# Bushing Removal and Installation Procedure

Tool kit contents:


1. Main screw
2. Handle
3. Depth setting rod and seat nut
4. Extension shafts for main screw
5. Bushing removal adaptors, 32, 34, 35-36, 37-38, 40
6. Press heads 32, 34, 35, 36, 37, 38, 40
7. Capture nut for main screw and extension shafts
8. Thrust bearing assembly
9. Bushing installation extension tube
10. Depth setting hard stop collar
11. Bushing removal extension tube

**Note:** It is recommended to always size / burnish new bushings after installation to ensure proper function of the fork with minimal friction. Always wear proper PPE including protective gloves, eyewear, and footwear.

**Lightly oil tool after use to prevent rusting of steel parts, WD40 is widely available and recommended.**

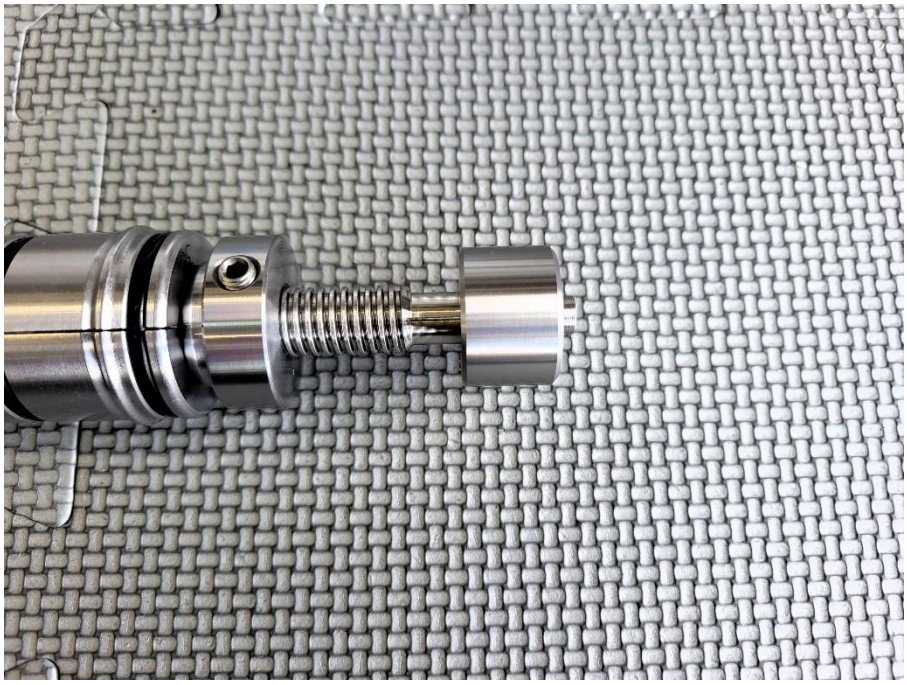
# Upper Bushing Removal

1. Parts required for bushing removal

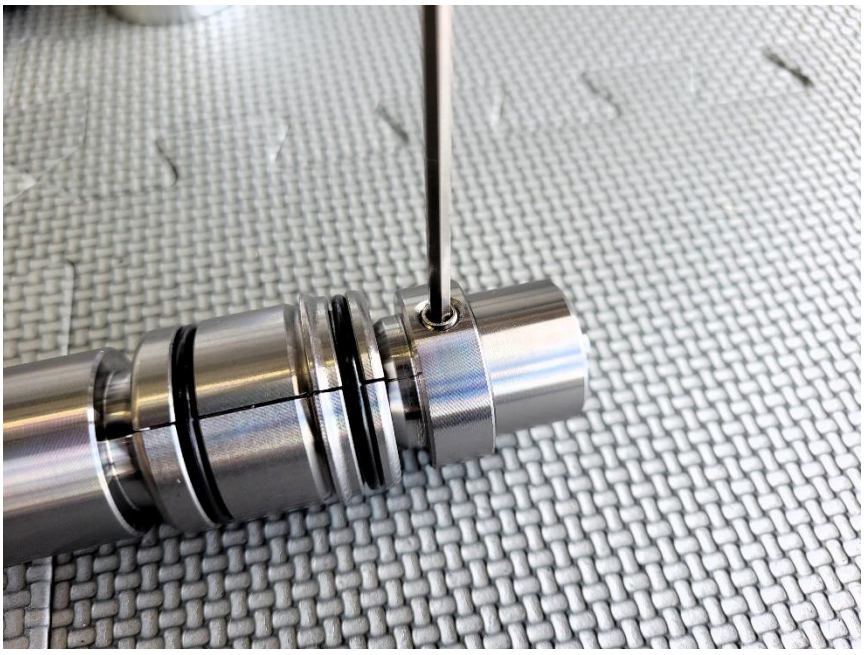
2. Assemble the depth setting rod with the press head and seat nut as shown below with the flange of the press head towards the seat nut. Do not thread the parts fully together, leaving

the press head unexpanded, this allows it to slip through the bushing and get to the backside for removal.

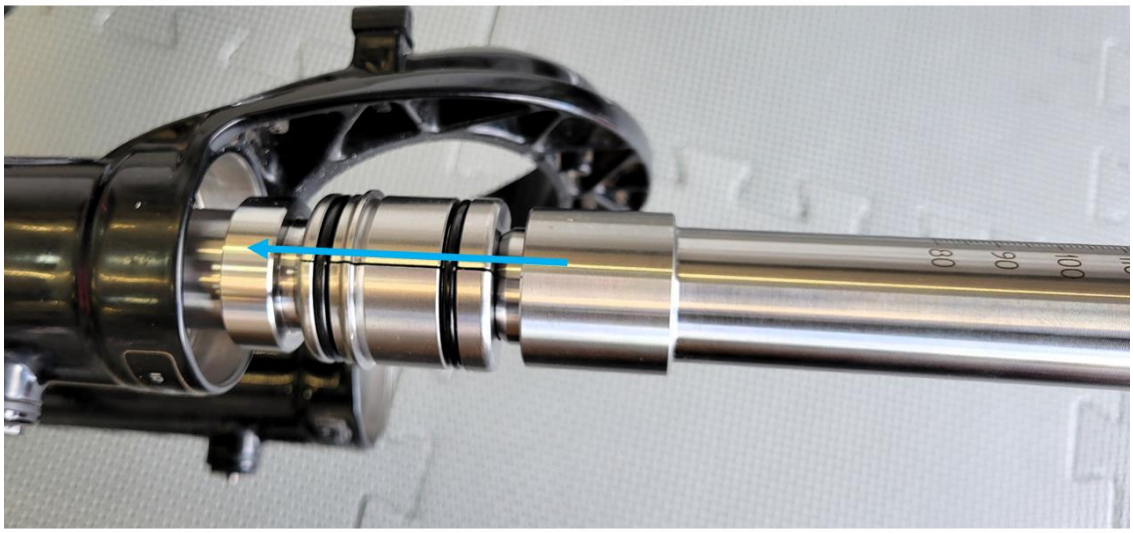
3. Slide the main screw through the assembly and thread the capture nut on until it stops, do not tighten the capture nut, just a gentle finger snug is all it needs.



