TREK Diamant



# Trek
# Allant+

# Diamant
# Zouma+ / Opal+

## Dealer Service Information

2020

# Trek Allant+
# Diamant Zouma+
# Diamant Opal+


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## 1. Overview bicycle configurations

Bicycles with the 'Allant+ -frame' are available as Trek or Diamant branded bicycles in several configurations.

The actual configuration depends on model, region of sales, drive system, equipment, maximum speed, etc.

***Note.***
*The configurations may vary from time to time, refer to www.trekbikes.com, or www.diamantrad.com, for current information.*

Here is a global overview:

| Brand | Model | Frame/ Fork | Front susp. | Gear | Drive | Maximum speed | EU - Type Approval | Region* |
|---|---|---|---|---|---|---|---|---|
| **Diamant** | Opal+ Men | Aluminum | - | Nexus 8 | Chain | 25 km/h | - | G-A-S-P |
| | Opal Esprit+ | Aluminum | - | Enviolo 380 TR | Belt | 25 km/h | - | G-A-S-P |
| | Zouma+ Men | Aluminum | √ | 9 speed | Chain | 25 km/h | - | G-A-S-P |
| | Zouma+ | Aluminum | √ | 9 speed | Chain | 25 km/h | - | G-A-S-P |
| | Zouma Deluxe+ | Aluminum | √ | 10 speed | Chain | 25 km/h | - | G-A-S-P |
| | Zouma Deluxe+ S | Aluminum | √ | 10 speed | Chain | 45 km/h | √ | G-A-S-P |
| | Zouma Supreme+ | Carbon | - | 12 speed | Chain | 25 km/h | - | G-A-S-P |
| | Zouma Supreme+ S | Carbon | - | 12 speed | Chain | 45 km/h | √ | G-A-S-P |
| **Trek** | Allant+ 7 | Aluminum | √ | 9 speed | Chain | 25 km/h | - | EU |
| | Allant+ 8 | Aluminum | - | 10 speed | Chain | 25 km/h | - | EU |
| | Allant+ 8S | Aluminum | - | 10 speed | Chain | 45 km/h | √ | EU |
| | Allant+ 9S | Aluminum | √ | Enviolo 380 TR | Belt | 45 km/h | √ | EU |
| | Allant+ 9.9 | Carbon | - | 12 speed | Chain | 25 km/h | - | EU |
| | Allant+ 9.9S | Carbon | - | 12 speed | Chain | 45 km/h | √ | EU |
| | Allant+ 7 | Aluminum | √ | 9 speed | Chain | 20 mph | - | N.A. |
| | Allant+ 7S | Aluminum | √ | 9 speed | Chain | 28 mph | - | N.A. |
| | Allant+ 8 | Aluminum | - | 10 speed | Chain | 20 mph | - | N.A. |
| | Allant+ 8S | Aluminum | - | 10 speed | Chain | 28 mph | - | N.A. |
| | Allant+ 9.9S | Carbon | - | 12 speed | Chain | 28 mph | - | N.A. |

**G-A-S-P = Germany, Austria, Switzerland and Poland*
*EU = Europe, except Germany, Austria, Switzerland and Poland*
*N.A. = North America (US, Canada and Mexico)*

'S' = *Speed Pedelec, with a maximum speed of 45 km/h or 28 mph. Speed Pedelecs sold in Europe have EU-Type Approval.*

## 2. Use Condition - Maximum weight

There are many types of bicycles, and each is designed for a specific Use Condition.

The bicycles in this dealer service manual are designed for Use Condition 1. “Riding on a paved surface where the tires are always on the ground.”

**The total maximum weight of rider + luggage + accessories (e.g. Range Boost kit) is 136 kg / 300lb.**

Take these values into account:

- The maximum weight of the rider is 125 kg / 275 lb.
- A mounted Range Boost kit weighs approximately. 3 kg / 6.6 lb.
- The maximum allowed load on the *standard* rear rack is 25 kg / 55 lb; on the *luggage* rack it is 7.5 kg / 16.5 lb per side and in total 15 kg / 33 lb.



*The maximum load on the standard rear rack is 25 kg / 55 lb*



*The maximum load on the luggage rack, mounted on some models is 7.5 kg / 16.5 lb per side and in total 15 kg / 33 lb*

## 3. Technical details

***Note.***
*The configurations may vary from time to time, refer to www.trekbikes.com, or www.diamantrad.com, for current information.*

### 3.1 Frame and fork, aluminum or carbon

The bicycles are equipped with an aluminum frame and aluminum suspension or rigid fork or have a carbon frame and rigid carbon fork.

Refer to chapter 1 for an overview of configurations of frame, (suspension/rigid) fork and drive system.

Frames for models with belt drive and CVT have a frame split to change the belt, IGH dropouts and slotted holes in the frame to adjust for proper belt tension.

All frames, except the lowstep frames*, are equipped with holes to mount an optional Trek/Diamant Range Boost kit. The Trek/Diamant Range Boost kit provides an additional battery next to the integrated battery to extend the (assisted) range of the bicycle.

***Note.**
*Due to the design of a lowstep frame, there is no space to mount an additional battery between the top and down tube.*

All bicycle frames comply with ISO 4210.

### 3.2 Frame sizes

Please see the table below for the available frame sizes per bicycle model:

| Brand | Model | Frame size | | | | Holes to mount (optional) Range Boost kit |
|---|---|---|---|---|---|---|
| | | S | M | L | XL | |
| **Diamant** | Opal+ Lowstep<br>Zouma+ Lowstep<br>Zouma De Luxe+ (/S) Lowstep | √ | √ | √ | - | - |
| | Opal+ Stagger<br>Opal Esprit+ Stagger<br>Zouma+ Stagger<br>Zouma De Luxe+ (/S) Stagger<br>Zouma Supreme+ (/S) Stagger | √ | √ | √ | - | √ |
| | Opal+ Mens<br>Opal Esprit+ Mens<br>Zouma+ Mens<br>Zouma De Luxe+ Mens (/S)<br>Zouma Supreme+ Mens (/S) | - | √ | √ | √ | √ |
| **Trek** | Allant+ Lowstep | √ | √ | √ | - | - |
| | Allant+ (/S) Stagger | √ | √ | √ | - | √ |
| | Allant+ (/S) Mens | - | √ | √ | √ | √ |

### 3.3 Model and sales region-specific components

#### 3.3.1 Configuration depending parts

Depending on the brand, configuration and region, the bicycles are equipped with a selection of these main parts:

| | |
|---|---|
| • Frame<br>- Aluminum frame; mens', stagger, lowstep<br>- Carbon frame; mens', stagger | • Front light<br>- Axa Compact Line 20 E-bike<br>- GILS Stemlight (US-models)<br>- Herrmans MR8-E<br>- Herrmans MR-GO E<br>- Spanninga Axendo 40 or 100<br>- Spanninga Axendo-Speed<br>- Supernova E3 Mini 2<br>- Supernova M99 Pure+ (daytime running light/ low beam) |
| • Frame size<br>- S, M, L or XL | |
| • Fork<br>- Aluminum rigid fork<br>- Aluminum suspension fork<br>- Carbon rigid fork | |
| • Fenders<br>- Plastic front/ rear fender<br>- Aluminum front/ rear fender and end pieces | • Taillight<br>- Axa Blueline 30<br>- Busch & Müller 650 (with built-in brake light and license plate light)<br>- Busch & Müller Top Line taillight and separate license plate light<br>- GILS Fender Taillight<br>- Spanninga SOLO E-Bike Taillight<br>- Supernova E3<br>- Supernova M99 (with built-in brake light and license plate light) |
| • Drive<br>- Chain - derailleur<br>- Belt - IGH/CVT | |
| • Rear hub<br>- 9, 10 or 12 speed rear derailleur<br>- Enviolo 380 TR gear hub<br>- Nexus 8 gear hub | |
| • Rear derailleur protector (o*n bicycles with rear derailleur)* | |
| • Shifter<br>- Shimano trigger shifter<br>- Shimano roller shifter<br>- NuVinci roller shifter | • Bosch controller<br>- Intuvia<br>- Purion<br>- Kiox<br>- SmartphoneHub (Cobi) |
| • Rack<br>- Standard rear rack<br>- Luggage rack | |

#### 3.3.2 Additional parts on 45 km/h EU-models

The 45 km/h fast electric bicycle EU models comply with EU-Type Approval EU/168.2013 and are additionally equipped with the following parts*:

- (Certified) Front light
- LED rear light with built-in brake light and license plate light
- (Adjustable) license plate holder
- Speed Pedelec brake levers
- Brake light switches on both brake levers
- Rear view mirror *(position: above handlebar)*
- Side reflectors
- Electric horn and horn switch

**All these parts are certified for use on the Speed Pedelecs with European Type Approval. These additional parts are all part of the EU Type Approval; therefore must not be exchange for other (non-certified) equipment. This also applies to the fork, tires, brakes, kickstand, drive unit, battery pack and display.*

*All Speed Pedelecs with European Type Approval have a unique VIN number per bicycle.*

## 3.4 Bosch e-Bike Assist system

### 3.4.1 Introduction

All bicycles are equipped with the Bosch 'Performance Line' assist system of the 4th generation.

The drive unit is built into the middle of the frame.
The fully integrated Powertube battery can be charged on the bicycle or removed from the bicycle and charged elsewhere.

The exact configuration of the assist system depends on the region of sale. This also determines the specific firmware and thus the maximum allowed assist speed and speed indication (km/h or mph).

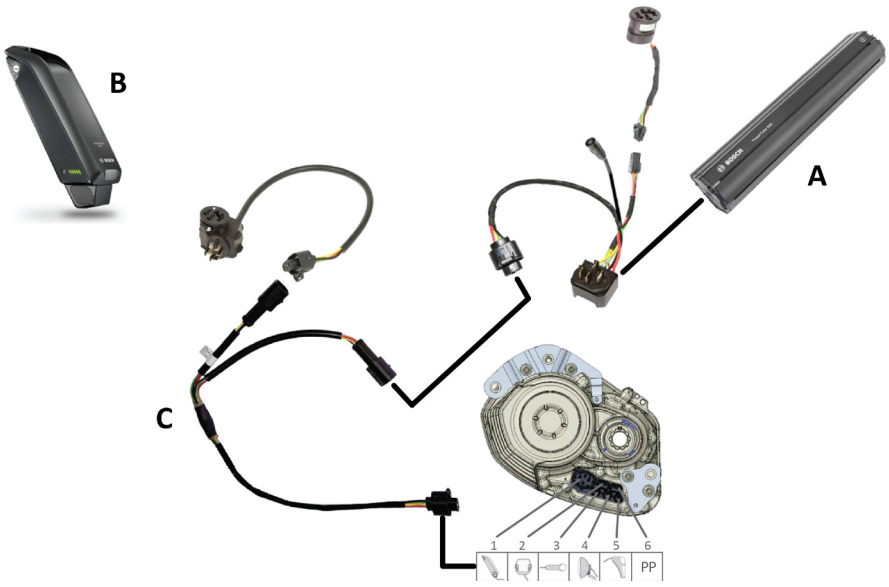
Depending on the configuration and region, the Bosch drive unit can assist up to 20 mph, 28 mph, 24 km/h (Japan), 25 km/h, 32 km/h (New Zealand) or 45 km/h (EU-Speed Pedelecs).

Refer to chapter 1 on page 5 for all available maximum speed configurations of the Trek and Diamant models.

### 3.4.2 Applied parts

The Trek Allant+, Diamant Zouma+ and Diamant Opal+ models are equipped with these Bosch parts:

| Bosch part | Description |
|---|---|
| Drive unit | 4th generation, Performance Line CX (BDU450CX (25 kmh) or BDU480CX (20 mph)) or Performance Line Speed (BDU490P (45 kmh/28mph)). |
| Maximum speed | 25 km/h or 20 mph for Pedelecs; 45 km/h or 28 mph for Speed Pedelecs |
| Display | Intuvia, Purion, Kiox or SmartphoneHub (Cobi) |
| Battery pack | Powertube battery; integrated in frame, capacity 500 Wh or 625 Wh*<br>**The capacity/ range can be increased expanded on most models (except on lowstep frames) by mounting an optional Trek/Diamant Range Boost kit.* |
| Charger | Standard 4A - 220-240 Volt or Standard 4A - 100-240 Volt (for the US region) |




*The optional Trek/Diamant Range Boost kit increases the battery capacity and range.*
*A. Integrated Powertube battery,*
*B. Additional Range Boost battery,*
*C. Y- connection cable of the kit.*

### 3.5 Brake system

All bicycles are equipped with a hydraulic disc brake system and have a 180mm brake disc on the front and rear hub. The EU-bicycles with Type Approval have built-in electric brake switches at both left and right hand brake levers that activate the brake light. These brake levers are of the 'Ball-end' type for Speed Pedelecs.

#### 3.5.1 Brake system – overview

| Brand | Model | EU - Type Approval* | Brake system | Max. speed | "Ball' brake levers and (L+R) brake light switches | Region** |
|---|---|---|---|---|---|---|
| **Diamant** | Opal+<br>Opal Esprit+<br>Zouma+<br>Zouma Deluxe+ | - | Shimano MT200 | 25 km/h | - | G-A-S-P |
| | Zouma Deluxe+ S | √ | Front: Magura MT5NE, rear: Magura MT4NE | 45 km/h | √ | G-A-S-P |
| | Zouma Supreme+ | - | Shimano MT501 | 25 km/h | - | G-A-S-P |
| | Zouma Supreme+ S | √ | Magura MT5N | 45 km/h | √ | G-A-S-P |
| **Trek** | Allant+ 7<br>Allant+ 8 | - | Shimano MT200 | 25 km/h | - | EU |
| | Allant+ 8S<br>Allant+ 9S | √ | Front Magura MT5NE, rear Magura MT4NE | 45 km/h | √ | EU |
| | Allant+ 9.9 | - | Shimano MT501 | 25 km/h | - | EU |
| | Allant+ 9.9S | √ | Magura MT5N | 45 km/h | √ | EU |
| | Allant+ 7<br>Allant+ 8 | - | Shimano MT200 | 20 mph | - | N.A. |
| | Allant+ 7S<br>Allant+ 8S<br>Allant+ 9.9S | - | Shimano MT501 | 28 mph | - | N.A. |

***NOTICE.**

**For Speed Pedelecs sold in Europe, the specified brake system is part of the European Type Approval. It must not be replaced with a brake system with a different specification.**

***G-A-S-P = Germany, Austria, Switzerland and Poland*
*EU = Europe, except Germany, Austria, Switzerland and Poland*
*N.A. = North America (US, Canada and Mexico)*

#### 3.5.2 Brake system on Speed Pedelecs with EU-type approval

Speed Pedelecs, build after January 1, 2018 are considered to be a "electric motor vehicle" due to new EU regulations. This means that the front brake lever is located at the right-hand side of the handlebar and the rear brake handle at the left-hand side.

Be aware that this can differ from the configuration on a regular bicycle!

**NOTICE.**

**It is prohibited by law to change the brake system on a Speed Pedelec with EU-Type Approval.**

## 3.6 Fenders

### 3.6.1 Front fenders

The bicycles with front suspension forks are always equipped with plastic fenders; the models with a rigid fork have plastic or aluminum fenders. Plastic fenders are mounted directly to the fork with one bolt and the front fender stay. Aluminum front fenders are mounted directly to the fork with two bolts and the front fender stay. The two bolts are secured with thread locker and a locking tab.





*Plastic front fender and end piece (top)*





*Aluminum front fender and fender end piece (at both ends)*

### 3.6.2 Rear fenders

The rear fenders are either plastic or aluminum, depending on the material used for the front fender.

#### 3.6.2.1 Rear fenders on bicycles with a standard rear rack

On the bicycles with a standard rear rack, the rear fender is directly mounted to the frame at the seat stay bridge and at the chain stay bridge (near drive unit mount), with a spacer between fender and frame. In the middle, the fender is attached to the hidden rear rack bracket, and at the rear end mounted to the dropouts with a standard fender stay.



*The rear fender is mounted to the rear rack bracket and the frame*

### 3.6.2.2 Rear fenders on bicycles with a luggage rack

On bicycles with a luggage rack, the rear fender is directly mounted to the frame at the seat stay bridge, twice to the luggage rack and at the chain stay bridge (near drive unit mount), with a spacer between fender and frame.

At the rear, the fender is connected to the dropouts by the luggage rack. The rear fender is an integrated part of the rear luggage rack mounting, it acts as a rack stay.

The aluminum rear fender has a fender end piece at the rear and has a channel for the electric wiring to the rear light(s).

***Note.***
*Holes in rear fenders are region specific; the number and location of the holes varies per frame size.*



*The aluminum rear fender is mounted to the rack and the frame*



*Fender end piece at rear fender*

## 3.7 Dropouts

The frames of the Trek Allant+ or Diamant Zouma+/Opal+ bicycles have either fixed dropouts for derailleur drives or adjustable dropouts with slotted holes for chain or belt drives with internal hub. The frames with internal hub dropouts also have a frame split to change the belt.

By design, the rear brake caliper and luggage/rear rack are mounted to the dropouts.

### 3.7.1 Dropouts - carbon frame (fixed, derailleur)

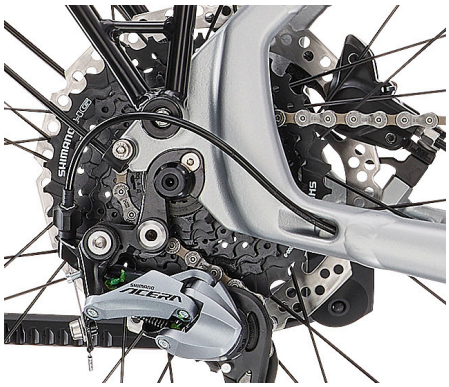
Bicycles with a carbon frame always have fixed dropouts, and these are thus part of the frame.
These bicycles are always equipped with a rear derailleur protector, mounted on the dropout at drive side.

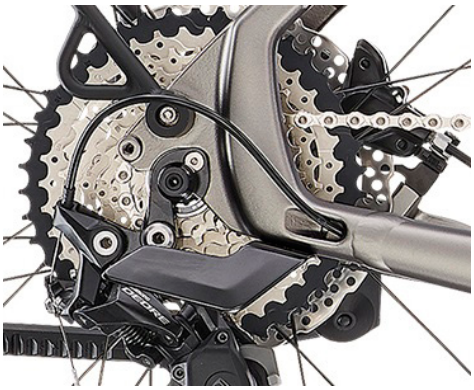


*Overview of the fixed dropouts on a carbon frame, including derailleur protector, rear brake caliper and luggage rack mount*

### 3.7.2 Dropouts - aluminum frame (fixed, derailleur)

Bicycles with an aluminum frame and derailleur always have fixed dropouts, and these are thus part of the frame.
The luxury models also have a rear derailleur protector mounted on the dropout at drive side.





*Overview of the fixed dropouts on an aluminum frame, including the rear brake caliper and rear rack mount (left). The luxury Trek and Diamant models have an additional derailleur protector mounted on the dropout at drive side (right).*

### 3.7.3 Dropouts - aluminum frame (adjustable, IGH)

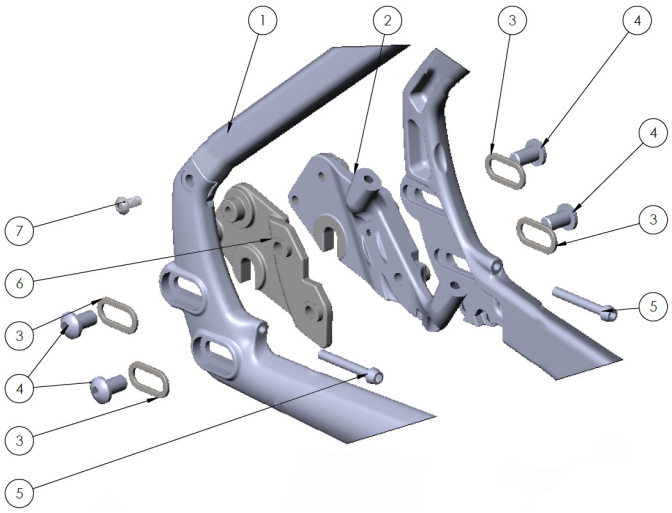
Bicycles with an aluminum frame for internal gear hubs have adjustable dropouts to be able to adjust the chain or belt tension. The design of the adjustable dropout mounting, with slotted holes, makes it possible to adjust the chain or belt tension by sliding the dropouts over max. 20 mm from one end to the other.

The frame has a feature to fine-tune the chain tension, and at the same time the tracking of the rear wheel, by turning two chain tension adjust bolts.



*Overview of a frame with adjustable dropouts, including rear brake caliper and rear rack mount. Due to the slotted holes, the dropout can slide over 20 mm to adjust the chain/belt tension.*

*In detail:*




| # | Description | P/N |
|---|---|---|
| 1 | Frame | - |
| 2 | Slider, Non-Drive Side IGH | 581362 |
| 3 | Washer, elongated<br>15od, 8.5id, 14 mm long | 582770 |
| 4 | Fastener M8x14 mm, button head, with thread lock.<br>Torque to 8 Nm. | 582816 |
| 5 | Fastener M5x8x38 mm, cylinder head | 582817 |
| 6 | Slider, Drive Side IGH | 581363 |
| 7 | Fastener M5x3x12 mm, button-head cap screw.<br>Torque to 5 Nm. | 582810 |

*Overview of the adjustable dropout parts*

### 3.8 Rear rack

On these bicycles, the integrated battery is placed in the frame. This allows the rear rack to be fully used for loading. The Trek Allant+ 8 (/S), 9.9S and the Diamant Zouma Supreme+ (/S) bicycles are equipped with a luggage rack at both sides of the fender; all other models are equipped with a standard rear rack.

#### 3.8.1 Standard rear rack

The standard rear rack is mounted to the dropouts and supported with a hidden bracket underneath the fender to the frame.



*Mounting to the frame and hidden rack bracket*



*Mounting at the both dropout types*

#### 3.8.2 Luggage rack

The luggage rack is designed to carry a pannier on both sides. The rack has a stop at each side to prevent the panniers sliding back and forth. The rack is also designed to support the fender. It is an integrated part, together with the dropouts, of the rear part of the bicycle.

***Note.***

*Do not attach a child seat to the luggage rack.*



*The rack as an integrated part of the rear end*



*Slide stoppers*

## 3.9 Cable routing

Most wires and cables are hidden in the frame. This also protects the wires and cables from damage. The wires and cables in the battery bay are protected with a sleeve.

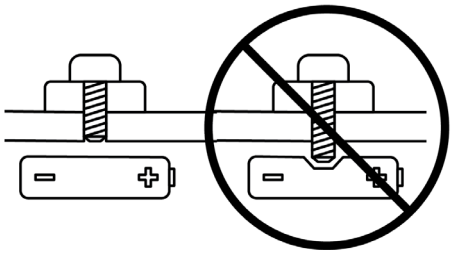
Bicycles with a carbon frame have a Blendr stem; all cables and wires from the handlebar are routed directly to inside the frame via the stem. With aluminum frames, the wires and cables from the handlebar enter the frame at the head tube.

Notice that this leads to a slight difference of the cable routing at the downtube of carbon and aluminum frames; at aluminum frame all wires and cables are routed at the bottom of the down tube.

This chapter provides an overview where the wires and cables are running.

### 3.9.1 Pre-warning mounting accessories

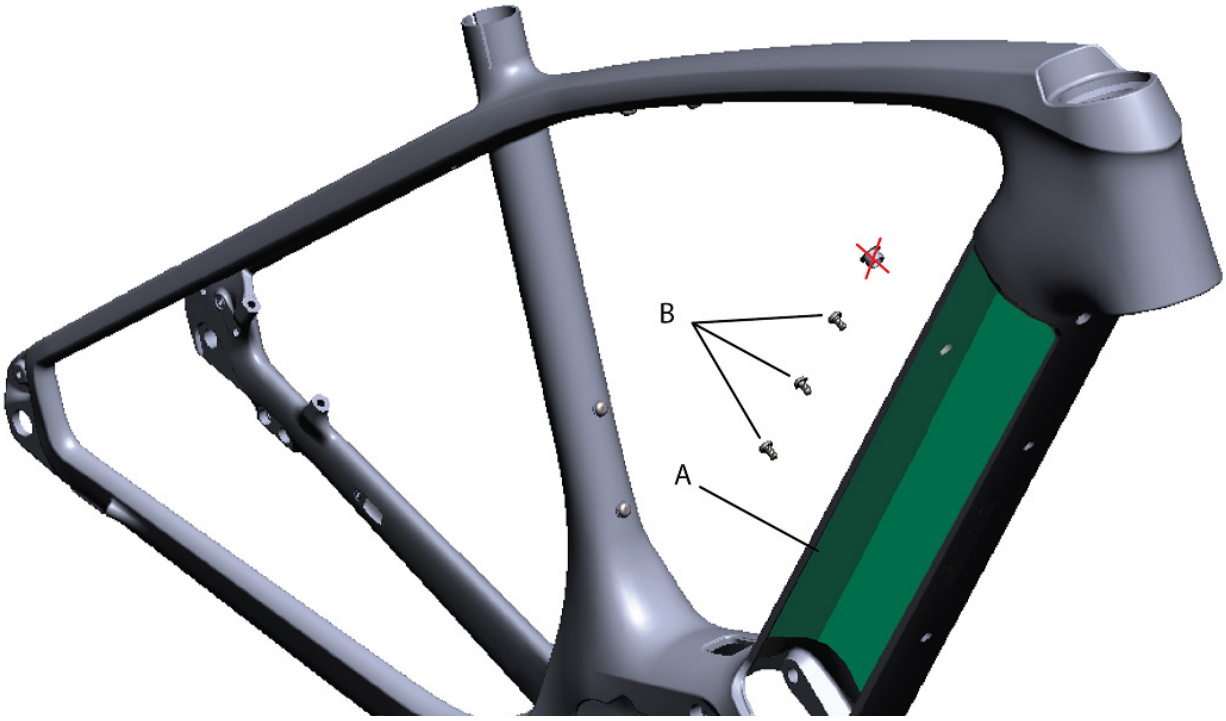
An electric bike has hidden wiring throughout the frame and has other critical e-bike parts like the drive unit and battery pack. When mounting accessories (e.g. a bottle cage), be sure not to pinch the wiring or puncture the battery pack, e.g. by using too long or pointed bolts.
This might cause a short circuit to the electric system and/or damage to the battery.



