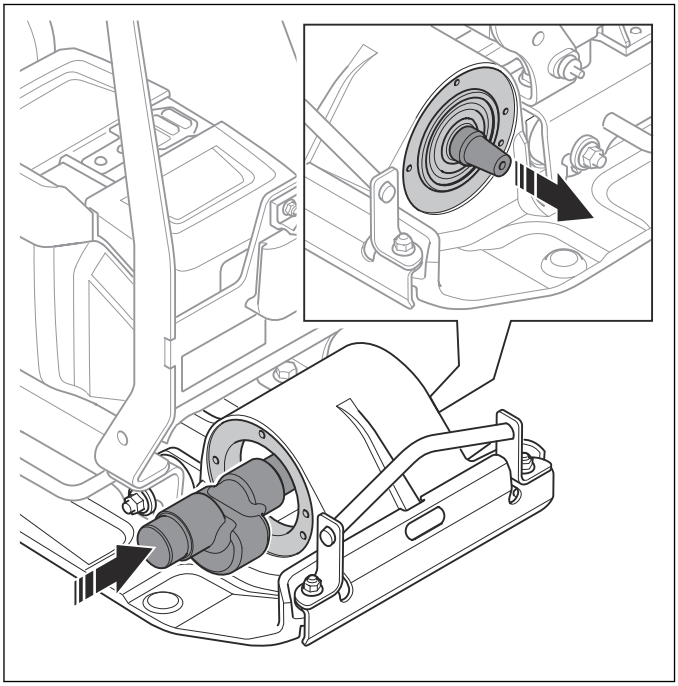
6. Hit the eccentric shaft with a rubber mallet to remove it and the first bearing from the eccentric element.



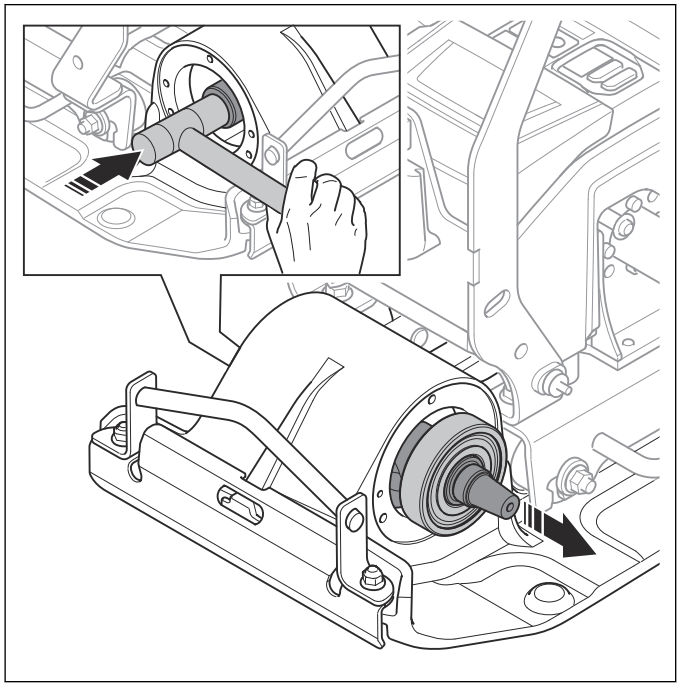
7. Remove the bearing from the eccentric shaft.



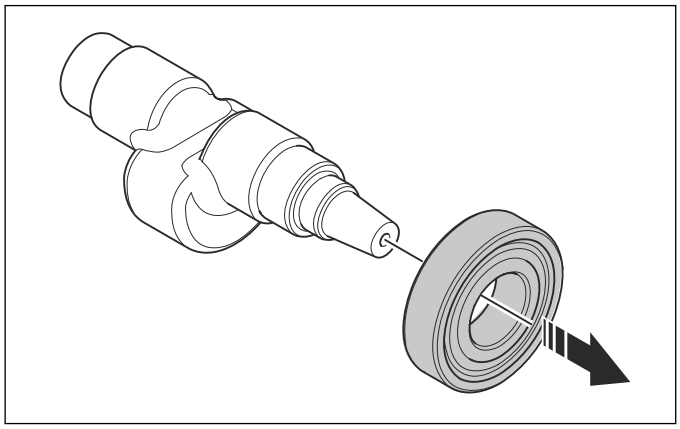
8. Put the eccentric shaft through the second bearing in the eccentric element.



