

A full-page photograph of two mountain bikers riding on a dirt trail. The biker in the foreground is wearing a red shirt, black pants, and a white helmet, leaning forward in a racing position. The biker in the background is wearing a white and black shirt and a black helmet. They are riding through tall, dry grass. In the background, there are large, rugged mountains under a blue sky with wispy clouds.

TREK

2020 & 2021 RAIL

SERVICE MANUAL SUPPLEMENT





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NOTE

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

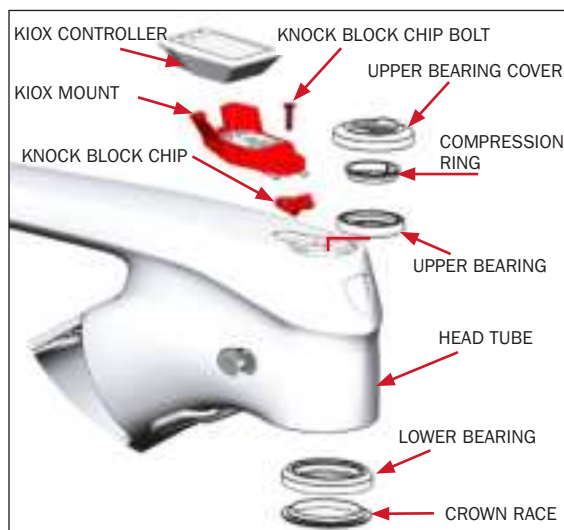
1 Inspect the Knock Block components



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

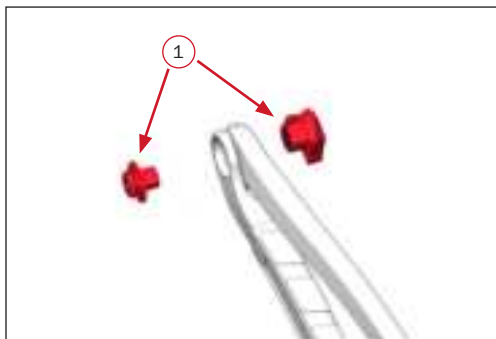


1. Connect the red controller cable (from the non-driveside head tube access hole) to the Kiox mount.
2. Apply grease to the upper and lower head tube bearing-bores.
3. Apply grease to the inside bearing seats for the compression ring and the crown race.
4. Install the crown race, then the lower bearing 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 30 mm 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 spanner that measures torque anticlockwise as well as clockwise.

1. Insert the hanger on the inside of the driveside 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 25 Nm (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.

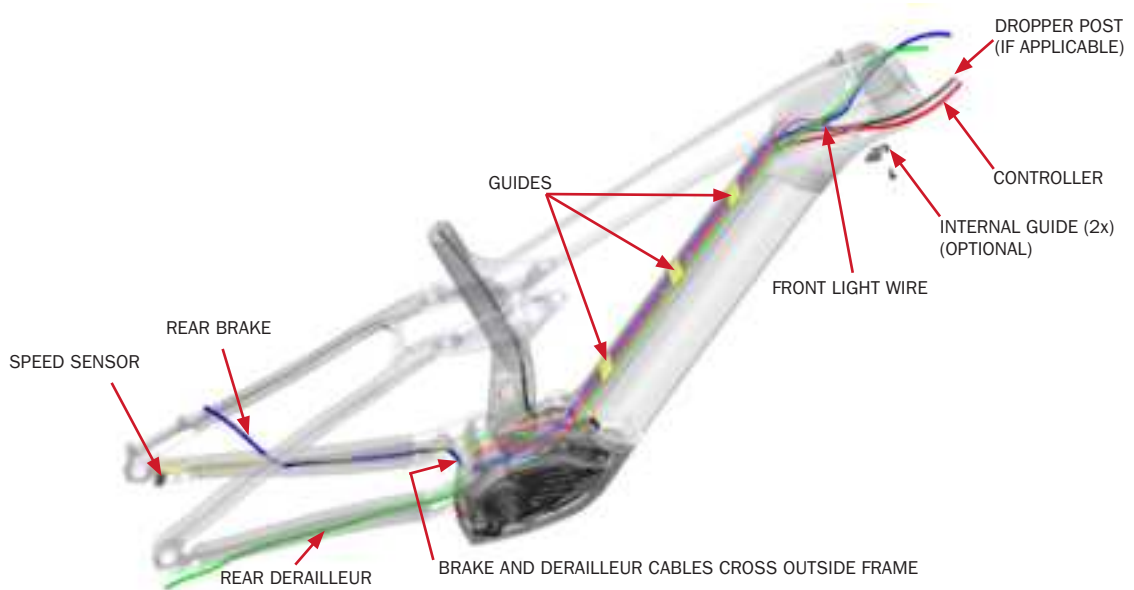


5 Cable routing

Cable	Colour
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.