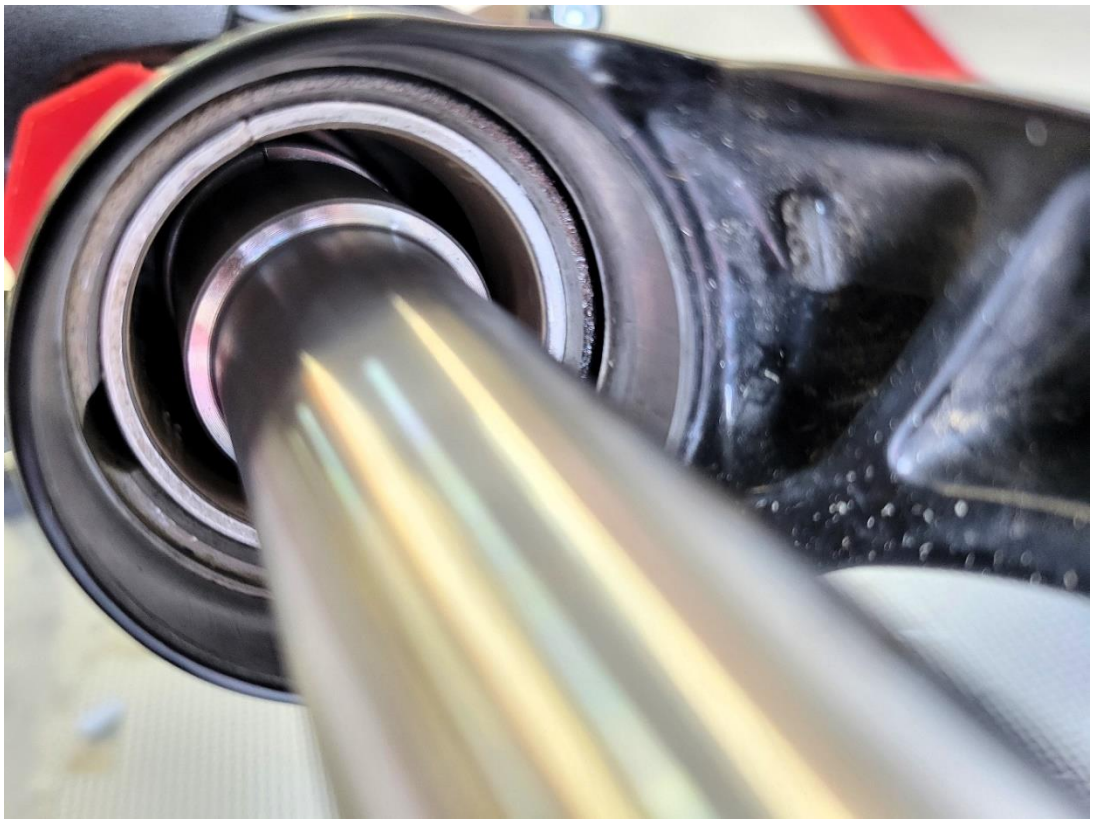
4. Slide the press head assembly to the capture nut and then snug up the setscrew with a 3mm hex key to prevent the seat nut from rotating on the main screw. The setscrew does not need to be overly tight, just enough to prevent rotation of the nut on the main screw. The capture nut is what will take the force of the bushing being removed from the fork. This will allow for the main screw and depth setting rod to be rotated from outside the fork which will expand the press head.



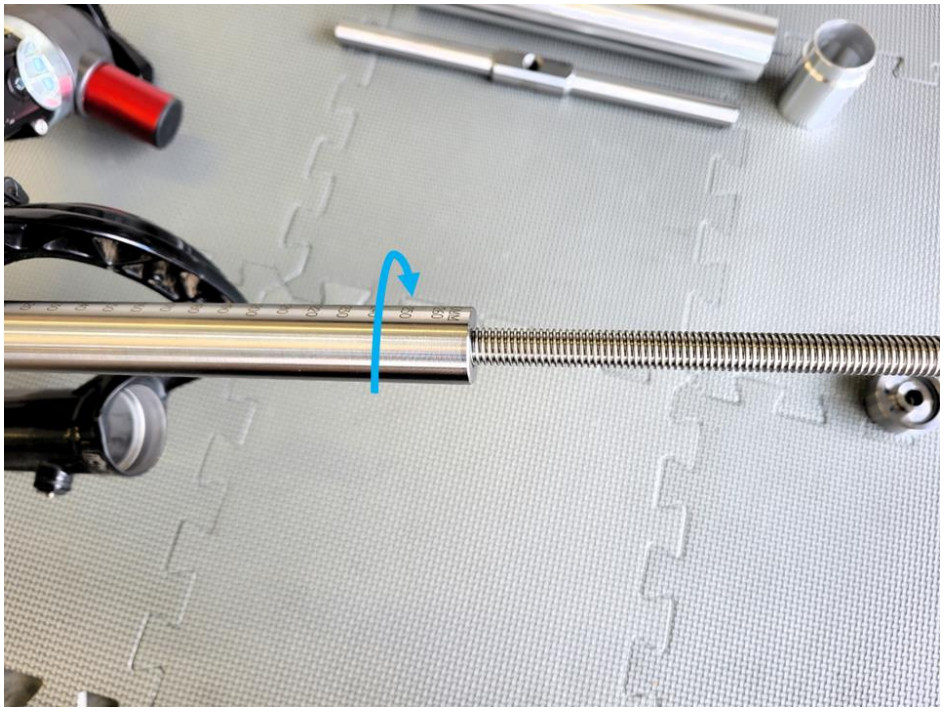
The assembly will now look like this:



5. Insert the assembly so that the press head is a little bit further into the fork than the upper bushing,

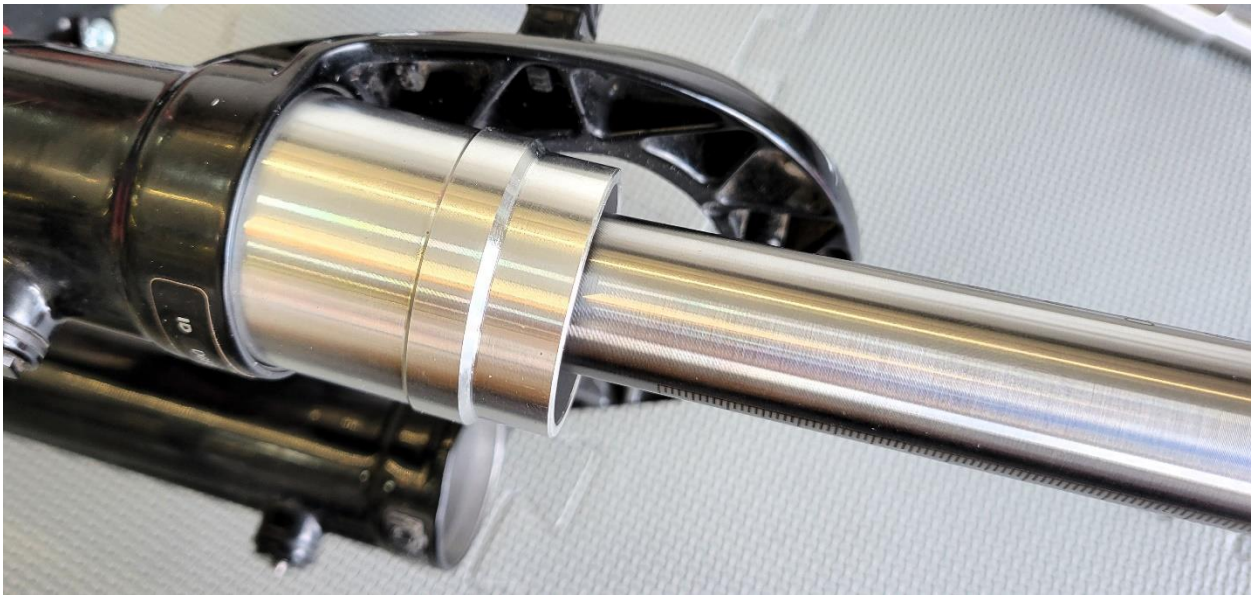


6. Rotate the depth setting rod clockwise by hand to tighten the depth setting rod and seat nut together, this expands the press head. Tighten the depth setting rod fully until it stops to fully expand the press head.

