

**TREK**



# 2023 Carbon Rail

9.5, 9.7, 9.8, and 9.9 Gen 4

SERVICE MANUAL

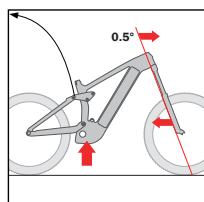
Rev 2 September 2023



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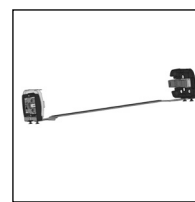
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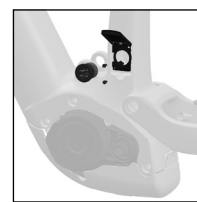
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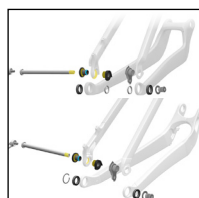
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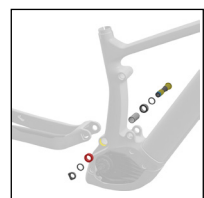
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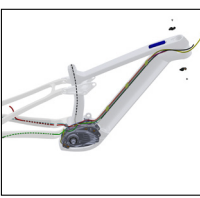
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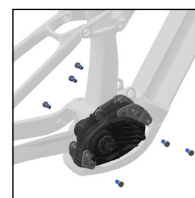
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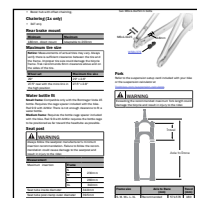
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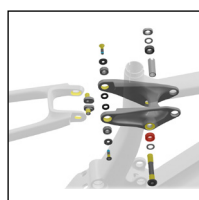
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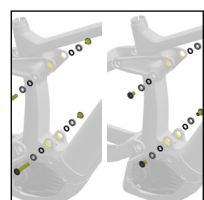
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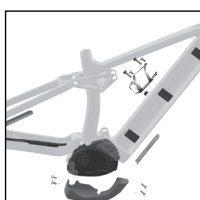
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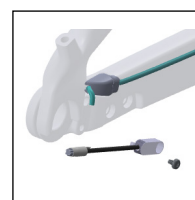
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## Safety



### WARNING

#### Properly tighten hardware

Always tighten hardware to the specified torque. Over-tightening hardware could deform or break the hardware or components. Under-tightening hardware could cause hardware or components to become loose. Either situation could damage the bicycle and result in injury to the rider.



### WARNING

#### Reapply threadlocker

All reused-fasteners with pre-applied threadlocker must be cleaned with isopropyl alcohol and have new threadlocker applied before re-assembly. If threadlocker is not applied, the fasteners may loosen which could damage the bicycle and result in injury to the rider.

## Legend



Apply grease



Do not apply grease



Apply threadlocker

Nm

Torque



Hex tool size



Torx tool

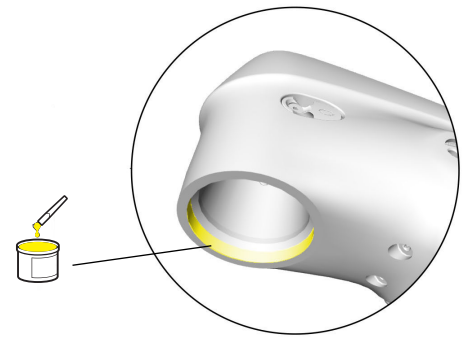
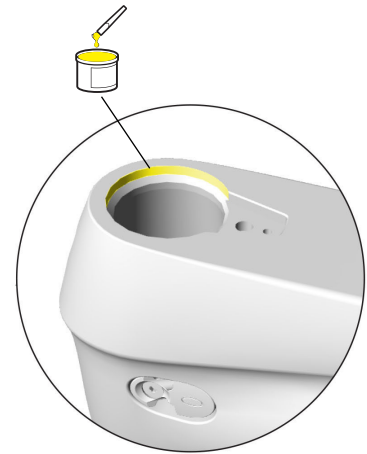
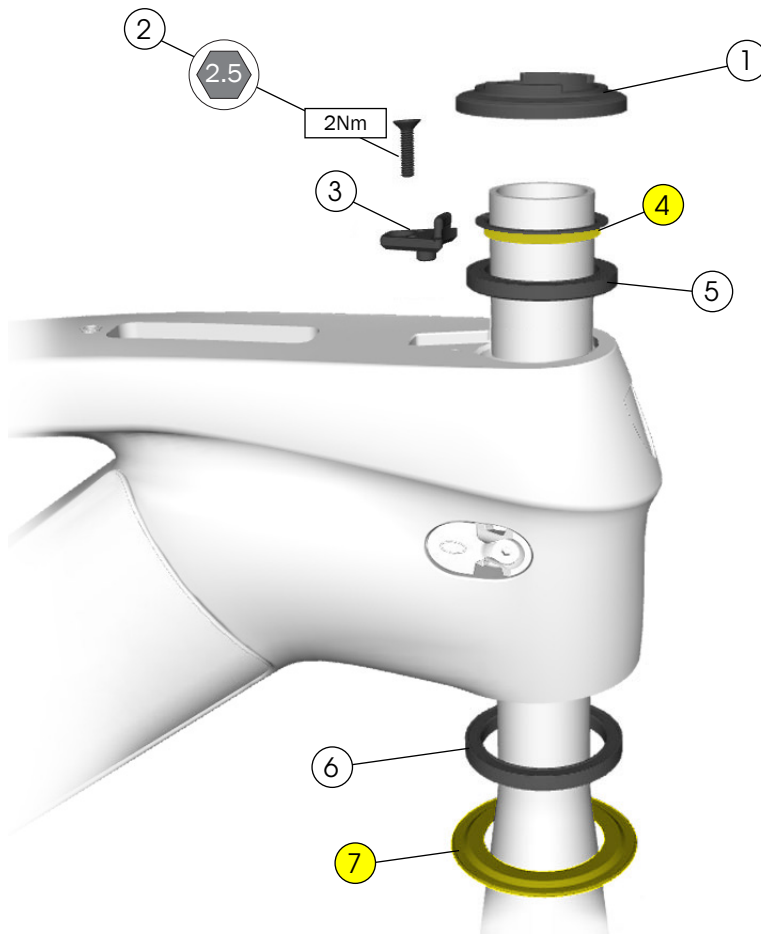


Drift size



Zip tie

# Headset with Knock Block



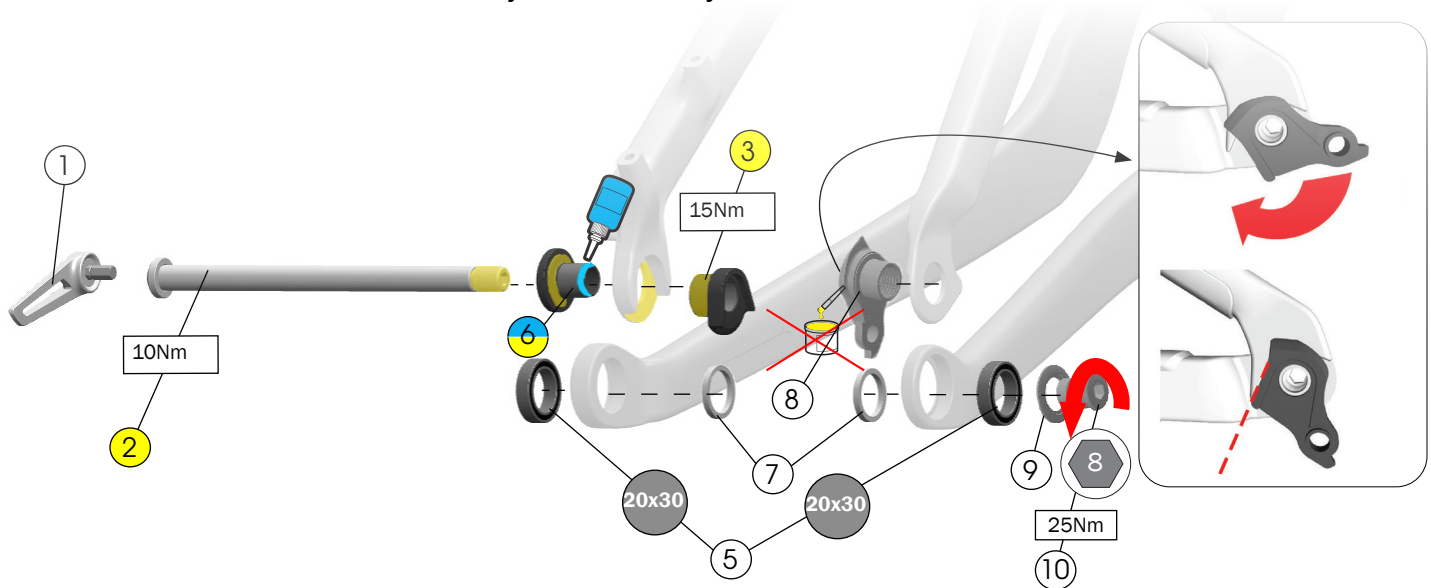
- |  |   |                           |
|--|---|---------------------------|
| <ul style="list-style-type: none"> <li>① Upper bearing cover</li> <li>② Chip bolt – <a href="#">W532763</a></li> <li>③ Knock Block chip</li> </ul>   | } | – <a href="#">5252161</a> |
| <ul style="list-style-type: none"> <li>④ Compression ring – <a href="#">W532842</a></li> <li>⑤ Upper bearing – <a href="#">W531676</a></li> <li>⑥ Lower bearing, 1.8" diameter – <a href="#">W5269809</a></li> <li>⑦ Crown race, for 1.5" diameter lower bearing (Rail 9.5) – <a href="#">W5269810</a><br/>Crown race, for 1.8" diameter lower bearing Rail 9.7, 9.8, 9.9) – <a href="#">W5283203</a></li> </ul> |   |                           |