*Be sure not to pinch the wiring or puncture the battery pack when mounting accessories*

**⚠ WARNING.**
**A short circuit in the electric system and/or damage to the battery might lead to over-heating.**
**A battery that has been severely impacted or otherwise mishandled could potentially catch fire and cause property damage, injury or death.**

### 3.9.2 Cable sleeve battery bay




*Cable sleeve (A) protects the wiring and cables in the battery bay*

The cable sleeve can be removed by first removing the three bolts B and then pulling the sleeve from the battery bay.

***Note.***
*The upper bolt (crossed out in the drawing) is no part of the sleeve mounting.*

### 3.9.3 Routing of the front brake cable at the fork

At the fork, a brake hose is led to the front brake caliper. It is secured to the fork with one (or two; depending on the bicycles' configuration) fasteners to prevent damage to the brake hose and paint of the fork.

### 3.9.4 Routing of the rear brake and shifter cable(s)

All cables to the back of the bicycle run through the frame. The brake hose and shifter cable(s) enter the frame via the stem (carbon frames) or via an opening at the head tube (aluminum frames).

From there, the hose and cable(s) run via the battery bay to the back of the frame.



*Clean look at the cockpit with integrated cables (carbon frames)*



*Cable routing at the front of bicycles with an aluminum frame*

In the battery bay, the hose and cable(s) and electric wiring are kept in place and protected with a battery sleeve. The battery sleeve also provides a clean look by keeping the cables out of sight.

The brake hose is led through the left-hand chain stay to the rear brake caliper.

The shifter cable(s) run along the drive unit and chain stay to the derailleur or internal hub. These cables are firmly secured to the drive unit and chain stay.

### 3.9.5 Routing of the electrical wiring at the front of the bicycle

The electric wiring at the front of the bicycle consists of wiring to power the front light and brake switches (if applicable, depending on configuration). The brake switches can be found on 45 km/h models with European Type Approval.

The wires enter the frame via the stem (carbon frames) or via an opening at the head tube (aluminum frames) and run via the battery bay to the drive unit.

In the battery bay, the wiring is kept in place and protected with a battery sleeve, which also provides a clean look by keeping the wiring and cables out of sight.

### 3.9.6 Routing of electrical wiring to the rear of the bicycle

The electric wiring to the rear of the bicycle consists of wiring to the rear light and, if applicable, the brake light and license plate lighting. The brake light and license plate lighting can be found on 45 km/h models with European Type Approval.

On bicycles with an aluminum rear fender, the wiring is routed from the drive unit through a built-in channel in the fender to the rear end. The channel is covered with a plastic strip to hide and protect the wiring.

On bicycles with a plastic rear fender, the fender has a built-in plastic guide to route the light wiring to the rear end.

At the drive unit side, the wiring enters the motor cover, and is routed to the electrical connections at the drive unit.

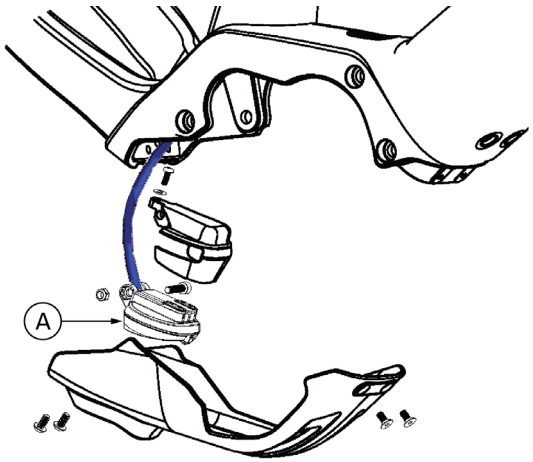
Also, the cable from the speed sensor is part of the rear wiring.

The speed sensor cable runs through the non-drive side chain stay, exits the stay via an opening, and runs to the speed sensor. The opening is covered with a specially designed frame plug. The connector of the speed sensor is connected to the drive unit at the other end.

### 3.9.7 Location of the horn (on EU-Type Approval bicycles)

The horn is located in the drive unit bay, attached to the motor cover.
It is not necessary to remove the drive unit to access the horn.

To access the horn, loosen the bolts of the motor cover, carefully disconnect the wiring of the horn and remove the motor cover - horn assembly. The horn is packed in a protective cover.

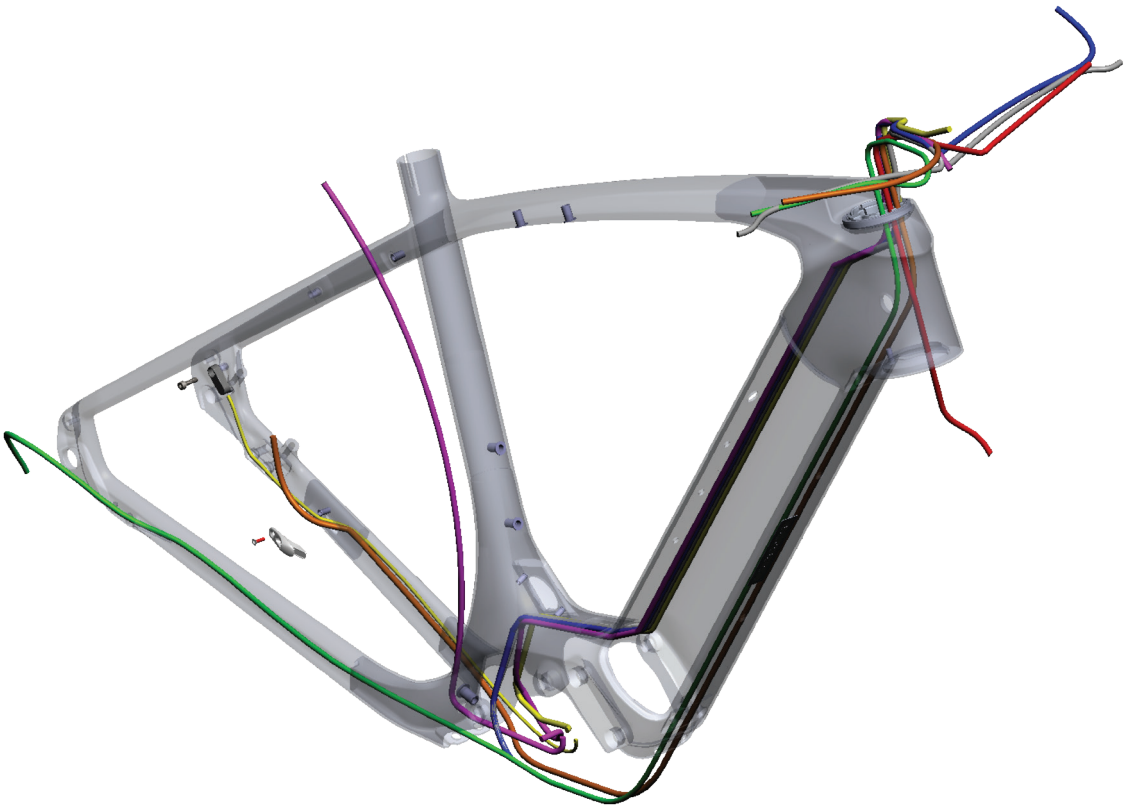



*A. Location of the horn on bicycles with EU-Type Approval*

### 3.9.8 Cable routing – technical drawings

The drawings following show where brake hoses, electric wires and shifter cables run through the frame.

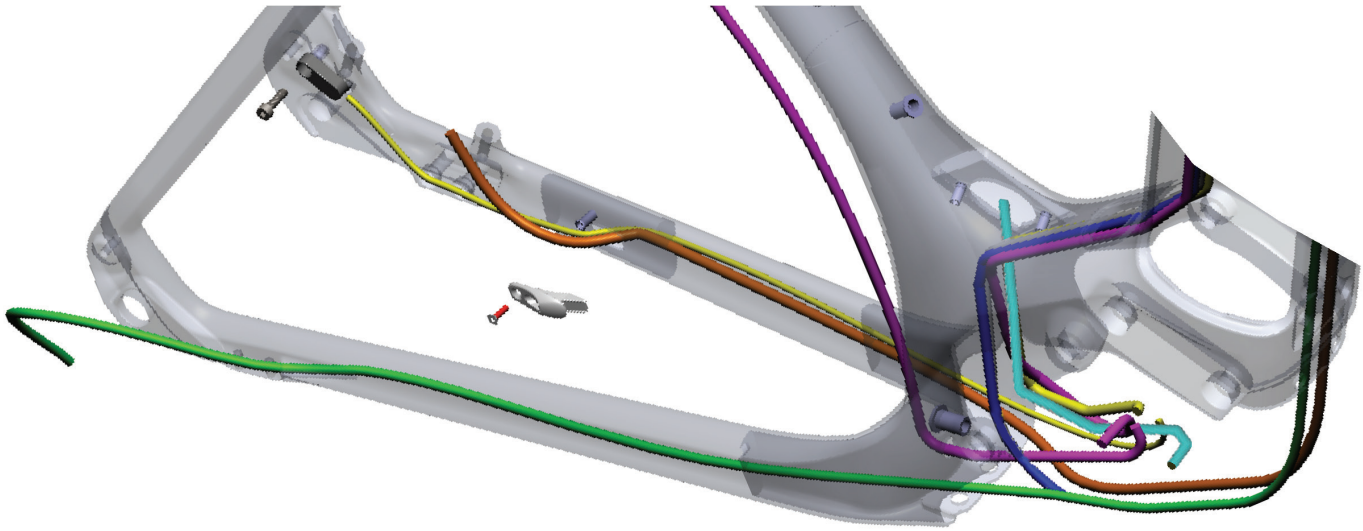
**A. Cable routing at carbon frames**



*Cable routing through the carbon frame*

| *Legend* | | | |
|---|---|---|---|
| Blue | Wire horn switch | Red | Hose front brake |
| Green | Cable(s) rear derailleur | Turquoise | Wire battery power and charge port |
| Orange | Hose rear brake | Yellow | Wire controller or Wire speed sensor |
| Purple | Wire rear lighting or Wire front light | Grey | Wire brake switch |

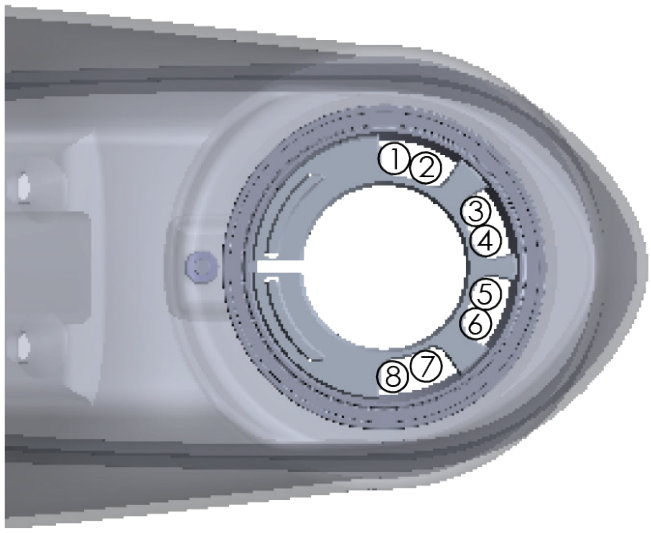
At the carbon frames, the wires and cables are guided via the top and bottom of the downtube.



*Cable routing near the drive unit on carbon frames- detail*



*Cable routing - cross section down tube top to bottom (battery bay)*



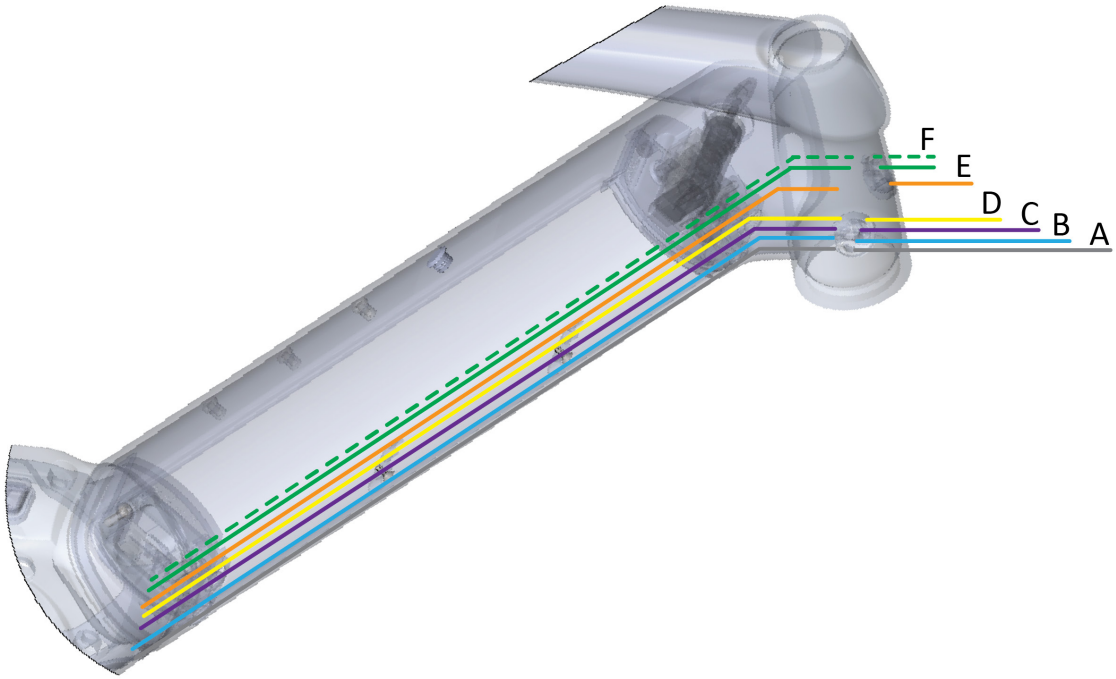

*Cable routing - head tube carbon frame*

| *Legend* | | | |
|---|---|---|---|
| Pink | Wire front light | 1 | Wire horn switch |
| Blue | Wire horn switch | 2 | Wire brake switch |
| Grey | Wire brake switch | 3 | Hose rear brake |
| Yellow | Wire controller | 4 | Hose front brake |
| Green | Cable(s) rear derailleur | 5 | Cable(s) rear derailleur or IGH shifter |
| Orange | Hose rear brake | 6 | Front light cable |
| (Red) | Hose front brake | 7 | Wire controller |
| | | 8 | (empty) |

Refer to paragraph 4.2.1 «4.2.1 Electrical connections to the Bosch Generation 4 drive unit» on page 24 for the electrical connections at the drive unit.

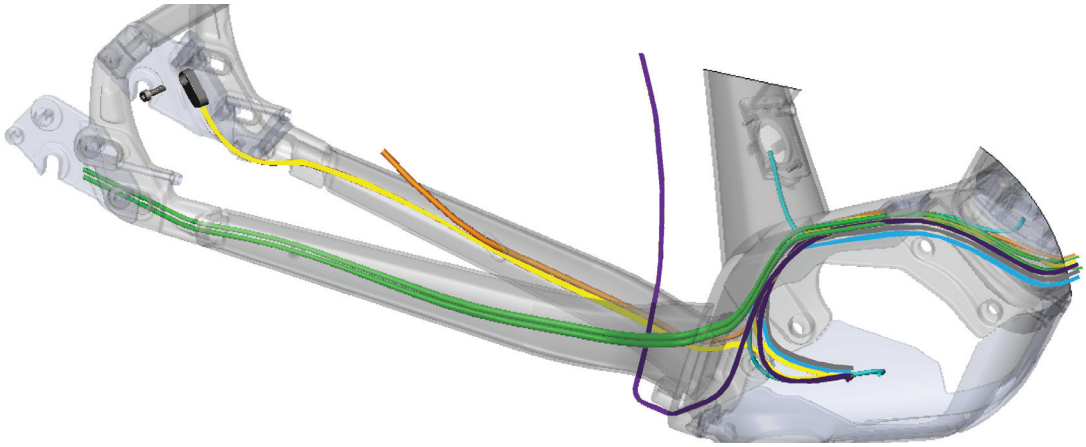
**B. Cable routing at aluminum frames**

At the aluminum frames, all cables and hoses run via the bottom of the downtube and over the drive unit.




*Cable routing at the head tube of aluminum frames*

| *Legend* | | | | | |
|---|---|---|---|---|---|
| • Frame entry Drive Side | | | • Frame entry Non drive side | | |
| A | Grey | Wire brake switch | E | Orange | Hose rear brake |
| B | Blue | Wire horn switch | F | Green | Cable(s) rear derailleur or IGH shifter |
| C | Purple | Wire to front light | | | |
| D | Yellow | Wire controller | | | |



*Cable routing near the drive unit on aluminum frames*

| *Legend* | | | | | |
|---|---|---|---|---|---|
| • Frame entry Drive Side | | | • Frame entry Non drive side | | |
| A | Grey | Wire brake switch | E | Orange | Hose rear brake |
| B | Blue | Wire horn switch | F | Green | Cable(s) rear derailleur or IGH shifter |
| C | Purple | Wire to front/rear* light | G | Turquoise | Wire battery power and charge port |
| D | Yellow | Wire controller | * *Via a hole behind the motor guard to the rear fender.* | | |

Refer to paragraph 4.2.1 «4.2.1 Electrical connections to the Bosch Generation 4 drive unit» on page 24 for the electrical connections at the drive unit.

### 3.10 Tires

#### 3.10.1 Tire size

The recommended tire size is 57-584 or 62-584 / 27.5x2.40-650b depending on model, see table below.
The maximum tire size is 62-584 / 27.5x2.40-650b.

#### 3.10.2 Tires specifications

Replacement tires must have identical specifications to the original tires.
The tires on the 25 km/h EU-bicycles must have reflective sidewalls.



*A reflective line at both sides on 25 km/h EU-bicycles*

Tires on the S-Pedelec class ('fast class', with EU-Type Approval) must have European Type Approval according to ECE R75 and

Size: 62-584 (27.5x2.40-650b)
Speed index: B
Load index: 8 (front) and 24 (rear).
Compliance: ECE R75

#### 3.10.3 Applied tires

On the bicycles with the Allant+ frame, three types of tires are used:

| | Model | EU - Type Approval* | Tires | Tire size | Reflective sidewalls | Region** |
|---|---|---|---|---|---|---|
| **Diamant** | Opal+ Men/Stagger/Lowstep | - | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Opal Esprit+ Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Zouma+ Men/Stagger/Lowstep | - | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Zouma Deluxe+ Men/Stagger/Lowstep | - | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Zouma Deluxe+ S Men/Stagger/Lowstep | √ | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Zouma Supreme+ Men/Lowstep | - | Bontrager E6 | 27.5x2.4 | √ | G-A-S-P |
| | Zouma Supreme+ S Men/Lowstep (carbon frame) | √ | Schwalbe Super Moto-X | 62-584/ 27.5x2.4 | - | G-A-S-P |
| **Trek** | Allant+ 7 Men/Lowstep | - | Schwalbe G-One All-round | 57-584 | √ | EU |
| | Allant+ 8 Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | EU |
| | Allant+ 8S Men/Stagger | √ | Bontrager E6 | 27.5x2.4 | √ | EU |
| | Allant+ 9S Men/Stagger | √ | Bontrager E6 | 27.5x2.4 | √ | EU |
| | Allant+ 9.9 Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | EU |
| | Allant+ 9.9S Men/Stagger (carbon frame) | √ | Schwalbe Super Moto-X | 62-584/ 27.5x2.4 | - | EU |
| | Allant+ 7 Men/Lowstep | - | Bontrager E6 | 27.5x2.4 | √ | N.A. |
| | Allant+ 7S Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | N.A. |
| | Allant+ 8 Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | N.A. |
| | Allant+ 8S Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | N.A. |
| | Allant+ 9.9S Men/Stagger | - | Bontrager E6 | 27.5x2.4 | √ | N.A. |

***NOTICE.**
**For Speed Pedelecs sold in Europe, the specified tires are part of the European Type Approval. They must not be replaced with a tire with a different specification.**

***G-A-S-P = Germany, Austria, Switzerland and Poland*
*EU = Europe, except Germany, Austria, Switzerland and Poland*
*N.A. = North America (US, Canada and Mexico)*

# 4. Electrical specifications

## 4.1 Light configurations

The lighting equipment on the bicycles depends on region and maximum allowed speed of the bicycles. Therefore, the wire harnesses differ in detail.

EU-Type Approval bicycles have lighting and additional equipment as brake light, license plate light and electric horn that comply with EU-laws.

### 4.1.1 Lighting on EU 25 km/h and US 20/28 mph bicycles

| | | Front light | | | | | | | Rear light | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Brand / Model** | **Max. speed** | Herrmans MR-GO E | Herrmans MR8-E | Herrmans MR8 TOP | Axa Compact Line 20 E-bike | GILS Stem Light | GILS Stem light Switch | Supernova Mini-2 E-bike | Spanninga SOLO E-Bike Taillight | Axa Blueline Taillight | Supernova E3 Taillight | GILS Fender Taillight |
| **Diamant** | | | | | | | | | | | | |
| Zouma+ | 25 km/h | √ or | - | - | √ | - | - | - | √ or | √ | - | - |
| Zouma Deluxe+ | 25 km/h | - | √ | - | - | - | - | - | - | √ | - | - |
| Zouma Supreme+ | 25 km/h | - | - | - | - | - | - | √ | - | - | √ | - |
| Opal+ | 25 km/h | - | - | - | √ | - | - | - | - | √ | - | - |
| Opal Esprit+ | 25 km/h | - | √ | - | - | - | - | - | - | √ | - | - |
| **Trek** | | | | | | | | | | | | |
| Allant+ 5 | 25 km/h | √ | - | - | - | - | - | - | √ | - | - | - |
| Allant+ 7 | 25 km/h | - | √ | - | - | - | - | - | - | √ | - | - |
| Allant+ 7 N.A. | 20 mph | - | √ | - | - | - | - | - | - | √ | - | - |
| Allant+ 7S N.A. | 28 mph | - | √ | - | - | - | - | - | - | √ | - | - |
| Allant+ 8 | 25 km/h | - | - | √ | - | - | - | - | - | - | √ | - |
| Allant+ 8 N.A. | 20 mph | - | - | - | - | √ | - | - | - | - | - | √ |
| Allant+ 8S N.A. | 28 mph | - | - | - | - | - | √ | - | - | - | - | √ |
| Allant+ 9.9 | 25 km/h | - | - | - | - | - | - | √ | - | - | √ | - |
| Allant+ 9.9S N.A. | 28 mph | - | - | - | - | - | √ | - | - | - | - | √ |

*N.A. = North America region (USA, Canada, Mexico)*

Refer to paragraph 4.2.2. «4.2.2 Electric diagram of non-EU-Type Approval bicycles» on page 24 for the electric diagram of non-EU-Type Approval bicycles.