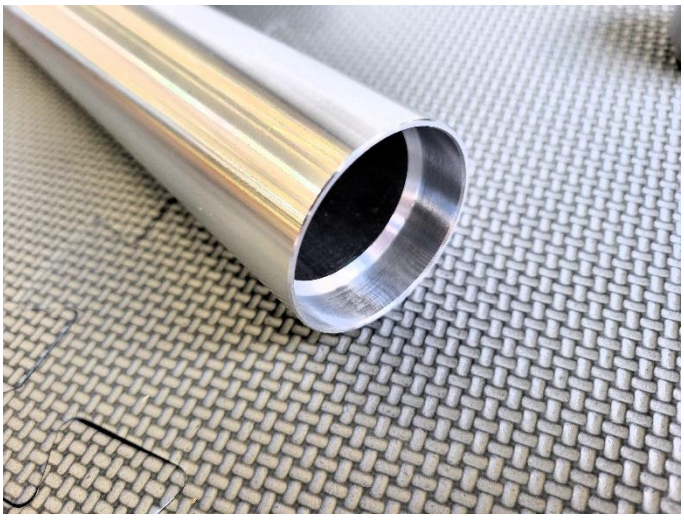


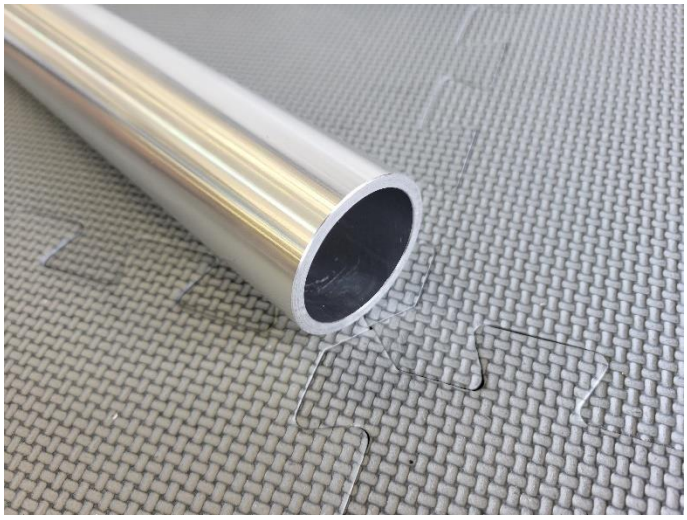
7. After the press head has been fully expanded, pull the assembly backwards to seat the flange of the press head against the edge of the upper bushing.

8. Slide the appropriate adaptor onto the assembly as shown. The adaptors are laser marked to their size. In this case the fork has 36mm diameter stanchions so the adaptor used would be the 35-36.

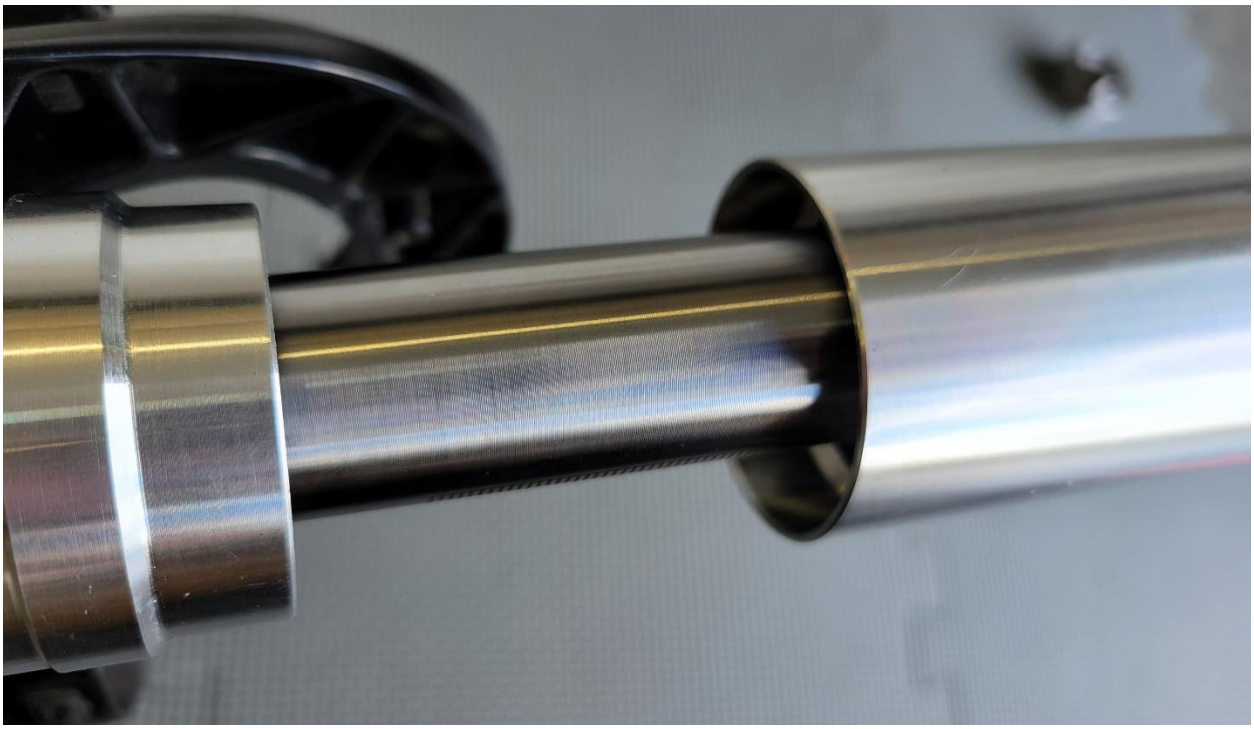


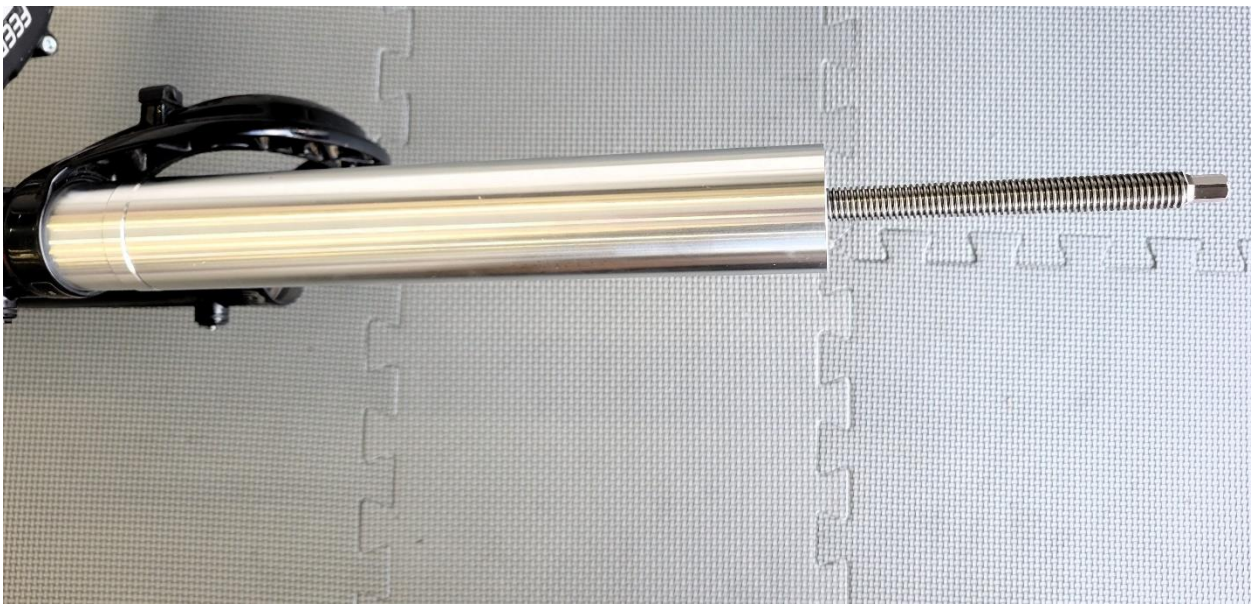
The extension tube will be slid over the assembly next. It is important to note there are 2 different ends on the extension tube. The end that is bored as shown below on the left is the mating part to the removal adaptors. The unbored shown below on the right is the mating part to the Thrust bearing assembly.



