

SUPERCALIBER | ISOSTRUT

SERVICE MANUAL



TREK

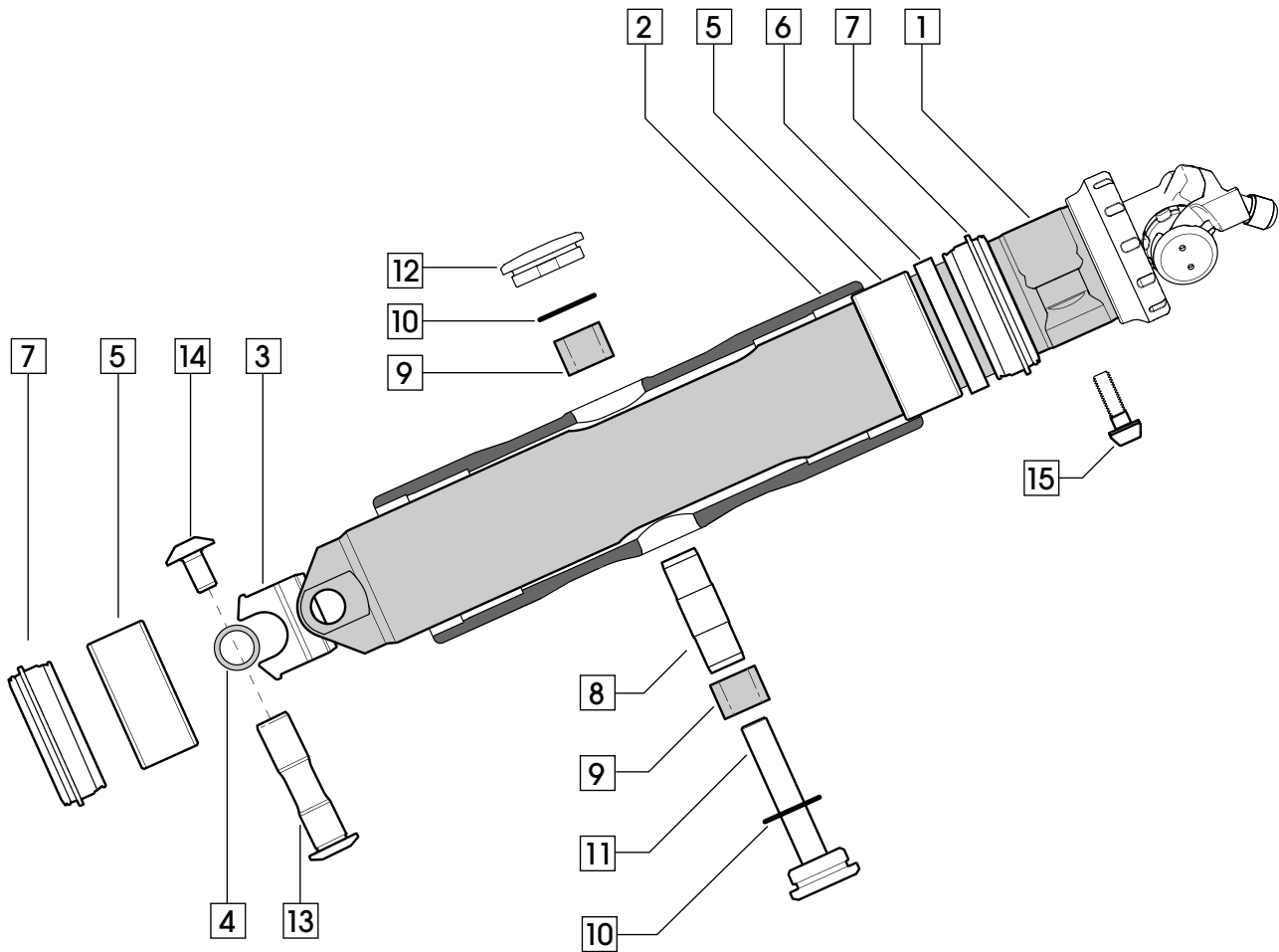


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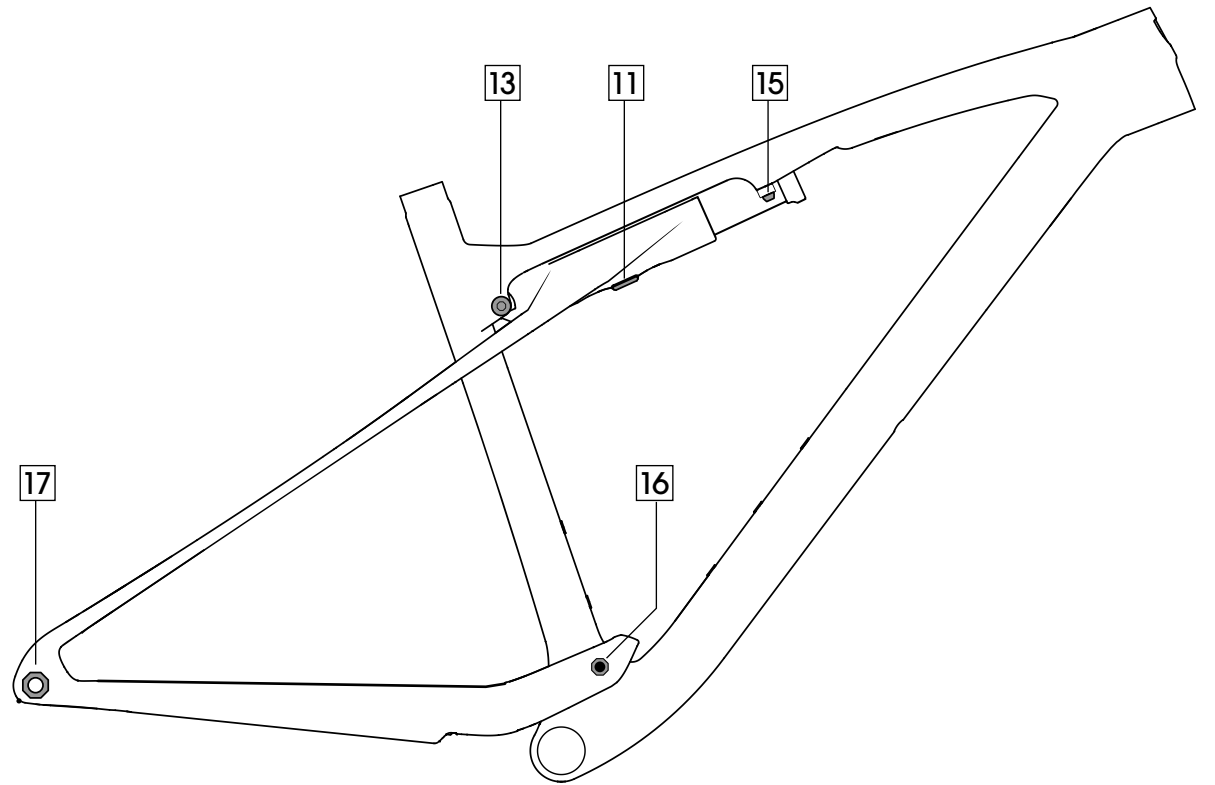
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1 DIAGRAM OF ISOSTRUT



1 Diagram of IsoStrut



Hardware	Torque
11 – Damper mount bolt	7 Nm
13 – IsoStrut rear axle	10Nm
14 – IsoStrut end cap bolt	10Nm
15 – IsoStrut front screw	5 Nm
16 – Main pivot axle	23Nm
17 – Derailleur nut	23Nm

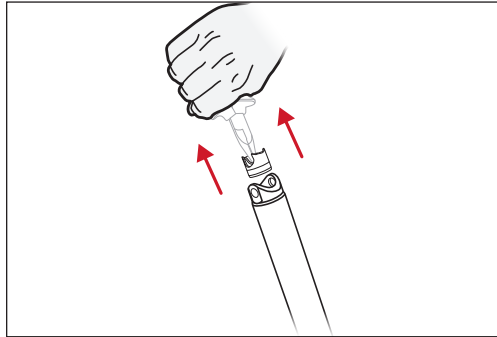
Component
1 – IsoStrut
2 – Frame carriage
3 – Strut oil fill plug
4 – Rear mount sleeve
5 – Carriage wiper bushing
6 – Foam ring
7 – Carriage wiper seal
8 – Damper body sleeve
9 – Guide bushings
10 – O-ring
12 – Captive nut