9. Hit the eccentric shaft with a rubber mallet to remove the second bearing from the eccentric element.

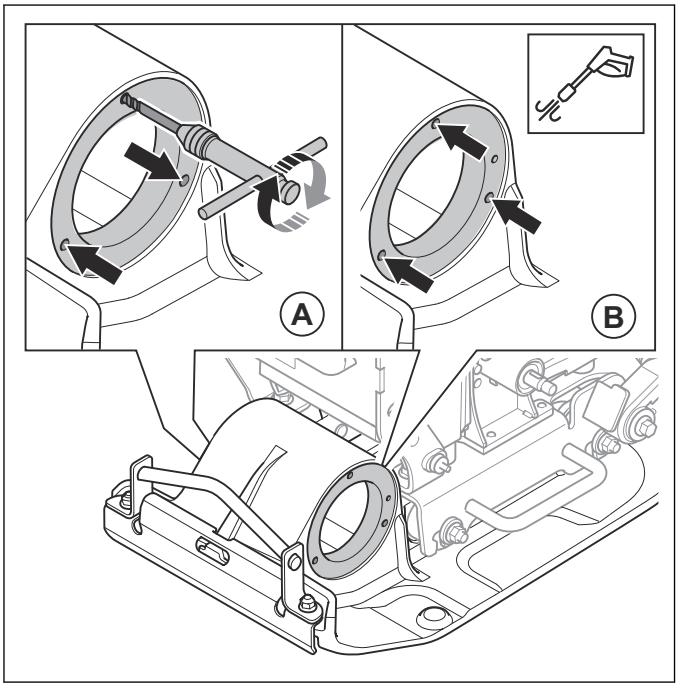


10. Remove the second bearing from the eccentric shaft.



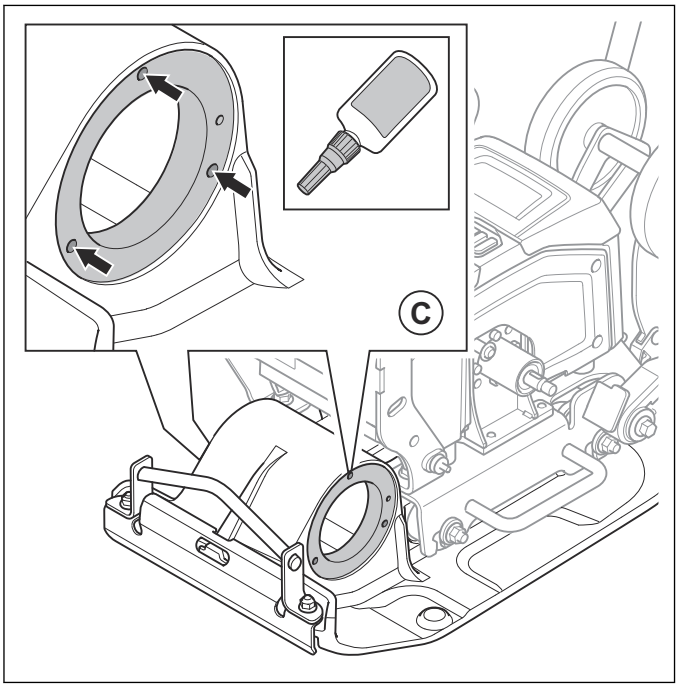
6.16 To assemble the eccentric element

1. Clean the 6 holes that have threads with an M6 tap (A) and pressurized air (B).

