



**X-Trainer SFF Fork Service Manual**  
**Removing the Fork Components, Reassembly,**  
**including Lowering and the K9 Cartridge Kit**

2015-2020



**CONFIDENTIALITY NOTICE**

This message (including any attachments) contains information that may be confidential and is for authorized Beta Dealer's use only.

7-2019

Work must be performed by trained technician.  
Beta USA, Inc.

## **Table of Contents**

Introduction / Special Tools .....	Page 2
Fork Diagram and Component Description.....	Page 3
RH Fork (Spring side) Disassembly .....	Pages 4-7
RH Fork Assembly.....	Pages 7-11
LH Fork (Dampening) Disassembly.....	Pages 12-15
Cartridge Disassembly.....	Pages 15-17
Cartridge Assembly.....	Pages 17-20
LH Fork Assembly.....	Pages 20-23
Fork Lowering Procedure.....	Page 24
Cartridge Kit Installation.....	Page 25

# Introduction

The SFF or Single Function Fork refers to each fork having a specific duty, the right fork has the spring and the left handles the dampening.

The procedures in this manual must take place in a clean environment using professional and some specific tools.

Use caution not to damage the surface of the fork tubes, cartridge, rod, or any other suspension components.

When using a the bench vise, always use protective jaws made from brass, aluminum or plastic. Always clean suspension components before assembly, using appropriate solvents and lint free towels to prevent contamination. Replace common wear parts such as seals, gaskets, bushings and O-rings every service interval.

## CAUTION:

Always wear protective eyewear, gloves and appropriate clothing.

Before you perform any maintenance, be sure to read and carefully follow the detailed instructions described in this manual.

Incorrect disassembly/assembly of the fork may cause serious damage, injury, or death to the rider and property.

## Special tools



\*2015 Fork spring tool AB-15023-15

\*2016-20 Fork spring tool AB-15023-16



46mm Fork cap socket  
AB-15024

## Needed tools

43mm Seal driver & bullet

29mm Cartridge Holding Clamp

10mm Allen socket

6mm Allen

13mm Socket

30mm Socket

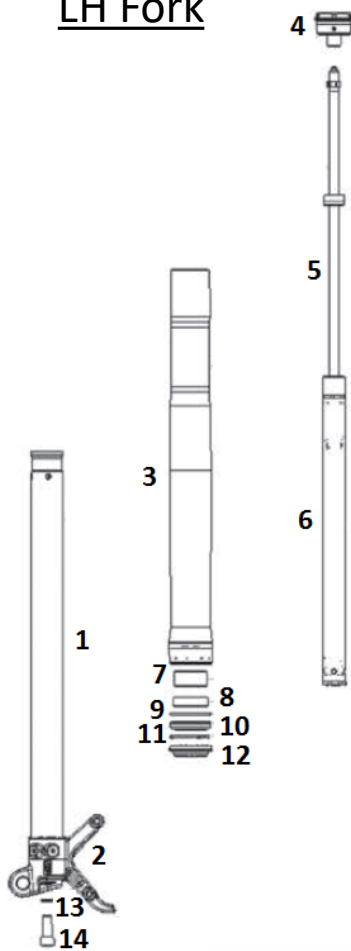
16mm open end wrench

Medium thread locking agent

High strength thread locking agent

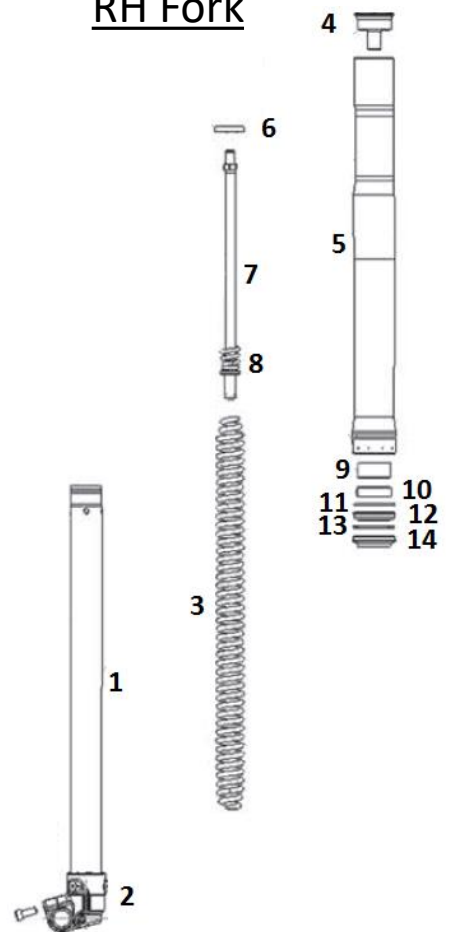
Measuring beaker

## LH Fork



## Fork Diagram

## RH Fork



1. Inner fork tube
2. Axle lug/ Caliper hanger
3. Outer fork tube
4. Fork cap
5. Cartridge rod with Oil Lock Collar
6. Cartridge
7. Top guide bushing
8. Bottom slide bushing
9. Oil seal support washer
10. Fork oil seal
11. Retainer circlip
12. Dust seal
13. Copper washer
14. 10mm Allen bolt