2 INSTALL THE ISOSTRUT

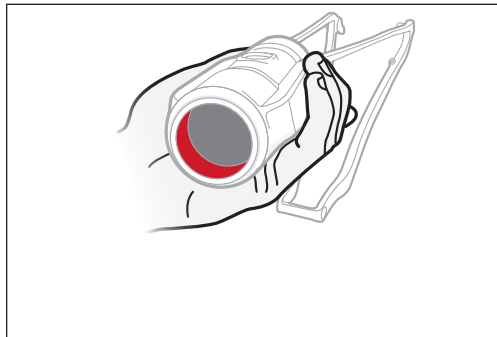
TOOLS REQUIRED

- Needle nose pliers
- Fork bath oil (10 wt)
- Clean syringe
- Torque wrench (5–10 Nm)

1. If there is a plug in place, use pliers to carefully pull out the plug from the IsoStrut.

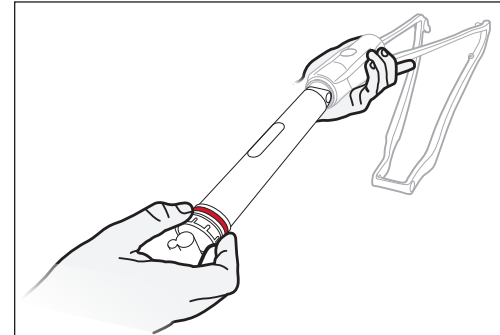


2. Lightly oil the inside of the carriage seals.

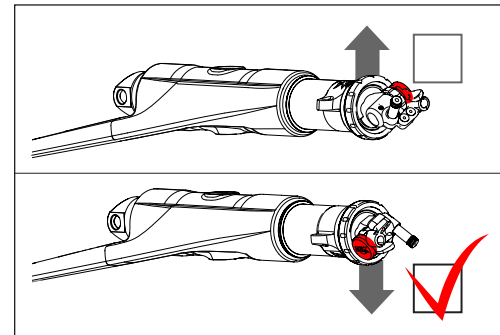
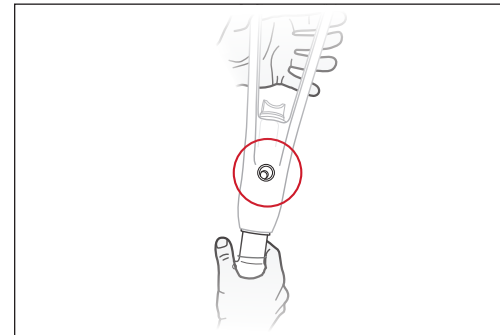


3. With the sag o-ring on the strut, insert the IsoStrut into the swing arm carriage.

NOTE If the bike has been used, inspect the bushings inside the swing arm carriage for any wear. Replace the bushings if worn.



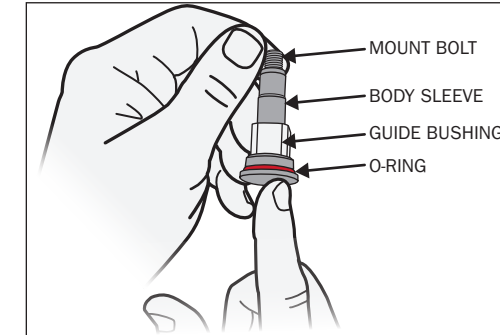
4. Push the strut into the carriage until the damper body eyelet is centred with the carriage mount hole.



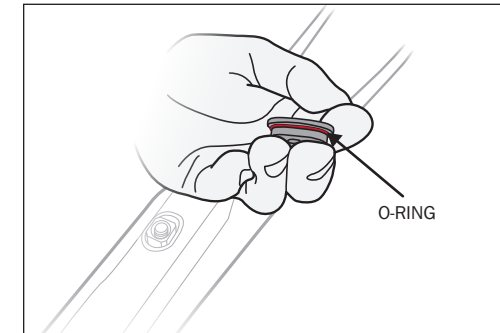
2 Install the IsoStrut

5. Assemble the mount bolt, guide bushing and body sleeve as shown and inspect the o-ring for cracks, tears or signs of wear.

If the bike has been used, check for excess dirt and clean the hardware.

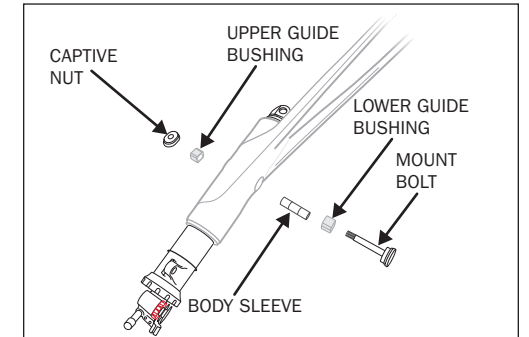


6. Inspect the o-ring in the captive nut for wear and excess dirt. Clean or replace as necessary.



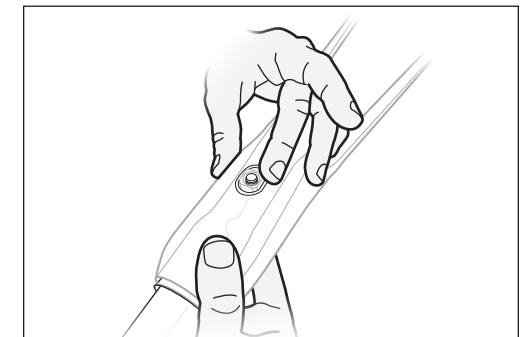
NOTE These o-rings can be obtained separately as PN 588512.

7. Install the damper body mount bolt assembly as shown.



8. Slide the assembly through the bottom of the mount.

9. From the top, install the upper guide bushing.

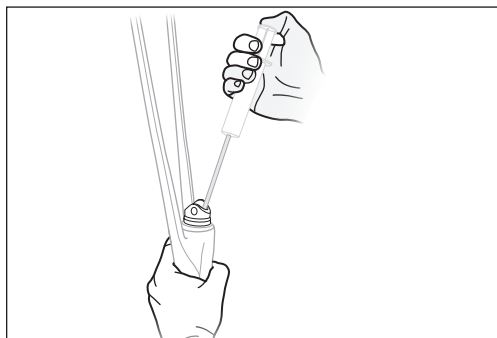


10. Inspect that the o-ring is seated inside the aft groove in the strut.

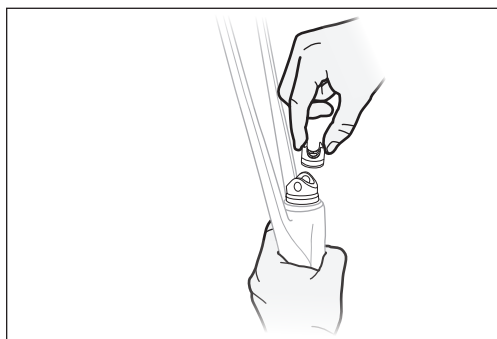
11. Install and torque the body damper captive nut to 7 Nm.

- 12.** Holding the strut upright, use a syringe to fill the IsoStrut with 15ml of fork bath oil.

NOTE This procedure can also be done to add fresh bath oil as a part of the 100-hour service seal replacement and bushing inspection.

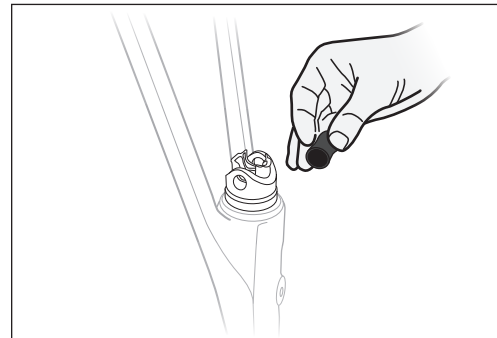


- 13.** Firmly press the oil plug back into the aft end of the IsoStrut. Make sure the plug is tightly seated in the IsoStrut opening.



- 14.** Install the compression sleeve into the strut cap.

NOTE If the compression sleeve will not allow the rear strut hardware to pass through, the plug is not fully seated into the IsoStrut opening.



- 15.** Wipe off excess oil from assembly when you have finished.

