

TREK

2020 & 2021 RAIL

SERVICE MANUAL SUPPLEMENT

Rev 1 June 2021



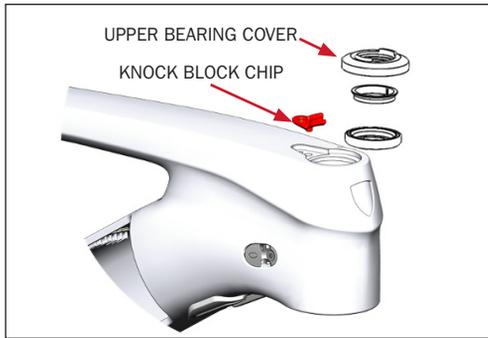
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**NOTE**

This manual has the unique design features and components for the 2020 & 2021 Rail bicycle.

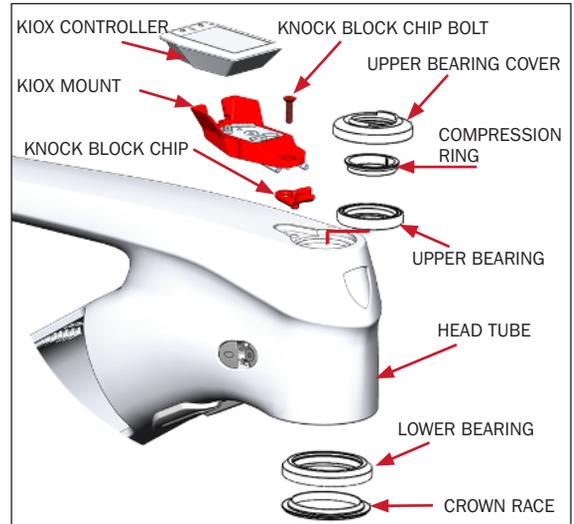
1 Inspect the Knock Block components



1. Inspect the edges of these components for damage and wear.
 - Knock Block chip
 - Underside channel of the upper bearing cover
 - Interlocking keys on top of the bearing cover (the keys that interface with the stem)
2. Replace damaged or worn components.

2 Install the Knock Block and Kiox mount in the headset

| Description | Part number |
|--|-------------|
| Knock Block 58-degree complete headset | 5252156 |
| Knock Block 58-degree upper assembly | 5252157 |

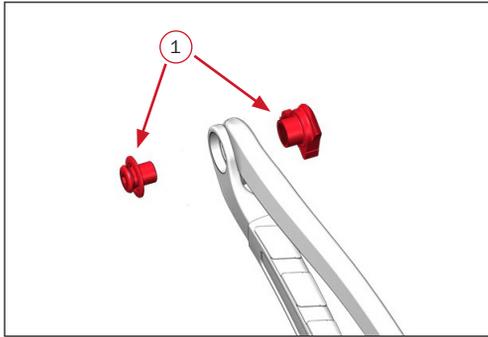


1. Connect the red controller cable (from the non-driveside head tube access hole) to the Kiox mount.
2. Apply grease to the upper and lower head tube bearing-bores.
3. Apply grease to the inside bearing seats for the compression ring and the crown race.
4. Install the crown race, then the lower bearing on the steerer tube.
5. Insert the steerer tube into the bottom of the head tube.
6. Install the upper bearing and compression ring onto the steerer tube.
7. Use the Knock Block chip bolt to install the Knock Block and Kiox display mount.
8. Install the upper bearing cover.
9. Install spacers as necessary.

3 Rear derailleur hanger

| Item number | Description | Part number |
|-------------|---|-------------|
| 1 | Derailleur hanger, bolt and 30mm washer | W583423 |

For derailleur with Active Braking Pivot hardware kit, see page 15.



⚠ CAUTION: Do not apply grease between the hanger and the bicycle frame.

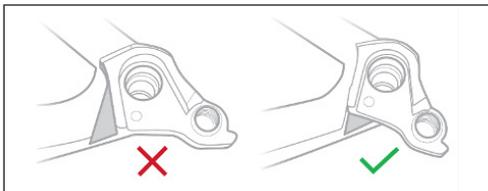
⚠ CAUTION: Do not apply grease to the hanger bolt threads.



NOTE

You must use a wrench that measures torque counterclockwise as well as clockwise.

1. Insert the hanger on the inside of the drive side chainstay.
2. Install the washer on the derailleur hanger bolt.
3. Insert the bolt into the frame.
4. Make sure to have the hanger in the correct position as shown.



