

## Dealer's Manual

ROAD	MTB	Trekking
City Touring/ Comfort Bike	URBAN SPORT	E-BIKE

# EP8

## EP800 Series

DU-EP800  
FC-M8150  
FC-EM900  
FC-EM600  
SM-CRE80  
SM-CRE80-B  
SM-CRE80-12  
SM-CRE80-12-B  
SM-CRE80-12-SB  
SM-CRE61  
EW-SS300  
EW-SS301  
DC-EP800-A  
DC-EP800-B  
DC-EP800-G

SHIMANO  
STEPS

# CONTENTS

---

<b>CONTENTS .....</b>	<b>2</b>
<b>IMPORTANT NOTICE .....</b>	<b>4</b>
<b>TO ENSURE SAFETY .....</b>	<b>5</b>
<b>LIST OF TOOLS TO BE USED .....</b>	<b>12</b>
<b>INSTALLING ELECTRICAL PARTS .....</b>	<b>13</b>
<b>Names of parts .....</b>	<b>13</b>
• External mount type .....	13
• Integrated mount type .....	14
<b>Overall wiring diagram.....</b>	<b>15</b>
<b>Specifications.....</b>	<b>16</b>
<b>Electric wires.....</b>	<b>16</b>
• Supported products.....	16
• Conversion adapter .....	18
• Connecting / disconnecting the electric wire .....	18
<b>Installing cockpit peripheral components .....</b>	<b>22</b>
<b>Installing the battery mount and parts .....</b>	<b>22</b>
<b>Installing the speed sensor.....</b>	<b>22</b>
• Generic type.....	22
• Type designed exclusively for use with disc brakes .....	24
<b>INSTALLING THE DRIVE UNIT AND PERIPHERAL PARTS .....</b>	<b>26</b>
<b>Installing the drive unit .....</b>	<b>26</b>
<b>Connecting the power cord.....</b>	<b>28</b>
• Connection method .....	28
• Removal method .....	29
<b>Connecting cockpit peripheral parts and electronic gear shifting components .....</b>	<b>29</b>
<b>Connecting the speed sensor .....</b>	<b>30</b>
<b>Connecting the light cables.....</b>	<b>31</b>

---

<b>Installing the drive unit cover .....</b>	<b>33</b>
• Affixing the thermal hazard label.....	34
<b>Installing the chainring unit and crank arms .....</b>	<b>34</b>
<b>Installing the arm covers .....</b>	<b>39</b>
<b>Measuring and adjusting the chain tension .....</b>	<b>41</b>
• Manual adjustment .....	42
• Measuring and adjusting using the chain tension measurement tool .....	42
<b>CONNECTION AND COMMUNICATION WITH DEVICES.....</b>	<b>45</b>
<b>MAINTENANCE.....</b>	<b>46</b>
<b>Replacing the chainring unit .....</b>	<b>46</b>
<b>Replacing the chainring.....</b>	<b>46</b>
<b>Replacing the chain guard.....</b>	<b>47</b>
<b>Replacing the arm cover .....</b>	<b>48</b>




# IMPORTANT NOTICE

- **This dealer's manual is intended primarily for use by professional bicycle mechanics.** Users who are not professionally trained for bicycle assembly should not attempt to install the components themselves using the dealer's manuals. If any part of the information on the manual is unclear to you, do not proceed with the installation. Instead, contact your place of purchase or a distributor for assistance.
- Make sure to read all manuals included with the product.
- Do not disassemble or modify the product other than as stated in the information contained in this dealer's manual.
- All manuals and technical documents are accessible online at <https://si.shimano.com>.
- For consumers who do not have easy access to the internet, please contact a SHIMANO distributor or any of the SHIMANO offices to obtain a hardcopy of the User's Manual.
- Please observe the appropriate rules and regulations of the country, state or region in which you conduct your business as a dealer.
- The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by SHIMANO INC. is under license. Other trademarks and trade names are those of their respective owners.

**For safety, be sure to read this dealer's manual thoroughly before use, and follow it for correct use.**

The following instructions must be observed at all times in order to prevent personal injury and physical damage to equipment and surroundings.

The instructions are classified according to the degree of danger or damage which may occur if the product is used incorrectly.

 <b>DANGER</b>	Failure to follow the instructions will result in death or serious injury.
 <b>WARNING</b>	Failure to follow the instructions could result in death or serious injury.
 <b>CAUTION</b>	Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings.

# TO ENSURE SAFETY


## DANGER

### Be sure to also inform users of the following:

#### ■ Handling the battery

- Do not deform, modify, disassemble, or apply solder directly to the battery. Doing so may cause leakage, overheating, bursting, or ignition.
- Do not leave the battery near sources of heat such as heaters, and do not heat the battery or throw it into a fire. Doing so may cause bursting or ignition.
- Do not throw or subject the battery to strong shock. Doing so may cause it to overheat, burst, or ignite.
- Do not place the battery into fresh water or sea water, and do not allow the battery terminals to get wet. Doing so may cause it to overheat, burst, or ignite.
- When charging the specified battery, use the specified battery charger for charging and observe the specified charging conditions. Doing otherwise may cause overheating, bursting, or ignition.

## WARNING

- **Be sure to follow the instructions provided in the manuals when installing the product.** It is recommended that you use SHIMANO genuine parts. If bolts and nuts become loose or damaged, the bicycle may suddenly fall over, result in a serious injury. In addition, if adjustments are not carried out correctly, problems may occur, and the bicycle may suddenly fall over, which may cause serious injury.
-  Wear approved eye protection while performing maintenance tasks such as replacing components.
- For information on products not explained in this manual, refer to the manuals for each product.
- Store the dealer's manuals so that they can be referenced at any time.

### Be sure to also inform users of the following:

- Do not pay excessive attention to the cycle computer display while riding. Doing so may result in an accident.
- Check that the wheels are fastened securely before riding the bicycle. You may fall and be seriously injured.

- Be sufficiently familiar with how to start the power assisted bicycle before riding on busy streets. You may start the bicycle unexpectedly, which may result in an accident.
- Confirm that the light works before riding.
- Do not disassemble the product. Disassembling may cause injury.
- Do not leave the cycle computer in an extremely high temperature surrounding environment such as in a closed vehicle on a hot day, or near a heater. If a battery is incorporated, that can result in an explosion of the incorporated battery or the leakage of flammable liquid or gas from it.
- Do not expose the cycle computer to excessively low pressures. If a battery is incorporated, that can result in an explosion of the incorporated battery or the leakage of flammable liquid or gas from it. Transporting this product by air is not a problem.
- When charging the battery while it is installed on the bicycle, do not move the bicycle. The battery charger's power plug may come loose and not be fully inserted into the electrical outlet, resulting in risk of fire.
- Do not touch the drive unit when it has been continuously used for a long period of time. The surface of the drive unit becomes hot and could cause burns.

### ■ Lithium-ion battery

- If any liquid leaking from the battery gets into your eyes, immediately wash the affected area thoroughly with clean water such as tap water without rubbing your eyes, and seek medical attention immediately. If this is not done, the battery liquid may damage your eyes.
- Do not recharge the battery in very humid places or outdoors. Doing so may result in electric shock.
- Do not insert or remove the plug while it is wet. Doing so may result in electric shock. If the inside of the plug is wet, dry it thoroughly before inserting it.
- If the battery does not become fully charged after 2 hours of charging, immediately unplug the battery from the electrical outlet and contact the place of purchase. Doing so may cause it to overheat, burst, or ignite.
- Do not use the battery if it has any noticeable scratches or other external damage. If this is not observed, bursting, overheating or problems with operation may occur.
- Do not use it outside of the operating temperature range of the battery. If it is used or stored in temperatures which are outside these ranges, fire, injury or problems with operation may occur.
  1. During discharge: -10°C - 50°C
  2. During charging: 0°C - 40°C

### ■ For installation to the bicycle, and maintenance:

- Be sure to remove the battery and charging cable before wiring or attaching parts to the bicycle. Failure to do so may cause an electric shock.
- Clean the chain with an appropriate chain cleaner regularly. Intervals between maintenance depend on the use and riding circumstances.
- Never use alkali based or acid based solvents, such as rust cleaners. If those solvents are used the chain might break and cause serious injury.

### ■ Disposal precautions

- Observe all federal, state and local environmental regulations when disposing of a cycle computer that incorporates a battery. Disposal of this product into fire or a hot oven, or mechanically crushing or cutting of it, that can result in an explosion of the incorporated battery.

## CAUTION

### Be sure to also inform users of the following:

- Observe the instructions in the manual for the bicycle in order to ride safely.
- Periodically check the battery charger and adapter, particularly the cord, plug, and case, for any damage. If the battery charger or adapter is damaged, consult the place of purchase.
- Use the product under the supervision of someone responsible for safety, and only as instructed. Do not allow anyone (including children) with reduced physical, sensual, or mental capacity, or those without experience or knowledge, to use the product.
- Do not allow children to play near the product.
- Never modify the system. Doing so may cause a system error.

### ■ Lithium-ion battery

- Do not leave the battery in a place exposed to direct sunlight, inside a vehicle on a hot day, or other hot places. This may result in battery leakage.
- If any leaked fluid gets on your skin or clothes, wash it off immediately with clean water. The leaked fluid may damage your skin.
- Store the battery in a safe place out of the reach of children.

**NOTICE****Be sure to also inform users of the following:**

- If any malfunction or trouble occurs, consult the place of purchase.
- Be sure to attach dummy plugs to any unused E-TUBE ports.
- For installation and adjustment of the product, consult the place of purchase.
- The components are designed to be fully waterproofed to withstand wet weather riding conditions; however, do not deliberately place them into water.
- Do not clean the bicycle with a high-pressure washer. If water gets into any of the components, operating problems or rusting may result.
- Handle the components carefully, and avoid subjecting them to strong shock.
- Do not turn the bicycle upside down. There is a risk of damage to the cycle computer and switch unit.
- Although the bicycle still functions as a normal bicycle even when the battery is removed, the light will not turn on if it is connected to the electric power system. Be aware that using the bicycle under these conditions will be considered non-observance of the road traffic laws in Germany.
- When carrying the assist bicycle in a car, remove the battery from the bicycle and place it on a stable surface in the car.
- Before connecting the battery, make sure that there is no water collecting in the area where the battery will be connected (connector), and that it is not dirty.
- When charging the battery while it is mounted on the bicycle, be careful of the following:
  - Before charging, check that there is no water on the charging port or the plug of the battery charger.
  - Check that the battery mount is locked before charging.
  - Do not remove the battery from the battery mount while charging.
  - Do not ride with the battery charger mounted.
  - Close the cap on the charging port when not charging.
  - Fix the bicycle in place when charging, so that it does not tip over.
- It is recommended to use a SHIMANO genuine battery. If using a battery from another company, be sure to read the owner's manual thoroughly prior to use.
- Some of the important information in this dealer's manual can also be found on the device labels.

- The number written on the key of the battery mount is necessary when purchasing a spare key. Store it carefully.
- Use a damp, well wrung out cloth, when cleaning the battery and plastic cover.
- For any questions regarding methods of installation and maintenance, please contact your place of purchase.
- Contact the place of purchase for updates to the component software. The most up-to-date information is available on the SHIMANO website.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend SHIMANO lubricants and maintenance products.

### ■ Connection and communication with PC


Using a PC linkage device to connect a PC to your bicycle (system or component) allows you to use E-TUBE PROJECT to perform a range of tasks, such as customizing individual components or the entire system, or updating firmware.

- PC linkage device: SM-PCE1 / SM-PCE02
- E-TUBE PROJECT: PC application
- Firmware: Software inside each component

### ■ Connection and communication with smartphone or tablet

Connecting your bicycle (system or component) over Bluetooth® LE to a smartphone or tablet allows you to use the smartphone/tablet version of E-TUBE PROJECT to perform a range of tasks, such as customizing individual components or the system, or updating firmware.

- E-TUBE PROJECT: Application for smartphones/tablets
- Firmware: Software inside each component

	<p><b>Disposal information for countries outside the European Union</b>          This symbol is only valid within the European Union.          Follow local regulations when disposing of used batteries. If you are not sure, consult the place of purchase or distributor.</p>
---	--

**The actual product may differ from the illustration because this manual is intended mainly to explain the procedures for using the product.**

## Booklet structure

### ■ User's manual

SHIMANO STEPS series user's manuals are split among several booklets, as described below.

The latest manuals are available on our website (<https://si.shimano.com>).

Name	Details
SHIMANO STEPS User's Manual	<p>This is the basic manual for the SHIMANO STEPS series. It contains the following content.</p> <ul style="list-style-type: none"> <li>• SHIMANO STEPS quick guide</li> <li>• Basic operations when riding</li> <li>• How to operate assist bicycles that use flat handlebars, such as city, trekking, or MTB type bicycles</li> <li>• General troubleshooting</li> </ul>
SHIMANO STEPS User's Manual for Drop Handlebar Bicycles (separate booklet)	<p>This booklet describes how to operate assist bicycles that use a drop handlebar and are controlled using dual control levers. This should be read along with the SHIMANO STEPS User's Manual.</p>
SHIMANO STEPS Special Battery and Parts User's Manual (separate booklet)	<p>It contains the following content.</p> <ul style="list-style-type: none"> <li>• How to charge and handle the SHIMANO STEPS special battery</li> <li>• How to attach and remove the SHIMANO STEPS special battery to the bicycle</li> <li>• How to use the satellite system ON/OFF switch and satellite charging port</li> <li>• How to read the battery LEDs when charging or during an error, and how to handle errors</li> </ul>
SHIMANO STEPS Cycle Computer User's Manual	<p>It contains the following content.</p> <ul style="list-style-type: none"> <li>• Method for configuring settings via the main body buttons and switch unit</li> <li>• Wireless communication method</li> <li>• Problems and errors/warnings and remedies</li> </ul>
Switch Unit User's Manual	<p>This is the assist switch and shifting switch user's manual. It describes switch unit handling and operations only.</p>

### ■ Dealer's manual




















SHIMANO STEPS series dealer's manuals are split among several booklets, as described below.

The latest manuals are available on our website (<https://si.shimano.com>).