## Tools

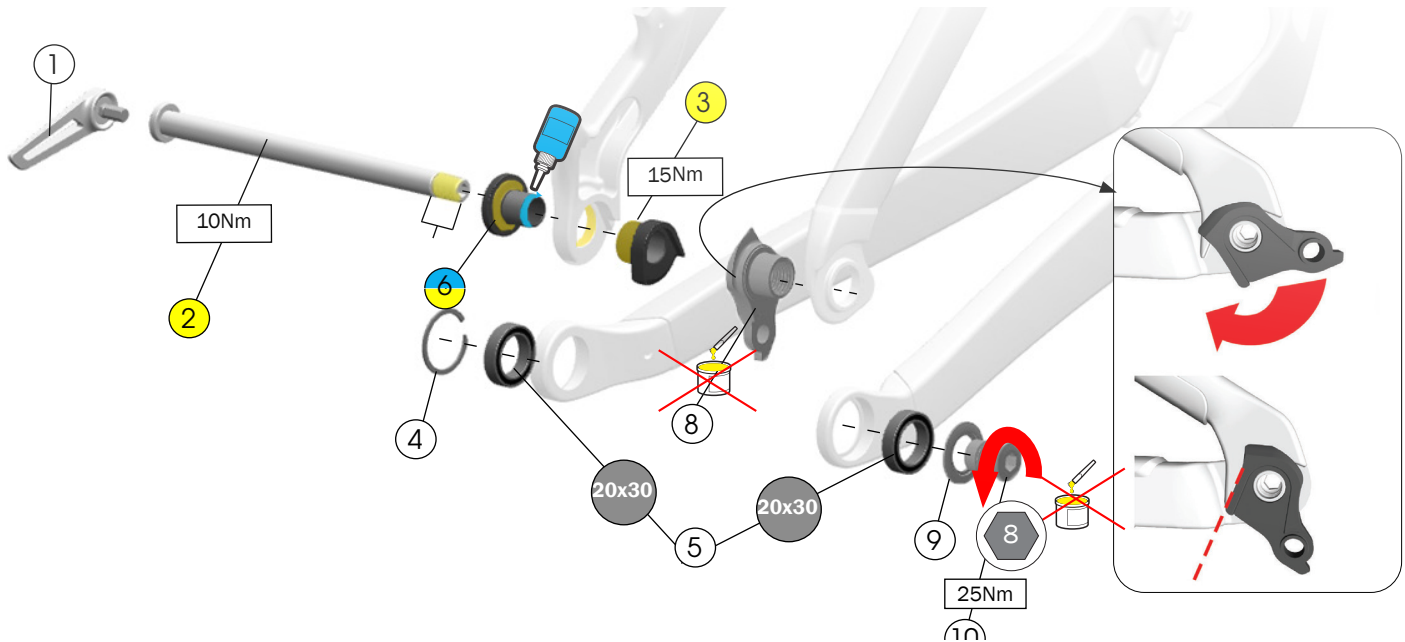
- 2.5mm hex tool
- Grease

# Active Braking Pivot (ABP)

Rail 9.8 and Rail 9.9 — Carbon seatstay and chainstay



Rail 9.5 and Rail 9.7 — Alloy seatstay and chainstay



- ① Switch lever — [W573860](#)
- ② Thru axle — [W583470](#)
- ③ Non-driveside ABP dropout nut — [W583419](#)
- ④ Retaining ring — [W5251279](#)
- ⑤ Bearings — [W583424](#)
- ⑥ Non-driveside ABP bolt — [W583420](#)
- ⑦ Spacers — [W583422](#)  
(carbon chainstays only)

— [599911](#)

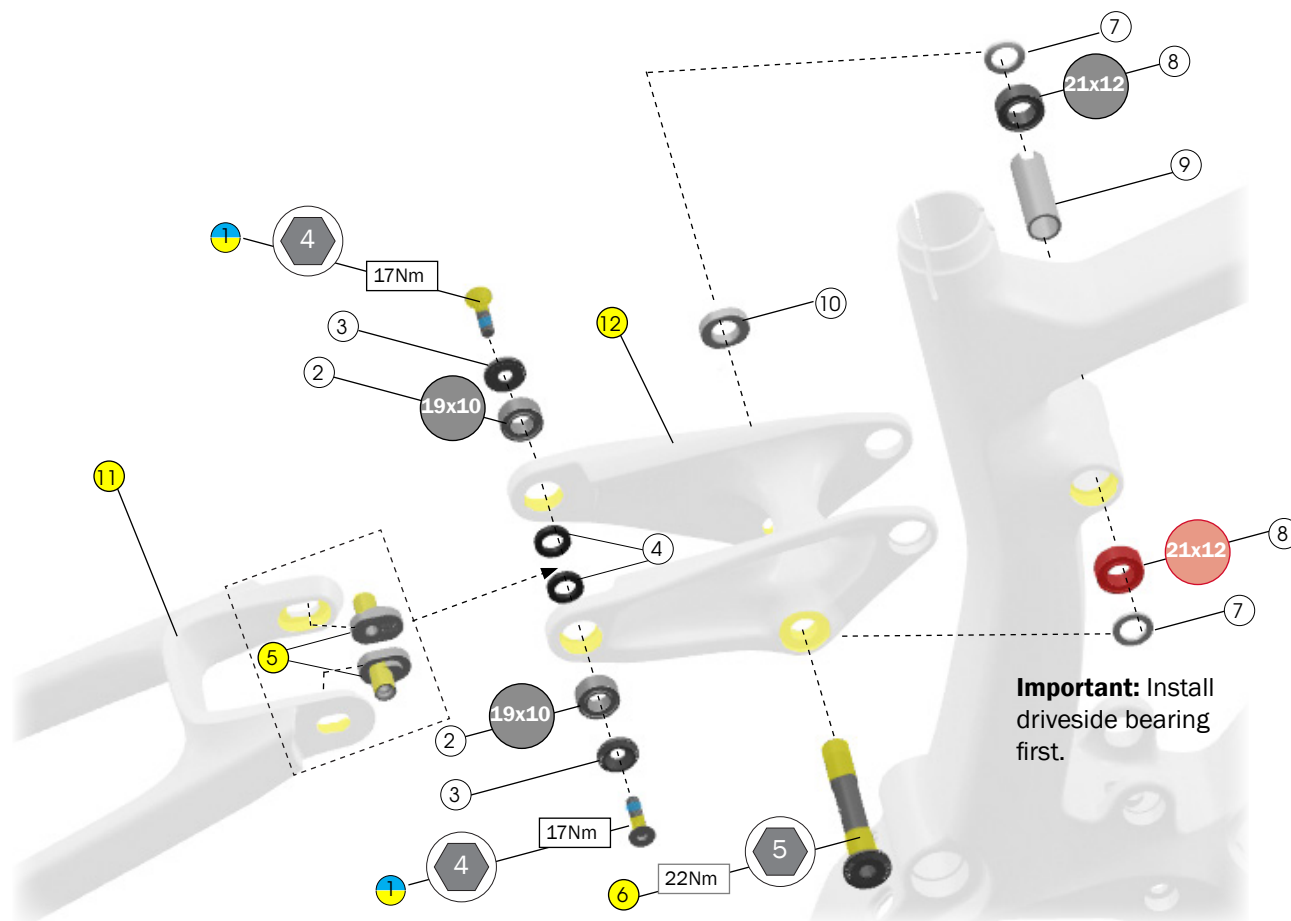
- ⑧ Derailleur hanger
- ⑨ Washer
- ⑩ Bolt (left-hand thread)

— [W5271425](#)

## Tools

- Bearing press, 20x30 drift
- Cassette locking tool
- Grease
- 8mm hex tool
- Torque wrench (left-hand thread) with 8mm hex bit

# Rocker pivot and seatstay



**1** Bolts — [W5270150](#)

**2** Bearings — [W5256339](#)

**3** Concave washers — [W5289553](#)

**4** Spacers — [W529969](#)

**5** Mino links — [W5270028](#)

**6** Rocker axle — [W600627](#)

**7** Spacers — [W290057](#)

**8** Bearings — [W5256341](#)

**9** Seat tube pivot sleeve — [W310155](#)

**10** Nut — [W311582](#)

**11** Seatstay, carbon — [30893](#)

Seatstay, aluminum — [35491](#)

Search [trekbikes.com](#) to find the color-matched part for your bike.