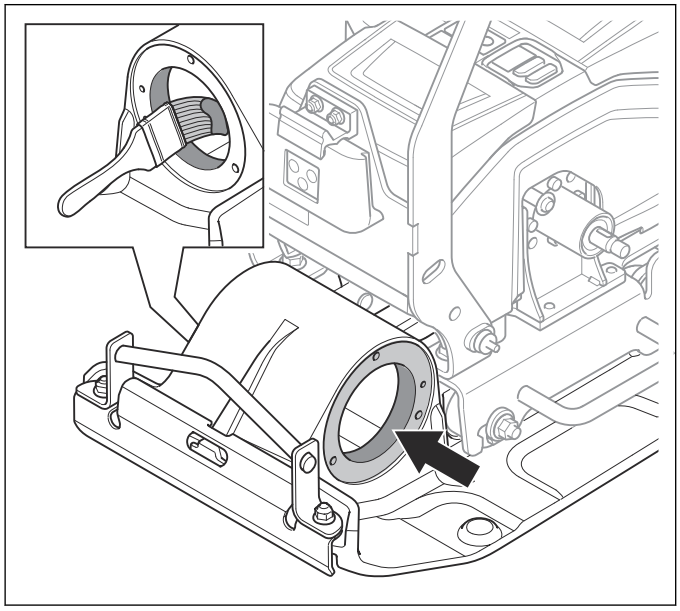


CAUTION: Be careful when you use the thread tap. The thread tap can cause damage to the threads if you do not use it correctly.

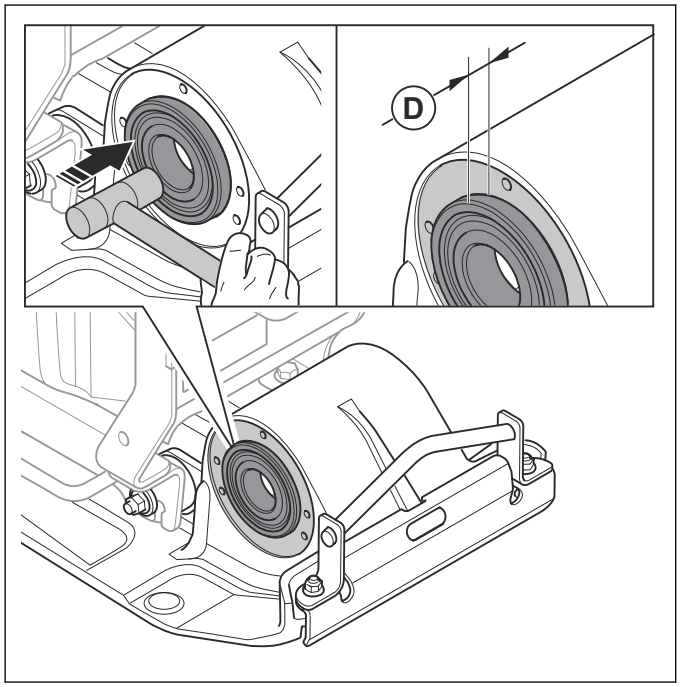
2. Apply Loctite 243 (C) to the threads in the 6 holes.



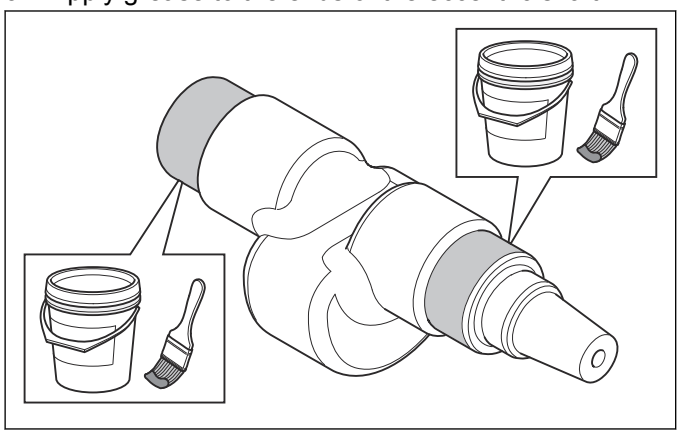
3. Apply anti-fretting grease to the edges of the eccentric element.