Name	Details
SHIMANO STEPS Dealer's Manual (this document)	<p>This is the basic manual for the SHIMANO STEPS series.</p> <ul style="list-style-type: none"> <li>• Overall wiring diagram</li> <li>• Overall flow of operations for installing the SHIMANO STEPS components to an assist bicycle</li> <li>• Installation/removal and maintenance of the drive unit area</li> <li>• Installation/removal of the speed sensor</li> </ul>
SHIMANO STEPS Dealer's Manual for Drop Handlebar Bicycles (separate booklet)	<p>It specializes in the following information regarding assist bicycles that use a drop handlebar and are controlled using dual control levers. This should be read along with the SHIMANO STEPS Dealer's Manual.</p> <ul style="list-style-type: none"> <li>• Overall wiring diagram</li> <li>• Cautions to follow when installing the drive unit</li> </ul>
SHIMANO STEPS Special Battery and Parts Dealer's Manual (separate booklet)	<p>It contains the following content.</p> <ul style="list-style-type: none"> <li>• How to install the battery mount</li> <li>• How to install the satellite system ON/OFF switch and satellite charging port</li> </ul>
SHIMANO STEPS Cycle Computer and Switch Unit Parts Dealer's Manual	<p>It contains the following content.</p> <ul style="list-style-type: none"> <li>• Installation and maintenance of the SHIMANO STEPS special cycle computer, special junction [A] and switch unit</li> <li>• How to connect to the PC version of E-TUBE PROJECT</li> </ul>
SHIMANO STEPS Chain Device Dealer's Manual	<p>This manual describes the installation and maintenance of the SHIMANO STEPS special chain device.</p>

# LIST OF TOOLS TO BE USED

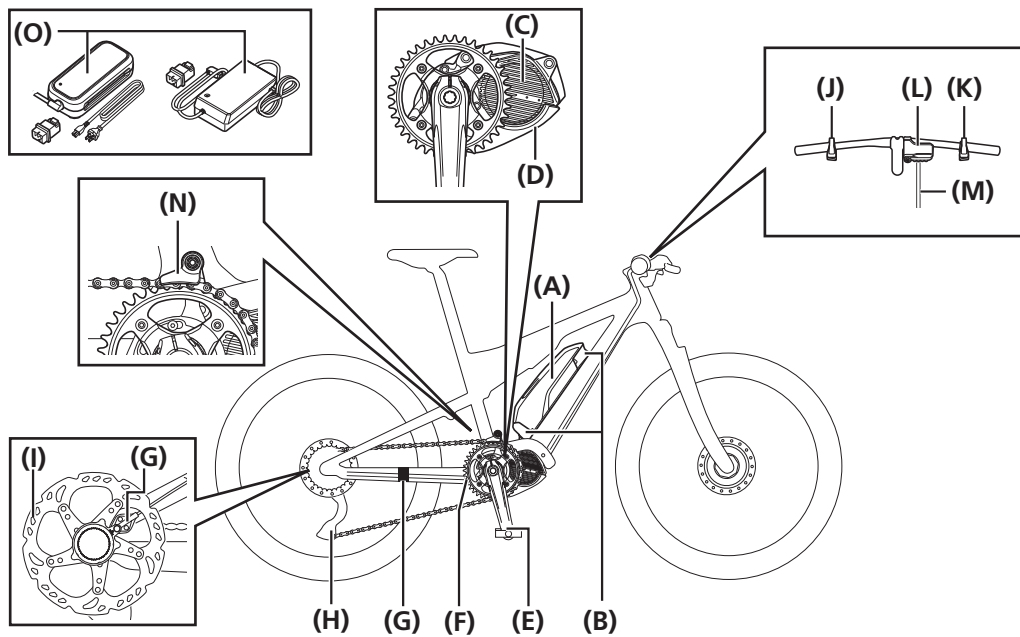
The following tools are needed for installation/removal, adjustment, and maintenance purposes.

Component	Location used/screw type	Tool
Electric wire	Plug	 /  TL-EW02 / TL-EW300
Speed sensor (EW-SS300)	Speed sensor mounting screw	 /  4 mm hexagon wrench / hexalobular [#25]
	Magnet unit mounting screw	 Cross head screwdriver [#2]
Speed sensor (EW-SS301)	Speed sensor mounting screw	 Hexalobular [#10]
Drive unit	Drive unit mounting screw	- Contact the bicycle manufacturer.
	Drive unit cover	 Cross head screwdriver [#2]
Light cable	Light cable mounting screw	 Cross head screwdriver [#2]
Crank arm	Cap	 /  TL-FC16 / TL-FC18
	Clamp screw	 5 mm hexagon wrench
Chainring unit	Lock ring	 +  TL-FC39 + TL-FC33
		 +  TL-FC39 + TL-FC36
	Chain guard Arm cover	 Cross head screwdriver [#2]
	Chainring	 +  TL-FC22 + TL-FC23
Chain	Tension adjustment for internal geared hub specifications	 TL-DUE60

# INSTALLING ELECTRICAL PARTS

## Names of parts

### External mount type



(A)	External type battery*1	(B)	Battery mount
(C)	Drive unit	(D)	Drive unit cover (left side and bottom side)
(E)	Crank arm	(F)	Chainring unit
(G)	Speed sensor*2	(H)	Shifting unit*3
(I)	Disc brake rotor	(J)	Switch unit (assist switch)
(K)	Switch unit (shifting switch) or shifting lever	(L)	Cycle computer or junction [A]
(M)	Electric wire	(N)	Chain device
(O)	Battery charger		

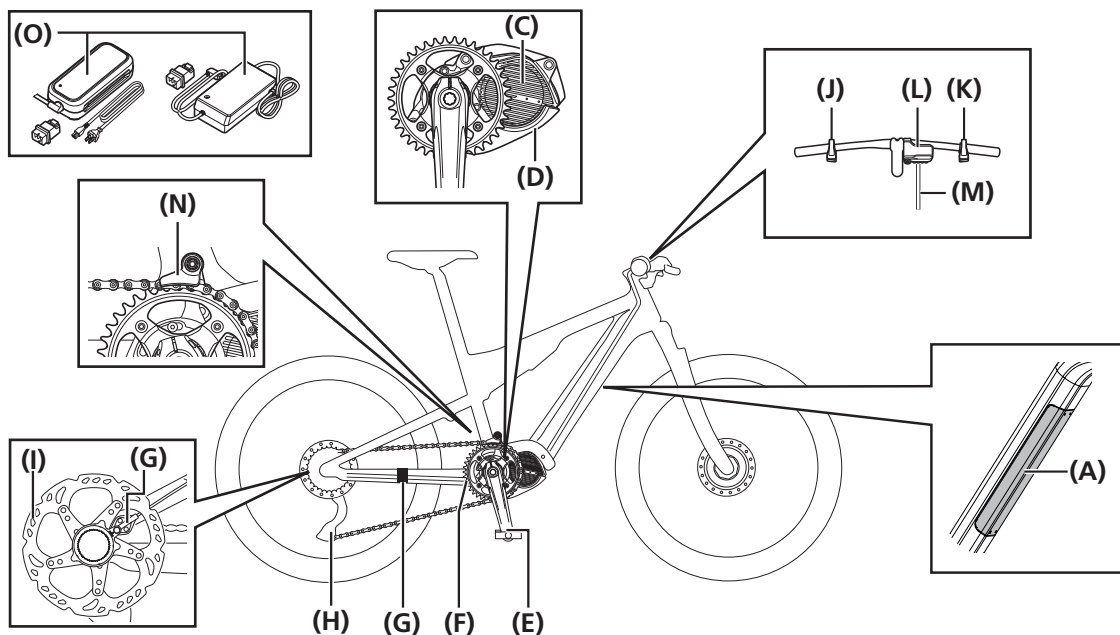
\*1 Depending on the frame, the battery may be installed at a location different from the position specified in the figure.

\*2 Attach it to one of the two locations specified in the figure.

\*3 Electronic gear shifting: DI2 rear derailleur or motor unit + DI2 internal geared hub

Mechanical gear shifting: rear derailleur or internal geared hub

## Integrated mount type



(A)	Built-in type battery*1	(B)	-
(C)	Drive unit	(D)	Drive unit cover (left side and bottom side)
(E)	Crank arm	(F)	Chaining unit
(G)	Speed sensor*2	(H)	Shifting unit*3
(I)	Disc brake rotor	(J)	Switch unit (assist switch)
(K)	Switch unit (shifting switch) or shifting lever	(L)	Cycle computer or junction [A]
(M)	Electric wire	(N)	Chain device
(O)	Battery charger		

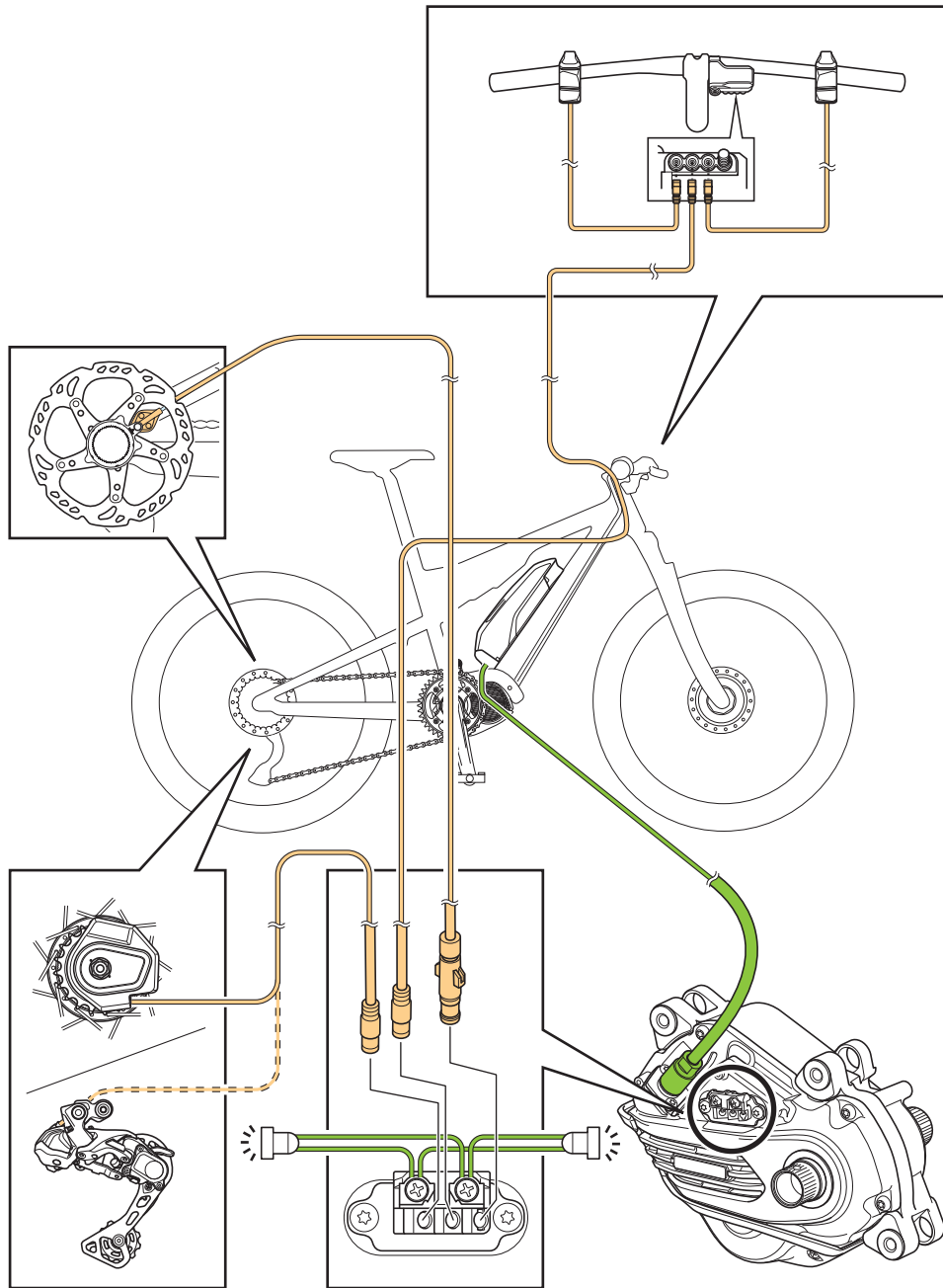
\*1 Attach the battery mount and battery inside the frame. Depending on the assist bicycle, the battery may be installed at a location different from the position specified in the figure.

\*2 Attach it to one of the two locations specified in the figure.

\*3 Electronic gear shifting: DI2 rear derailleur or motor unit + DI2 internal geared hub

Mechanical gear shifting: rear derailleur or internal geared hub

# Overall wiring diagram



## TECH TIPS

- The maximum electric wire length between components is 1,600 mm. Ensure that the total length is 1,600 mm or less when connecting via a junction [B] or conversion adapter.

# Specifications

<b>Operating temperature range: Discharging</b>	-10 - 50°C	<b>Battery type</b>	Lithium-ion battery
<b>Operating temperature range: Charging</b>	0 - 40°C	<b>Nominal capacity</b>	Refer to the "SHIMANO STEPS Special Battery and Parts User's Manual."
<b>Storage temperature</b>	-20 - 70°C	<b>Rated voltage</b>	36 V DC
<b>Storage temperature (battery)</b>	-20 - 60°C	<b>Drive unit type</b>	Midship
<b>Charging voltage</b>	100 - 240 V AC	<b>Motor type</b>	Brushless DC
<b>Charging time</b>	Refer to the "SHIMANO STEPS Special Battery and Parts User's Manual."	<b>Rated drive unit power</b>	250 W

## TECH TIPS

- The maximum speed provided by assist is set by the manufacturer, but may vary depending on the conditions under which the bicycle is used.
- The latest manual information can be accessed on our website (<https://si.shimano.com>).

# Electric wires

There are two types of electric wire: the EW-SD300 and the EW-SD50. The supported electric wire differs according to the model. Check the component specifications on the SHIMANO product website in advance (<https://productinfo.shimano.com/>).

## Supported products

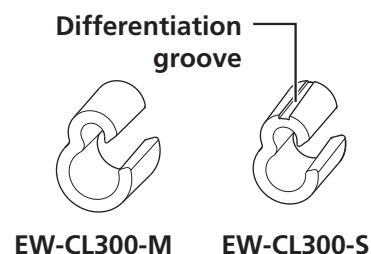
The following products support each type of electric wire.