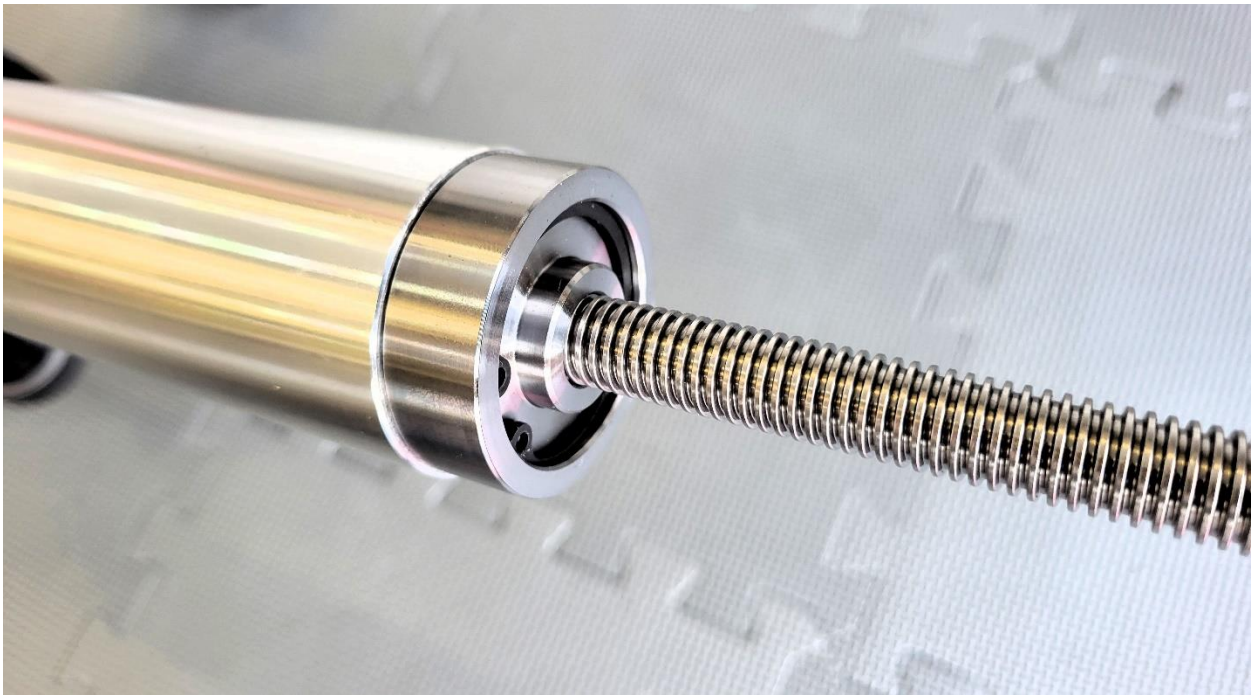


9. Slide the extension tube over the assembly and fully seat the end to the bushing removal adaptor.

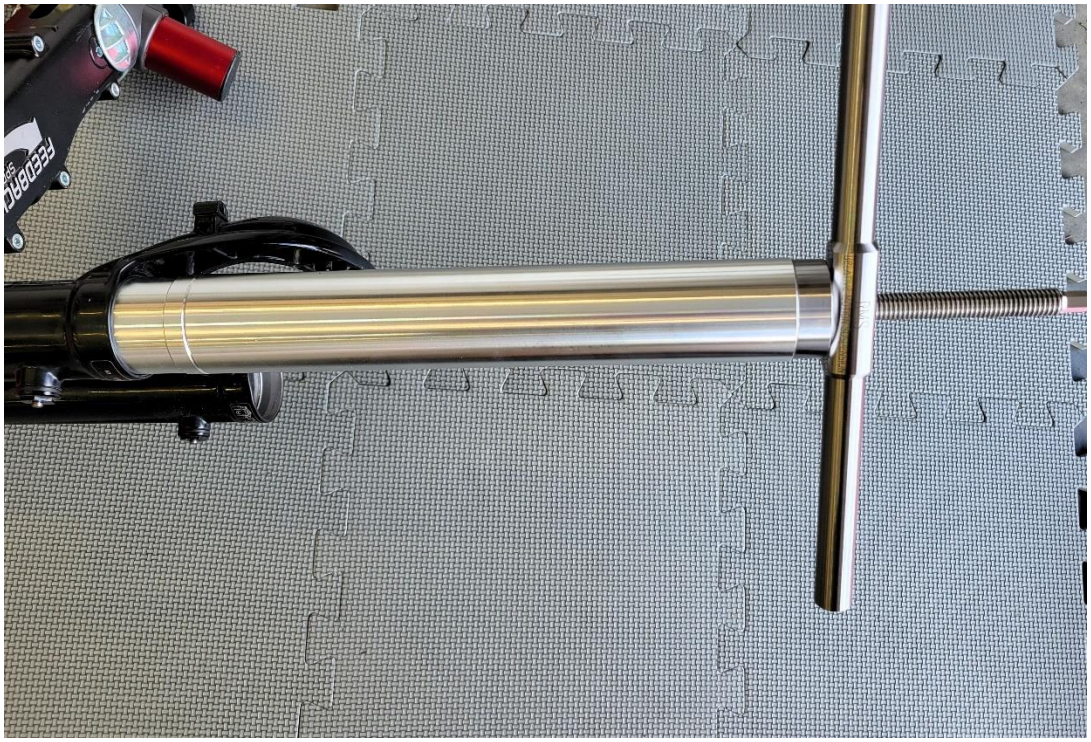




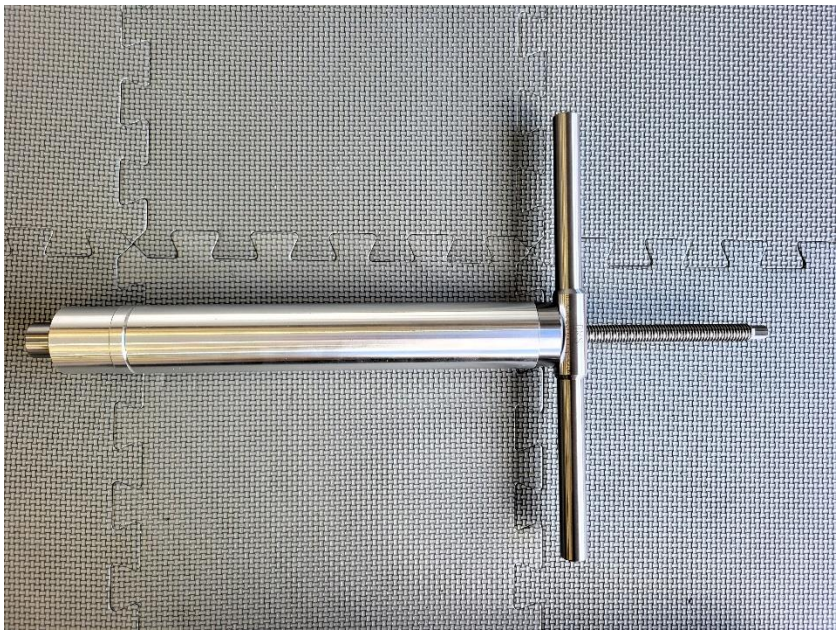
10. Slide the Thrust bearing on and fully seat it on the extension tube

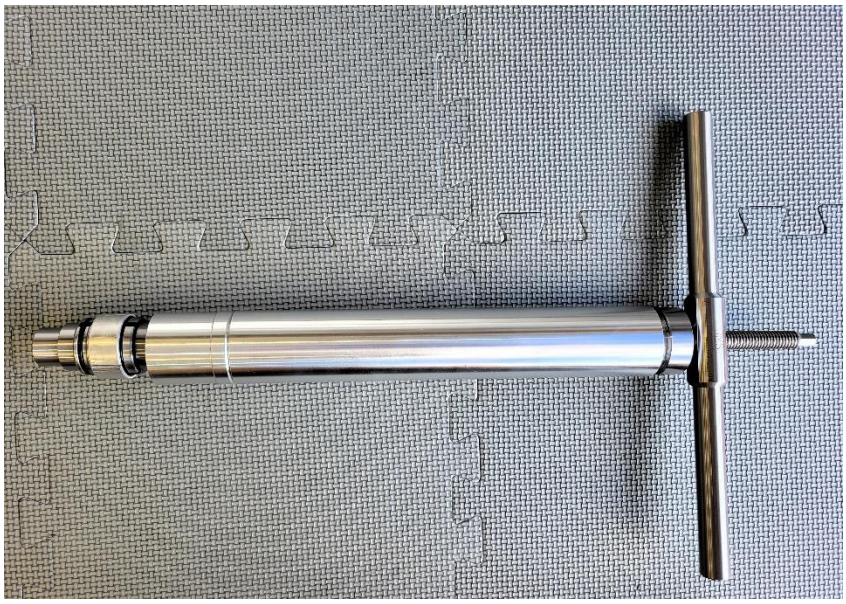


11. Thread the handle onto the main screw. The assembly will now look like this. The bushing is now ready to be removed by tightening the handle by turning it clockwise. Turn the handle to fully remove the bushing.