### 4.1.2 Front lights – photos




*Axa Compact Line 20 E-bike*




*GILS Stem Light/*
*GILS Stem light Switch*



*Herrmans MR-GO E*



*Herrmans MR8-E*
*Herrmans MR8 TOP*



*Spanninga Axendo-Speed*




*Supernova Mini-2 E-bike*

### 4.1.3 Rear lights – photos




*Axa Blueline Taillight*



*GILS Fender Taillight*



*Spanninga SOLO E-Bike Taillight*




*Supernova E3 Taillight*

### 4.1.4 Lighting and additional equipment on bicycles with EU Type Approval (45 km/h)

| Brand / Model | Max. speed | Front light | | Rear light | | | Electric horn + switch | Additional equipment | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Spanninga Axendo-Speed | Supernova M99 Pure+ | Supernova M99 (with built-in brake light and license plate light) | Busch & Müller Top Line E taillight and separate license plate light | Busch & Müller 650 (with built-in brake light and license plate light) | Spanninga Horn 12V | Brake light (buitl-in in rear light) | Brake switch on the brake lever (L+R) | License plate lighting (buitl-in in rear light) |
| **Diamant** | | | | | | | | | | |
| Zouma Deluxe+ S | 45 km/h | √ | - | - | - | √ | √ | √ | √ | √ |
| Zouma Supreme+ S | 45 km/h | - | √ | √ | - | - | √ | √ | √ | √ |
| **Trek** | | | | | | | | | | |
| Allant+ 8S | 45 km/h | √ | - | √ | - | - | √ | √ | √ | √ |
| Allant+ 9S | 45 km/h | √ | - | - | √ | - | √ | √ | √ | √ |
| Allant+ 9.9S | 45 km/h | - | √ | √ | - | - | √ | √ | √ | √ |

Refer to paragraph 4.2.3. «4.2.3 Electric diagram of EU-Type Approval bicycles» on page 25 for the electric diagram of EU-Type Approval bicycles.

### 4.1.5 Front, rear lights and additional equipment – photos




*Supernova M99 Pure+*



*Spanninga Axendo-Speed*



*Busch & Müller Top Line taillight and separate license plate light*



*Busch & Müller 650 (with built-in brake light and license plate light)*



*Supernova M99 (with built-in brake light and license plate light)*



*Electric horn and horn switch*

## 4.2 Electric diagrams

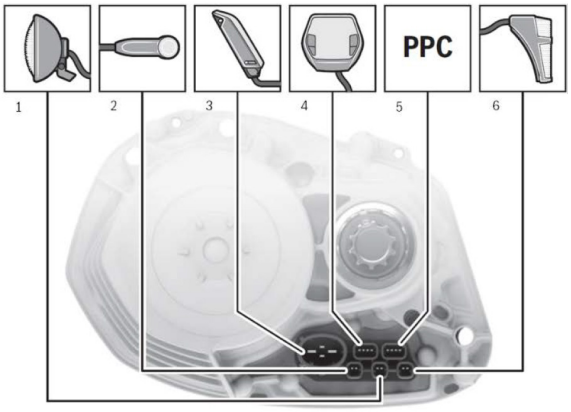
### 4.2.1 Electrical connections to the Bosch Generation 4 drive unit

The Bosch Generation 4 drive unit has six positions to connect electric parts.

Two of the connections are available for directly powered lighting (12 Volt, at a maximum current of 1500 mA in total, randomly distributed for both front and rear light).

On 25 km/h and 20/28 mph bicycles, the lights can be switched On and Off on the display.

On 45 km/h Speed Pedelecs however, the lights are always on. The brake light and horn on 45 km/h bicycles are connected to the rear light port, both operated by a switch (on brake levers/handlebar).



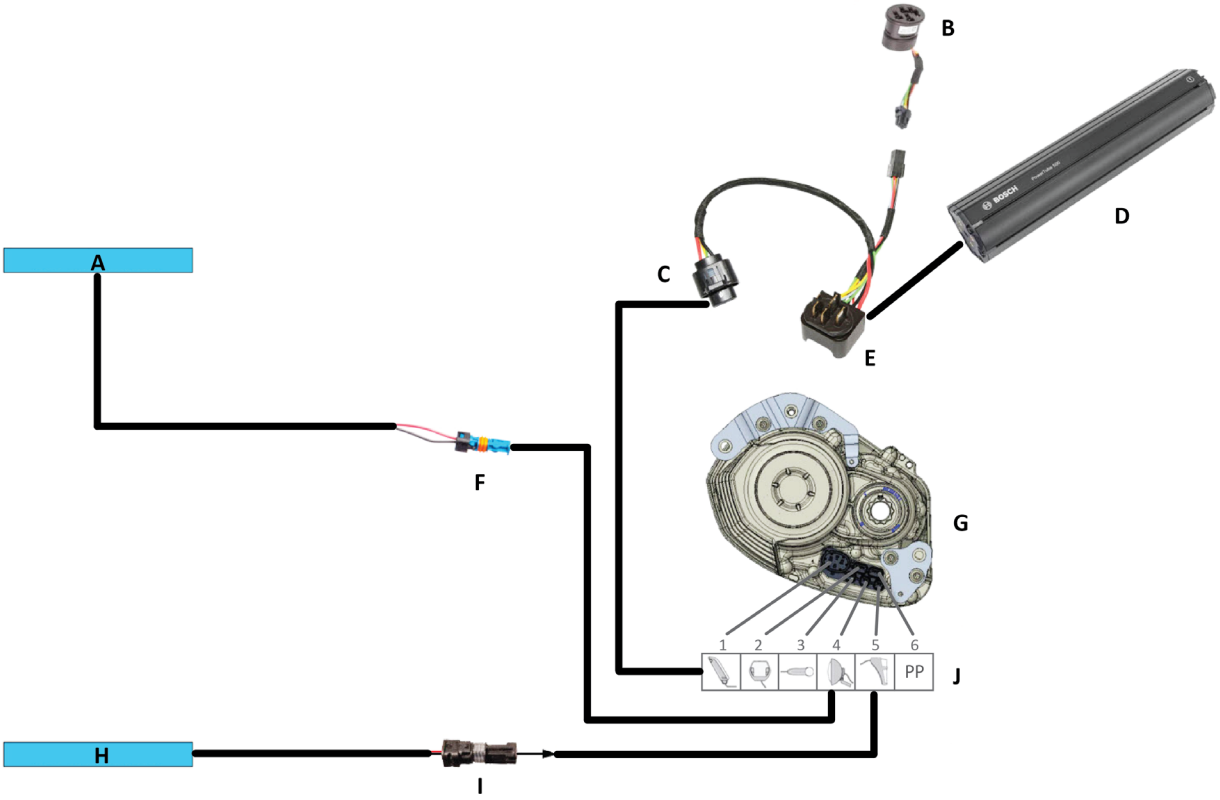

Connections on drive unit:
1. Front light 12 V*
2. Speed sensor
3. Battery
4. Controller
5. Power Port 12 V, 1000 mA
6. Rear light 12 V*

***Note.***
*The maximum current of the light ports, in total, is 1500 mA, randomly distributed for both front and rear light).*

*Electrical connections at the drive unit*

### 4.2.2 Electric diagram of non-EU-Type Approval bicycles

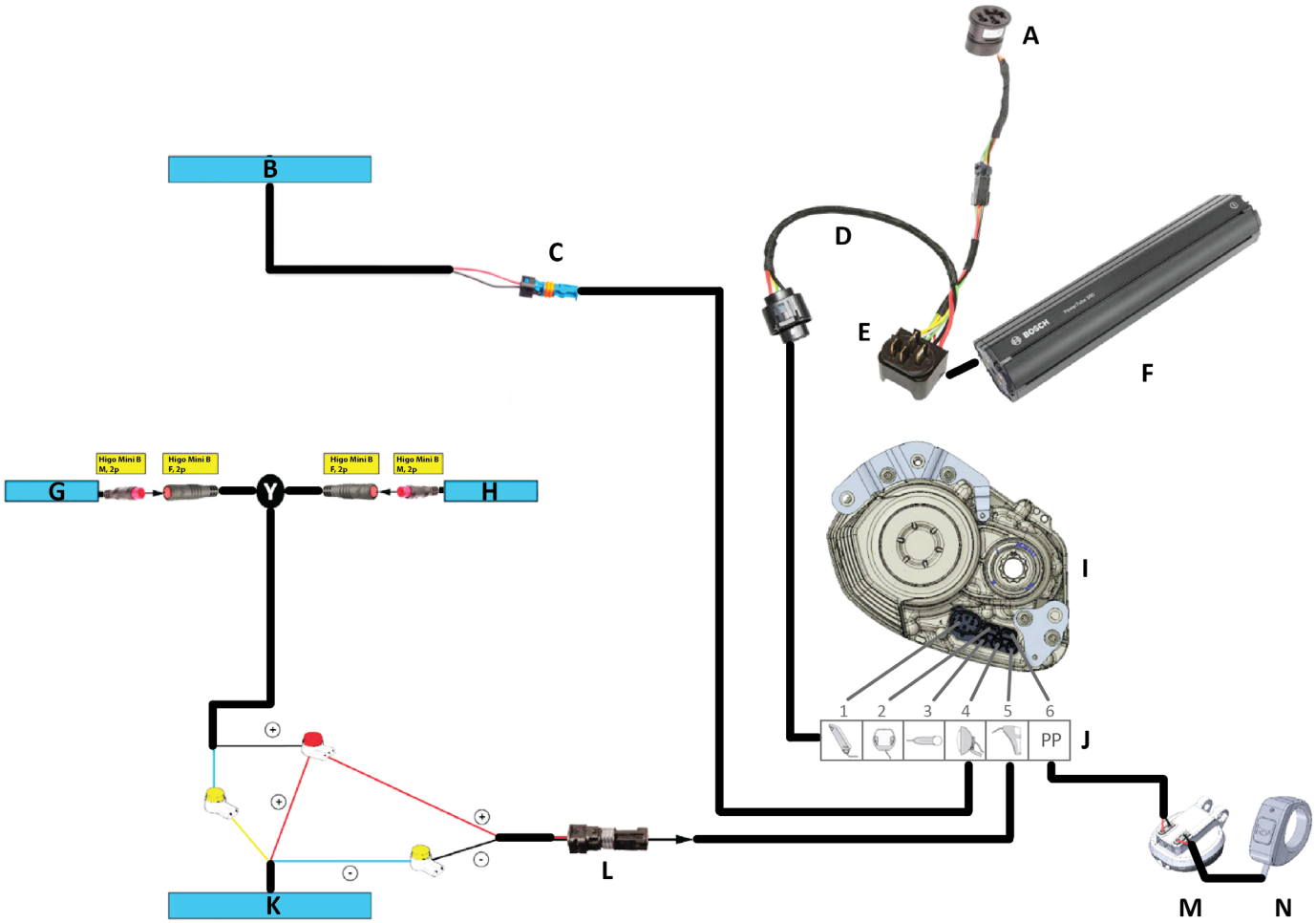
- No brake light
- No license plate light
- No electric horn




| | | | |
|---|---|---|---|
| A | Front light (12 Volt) | F | Front light cable/ (blue) connector (Bosch) |
| B | Charge port on the frame (Bosch 1270.016.509) | G | 4th generation Bosch drive unit (BDU450 CX/P) |
| C | Power cable (Bosch 1270.016.514) | H | Rear light (12 Volt) |
| D | Integrated battery (Bosch Powertube) | I | Rear light cable/(black) connector (Bosch) |
| E | Lower battery holder | J | Electrical connections on drive unit (4th generation) |

### 4.2.3 Electric diagram of EU-Type Approval bicycles

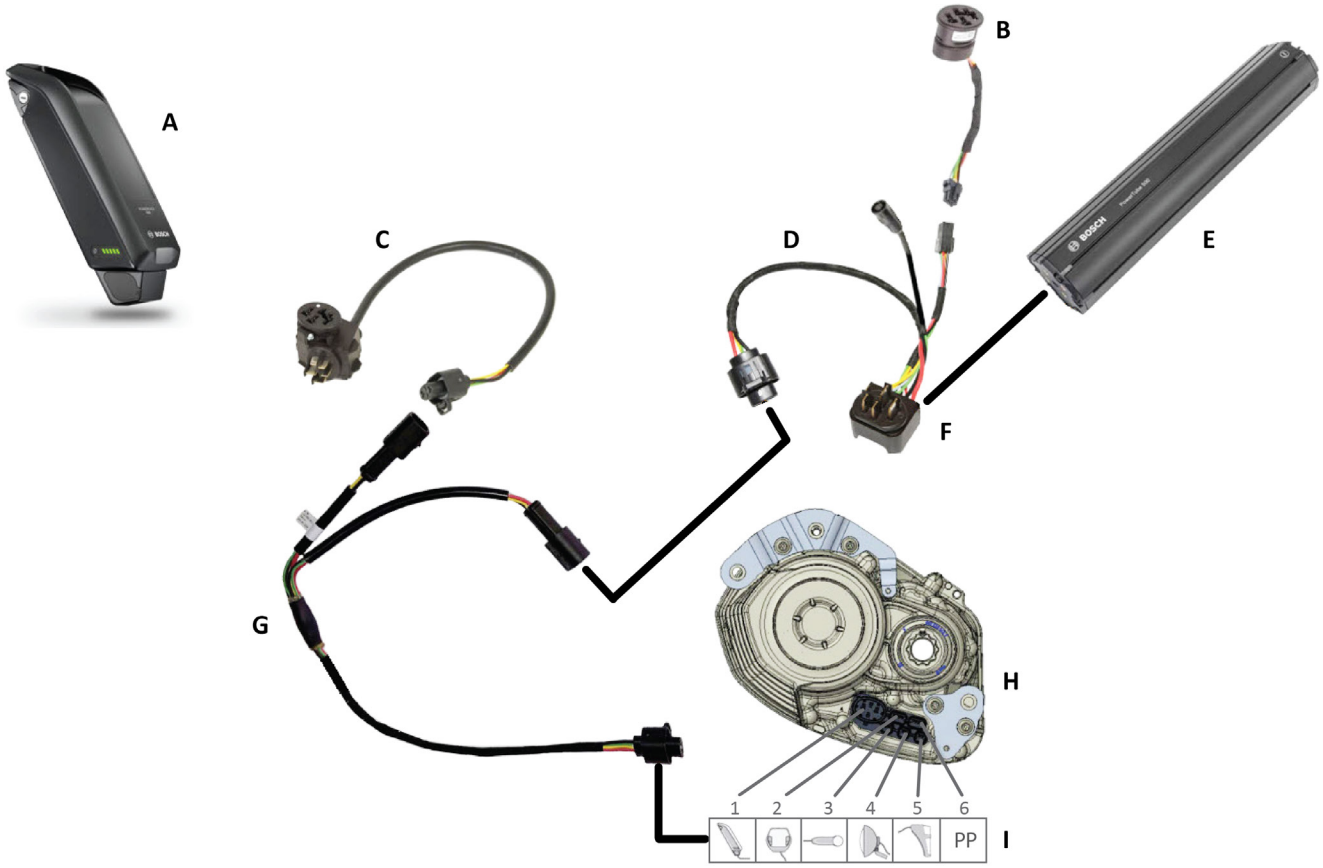
- Supernova M99 Pure or Spanninga Axendo 100 front light
- Supernova M99, Busch & Müller 650 or Busch & Müller Top Line E taillight with brake light and license plate light
- Daytime running light (only on Supernova M99 Pure)
- Brake light (operated by a (HIGO-Closer; Normally Open-) switch on both brake levers)
- Spanninga electric horn (operated by a normally open (N/O-) push button switch on the handlebars)




| | | | |
|---|---|---|---|
| A | Charge port on the frame (Bosch 1270.016.509) | H | Brake switch - R |
| B | Front light (12 Volt) | I | 4th generation Bosch drive unit (BDU450P) |
| C | Front light cable/(blue) connector (Bosch) | J | Electrical connections on drive unit (4th generation) |
| D | Power cable (Bosch 1270.016.515) | K | Rear light with brake light and license plate light (12 Volt) |
| E | Lower battery holder | L | Rear light cable/(black) connector (Bosch) |
| F | Integrated battery (Bosch Powertube) | M | Electric horn (Spanninga) |
| G | Brake switch - L | N | Electric horn switch (Spanninga, SW001) |

### 4.2.4 Electric diagram of the Range Boost kit

- Bosch Powertube internal battery
- Bosch Range Boost battery on down tube (Bosch standard PowerPack)
- The Range Boost option is not available on lowstep frames; due to the design there is no space to mount an additional battery.




| | | | |
|---|---|---|---|
| A | Range Boost battery | F | Lower battery holder |
| B | Charge port on the frame (Bosch 1270.016.509) | G | Dual bat Y-adapter incl ass.kit long (515mm/430mm) |
| C | Cable PowerPack frame (Bosch 1270.016.504) | H | 4th generation Bosch drive unit (BDU450 CX/P) |
| D | Y-cable Powertube (Bosch 1270.016.524) | I | Electrical connections on drive unit (4th generation) |
| E | Integrated battery (Bosch Powertube) | | |



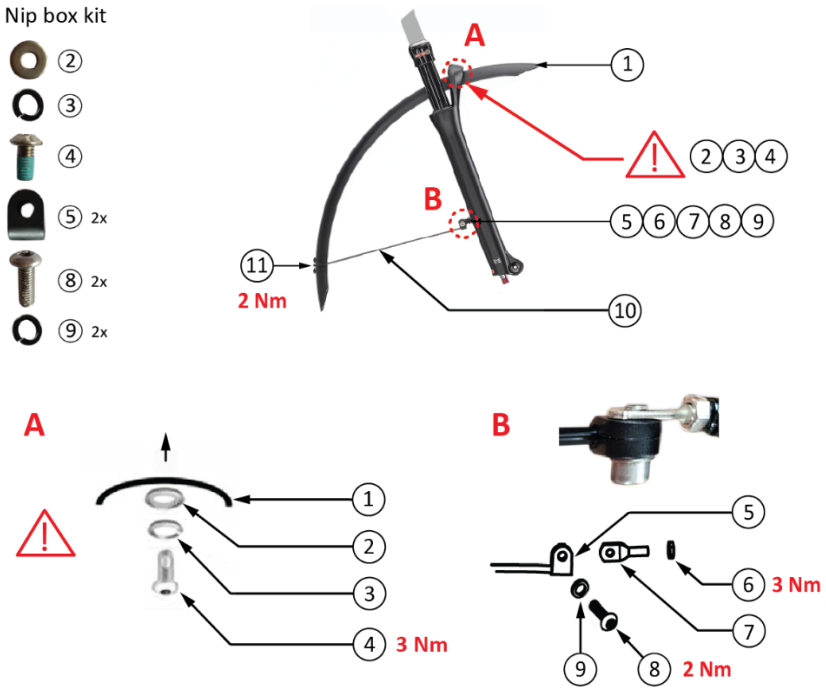
*Dual battery setup in practice*

## 5. Pre-sale assembly instructions

### 5.1 Mounting separately packed plastic front fender (on Trek Allant+ 7 & 9S (non-EU))

The affected bicycles are shipped with a dismounted (plastic) front fender, to fit in a smaller box.
To assure that the front fender does not become loose while riding, please follow the below procedure, and follow all torque specifications. Proper installation of the front fender is very important, for safety reasons.

**WARNING.**
**Always use the correct fasteners (supplied with the bicycle) and follow all torque specifications below. Failure to do so could result in the bike stopping suddenly, and the rider could be involved in a serious accident.**




| # | Description | P/N |
|---|---|---|
| 1 | Front fender (plastic) | 597031 |
| 2 | Flat washer M5x10x1 mm | - |
| 3 | Split washer 6.2 mm | - |
| 4 | Button head screw M5x10 mm with thread locker; torque to 3 Nm | - |
| 5 | Strut mount (2x; L+R) | 581716 (kit; metal alternative) |
| 6 | Lock nut M5 (2x; L+R); torque to 3 Nm | W331954 (kit) |
| 7 | Fender mount bolt (2x; L+R) | |
| 8 | Button head screw M5x12 mm (2x; L+R); torque to 2 Nm | - |
| 9 | Split washer 6.2 mm (2x; L+R | - |
| 10 | Fender stay | 581716 (kit) |
| 11 | Fender stay mounting; torque bolts to 2 Nm | |

Refer to the picture above:

1. Always use the M5x10 mm fastener provided with the bicycle (NIP box kit; no 4 = M5x10 mm button head screw with thread locker*) to mount the front fender.
2. Install the flat washer and split washer (NIP box kit; no. 2 and no. 3) below the fender (see detail A).
3. Install the fender to the fork bridge (detail A); torque the M5x10 mm button head screw to 3 Nm.
4. Install the fender stay (NIP box kit; no. 5, 8 (torque to 2 Nm) and 9; detail B).

***Note.***
*If the fender must be removed, during reinstall, always apply Loctite 242 (Blue) to the first 2/3 of the threads of the M5x10 mm button head screw.*

## 5.2 Handlebar mounting (on Trek Allant+ 9.9 /9.9 S (Non-EU))

The affected bicycles are shipped with a dismounted handlebar.
To assure the handlebar is installed properly, please follow the procedure below and follow all torque specifications.

**⚠ WARNING.**
**Always use the correct fasteners (supplied with the bicycle) and follow all torque specifications below.**
**Failure to do so could result in the bike stopping suddenly, and the rider could be involved in a serious accident.**

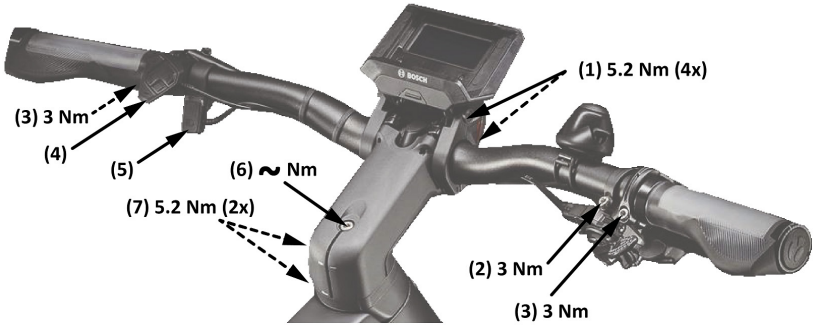



*Figure A. Torque specifications to mount the handlebar*

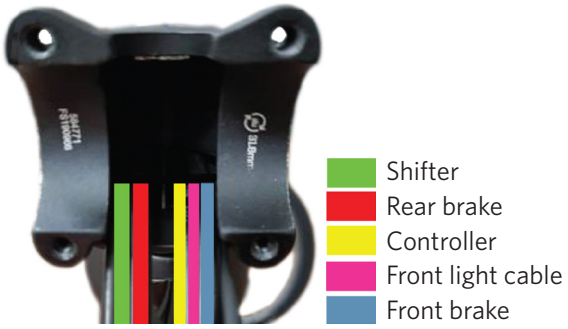



*Figure B. Order of the cables at the stem*

1. Turn the stem 90° back to the correct position (do not torque the stem bolts yet).
2. Mount the Link light to the center of the handlebar.
3. Mount the handlebar to the stem, adjust it to the desired angle.
   Torque the four bolts to 5.2 Nm (see Figure A, 1).

   ***Note.***
   *Check for the correct position of all wires and cables, see Figure B.*

4. Mount the shifter to the handlebar. Torque the bolt to 3 Nm (Figure A, 2).
5. Route the shifter cable through the cable housing; mount and adjust the shifter cable.
6. Mount both brake levers to the handlebar. Torque the bolts to 3 Nm (Figure A, 3).

   ***Note.***
   *Mount the front brake lever on the left-hand side and the rear brake lever on the right-hand side.*

7. Mount the remote (Figure A, 4) and the Hi/Lo light switch (Figure A, 5).
8. Adjust the light and controls to the desired position.
9. Mount the HMI/display bracket.
10. Adjust the play of headset with the central stem bolt (Figure A, 6). Suggested torque: 2 Nm.
11. Torque the two (side) stem bolts to 5.2 Nm (A, 7).