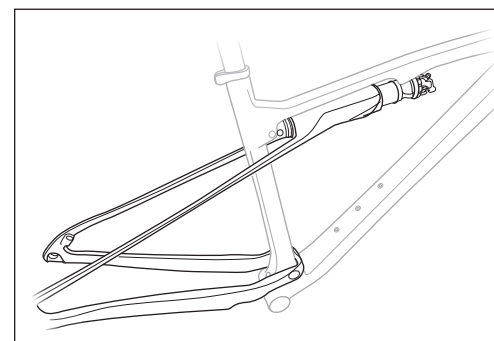
3 ASSEMBLE THE SWING ARM TO THE FRONT TRIANGLE FRAME

TOOLS REQUIRED

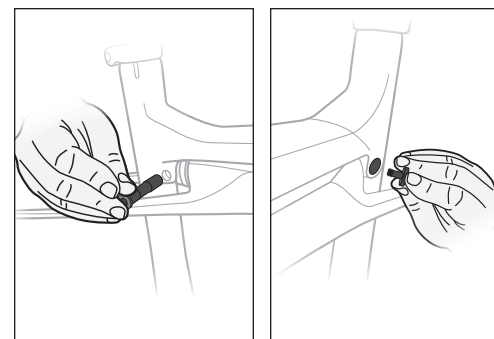
- Long arm hex wrench
- M6 hex wrench
- M5 hex wrench
- Torque wrench

NOTE For this assembly, you must have: The main pivot bearings and sleeves installed, and the IsoStrut installed on the swing arm.

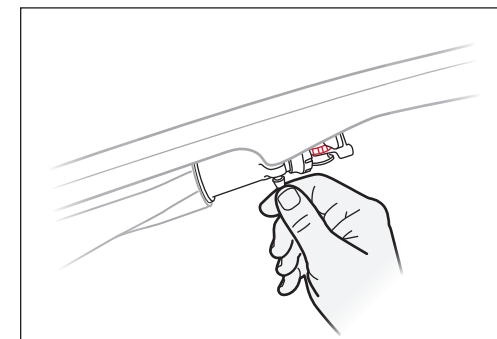
1. Put the seat post in a bike stand.
2. Fit the swing arm into the front triangle frame.



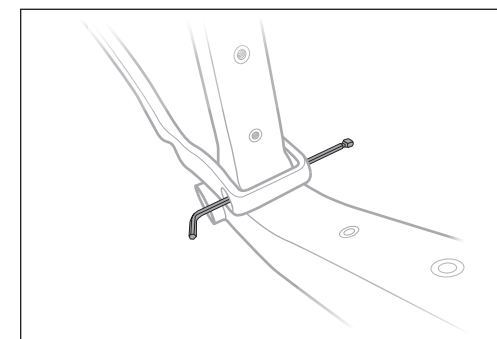
3. Install BUT DO NOT TORQUE the aft IsoStrut axle and end cap bolt.



4. Install BUT DO NOT TORQUE the forward IsoStrut screws and washers.

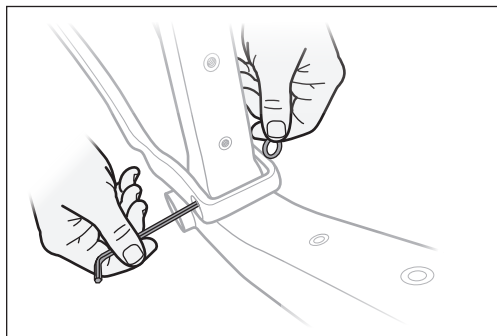


5. From the drive side, insert the Allen wrench into the main pivot bearing.

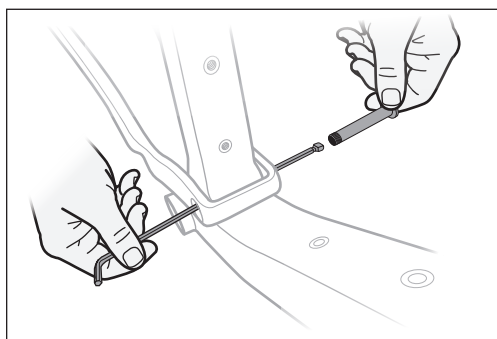


Technician Tip: Use the long arm Allen key or similar to properly align the washers on each side of the main pivot joint.

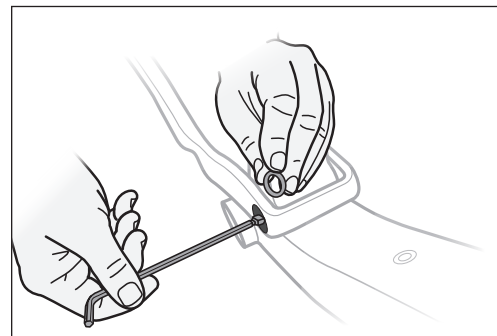
- 6.** Insert one of the main pivot bolt washers between the front triangle frame and the non-drive side swing arm. Push the Allen key through the washer.



- 7.** Slide the main pivot bolt onto the non-drive side end of the Allen key, through the washer and into the pivot bearing. This will hold the washer and bolt in place. Pull the Allen key out.



- 8.** From the drive side, insert the other main pivot bolt washer between the front triangle frame and the drive side swing arm. Push the Allen key through the washer.



- 9.** With the Allen key still inserted, guide the main pivot bolt through both washers and into the threaded chainstay. Take care not to strip the threads when beginning to thread the axle into place.

- 10.** Torque the two forward screws to 5 Nm.

- 11.** Torque the aft axle to 10 Nm.

**NOTE**

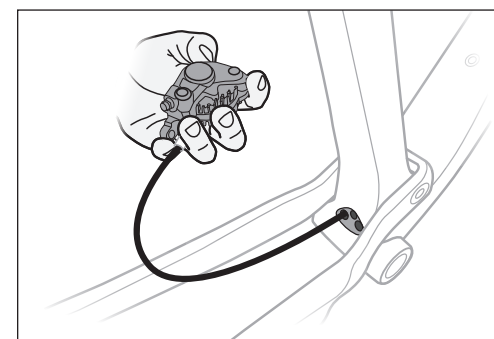
Make sure that the washers are under the screw heads.

- 12.** Install the drive side captive nut, and torque the main pivot axle to 23 Nm.

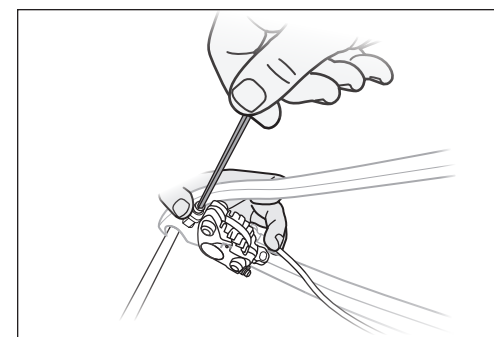
TOOLS REQUIRED

- Small zip ties
- Small torque wrench
- M4 hex wrench

- 1.** Route the RB hose through the bottom bracket cable routing hole.

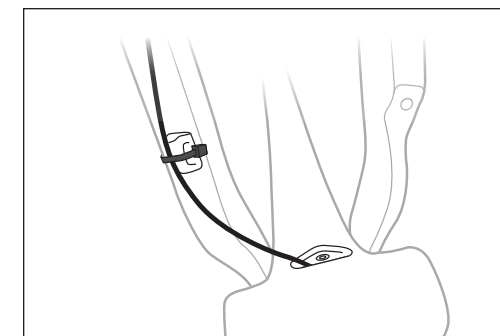


- 2.** Install the rear brake on the chainstay.

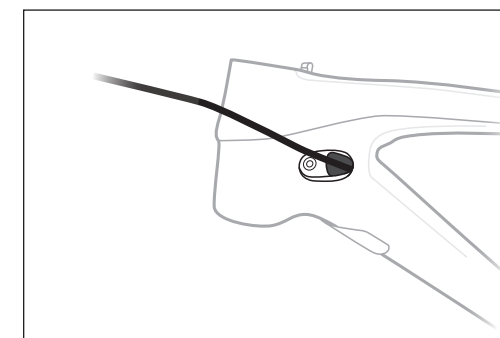


- 3.** Route the rear brake hose through the two chainstay cable guides.

- 4.** Use zip ties to loosely connect the hose around the cable guides. Leave the zip ties loose at this time for ease of hose installation.



- 5.** Route the hose up the down tube and out the left side head tube hole.