12. The upper bushing has now been removed. Unthread the handle from the main screw, slide off the thrust bearing, extension tube, and removal adaptor, and the bushing. Unthread the depth rod some, but not all the way to shrink the press head again, and then repeat the process on the other side to remove the other upper bushing.



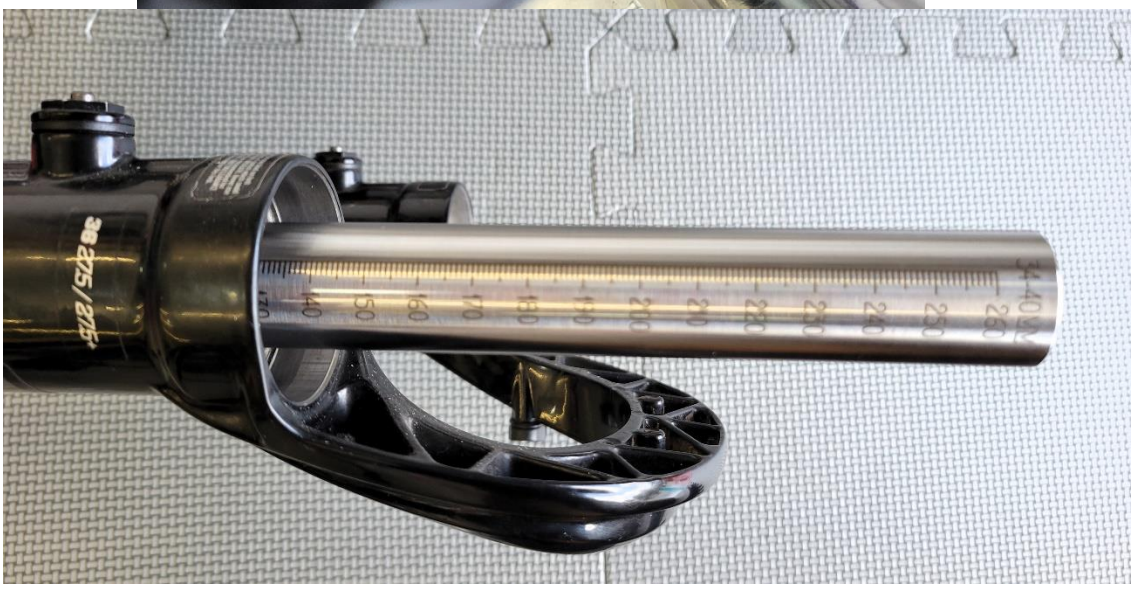


# Lower Bushing Removal

The first step in removing the lower bushing is to measure the depth it is at so the new bushing can be set to the correct depth. If the new lower bushing is not set to the correct depth it could cause problems getting the fork to be friction free afterwards as there is usually a very slight taper after the end of the lower bushing seating area that can cause the bushing to shrink at the lower edge if installed too far. Subsequent bushing sizing / burnishing can have a hard time rectifying this situation so the best solution is to install the lower bushing to the correct depth the first time.

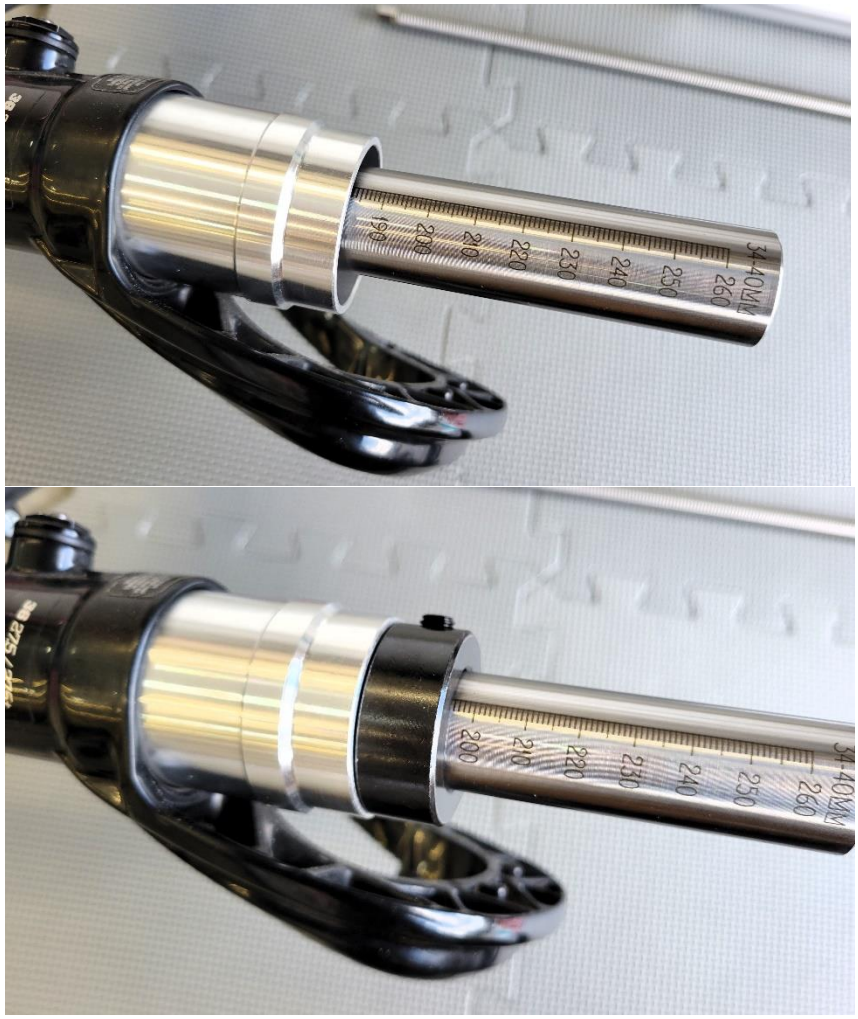
1. Assemble the depth setting rod, press head and seat nut as shown, with the flange of the press head toward the depth rod. Tighten the depth rod and seat nut to fully expand the press head.

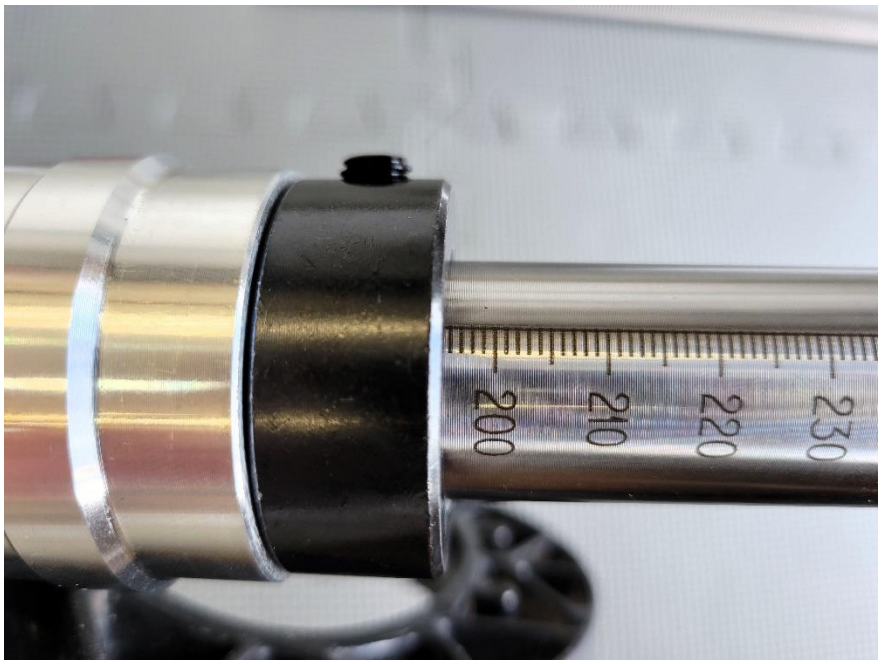
2. The assembly will be inserted into the fork until the press head flange shoulders onto the upper edge of the lower bushing.