**12** Rocker link — [30969](#). Search [trekbikes.com](#) to find the color-matched part for your bike.

## Tools

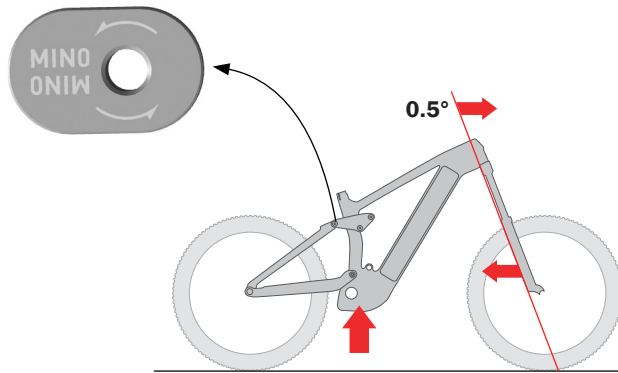
- Bearing press, 19x10 and 21x12 drifts
- 4mm and 5mm hex wrenches
- Torque wrench with 4mm and 5mm hex bits

# Adjust the geometry

Flip the Mino links in the seatstay pivot to change the bike's geometry to fit your riding style or the terrain.

**Notice:** If using a 29" front wheel and a 27.5" rear wheel, the Mino links must be in the high position.

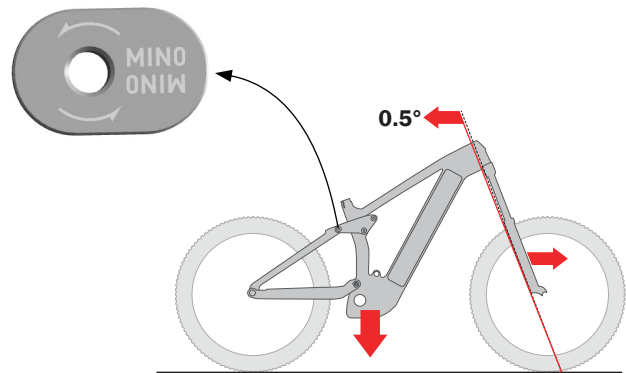
## Steeper head tube angle



Mino links in the high position

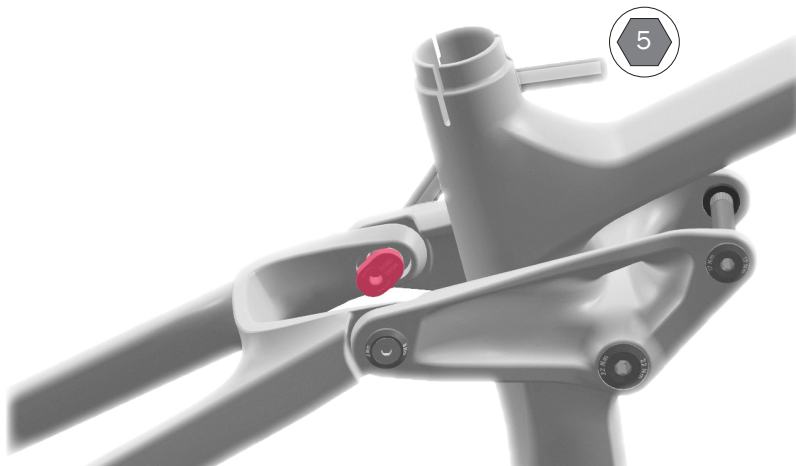
- Pulls in the front fork for quicker steering
- Raises the bottom bracket for improved climbing

## Slacker head tube angle



Mino links in the low position

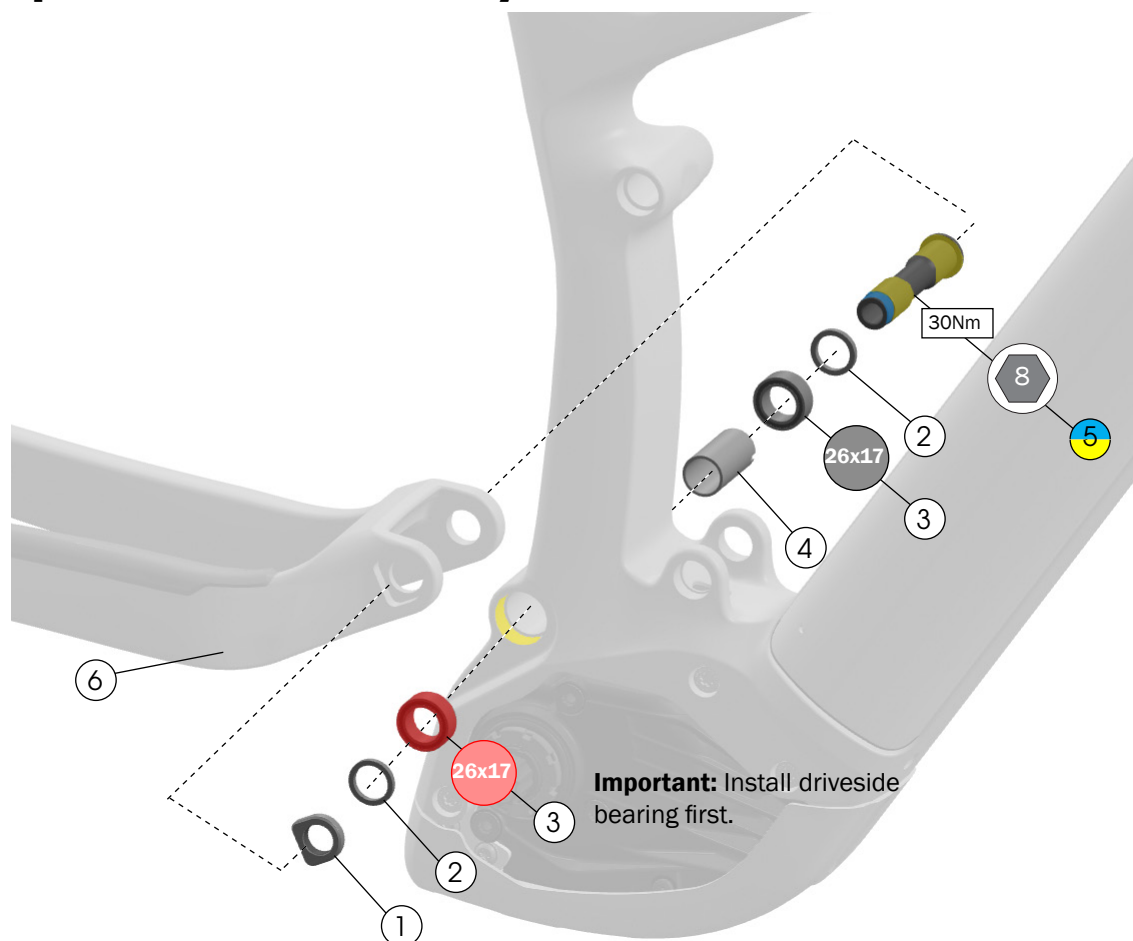
- Pushes the head tube angle back and pushes out the front fork for slower steering that is more stable at high speed
- Lowers the bottom bracket for more stability



## Tools

- 5mm hex tool
  - Torque wrench with 5mm hex bit
1. With the bike on the ground, loosen and remove one Mino link chip.
  2. Loosen and remove the other Mino link chip.
  3. Position the bike:  
**Mino links high:** Lift the bike by the seat tube. This will pull the rear triangle up and forward.  
**Mino links low:** With the chips removed, gravity will pull the rear triangle down and back.
  4. Place one Mino link chip into the desired position. Slightly tighten the Mino link bolt.
  5. Install the other Mino link chip into the same position. Slightly tighten the Mino link bolt.
  6. Torque both Mino link bolts to 17Nm.