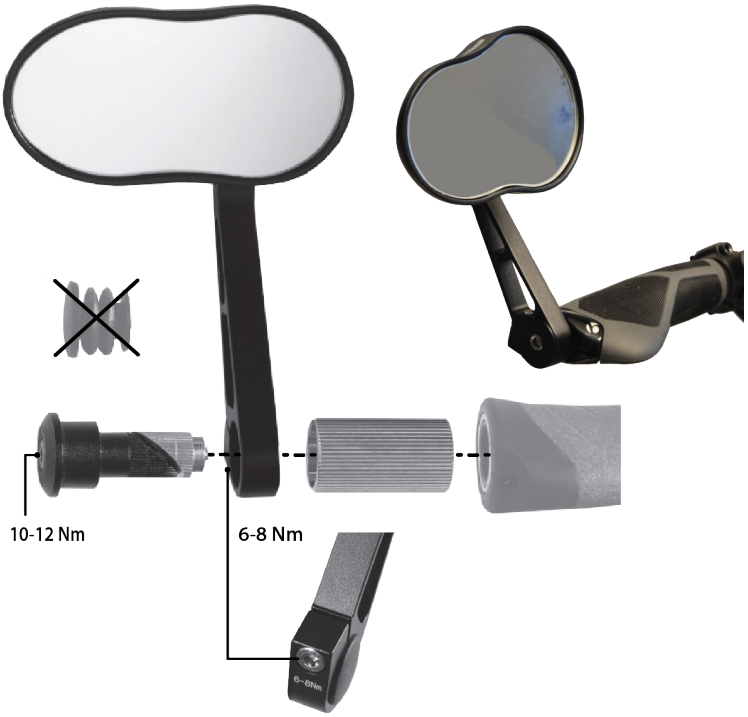
*End result – a clean look at the handlebar*

**NOTICE.**
**Check the e-bike for normal operation before delivery.**

## 5.3. Mounting mandatory parts (on 45 km/h EU-type approved bicycles)

### 5.3.1 Mounting the mandatory mirror

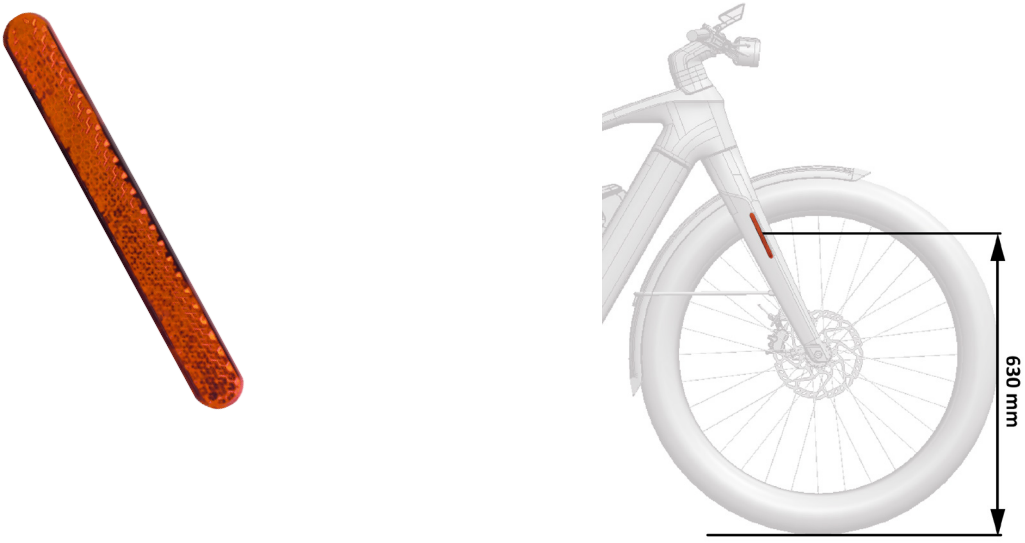
The mirror must be mounted positioned above the handlebars. The bushing prevents rotation.




*The mounting position of the mirror and torque values*

### 5.3.2 Mounting the mandatory side reflectors

According to the European Type Approval on Speed Pedelecs, it is mandatory to install a yellow reflector on both sides of the vehicle. Please see the picture below for the exact location.




*The location to install the side reflector, one at both sides*

### 5.3.3 Mounting the license plate

On Speed Pedelecs, sold in Europe, a permanently mounted license plate is mandatory when used on the public road. The license plate of the Speed Pedelecs must be mounted on the available holder.
The plate must be visible in the dark; for that purpose, the holder is equipped with a license plate light.
The plate light will be switched On together with the bicycles' front and rear light.



*Supernova M99 taillight and license plate holder*



*Busch & Müller 650 taillight and license plate holder*



*Busch & Müller Top Line E taillight and separate license plate light*

The Supernova license plate holder has an integrated rear, brake and license plate light and a separate red reflector mounted at the bottom of the holder.

The Busch & Müller 650 license plate holder has a rear/brake light, a separate license plate light and a red reflector mounted at the bottom of the holder.

Both holders can be adjusted in length to fit all kind of license plate sizes to ensure that the rear reflector is always fully visible.

To mount the license plate, first adjust the holder to the required length; the correct length per country is marked on the holder. Next mount the license plate with two bolts.

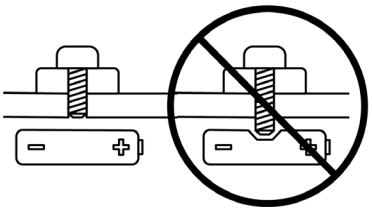
The Busch & Müller Top Line E taillight has a separate license plate holder and license plate light. The license plate must be fitted underneath the license plate light.

***Note.***
*Please ensure that the white plate light is lighting the license plate maximally and the red rear reflector is always fully visible. If necessary, adjust the plate holder and/or the position of the license plate.*

# 6 Mounting accessories on e-bikes

## 6.1. Special note about using the correct bolt lengths when mounting any accessorie on an e-bike

An electric bike has hidden wiring through frame and has other critical e-bike parts like the drive unit and battery pack. When mounting accessories (e.g. a bottle cage), be sure not to pinch the wiring or puncture the battery pack, e.g. by using too long or pointed bolts.
This might cause a short circuit to the electric system and/or damage to the battery.



*Be sure not to pinch the wiring or puncture the battery pack when mounting accessories*

**⚠ WARNING.**
**A short circuit in the electric system and/or damage to the battery might lead to over-heating.**
**A battery that has been severely impacted or otherwise mishandled could potentially catch fire and cause property damage, injury or death.**

## 6.2 Child seat

**NOTICE.**
**Always comply with local laws and regulations when attaching a child seat.**

### 6.2.1 No child seat on the e-bikes with carbon frame

**⚠ WARNING.**
**Clamping anything onto the tubing of a carbon frame can cause the frame to break, which could result in severe injury or death. Do not attach a child seat to a carbon frame.**

### 6.2.2 Mounting a child seat on the e-bikes with aluminum frame

On bicycles with an aluminum frame, it is permissible to attach a child seat on the *standard* rear rack (maximum load 25 kg / 55 lbs) or to clamp a child seat on the seat tube.

***Notes.***

- *It is prohibited to mount a child seat on the luggage rack that is mounted on some bicycles with aluminum frame.*
- *On smaller frame sizes, there may be not enough clearance to clamp a child seat to the seat tube and to apply a ring lock at the same time. Remove the ring lock to clamp a child seat and apply another locking device.*

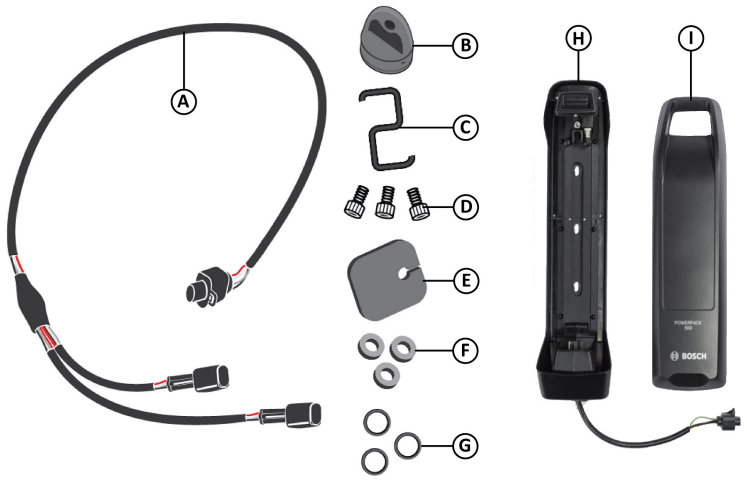
### 6.3. Mounting the (optional) Trek/Diamant Range Boost Kit

To extend the assist range, bicycles with the 'Allant' mens' frame and stagger frame* are equipped to mount an additional battery pack, called a 'Trek/Diamant Range Boost kit'. The frames are equipped with holes to mount the bracket of the extra battery and a hole to route the electric connection to the drive unit.

***Notes.***

- *Due to the design of a low step frame there is no space to mount an additional battery between the top and down tube.*
- *The Trek/Diamant Range Boost kit only works in combination with a 500 Wh or 625 Wh Bosch battery;* ***not*** *compatible with a 300 Wh or 400 Wh Bosch battery.*

Trek/Diamant made a Range Boost *kit* available to easily add the additional battery pack.
The kit consists of a combination of specific Trek/Diamant parts and Bosch parts.




| # | Description |
|---|---|
| A | Y-Cable |
| B | Contact cover |
| C | S - hook |
| D | M5 Mounting Bolts (3x) |
| E | Y Cable Plug |
| F | Mounting Spacers (3x) |
| G | O-ring (3x) |
| H | Holder |
| I | Battery 500 Wh |

*The contents of the Trek/Diamant Range Boost kit*

| Kit | P/N |
|---|---|
| Battery Trek Range Boost UL kit black (US Version)* | 588519 |
| Battery Trek Range Boost CE kit black (EU Version)* | 588520 |

***Important note.***
*Only works with a 500 Wh or 625 Wh Bosch battery;* ***not*** *compatible with a 300 Wh or 400 Wh Bosch battery.*

Required tools to mount the Range Boost kit:

- S-Hook
- T25 Torx wrench (carbon frame)
- IP40 Torx Plus wrench (or Torx Plus IP40 bit + ratchet)

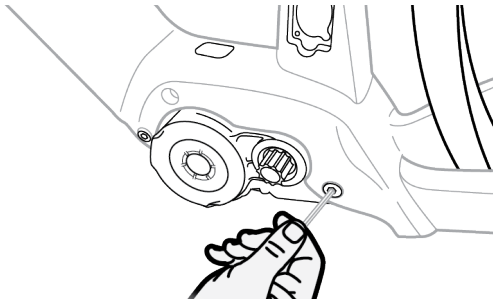


*Torx T40 vs. Torx Plus IP40 tools*

- Torque wrench 10-60 Nm
- 4 mm hex wrench
- 3 mm hex wrench (aluminum frame)
- Small Phillips screwdriver
- Torque wrench with appropriate sockets
- Bosch connector and diagnostic tool

Follow these steps to mount the Trek/Diamant Range Boost kit:

1. Remove the integrated battery (RIB).
2. Disconnect the drive unit:
   a. Remove the four motor guard fasteners and remove the motor guard.
   b. Loosen the two aft drive unit bolts. Do not *remove* the bolts.

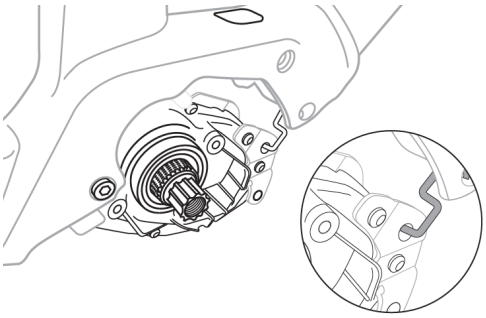


*Loosen the bolts, but do not remove them*

**NOTICE.**
**Before removing the front drive unit bolts, support the drive unit to prevent it from swinging freely.**

c. Remove the front four drive unit bolts (two per side).

3. Remove the motor cover at the left-hand side to access the electric connections.
4. Support the drive unit and install the S-hook.
   Install the hook as shown (from the inside of the drive unit housing) to protect the bike's finish.



*Apply the S-hook to support the drive unit*

5. Unplug the battery cable (large plug) from the drive unit.
6. Connect the Y cable.
   a. Temporarily remove the S hook and support the drive unit with one hand.
   b. Remove the screw in the plastic cover (see figure A).

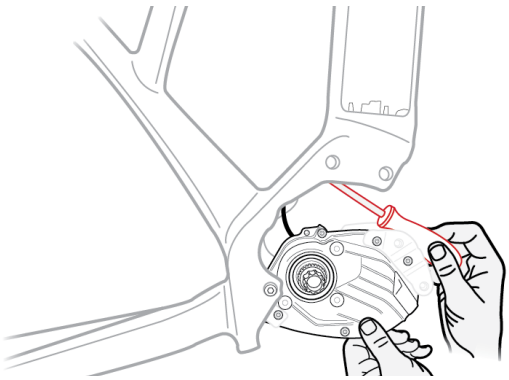


*Figure A*

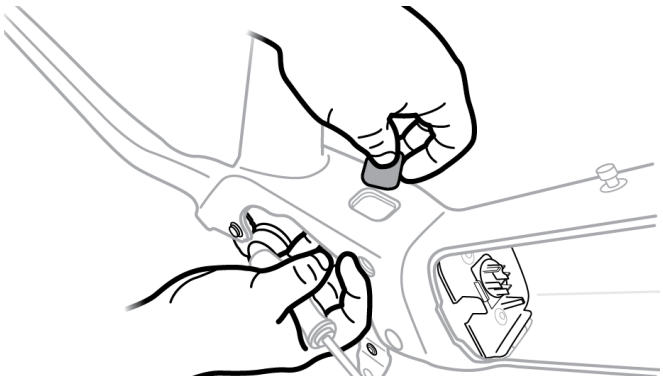
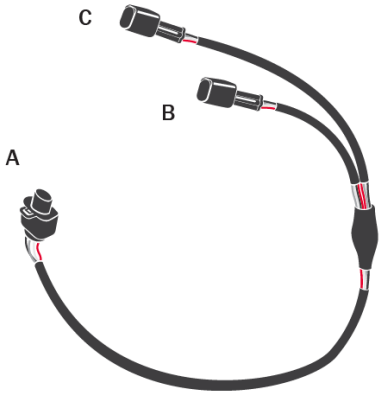


*Figure B*

*Preparing the frame for the Trek/Diamant Range Boost kit*

c. Remove the cover from the top of the drive unit housing (see figure B).
d. Re-install the S hook to support the drive unit.
e. With the battery cable disconnected from the drive unit, pull the connector out from behind the drive unit.

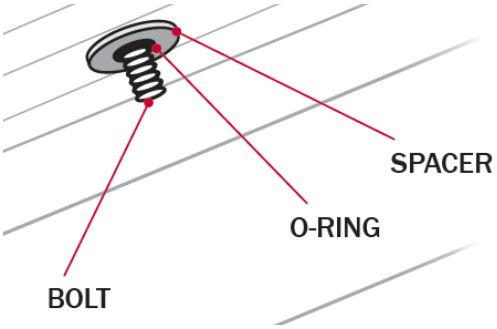



*The connectors on the Y-cable*

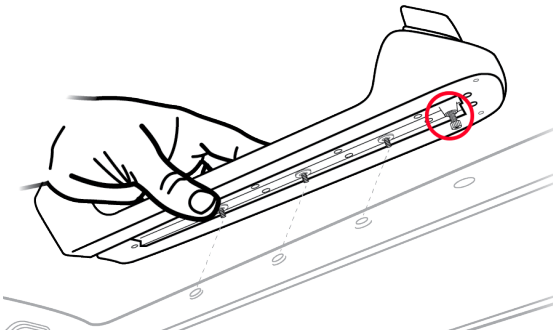
f. Connect the B end of the Y cable to the battery connector.
g. Tuck the excess Y cable (B end) behind the rear battery mount in the base of the down tube.
h. Route the rest of the Y cable (A end) over the top of and behind the drive unit.

8. Install the Range Boost battery holder.
   a. Remove the three water bottle cage bolts (4mm) and the round rubber plugs from the down tube.
   b. For each of the three holes in the Range Boost battery holder, use (in order) the three bolts, spacers, and O-rings to create the Range Boost battery holder assembly.

**NOTICE.**
**There are three spacers for carbon frames included in the Range Boost bag of contents.**
**Carbon frames will need spacers between the Range Boost battery mount and the frame to prevent surface damage to the bike frame.**
**The O-rings act as a retention system to keep the spacers and bolts in place on the mount.**




*Apply spacers and O-rings when mounting the Range Boost holder on a carbon frame*



*Install the prepared holder on the frame*

c. Place the Range Boost battery mount assembly on the down tube with the holes lined up.
d. Screw this plunger bolt (circled) out to decrease the lock travel with integrated battery installed.
   Screw this plunger bolt in if the lock impedes installation of the integrated battery.

   *Note. Make sure the Range Boost battery plunger is in the middle of the down tube hole.*

e. Tighten the three bolts to 5 Nm, do not overtighten.
   Use only the bolts supplied in the kit.
   If a different length is needed, then only use grade 8 or better bolts.

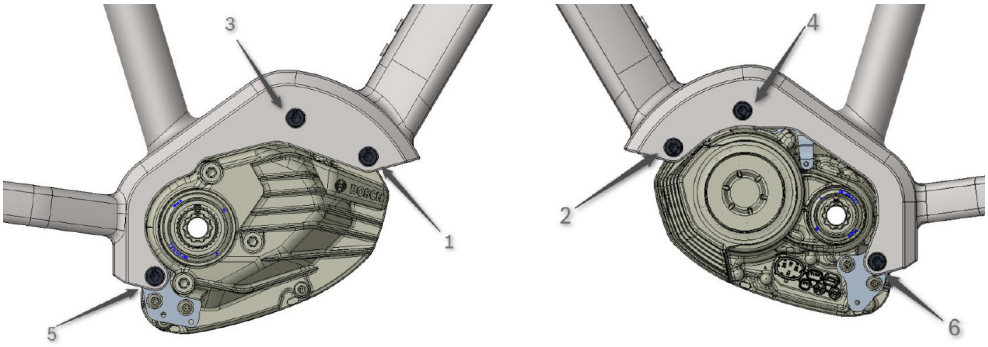
9. Reconnect the drive unit
   a. Insert the Range Boost battery cable into the hole on the top of the drive units' housing.
   b. From the inside of the drive units' housing, connect the Range Boost battery cable to the A end of the Y cable.
   c. Arrange the A end of the Y cable and the Range Boost battery cable in the forward end of the drive units' housing (behind the internal battery rear mount).
   d. Remove the S-hook.
   e. Rotate the drive unit up into the drive units' housing.

   *Pro builder tips:*
   - *As you rotate the drive unit up, wiggle the Range Boost battery cable on top and the power plug of the drive unit in the rear for ease re-installation of the drive unit.*
   - *Make sure no cables are pinched when moving the drive unit into place.*

   f. Install the four forward drive unit mount bolts.
   g. Torque all forward and aft drive unit mount bolts to the manufacturer's specifications:

**NOTICE.**
**On the Bosch drive units from MY2020, eight safety bolts are used for the screw connection of the mounting plates in the drive unit housing. Bosch does not allow to loosen these bolts.**
**This leads to damage to the sealing of the threaded surfaces in the magnesium housing and thus to loss of the warranty claims.**

Tighten the 6 Torx Plus bolts to **20 +/- 2 Nm** with shown sequence below: 1 -> 2 -> 3 -> 4 -> 5 -> 6 (Alternative sequence: 1 -> 3 -> 5 -> 2 -> 4 -> 6).



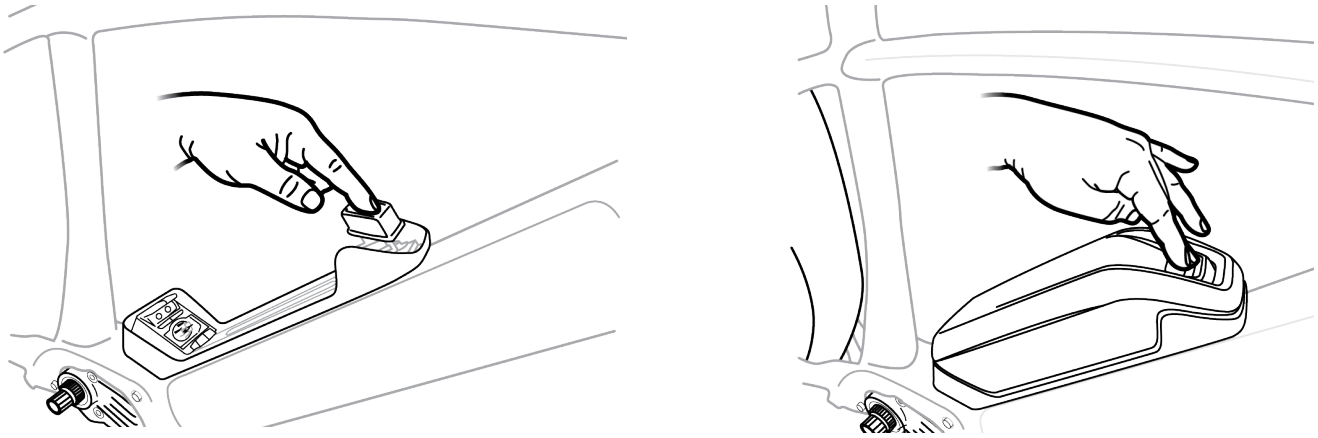

*The tightening sequence of the drive units mounting bolts (**20 +/- 2 Nm**)*

   h. Put the grommet around the battery cable.
   i. Put as much cable inside the drive units' housing as possible.
      Make sure no cables are pinched when moving the drive unit into place.
   j. Install the grommet into the hole on top of the drive units' housing.
   k. Reconnect the drive units' power plug back on to the drive unit.
   l. Reinstall the motor guard. Torque the bolts to 5 Nm.

10. Testing the assembly release mechanism
   a. Reinstall the integrated battery.

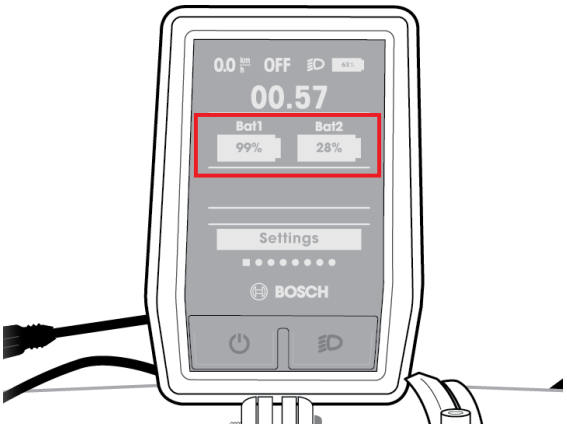
**NOTICE.**
**The Range Boost battery assembly bolt (plunger) inside the integrated battery cavity should not contact the integrated battery or in any way impede the installation of the integrated battery. This can cause damage to the integrated battery.**

   b. The Range Boost battery lock button should move down only 1 to 5 mm when depressed.



*Test the lock, with inserted internal battery it should not be possible to unlock the Range Boost battery*

c. Install the Range Boost battery in the tray.
   Again depress the lock button. The Range Boost battery assembly should not be released.
   Else, adjust the plunger position.
d. On the controller, when you power up you should see you have two batteries and it should also display the charge for each battery.




*Charge level of two batteries on the controller*

e. Use the Bosch connector and diagnostic tool to make sure all the firmware is up to date.

## 7. Model-specific maintenance

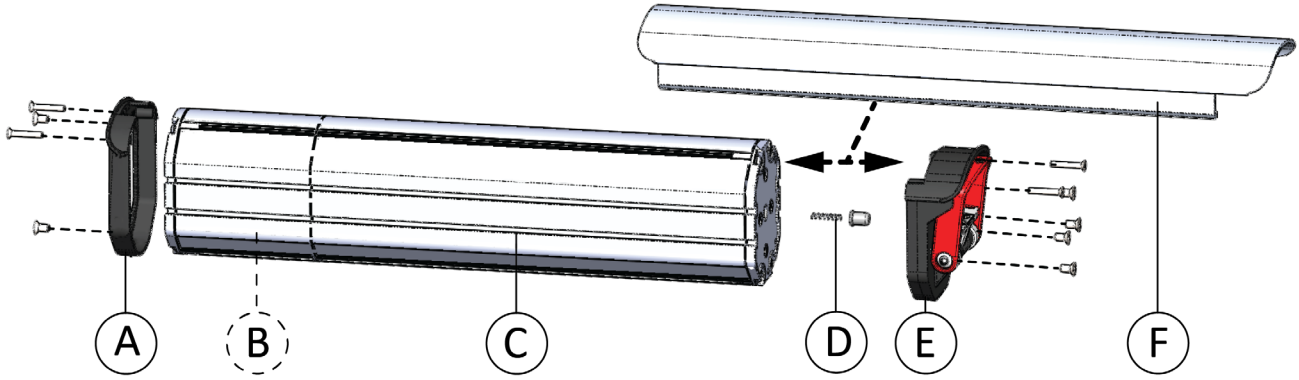
**NOTICES.**

- **When working on an electric bicycle, remove the battery (unless instructed otherwise) to prevent accidental activation of the system or electrical damage.**
- **Only use Trek/Bosch replacement parts for safety-critical components.**

**CAUTION.**
**Handle the battery with care. Do not drop or impact the battery. Mishandling of the battery could lead to severe damage or over-heating. A battery that has been severely impacted or otherwise mishandled could potentially catch fire.**

### 7.1 Battery replacement

***Note.***
*When ordering a new Powertube battery at Bosch, Bosch delivers just a bare battery.*
*When replacing the battery pack, it is necessary to exchange some parts from the old to the new battery to fit in the bicycle.*




*Parts to exchange to the new battery*

Follow these steps to replace the battery:

1. Switch off the assist system
2. Remove the battery from the bicycle.
3. Loosen the bolts that hold the side plates 'A' and 'E' and remove the plates.
   Be careful not to lose the spring assembly 'D'!
   *In case of a 500 Wh battery, also remove the battery spacer 'B'.*
4. Remove the top cover of the battery 'F'; it can shift to either side.
5. Install all parts in reverse order to the new battery.
   **Be sure to mount the spring assembly 'D' in place!**

   ***Note.***
   *It is possible to change from a 625 Wh battery to a 500 Wh battery + spacer or visa-versa. Refer to the next paragraph.*
6. Place the new battery on the bicycle and test the assist system for normal operation.