1. Inner fork tube
2. Axle lug
3. Fork spring
4. Fork cap
5. Outer fork tube
6. Spring seat stop
7. Metering rod
8. Top out spring and spring seat bullet
9. Top guide bushing
10. Bottom slide bushing
11. Oil seal support washer
12. Fork oil seal
13. Retainer circlip
14. Dust seal

## RH Fork Disassembly

( Spring side)

Clamp the RH fork in a vise using soft jaws with only the tension it takes to keep the outer fork tube from turning.

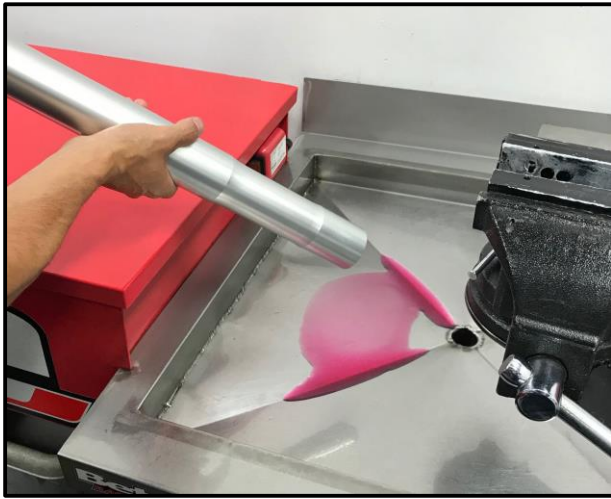


Use the fork cap tool (AB-15024) to loosen the cap.

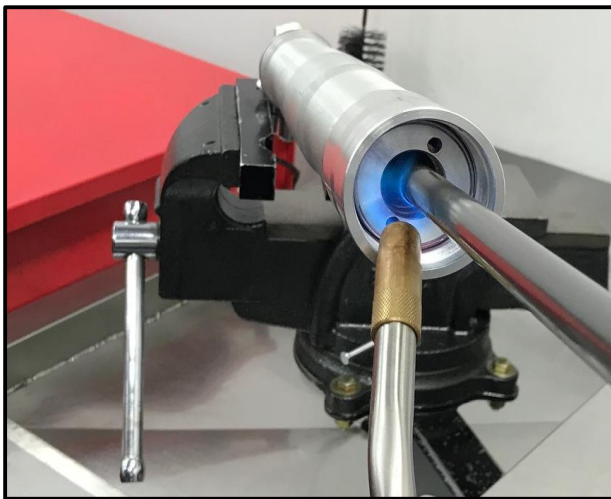


Loosen the 16mm lock nut from the fork cap and remove it.





Drain the fork oil.



Clamp the fork in the vise at the axle lug.

Apply heat to the spring seat stop for 20-30 seconds using a torch to loosen the factory thread locker.

**\* IF THE FORK HAS A LOWERING SPACER INSTALLED (Black Plastic Spacer underneath the spring seat retainer), USE A HEAT GUN AND NOT A TORCH, OR MELTING THE SPACER WILL OCCUR!**



Use the Beta fork tool to loosen and remove the spring seat stop.

\*2015 Fork spring tool AB-15023-15

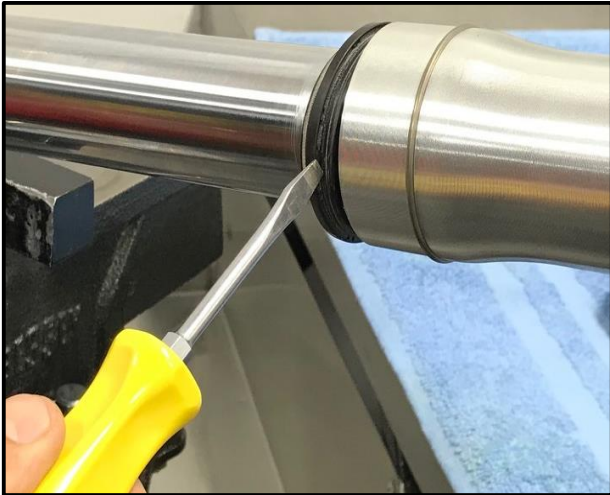
\*2016-20 Fork spring tool AB-15023-16

Remove the cartridge rod and preload adjuster rod.