# Main pivot and chainstay



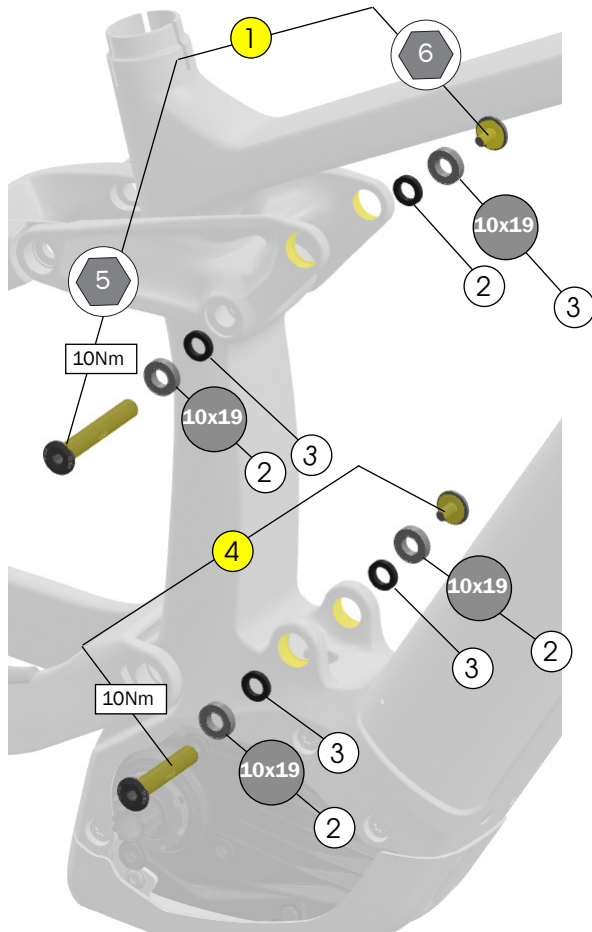
- ① Nut — [W584134](#)
  - ② Spacers — [W440921](#)
  - ③ Bearings — [W5256338](#)
  - ④ Main pivot sleeve — [W500592](#)
  - ⑤ Main pivot axle — [W601376](#)
  - ⑥ Chainstay, carbon — [30891](#)
- [599909](#)
- Chainstay, aluminum — [35490](#)
- Search [trekbikes.com](https://trekbikes.com) to find the color-matched part for your bike.

## Tools

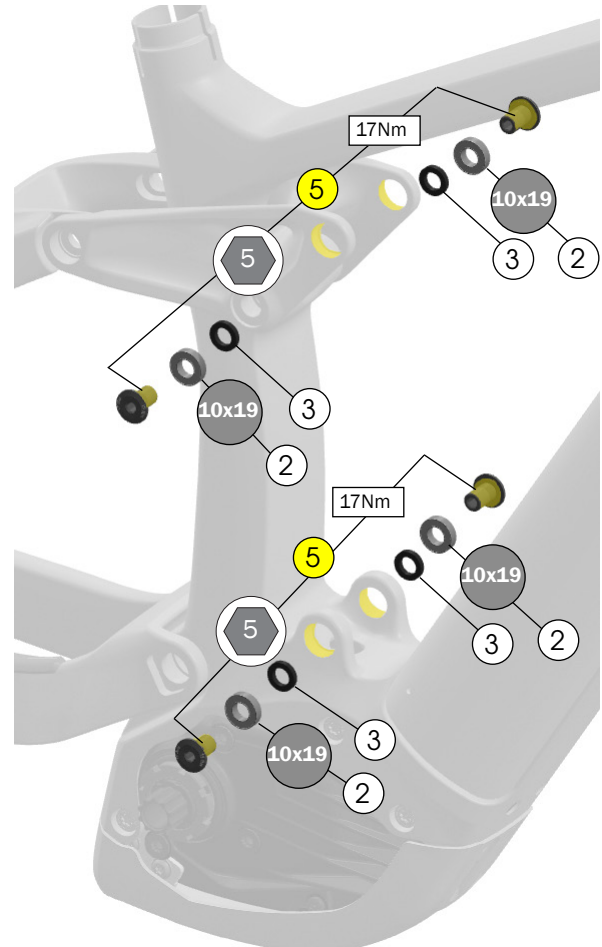
- Bearing press, 26x17 drift
- 8mm hex tool
- Torque wrench with 8mm hex bit
- Grease

# Shock mounts

## Standard



## Trunnion



## Tools

- Bearing press, 10x19 drift
- 5mm and 6mm hex wrenches
- Torque wrench with 5mm and 6mm hex bits

- ① Standard upper shock mount bolt and end cap — [5258209](#)
- ② Bearings — [W5256337](#)
- ③ Spacers — [W529969](#)
- ④ Standard lower shock mount bolts — [5258210](#)
- ⑤ Thru shaft shock mount bolts — [W600630](#)

## Dimensions

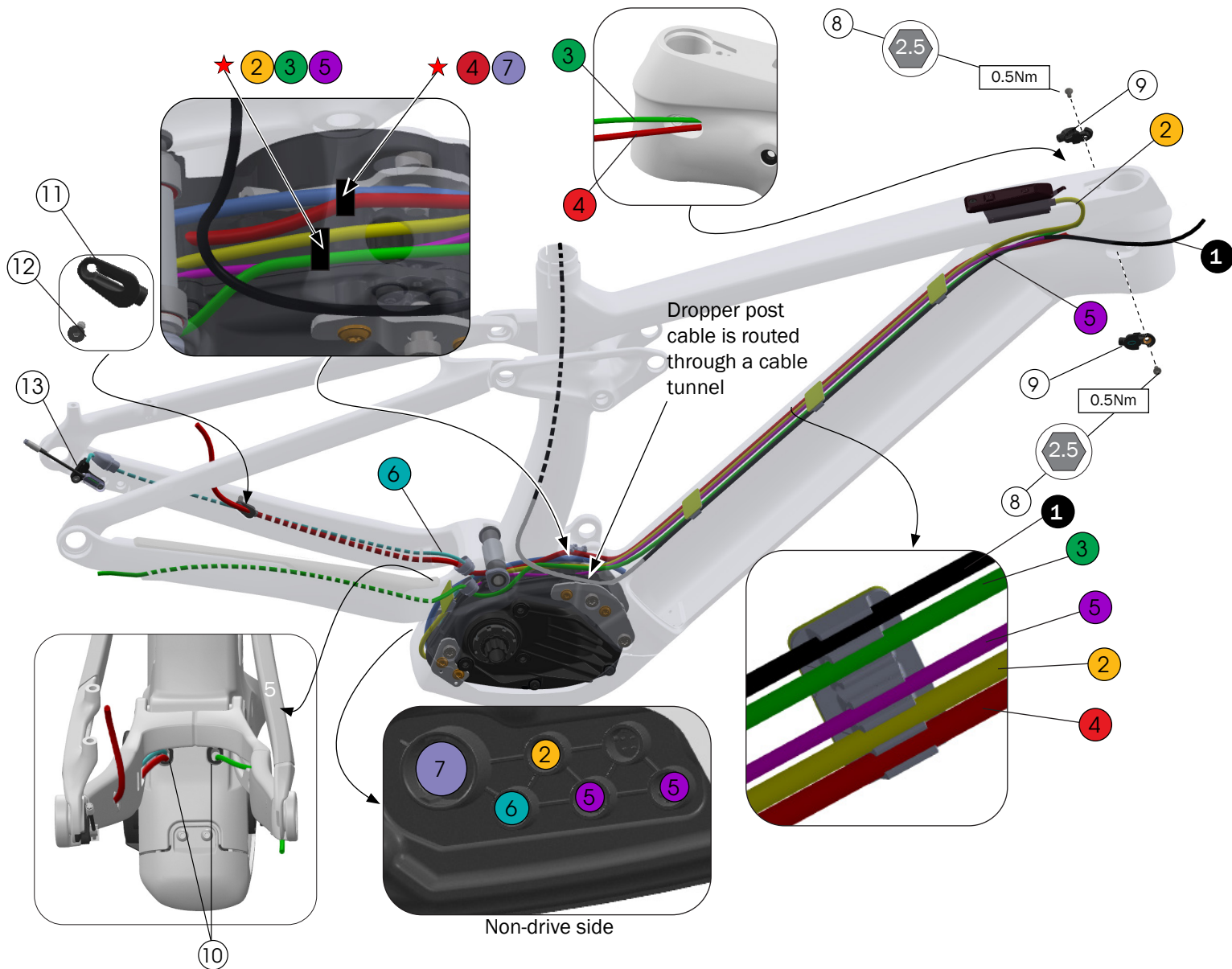


### Shock Dimensions

Eye-to Eye-length: 230mm  
 Stroke length: 57.5mm  
 Upper width: 54mm  
 Lower width: 40mm



