

# AVINOX DRIVE SYSTEM

## Drive Unit Service Guide

2026.04



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# Using this Manual


## Legend


### *Symbols Used in Texts*

 Warning! Potential Hazards

 Note

### *Symbols Used in Illustrations*

 Apply grease

 Apply threadlocker

# 1 Replacing Drive Unit Components

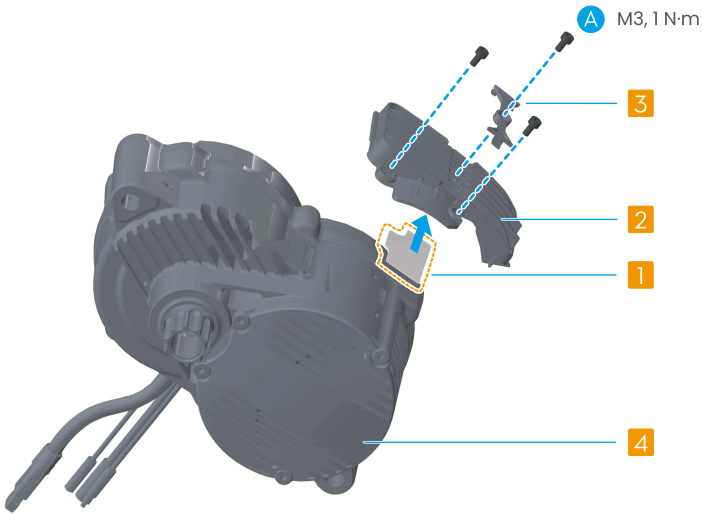
The drive unit is the core component of the drive system. Replacing its internal parts involves extreme difficulty and high operational risks. The content in this section is for reference only. If an internal fault occurs, we strongly recommend contacting an authorized retailer or official customer service for inspection and repair.

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- ⚠ • The use of non-original parts for replacement is strictly prohibited.
  - The drive unit contains precision components. Disassembly in a non-professional environment can lead to irreversible damage, such as compromising internal seals and water-resistant performance.
  - Specific specialized tools are required for removal and installation. Forcing disassembly with improper tools may damage the components.
  - Before attempting any operation yourself, ensure you fully understand the risks mentioned above. The necessary professional skills, tools, and original spare parts must be available, and official guidelines must be strictly followed.
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## 1.1 Heat Sink

If the heat sink at the bottom of the drive unit is damaged, follow the steps below for disassembly and replacement.

1. Loosen the heat sink mounting bolts (A), then remove the heat sink.
2. Attach the cooling pad ① to the corresponding slot of the heat sink ②.
3. Install the heat sink to the drive unit and attach the plastic strip ③ to the heat sink. Then insert and tighten the bolts (A) to specified torque.



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 When replacing the drive unit end cover ④, use a tool to pry off and remove the cover. Align the new cover with the drive unit, then assemble and press it into place manually.

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## 1.2 Drive Unit Upper Housing

To replace the upper housing, remove the drive unit from the frame and follow the steps below for disassembly and replacement.

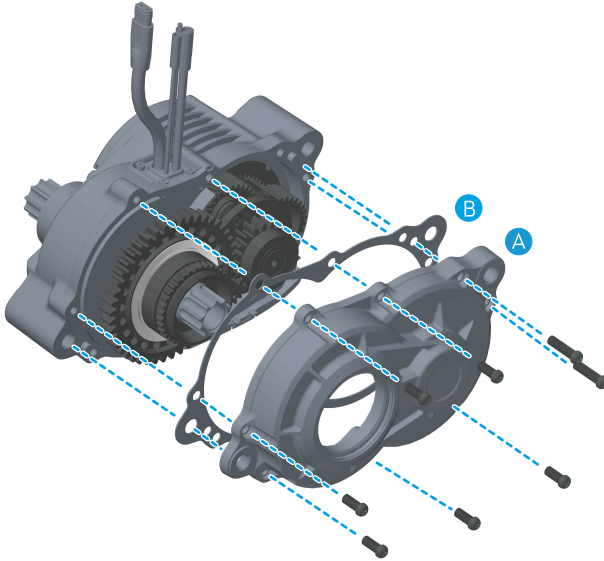
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 It is recommended to remove the heat sink before disassembly.