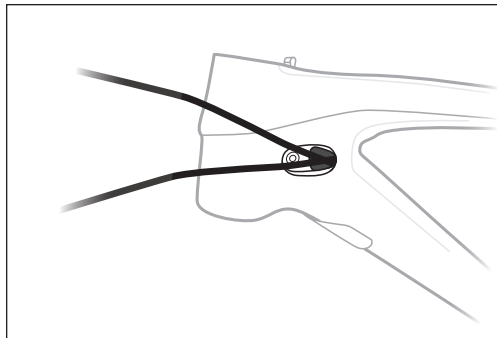
5 INSTALL THE REAR DERAILLEUR AND CABLE

TOOLS REQUIRED

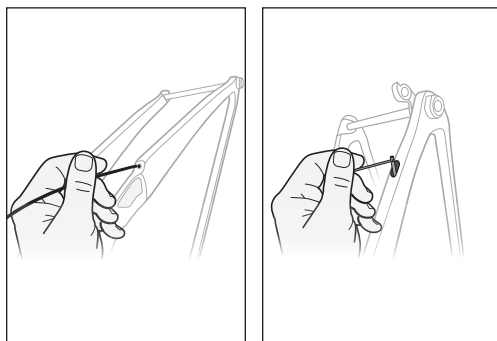
- Pick
- Torque wrench
- Small zip ties
- Hex wrench (install rear derailleur)

NOTE This procedure assumes there is no bottom bracket installed. If you have a bottom bracket installed, you can route the cable from the BB hole up to the head tube and down to the rear cable routing hole.

1. Route the cable from the head tube entrance hole, down the down tube and out of the rear cable routing hole.



2. Continue to route the cable from the rear cable hole through the rear chainstay hole (drive side).

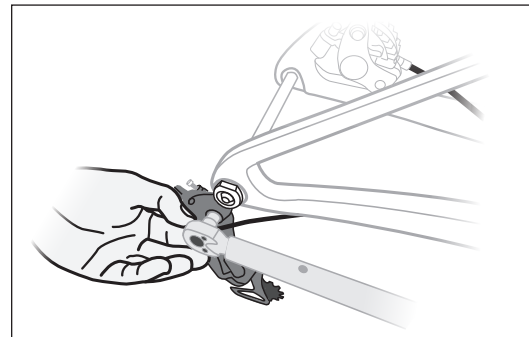


Technician Tip: Use a hook tool to help the cable through the chainstay hole.

3. Use zip ties to loosely connect the cable around the cable guides. Leave the zip ties loose at this time for ease of installation.



4. Connect the rear derailleur to the chainstay. Torque to original manufacturer's specification.



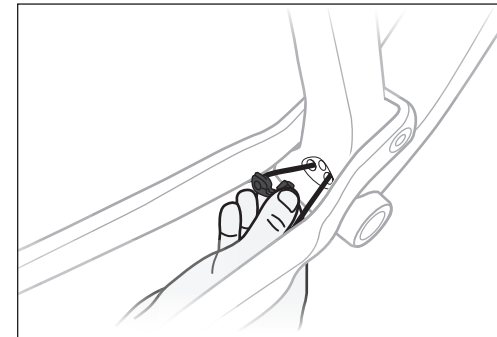
5. Finish the derailleur set-up according to the original manufacturer's recommendation.

6 INSTALL THE DUAL CABLE GUIDE GROMMET

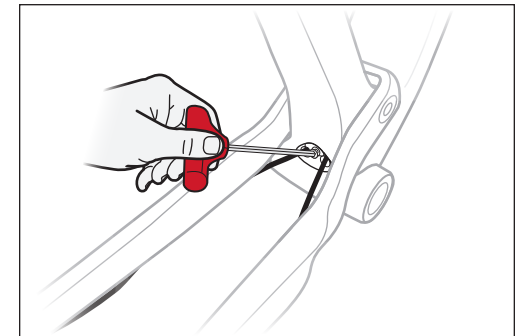
TOOLS REQUIRED

- M4 hex wrench
- Zip tie cutting tool
- Torque wrench

1. At the base of the seat tube, snap the two housings into the grommet.



2. Install the centre cable guide plate. Torque the bolts to 2 Nm.



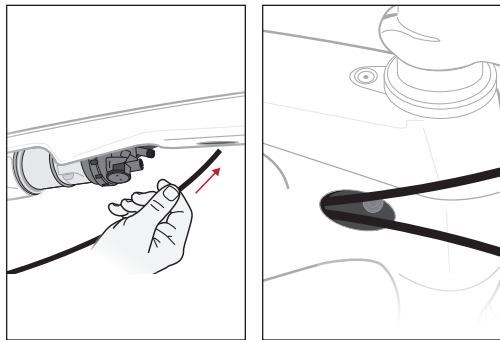
3. Now go back to the zip ties and tighten them against the frame and clip the ties close to the frame.

7 ROUTE THE LOCKOUT CABLE

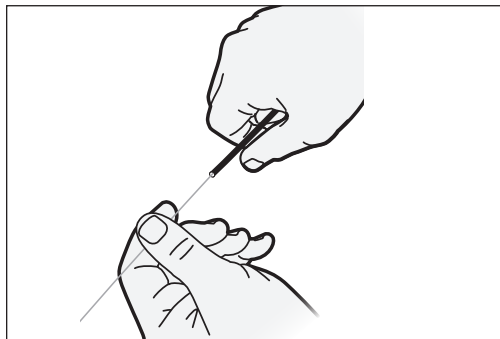
TOOLS REQUIRED

- M4 hex wrench
- Hex wrench (lockout spool set screw)
- Cutting tool
- Hex wrench (stem top cap install)
- Torque wrench

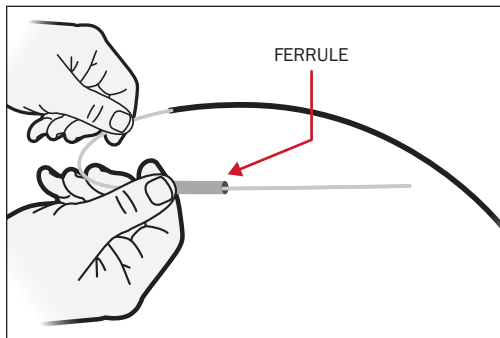
1. Install the cable in the remote lockout.
2. Route the cable through the hole in the bottom of the top tube just forward of the IsoStrut and out drive side head tube hole.



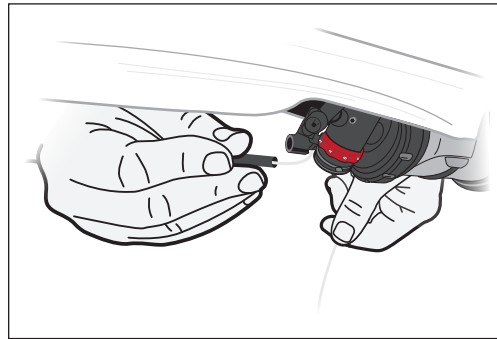
3. At the head tube, route the wire through the cable.



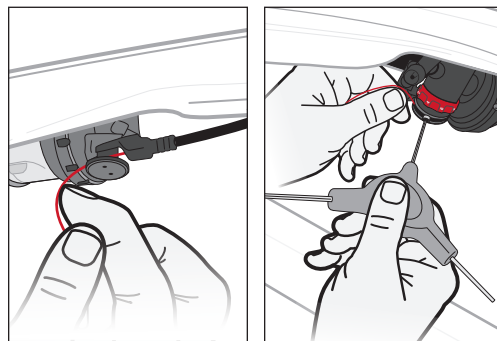
4. At the IsoStrut, slide the ferrule on the wire.



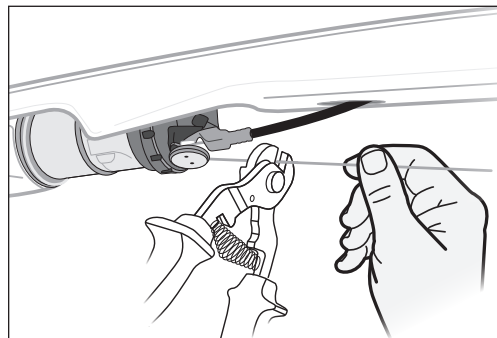
5. Guide the wire through the slot in the cable stop.