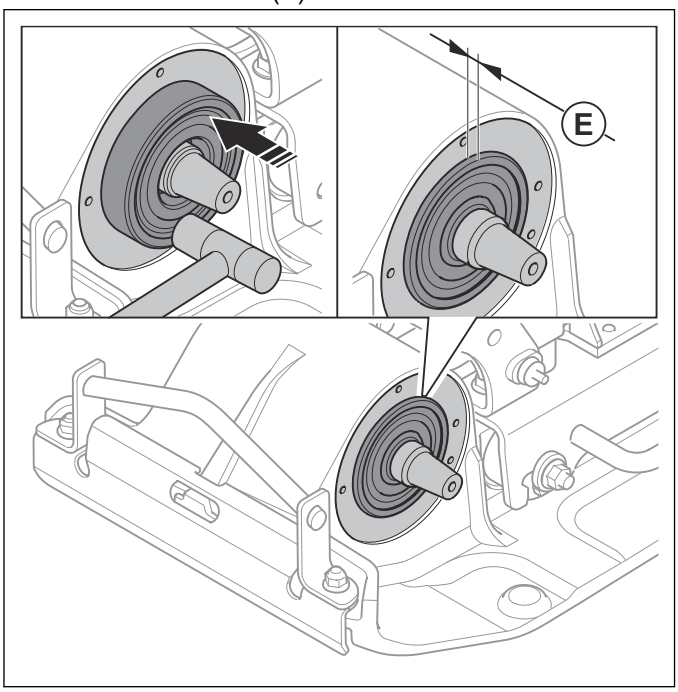
4. Install the first bearing in the eccentric element with a rubber mallet. Stop when the distance (D) is 5 mm.



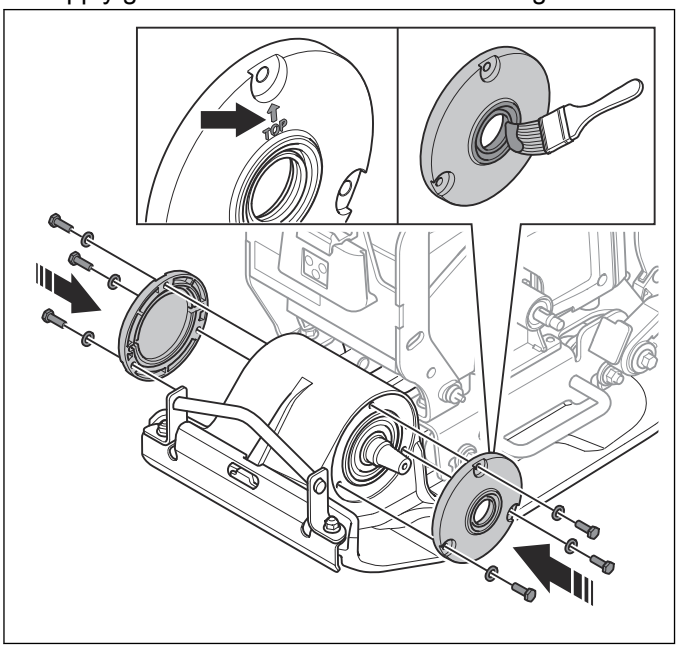
5. Apply grease to the ends of the eccentric shaft.