# Cable routing — Rail 9.8 and 9.9 with System Controller

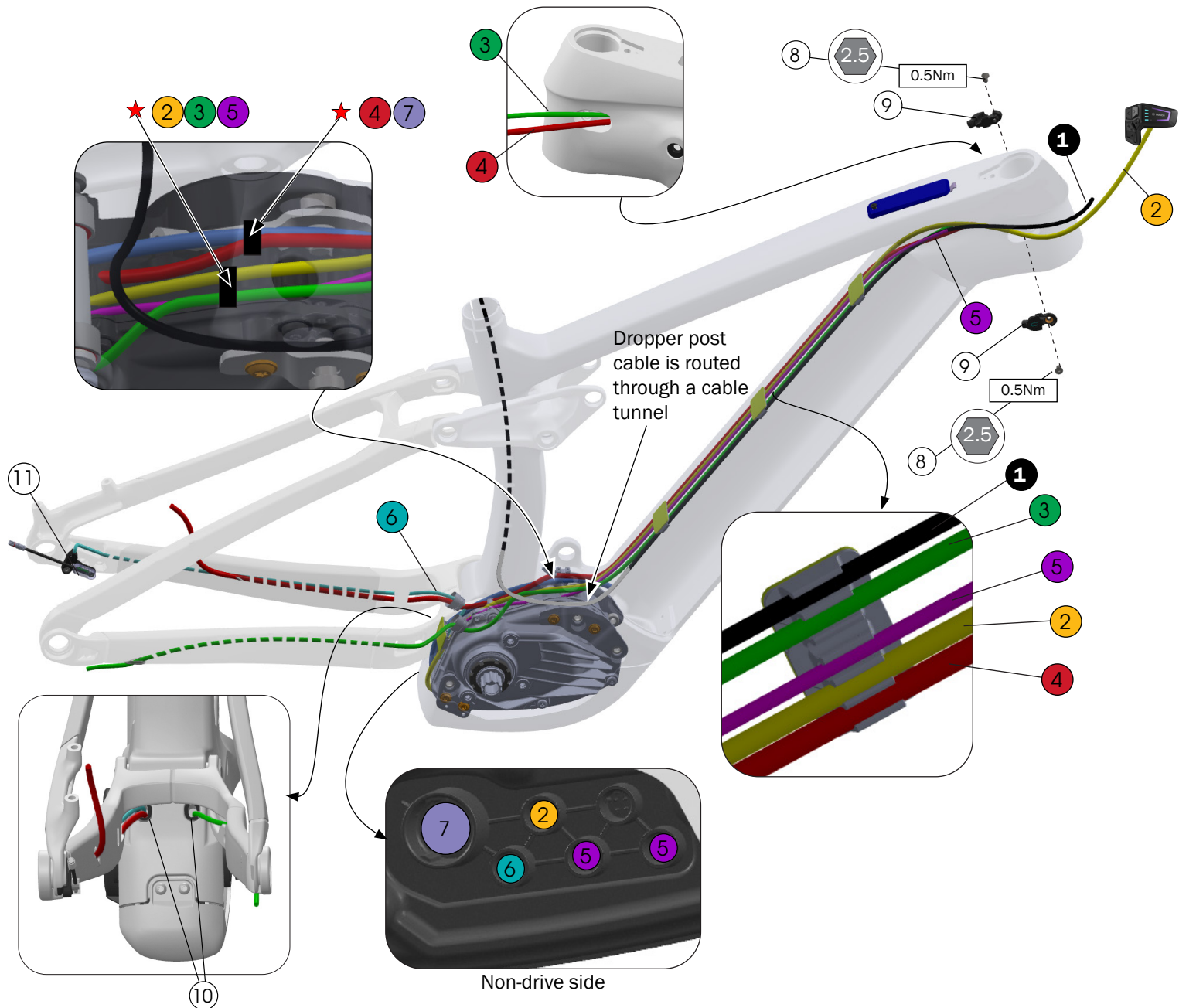


- ❶ Dropper post cable
- ❷ Controller cable — EB12.120.006\*
- ❸ Derailleur housing
- ❹ Rear brake hose
- ❺ Light cable(s) (Lights not included)
- ❻ Speed sensor cable
- ❼ Battery power cable — EB12.120.04A\*

- ❽ Flat head screws — [W532763](#)
- ❾ Cable guides — [W519232](#)
- ❿ Cable exit grommets — [W5255861](#)
- ⓫ Grommet — [W543605](#)
- ⓬ Countersink screw — [W524884](#)
- ⓭ Speed sensor assembly — See [page 14](#).
- ★ Zip tie

\*Bosch part number. Not available on [trekbikes.com](#).

# Cable routing — Rail 9.5 and 9.7 with LED Remote



**1** Dropper post cable

**2** LED Remote cable — EB12.120.005\*

**3** Derailleur housing

**4** Rear brake hose

**5** Light cable(s) (Lights not included)

**6** Speed sensor cable

**7** Battery power cable — EB12.120.00T\*

**8** Flat head screws — [W532763](#)

**9** Cable guides — [W519232](#)

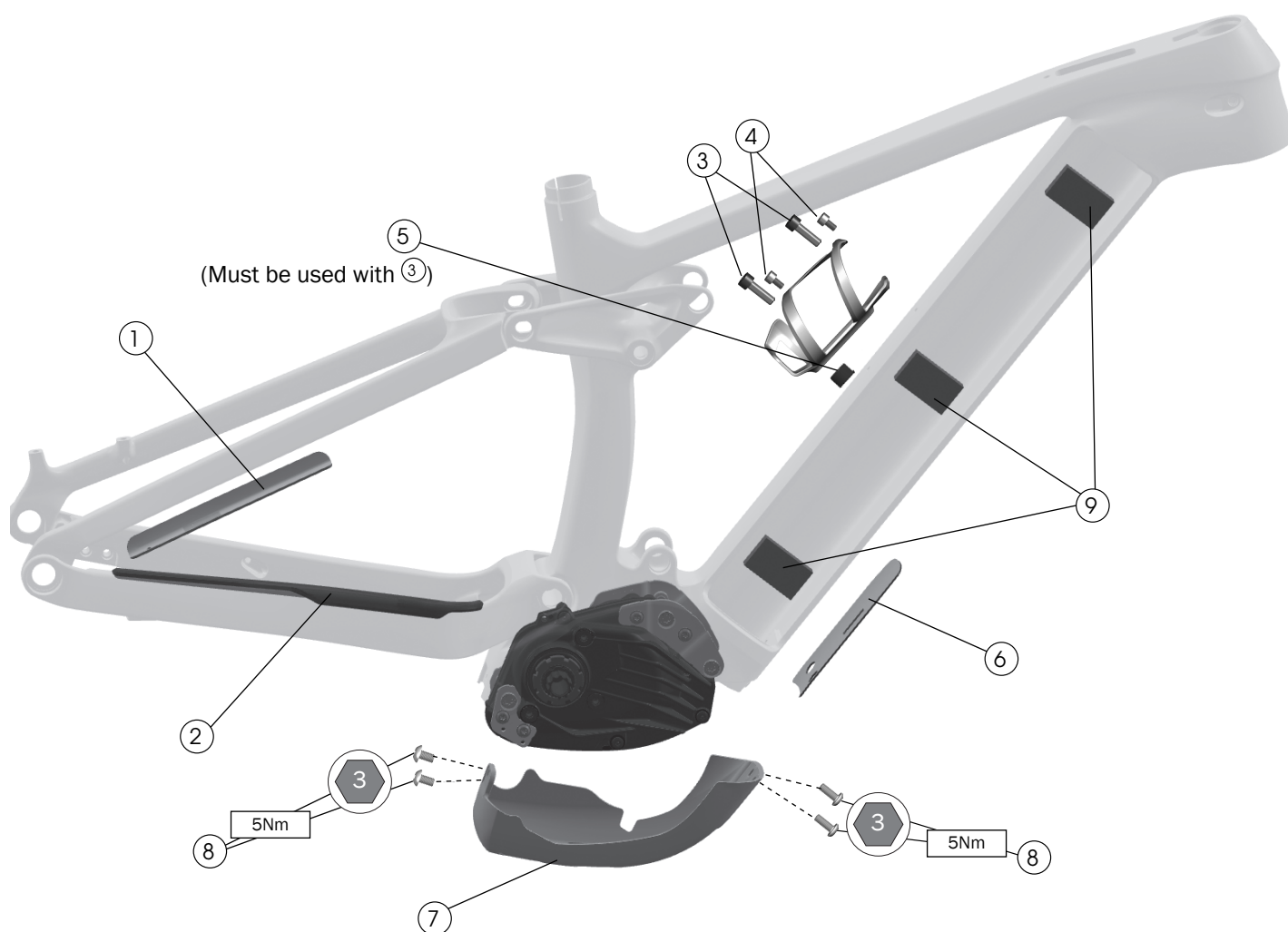
**10** Cable exit grommets — [W5255861](#)