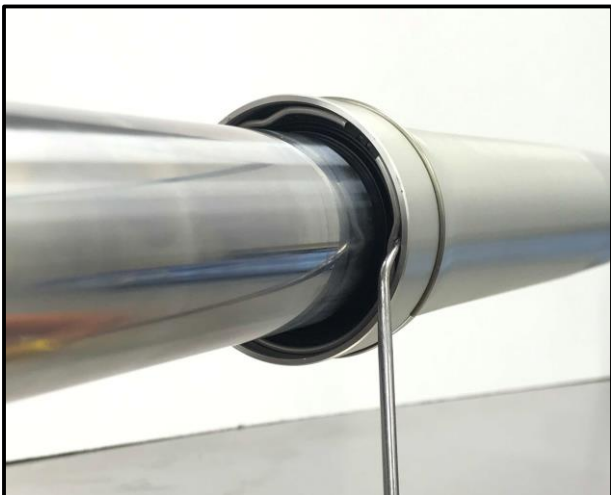


Remove the spring.

Clean and inspect all parts for wear and inspect for damage.



Lightly pry the dust seal to unseat it from the outer fork tube.

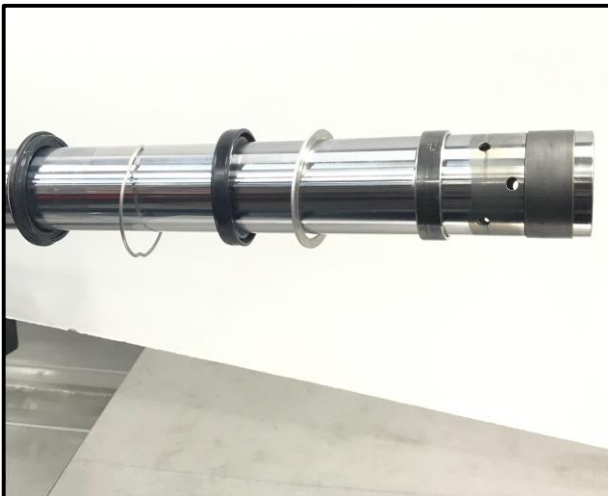


Remove the oil seal circlip.





Using a vice to hold the fork, and with one quick motion, pull the tubes apart.



Remove the bushings, retaining washer, oil seal, retaining clip and dust seal. Pay attention to the order of removal and orientation.

Clean and inspect all parts, replace any worn bushings and seals.

### **RH Fork Assembly** (Spring side)

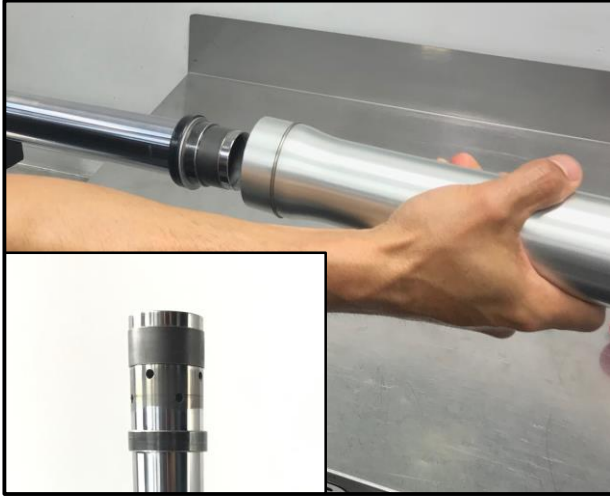


Apply grease to the inside edge of the dust seal, the inner and outside edge of the oil seal.

Using a 43mm seal bullet, install the dust seal, clip and oil seal. Pay attention to the orientation.

The outer spring on the dust seal should face downward and the groove on the oil seal groove side face up.





First, install the guide bushing and last the slide bushing. Carefully slide the outer fork tube over the inner tube assembly.



Use a 43mm seal driver against the support washer to seat the slide bushing into the outer fork tube.



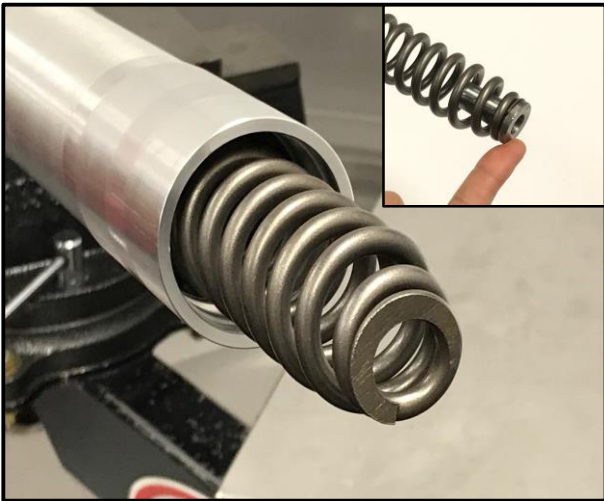
Apply a high quality seal grease to the outside surface of the oil seal.