Product name	Intended purpose	EW-SD300 type	EW-SD50 type
SHIMANO original tool	Connecting / disconnecting the electric wire	TL-EW300	TL-EW02
Dummy plug	Blocking empty ports	Y7HE30000	Y6VE15000

Product name	Intended purpose	EW-SD300 type	EW-SD50 type
Cord clip	Binding the wiring and the brake outer casing / brake hose together	EW-CL300-S (for shift outer casing) EW-CL300-M (for brake outer casing and brake hose)	Y70H98040
Cord cover	Supporting / protecting the electric wire (external wiring)	EW-CC300	SM-EWC2
Grommets	Installing to the wire insertion hole of a frame that supports internal wiring	EW-GM300-S EW-GM300-M	SM-GM01 SM-GM02
Cord band	Supporting the electric wire (flat handlebar external wiring)	EW-CB300-S EW-CB300-M EW-CB300-L	SM-EWE1
Junction [A] (for DI2)	Gathering the wiring around the cockpit. Also has functions for changing the shift mode, etc.	-	EW-RS910 SM-EW90-A SM-EW90-B
Junction [B]	Branching / gathering the wiring inside and outside the frame	EW-JC304 EW-JC302	SM-JC41 SM-JC40 EW-JC200 EW-JC130
Conversion adapter	Refer to "Conversion adapter."	EW-AD305	EW-AD305

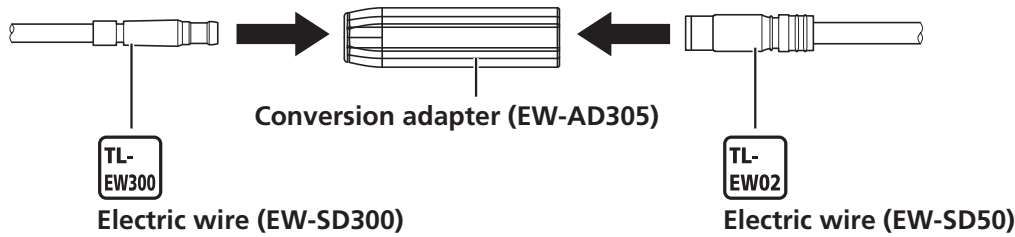
**NOTICE**

- The SHIMANO original tool used for installation/removal and the accessories used for wiring differ for the EW-SD300 and EW-SD50. Be sure to use a compatible product.
- EW-CL300-S is marked with a groove in order to differentiate it from EW-CL300-M.



## Conversion adapter

A conversion adapter (EW-AD305) is required to connect the EW-SD50 to a component with an E-TUBE port for the EW-SD300.



## Connecting / disconnecting the electric wire

Be sure to use the SHIMANO original tool to remove and insert electric wires.

### NOTICE

- When connecting and disconnecting electric wires, do not forcibly bend the plug part. It may result in a poor connection.

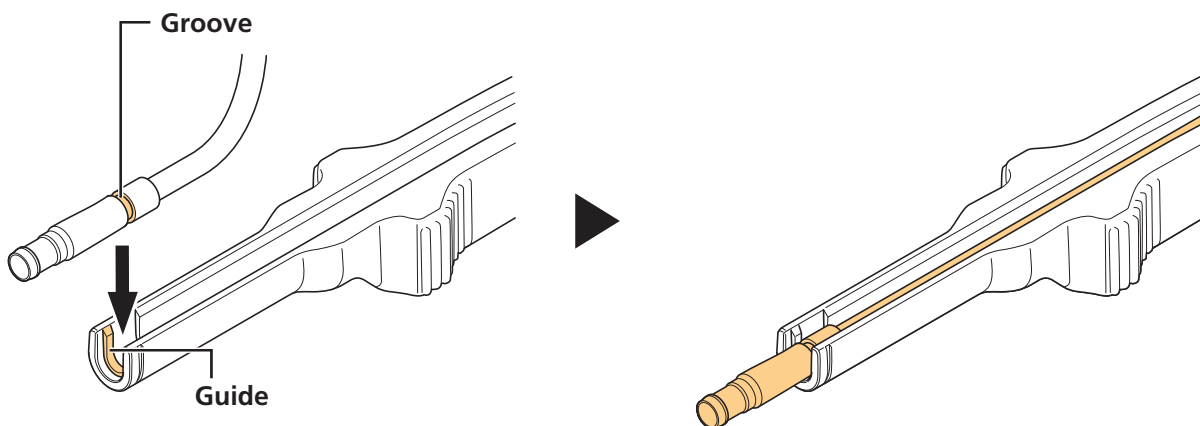
### ▶ Connecting the electric wire (EW-SD300)

Connect the electric wire to the E-TUBE port.

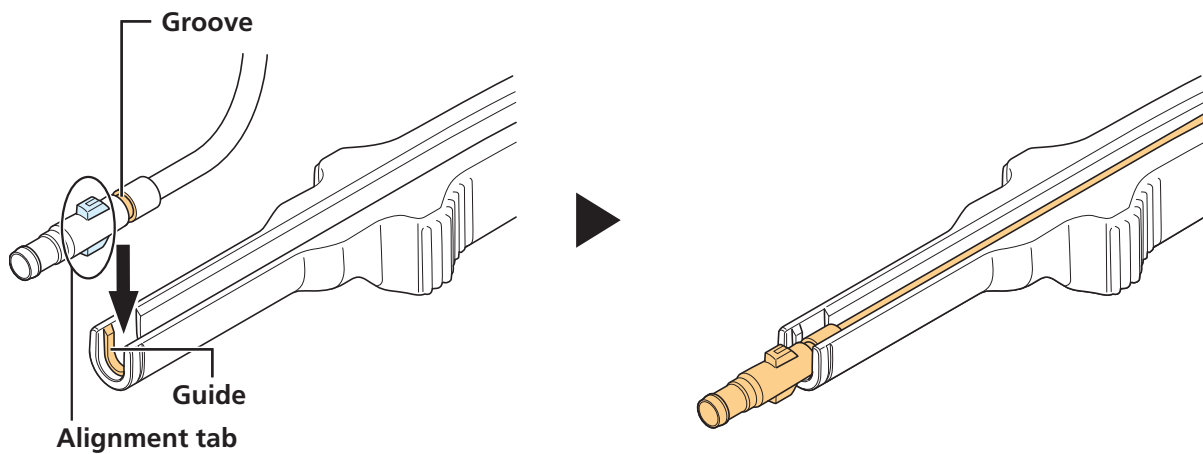
#### 1. Set the plug of the electric wire to the TL-EW300.

If there is an alignment tab on the plug of the electric wire, check the shape of the E-TUBE port you are trying to connect to, and set it aligned with the alignment tab.

Without alignment tab on plug

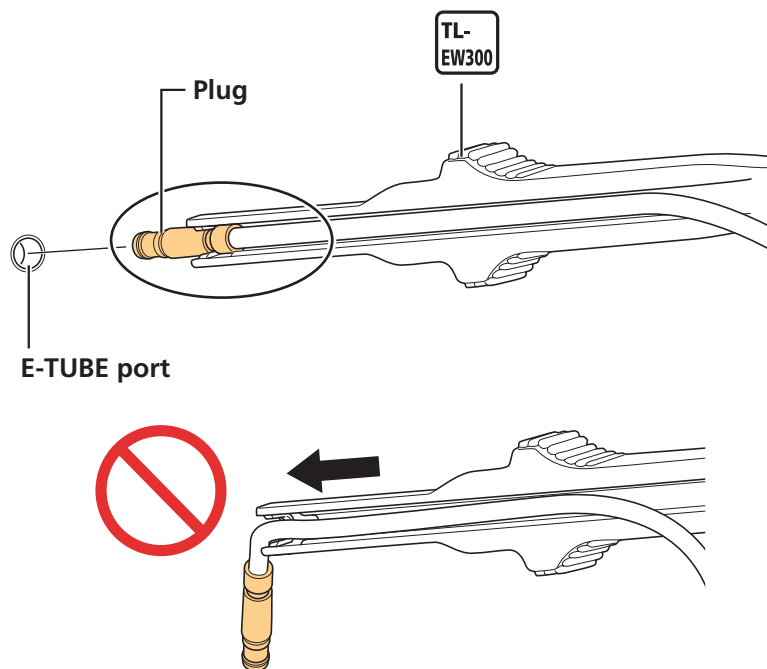


With alignment tab on plug



## 2. Insert the plug on the electric wire into the E-TUBE port.

Push it straight in until you feel it click into place.



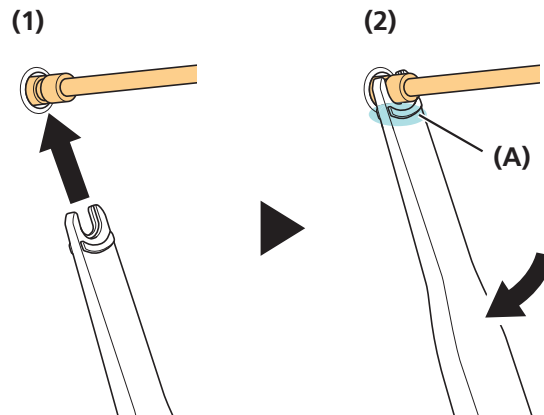
## ▶ Removing the electric wire (EW-SD300)

### 1. Remove the electric wire.

(1) Insert the TL-EW300 into the groove on the plug part of the electric wire.

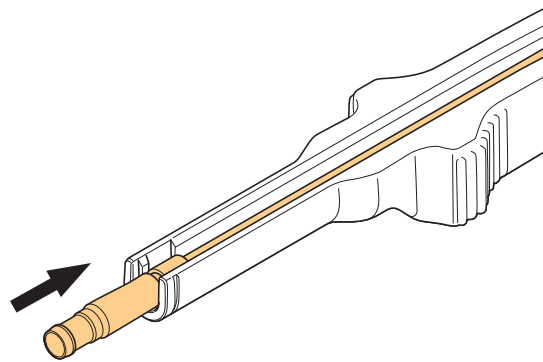
(2) Disconnect the electric wire from the E-TUBE port.

\* As shown in the figure, use part (A) of the TL-EW300 as leverage for support and move it like a lever, then disconnect it.



**TECH TIPS**

- If there is limited space to insert the tool, you can use the TL-EW300 as indicated in the figure to disconnect the electric wire.



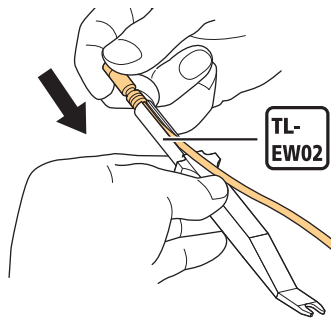
**▶ Connecting the electric wire (EW-SD50)**

Connect the electric wire to the E-TUBE port.

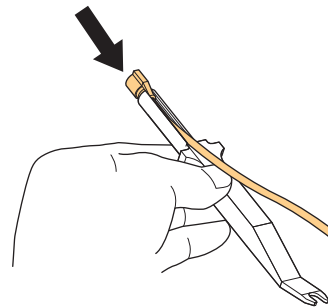
## 1. Set the plug of the electric wire to the TL-EW02.

If there is an alignment tab on the plug of the electric wire, set it aligned with the groove on the SHIMANO original tool.

Without alignment tab on plug

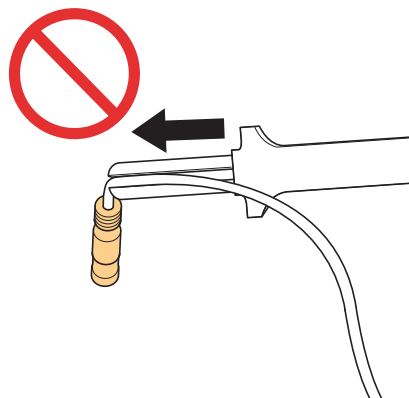
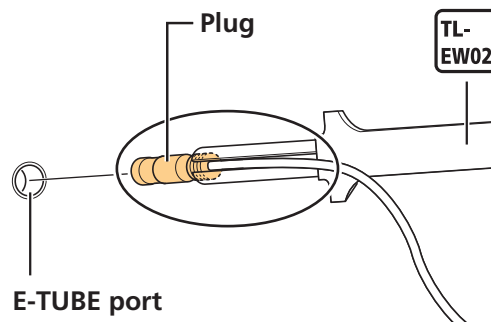


With alignment tab on plug



## 2. Insert the plug on the electric wire into the E-TUBE port.

Push it straight in until you feel it click into place.



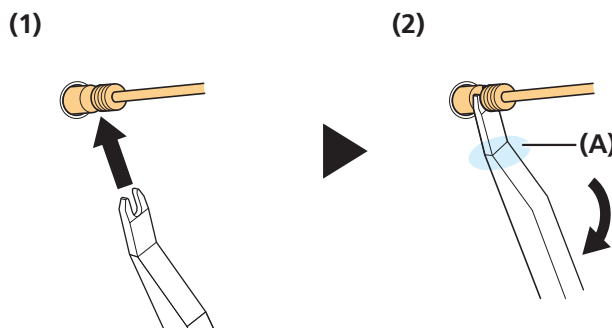
## ▶ Removing the electric wire (EW-SD50)

### 1. Remove the electric wire.

(1) Insert the TL-EW02 into the groove on the plug of the electric wire.

(2) Disconnect the electric wire from the E-TUBE port.

\* As shown in the figure, use part (A) of the TL-EW02 as leverage for support and move it like a lever, then disconnect it. If there is limited space to insert the tool, lift the TL-EW02 straight up and disconnect the electric wire.



## Installing cockpit peripheral components

Refer to the “SHIMANO STEPS Cycle Computer and Switch Unit Parts Dealer's Manual.”

## Installing the battery mount and parts

Refer to the “SHIMANO STEPS Special Battery and Battery Charger Parts Dealer's Manual.”

## Installing the speed sensor

### NOTICE

- For details on the compatibility of the speed sensor and drive unit, refer to the compatibility information (<https://productinfo.shimano.com/#/com>).