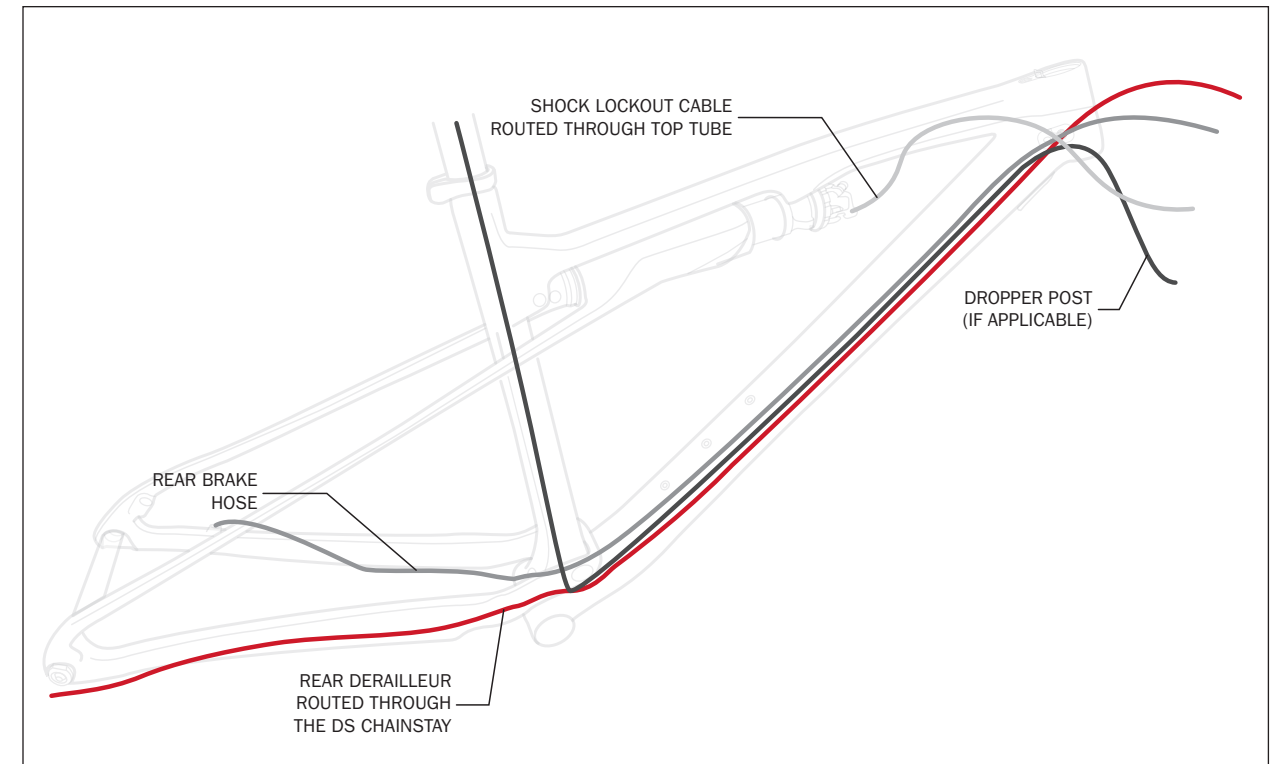
6. Route the wire around the lockout spool and install the set screw.



7. Test that the mechanism works satisfactorily.
8. Cut the wire to the appropriate length (20-30 mm) and crimp an end cap on it.



8 CABLE ROUTING



9 AIR VOLUME SPACER PROCEDURE

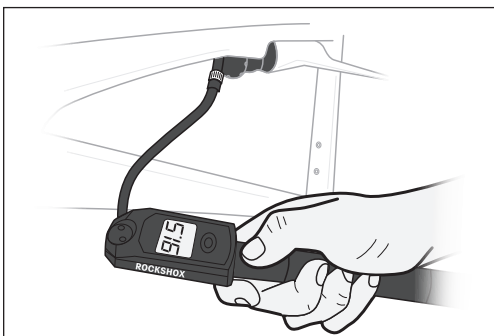
Replace the air volume spacer

TOOLS REQUIRED

- BSA30 Open-ended bottom bracket tool
- Spanner pliers
- Loctite Blue 243
- Parallel jaws pliers
- Torque wrench
- Shock pump
- Spacers



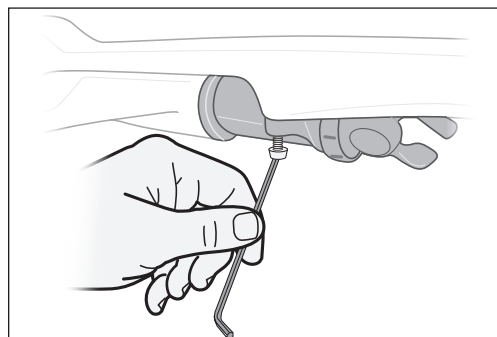
1. Use a shock pump to check the air pressure in the shock. Make a note of this value for use in step 18.



2. Gradually bleed air from the air valve.

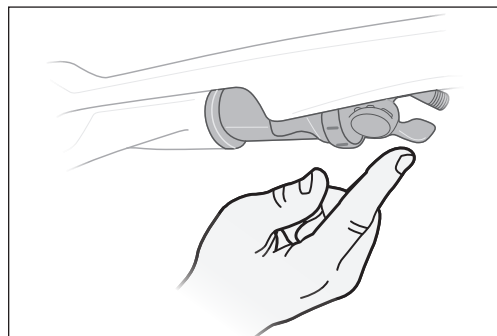
Technician Tip: There is no need to compress the shock as you will need some air in the negative air spring.

3. Remove the two forward IsoStrut bolts and washers.



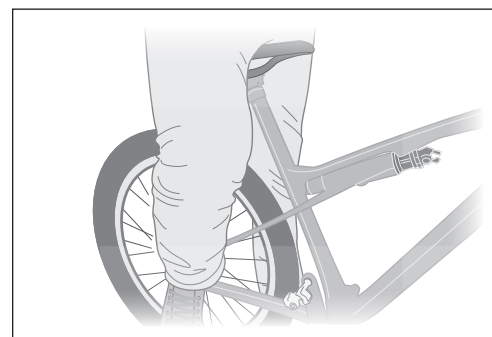
4. Loosen but DO NOT REMOVE the rear strut pin.

5. Turn the lever anti-clockwise to set the lockout lever to the open position.



9 Air volume spacer procedure

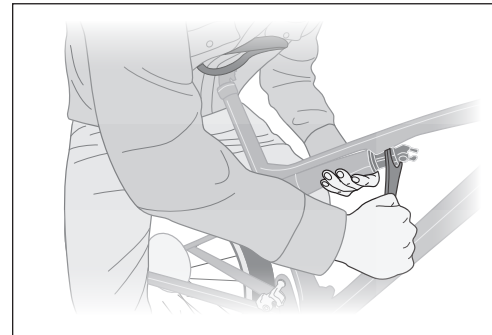
6. Sit on the seat to compress the suspension. The front end of the IsoStrut will move away from the top tube to provide clearance for the BSA30 tool.



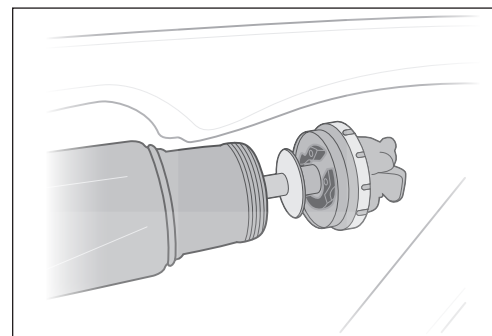
CAUTION: Take special care to protect the top tube from scratches that may result from the open-ended tool breaking the lock ring loose.

7. Use the BSA30 tool to break the lock ring loose and unthread it from the strut station body.

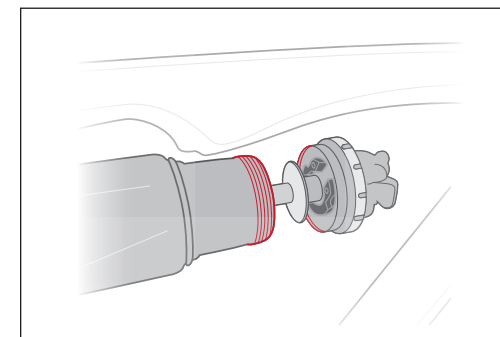
Technician Tip: This step is easiest when the shock is compressed.