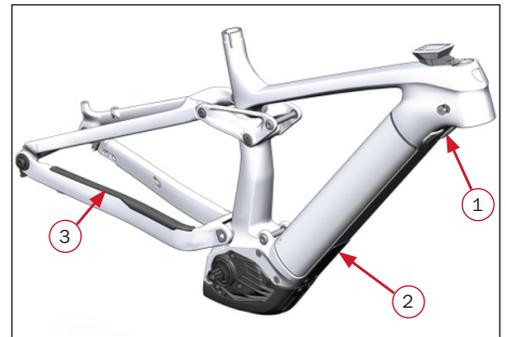
5. Torque the hanger bolt to 25Nm (left-hand thread).

⚠ CAUTION: Over tightening may cause the hanger to break.

4 Frame guards

| Item number | Description | Part number |
|-------------|--------------------------------------|-------------|
| 1 | Upper down tube | 556549 |
| 2 | Down tube, medium and larger frames | W590604 |
| | Down tube, small frames (cut to fit) | |
| 3 | Chainstay | W587594 |

1. Use isopropyl alcohol to clean the frame surfaces that mate with the following guards:
⚠ CAUTION: Do not clean the entire frame with isopropyl alcohol.
2. Remove the protective covering for the adhesive.
3. Attach the guards as shown.

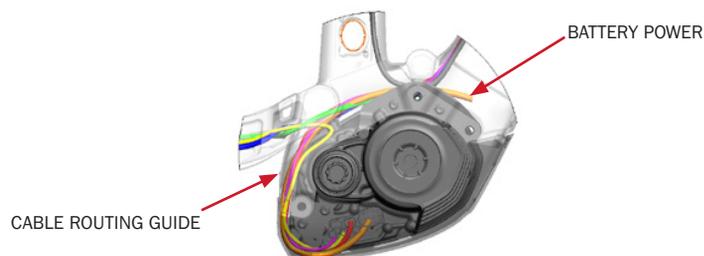
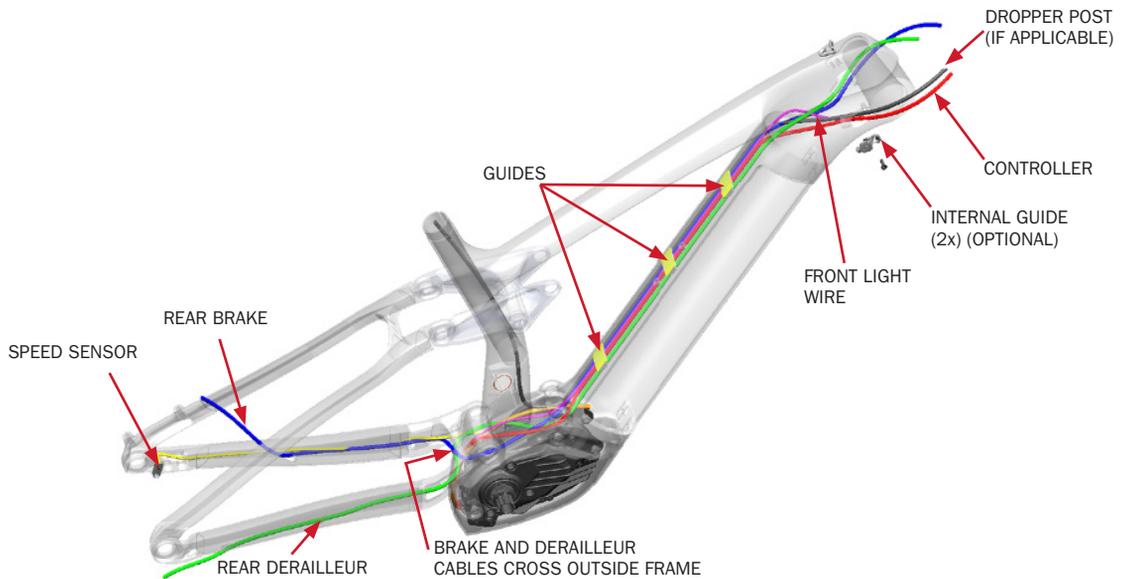


5 Cable routing

| Cable | Color |
|-----------------|---------|
| Rear derailleur | Green |
| Rear brake | Blue |
| Controller | Red |
| Dropper post | Black |
| Speed sensor | Yellow |
| Battery power | Orange |
| Front light | Magenta |

1. Zip tie the front light wire to the controller cable inside the frame above the RIB.
2. Route the shift housings and brake hoses.