Use the 43mm seal driver to insert the oil seal into the outer fork tube.



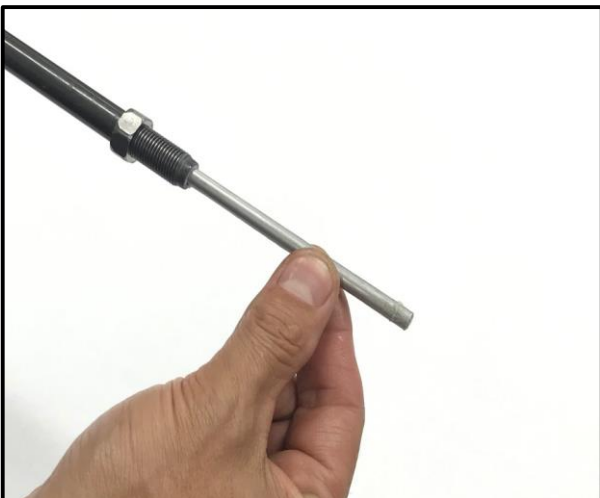
Insert the oil seal retainer clip, making sure it is fully seated into the cir-clip groove.

Bottom the outer fork tube towards the axle carrier until the dust seal is fully seated.



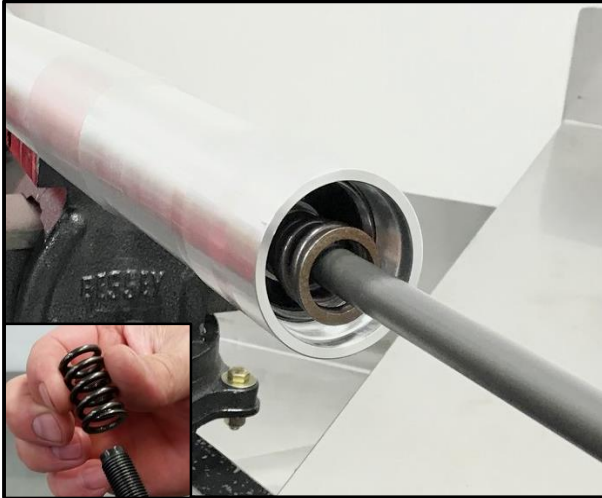
Insert the spring tapered side up if only tapered on one side.

\*If installing an after market spring, make sure the spring seat bullet fits through the tapered end. Sometimes the coil is wound to tight and will need to be modified.



***Note:*** For k9 cartridge kit, use the steel preload adjuster rod provided in the kit.

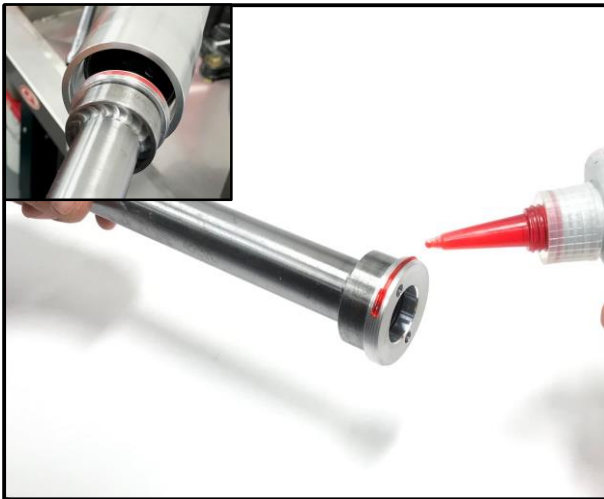
Apply grease to the preload adjuster rod then insert it into the cartridge rod.



***\*For LOWERING THE FORK, go to page 24 now. Proceed if not applicable.***

Install the spring seat bullet and top out spring on the cartridge rod.

Insert the cartridge rod.



Use a high strength thread locking agent on the threads of the spring seat collar. Turn it counter-clockwise until you feel the threads click then turn it clockwise and tighten to 30Nm.

***\*Make sure the locking agent has adequate time to dry before adding oil.***



Make sure the lock nut is fully bottomed onto the cartridge rod.

Reinstall the fork cap until fully bottomed onto cartridge rod. A gap between the jam nut and fork cap should be apparent, indicating the fork cap is fully bottomed.

Tighten the jam nut up to the fork cap and tighten to 20Nm.



Fill the fork with high quality 7.5 Wt. fork oil to 500cc.

**Note:** 475cc for 1" lowering kit  
450cc for 2" lowering kit  
525cc for K9 cartridge kit.



Apply grease to the cap threads.



Tighten the fork cap to the outer tube.  
Torque to 20Nm.