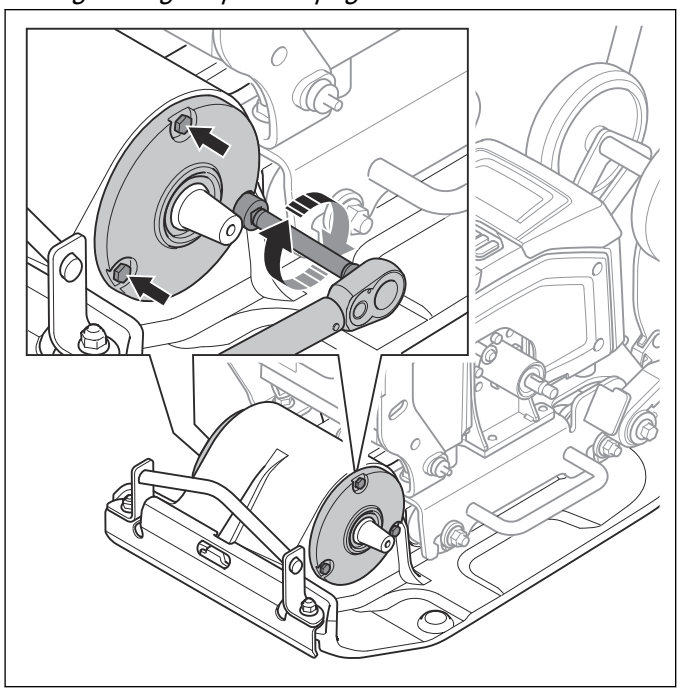
6. Install the eccentric shaft and the second bearing in the eccentric element with a rubber mallet. Stop when the distance (E) is 5 mm.



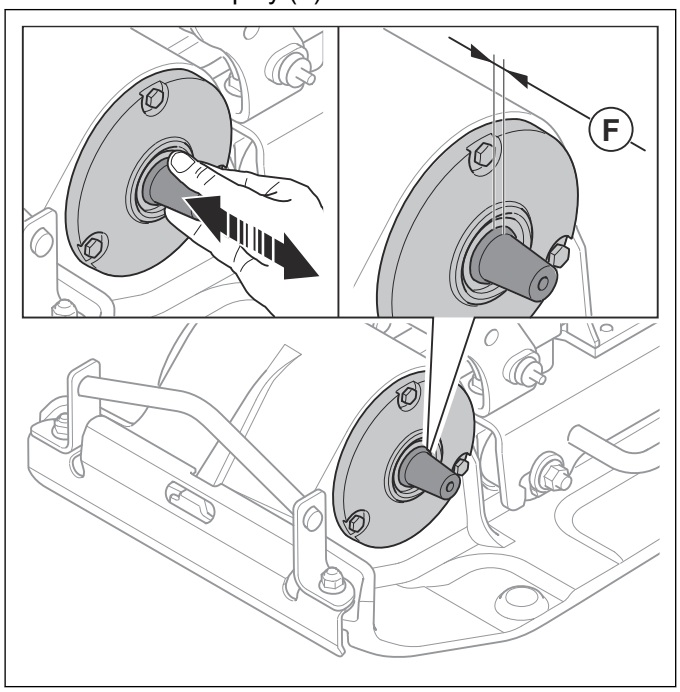
7. Apply grease to the seal in the left bearing cover.



8. Install the 2 bearing covers, the 6 washers and the 6 bolts. Tighten the bolts to the correct torque, refer to *Tightening torques on page 5*.