***Note.***
*When disposing a Powertube battery, strip the battery to the bare Powertube battery pack by removing the parts as shown in picture above; side plates, top cover and, if present, the spacer.*
*Do not open the battery pack itself!*

*The removed parts can be re-used on a new Powertube battery.*

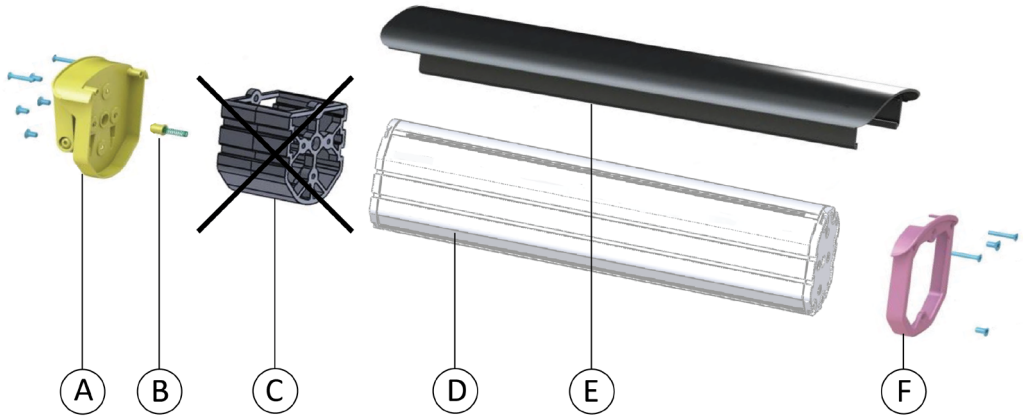
### 7.2. Upgrading a 500 Wh Powertube battery to a 625 Wh battery

The Trek Allant+7 bicycles are standard equipped with a 500 Wh Powertube battery.

A 625 Wh Powertube battery contains more battery cells to provide a higher capacity and is a bit longer in length- then a 500 Wh battery.

All bicycles with an 'Allant' frame however, have a battery bay dimensioned to fit the 625 Wh Powertube battery.

This means that it is technically possible to upgrade the standard 500 Wh battery to the 625 Wh battery, with a higher capacity, to boost the range.




Follow these steps to upgrade the battery (refer to the figure above):

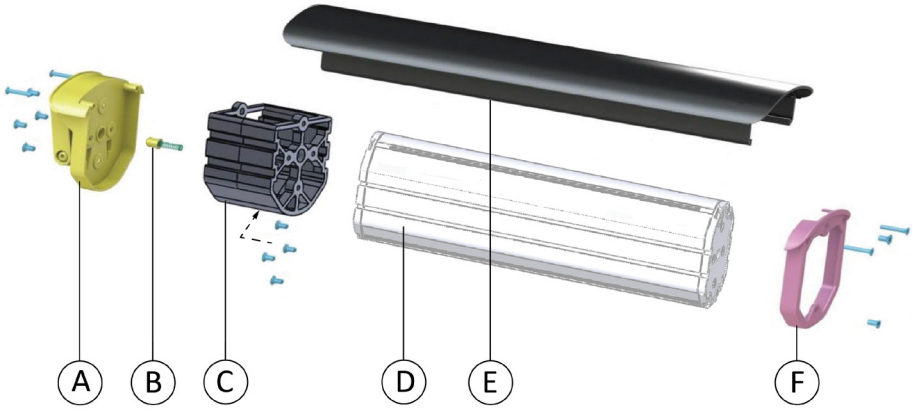
1. Switch off the assist system,
2. Remove the standard 500 Wh battery,
3. Dismount the battery cover, battery spacer, spring, handle and lower bracket (the spacer 'C' is left over). The cover slights off the battery to either side. Be careful not to lose the spring assembly 'B'.
4. Install the handle 'A', spring assembly 'B', cover 'E' and lower bracket 'F' to the new 625 Wh Powertube battery 'D'. **Be sure to mount the spring assembly 'B' in place!**
5. Install the new battery on the bicycle.
6. Switch on the assist system and check for normal operation.

***Note.***

*The new battery will automatically be recognized by the Bosch assist system.*

### 7.3. Downgrading from a 625 Wh Powertube battery to a 500 Wh battery

On bicycles with a standard 625 Wh Powertube battery mounted, it is possible to downgrade the battery to a 500 Wh Powertube battery. A 500 Wh Powertube battery contains less battery cells in comparison with a 625 Wh battery and is a bit shorter in length. To extend the length of a standard 500 Wh battery to fit in the 625 Wh battery bay, contact your Trek representative for a space kit.




Follow these steps to downgrade the battery (refer to the picture above):

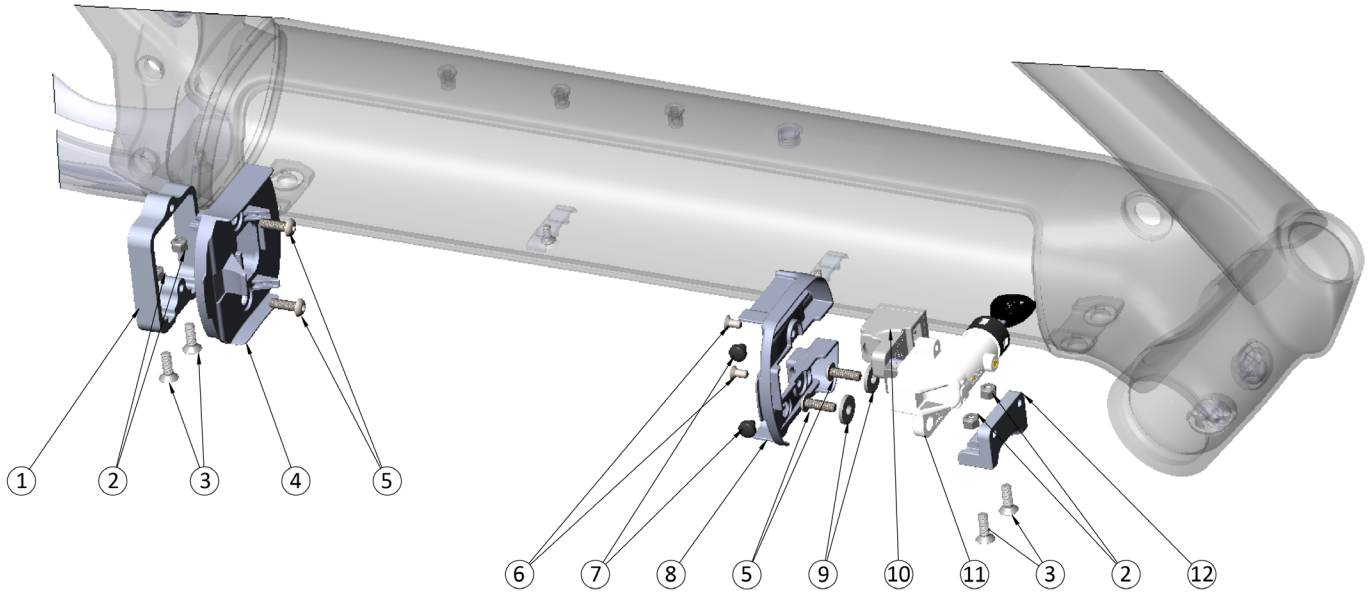
1. Switch off the assist system,
2. Remove the 625 Wh battery,

3. Dismount the handle ‘A’, lower bracket ‘F’ and battery cover ‘E’; the cover slights off the battery to either side. Be careful not to lose the spring assembly ‘B’.
4. Install the handle ‘A’, spring assembly ‘B’, battery spacer ‘C’, cover ‘E’ and handle ‘F’, to the new 500 Wh Powertube battery ‘D’. **Be sure to mount the spring assembly ‘B’ in place!**
5. Install the new battery on the bicycle,
6. Switch on the assist system and check for normal operation.

***Note.***
*The new battery will automatically be recognized by the Bosch assist system.*

### 7.4 Alignment of integrated battery

To position the battery in the middle of the battery bay, it is possible to adjust the position of both upper and lower battery docking.
The battery lock is part of the upper docking. The down tube is equipped with a hole to access the lock with the key to unlock the battery.




*Overview of the battery mounting with upper and lower docking*

| | | | |
|---|---|---|---|
| 1 | RIB* lower docking bracket (Bosch) | 7 | RIB* bumper 2 (lock part) |
| 2 | Locknut M5x18-8, RVS, nylon-insert | 8 | RIB* lock cover |
| 3 | Screw, M5x0.8x15, RVS, T25-Bo hexalobular internal drive, (theft-deterrent). Torque to 15 Nm. | 9 | Washer M5 |
| | | 10 | RIB* Eject plunger assembly no M5 nut |
| 4 | Powertube connector plate (Bosch) | 11 | Abus+ lock assembly |
| 5 | Screw, M5x.8x16 mm button head cap. Torque to 5 Nm. | 12 | RIB* Abus upper docking lock (Bosch) |
| 6 | Bolt, M4x0.7x8 mm RVS, countersunk. Torque to 5 Nm. | *RIB = Removable Integrated Battery* | |

***Note.*** *The plastic plate on the upper and lower docking (no 4 and 8) move with the dockings.*

#### 7.4.1 Pre-Inspection

Tools needed:

- 2 mm Allen key
- 3 mm Allen key

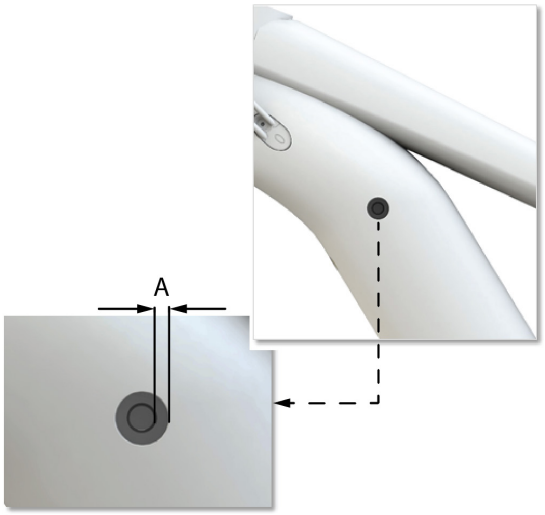
Follow these steps to check the alignment of the integrated battery:

1. Try to slide the battery down towards the drive unit.
2. Use a 2 mm Allen key to check for a 2 mm gap at the bottom of the battery, between frame and battery cover.




*Check the gap at the bottom of the battery cover*

3. Check that the key slot is centered within the keyhole in the frame.
   As a gauge, use a 3 mm Allen key to measure the minimum distance between the keyhole itself and the frame.




*Check the position of the lock. A = minimum 3 mm*

4. Check that the battery installs and ejects smoothly and quickly and does not miss the secondary catch when turning the key to release.

5. If any of the criteria in steps 2 through 4 are not satisfied, proceed to the top and bottom battery docking adjustment instructions.

### 7.4.2 Battery docking alignment at the top of the integrated battery

Tools needed:

- Special bit; Torx TX25 Bo (e.g. Trek P/N 558561 or equivalent); Bo = with Bore

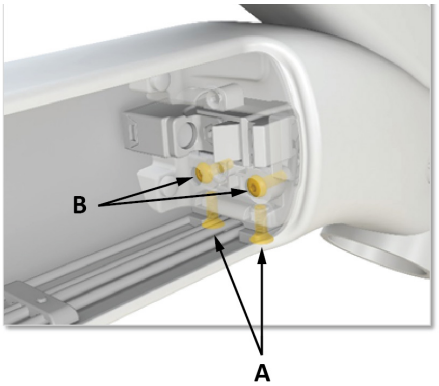


*A special bit with bore is necessary to loosen the lock bolts*

- Ratchet + bit adapter
- 2 mm Allen key
- 3 mm Allen key
- Small, flat screwdriver

To adjust the position of the battery, follow these steps:

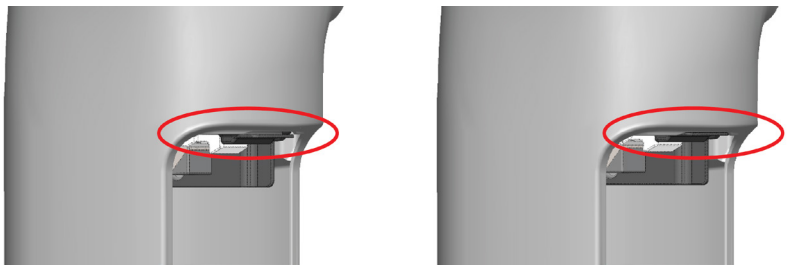
1. Use a Torx security bit (Trek P/N 558561) to loosen the two T25 security bolts (pos. A) on the outside of the down tube and, only if necessary, the two T25 bolts (pos. B) on the inside of the dock to allow the locking system to move around.




*Upper docking; loosen T25 bolts A and B a few turns to adjust the position of the battery*

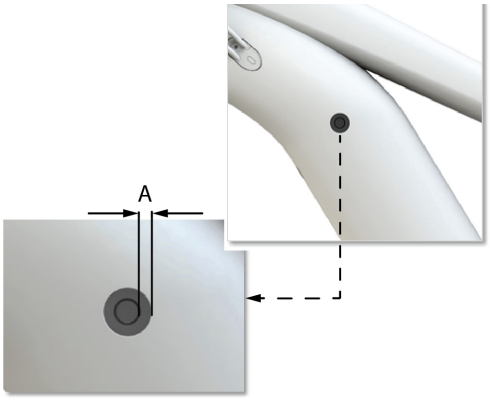
**NOTICE.**
**Do not remove the bolts. Use caution to not fully unthread them from the internal locknuts. Loosen them only enough to expose the underside of the fastener head.**

2. Apply grease inside the two countersink holes of the security bolts when the bolts are loose. This will help make torqueing the bolts easier when you re-assemble the system.
3. With grease applied, make sure all four bolts are still loose, so the bracket and the lock are able to slide.
4. Locating the lock.



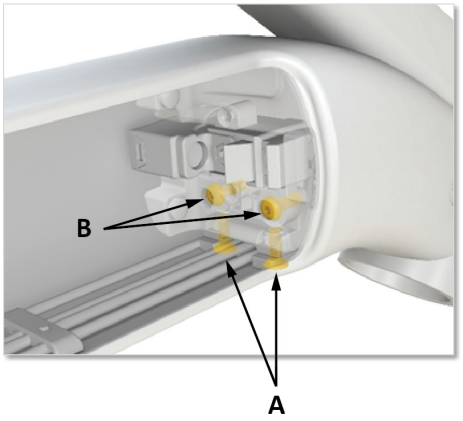
*Incorrect - gap existing* *Correct - no gap*

A. On the drive side, the tab of the plastic cover should be centered within the gap of the frame. There should be no gap between the plastic tab and the frame.
B. On the non-drive side down tube, preferably the lock is centered within the hole of the frame. Adjust as necessary. Refer to the Pre-Inspection section par. 7.4.1. on page 39 for the centering criteria.




*Preferably the lock is centered within the hole of the frame, A = minimum 3 mm*

5. Use the Torx security bit (Trek P/N 558561) to torque the four T25 bolts (A and B) to 5 Nm.




*Torque the four T25 bolts (A and B) to 5 Nm to secure the upper docking*

***Notes.***

- *After aligning the integrated battery, check the bicycle for normal operation.*
- *Check if the battery can be removed and installed easily without jamming.*

### 7.4.3 Battery docking alignment at the bottom of the integrated battery

Tools needed:

- Special bit; Torx TX25 Bo (e.g. Trek P/N 558561 or equivalent); Bo = with Bore



*A special bit with bore is necessary to loosen the lock bolts*

- Ratchet + bit adapter
- 2 mm Allen key
- 3 mm Allen key
- Small, flat screwdriver

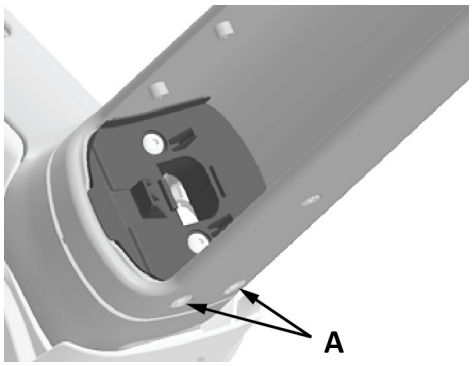
To adjust the position of the battery, follow these steps:

1. Use a Torx security bit (Trek P/N 558561) to loosen the two T25 security bolts on the outside of the down tube to allow the locking system to move around. Do not remove the bolts.

**NOTICE.**
**Do not remove the bolts. Use caution to not fully unthread them from the internal locknuts. Loosen them only enough to expose the underside of the fastener head.**

***Notes.***

- *You may need to remove a drive unit cover or charge port to gain access to these bolts.*
- *Make sure the two Torx bolts on inside of the bottom of the top tube are torqued to 5 Nm.*




*Lower docking; loosen the two T25 bolts a few turns to adjust the position of the battery at the lower end*

2. Apply grease inside the two countersink holes when the bolts are loose. This will help make torqueing the bolts easier when you re-assemble the system.
3. Protect the paint with some protective tape and tap carefully on the bolts with a soft rubber hammer to make sure the nuts on the inside are loose.



*Protect the paint with some tape and use a soft rubber hammer to make sure the nuts inside are loose*

4. With grease applied, make sure the two bolts are still loose so the bracket is able to slide.
5. Fully install the battery into the frame.
6. Hold the battery in place and use a Torx T25 Bo security bit (Trek P/N 558561) to torque the two bolts to 5 Nm.
7. Attempt to pull the battery downward, along the down tube, toward the drive unit to ensure it is seated against the lower docking.
8. Use a 2 mm Allen key to check for a minimum 2 mm gap at the bottom of the battery.
9. If the gap is less than 2mm, remove the battery and loosen the Torx bolts.
10. Adjust the lower docking up by 1 mm. The plastic tab may not be contacting the frame at this point. This is okay.

    ***Note.***

    *You may wish to remove the drive unit and push upward on the loosened lower docking, with the battery installed. Then you will be able to dynamically check the battery-to-frame gap.*

11. When the gap is satisfactory at a minimum of 2 mm, torque the outside Torx bolts to 5 Nm.




*Check the gaps at the bottom of the battery cover with the use of a 2 mm Allen key*

12. If the gap is not satisfactory, repeat steps 5 through 10 (using a 2 mm or 3 mm Allen key) until the gap is a minimum of 2 mm.
13. Torque the two T25 bolts to 5 Nm.

***Notes.***

- *After aligning the integrated battery, check the bicycle for normal operation.*
- *Check if the battery can be removed and installed easily without jamming.*

### 7.4.4 Battery-to-frame final alignment

Tools needed:

- Special bit; Torx TX25 Bo (e.g. Trek P/N 558561 or equivalent); Bo = with Bore



*A special bit with bore is necessary to loosen the lock bolts*

- Ratchet + bit adapter
- 2 mm Allen key
- 3 mm Allen key
- Small, flat screwdriver

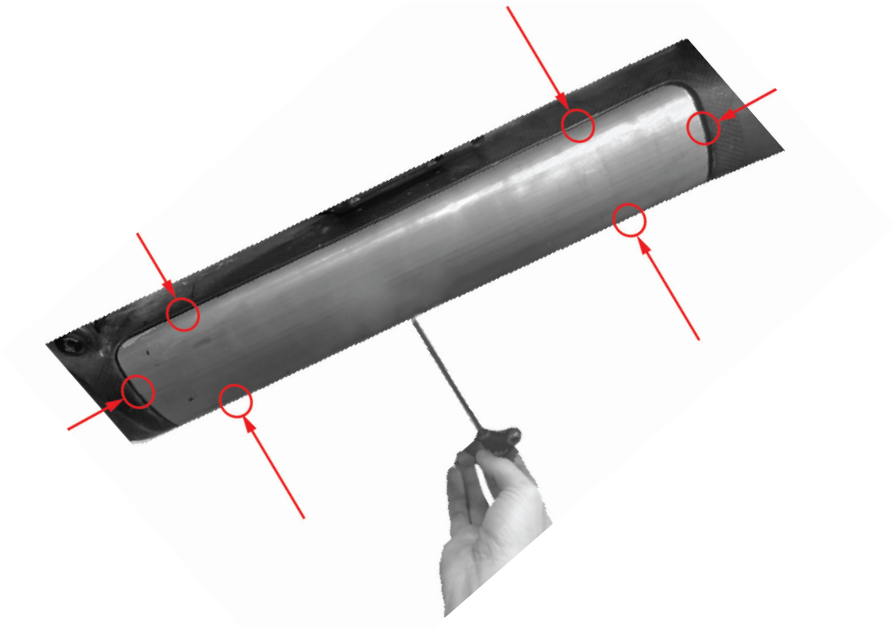
To adjust the position of the battery, follow these steps:

1. Loosen the two upper and two lower T25 Torx bolts on the inside of the battery docks.
   Keep the bolts snug so there is some resistance during this adjustment.




*Loosen bolts A (upper docking) and B (lower docking) to adjust the battery-to-frame position*

2. Fully install the battery.
3. Adjust the battery so there is a uniform gap along the entire length of the battery-to-frame fitting.
4. Use a 2- or 3- mm Allen key as a feeler gauge to achieve a uniform and symmetrical gap (minimum 2 mm).



*Use a 2 or 3 mm Allen key to adjust the position of the battery and cover to archive symmetrical gaps*

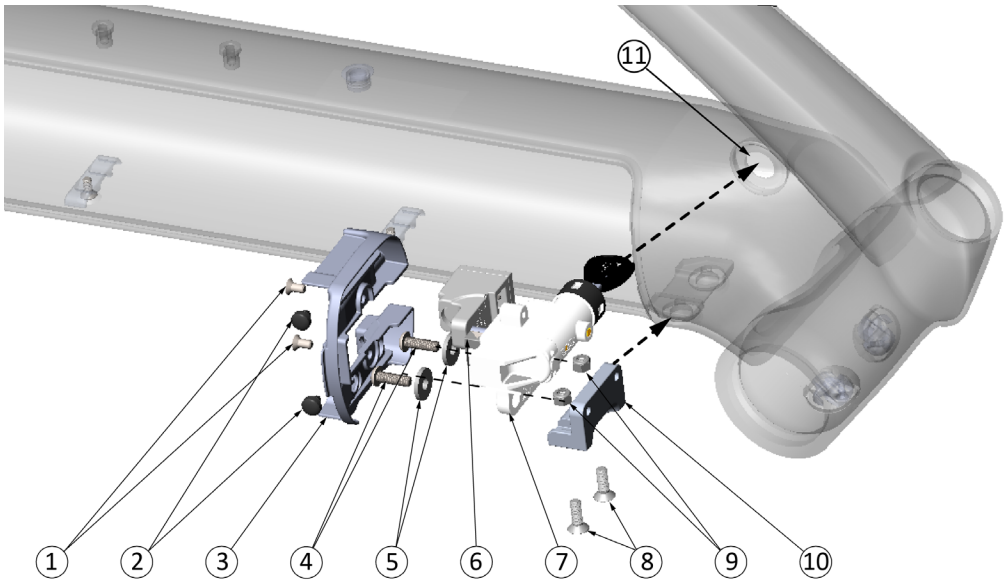
5. Remove the battery and torque the two upper and two lower inside bolts to 5 Nm.

6. With bolts tightened and the battery in place, check to make sure the minimum 2 mm gap is maintained along the battery-to-frame fit.
7. Repeat steps 1 through 6 if necessary.
8. Take out the battery to make sure the lock functions properly.

***Notes.***

- *After aligning the integrated battery, check the bicycle for normal operation.*
- *Check if the battery can be removed and installed easily without jamming.*

### 7.5 Replacing the battery lock




*Overview of the battery lock mounting at the upper docking*

| | | | |
|---|---|---|---|
| 1 | Screw, M4x0.7x8 mm RVS, countersunk. Torque to 5 Nm. | 7 | Abus+ lock assembly |
| 2 | RIB* bumper 2 (lock part) | 8 | Screw, M5x0.8x15, RVS, T25-Bo hexalobular internal drive, (theft-deterrent). Torque to 15 Nm |
| 3 | RIB* lock cover | 9 | Locknut M5x18-8, RVS, nylon-insert |
| 4 | Screw, M5x0.8x16 mm button head cap. Torque to 5 Nm | 10 | RIB* Abus upper docking lock (Bosch) |
| 5 | Washer M5 | 11 | Lock hole in frame |
| 6 | RIB* Eject plunger assembly | *RIB = Removable Integrated Battery | |

The lock can be replaced from inside the battery bay, it is not necessary to remove the battery sleeve.