## LH Fork Disassembly

(Dampening side)

Clamp the LH fork in a soft jaw vise.



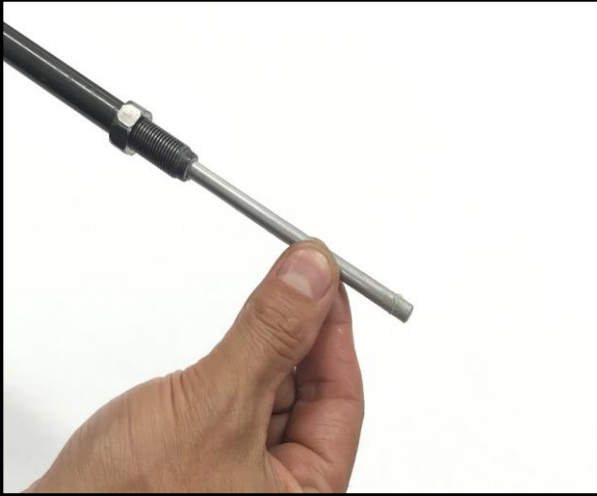
Use the fork cap tool (AB-15024) to loosen the cap.



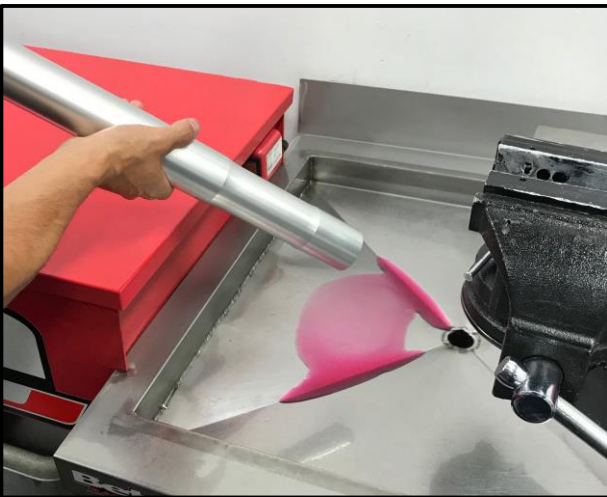
Loosen the 16mm lock nut and remove the fork cap and remove it.







Remove the rebound adjuster rod from the cartridge rod.

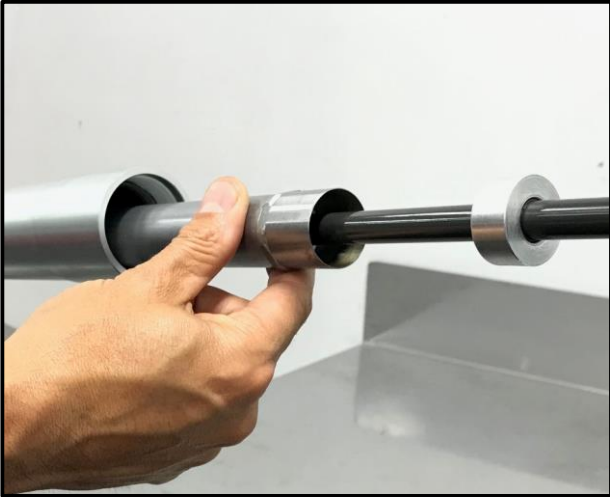


Drain the fork oil.

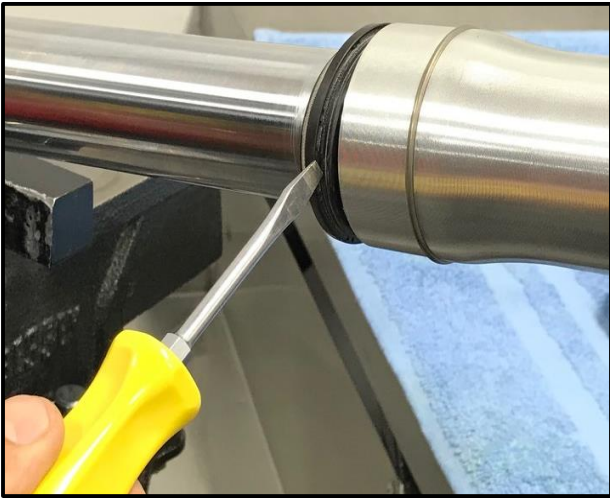


Use an impact to remove the 10mm Allen bolt and copper washer from the bottom of the fork.