 **NOTE** The plastic down tube guides have arrows which show the correct orientation.

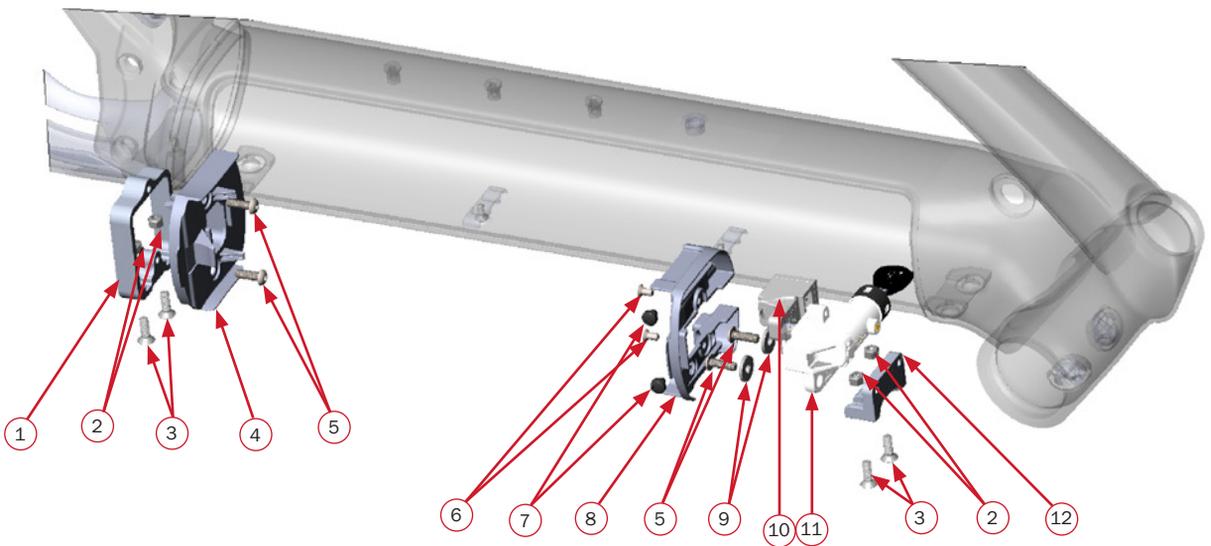


6

RIB system without alignment plate

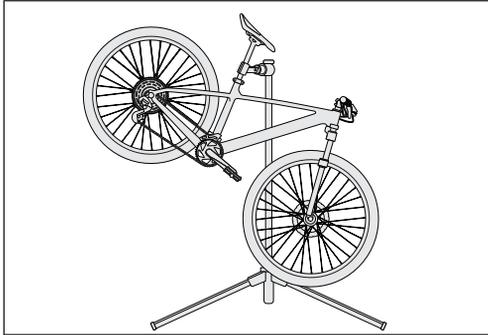
Parts list

| Item number | Description | Torque (Nm) | Part number | Quantity | Kit part number |
|-------------|------------------------|-------------|-------------|----------|-----------------|
| 1 | Lower docking bracket | | N/A | 1 | 580066 |
| 2 | Locknuts | | N/A | 4 | |
| 3 | T25 security screws | 5 | N/A | 4 | |
| 12 | Upper docking bracket | | N/A | 1 | 579325 |
| 4 | Connector plate | | N/A | 1 | |
| 8 | Lock cover | | N/A | 1 | |
| 5 | Button head cap screws | 5 | N/A | 2 | |
| 6 | Countersunk bolts | 2 | N/A | 4 | 579247 |
| 9 | Washers | | N/A | 2 | |
| 7 | Bumpers | | 579326 | 2 | |
| 10 | Ejector assembly | | 579324 | 1 | N/A |
| 11 | Lock | | W562311 | 1 | N/A |



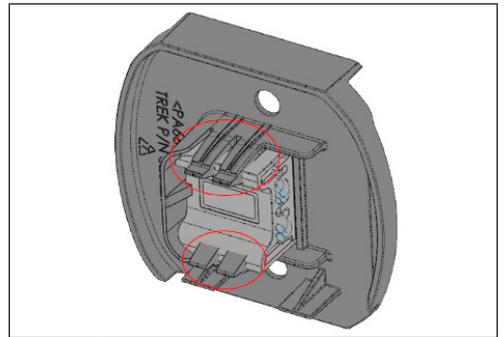
Remove the RIB mounting system

1. Position the bike into a bike stand with the front end tipped down as shown below. This will prevent any loose hardware from falling into the drive unit.



2. Remove the RIB battery from the down tube.
3. Note the cable routing paths. The cable routing will be the same for the installation.
4. Remove the key from the battery lock.
5. Remove the two bolts (6), the two bumpers (7), and the lock cover (8) from the upper docking bracket.
6. Remove the two button head screws (5), the washers (9), ejector assembly (10), and the lock (11).
7. Remove the two T25 security screws (3) and the two locknuts (2), and the upper docking bracket (12).