To replace the lock, follow these steps (refer to the figure above):

1. Remove the battery.
2. Remove the key from the lock.
3. Remove the screws (1) that holds the lock cover (3) and remove the cover.
4. Unscrew the bolts that secure the locking mechanism (4).

   ***Note.***
   *It is not necessary to remove the upper docking of the lock (10).*

5. Replace the locking mechanism (7).
6. Tighten the screws (4) of the locking mechanism to 5 Nm.

   ***Notes.***
   - *Ensure that the eject plunger assembly (6) is fitted correctly.*
   - *Check the postion of the lock relative to the frame hole.*

7. Install the lock cover and tighten the screws to 5 Nm.
8. Install the battery.

   ***Note***.

   *If necessary, fine-tune the position of the lock by moving the upper docking to have a correct fit .*

   *The battery fit should not be too loose (possibly leads to bad contacts or a rattling battery) or too tight (difficult to remove).*

9. Install the battery and check the system for normal operation.

### 7.6 Battery removal if the key is lost

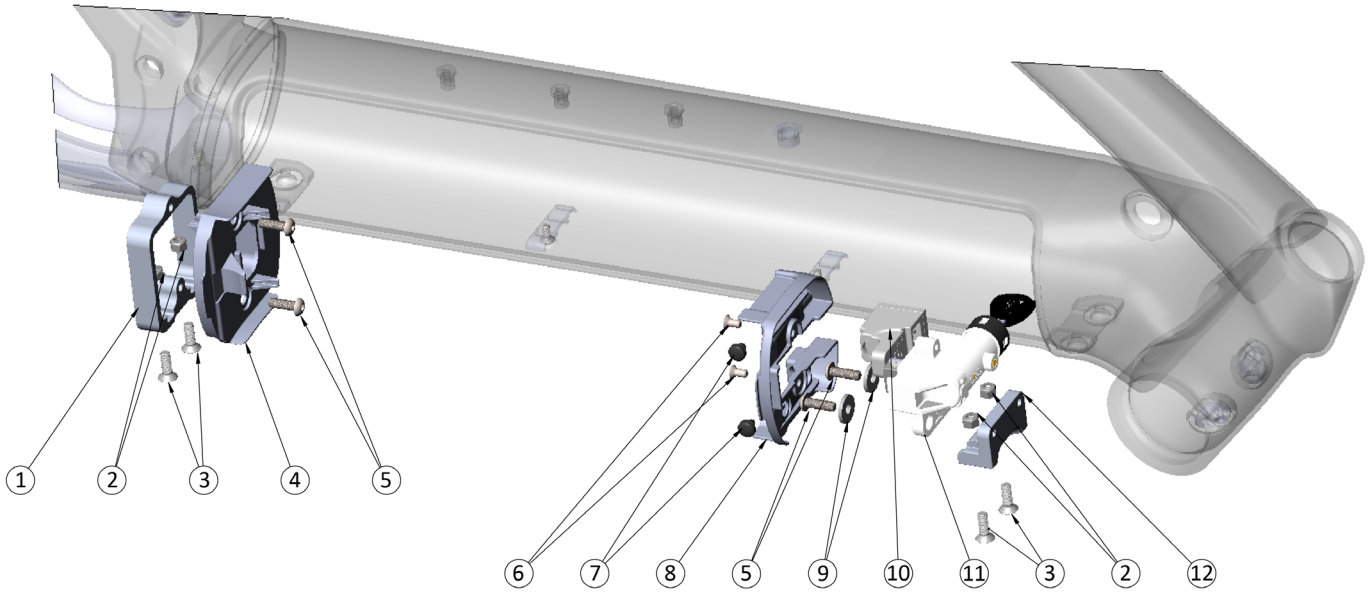
Tools needed:

- Special bit; Torx TX25 Bo (e.g. Trek P/N 558561 or equivalent); Bo = with Bore



*A special bit with bore is necessary to loosen the lock bolts*

- Ratchet + bit adapter
- Small, flat screwdriver




*Overview of the battery mounting with upper and lower docking*

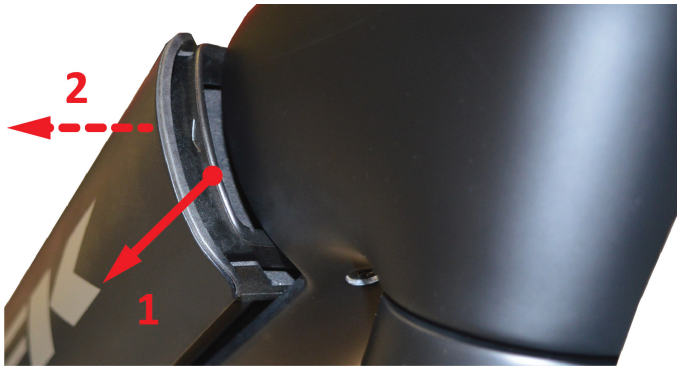
| | | | |
|---|---|---|---|
| 1 | RIB* lower docking bracket (Bosch) | 7 | RIB* bumper 2 (lock part) |
| 2 | Locknut M5x18-8, RVS, nylon-insert | 8 | RIB* lock cover |
| 3 | Screw, M5x0.8x15, RVS, T25-Bo hexalobular internal drive, (theft-deterrent). Torque to 15 Nm. | 9 | Washer M5 |
| | | 10 | RIB* Eject plunger assembly no M5 nut |
| 4 | Powertube connector plate (Bosch) | 11 | Abus+ lock assembly |
| 5 | Screw, M5x.8x16 mm button head cap. Torque to 5 Nm. | 12 | RIB* Abus upper docking lock (Bosch) |
| 6 | Bolt, M4x0.7x8 mm RVS, countersunk. Torque to 5 Nm. | *RIB = Removable Integrated Battery* | |

If the key for the lock is lost, the best option is to loosen the upper and lower battery docking (refer to the picture above).

1. From the outside the downtube, loosen all bolts (3) a few turns* to give maximum play to the upper and lower docking.

   ***Notes.***

   - *Turn so far, that the nuts just do not come loose from the bolts thread (2 to 3 threads left).*
   - *Else, when you turn too far, the nuts will come loose, leading to much more work to replace the lock. Loose nuts are difficult to reach, so if this happens, the dockings must be taken apart to install the nuts (2) from the start.*




*Removal of the integrated battery*

2. Try to move the battery back and forth in the battery bay to free the batteries' security lock at the top docking.
3. Lift the battery out of the upper holder by pressing the security lock (1) and pull it out (2) of the top and lower holder to remove the battery from the bicycle.
4. Replace the lock, as described in paragraph 7.5 on page 45.
5. Align the battery as described in paragraph 7.4.2 to 7.4.4 on page 40 to 44.
6. After repairs, check the system for normal operation.

**NOTICE**
**If the battery cannot be removed as described above, the bicycle must be shipped to a local Trek/Diamant service center for repairs.**

## 7.7 Replacing cables or brake hoses running through the frame

**NOTICE.**
**Switch off the assist system and remove the battery before starting repairs.**

Replacing cables/hoses, in general:

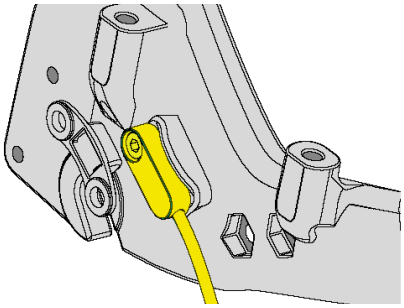
- When replacing a brake hose, shifter cable or electric cable that run through the frame, first refer to paragraph 3.9 on page 16 for the cable/hose routing.
- Only at the drive unit, hose and/or cables are fixed to the frame or together by ty-raps.
  If necessary, remove the covers of the drive unit to cut the ty-raps and to route the new cable/hose.
- The access cables/hoses that run through the battery bay, remove the battery sleeve for easy access.
- It might be necessary to at least loosen or even remove the battery top and bottom holder for easy access.
- It might be necessary to remove the front or rear wheel, guide guides, etc. for easy access.
- Connect the new part to the old part using e.g. an inner brake cable and some tape or a routing tool to ease pulling the new part though the frame.



*Connector/routing tool to couple two hydraulic brake hoses together to ease pulling a new hose thought the frame*

### 7.7.1 Replacing the speed sensor

The cable of the speed sensor runs through the chain stay to the drive unit.
Refer to paragraph 3.9 on page 16 for the cable routing.



*Location of the speed sensor*

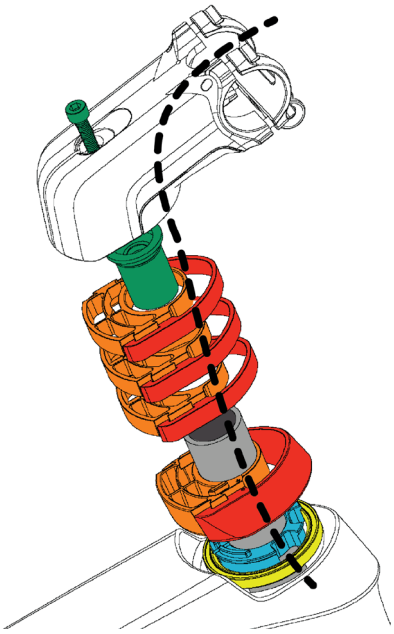
Follow these steps to replace the speed sensor:

1. Switch off the assist system and remove the battery from the bicycle.
2. Remove the rear wheel for easy access.
3. Remove the non-drive side cover of the drive unit.
4. Disconnect the connector of the speed sensor at the drive unit.
5. Attach an inner brake cable to the sensor cable, use some tape.
6. Uninstall the speed sensor at the chain stay.
7. Carefully pull the old sensor cable, together with the inner brake cable, thought the chain stay.
8. Attach the inner brake cable to the new sensor cable.
9. Carefully pull back the inner brake cable, while guiding the new sensor cable.
10. Mount the new sensor.
11. Connect the speed sensor connector to the drive unit.
12. Reinstall the rear wheel, place the battery in the bicycle and test the assist system for normal operation.
13. Re-install all other parts in reverse order.

***Note.***
*For all other cables, follow the same procedure as above, using some tape and an inner brake cable to pull the new cable through the frame.*

### 7.7.2 Replacing the front brake hose

- Suspension and aluminum rigid forks.
  The front hydraulic hose runs externally, so no special instructions necessary to replace the hose.
- Carbon rigid forks.
  The hydraulic hose runs internally through the stem, head tube, steering tube and left fork leg.





*Front brake hose, running via the stem and steering tube to the left fork leg*

To the replace the front brake hose, follow these steps:

1. Dismount the handlebar.
2. Dismount the front brake hose at disc brake side.
3. Use the routing tool to carefully pull a new hose through the fork and stem.
4. Mount the new hose to caliper and brake lever and bleed the hydraulic system.
5. Re-mount the handlebar, refer to paragraph 5.2 “5.2 Handlebar mounting (on Trek Allant+ 9.9 /9.9 S (Non-EU))” on page 28 for mounting details.

### 7.7.3 Replacing the rear brake hose

The hydraulic brake hose runs via the head tube (aluminum frame) or stem (carbon frame) via the battery bay, drive unit and non-drive side chain stay to the rear disc brake.

1. To get easy access, remove the battery, battery sleeve and, partly, drive unit. Leave the drive unit hanging at one bolt.
2. Dismount the rear brake hose at disc brake side (and at carbon frame: dismount the handlebar).
3. Use the routing tool to carefully pull a new hose through the chain stay to the drive unit’s bay.
4. Next, guide the new hose via the battery bay to the front of the bicycle.
5. Guide the new hose via the head tube (aluminum frame) or stem (carbon frame) to the rear brake lever at the handlebar.
6. Mount the new hose to caliper and brake lever and bleed the hydraulic system.
7. Carbon frame: re-mount the handlebar, refer to paragraph 5.2 “5.2 Handlebar mounting (on Trek Allant+ 9.9 /9.9 S (Non-EU))” on page 28 for mounting details.

## 7.8 Replacing a front fender

The bicycles can be equipped with either an aluminum front fender or a plastic front fender, depending on the bicycles model and configuration.

When replacing or re-mounting the front fender, be sure to apply the correct bolt and washers in the correct order to secure the front fender firmly to the fork.

### 7.8.1 Replacing the plastic front fender

The plastic front fender is directly mounted to the fork bridge and is secured with one M5 button head screw with thread locker, a flat washer and a spring washer to prevent it from coming loose.
The other side of the fender is secured to the fork with a standard fender stay.

Needed tools to replace the plastic front fender::

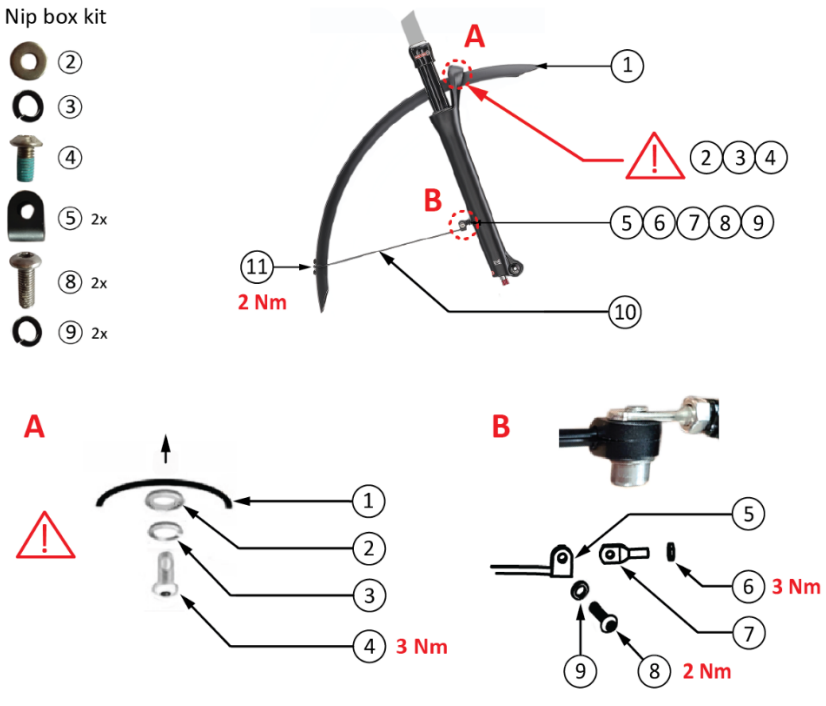
- 4 mm Allen key/ bit
- TX25 torx key/ bit
- Torque wrench (1 - 10 Nm) and bit holder

Follow these steps to replace the plastic front fender (refer to the figure below):

1. Remove the front wheel.
2. Dismount the bolts (pos 11) that mounts the front fender to the fender stay.
3. Dismount the top bolt and remove the old fender.
4. Install the flat washer and split washer (pos. 2 and pos. 3) below the new fender (see detail A).
5. Apply Loctite 242 (Blue) to the first 2/3 of the threads of the M5x10 mm button head screw.
6. Install the fender to the fork bridge (detail A) with the M5x10 mm button head bolt; torque the M5x10 mm bolt to 3 Nm.
7. Install the fender stay (pos. 5, 8 (torque to 2 Nm) and pos. 9; detail B).
8. Reinstall the front wheel.

***Note.** If the fender must be removed again, during reinstall, always apply Loctite 242 (Blue) to the first 2/3 of the threads of the M5x10 mm button head screw.*

**WARNING.**
**An incorrectly installed fastener could stop the bike suddenly, causing a serious accident.**
**Only use the fasteners supplied with the bicycle, and follow all torque specifications below.**




| # | Description | P/N |
|---|---|---|
| 1 | Front fender (plastic) | 597031 |
| 2 | Flat washer M5x10x1 mm | - |
| 3 | Split washer 6.2 mm | - |
| 4 | Button head screw M5x10 mm with applied thread locker; torque to 3 Nm | - |
| 5 | Strut mount (2x; L+R) | 581716 (kit; metal alternative) |
| 6 | Lock nut M5 (2x; L+R); torque to 3 Nm | W331954 (kit) |
| 7 | Fender mount bolt (2x; L+R) | |
| 8 | Button head screw M5x12 mm (2x; L+R); torque to 2 Nm | - |
| 9 | Split washer 6.2 mm (2x; L+R | - |
| 10 | Fender stay | 581716 (kit) |
| 11 | Fender stay mounting; torque bolts to 2 Nm | |

*Mounting the plastic front fender*

### 7.8.2 Replacing the aluminum front fender

The aluminum front fender is directly mounted to the fork crown with **two** bolts. The two bolts are secured in place with a locking tab to prevent the fender from coming loose from the fork.

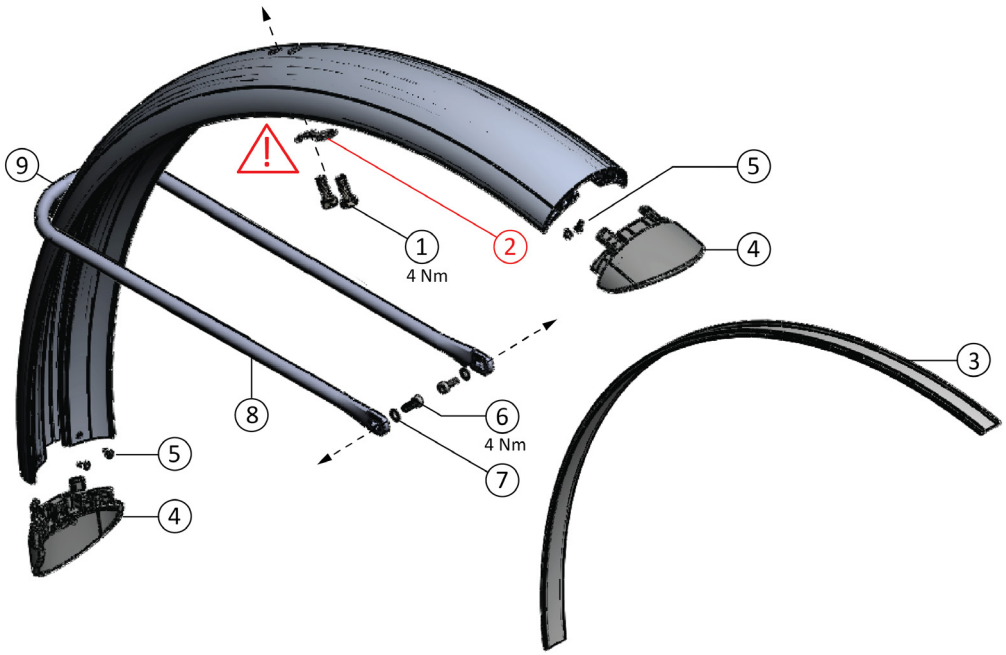
The other side of the fender is secured to the fork with a specially designed fender strut. The aluminum front fender has a fender end piece at both ends and a plastic strip inside for a clean finish.

Needed tools to replace the aluminum front fender:

- 4 mm Allen key/ bit
- TX25 torx key/ bit
- Torque wrench (1 - 10 Nm) and bit holder

To assure the front fender does not become loose while biking, please follow the below procedure, and follow all torque specifications (refer to the figures):

1. Remove the front wheel.
2. Remove the old fender.
3. Remove the end pieces, cover strip and the fender stay.




*Correct mounting of the aluminum front fender is very important, for safety reasons*

**⚠ WARNING.**
**Using a fastening bolt with incorrect length and type may cause the bolt and fender to get loose, possibly leading to accidents, serious injuries, or even death.**
**It is very important to use the correct front fender bolts and other fender parts provided by Trek to install the front fender (please refer to the table below for P/N's).**

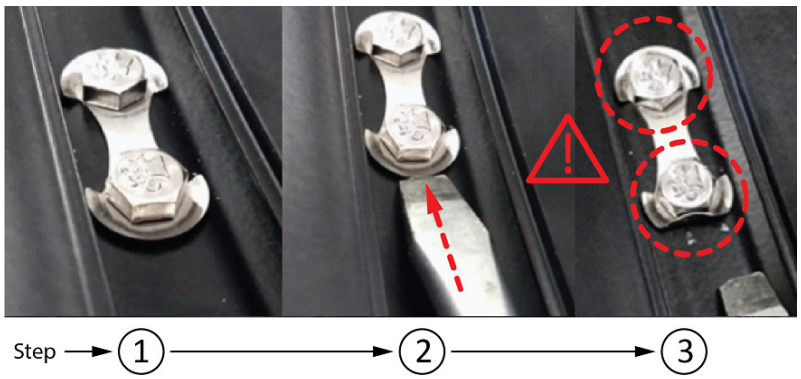
| | | | |
|---|---|---|---|
| 1 | Bolt, 2x, M5x14mm, A2, with Tuflock patch*.<br>Torque: 4 Nm<br>• Trek Allant+ 8/8S: P/N W584856 (2x)<br>• Trek Allant+ 9.9/9.9S: part of kit P/N W579387<br>• Diamant Supreme+: part of kit P/N W579387 | 4 | End piece (2x) |
| | | 5 | Screw M2.26x 0.91x5mm (4x) |
| | | 6 | Bolt, 2x - L&R, M5x0.8x12mm, black, with thread locker*.<br>Torque: 4 Nm |
| 2 | Bolt locking tab*<br>• Trek Allant+ 8/8S: P/N W583811<br>• Trek Allant+ 9.9/9.9S: part of kit P/N W579387<br>• Diamant Supreme+: part of kit P/N W579387 | 7 | Washer, 2x - L&R, M5, A2 |
| | | 8 | Fender stay |
| 3 | Plastic cover strip | 9 | Bolt M6x14 mm, washer and nut fender stay.<br>Torque: 5 Nm |

***NOTICE.**
- **If the fender must be reinstalled, use new bolt(s) (pre-coated with Loctite) or clean the old bolt(s) and apply Loctite 243 (blue) to the first 2/3 of the threads.**
- **ALWAYS apply a new bolt locking tab!**

4. Mount the new front fender to the fork.
   Use a new bolt locking tab (2) under the two M5x14 mm bolts (1) to attach the fender under the fork crown.
   Torque the two bolts to 4 Nm.
5. Use a flat screwdriver to bend both ends of the locking tab (2) as shown on the next page.

   ***Note.***

   *You only need to bend one side per bolt.*




6. Mount the fender stay (9) to the new fender. Torque: 5 Nm.
7. Use the rails in the fender to slide the plastic cover strip (3) onto the fender.
8. Use the two M2 screws (5) to install the end pieces (4).
9. Use the two M5x0.8x12mm bolts (6) and washers (7) to attach the fender stays (8) to the fork.
   Torque the two bolts to 4 Nm.
10. Refit the front wheel.
11. Test the brake for normal operation.

### 7.9 Replacing the rear fender

The rear fenders are of aluminum or plastic, following the material of the front fender.

Bicycles with a luggage rack are always equipped with aluminum fenders, as the rear fender is an integrated part of the luggage rack mounting.

Both rear fenders are equipped with a wire channel to guide electrical wires to the end of the bicycle.

- **Plastic rear fender**

The rear fender is attached to the bicycle at four locations; at the chain stay bridge, seat stay bridge, hidden rear rack bracket and rear fender stay. The hidden fender bracket gives the fender its stiffness, supports the rear rack and also acts as the guidance of the wiring to the rear light(s).

Be aware of the light wire running through the fender bracket and notice the location the applied spacers on the chain stay bridge and seat stay bridge.

On bicycles with slotted dropouts (belt drives), the thickness of the spacer at the chain stay bridge might change depending of the position of the dropouts, due to adjusting the belt tension.

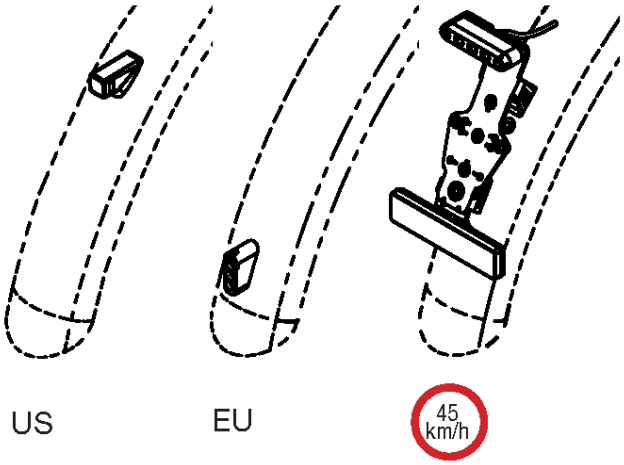
- **Aluminum rear fender**

Because the bicycles with an aluminum rear fender come in different rear light configurations, Trek has created an “universal” aluminum rear fender as a replacement part to fit to all configurations, without pre-drilled holes for the lighting.
The replacement fender has a decal to indicate the location of the holes for the different rear light configurations.
The replacement rear fender has P/N 593521 for use on carbon frames and P/N 593522 for use on aluminum frames. The rear fender for aluminum frames can be recognized by the slotted hole at the seat stay bridge position.