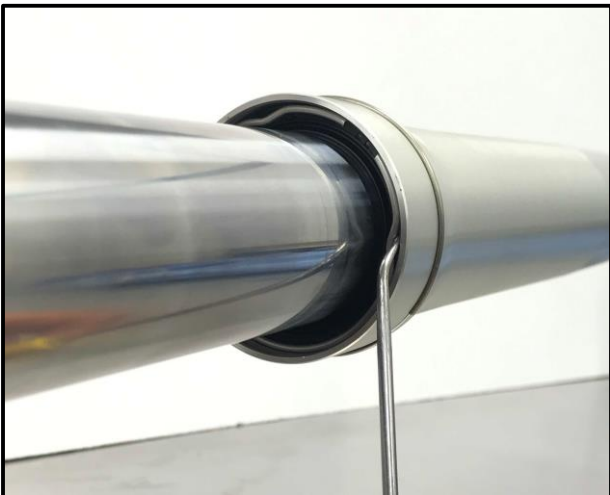




Remove the cartridge.



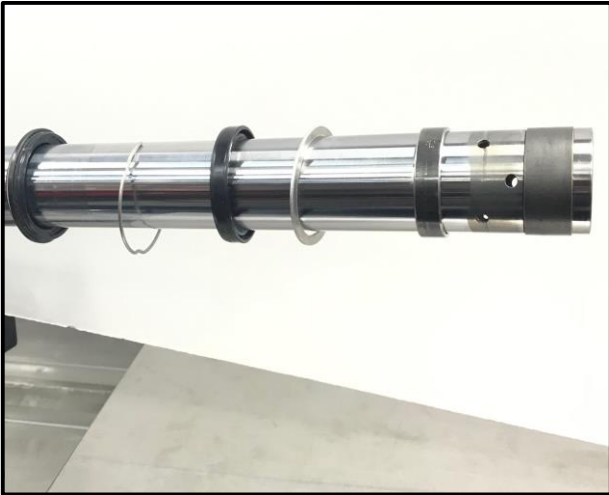
Pry the dust seal away from the outer fork tube.



Remove the oil seal retainer clip.



Using a vice to hold the fork, and with one quick motion, pull the tubes apart.



Remove the bushings, retaining washer, fork seal, retaining clip and dust seal paying attention to the order of removal and orientation.

Clean and inspect all parts, replace worn bushings and seals.

***\*For Beta K9 cartridge kit installation go to page 25 now.***

## **Cartridge Disassembly**



### **CAUTION:**

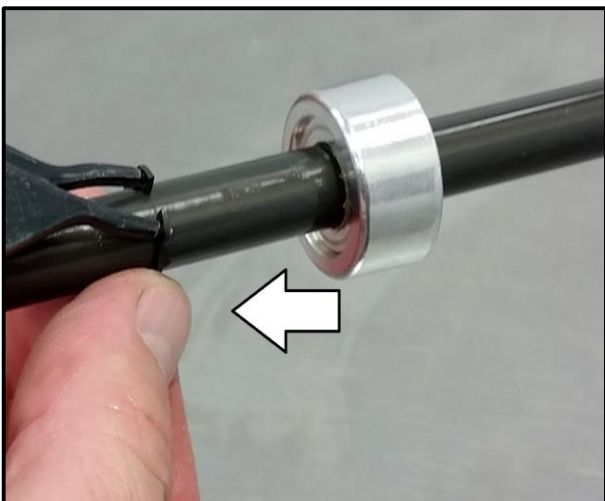
Lightly hold the cartridge in the soft jaw vice using a 29mm aluminum cartridge clamp and wrap paper between the clamp and cartridge. Use only enough pressure to hold the cartridge, do not overtighten or damage will occur!



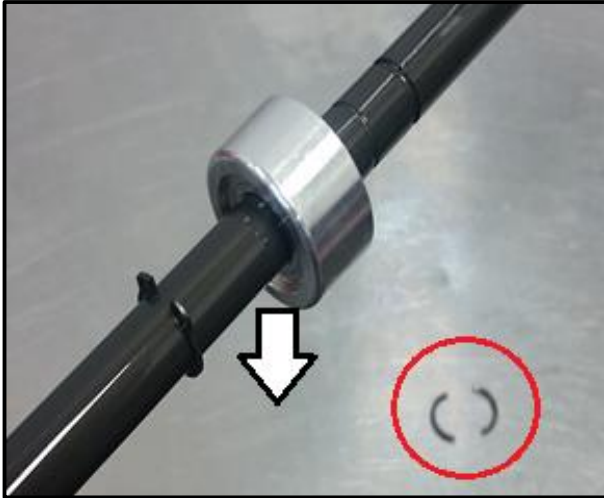
Loosen the base valve hex, using a 30mm socket.



Remove the compression base valve assembly.



Slide the oil lock collar bottom snap ring circlip approximately 1-2" down the cartridge rod, be careful not to scratch the rod.



Slide the oil lock collar towards the bottom snap ring circlip to expose the 2 piece circlip on the other side. Be ready to catch the (2) clip pieces as you move the oil lock collar downward.