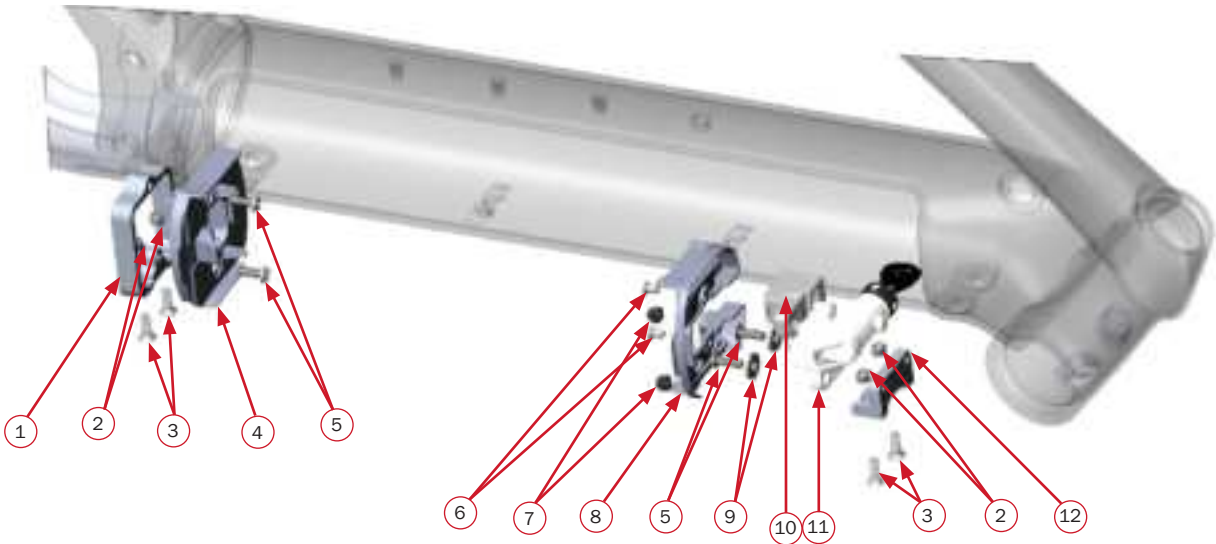


6

RIB system without alignment plate

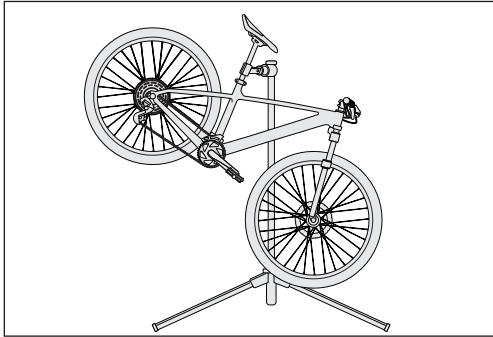
Parts list

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	579247
6	Countersunk bolts	2	N/A	4	
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 in 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).

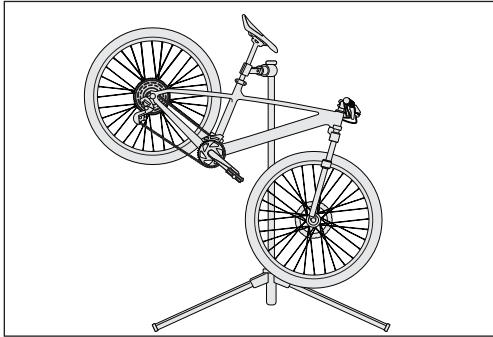


NOTE

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 in 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 held firmly in place and in the same routing paths from the removal.
- 3.** Use the two T25 security screws (3) and 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.