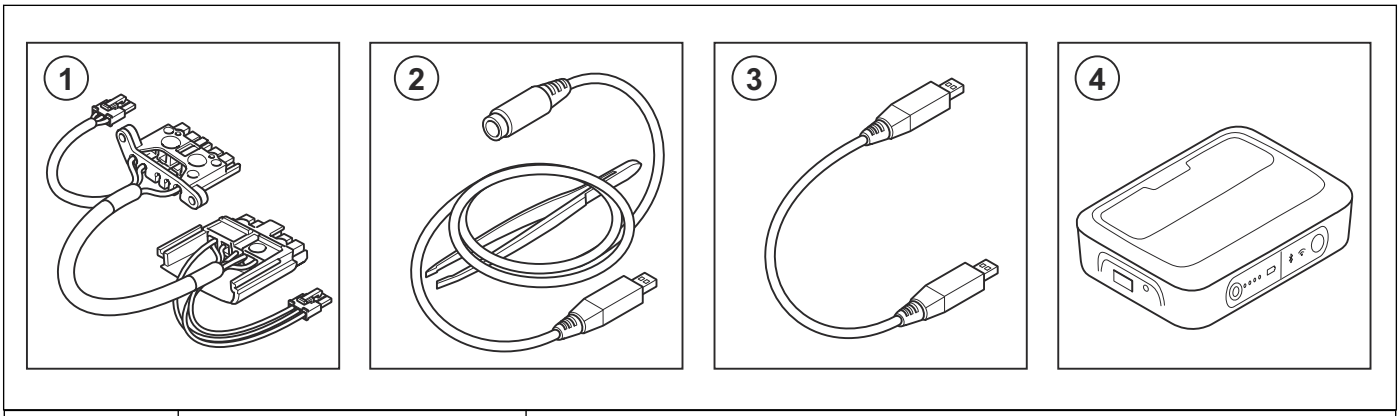
9. Do a check of the eccentric shaft. Make sure that it has 1–2 mm of play (F).



CAUTION: If the eccentric shaft does not have 1–2 mm of play, the bearings become damaged.

7.1 Diagnostic tool kit

The diagnostic tool kit is used to troubleshoot the product or the battery. Refer to *To connect the product or the battery to the diagnostic tool on page 29* for information about how to connect the product or the battery to the diagnostic tool kit.

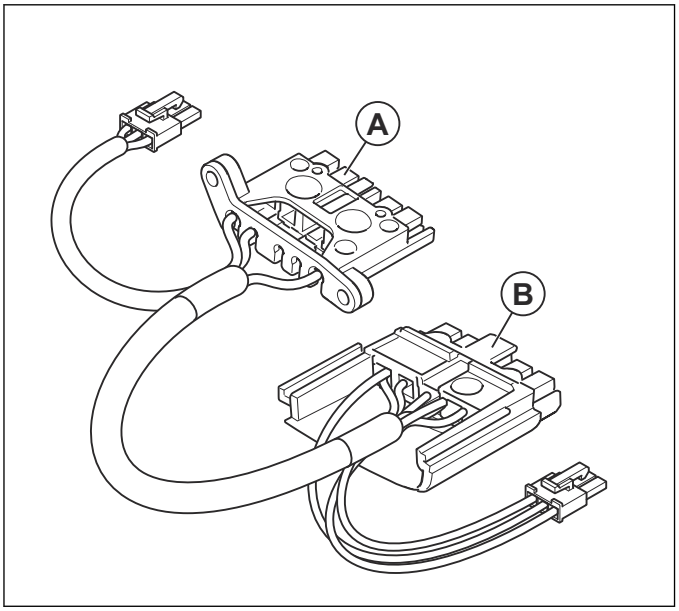


Item	Description	Use
1	Large diagnostic tool cable	To connect the product or the battery to the small diagnostic tool cable
2	Small diagnostic tool cable	To connect the large diagnostic tool cable to the diagnostic tool
3	USB cable	To connect the diagnostic tool to the computer
4	Diagnostic tool	To diagnose the product or battery