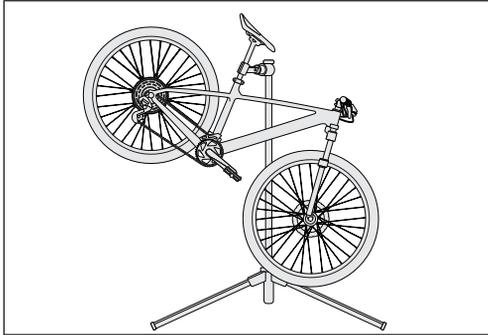
8. Remove the two button head screws (5) from the lower docking (1).
9. Carefully extract the connector plate (4) and find the connection point for the battery plug.
10. Disconnect this connection point from the battery plug.
11. Remove the two T25 security screws (3), the locknuts (2), and the lower docking bracket (1). Completely remove the lower docking sub-assembly from the bicycle.
12. If installing the new RIB system, remove the existing battery connection plug from the connector plate (4).



NOTE To aid removal, you may need to use a pair of cutters to clip off some or all of the plastic hooks as shown. This plastic connector plate will not be reused with the new RIB system.

Install the RIB system

1. Position the bike into a bike stand with the front end tipped down as shown below. This will prevent any loose hardware from falling into the drive unit.



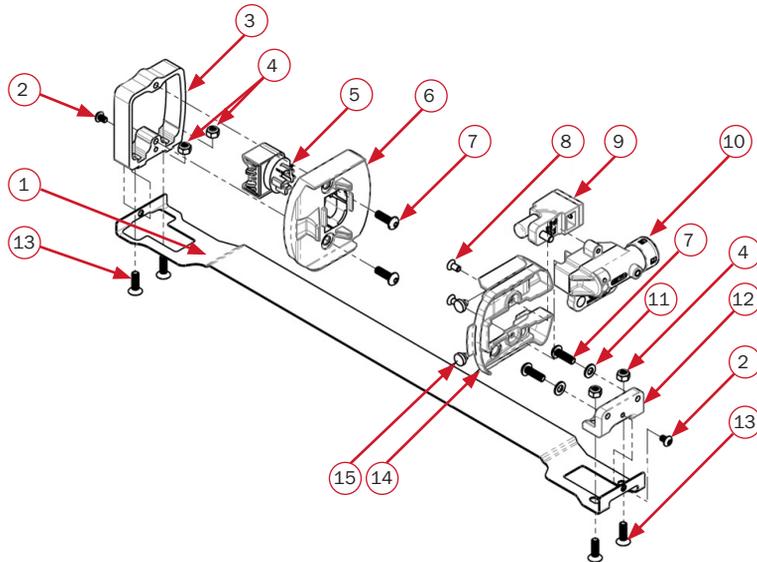
2. Check that the cables running along the bottom and/or top of the down tube are firmly held in place and in the same routing paths from the removal.
3. Use the two T25 security screws (3), the locknuts (2) to install the lower docking bracket (1).
4. Carefully connect the battery plug in the connector plate (4) to the battery connection on the drive unit.

5. Use the two button head screws (5) to install the connector plate (4).
6. Use the two T25 security screws (3) and the two locknuts (2) to install the upper docking bracket (12).
7. Use the two button head screws (5), the washers (9) to install the lock assembly (10).
8. Use the two bolts (6), the two bumpers (7) to install the lock cover (8) to the upper frame docking.
9. Insert the key into the battery lock.
10. Install the RIB battery in the down tube.
11. To test the connection, try to slide the battery toward the head tube with the system powered on.
12. Update the software per the manufacturer's process.
13. Perform the battery install and eject standard operating procedure.

7 RIB system with alignment plate

Parts list

| Item number | Description | Torque (Nm) | Part number | Quantity | Kit part number |
|-------------|-----------------------------|-------------|-------------|----------|--|
| 1 | Alignment plate | | W5252805 | 1 | |
| 2 | Button head screws | 2 | N/A | 2 | 5257257 |
| 4 | Locknuts | | | 2 | |
| 7 | Button head cap screws | 5 | | 2 | |
| 8 | Countersunk bolts | 3 | | 2 | |
| 13 | T25 security screws | 5 | | 4 | |
| 11 | Washers | | | 2 | |
| 3 | Lower docking bracket | | N/A | 1 | 5256255 (aluminum) 5277571 (carbon) |
| 12 | Upper docking bracket | | | 1 | |
| 5 | Battery connection plug | | N/A | | |
| 6 | Lower battery-plug mounting | | N/A | 1 | 5256256 |
| 14 | Upper plastic lock cover | | N/A | 1 | |
| 15 | Bumpers | | 579326 | 2 | |
| 9 | Ejector assembly | | 564539 | 1 | N/A |
| 10 | Lock assembly | | W591941 | 1 | N/A |