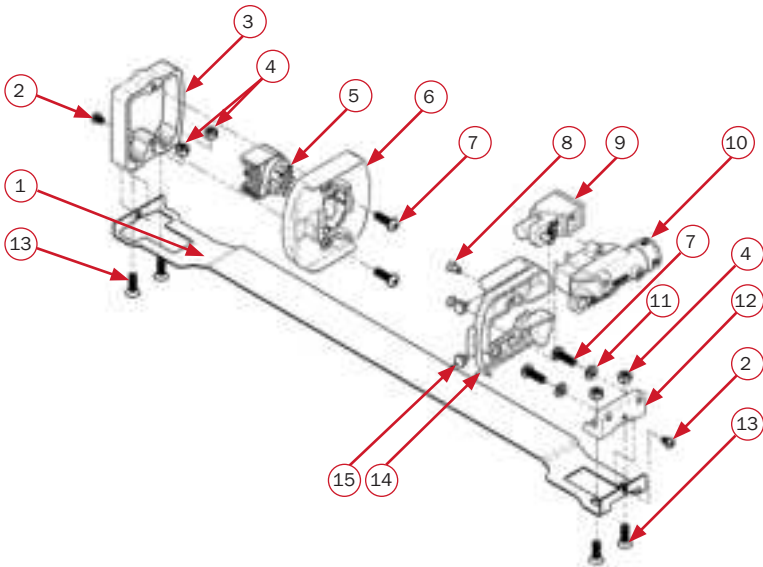
- 5.** Use the two button head screws (5) to install the connector plate (4).
- 6.** Use the two T25 security screws (3) and the two locknuts (2) to install the upper docking bracket (12).
- 7.** Use the two button head screws (5) and the washers (9) to install the lock assembly (10).
- 8.** Use the two bolts (6) and 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.

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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
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	Plunger		564539	1	N/A
10	Lock assembly		W591941	1	N/A



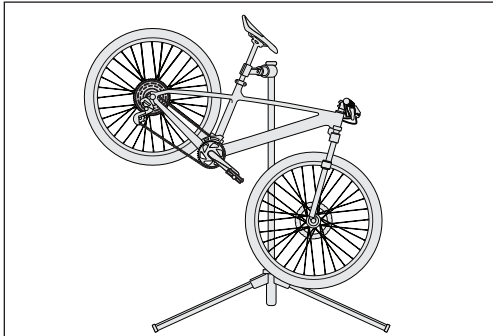
Remove the RIB system**NOTE**

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

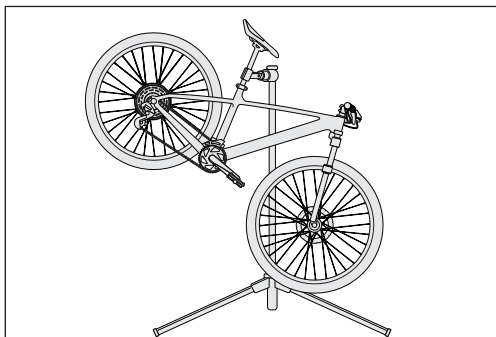


- 2.** Remove the RIB battery from the down tube.
- 3.** Note the cable routing paths. The cable routing will be the same for the installation.
- 4.** Remove the key from the battery lock.

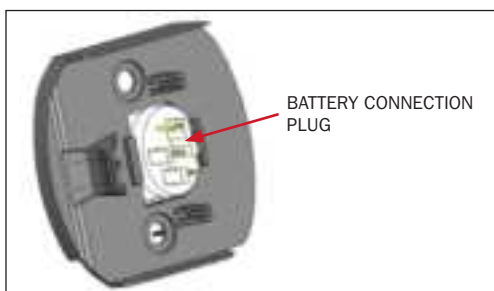
- 5.** Remove the two bolts (8), the two bumpers (15) and the upper plastic lock cover (14).
- 6.** Remove the plunger (9) and the lock assembly (10).
- 7.** Remove the two button head screws (7) and the washers (11) from the upper docking bracket (12).
- 8.** Remove two button head screws (7) and the 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 in 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).