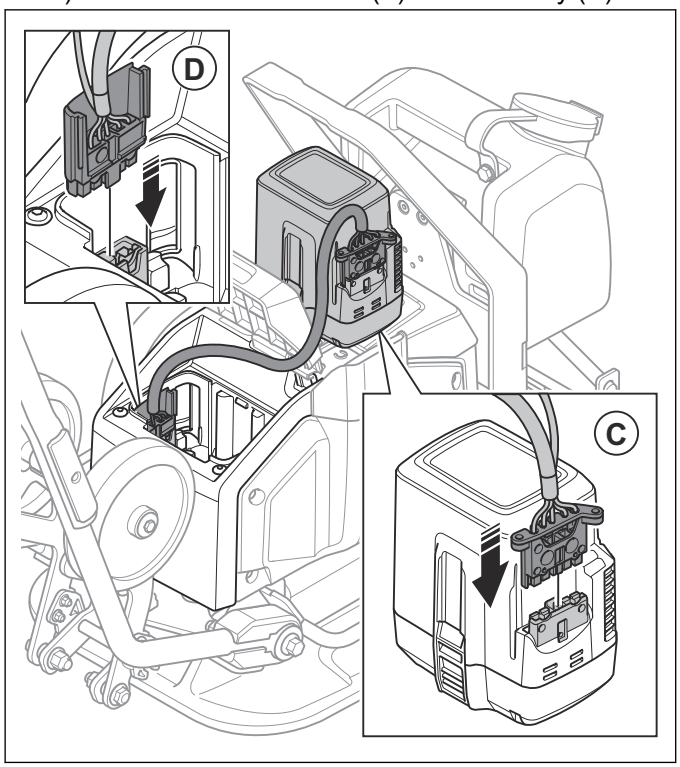
7.1.1 To connect the product or the battery to the diagnostic tool

Refer to *Diagnostic tool kit on page 29* for more information about the diagnostic tool kit.

1. Remove 1 battery from the product.
2. Connect the connectors (A) and (B) on the large diagnostic tool cable to the battery and the battery compartment.

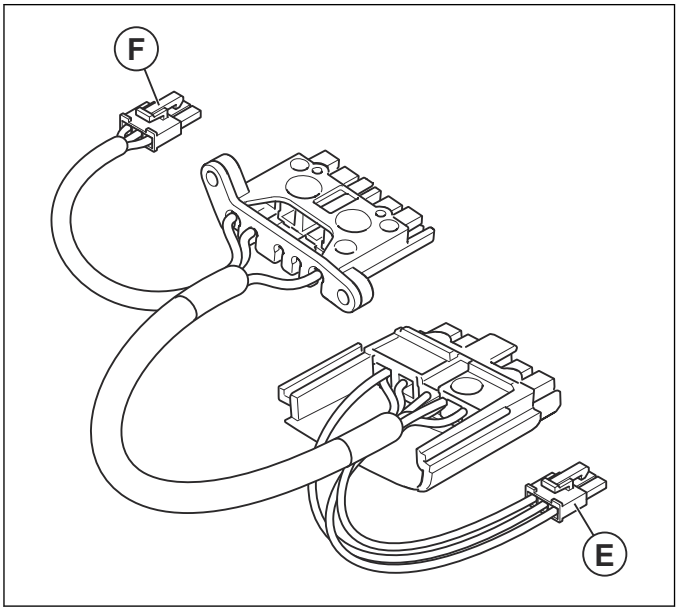


a) Connect the connector (A) to the battery (C).

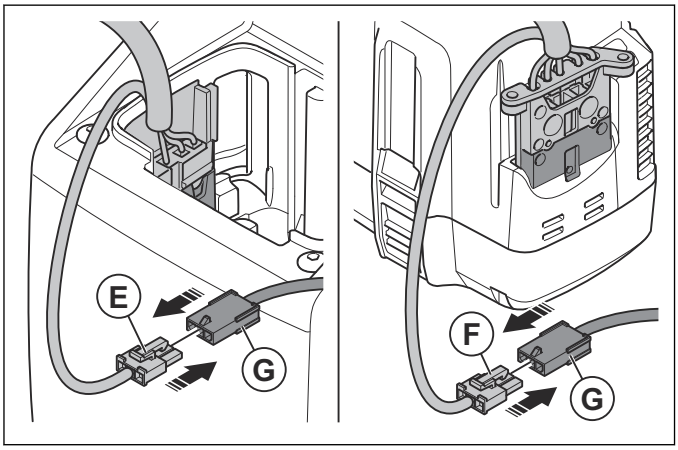


b) Connect the connector (B) to the battery compartment (D).