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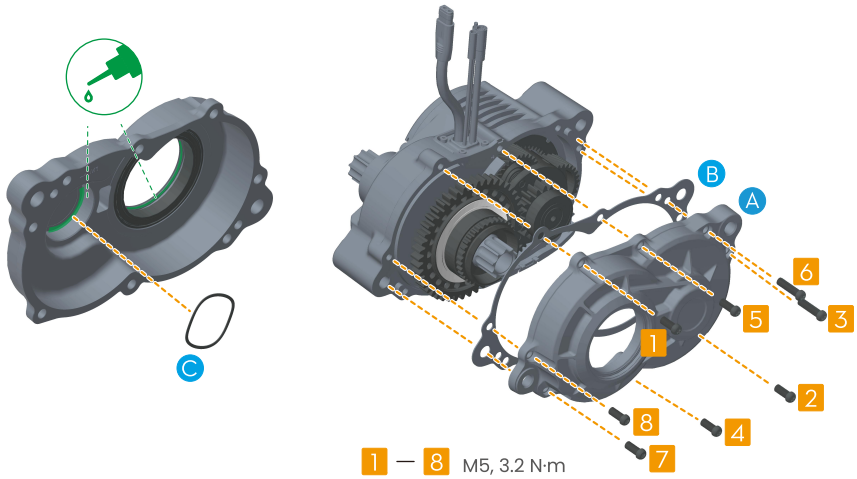
### Disassembly

Loosen the bolts, then remove the upper housing (A) and the sealing gasket (B).



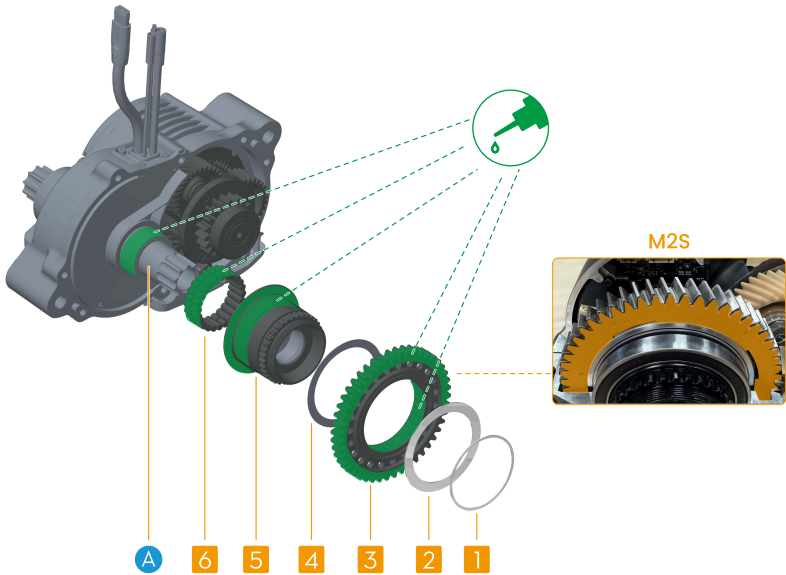
## Assembly

1. Take out the wave spring (C) from the removed upper housing, install it inside the new housing, and apply grease.
2. Align and install the new sealing gasket onto the drive unit.
3. Install the upper housing onto the drive unit. Tighten the bolts in the order shown in the illustration.



### 1.3 One-Way Clutch

If you need to replace the one-way clutch, follow the steps below for disassembly and replacement.