**11** Speed sensor assembly — See [page 14](#).

★ Zip tie

\*Bosch part number. Not available on [trekbikes.com](#).

# Frame guards and water bottle cage bolts



- ① Seatstay guard — [W5255862](#)
- ② Chainstay guard — [W587594](#)
- ③ Screw (S, M frames only) — [W596821](#)
- ④ Bolt (L and XL frames only) — [W549307](#)
- ⑤ Cage spacer (S, M frames only) — [W5256157](#)
- ⑥ Down tube guard — [W590604](#)
- ⑦ Drive unit guard — [W5253938](#)
- ⑧ Screws — [W549305](#)
- ⑨ Foam pads — [W5307155](#)

## Adhesive guards and pads ① ② ⑥ ⑨

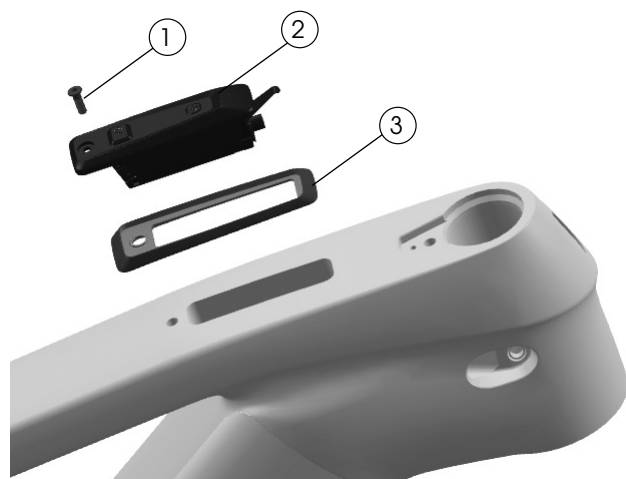
Use isopropyl alcohol to clean the frame surface where the guards and pads attach. Wait for the alcohol to dry before applying the guards.

**Notice:** Do not clean the entire frame with isopropyl alcohol. Isopropyl alcohol could damage the paint.

# Display and remote

## Rail 9.8 and Rail 9.9

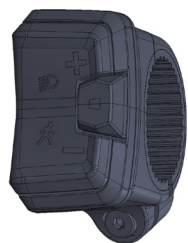
### System controller



- ① Bolt — [W5287174](#)
- ② System controller — [5315896](#)
- ③ Display grommet — [W5285659](#)

\*Bosch part number. Not available on trekbikes.com.

### Mini remote

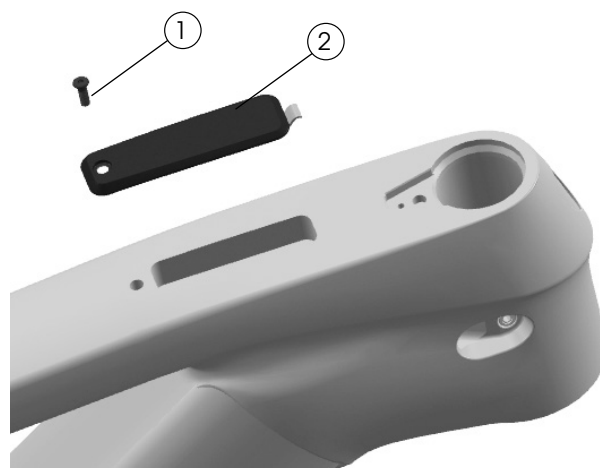


- ① Mini remote — [5315897](#)

\*Bosch part number. Not available on trekbikes.com.

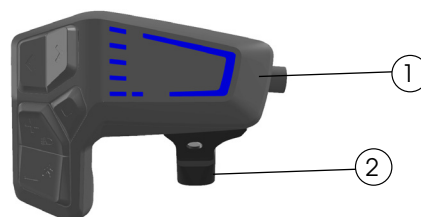
## Rail 9.5 and Rail 9.7

### Display cover



- ① Bolt — [W5287174](#)
- ② Display cover — [W5291499](#)

### LED remote



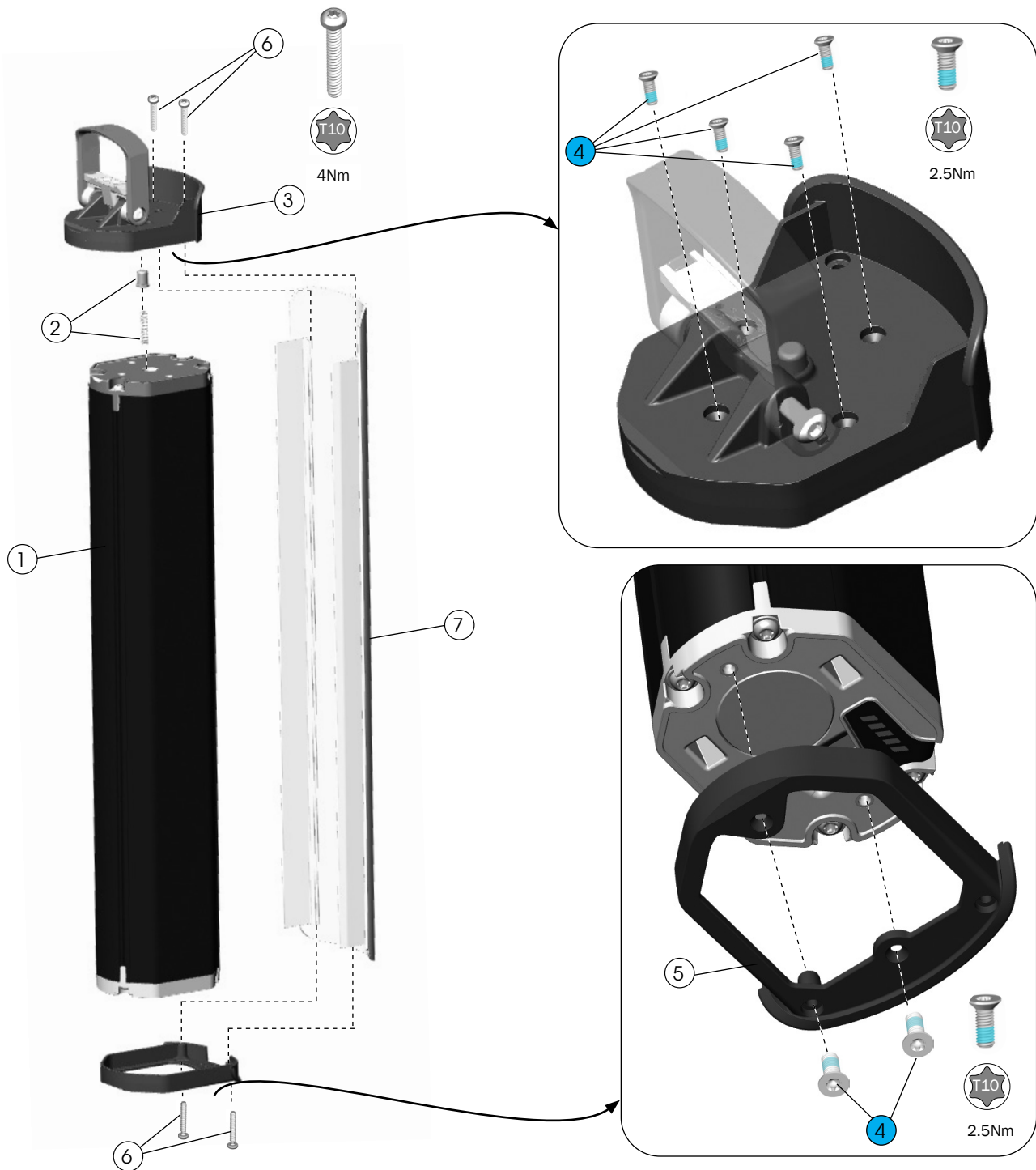
- ① LED remote — [5288736](#)
- ② LED remote universal clamp — [5288743](#)

LED Remote cable (See [Cable routing — Rail 9.5 and 9.7 with LED Remote on page 9](#)) — EB12.120.005\*

\*Bosch part number. Not available on trekbikes.com.