3. Connect the small diagnostic tool cable to the connector (E) or the connector (F).

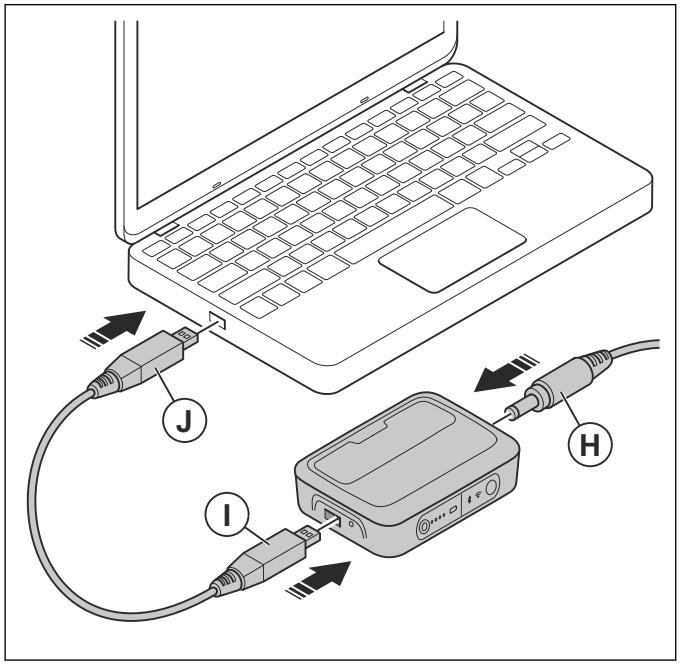


a) Connect the connector (E) on the large diagnostic tool cable to the small diagnostic tool cable (G) to diagnose the controller.



b) Connect the connector (F) on the large diagnostic tool cable to the small diagnostic tool cable (G) to diagnose the battery.

4. Connect the other end of the small diagnostic tool cable (H) to the diagnostic tool.



5. Connect the USB cable to the diagnostic tool (I) and to the computer (J).

8 Technical data

Motor type	BLDC 36 V
Weight with battery, kg/lb.[1]	69/152
Weight without battery, kg/lb.[2]	65/143
Vibration frequency, Hz/rpm	95±2/5700±120
Amplitude, mm/in.[3]	0,95/0,04
Operation speed, m/min / ft./min.[4]	20/66
Centrifugal force, kN/lbf	10.4/2338
Max. tilt, degrees/%	20/36
Water tank for asphalt, l/gal	5.0/1.3
Ambient temperature, °C/°F	-10–40/14–104

Noise and vibration emissions	
Sound power level, measured dB (A)	98.5
Sound power level, guaranteed L_{WA} dB (A).[5]	100
Sound pressure level at the operator's ear, L_P, dB (A). [6]	85
Vibration level at standard speed, a_{hv}, m/s^2, standard handle/low vibration handle. [7]	6.46/1.96
Vibration level at slow speed, a_{hv}, m/s^2, standard handle/low vibration handle. [8]	8.7/2.46

[1] Including 2 x BLi300 batteries and half full water tank
[2] Including half full water tank
[3] Applies on gravel
[4] Speed on gravel
[5] Noise emissions in the environment measured as sound power (L_{WA}) as per EN ISO 3744 in conformity with EC directive 2000/14/EC. The difference between guaranteed and measured sound power is that the guaranteed sound power also includes dispersion in the measurement result and the variations between different machines of the same model according to Directive 2000/14/EC.
[6] Sound pressure level L_P according to EN ISO 11201, EN 500-4. Uncertainty K_{PA} 3.0 dB (A).
[7] Vibration value according to EN 500-4. Reported data for vibration level has a typical statistical dispersion (standard deviation) of 1.5 m/s^2.
[8] Vibration value according to EN 500-4. Reported data for vibration level has a typical statistical dispersion (standard deviation) of 1.5 m/s^2.

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