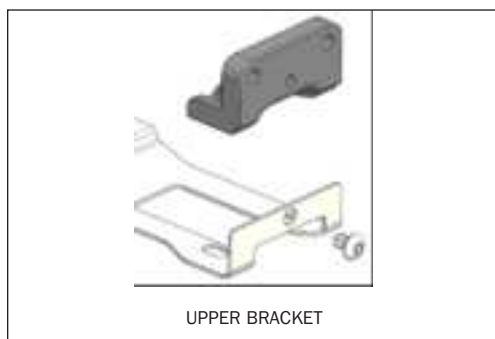


NOTE Make sure the cables running along the bottom and/or top of the down tube are firmly held in place.

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



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



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

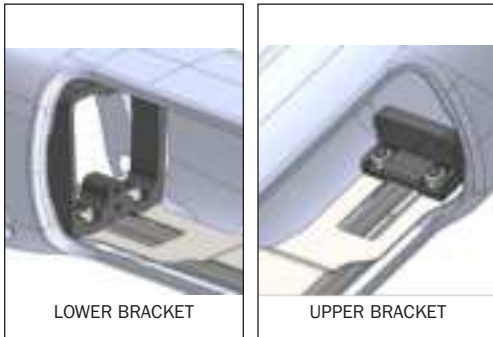


NOTE The underside of the alignment plate has a directional arrow to show which end points to the head tube.

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

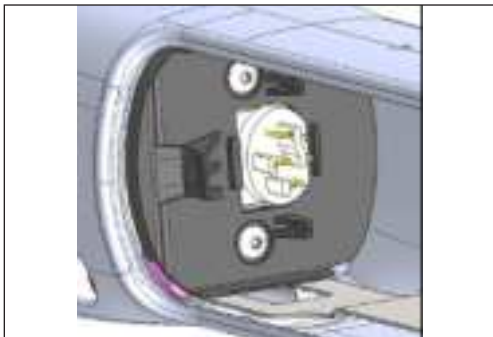
- 7.** Use these four security screws (13) and the locknuts (4) to attach the sub-assembly.

Do not tighten the screws fully 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.

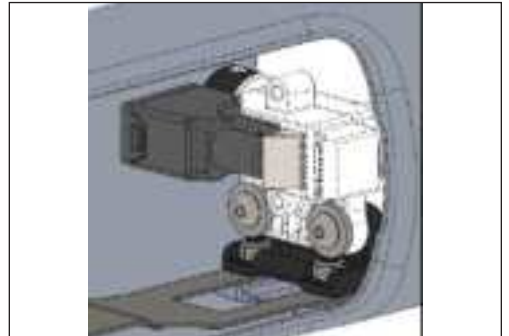
- 8.** Apply threadlocker 242 (or similar) into the threaded holes in the dock mounts. Wipe away excess threadlocker to minimise the chance of contact with the lower battery mounting cover (6).
- 9.** On the lower bracket, thread the battery plug connection through the lower docking bracket (3).



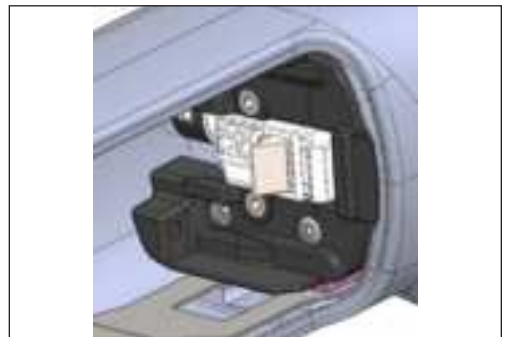
- 10.** Reuse two button head screws (7) to install the lower battery plug mounting cover (6) with the battery plug.

Do not tighten the screws fully 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) contact the lock core slightly 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 cut-out. Do not apply excess pressure.



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



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

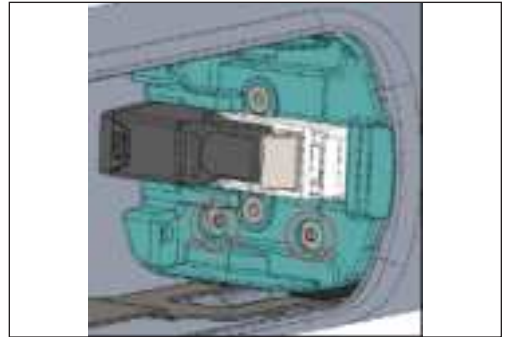


- 17.** Ensure the middle of the alignment plate is not bowed upwards or downwards and is snug. Do not fully tighten the two button head screws (7).