## Disassembly

1. Disassemble the upper casing according to the instructions in the [Drive Unit Upper Housing](#) section.
2. Remove the spacers ① and ②.
3. Hold the sprocket sleeve ⑤, then rotate the output gear ③ counterclockwise to remove it.
4. Hold the shaft (A), then rotate the sprocket sleeve ⑤ clockwise to remove both the sleeve and the gasket ④. Then remove the small one-way clutch ⑥.

## Assembly

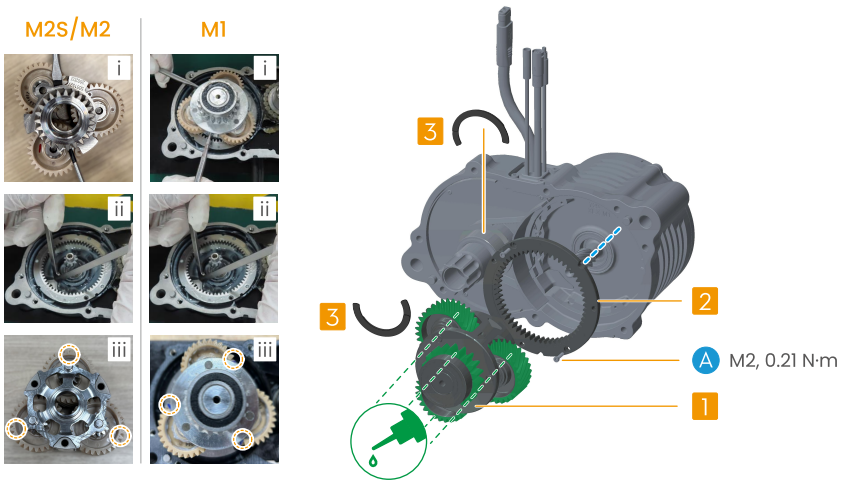
Before installation, apply grease provided in the kit to the specified areas as shown in the diagram. Then, follow the removal steps in reverse order to reinstall the components onto the shaft.

- 💡 • The small one-way clutch is equipped with a support frame for securing. Install it with the support frame facing outward. Once seated on the shaft, remove the support frame.
- When installing the sprocket sleeve, hold the shaft, then rotate the sprocket sleeve clockwise and press down to fit it into the small one-way clutch. After reaching the limit, rotate counterclockwise to complete the installation.

- When installing the output gear ③, ensure the arrow-marked side faces outward. Hold the sprocket sleeve ⑤, then rotate the output gear counterclockwise to install it.
- When installing the output gear of the M2S motor, ensure the anti-backlash gears are aligned before assembly.

## 1.4 Planetary Gear Set

Follow the steps below for disassembly and replacement.



### Disassembly

1. Disassemble the [Drive Unit Upper Housing](#) and [One-Way Clutch](#) according to the instructions in the corresponding sections. Then remove the circlip ③ from the shaft.
2. Remove the planetary carrier set:  
M1: Use a tool to engage the slots on the planetary carrier set ① and remove it. ( i )  
M2S/M2: Use a tool to engage the gap on the planetary carrier set ① and remove it. ( i )
3. Loosen the bolts (A), then use the removal tool to remove the ring gear ②. ( ii )

### Assembly

1. Align the ring gear ② with the alignment point, and press it flat using the installation tool. Then tighten the bolts (A) to the specified torque.

2. Rotate the compound planetary gears ① to show the marked tooth. If necessary, add additional marks to both sides of the marked tooth to improve visibility. (iii)
3. Align the marked tooth on the compound planetary gears with the marked point on the ring gear. Then, assemble the planetary carrier set into the ring gear, and rotate the set counterclockwise to mesh the gears.
4. After completing the gear alignment, if the planetary carrier set can rotate smoothly, press down firmly to complete the installation.

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- ⚠ • Specialty tools are required for disassembly and assembly. Contact the bike manufacturer if you cannot perform the operation yourself.
- Before reinstalling the drive unit upper housing, apply plastic gear grease to the compound gear (indicated by the white areas in the diagram), and metal gear grease to the output gear (indicated by the green areas).



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