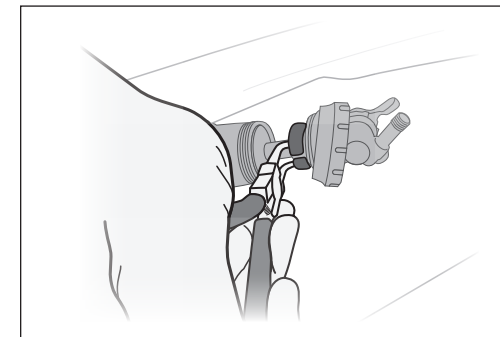
8. Once the ring is threaded off the shock, the forward end of the shock will extend forward to reveal an o-ring, a round metal plate and the spacer.



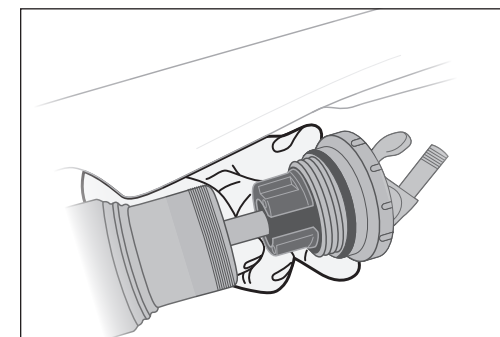
9. Clean off any dirt or adhesive residue from the shock threads and the lock ring.



10. Move the round metal plate backwards into the IsoStrut. Then use a spanner pliers to remove the air volume spacer.

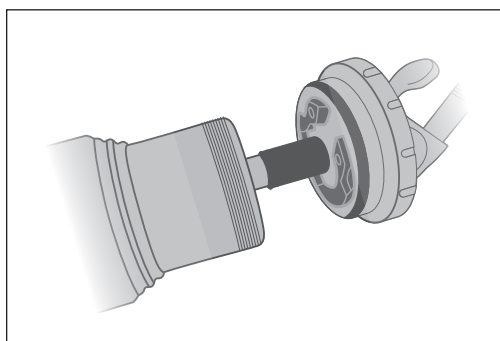
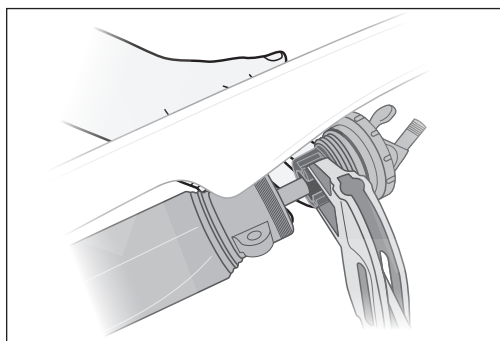


11. Put a new spacer in place around the damper shaft.



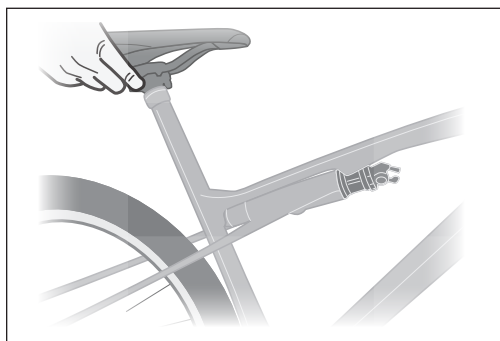
12. Depending on the size of the spacer, use the spanner pliers or a parallel jaws pliers to fit the spacer into place.

- 13.** You should hear a 'snap' when the spacer snaps into the upper air cap.

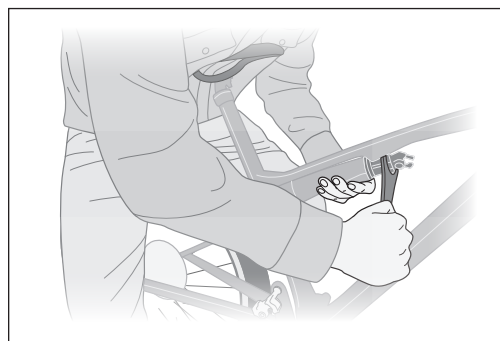


- 14.** Add Loctite Blue 243 to a minimum of 2 threads covering 60-90° of the threads.

- 15.** Move behind the seat and pull the seat up to extend the suspension. This will bring the lock ring in contact with the strut.

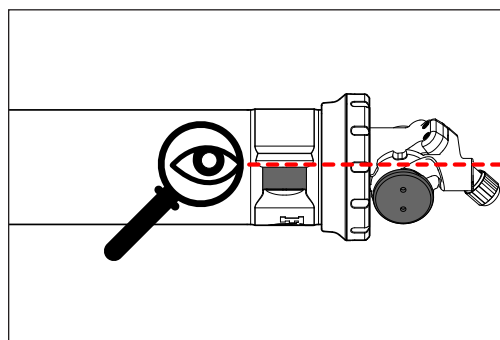


- 16.** Use the BSA30 tool to turn the lock ring onto the strut.



Technician Tip: For best results, sit on the rear tyre for this step to balance the bike.

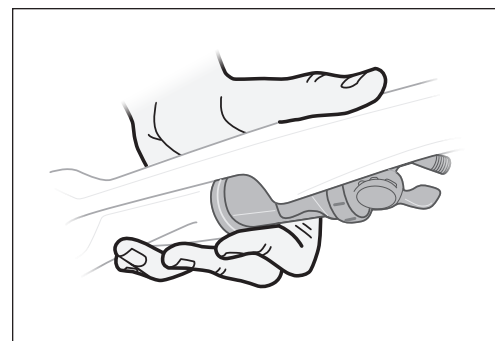
- 17.** As you tighten the lock ring, locate the orientation of the upper air cap on the strut. You will want proper orientation and frame clearance before you apply torque.



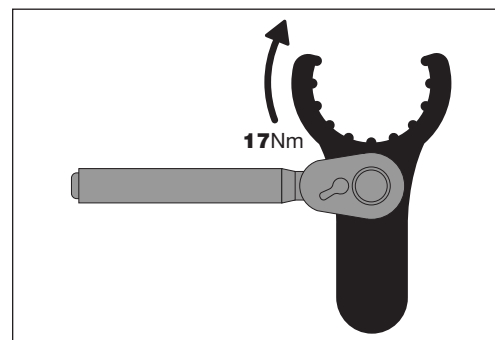
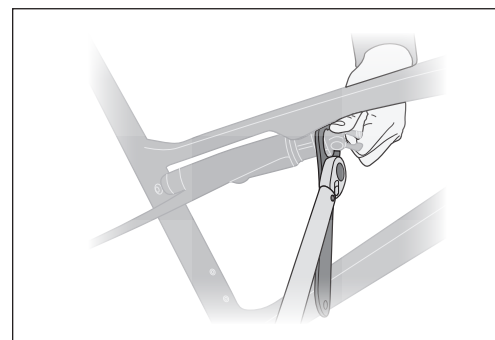
NOTE

Make sure the air spring valve has enough clearance to the frame to clear your shock pump.

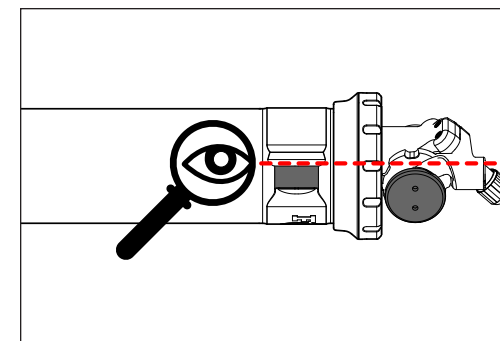
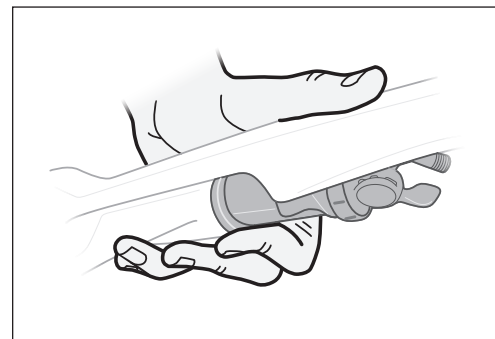
Technician Tip: The upper air cap can be re-orientated to a rider's preference. Double check the frame clearance to insure proper fit.



- 18.** Use the torque wrench and the hole in the BB wrench to torque the lock ring to 17 Nm.



- 19.** Put the strut into a ride-ready position to check for proper orientation of the air cap. Correct if necessary.



- 20.** Lightly grease and install the forward strut mount screws. Make sure that the washers are under the screw heads. Torque the screws to 5 Nm.