Remove the locking nut, bottom snap ring circlip and oil lock collar from the cartridge rod.



Remove the cartridge rod from the cartridge and the top out spring from the rod.

Thoroughly clean and inspect all parts, replacing any worn or damaged parts.

## **Cartridge Assembly**



Reinstall the top out spring on the cartridge rod.

Insert the cartridge rod from the bottom of cartridge cylinder.



Reinstall the bottom snap ring circlip 1-2" below the bottom snap ring groove being careful not to scratch the rod.



Reinstall the oil lock collar with recessed side up.



Apply grease to the top circlip groove to hold the 2 piece circlips in place.





Slide the oil lock collar into position over the 2 piece circlip then carefully slide the bottom snap ring circlip into place making sure it is fully seated into the bottom groove.



Lightly apply fork oil to the base valve piston band.



Apply medium strength thread locking agent to the compression base valve assembly threads.





Reinstall the compression base valve assembly into the cartridge cylinder and tighten until tight.

### **LH Fork Assembly** (Dampening side)



Apply grease to the inside edge of the dust seal, the inner and outside edge of the oil seal.

Using a 43mm seal bullet, install the dust seal, clip and oil seal. Pay attention to the orientation.

The outer spring on the dust seal should face downward and the groove on the oil seal groove side face up.



Install the guide and slide bushing, then carefully slide the outer fork leg over the inner tube assembly.



Use the 43mm seal driver against the support washer to seat the guide bushing into the outer fork tube.



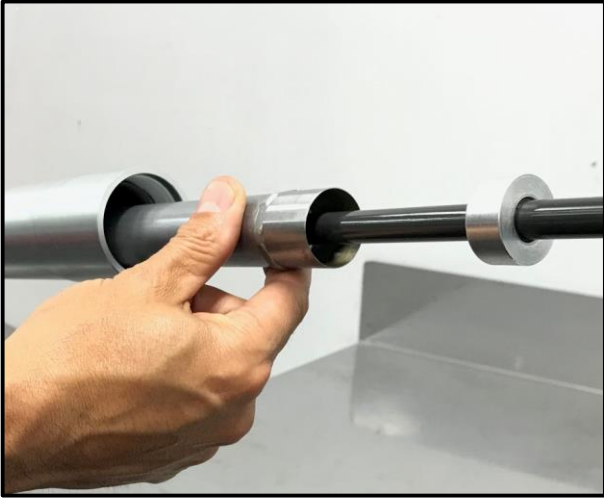
Apply a high quality seal grease to the outside edge of the oil seal.

Use a 43mm seal driver to insert the oil seal into the outer fork tube.

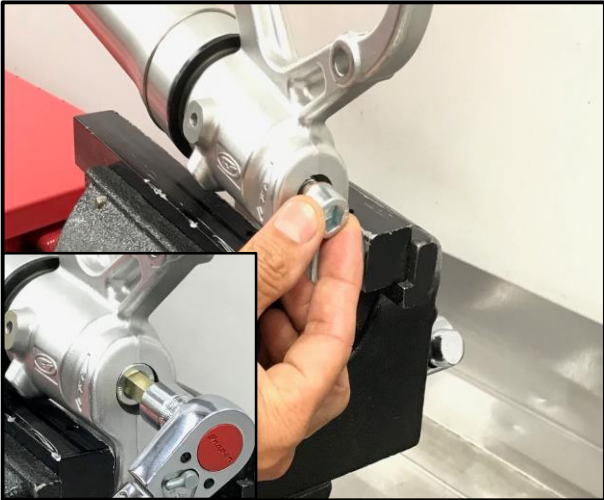


Insert the oil seal retainer circlip making sure it is fully seated into the groove.

Bottom the outer fork tube towards the axle carrier until the dust seal is fully seated.



Insert the cartridge assembly.



Insert the 10mm Allen bolt and copper washer and torque to 30Nm.



Grease and install the rebound adjuster rod.



Fill the fork with high quality 7.5wt fork oil to 500cc.

**Note:** 475cc for 1" lowering kit  
450cc for 2" lowering kit  
550cc for K9 cartridge kit.



Make sure the lock nut is fully bottomed onto the cartridge rod.