The work instruction will be a guide through drilling and mounting a new rear fender if the original fender is damaged.



*Replacing the fender will imply to drill holes to fit in place*



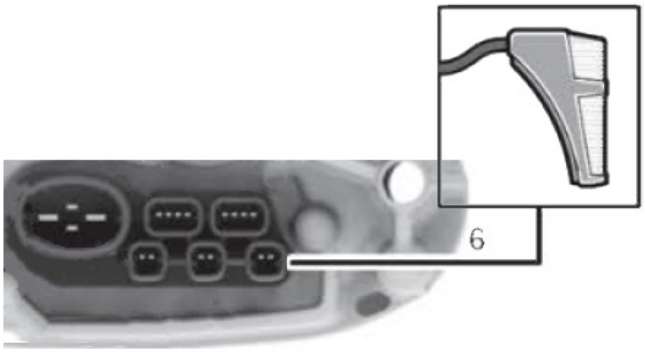

*The possible rear light configurations*

### 7.9.1 Removing the old rear fender

To remove the old fender, follow these steps:

1. Remove the rear wheel, cranks and drive unit covers.
2. Remove the cover of the electric connection at the drive unit.
3. On non-Type Approval bicycles: disconnect the connector of the rear light (position 6) and free the cable from drive unit and frame.
   On Type Approval bicycles, cut the cable wires at the Y-connectors, and free the cable from drive unit and frame.

   *Tip. Make notes of the wiring colors connected together.*




*Disconnect the rear light connector at position 6*

4. Remove all bolts that holds the fender to the frame, (if present) fender stay and the rear rack or luggage rack.
5. Carefully remove the fender with the light(s) attached, do not damage the cable.
6. Carefully free the light cable from the fender.
7. Remove the rear light (or, if present, the rear light - brake light – license plate light unit) from the old fender.
8. If present, remove the rear reflector.
9. If mounted, remove the fender end piece.

*Save all spacers, screws, bolts, washers and clips for re-use. Keep the old fender nearby for reference.*

### 7.9.2 Mounting the new plastic rear fender

There is no special instruction to replace the plastic rear fender.

1. Mount the lighting to the new fender.
2. Guide the lighting wire through the cable cover on the fender.
3. Mount the plastic fender in reverse order.
4. Connect the wiring to the drive unit.
5. Mount the rear wheel, cranks and drive unit covers.
6. Test the bicycle for normal operation.

### 7.9.3 Mounting the new aluminum rear fender

The replacement aluminum rear fender must first be prepared to fit on the bicycle; holes for the lighting differ on the bicycles rear light configuration and should be drilled at the correct location.

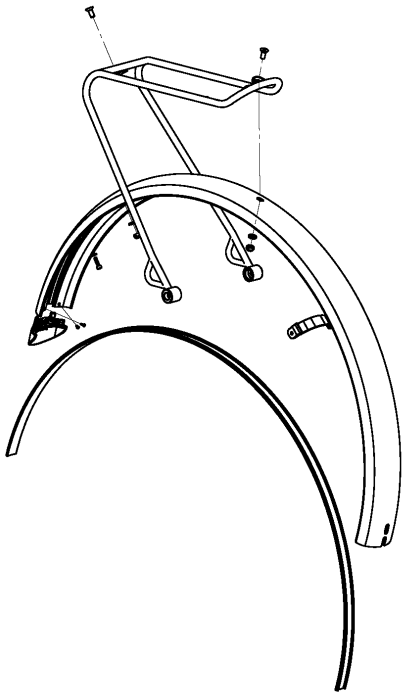
***Note.***
*This operation should only be performed by a qualified mechanic.*

Needed tools:

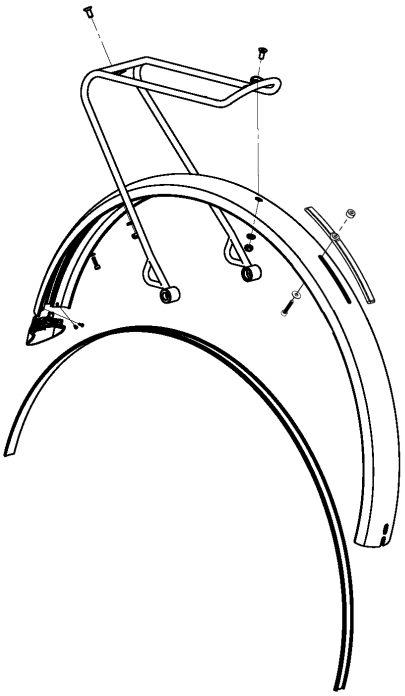
- Soft-jawed vice
- Safety Glasses
- Drill
- Set of metric drill bits
- Round ("Rat Tail") file

Needed parts:

- Replacement rear fender, P/N 593521 (for carbon frame) or P/N 593522 (for aluminum frame)
- Loctite 243
- Keep the old spacers, bolts and nuts for re-use

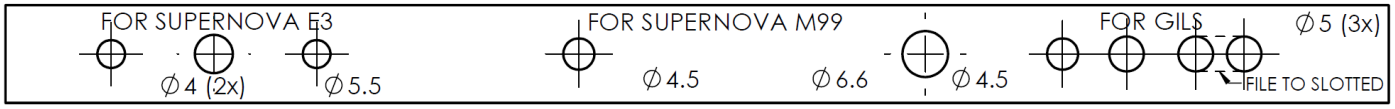


*Fender P/N 593521 for carbon frame*



*Fender P/N 593522 for aluminum frame with slotted hole*

#### 7.9.3.1 Marking the lighting holes on the new aluminum fender




*Decal on the fender to indicate the correct spot to drill the holes*

The replacement rear fender has decals on its underside, showing all possible drilling locations.
Reference the hole locations in the original fender, or test fit the replacement fender on the bicycle, to determine which holes need to be drilled.

*Tip. Mark the hole locations on the decal with a marker.*

It is necessary to drill new holes for:

- The rear light (between 4 mm and 6.5 mm, refer to the decal),
- And on some models, a rear reflector (6 mm).

#### 7.9.3.2 Drilling holes in the replacement aluminum rear fender

To drill the marked holes, follow these steps:

1. Secure the replacement fender in a soft jawed vice. Use a protective cloth.
2. Drill pilot holes in the marked location, using a drill bit one size smaller than the diameter indicated on the fender decal. The pilot holes will help guide the full-sized drill bit to ensure the final hole is centered.
3. Remove the fender from the vice and check the location of the pilot holes on the bicycle.
4. Once satisfied, return the fender to the soft-jawed vice.
5. Complete the holes, using the full-sized drill.
6. Use the round file to smooth and de-burr the new holes.

#### 7.9.3.3 Mounting the new fender to the bicycle

To mount the new fender, follow these steps:

1. Refit all components in reverse order to the new fender.
2. Lead the cable through the built-in channel and mount the plastic strip that protect and secure the cable. Be sure not to damage the cable.
3. Mount the new fender to the luggage rack and the bicycle's frame.

   ***Notes.***

   - *Be sure not to trap the light cable between frame and fender.*
   - *Be sure to apply the correct size bolts and washers.*
   - *Be sure to apply some Loctite 243 to all threaded fasteners.*

4. Lead the light cable to the drive unit.
5. Reconnect the wires correctly (refer to paragraph 4.2.1, 4.2.2 or 4.2.3 on page 24 and 25).
   On non-Type Approval bicycles: connect the light connector to the rear light port on the drive unit.
   On Type Approval bicycles: use Y-connectors or solder the wiring and insulate the wiring with heat shrink to restore the connection. Connect the wiring to the rear light port on the drive unit.
6. Refit all covers to the drive unit.
7. Refit the cranks and the wheel.
8. When finished, check the rear lighting for correct operation.

### 7.10 Replacing the rear rack

The Trek Allant+ 8, 8S, 9.9S and Diamant Zouma Supreme+ (/S) models are equipped with a luggage rack; all other models are equipped with a standard rear rack.

#### 7.10.1 Replacing the standard rear rack

The rear rack is mounted to the frame by means of a hidden rack stay at the front and connected to the dropouts at the rear end. The rear light and, if present, a license plate holder is/are mounted to the rear rack.

***Note.***
*On bicycles with belt drive, it is not necessary to loosen the slotted dropouts to replace the rear rack.*

Follow these steps to replace the rear rack (refer to the next figure):

1. Remove the rear wheel.
2. Remove the bolts of the rear light and, if present, the license plate holder (1) and put the rear light aside.

   ***Note.***
   *Is is not necessary to disconnect the rear light.*

3. Remove the bolt at the top (2) and the two bolts at the left and right dropout (3, 4).

   ***Note.***
   *The fender is supported with a fender stay at the rear end and the hidden rack stay in the middle.*

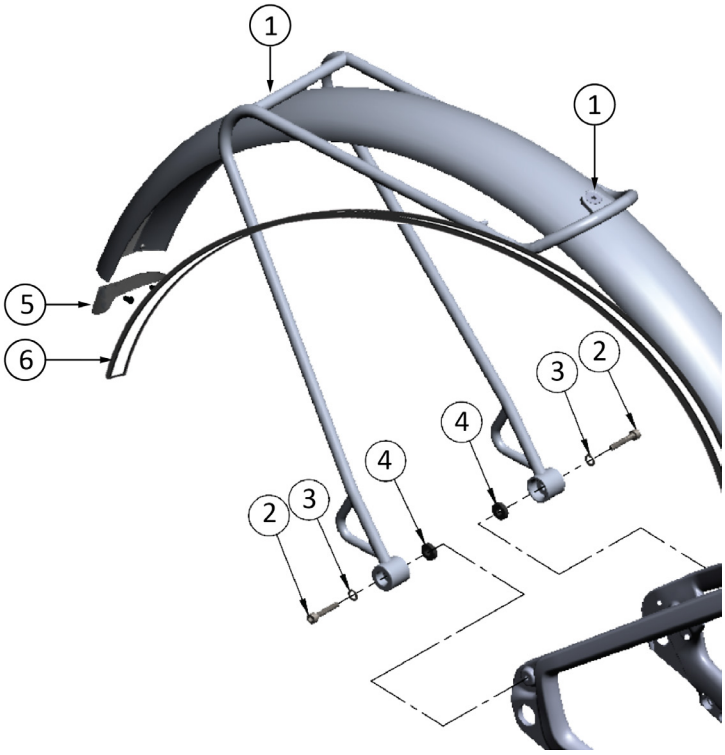
4. Mount the new rear rack in reverse order.
5. Refit the rear light and, if present, the license plate holder.
6. Refit the rear wheel.
7. When finished, check the rear lighting for correct operation.




*Replacing the standard rear rack*

### 7.10.2 Replacing the luggage rack

The luggage rack is designed to support the rear fender – it is an integrated part, together with the dropouts, of the rear part of the bicycle. The top side of the luggage rack is mounted to the rear fender; the rear fender acts as an integrated rack stay to the frame.
Between frame and fender, a spacer is applied. At the lower end, the luggage rack is mounted to the dropouts.




| | | | |
|---|---|---|---|
| 1 (2x) | • Countersunk bolt M6x14mm<br>• Stainless washer 6.5x12x1.5mm<br>• Nylock nut M6. Torque: 5 Nm | 4 (2x) | Aluminum spacer Ø14X5.5, H=4 mm |
| | | 5 | End piece (attached with two small screws) |
| 2 (2x) | Bolt M5x25 mm. Torque: 5 Nm | 6 | Cover strip |
| 3 (2x) | Washer M5 | | |

*Replacing the luggage rack*

Follow these steps to replace the luggage rack (refer to the figure above):

1. Remove the rear wheel.
2. Remove the end piece (attached with 1 screw).
3. Remove the plastic strip that covers the built-in channel.
4. Remove the four bolts (pos. 1 and 2) and remove the luggage rack.

   ***Note.***
   *The fender is strong enough to stay in place during the replacement without support.*

5. Mount the new luggage rack in reverse order.
   Torque the bolts as indicated in the table above.
6. Refit the plastic strip and end piece.
7. Refit the rear wheel.

### 7.11 Replacing the fork

The bicycles can be equipped with an aluminum rigid fork, carbon rigid fork or suspension fork.
At the carbon rigid fork, the front light wire and front brake hose run through the fork.

#### 7.11.1 Replacing a suspension or aluminum rigid fork

Follow these steps to replace a suspension or aluminum rigid fork:

*Tip.*
*Look for a 50 cm (20 inch) long wooden or metal stick (+/- Ø 28 mm (1 1/8 inch) to function as a dummy steerer tube. The function of the dummy is to keep the wires and cables around the steerer tube in place when removing the fork.*

1. Switch off the assist system and remove the battery.
2. Remove the front wheel, front fender, front brake/caliper, light bracket and stem from the fork.
3. Remove the fork.

   ***Note.***
   *While moving the fork downwards, replace the steering tube with the dummy steering tube to keep the wires and cables in place.*

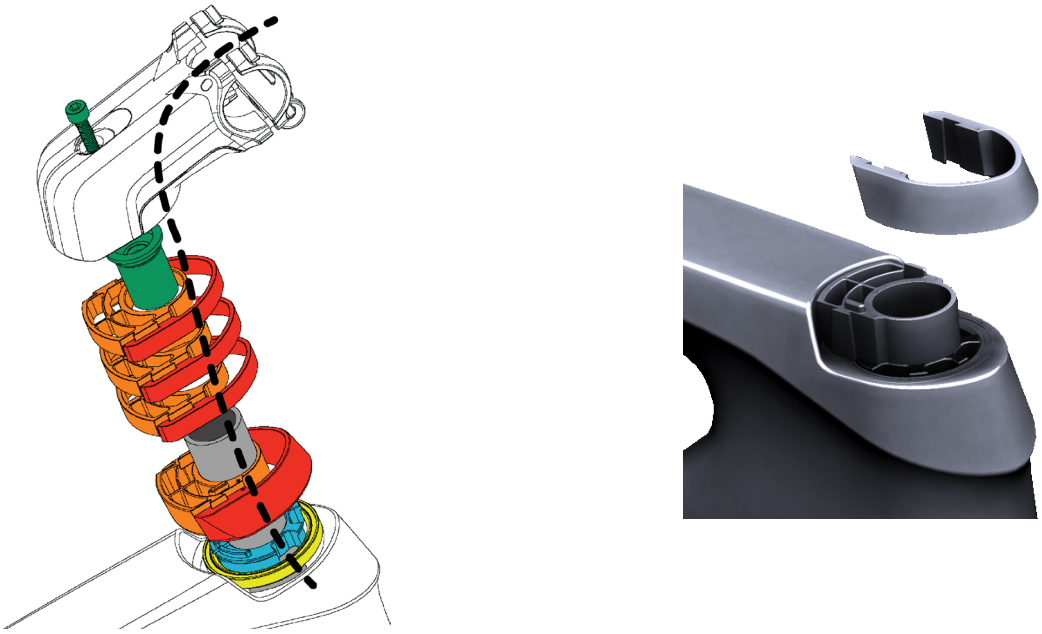
4. Mount the new fork and all other parts in reverse order.
   Be *careful not to damage any wiring or cables in the head tube and be aware that the bearings are in place.*

**NOTICE.**
**When mounting the front fender, it is very important to follow the steps in paragraph 7.8.1. on page 50 and to follow the indicated torque specifications.**

**WARNING.**
**An incorrectly installed fastener could cause the bicycle to stop suddenly, causing a serious accident. Only use the fasteners supplied with the bicycle, and follow all torque specifications as indicated in paragraph 7.8.1 on page 50.**

#### 7.11.2 Replacing a carbon rigid fork

Replacing a carbon fork is complicated, as the cables and wiring run via the integrated stem for a clean look, and the front brake hose runs via the left fork leg.



*Overview of the stem - steerer tube mount*

Follow these steps to replace the carbon fork:

1. Remove the front wheel.
2. Remove the front fender. Refer to paragraph 7.8.2 on page 51 for **important** details.
3. Dismount the front brake hose from the disc brake caliper. Remove the brake caliper form the fork.
4. Check if brake hose has length enough left to be reused.
5. Remove the lower stem cover.
6. Loosen the two stem clamping bolts.
7. Remove the central stem bolt.
8. Remove the 2 part spacers and frame top cap.
9. Remove the stem from fork.
10. Check and remember cable routing around the steerer tube. *Tip - make a picture.*
11. Lower the fork.
12. Check if the steering angle limiter part is in good shape.
13. Remove the expander and lower head set bearing.
14. Measure the original steerer tube length.
15. Cut new fork to length.
16. Install the expander and add the lower head set bearing.
17. Guide the brake hose in the fork.
18. Carefully install the fork back in the frame and take care of positioning the hoses in their correct position.
    *Be careful not to damage any wiring or cables in the head tube and be aware that the bearings are in place.*
19. Reinstall others parts in reverse order

    ***Note***.
    *Replace any part damaged in the process.*
20. When the fork is in place, adjust the play of headset with the central stem bolt.
    Suggested torque: 2 Nm.
    Refer to paragraph 5.2 “5.2  Handlebar mounting (on Trek Allant+ 9.9 /9.9 S (Non-EU))” on page 28 for details.
21. Mount the front fender, refer to paragraph 7.8.2 on page 51 for **important** details.

**NOTICE.**
**When mounting the front fender, it is very important to follow the steps in paragraph 7.8.2. on page 51 and to follow the indicated torque specifications.**

**⚠ WARNING.**
**Using a fastening bolt with incorrect length and type may cause the bolt and fender to get loose, possibly leading to accidents, serious injuries, or even death.**
**It is very important to use the correct front fender bolts and other fender parts provided by Trek to install the front fender (refer to the table at paragraph 7.8.2 on page 51 for P/N's).**

22. Mount the front wheel.
23. Mount the disc brake caliper, the front brake hose and bleed the brake system.
24. Test the bicycle for normal operation.

## 7.12 Replacing the drive unit

The Bosch Generation 4 drive unit is mounted to the frame with help of standard (Bosch) mounting brackets.

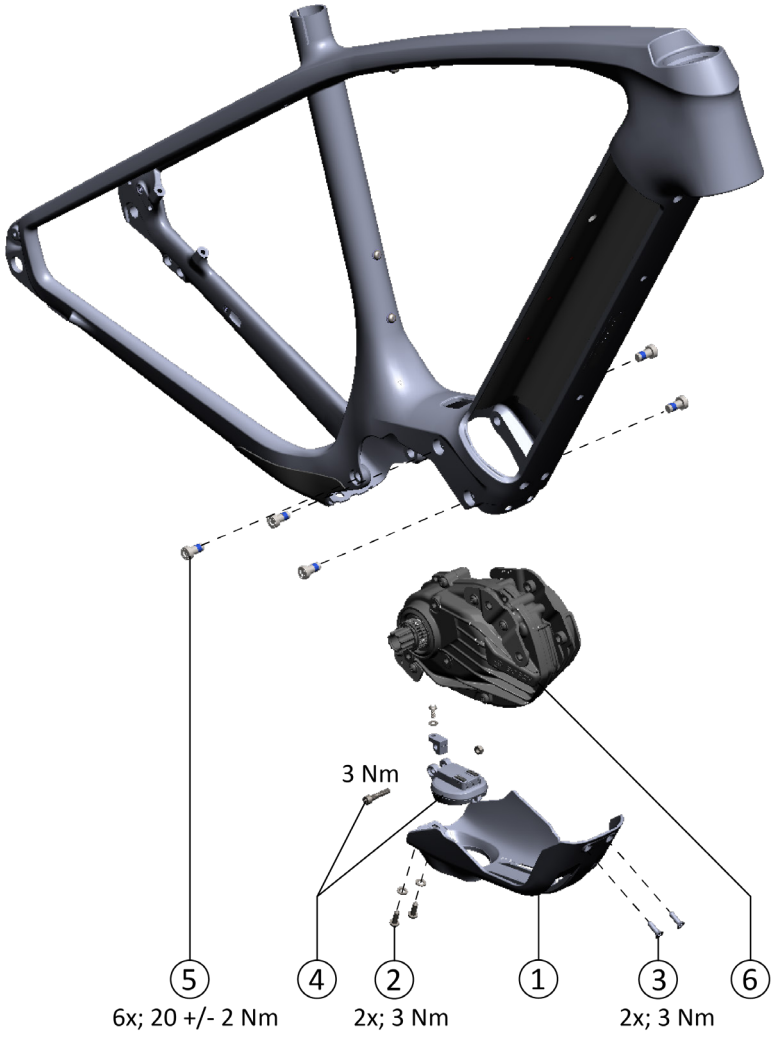
Needed tools:

- Torque wrench 10-60 Nm
- Torx Plus bit IP40 + bit holder
- Torx T25 tool
- Torx T20 tool
- Spider tool Gen 3/4



Torx Plus IP40

### 7.12.1 Drive unit mounting - technical drawing




*Mounting parts of the drive unit*

1. Motor guard
2. Bolts motor guard, 2x, ST4.8x16, TX25; torque 3 Nm
3. Bolts motor guard, 2x, countersunk, ST4.8x16, TX25, black; torque 3 Nm
4. Horn (on Speed Pedelecs), mounted with bolt M4x10, TX20, torque 3 Nm
5. Bolts drive unit, 6x M8x16, 10.9, Torx Plus IP40; torque 20 +/- 2 Nm
6. Drive unit, 4th generation

### 7.12.2 Removing the drive unit

**NOTICE.**
**On the Bosch drive units from MY2020, eight safety bolts are used for the screw connection of the mounting plates in the drive unit housing. Do not loosen these bolts.**
**Damage to the sealing of the threaded surfaces in the magnesium housing is not covered under warranty.**



*Do not loosen the indicated 8 bolts from the drive unit*

When removing the drive unit, follow these steps (refer to the picture on the previous page):

1. Switch off the assist system and remove the battery.
2. Remove the motor guard (1).

   ***Note.***
   *On Speed Pedelecs, an electric horn (3) is mounted on the motor guard.*
   *Leave the horn mounted to the motor guard, but be sure to tie up the dismounted motor cover with a ty-rap.*
3. Remove the cranks.
4. Remove the spider nut and next remove the chain/belt ring and chain/belt from the drive unit (5).

**NOTICE.**
**The spider nut has left-hand thread!**
**Apply the spider nut tool, same as for the Generation 3 drive units.**

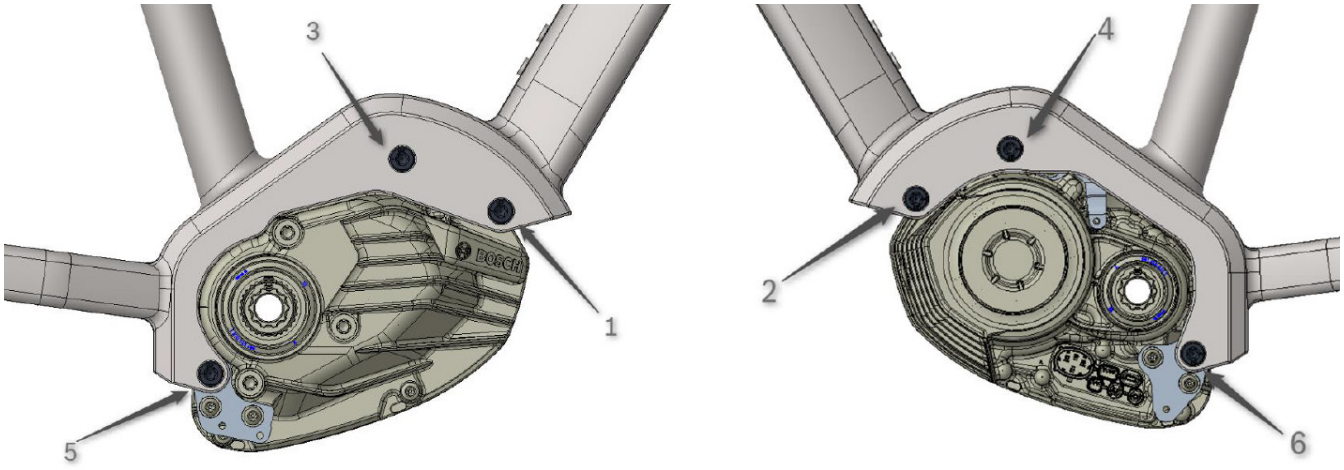
5. Remove the covers of the drive unit.
6. Disconnect all electrical connections.
7. Loosen the bolts (4, 6x) of the drive unit, manually support the drive unit.
8. Carefully remove the drive unit from the frame.