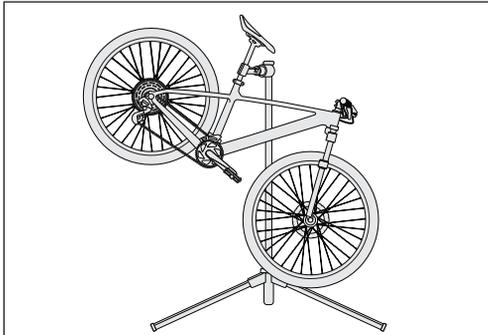
Remove the RIB system**NOTE**

This can be done without removing the drive unit from the bike frame.

**NOTE**

Save all fasteners, bumpers, and lock assembly for installation.

- 1.** Position the bike into a bike stand with the front end tipped down as shown below. This will prevent any loose hardware from falling into the drive unit.

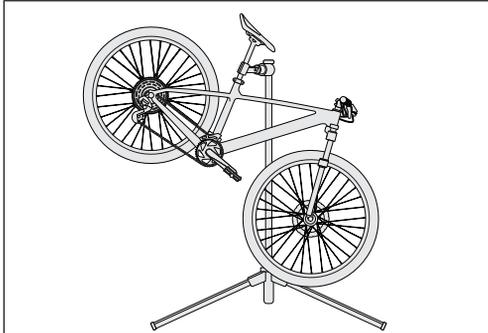


- 2.** Remove the RIB battery from the down tube.
- 3.** Note the cable routing paths. The cable routing will be the same for the installation.
- 4.** Remove the key from the battery lock.

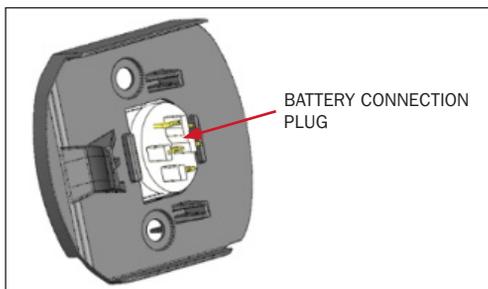
- 5.** Remove the two bolts (8), the two bumpers (15), and the upper plastic lock cover (14).
- 6.** Remove the plunger (9) and the lock assembly (10).
- 7.** Remove the two button head screws (7) and the washers (11) from the upper docking bracket (12).
- 8.** Remove two button head screws (7) and the lower battery-plug mounting cover (6) with the battery plug.
- 9.** Thread the battery plug connection through the lower metal docking bracket (3) and remove the plug connection.
- 10.** Remove the four security screws (13) and the locknuts (4) to remove the alignment plate (1) with the upper (12) and lower (3) docking brackets as a sub-assembly.
- 11.** Remove the two button head screws (2), and the upper (12) and lower (3) docking brackets from the alignment plate (1).

Install the RIB system

1. Position the bike into a bike stand with the front end tipped down as shown below. This will prevent any loose hardware from falling into the drive unit.

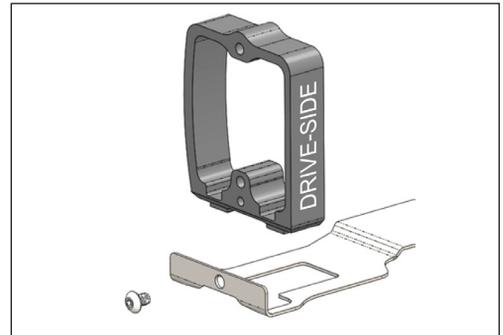


2. Install the battery connection plug into the lower battery-plug mounting cover (6).

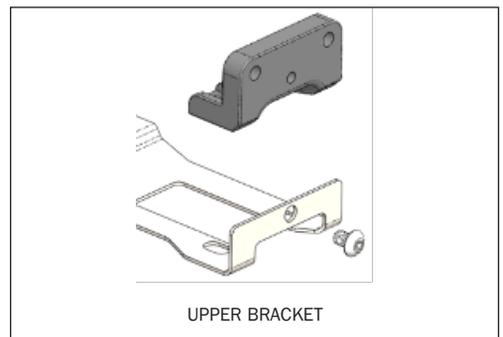


NOTE Make sure the cables running along the bottom and/or top of the down tube are firmly held in place.