### Generic type

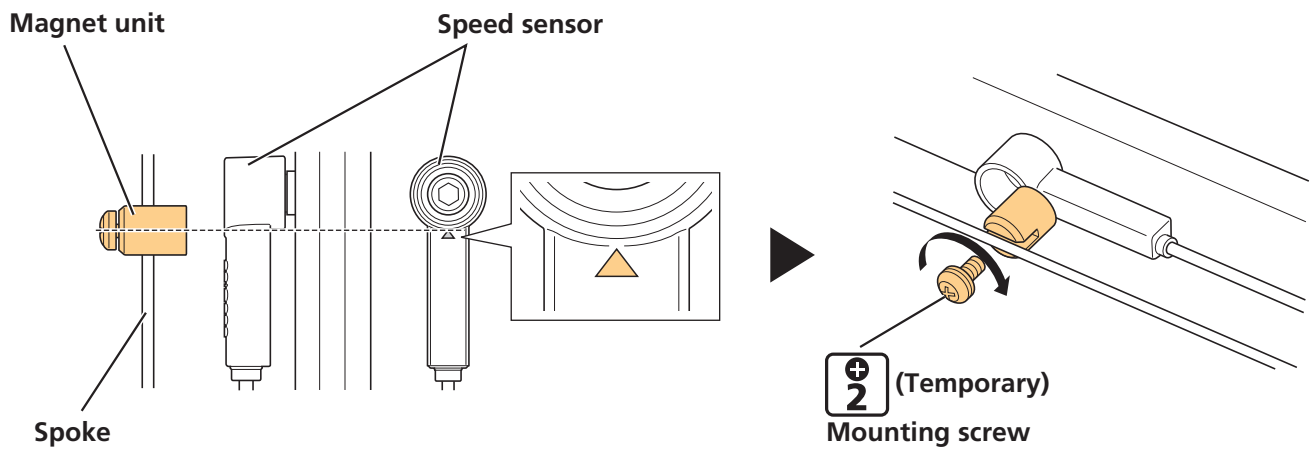
For models: EW-SS300 (SD300 type)

The generic type speed sensor can be installed regardless of the type of brake, such as rim brake, roller brake, or coaster brake. Set the magnet unit on a spoke on the rear wheel.

#### 1. Temporarily install the magnet unit to the spoke.

- (1) Try pressing the speed sensor to the installation location on the frame, and determine the installation location of the magnet so that the center of the magnet is aligned over the tip of the triangle symbol.

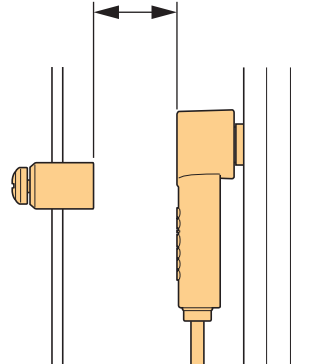
(2) Temporarily install the mounting screw.



## 2. Install the speed sensor.

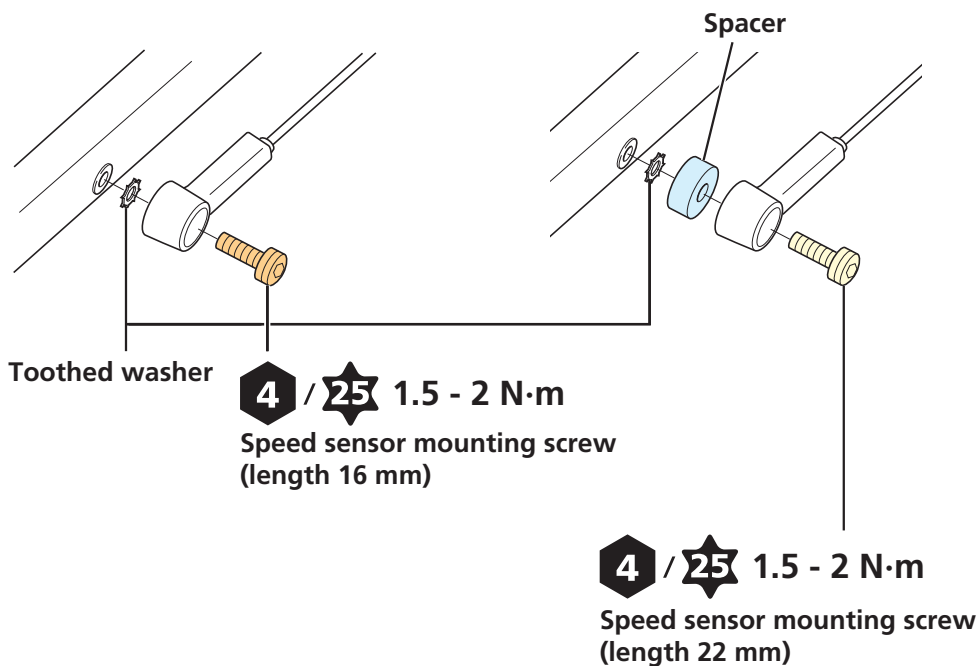
Check that the clearance between the speed sensor and magnet unit is from 3 to 17 mm.

Clearance between speed sensor and magnet unit

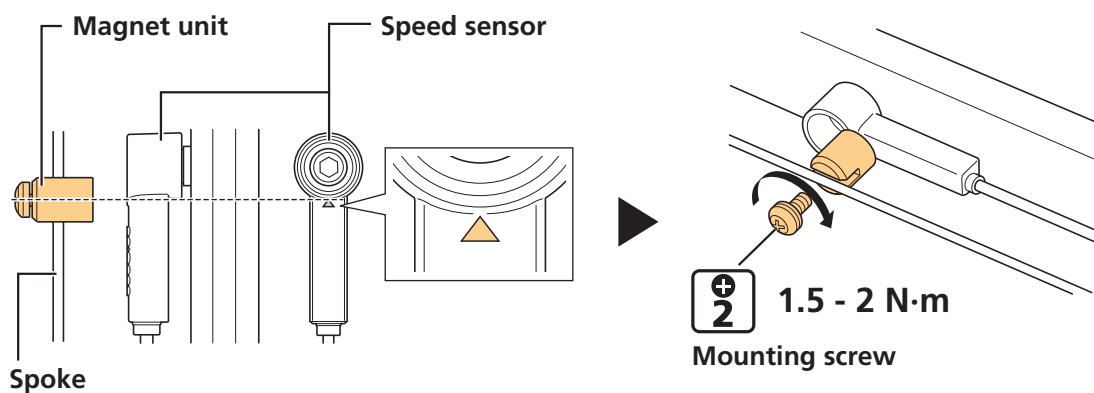


Clearance between speed sensor and magnet unit is 3 to 17 mm

Clearance between speed sensor and magnet unit exceeds 17 mm



### 3. Secure the magnet unit.



### 4. Set the electric wire from the speed sensor along the chainstay to the frame, and wire it to the drive unit.

## Type designed exclusively for use with disc brakes

For models: EW-SS301 (SD300 type)

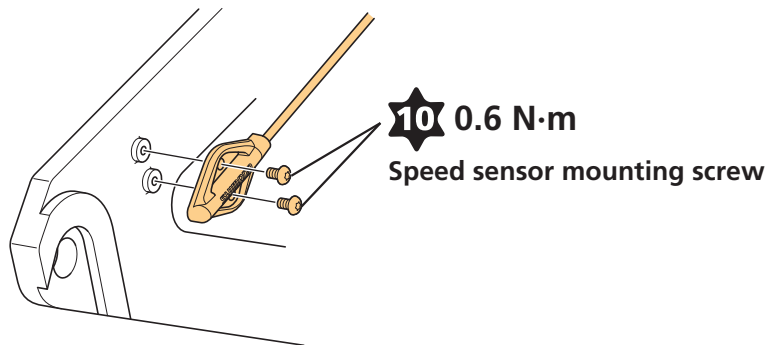
The speed sensor type designed exclusively for use with disc brakes is used in combination with a disc brake rotor with magnet unit (rear wheel only).

### 1. Install the disc brake rotor to the wheel.

- Refer to the "Disc Brake" chapter of General Operations for the installation method.

- The disc brake rotor with magnet unit is the internal spline type. Install it using the TL-LR15 SHIMANO original tool.

## 2. Install the speed sensor to the frame.



3. Set the electric wire from the speed sensor along the chainstay to the frame, and wire it to the drive unit.
4. Set the rear wheel to the frame.

# INSTALLING THE DRIVE UNIT AND PERIPHERAL PARTS

Use the following procedure to install the drive unit and peripheral parts.

- (1) Installing the drive unit
- (2) Wiring to the drive unit
- (3) Installing the drive unit cover
- (4) Installing the chainring unit and crank arms

## TECH TIPS

- To check the wiring of the drive unit on a completed bicycle, you will need to first remove the drive unit cover. Remove the left cover to access the power cord and terminal block.

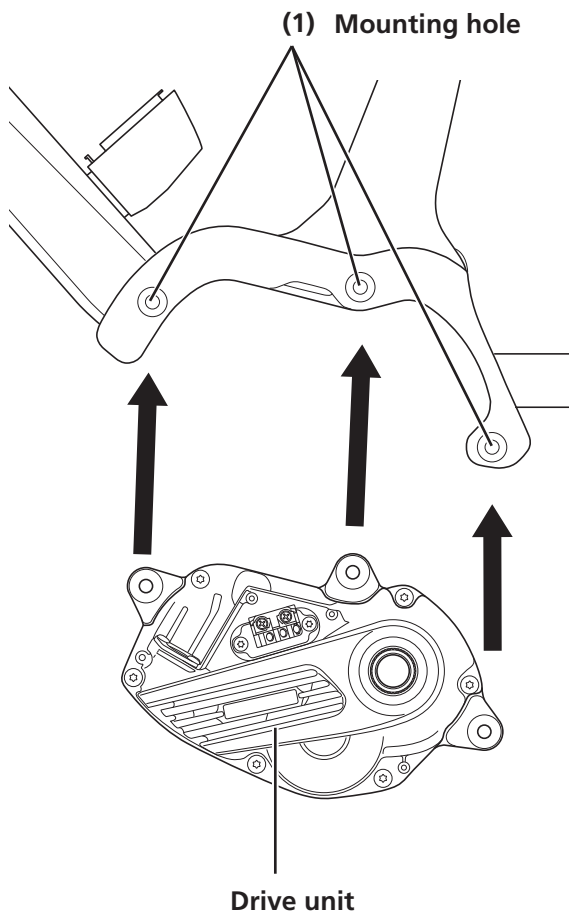
## Installing the drive unit

Before installing the drive unit to the frame, first check that all electric wires and cables to connect to the drive unit have been routed to the installation area of the drive unit.

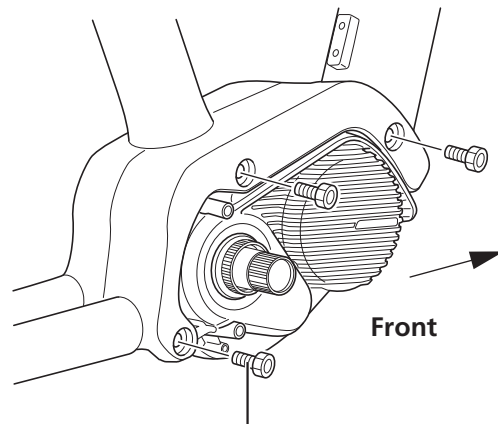
### 1. Secure the drive unit.

- (1) Check the three mounting holes on the left and right of the frame.
- (2) Tighten the mounting screw on the right side so that the drive unit makes firm contact with the inner surface on the right side of the frame.

(3) Tighten the mounting screw on the left side of the frame.

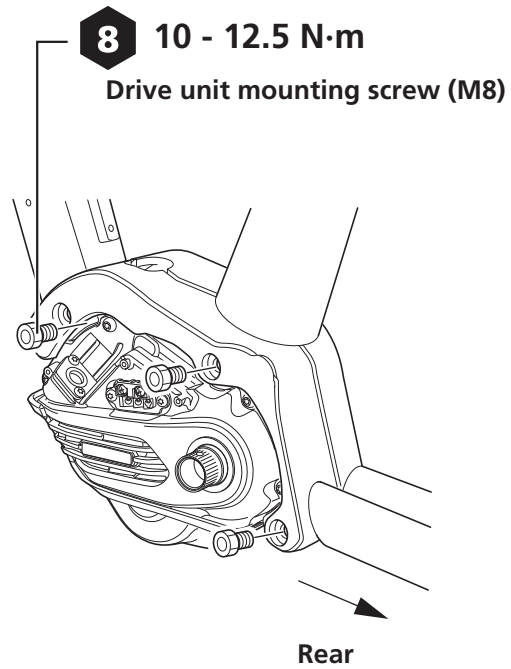


(2)  
Right side



**8** 10 - 12.5 N·m  
Drive unit mounting screw (M8)

(3)  
Left side



**TECH TIPS**

- Drive unit mounting screws (M8) are not included with SHIMANO products. Use the screws supplied by the bicycle manufacturer.

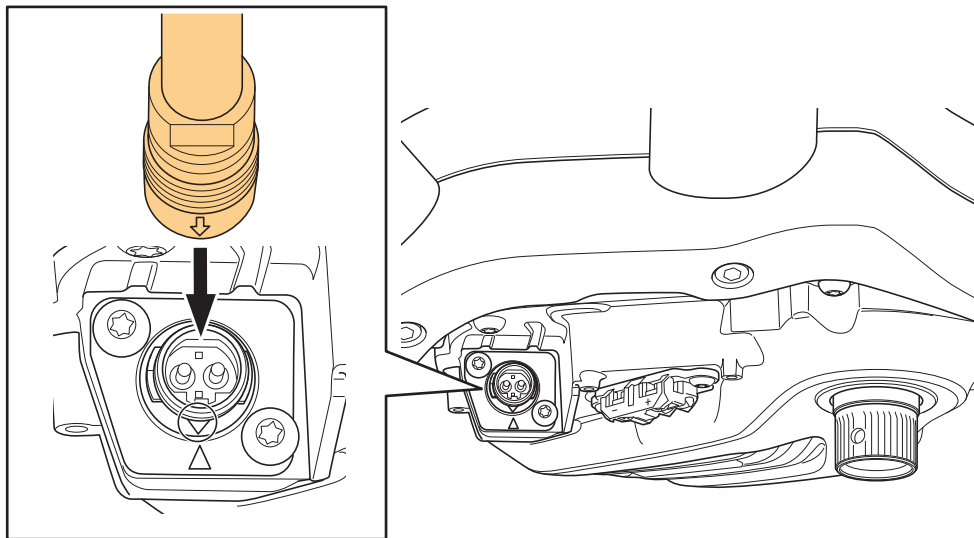
# Connecting the power cord

## Connection method

### 1. Connect the power cord.

Align the  $\Delta$  marking on the drive unit's power port with the arrow marking on the tip of the power cord, then insert the power cord until you feel a click.