3. Slide the same adaptor used when removing the upper bushings over the depth setting rod as shown. Then slide the depth setting hard stop collar over the depth setting rod and make sure the assembly is fully seated onto the edge of the lower bushing and the adaptor and collar are pushed into the seal seat area of the lower fork legs. Snug the setscrew of the collar with a 4mm hex key and then make a note of the reading from the scale. In this case the edge of the lower bushing is at 195.5mm depth. Repeat the process for the other lower bushing and record its depth.

   There are 2 different scales on the depth setting rod. One labeled 34-40mm and one labeled 32mm only. The reason for this is that the bushing removal adaptor for 32mm forks is longer than the other sizes to make sure that there is clearance for the extension tube from the arch on 32mm fork castings. The separate scales also allow for the calculation of the actual depth of the bushing referenced from where the removal adaptor seats by using the same equation of number from scale reading (example 195.5) minus 76. For this Fox 36 lower legs the calculation would amount to (195.5-76 = 119.5) 119.5mm lower bushing depth. For a 32mm fork the calculation would be the same using the 32mm adaptor and 32mm only scale.

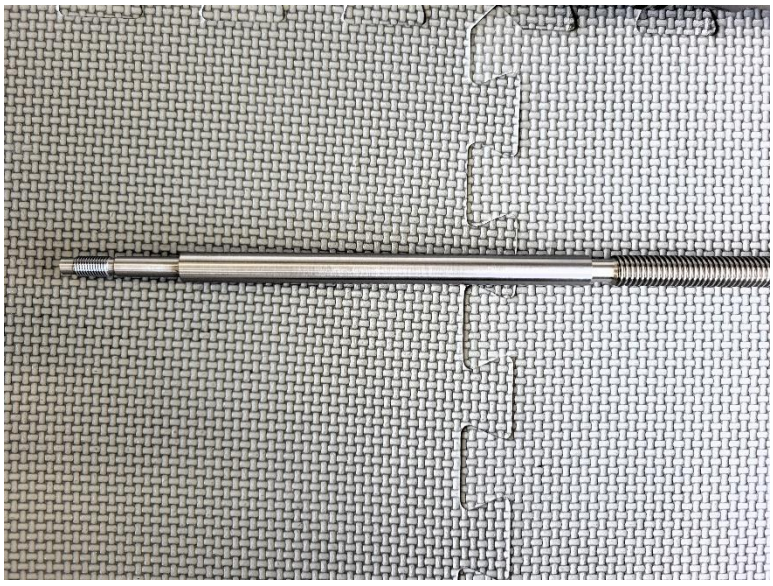




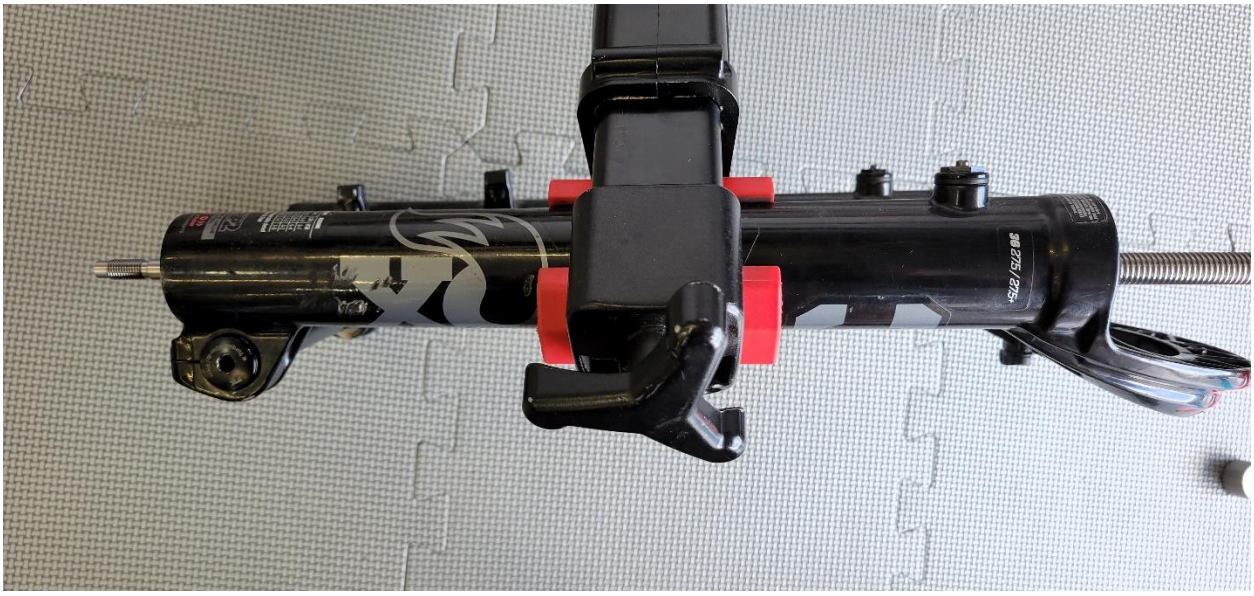

4. Once the depths of the lower bushings have been measured, remove them by performing the same procedure as the upper bushings. If you need more length of the main screw to reach the lower bushings, the extension shafts can be used by threading onto the main screw to create more length. These only need to be finger tight, the rest of the procedure remains the same.

# Installing New Bushings

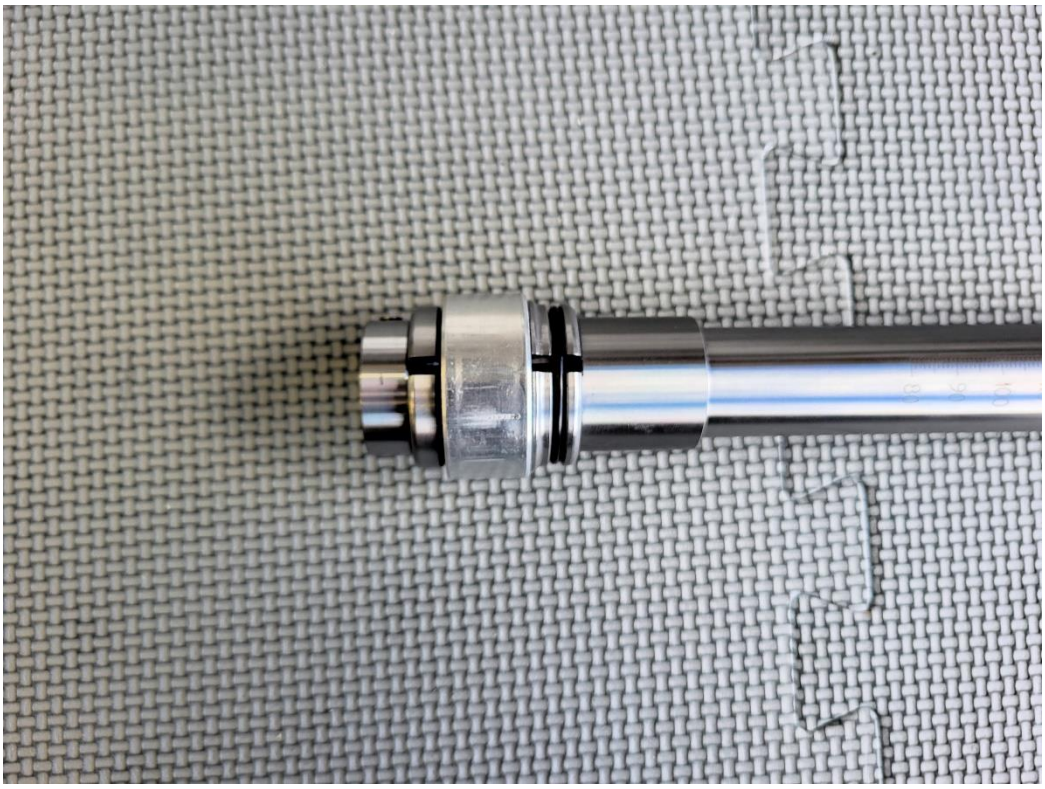
1. Begin with installing the new lower bushings first. To install the bushings either 1 or both of the main screw extensions will be required. Begin by threading one or both of the extension shafts onto the main screw