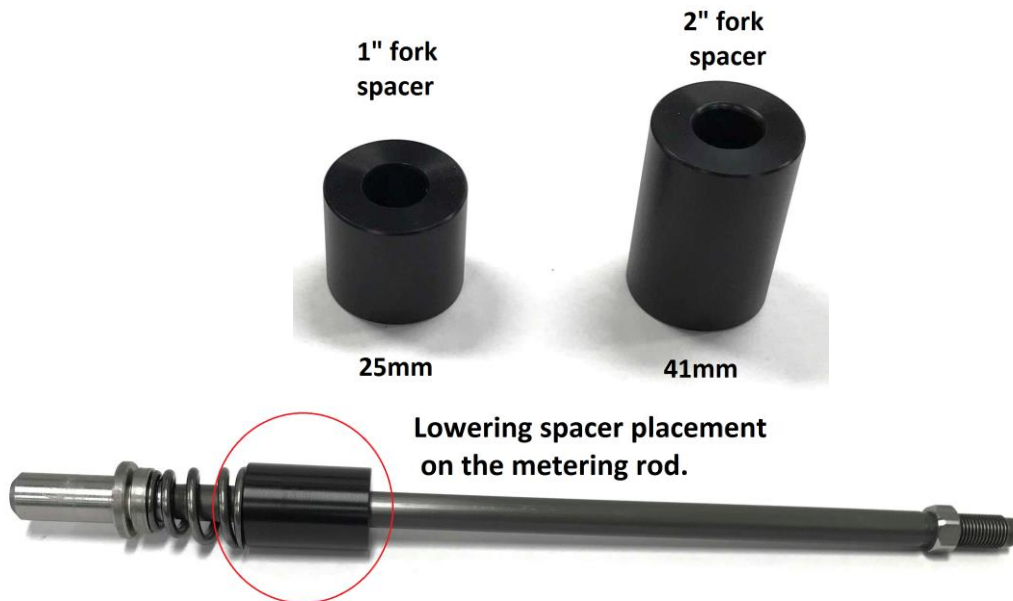
Reinstall the fork cap until fully bottomed onto cartridge rod. A gap between the jam nut and fork cap should be apparent, indicating the fork cap is fully bottomed.

Tighten the jam nut up to the fork cap and tighten to 20Nm.



Tighten the fork cap to the outer tube. Torque to 20Nm.

## X Trainer Fork Lowering Procedure



1. Follow fork disassembly procedures on pages 4-7.
2. Remove the lock nut from the cartridge rod then slide the lowering spacer down against the top out spring. Reinstall the nut and thread it on until bottomed.
3. Follow pages 7-11 for reassembly procedures.

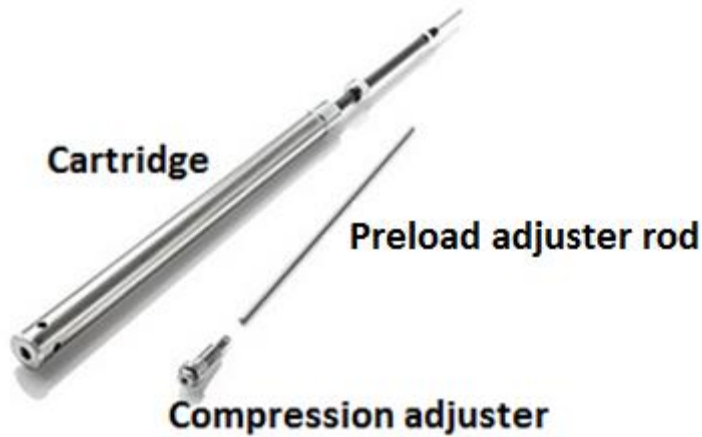
**Note:** The lowering spacer will block the flow of oil, making it difficult to fill the inner tube.

\* Raise the outer tube and add oil until it reaches the top, push down on the fork cap, allowing the oil to enter inside.

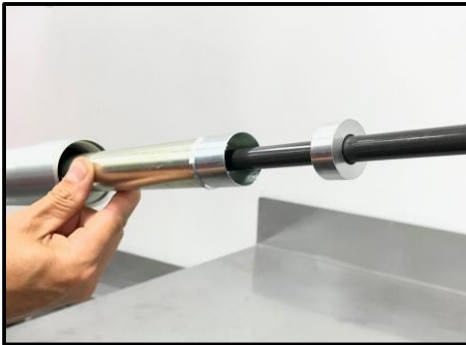




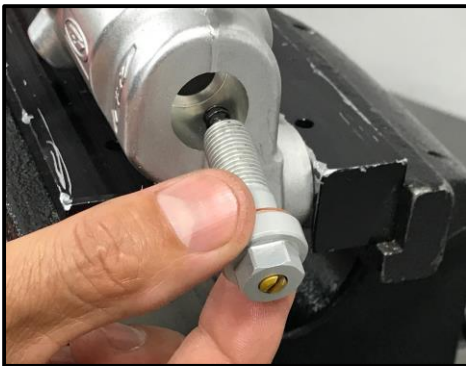
## XTrainer Cartridge Kit Installation



1. See pages 12-15 for disassembly procedures



2. Insert the new K9 cartridge into the fork.



3. Put one drop of medium thread locker on the compression adjuster, then insert it into the fork leg.

Thread it into the cartridge and torque to 30Nm.

4. See pages 21-23 for reassembly procedures