- 21.** Torque the rear strut axle to 10 Nm.

- 22.** Use the shock pump to re-inflate the strut air pressure to the PSI from step 1.

- 23.** Run through the SAG procedure to determine the proper rider setting for the strut.

10 CARRIAGE WIPER SEALS AND BUSHINGS

TOOLS REQUIRED (SEALS)

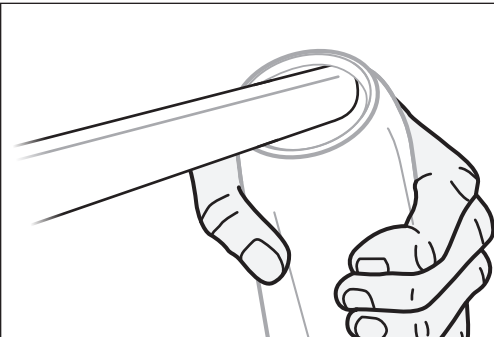
- Seal & bushing press tool set (pair) PN 593490
- 1 inch (25.4 mm) Delrin rod
- Headset press

TOOLS REQUIRED (BUSHINGS)

- Unior Slide hammer PN: 689/2B1-US
- 30-36 Expanding collet
- Bushing installation tool
- Bushing sizer

1. Use the Delrin rod to pull out the front seal.

Technician Tip: You may need to walk the rod around the carriage to remove the seal.

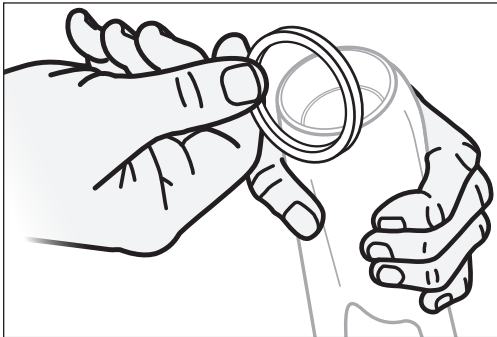


2. Pull out the foam ring.

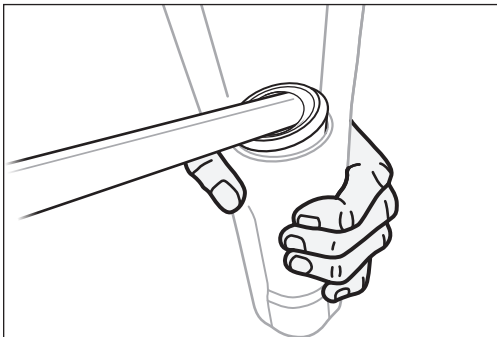


NOTE

There is only one foam ring in the front of the carriage. None in the back of the carriage.



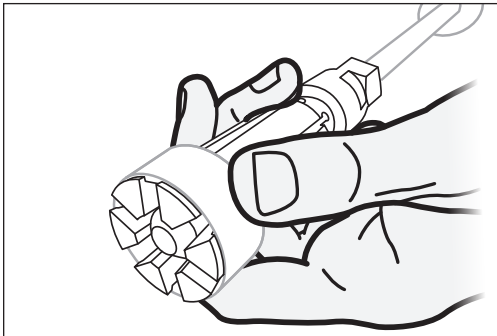
3. Use the Delrin rod to pull out the rear seal.



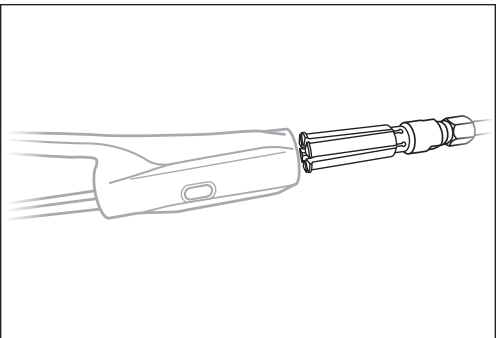
If you are replacing only the seals, jump to WIPER SEAL INSTALLATION on page 23.

If you are replacing both the seals and the bushings, continue with step 4.

4. Put the slide hammer with the collet attached inside the front end of the carriage.

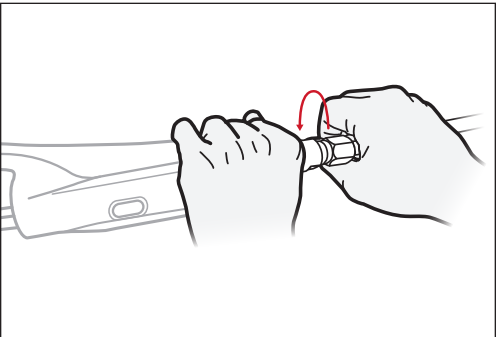


10 Carriage wiper seals and bushings

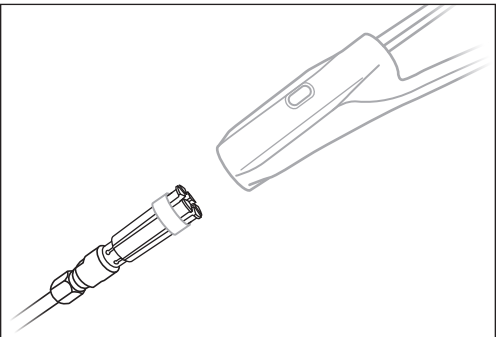


5. Thread the collet to engage the bushing lip.

Technician Tip: Be careful not to engage the bushing lip inside the carriage. Engage the bushing only.



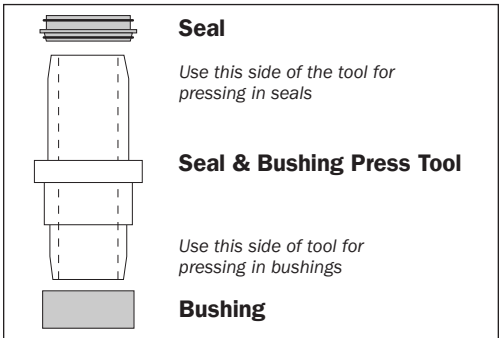
6. Use the slide hammer action to remove the bushing.



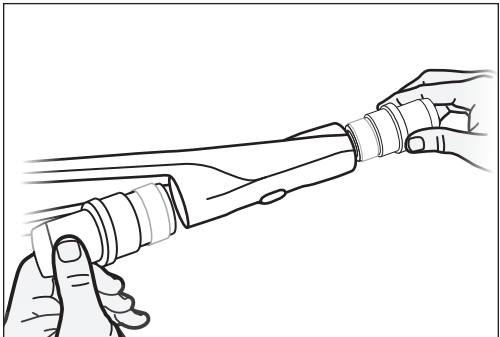
7. Repeat steps 4 to 6 for the rear bushing.

8. Wipe the bushing bores with a clean, dry cloth to clear out any debris.

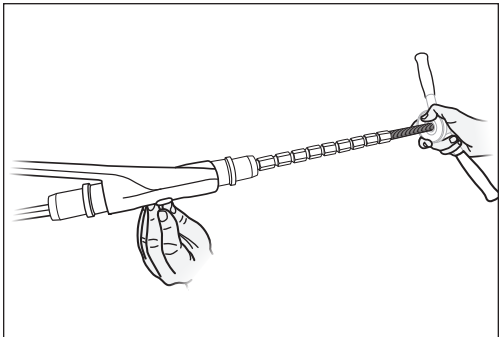
9. Load a new bushing onto each bushing installation tool.



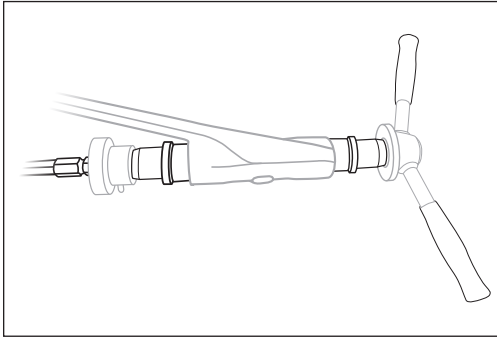
10. Put both tools with bushings in the front and rear of the carriage.