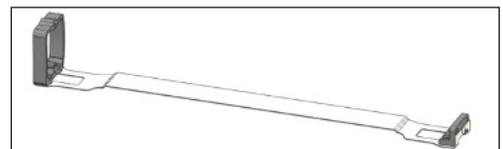
3. Position the lower docking bracket (3) on the alignment plate as show below. Use one button head screw (2) to attach the bracket to the plate. Torque the screw to 3Nm.



4. Use one button head screw (2) to attach the upper docking bracket as shown below. Torque the screw to 3Nm.



5. Place the alignment plate into the opening in the frame.

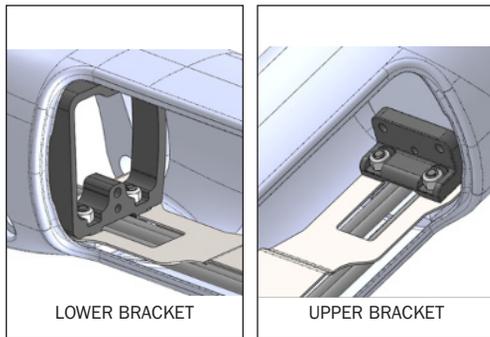


NOTE The underside of the alignment plate has a directional arrow to show which end points to the head tube.

6. Grease the heads of the four security screws (13).

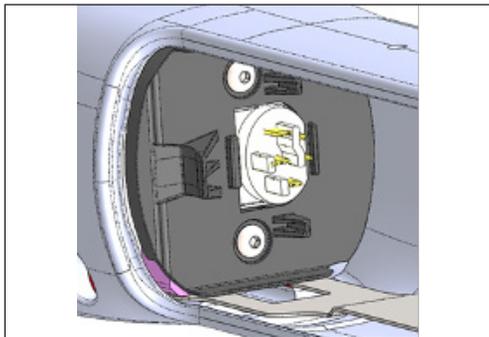
- 7.** Use these four security screws (13) and the locknuts (4) to attach the sub-assembly.

Do not fully tighten the screws at this time.



IMPORTANT: Make sure you do not crush or squeeze any cables running along the base of the down tube. Cable routing should match the original cable routing prior to this modification.

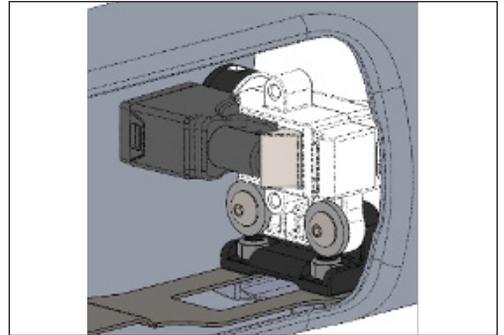
- 8.** Apply threadlocker 242 (or similar) into the threaded holes in the dock mounts. Wipe away excess threadlocker to minimize the chance of contact with the lower battery mounting cover (6).
- 9.** At the lower bracket, thread the battery plug connection through the lower docking bracket (3).



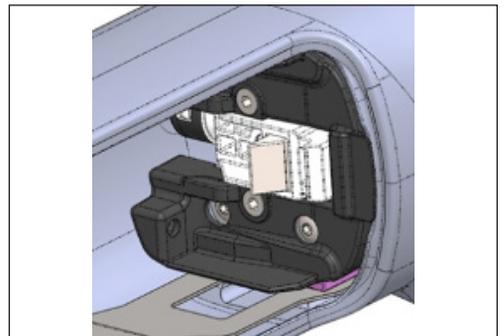
- 10.** Reuse two button head screws (7) to install the lower battery plug mounting cover (6) with the battery plug.

Do not fully tighten the screws at this time.

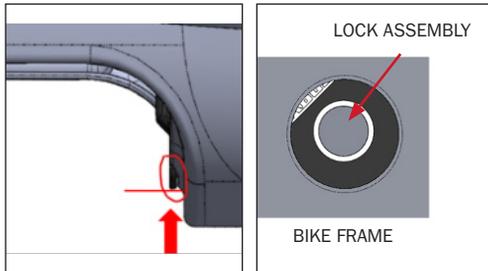
- 11.** Use the two washers (11) and button head screws (7) to install the lock assembly (10) to the upper docking bracket (12).



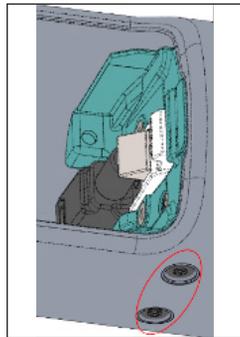
- 12.** Tighten the screws until the washers (11) slightly contact the lock core and you can still slide the lock core against the docking bracket (12) for adjustment.
- 13.** Use the two bolts (8) and the two bumpers (15) to install the upper lock cover (14). Tighten the bolts to 2Nm.
- 14.** Push the upper lock cover (14) toward the head tube until the small plastic tab is just touching the edge of the frame cutout. Do not apply excess pressure.