# RIB — battery assembly



① Battery, vertical, Smart System,  
S frame, 625Wh — EB12.100.012\*  
M - XL frame - 750Wh — [5288731](#)

② Push pin and spring — [5312675](#)

③ Battery handle assembly — [W5252236](#)

④ Bolts, M3x8 — [W5269016](#)

⑤ Docking bracket — [W5252240](#)

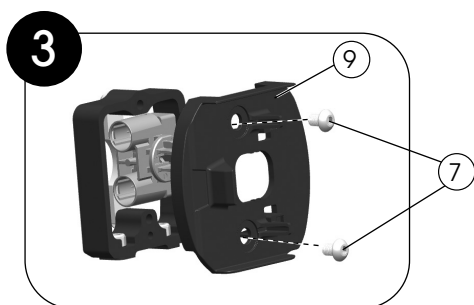
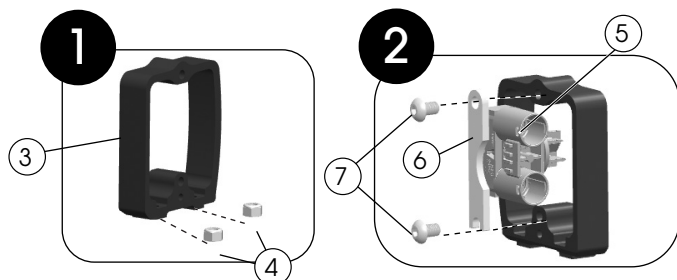
⑥ Bolts, M3x20 — [W5254060](#)

⑦ Cover, 625Wh battery — [37359](#)  
Cover, 750Wh battery — [37360](#)  
Search [trekbikes.com](https://trekbikes.com) to find the color-matched  
part for your bike.

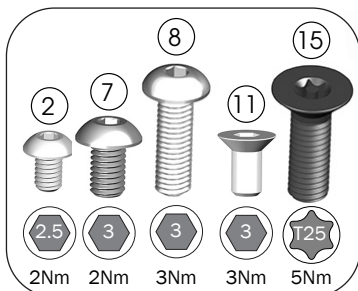
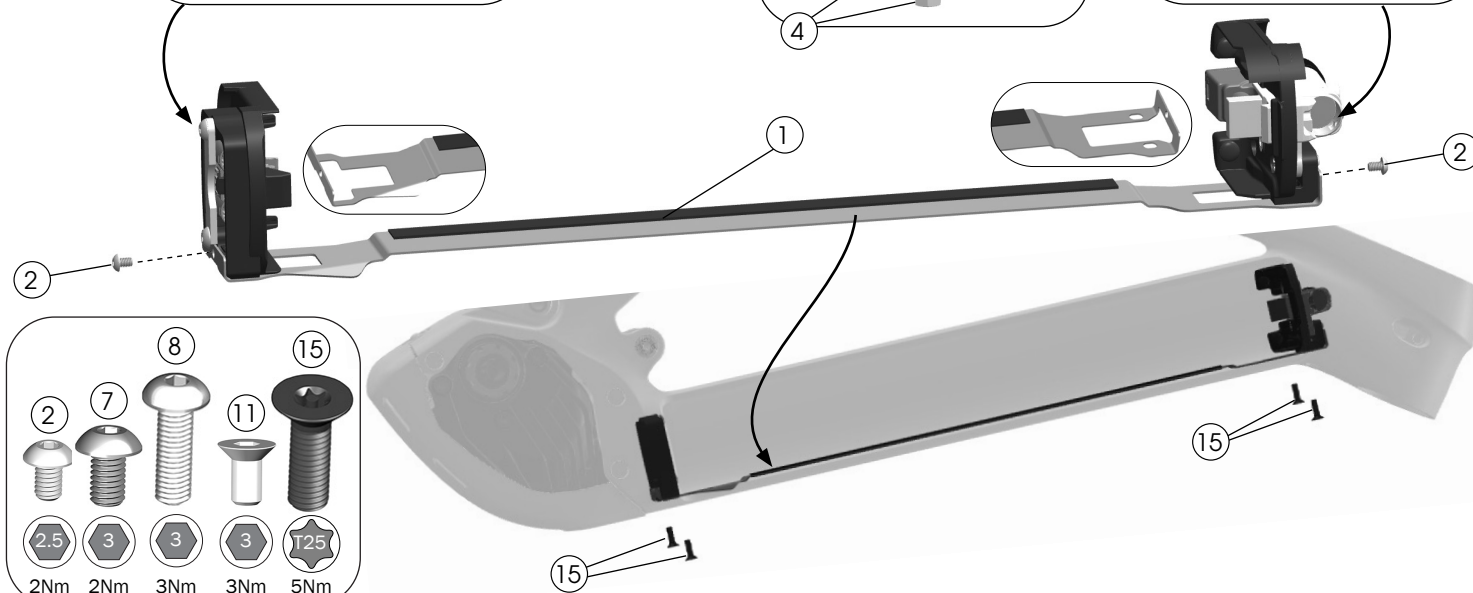
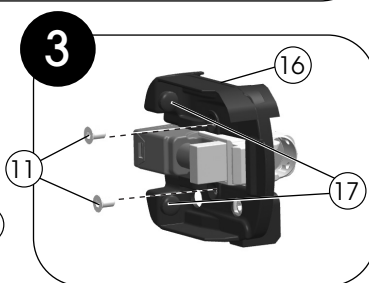
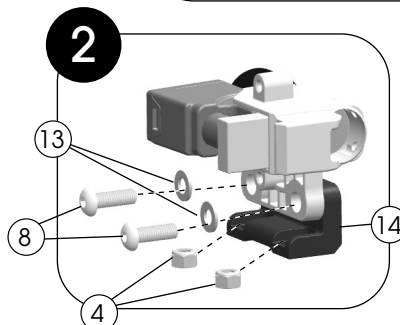
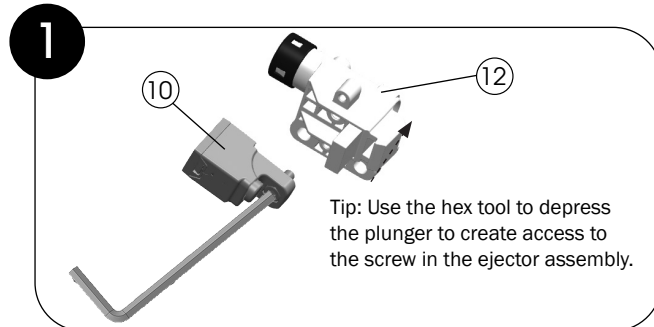
\*Bosch part number. Not available on [trekbikes.com](https://trekbikes.com).