11. Insert the headset press from the front of the carriage (handle end on the front of carriage).

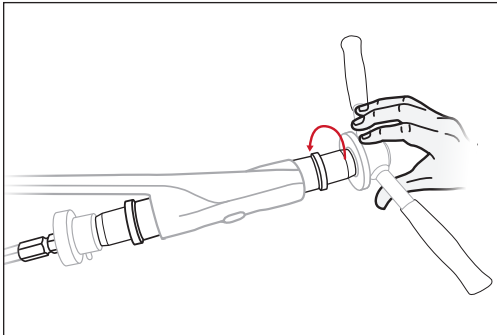


- 12.** At the rear end of the carriage, click on to the end of the headset press.



- 13.** Spin the headset press down snug. Check for the correct alignment of press, tools and bushings. Rotate the press to push the bushings into place.

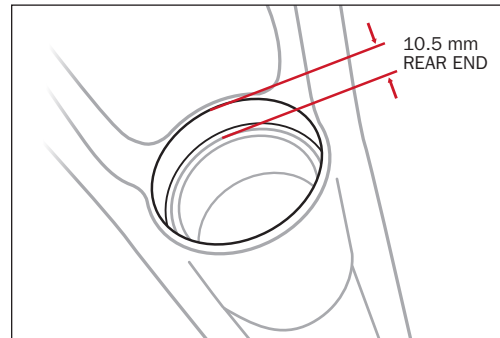
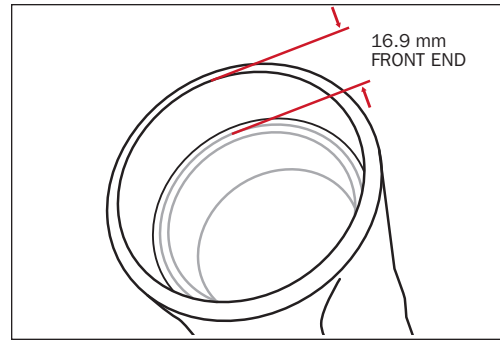
NOTE It's normal to have different gaps at the front and rear of the carriage.



- 14.** Tighten the press until you feel resistance. Once you feel resistance, remove the press and tools and inspect the bushings for proper placement.

Inspect to see that the bushing is pressed deep enough into the carriage. From the top of the bushing to the step above the bushing, the measurements should be:

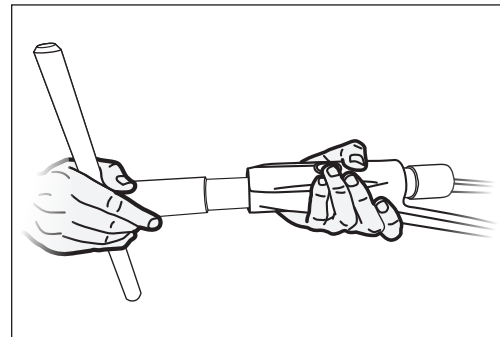
- Front = 16.9 mm
- Rear = 10.5 mm



- 15.** From the front of the carriage, use the bushing sizer to size the bushing.

IMPORTANT: Do not use grease.

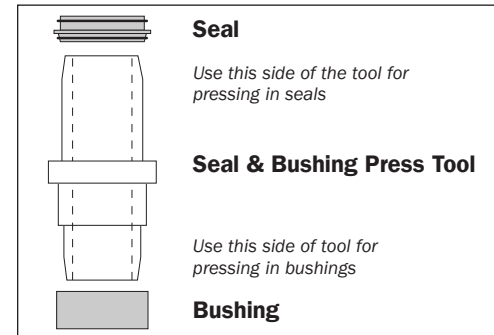
IMPORTANT: Make sure the sizing tool head is clean prior to use.



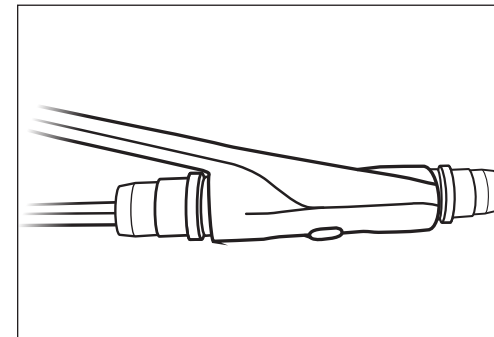
- 16.** Repeat step 14 three to four times moving front-to-back and back-to-front.

NOTE Rotating the sizer to the left or right does not matter.

- 1.** Wipe the seal surface inside the carriage to remove debris.
- 2.** Put both carriage wiper seals on the bushing/seal tools.

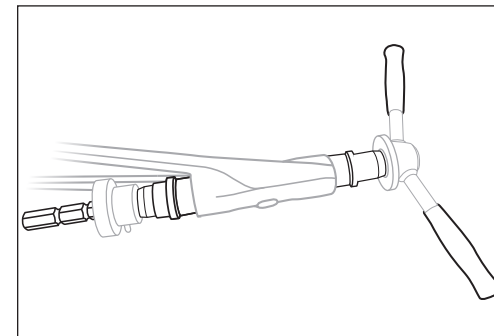


- 3.** Put both tools with seals in the front and rear of the carriage.

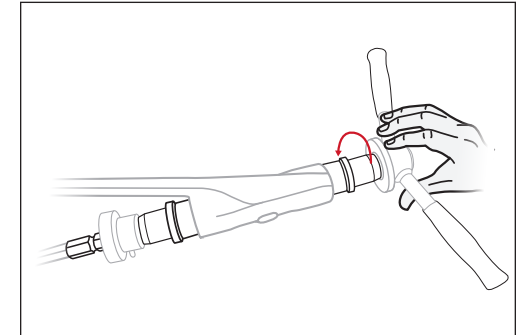


- 4.** Insert the headset press from the front of the carriage (handle end on the front of carriage).

- 5.** At the rear end of the carriage, click on to the end of the headset press.

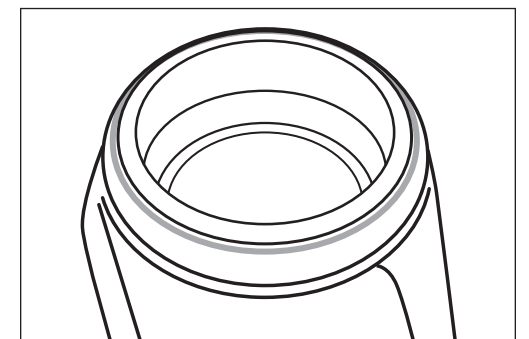
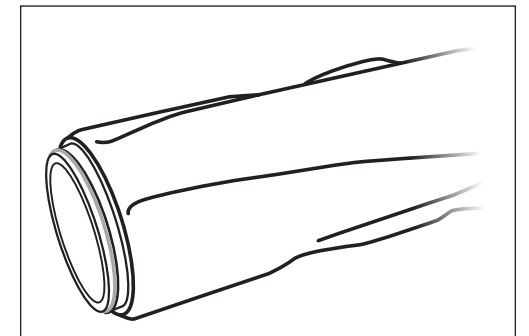


- 6.** Spin the headset press down snug. Check for correct alignment of press, tools and seals. Rotate the press to push the seals into place.



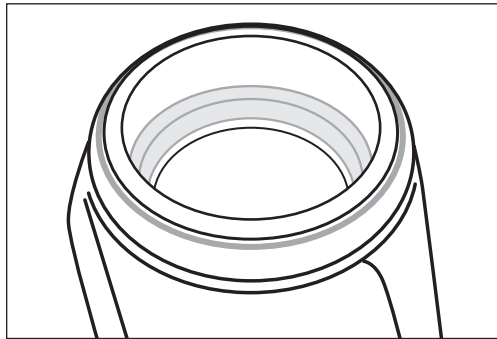
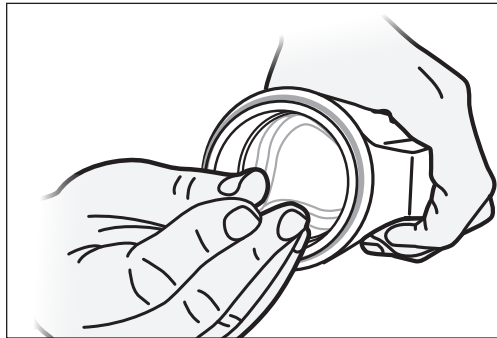
- 7.** Tighten the press until you feel resistance. Once you feel resistance, remove the press and tools, and inspect the seals for proper placement.

- 8.** Visually inspect that there is no gap between the seal and the carriage at each end.



9. Soak the foam ring in fork bath oil.

10. Install the foam ring into the front of the carriage.



You are now ready for the IsoStrut installation (see page 4).

TREK

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