- 15.** Check to make sure the lock is centered (as much as possible) in the bicycle frame hole.



- 16.** Once the lock is centered, snug – but do not fully tighten – the two security screws (13) in the bicycle frame.

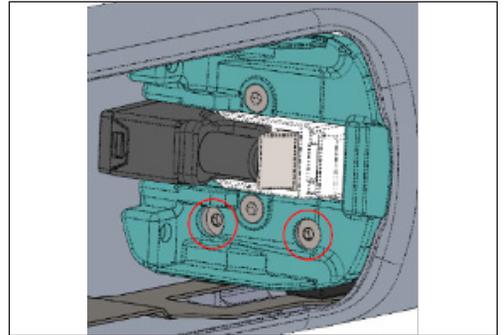


- 17.** Ensure the middle of the alignment plate is not bowed upward or downward and is snug. Do not fully tighten the two button head screws (7).



- 18.** Slide the lower docking (3) toward the drive side as far as it can go, and tighten the two security screws (13) to 5Nm.

- 19.** Slide the upper docking (12) toward the drive side as far as it can go, and tighten the two security screws (13) to 5Nm.



- 20.** Install the RIB battery and observe if the battery appears to install and eject properly.

Because you have adjusted the dockings to their maximum driveside adjustment, the gap between battery and frame may be greater than desired. To adjust placement follow steps 20–22. If you are satisfied, skip to 24.

- 21.** Loosen the two button head screws (7) on each docking and adjust the driveside/non-driveside position of the dockings until you have a 2–3mm frame gap. Then torque the two upper and the two lower button head screws (7) to 5Nm.

- 22.** You may see that the gaps at the upper and lower end of the battery are not symmetrical. This is okay from a functional standpoint. But you may, with caution, use the security screws (13) to position the docking assembly farther down toward the motor. However, it is recommended that the best visual appearance be maintained at the upper edge of the battery, versus the lower.

- 23.** After adjustments are complete, remove the battery and inspect the alignment plate.

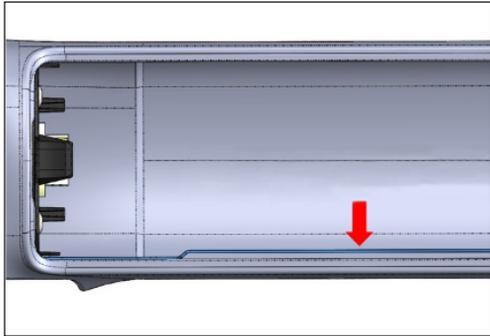


PLATE SHOULD BE STRAIGHT AND FLAT AFTER ALL FASTENERS ARE TIGHTENED.

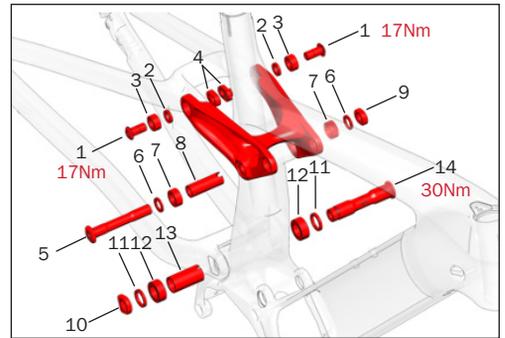
IMPORTANT: Make sure the alignment plate is straight and not bowed up or down.

- 24.** Re-install the battery.
- 25.** To test the connection, try to slide the battery toward the head tube with the system powered on.
- 26.** Update the software per the manufacturer's process.
- 27.** Perform the battery install and eject standard operating procedure.

8 Bosch drive unit removal/installation

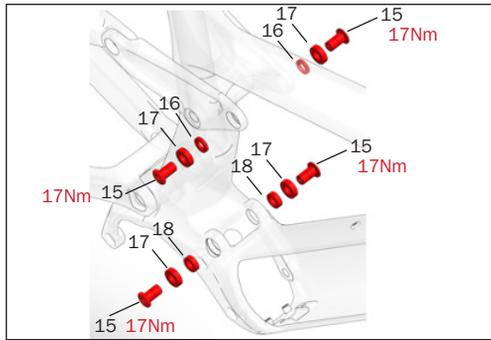
See the appropriate Bosch removal and installation instructions for your drive unit.