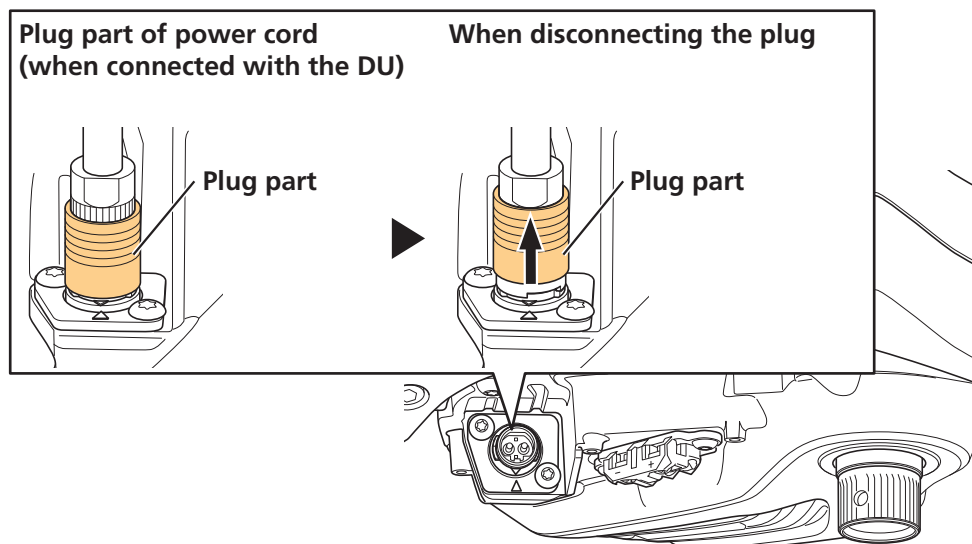
\* Check that it is securely connected.



## Removal method

### 1. Remove the power cord.

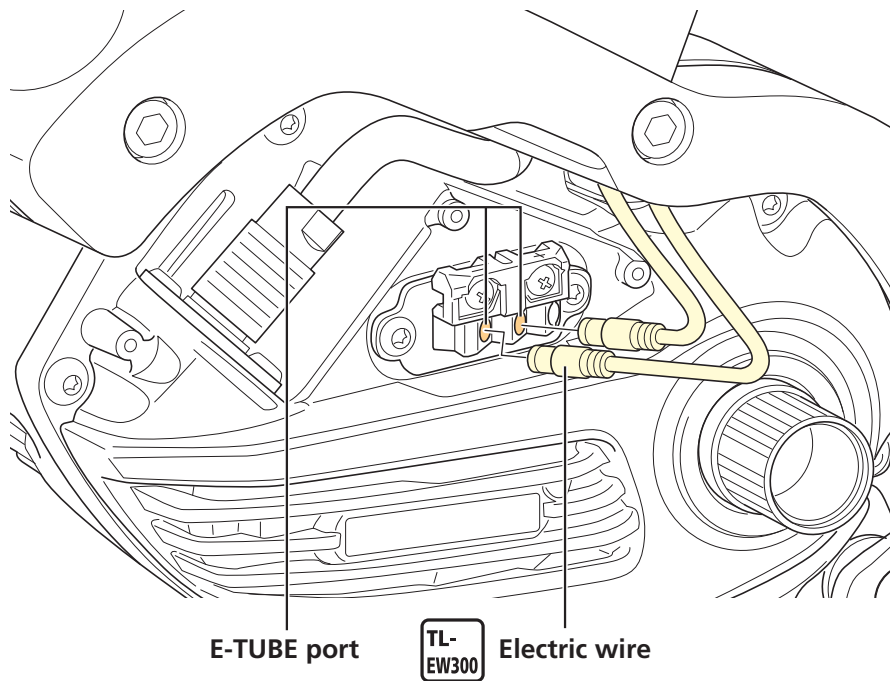
Hold the groove on the plug and slide the tip of the plug to pull it out, as shown in the figure.



## Connecting cockpit peripheral parts and electronic gear shifting components

Connect wires from the cycle computer and electronic gear shifting components to the drive unit's terminal block.

## 1. Connect the electric wire to the drive unit's E-TUBE port.



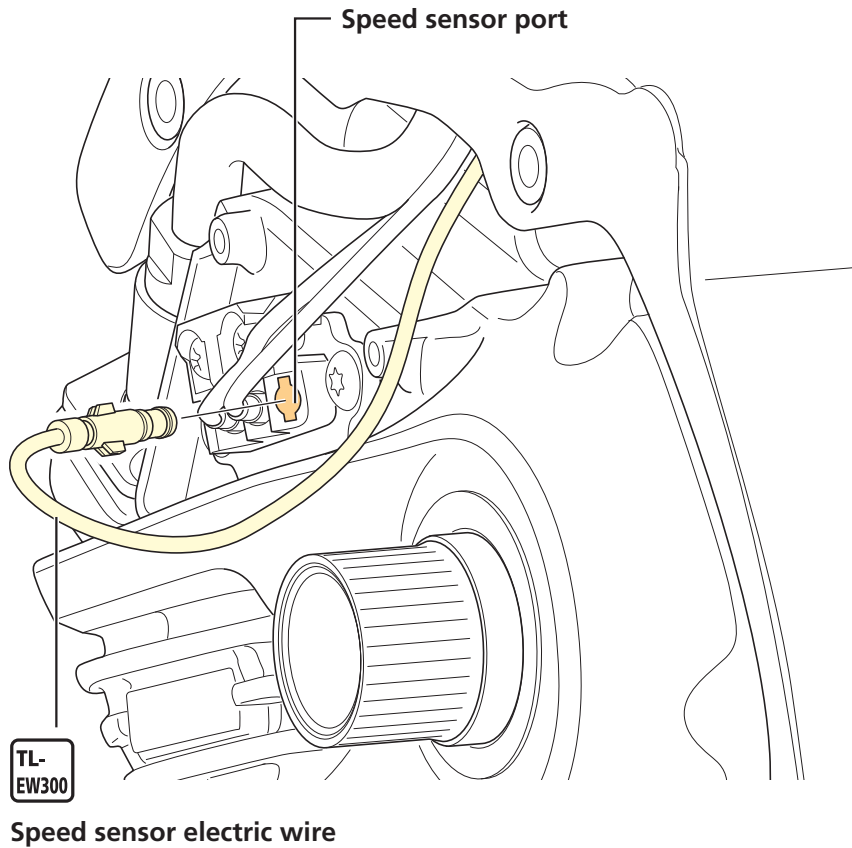
### **NOTICE**

- Be sure to attach dummy plugs to any unused E-TUBE ports.

## Connecting the speed sensor

Connect the speed sensor's electric wire to the drive unit's terminal block.

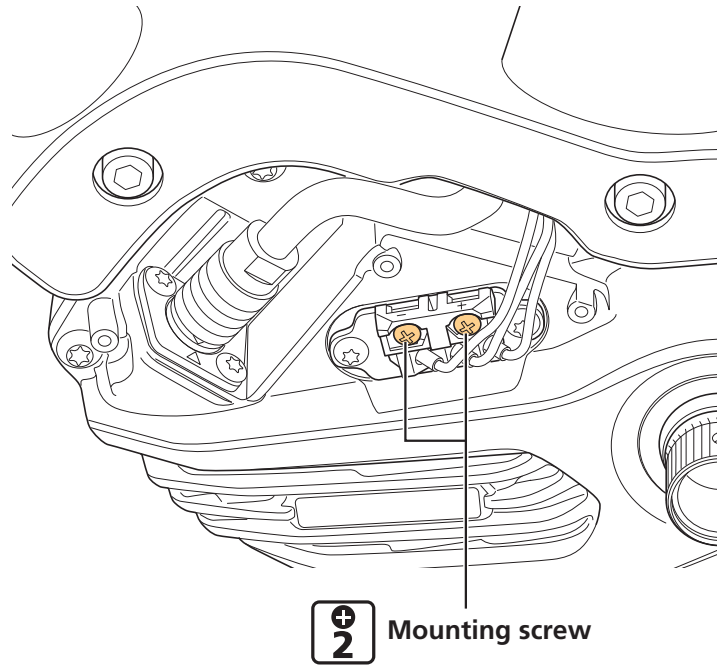
## 1. Connect the electric wire to the drive unit's speed sensor port.



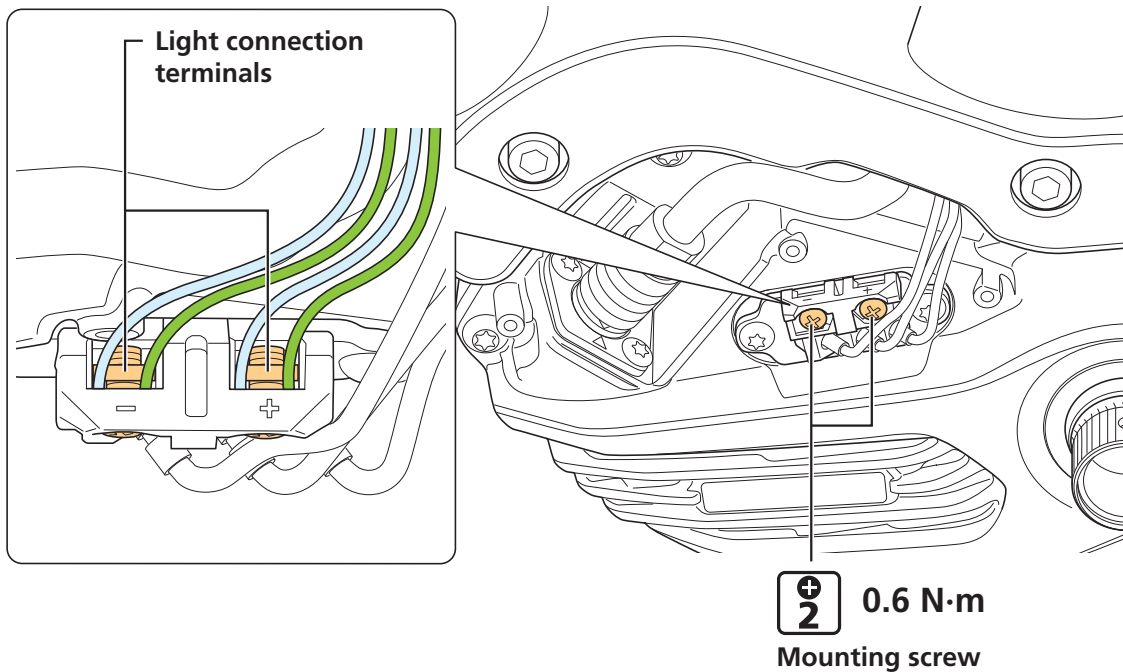
## Connecting the light cables

Connect the wires connected to the front and rear lights to the drive unit.

# 1. Loosen the mounting screws.



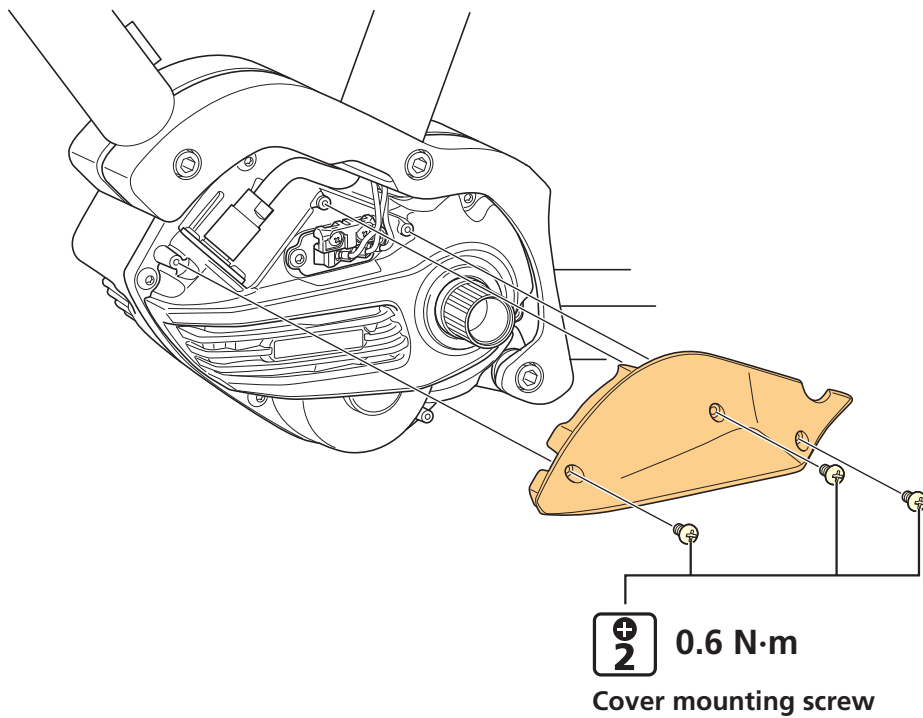
# 2. Connect the light cables to the light connection terminals, then tighten the mounting screws.



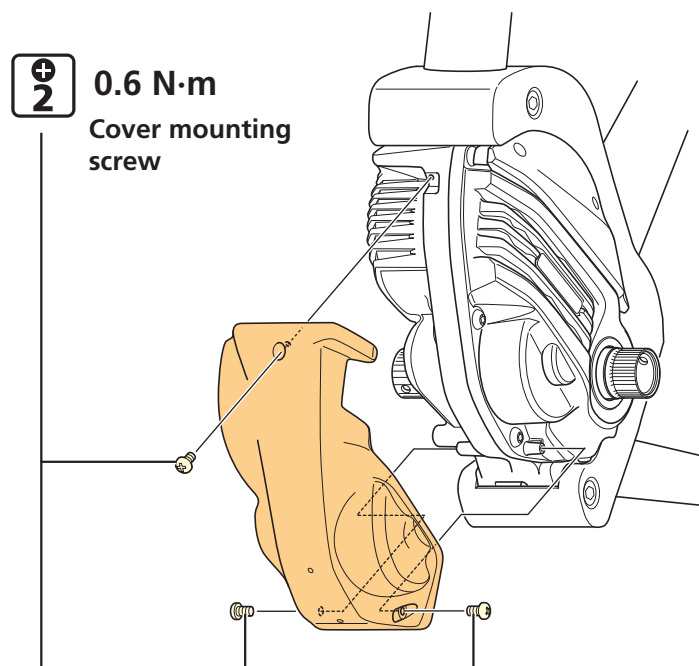
# Installing the drive unit cover

- The appearance of the drive unit cover differs depending on the model, but the installation method is the same.
- When also using a drive unit cover from another company, refer to the manual for the frame.