# RIB — docking assembly

## Lower assembly



## Upper assembly



- ① Alignment plate  
S frame, 650Wh battery — [W5252805](#)  
M-XL frame, 750Wh battery — [W5252806](#)

- ② Screws

- ④ Locknuts

- ⑧ Screws

- ⑪ Countersunk bolts

- ⑮ T25 security screws

- ⑬ Washers

- ③ Lower docking bracket

- ⑭ Upper docking bracket

— [5257257](#)

— [5277571](#)

- ⑤ Battery connection plug — EB12.100.015\*

- ⑥ Power connection retention bracket

- ⑦ Screws — [W549307](#)

— [5312122](#)

- ⑨ Lower battery mounting plug — [W5252293](#)

- ⑮ Upper lock cover — [W5252292](#)

- ⑮ Bumpers — [579326](#)

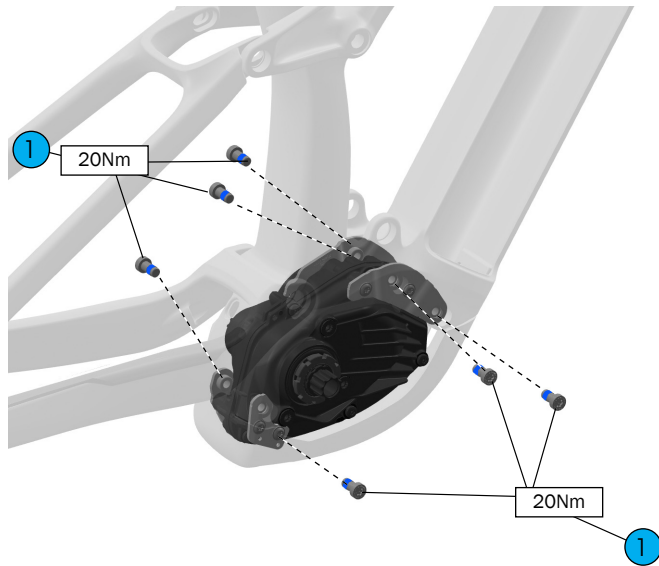
- ⑮ Ejector assembly — [579324](#)

- ⑮ Lock assembly — [W562311](#)

\*Bosch part number. Not available on trekbikes.com.

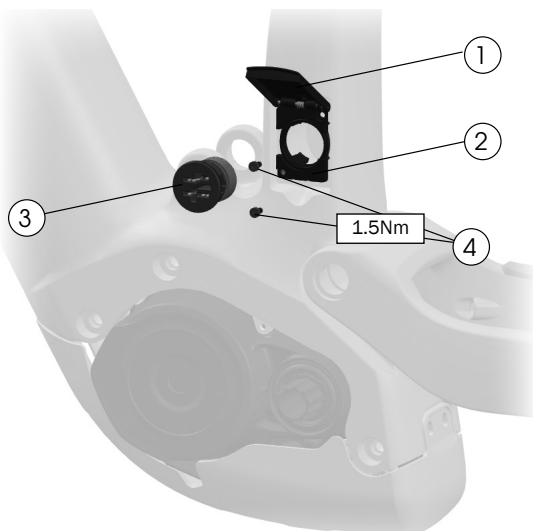
# Drive system components

## Drive unit and mounting bolts



- ① Mounting bolts, TP40 — [5265419](#)  
(Bosch 1270.016.470)

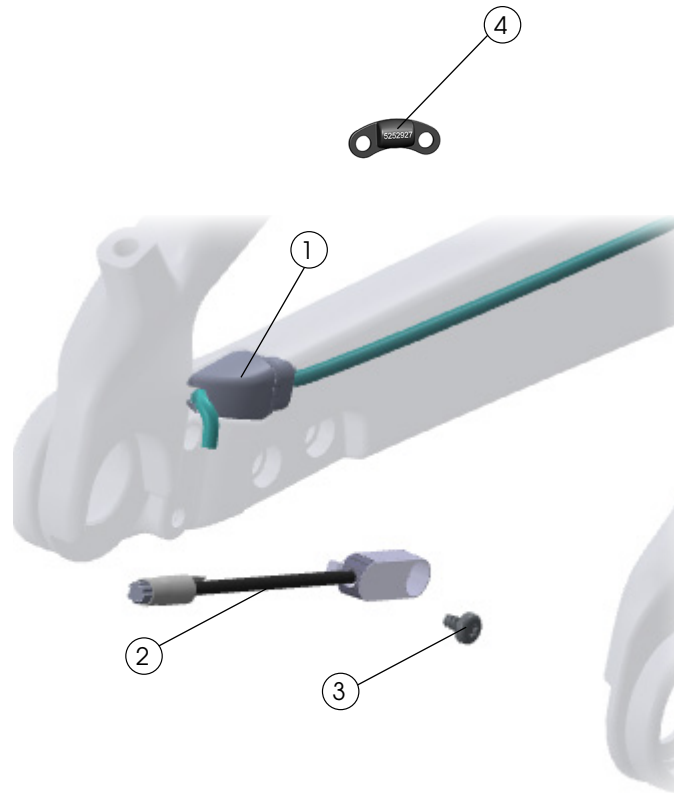
## Battery charge port



- ① Charge port cover — [44374](#)  
Search [trekbikes.com](https://trekbikes.com) to find the color-matched part for your bike.
- ② Base — [W5251862](#)
- ③ Charge socket — EB12.120.04A\*
- ④ Bolts — [5284849](#)

\*Bosch part number. Not available on [trekbikes.com](https://trekbikes.com).

## Speed sensor



- ① Speed sensor chainstay plug — [W587873](#)
- ② Speed sensor — [5284750](#)
- ③ Bolt — [W562831](#)
- ④ Rotor mount speed sensor magnet — [W5252927](#)

# Specifications

## Chainline (1x only)

- 52mm
- Boost hub with offset chainring.

## Chainring (1x only)

- 34T only

## Rear brake mount

Minimum	Maximum
180mm, direct mount	Adaptable to 203mm

## Maximum tire size

**Notice:** Measurements of actual tires may vary. Always verify there is sufficient clearance between the tire and the frame. Improper tire size could damage the bicycle frame. Trek recommends 6mm clearance above and on both sides of the tire.

Wheel set	Maximum tire size
29"	29" x 2.6"
27.5" rear with the mino link in the high position	27.5" x 2.8"

## Water bottle fit

**Small frame:** Compatible only with the Bontrager Voda 15 bottle. Requires the cage spacer included with the bike. Rail 9.9 with AirWiz: There is not enough clearance to fit a water bottle.

**Medium frame:** Requires the bottle cage spacer included with the bike. Rail 9.9 with AirWiz requires the bottle cage to be positioned as far toward the headtube as possible.

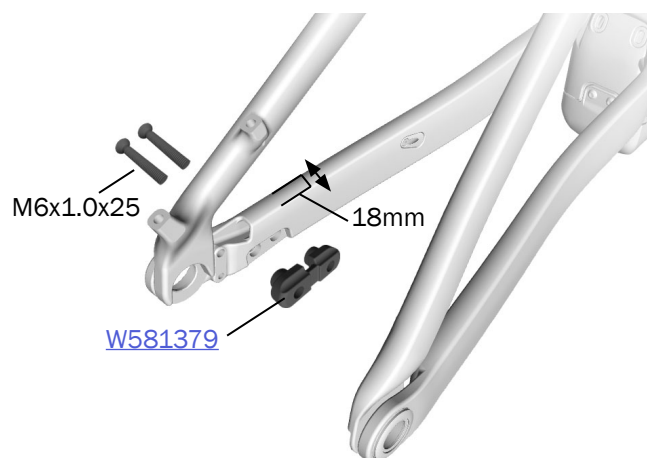
## Seat post

! WARNING
Always follow the seatpost manufacturer's minimum insertion recommendation. Failure to follow the recommendation could cause damage to the seatpost and result in injury to the rider.

Measurement		
Maximum insertion	Frame	
	S	230mm
	M	
	L	260mm
	XL	310mm
Seat tube inside diameter		34.9mm
Seat tube post clamp outer diameter		39.5mm

## Kickstand mount

- Requires kickstand mounting bracket [W581379](#) and two M6x1.0x25mm bolts

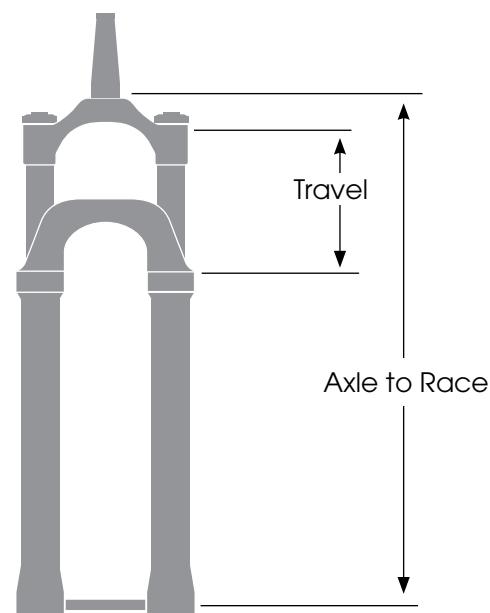


## Fork

Refer to the suspension setup card included with your bike or the suspension calculator at

[Trek bikes.com/suspension-calculator](https://trekbikes.com/suspension-calculator).

! WARNING
Exceeding the recommended maximum fork length could damage the bicycle and result in injury to the rider.



Frame size	Axle to Race (mm)		Travel (mm)
S, M, ML, L, XL	Recommended	571-576	160
	Maximum	586	170