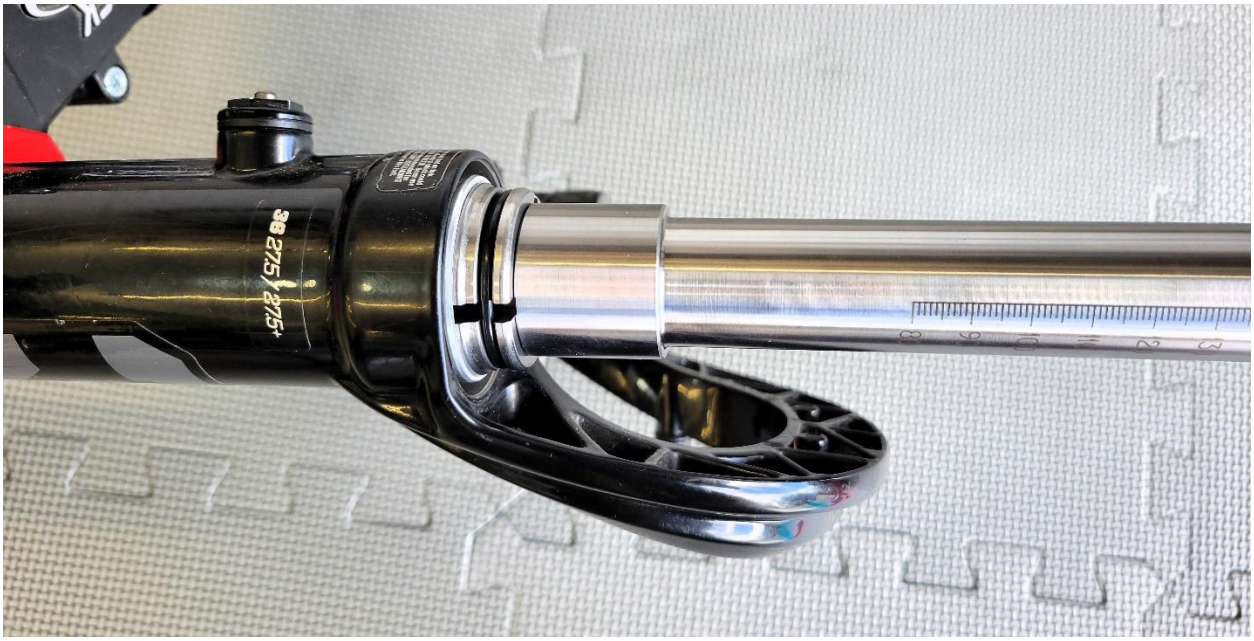
2. Slide the main screw with the extension shafts through the fork until the threads on the extension shaft protrude from the bottom of the fork, then thread the capture nut on until it stops, it only needs to be fully threaded on but not tightened.



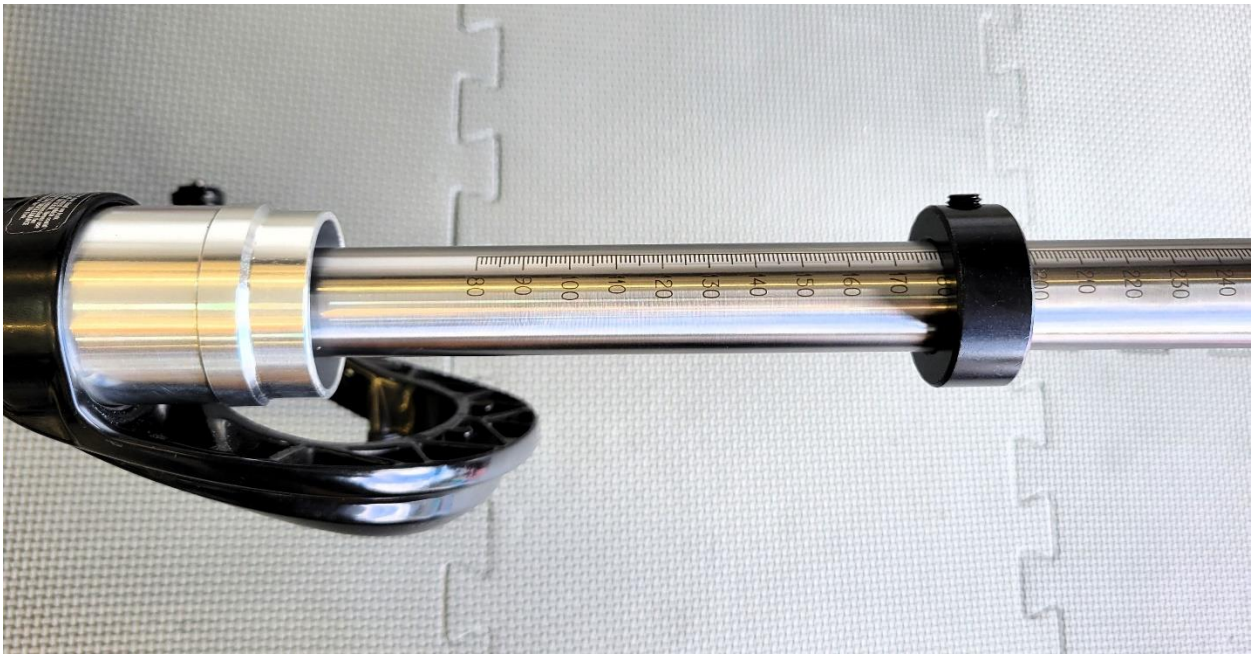

3. Assemble the depth setting rod, seat nut, press head and new lower bushing as shown. The seat nut and depth setting rod are threaded together to fully expand the press head.