## 1. Install the left cover.



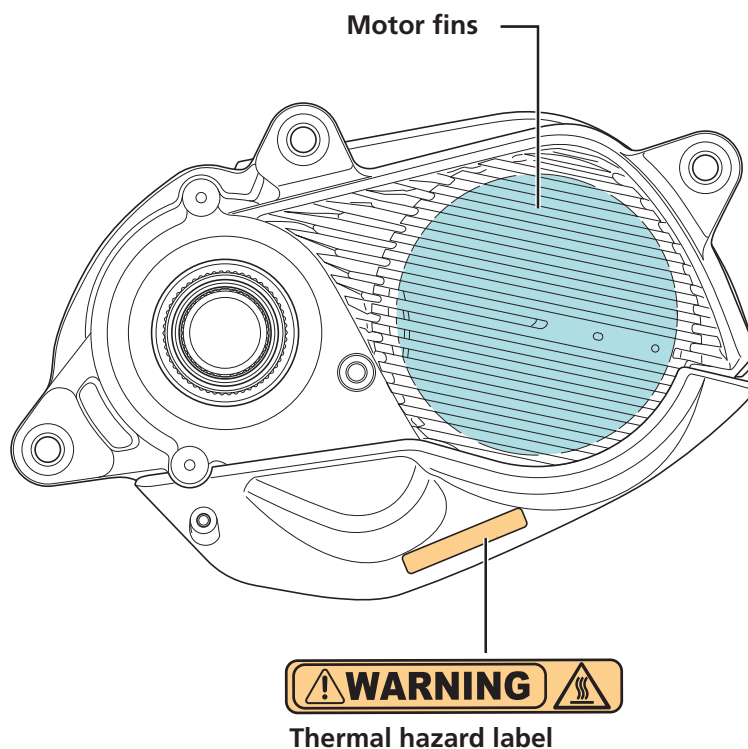
## 2. Install the guard.



## Affixing the thermal hazard label

A thermal hazard label is affixed to the position shown in the figure on the guard (DC-EP800-G: SHIMANO drive unit cover).

For bicycles that use custom covers from another company, refer to the position shown in the figure to affix the thermal hazard label included with the DU-EP800 to a visible location around the motor fins.



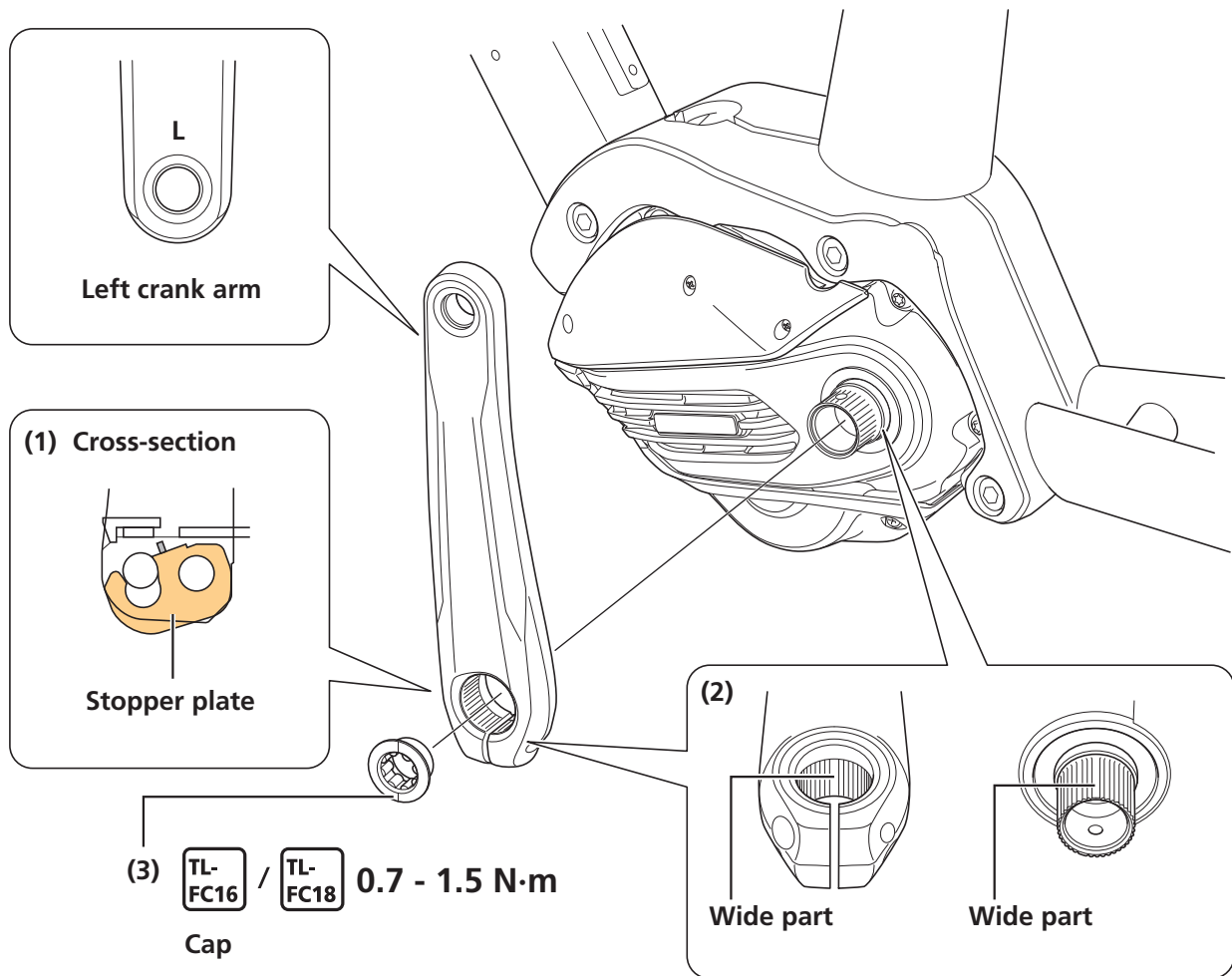
## Installing the chainring unit and crank arms

Set the rear wheel to the bicycle prior to performing the procedures.

### 1. Set the left crank arm.

- (1) Check that the stopper plate on the left crank arm is sticking out.
- (2) Set the left crank arm with the wide part of the spline on the left crank arm aligned with the wide part of the spline on the crank axle.

(3) Tighten the cap.

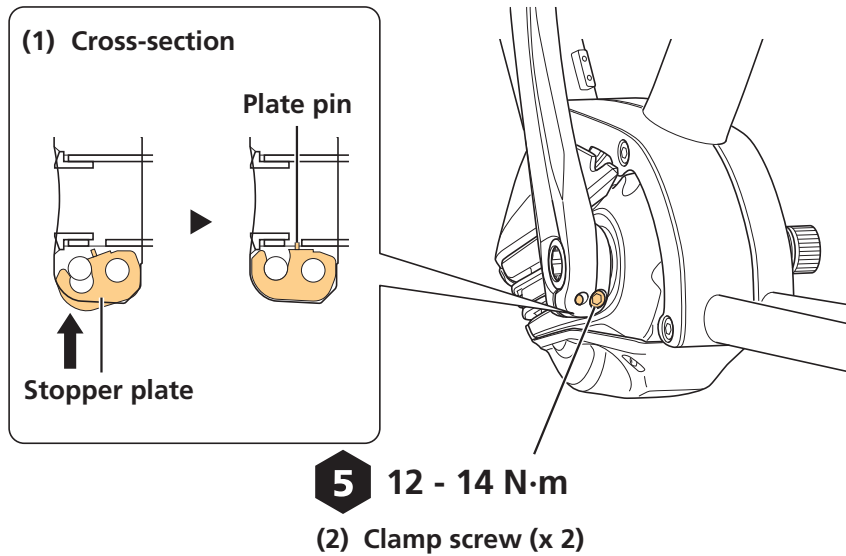


## 2. Secure the left crank arm.

(1) Press the stopper plate in.

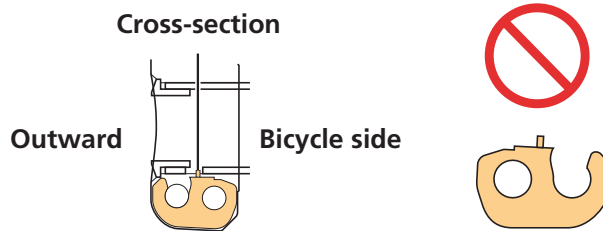
\* Check that the plate pin is firmly set.

(2) Tighten the two clamp screws alternately.



**NOTICE**

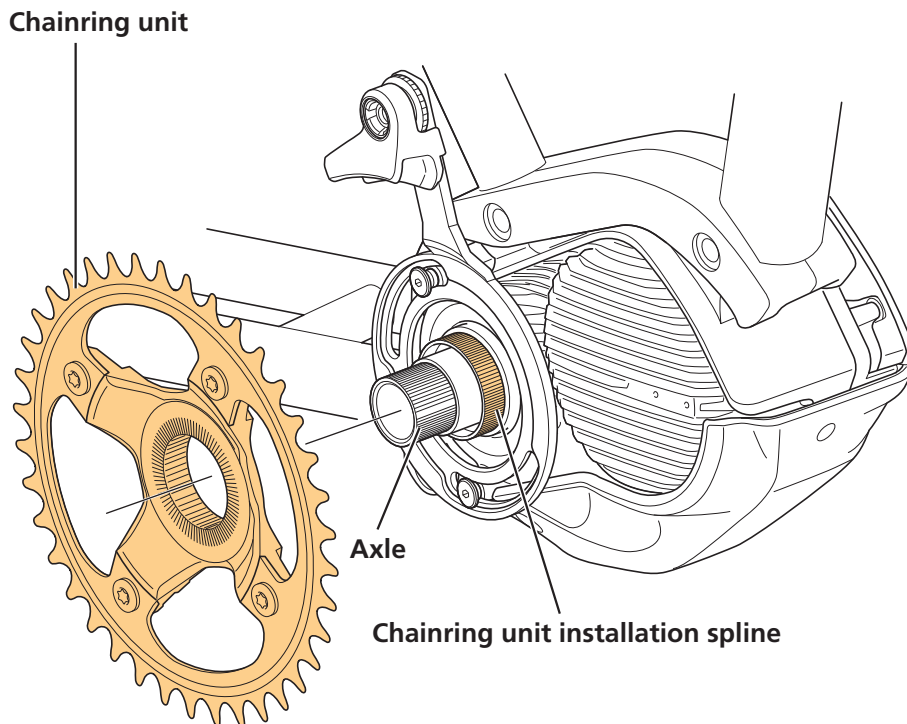
- Set the stopper plate in the correct direction as shown in figure. For the left crank arm, the figure depicts the part as looking from the back of the bicycle.



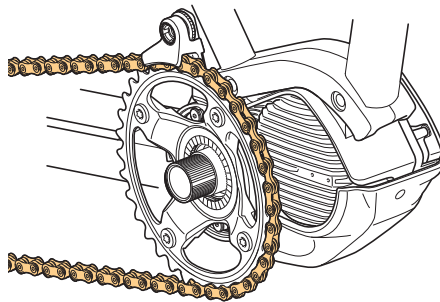
- When installing the chain device, refer to the “SHIMANO STEPS Chain Device Dealer's Manual” before installing the chainring using the following procedures.
- When installing the chain device, special mounting screws for magnesium products are required. Make sure to use the mounting screws included with the drive unit.

### 3. Set the chainring unit.

Set with the spline on the chainring unit aligned with the chainring unit installation spline on the axle.



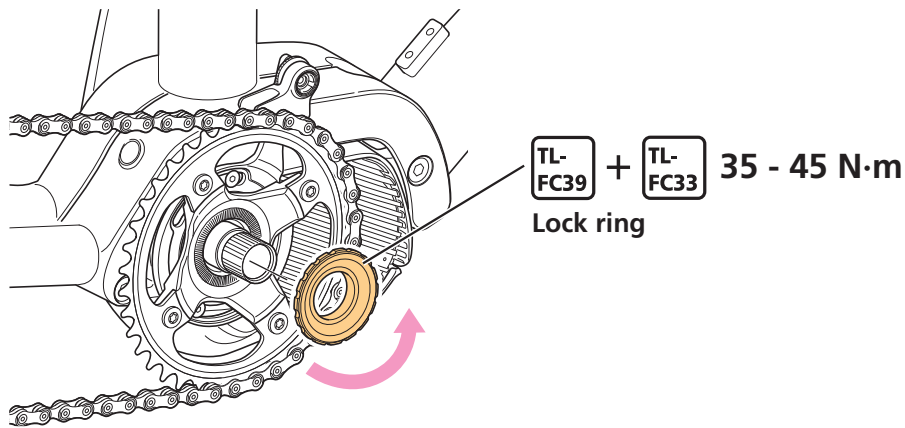
### 4. Set the chain.



### 5. Secure the chainring unit.

(1) Install the lock ring (left screw) by hand.

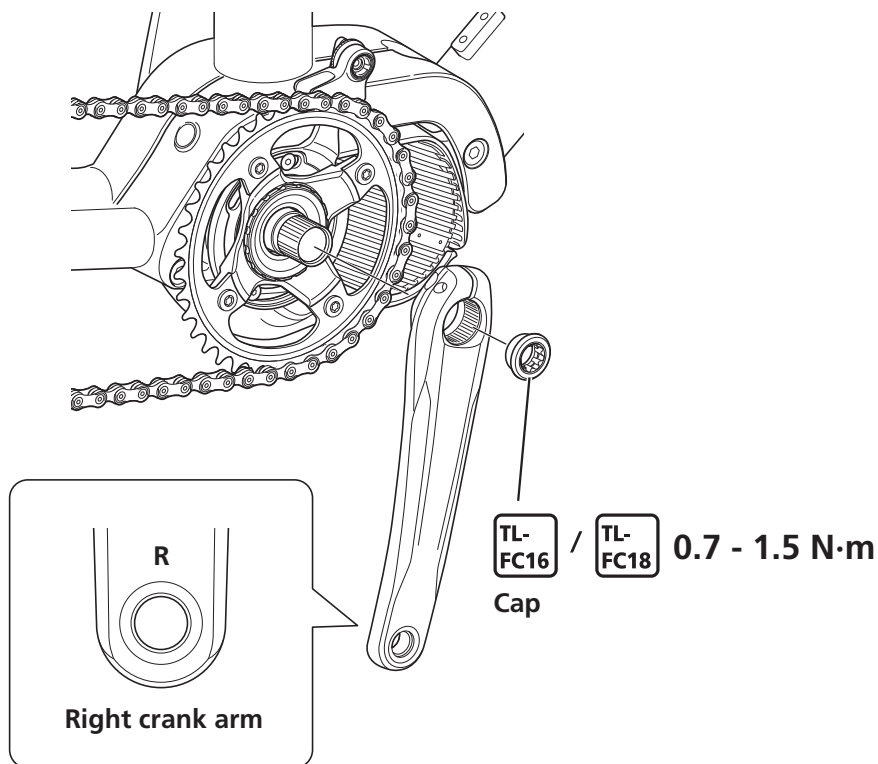
(2) Tighten the lock ring while firmly pressing the left crank.