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

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



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

Since 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 2–3 mm frame gap. Then torque the two upper and the two lower button head screws (7) to 5 Nm.

- 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 further down towards 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.

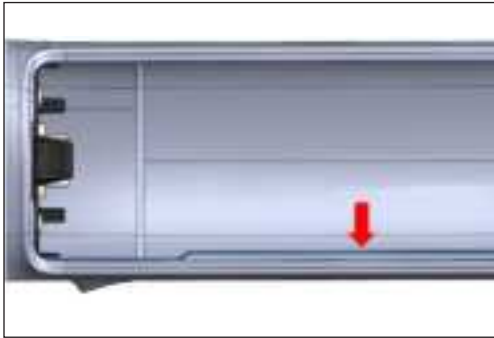
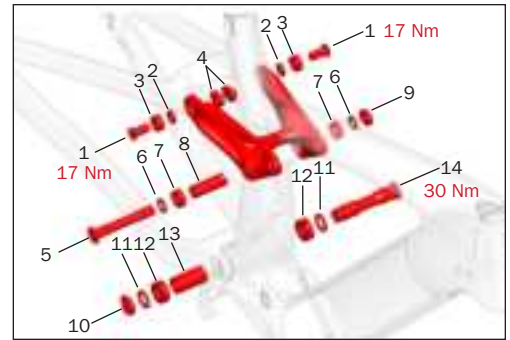


PLATE SHOULD BE STRAIGHT AND FLAT AFTER ALL FASTENERS ARE TIGHTENED.

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

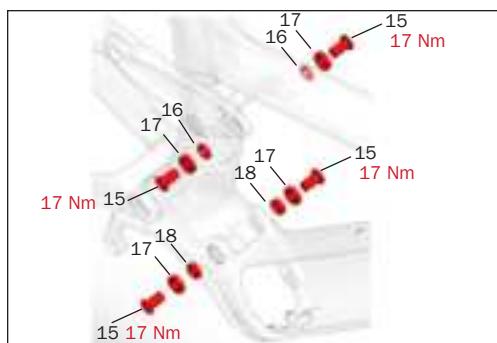
- 24.** Re-install the battery.
- 25.** To test the connection, try to slide the battery toward the head tube with the system powered on.
- 26.** Update the software per the manufacturer's process.
- 27.** Perform the battery install and eject standard operating procedure.

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



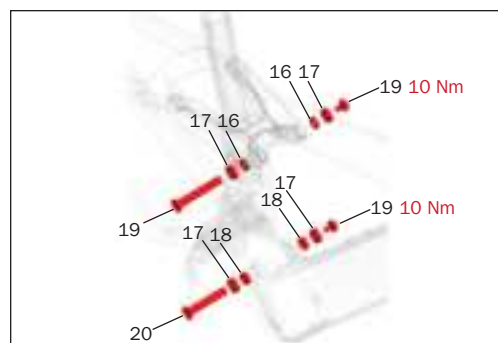
ROCKER PIVOT AND MAIN PIVOT AXLE

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

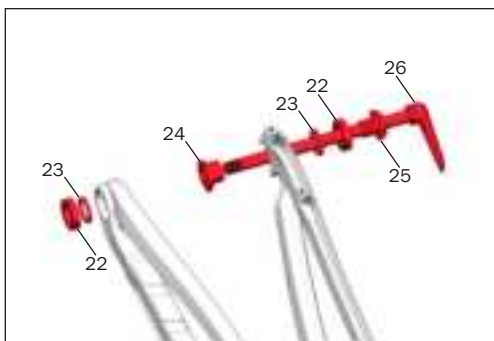
Item number	Description	Part number	Quantity
15	Thru shaft shock bolt	W547868	4
16	Upper shock spacer	W529969	2
17	Shock pivot bearing	W293466	4
18	Lower shock spacer	W536414	2



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:	52 mm 'Boost' with offset chain ring
Maximum chain ring:	34T (1x only)
Maximum tyre size:	29x2.60"
Fork maximum:	170 mm – axle to crown: 580mm
Frame & fork travel:	160 mm
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