9 Suspension hardware



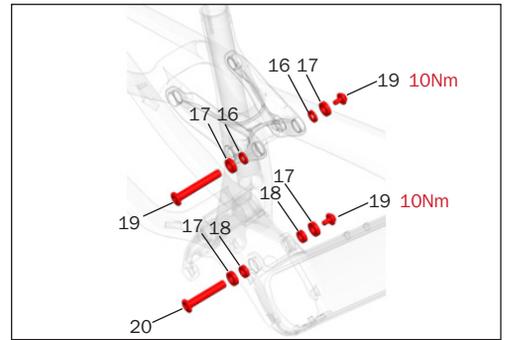
ROCKER PIVOT AND MAIN PIVOT AXLE

| Item number | Description | Part number | Quantity |
|--|-----------------------------|-------------|----------|
| 1 | Mino link bolt | W579296 | 1 |
| 2 | Mino link spacer | W529969 | 2 |
| 3 | Mino link bearing | W529224 | 2 |
| 4 | Mino link nut | W529223 | 2 |
| 5 | Rocker pivot axle | W535469 | 1 |
| 6 | Rocker pivot spacer | W290057 | 2 |
| 7 | Rocker pivot bearing | W586543 | 2 |
| 8 | Rocker pivot bearing sleeve | W310155 | 1 |
| 9 | Rocker pivot nut | W311582 | 1 |
| Rocker pivot kit – one each of pivot axle, sleeve and nut, two bearings and two spacers | | 599910 | 1 |
| 10 | Main pivot nut | W584134 | 1 |
| 11 | Main pivot spacer | W440921 | 2 |
| 12 | Main pivot bearing | W302025 | 2 |
| 13 | Main pivot sleeve | Kit only | 1 |
| 14 | Main pivot axle | Kit only | 1 |
| Main pivot point hardware kit – one each of pivot axle, sleeve and nut, two spacers and two bearings. | | 599909 | 1 |



THRU-SHAFT SHOCK HARDWARE

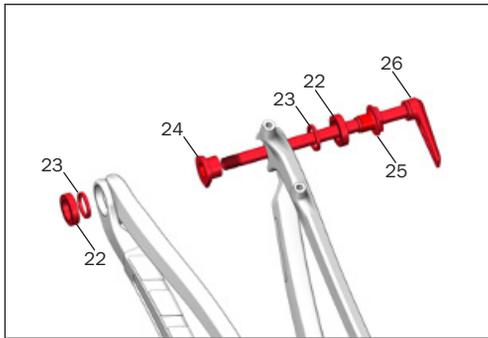
| Item number | Description | Part number | Quantity |
|-------------|-----------------------|-------------|----------|
| 15 | Thru shaft shock bolt | W547868 | 4 |
| 16 | Upper shock spacer | W529969 | 2 |
| 17 | Shock pivot bearing | W293466 | 4 |
| 18 | Lower shock spacer | W536414 | 2 |



STANDARD SHOCK HARDWARE

| Item number | Description | Part number | Quantity |
|-------------|----------------------------------|-------------|----------|
| 16 | Upper shock spacer | W529969 | 2 |
| 17 | Shock pivot bearing | W293466 | 4 |
| 18 | Lower shock spacer | W536414 | 2 |
| 19 | Upper shock axle and end cap kit | 599898 | 3 |
| 20 | Lower shock axle and end cap kit | 599900 | 1 |

10 Dropout hardware



ACTIVE BRAKING PIVOT DROPOUT AND SKEWER

| Item number | Description | Part number | Quantity |
|--|-----------------------------|-------------|----------|
| 22 | Bearing | W583424 | 2 |
| 23 | Spacer (carbon frames only) | W583422 | 2 |
| 24 | Axle guide | W583419 | 1 |
| 25 | Axle nut | W583420 | 1 |
| 26 | Rear skewer | W583470 | 1 |
| Active Braking Pivot universal hardware kit – universal derailleur hanger with bolt and washer, one axle guide, one axle nut, two spacers and two bearings. | | 599911 | 1 |

11 Specifications

| | |
|-----------------------------|-------------------------------------|
| Chainline: | 52mm “Boost” with offset chain ring |
| Maximum chain ring: | 34T (1x only) |
| Maximum tire size: | 29x2.60 |
| Fork maximum: | 170mm – axle to crown: 580mm |
| Frame & fork travel: | 160mm |
| Headset lower stack height: | 1mm |
| Shock eye-to-eye length: | 230mm |
| Shock stroke length: | 57.5mm |
| Upper shock mount width: | 54mm |
| Lower shock mount width: | 40mm |
| Shock axle/bolt diameter: | 10mm |