**TECH TIPS**

- An impact wrench cannot be used.

**6.** Set the right crank arm and tighten the cap.

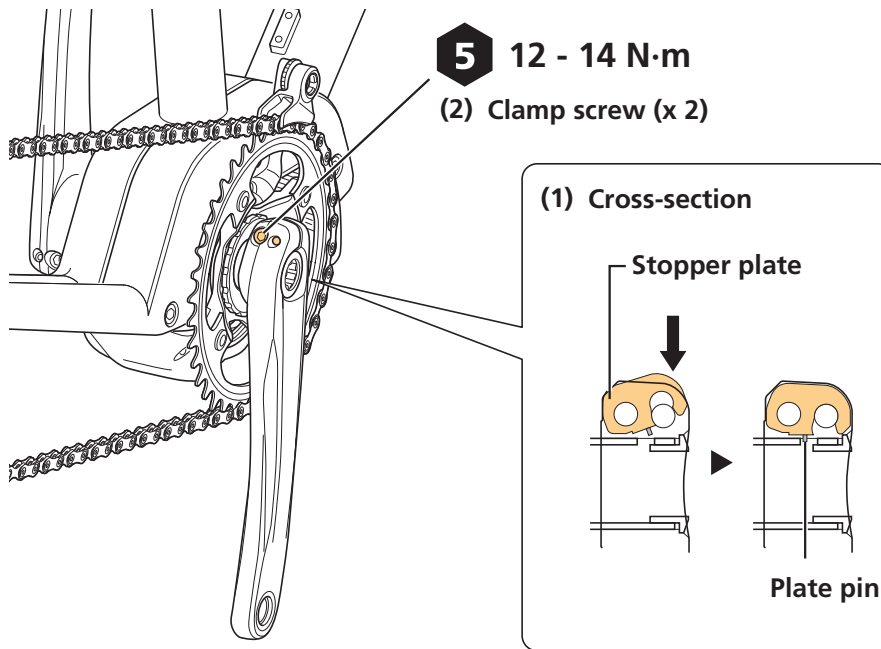


**7.** Secure the right crank arm.

(1) Press the stopper plate in.

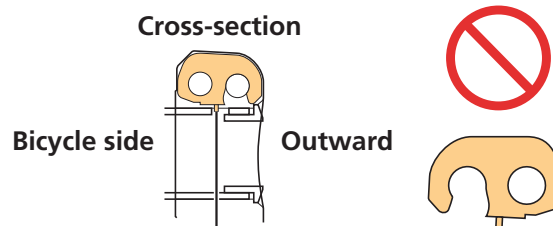
\* Check that the plate pin is firmly set.

(2) Tighten the clamp screw.



**NOTICE**

- Set the stopper plate in the correct direction as shown in figure.

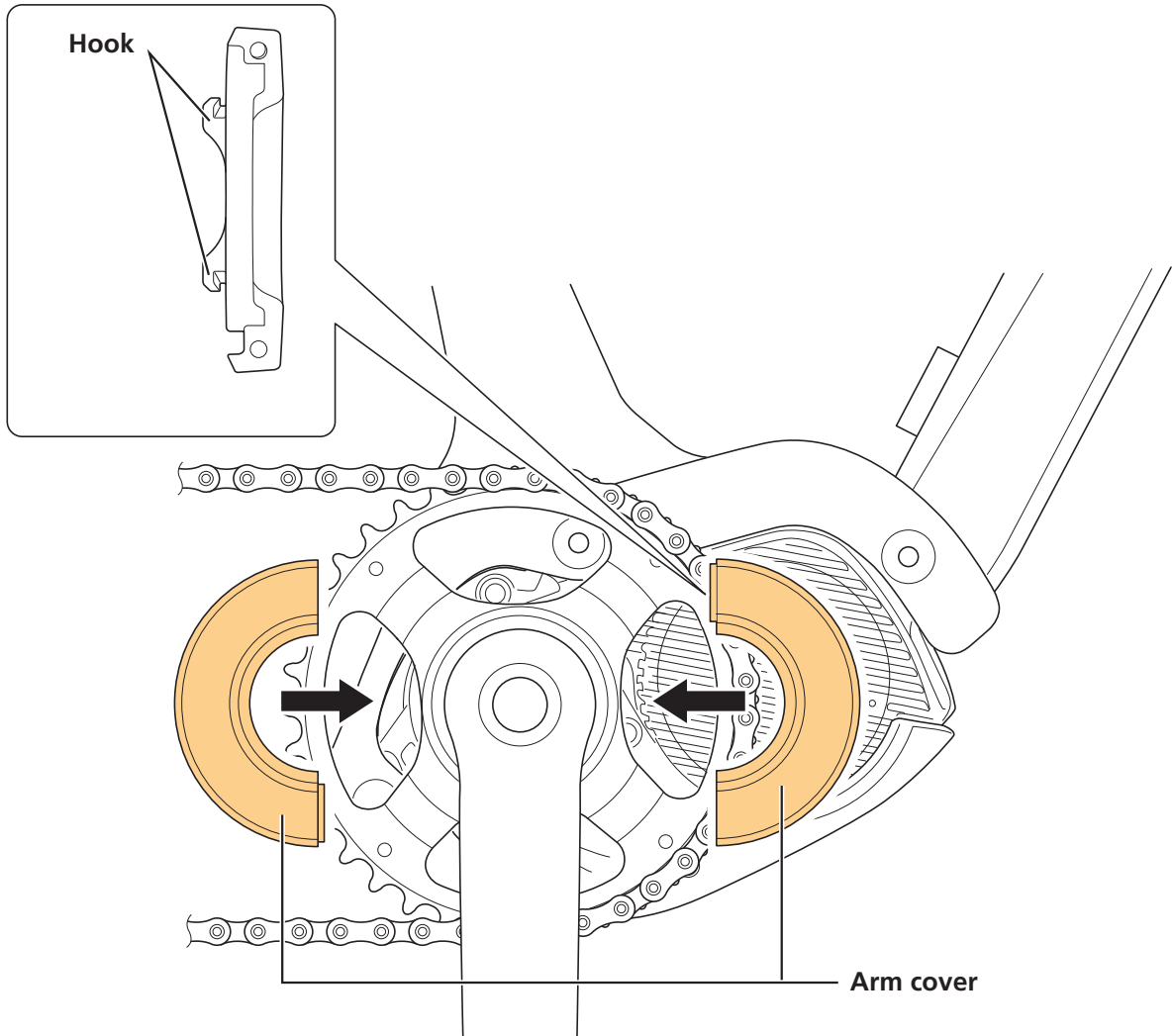


## Installing the arm covers

If arm covers are included with the chainring, install the arm covers after installing the chainring to the drive unit.

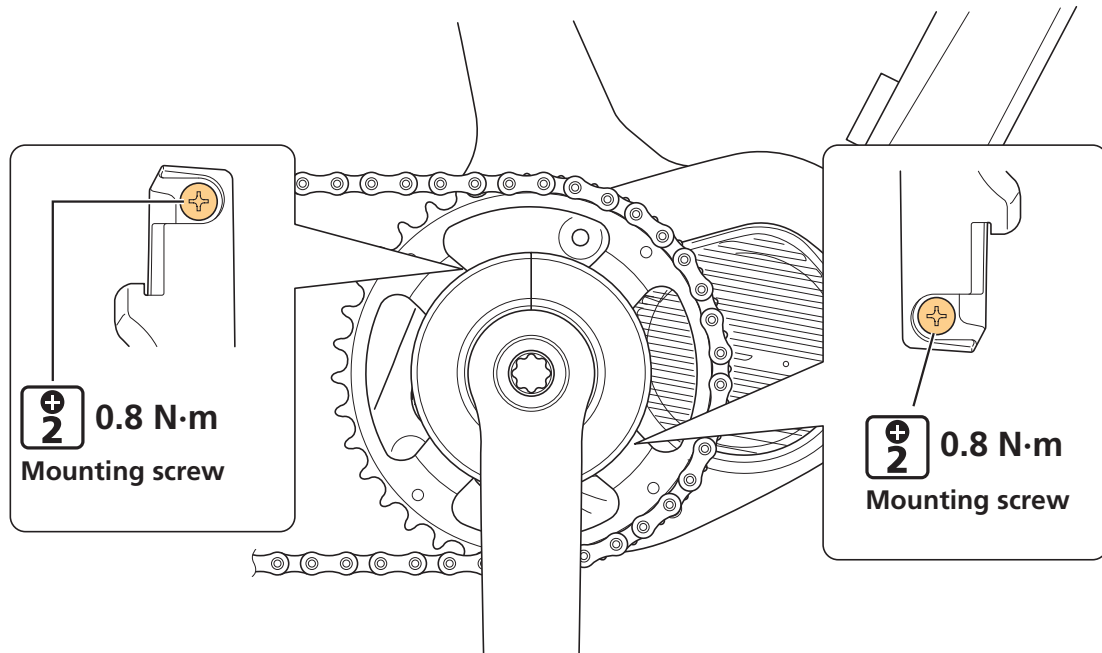
# 1. Set the arm covers to the left and right sides of the chainring.

Install so that the hooks catch the spider arm on the chainring.



## 2. Tighten the two mounting screws from the left and right.

For internal geared hub models, proceed to “Measuring and adjusting the chain tension.”



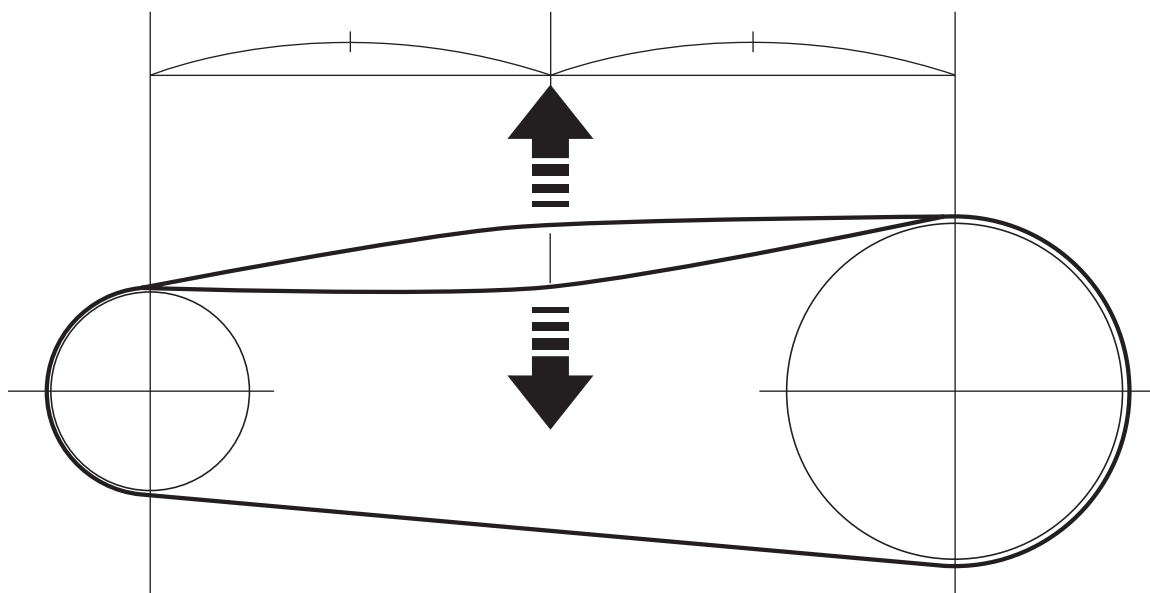
# Measuring and adjusting the chain tension

The chain tension must be adjusted for internal geared hub models.

## Manual adjustment

### 1. Check and adjust the chain tension.

Pull the upper side of the chain up and down with a force of approximately 10 N (1 kgf), roughly in the middle between the drive unit axle and rear wheel axle. Adjust the chain tension so that the chain has a slack of 15 mm or more.



## Measuring and adjusting using the chain tension measurement tool

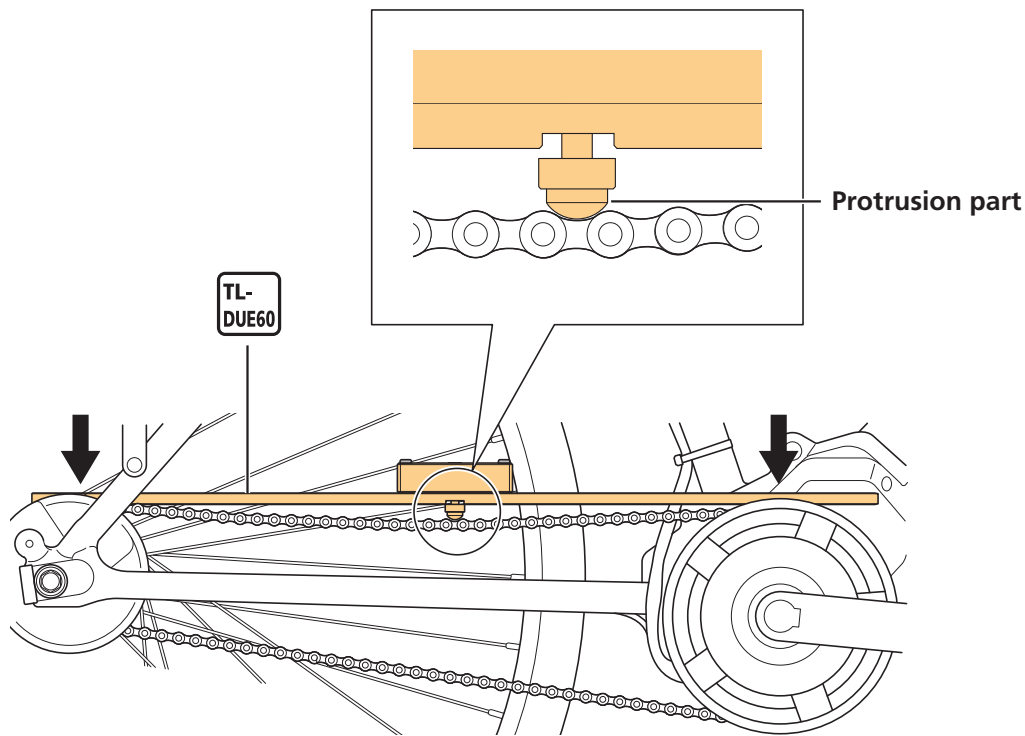
When using chain tension measurement tool TL-DUE60, you can measure and adjust the chain tension from either the top or bottom of the chain.