   *Tip. Take a picture, or notes, of the position of all cables to/near the drive unit.*

### 7.12.3 Installing the drive unit

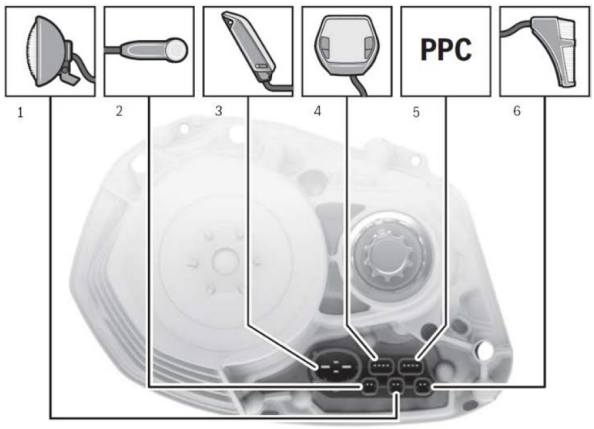
When installing the drive unit, follow these steps (refer to the picture on the previous page):

1. Thread all cables into the frame interface, make sure no cables are pinched.
2. Insert the drive unit against the frame.
3. Insert the 6 Torx Plus bolts (M8x16, micro-encapsulated) and tighten them loosely.
4. Tighten the 6 Torx Plus bolts with shown sequence below: 1 -> 2 -> 3 -> 4 -> 5 -> 6
   (Alternative sequence: 1 -> 3 -> 5 -> 2 -> 4 -> 6).




*The tightening sequence of the drive units mounting bolts*

5. Route the wiring correctly and connect the electrical connectors.

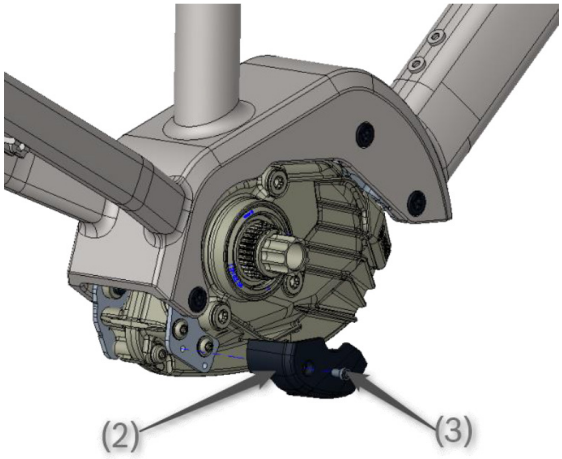



Connections at the drive unit:

1. Front light 12 V
2. Speed sensor
3. Battery
4. Controller
5. Power port connector
6. Rear light 12 V

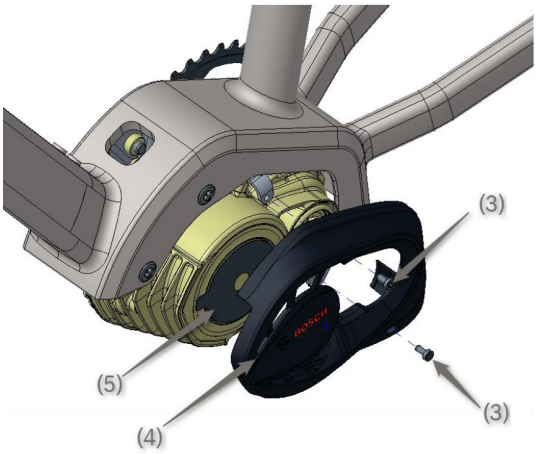
*Electrical connections at the drive unit*

6. Position the cover (2) on the assembly plate at the drive side.
   Tighten the Torx screw (3) (4x8 mm, self-tapping)
   Torque first assembly: 3 +/- 0.5 Nm, subsequent installation: 2 +/- 0.5 Nm



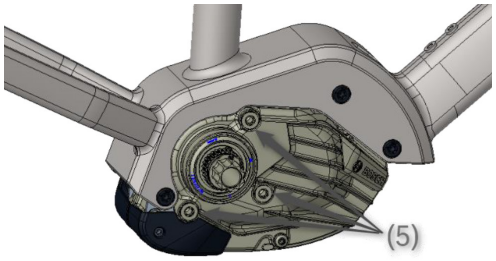

*Installation of the cover at drive side*

7. Mount the drive units cover at non-drive side.
   a. Remove the protection foil (5),
   b. Engage the cover (4) with the front rib
   c. Move the rear part of cover completely towards the drive unit
   d. Tighten the two Torx screws (3) (4x8 mm, self-tapping)
      Torque first assembly: 3 +/- 0.5 Nm, subsequent installation: 2 +/- 0.5 Nm




*Mounting the drive units cover at non-drive side*

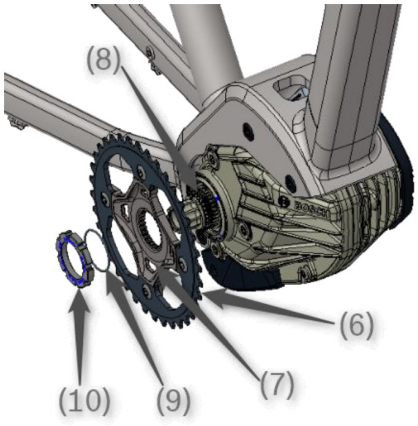
8. On some Diamant Zouma+ and Opal+ bicycles, mount the chain guard assembly.
   a. Mount the adapter of the chainguard to bolting points (5).
      Use M6X9 mm bolts with low head (max.height 5mm).
   b. Tighten the bolts. Maximum torque 5 Nm.




*Position of the bolts of the chain guard assembly*

9. Mount the chain/belt and spider assembly.
   a. Grease the bottom bracket shaft tooth profile (8)
   b. Mount the chain/belt, ring and spider assembly (7) onto the shaft.
   c. Push the O-Ring (9) up to the spider assembly.
   d. Mount the spider nut, tighten with a torque of 25 to 30 Nm.

**NOTICE.**
**The spider nut has left-hand thread!**
**Apply the spider nut tool, same as for the Generation 3 drive units.**



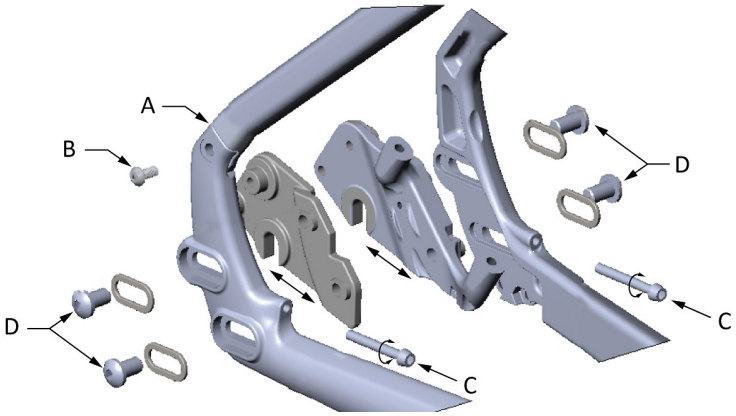

*Mounting the chain/belt ring and spider assembly*

*10. For bicycles with a belt drive: check/adjust the belt tension.*
11. Remount the cranks; be sure to place the left crank at the left side and visa versa.
12. Insert the battery and test the assist system for normal operation.

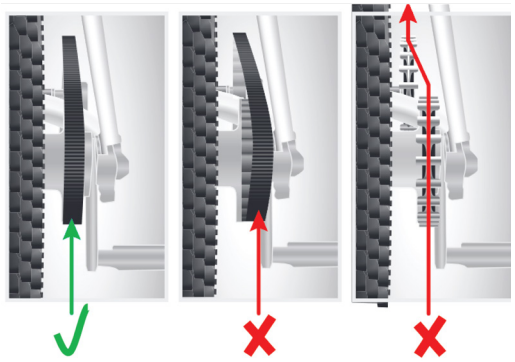
## 7.13 Belt drive

The Trek Allant+ 9S and Diamant Opal Esprit+ Men/Stagger models are equipped with a Gates CDX belt drive. The frames of these bicycles have a frame split to replace the belt and slotted dropouts and bolts to adjust the belt tension. *Tip. More details can be found on the internet, https://www.gatescarbondrive.com.*

### 7.13.1 Replacing the belt




A. Frame split
B. Frame bolt (5 Nm)
C. Tension adjust bolt
D. Dropout bolts (8 Nm)

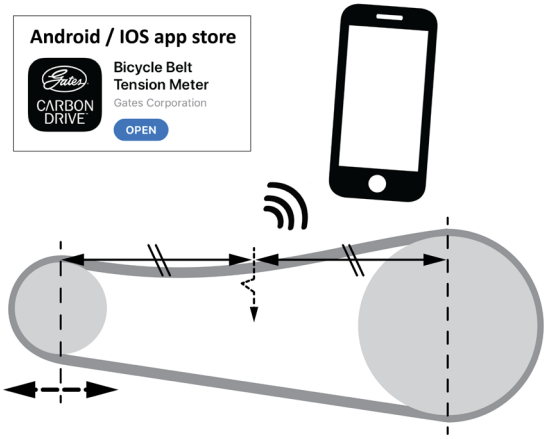


*Proper alignment of the belt on the sprockets*

Follow these steps to replace the belt:

1. Loosen bolts 'D' a few turns.
2. Release the tension of the belt by turning bolts 'C' a few turns (counterclockwise).
3. Remove frame bolt 'B'.
4. Remove the old belt.
5. Place the new belt.
6. Close the frame, tighten the frame bolt 'B' to 10 Nm.
7. Ensure that the belt is properly aligned on the belt sprockets.
8. Adjust the belt tension by turning bolt 'C' clockwise untill the proper tension is reached (see next paragraph for details). Ensure that the tracing of the rear wheel is correct.
9. Tighten the dropout bolts 'D' to 19 Nm.

### 7.13.2 Adjusting the belt tension




*Adjusting the belt tension with help of a smartphone and an app*

Follow these steps to adjust the belt tension:

1. Install the Bicycle Belt Tension Meter on a smartphone (Android/ IOS app store).
2. Loosen bolts 'D' a few turns.
3. Use the app to adjust the belt tension by measuring the sound of the turning belt.
   Turn bolts 'C' in- or out until the tension is correct, ensure that the tracing of the wheel is also correct
4. Tighten the dropout bolts 'D' to 19 Nm.

*Tip. More details can be found on the internet, https://www.gatescarbondrive.com/resources/handling-and-tension.*

# 8 Spare parts

## 8.1 Spare parts - General

Spare parts can be ordered from www.trekbikes.com.

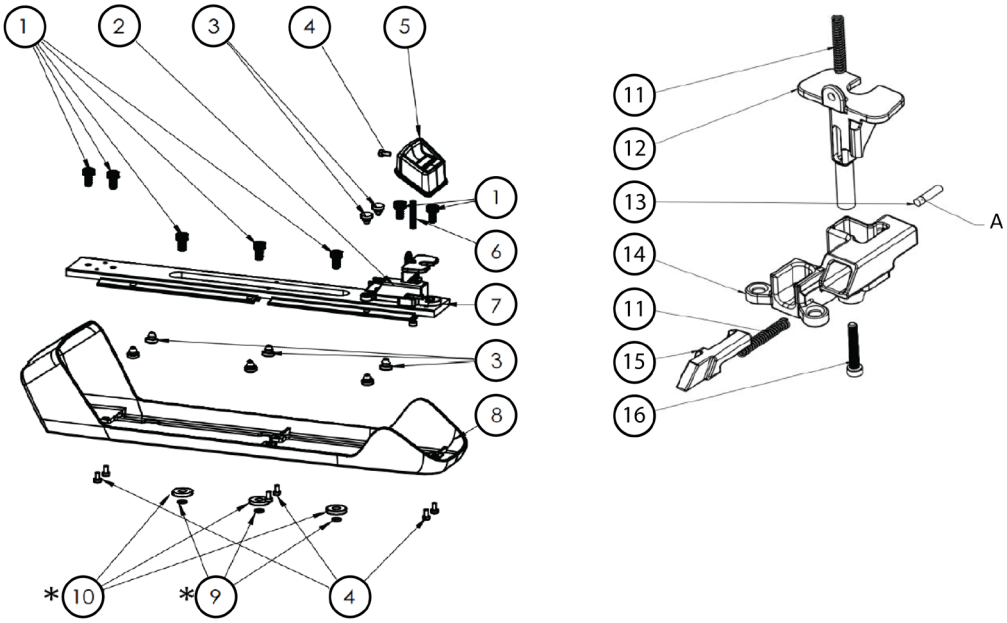
Once logged in as a dealer, goto the involved bicycle and scroll down to technical information and spare parts of the specified bicycle.
(Once available, you can enter the S/N of the involved bicycle to go to the information directly.)




## 8.2 Spare parts - Bosch e-Bike System

Spare parts of the Bosch e-Bike System can be ordered via the Bosch/Magura webshop.

## 8.3 Spare parts - Range boost




(A) Press fit

*See table on the next page for number references.*

*Table spare parts - Range boost*

| Part | P/N | Description | Qty | Remarks |
|---|---|---|---|---|
| 1 | 597994 | Bolt, M5x0.8x10 mm, stainless steel socket head cap screw | 7 | 5 Nm |
| 4 | | Bolt, M3x0.5x6 mm, stainless steel low profile socket head cap screw | 7 | 0.2 Nm |
| 9* | | O-ring 4IDx1.5W Buna N medium black, round | 3 | - |
| 10* | | Spacer; od15.5 mm x id6.2 mm x 3 mm; aluminum | 3 | - |
| 2 | W582440 | Lock Trek Range Boost black | 1 | - |
| 3 | 579326 | E-Bike part Trek integrated Bosch battery bumper kit | 8 | - |
| 5 | W579951 | Lock part Trek Range Boost release button cover black | 1 | - |
| 6 | W582440 | Spring, 302 stainless, 25Lx4D, 0.5 wire diameter | 1 | - |
| 7 | W579946 | Battery part Trek Range Boost rail mount plate silver | 1 | - |
| 8 | W579947 | Battery part Trek Range Boost shroud Black | 1 | - |
| 11 | W582440 | Spring steel; thickness: 0.33 mm, length 20 mm | 1 | - |
| 12 | | Plunger for range extender keyless lock | 1 | - |
| 13 | | Dowel 12 mm long and stainless steel | 1 | - |
| 14 | | Body for range extender keyless lock | 1 | - |
| 15 | | Latch for range extender keyless lock | 1 | - |
| 16 | | Bolt, M3x0.8x20 mm stainless steel, socket head cap screw | 1 | - |
| **Only applied when mounting the holder on a carbon frame, see mounting instruction at paragraph 6.3 on page 32.* | | | | |
| Trek | 588519* | Kit, Battery Trek Range Boost UL, black (US Version) | | |
| Trek/Diamant | 588520* | Kit, Battery Trek Range Boost CE, black (EU Version) | | |
| ***Important note**. Only works with a 500 Wh or 625 Wh Bosch battery; **not** compatible with a 300 Wh or 400 Wh Bosch battery.* | | | | |
| Trek/Diamant | W581750 | Tool Trek drive unit hanger for Bosch system, black (S-hook) | 1 | - |
| | | | | |
| Bosch | W584064 | Frame part; Trek Range Boost Y-cable plug black | 1 | - |
| Bosch | 1.270.022.024 | Battery mounting holder left + plug cover | 1 | - |
| Bosch | 1.270.015.053 | Battery holding frame | 1 | - |
| Bosch | 1.270.015.052 | Battery mounting holder right | 1 | - |
| Bosch | 1.270.016.504 | Bosch battery cable 220 mm DT | 1 | - |
| Bosch | 0.275.007.930 | Dual bat Y-adapter incl. acc kit long (515 mm/430 mm) | 1 | - |
| Bosch | 1.270.016.418 | Screw M3.5x12 mm thread forming | 1 | - |

## 9. Model specific operating instructions

Please refer to the e-bike owners manual for comprehensive operating instructions.

### 9.1 Charging the battery

The battery can be charged on the bicycle or can be removed from the bicycle to be charged elsewhere.

To charge it elsewhere, remove the (single) battery by turning the key clockwise to unlock the battery and take the battery from the battery bay.

For charging on the bicycle, flip the cover of the integrated charge port upwards and connect the charger to the battery docking and mains.

When the bicycle is equipped with a Range Boost (dual) battery setup, both batteries will be charged (if fitted). To begin with, both batteries are charged *one after the other* until they reach approx. 80–90 % capacity, then they are both charged at the same time until full (the LED flashes on both batteries).

***Note.***
*The total charge time, with two batteries connected to the charger, will increase.*
*It is recommended to use the 4A battery charger to charge both batteries as fast as possible.*

Refer to the e-Bike owner's manual delivered with the bicycle for more details about charging in single and dual battery setup.




*Charge port on the bicycle*

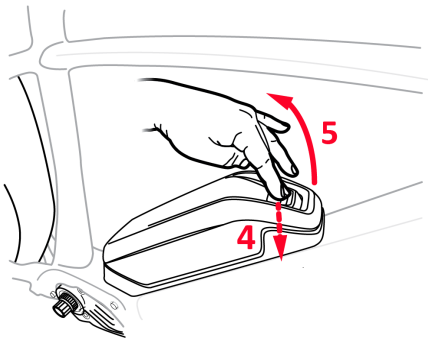
### 9.2 Battery removal/installation

#### 9.2.1 Battery removal - integrated battery

To remove the battery, unlock the lock by turning the key clockwise (1). The battery will spring loose, but is kept in place by the security lock (2). Lift the battery out of the upper holder by pressing the security lock (3) and pull it out of the lower holder to remove the battery from the bicycle. The key automatically returns to the rest position.




*Removal of the integrated battery*




*Removal of the Range Boost battery*

#### 9.2.2 Battery removal - downtube battery (Range Boost battery setup)

To remove the Range Boost battery of the dual battery setup, first the integrated battery must be removed. With the integrated battery removed from the battery bay, press the Range Boost battery unlock button (4) to release the Range Boost battery. The battery will spring loose.

Lift the battery out of the upper holder (5) and pull it out of the lower holder to remove the battery from the bicycle.

### 9.2.3 Battery installation - integrated battery

***Note.***

*If applicable, install the Range Boost battery first.*

To place the integrated battery, first position the battery in the lower holder and press it sidewards into the battery bay, until you hear a 'click' until you hear a 'click' as the battery locks itself in the holder. Once the battery is in place, turn key to the locked position and remove it.

***Note.***

*With the integrated battery installed, the safety lock may not be visible anymore; else press the battery further into the battey bay.*

### 9.2.4 Battery installation - downtube battery (Range Boost battery setup)

To place the Range Boost battery, first position the battery in the lower holder and press it downwards into the holder, until you hear a 'click' as the battery locks itself in the upper holder.

## 9.3 Operating the Bosch e-Bike assist system

For operating instructions about the Bosch e-Bike assist system, refer to the e-Bike owner's manual of the bicycle (see Chapter 10 on the next page).

## 9.4 Lighting

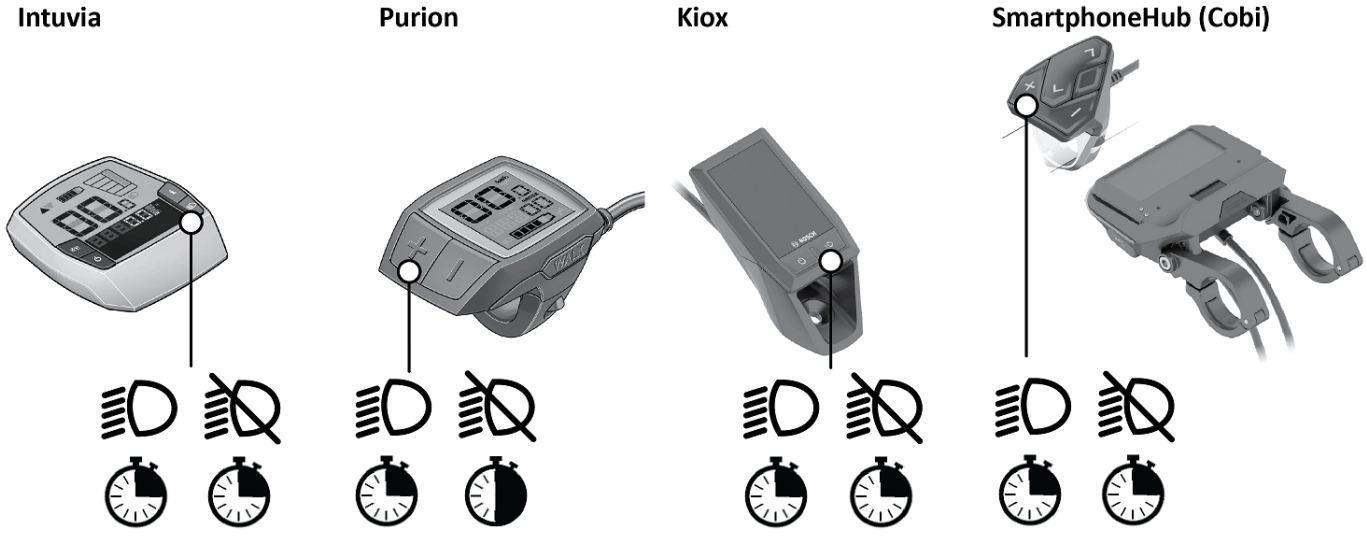
### 9.4.1 Switching the lights On/Off on non-EU-Type Approval bicycles

The front and rear light of these models can be switched On/Off manually on the display.

The models can be equipped with either a Purion, Intuvia, Kiox or SmartphoneHub (Cobi) controller, depending on configuration of the bicycle.

- Intuvia - Kiox
  These controllers have a light button on the controller, short-press the button to switch the lights On, or Off.
- Purion and SmartphoneHub (Cobi)
  On these controllers, the lights can be switched On by pressing the "+" button shortly; the lights can be switched Off by long-pressing this button.

When the front and rear light are switched On, a lighting symbol is displayed.




*Overview - the buttons to press to switch the front and rear lights On/Off*

### 9.4.2 Front and rear lights on 45 km/h EU-Type Approval bicycles (Speed Pedelecs)

The lights on 45 km/h EU-Type approved bicycles are always On (even if the assist level is zero), this is a legal requirement. These electric devices are electrically connected to the light ports of the drive unit.

The Trek Allant+ 9.9S and Zouma Supreme+ S models are equipped with a Supernova Pure+ front light; this front light has a low beam and a daytime running light.

Depending on the darkness outside, measured by a light sensor, the front light will be in daytime running modus or low beam modus automatically.

The 45 kmh Speed Pedelec models also have an integrated rear brake light and a license plate light, both part of the rear lighting.

### 9.5 Horn and horn switch on 45 km/h EU-Type Approval bicycles (Speed Pedelecs)

The mandatory horn is hidden underneath the drive unit and mounted to the motor cover.
Press the horn switch to sound the horn.



*Horn switch on the handlebar*

## 10. E-bike owner's manuals

### 10.1 E-Bike owner's manuals - content and languages

The content of the owner's e-bike manual delivered with the bicycles is dependent on the region of sale and the exact configuration of the applied Bosch system parts.

The e-bike specific owner's manual contains the operation of, and detailed information about the Bosch e-Bike Assist system and the safe use of electrically assisted bicycles.

***Note.*** *For 'general' bicycle information, please refer to the Trek or Diamant owner's manual, delivered with the bicycle.*

#### 10.1.1 E-Bike owner's manual for bicycles sold in Europe

The bicycles for the European market come with a printed edition of the owner's e-bike manual, in the most used languages in the country of sales.

These manuals are also available online at www.trekbikes.com/../manuals or https://www.diamantrad.com/bike-handbuecher/. Online additional translations are available (PDF).

#### 10.1.2 E-Bike owner's manual for bicycles sold in the US, Canada and Mexico

The bicycles for the North America region come with a US region - specific printed edition of the owner's e-bike manual in English, French and Spanish; also digitally available online (PDF).

### 10.2 E-Bike owner's manuals - online

Refer to Tech Site (E-Bike section) or go to http://www.trekbikes.com/us/en_US/manuals/ or https://www.diamantrad.com/bike-handbuecher/ for all available digital editions of the owner's e-bike manuals (PDF).

TREK

www.trekbikes.com

Diamant

www.diamantrad.com

## 11 Disposal

No longer used parts and packaging materials should be disposed of in an environmentally, correct manner according to local laws.

### 11.1 Disposal of electrical components

All electrical components, the drive unit, on-board computer including operating unit, battery pack, speed sensor, and accessories should be disposed of in an environmentally correct manner.
Do not dispose of these electrical parts into household waste!

### 11.2 Disposal of batteries

Because a battery pack contains certain harmful substances, it must be treated as chemical waste and may not be disposed as normal waste.

Tape or mask off the contact surfaces of the battery's terminals with adhesive tape before disposing of batteries.

When disposing a Powertube battery, strip the battery pack to the bare Powertube battery pack by removing all not standard (Trek-) parts; side plates, top cover and, if present, the spacer.
Do not open the battery pack itself!

*Only for EC countries:*
*According to the European Guideline 2012/19/EU, electrical devices/tools that are no longer usable, and according to the European Guideline 2006/66/EC, defective or used battery packs/batteries, must be collected separately and disposed of in an environmentally correct manner.*



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