### ▶ Measuring and adjusting from the upper side of the chain

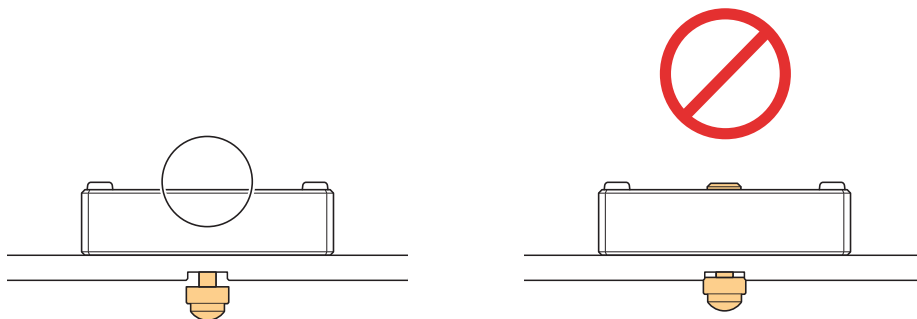
#### 1. Set TL-DUE60.

- (1) Set TL-DUE60 to the upper side of the chain.

- (2) Push TL-DUE60 down, and make it touch the chainring and rear sprocket.



- 2.** Adjust the chain tension so that the protrusion part of TL-DUE60 does not stick out from the top of the frame.

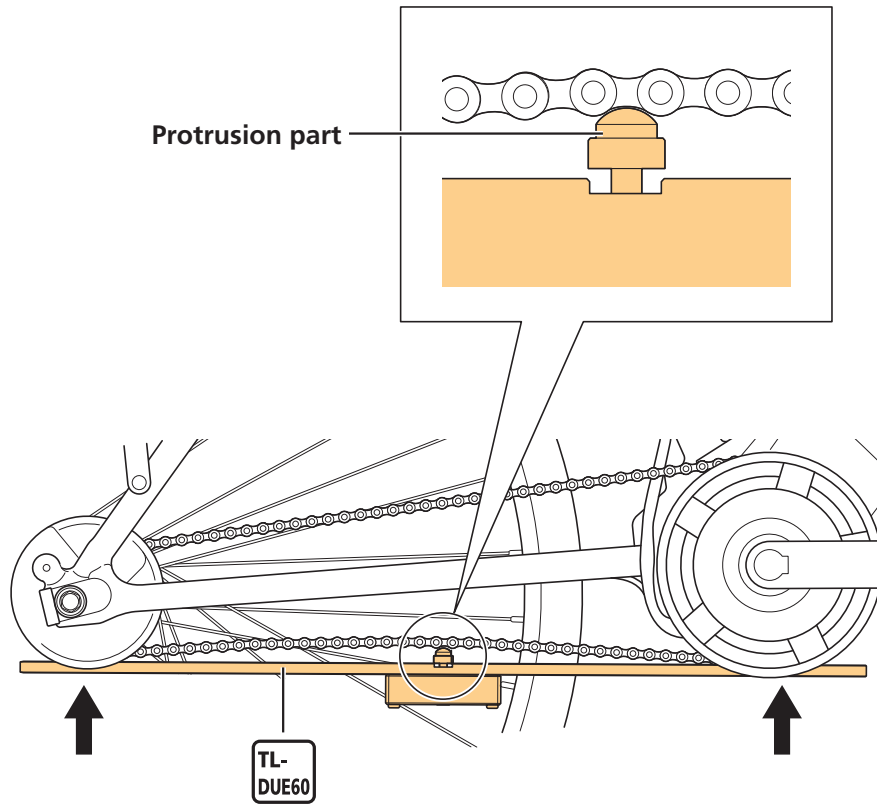


## ▶ Measuring and adjusting from the lower side of the chain

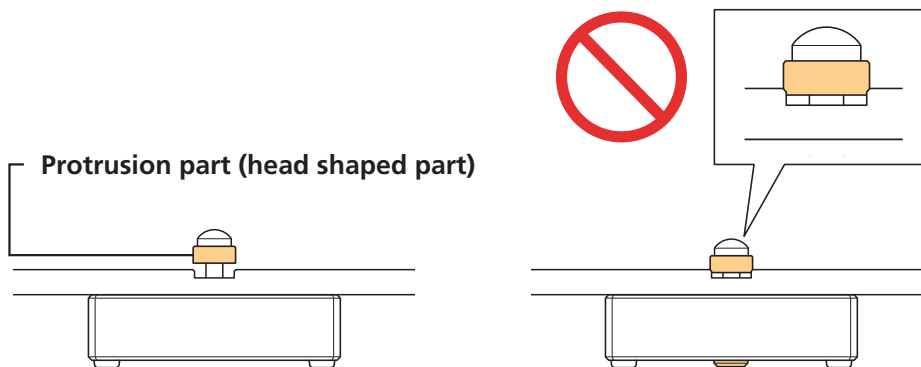
### 1. Set TL-DUE60.

- (1) Set TL-DUE60 to the lower side of the chain.

(2) Push TL-DUE60 up, and make it touch the chainring and rear sprocket.



**2.** Adjust the chain tension so that the head shaped part of the protrusion part of TL-DUE60 is not hidden by the frame.



# CONNECTION AND COMMUNICATION WITH DEVICES

Connecting the bicycle to a device allows you to configure the system, update firmware, and more. Refer to the “SHIMANO STEPS Cycle Computer User's Manual” and the “SHIMANO STEPS Special Cycle Computer and Switch Unit Parts Dealer's Manual” as well.

# MAINTENANCE

## Replacing the chainring unit

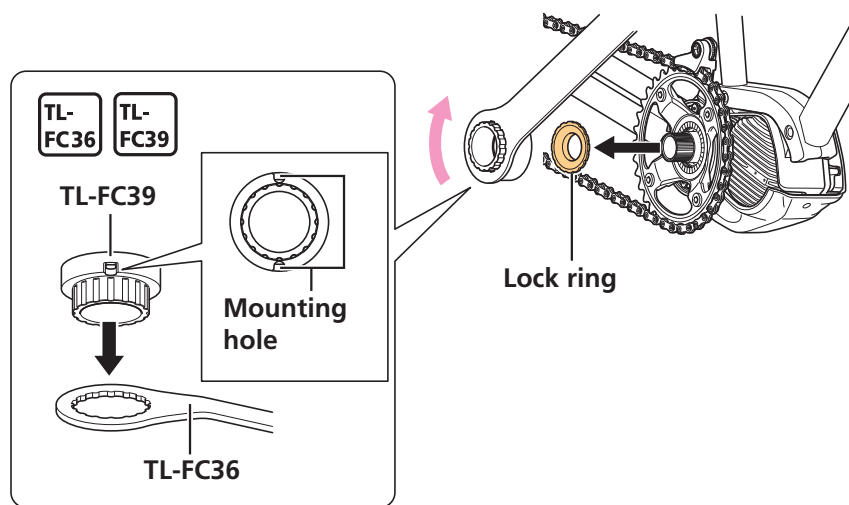
When replacing the chainring unit, make sure that the chain is attached.

Refer to “Installing the chainring unit and crank arms” for detailed instructions.

### 1. Remove the left and right crank arms.

### 2. Remove the lock ring (left screw).

Remove the lock ring, with the rear wheel held firmly so that it does not move.



### 3. Replace the chainring unit.

Remove the chainring unit, then install a new chainring unit.

Refer to “Replacing the chainring” when replacing the chainring.

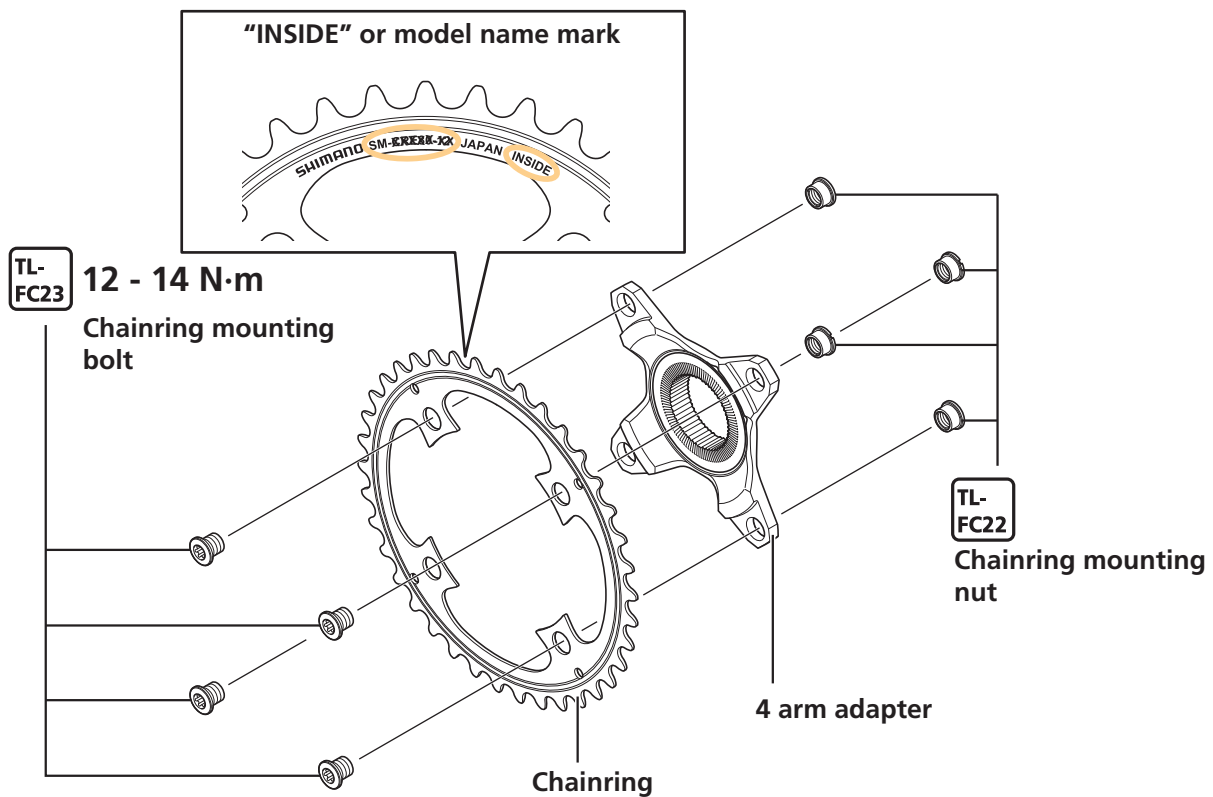
## Replacing the chainring

Refer to “Replacing the chainring unit” for information on how to remove the chainring unit.

### 1. Remove the chainring unit.

## 2. Remove the chainring, then replace it with a new chainring.

The 4 chainring mounting screws should be tightened uniformly over the course of multiple times.



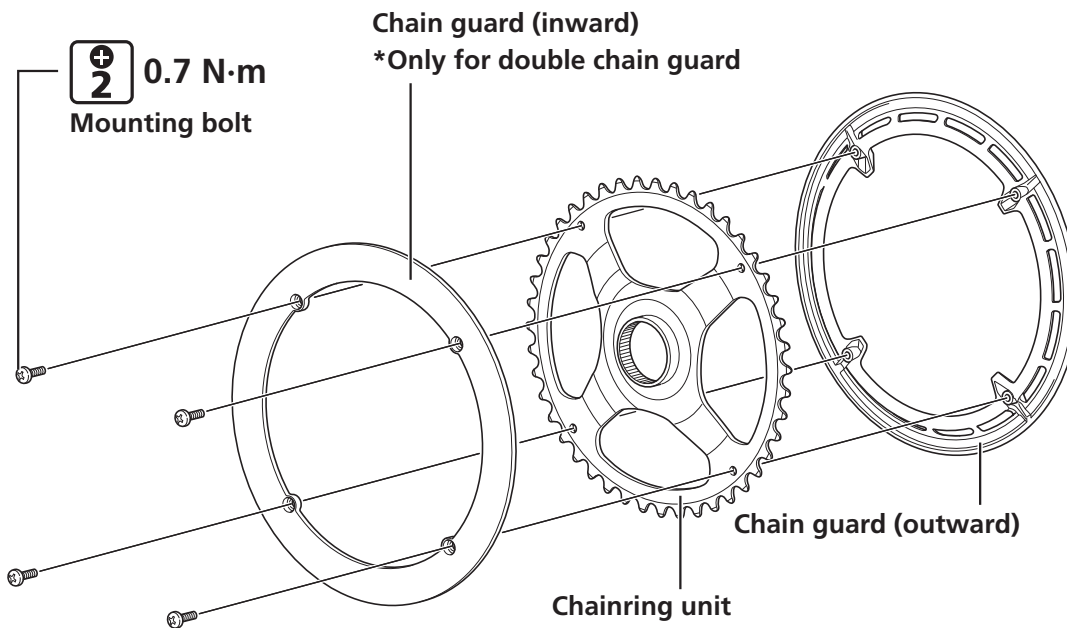
## Replacing the chain guard

To replace the chain guard, first remove the chainring unit from the bicycle.

Refer to "Replacing the chainring unit" for information on how to remove the chainring unit.

### 1. Remove the chainring unit.

**2. Remove the chain guard then replace it with a new chain guard.**



## Replacing the arm cover

The arm cover can be replaced with the chainring unit attached to the drive unit. Refer to "Installing the arm covers."

# SHIMANO

**SHIMANO NORTH AMERICA BICYCLE, INC.**

One Holland, Irvine, California 92618, U.S.A. Phone: +1-949-951-5003

**SHIMANO EUROPE B.V.**

High Tech Campus 92, 5656 AG Eindhoven, The Netherlands Phone: +31-402-612222

**SHIMANO INC.**

3-77 Oimatsu-cho, Sakai-ku, Sakai City, Osaka 590-8577, Japan

Please note: specifications are subject to change for improvement without notice. (English)

© Jul. 2020 by SHIMANO INC. ITP