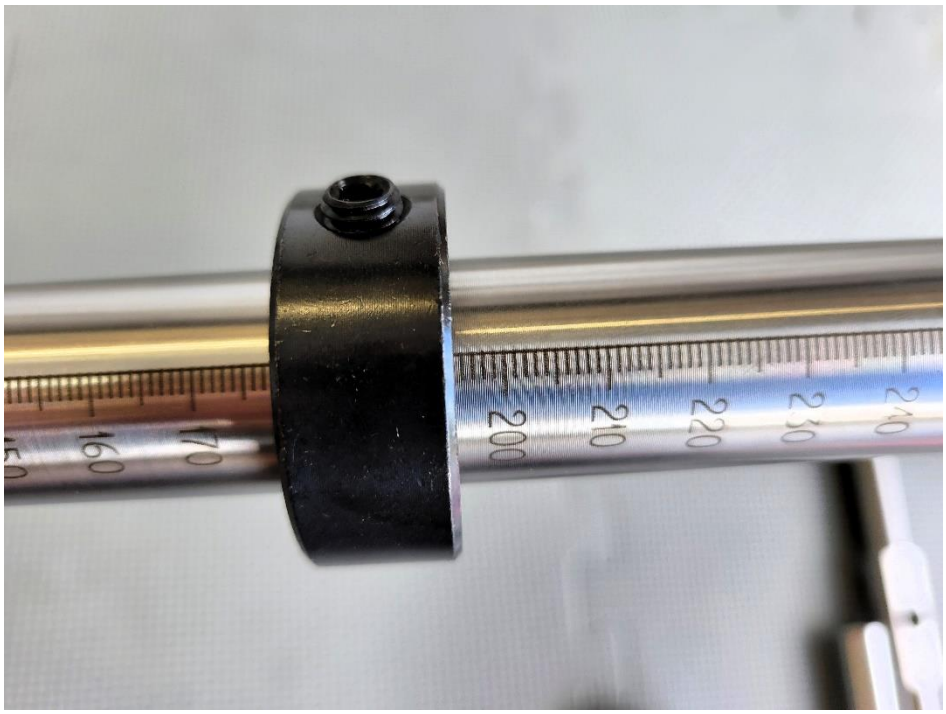


4. Slide the assembly over the main screw until it does not go any further into the fork.

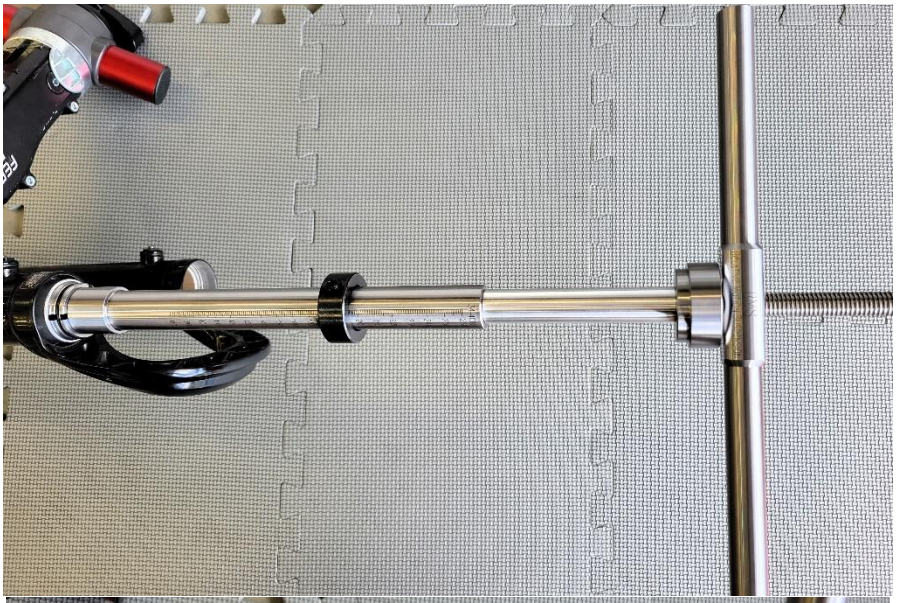


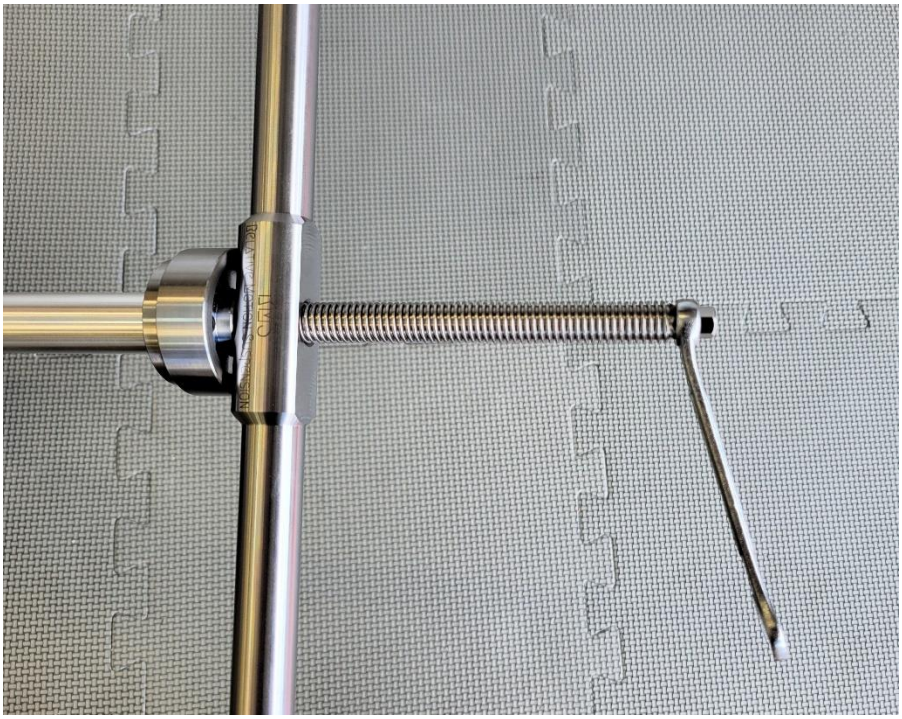
5. Slide the same bushing removal adaptor over the depth setting rod, and then slide the hard stop collar over the depth setting rod and tighten the setscrew to set the collar at the measured lower bushing depth, this will allow setting the new lower bushing to the correct depth and provide a hard stop when it is installed. Tighten the setscrew on the collar to very snug to tight (~5Nm torque) The collar has a brass tipped setscrew to prevent marring the depth setting rod. In this particular case 195.5mm was the measured depth of the lower bushing so the collar is set to 195.5mm depth and clamped.



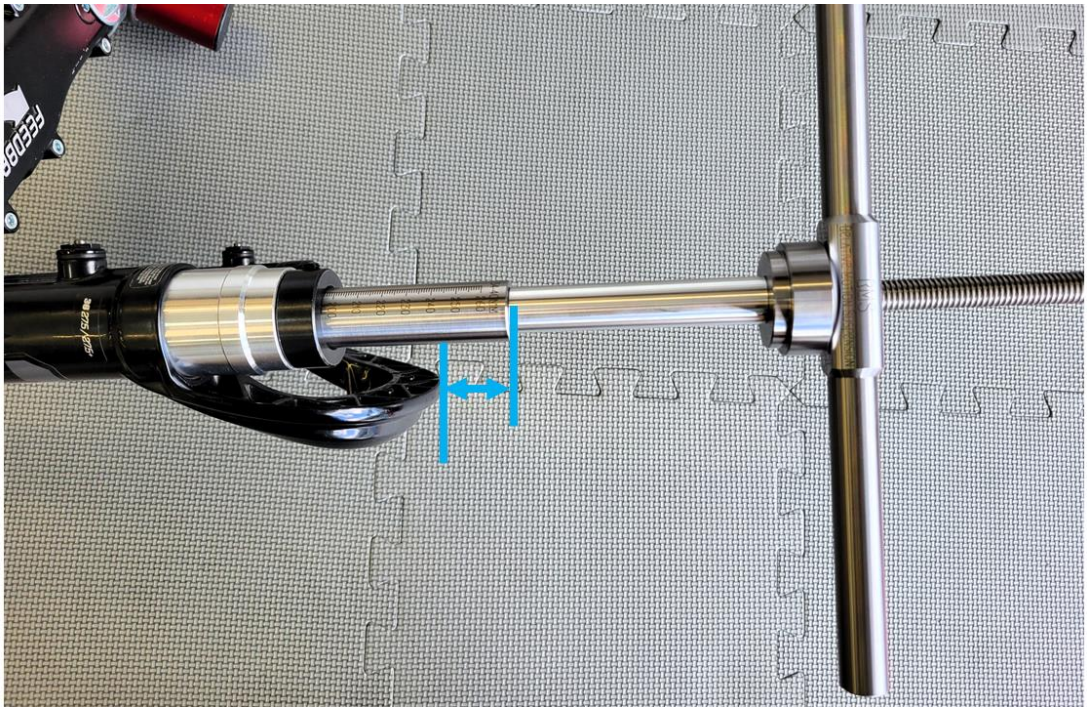


6. If required for clearance to the lower casting arch, the installation extension tube can be used to space the handle up further to prevent contacting the arch when the bushing is nearing installed depth. Most forks won't require the use of the install extension tube but it is shown here as an example. The thrust bearing is slid over the main screw with the retaining ring side facing the handle, and then the handle is threaded onto the main screw. The lower bushing is now ready for install by continuing to thread the handle clockwise to drive the lower bushing to its depth. The lower bushing is installed when the hard stop collar contacts the bushing removal adaptor. The main screw may want to rotate with the handle, this can be prevented by holding the main screw from rotating with a 8mm box end wrench or socket on the hex machined at the end of the main screw.





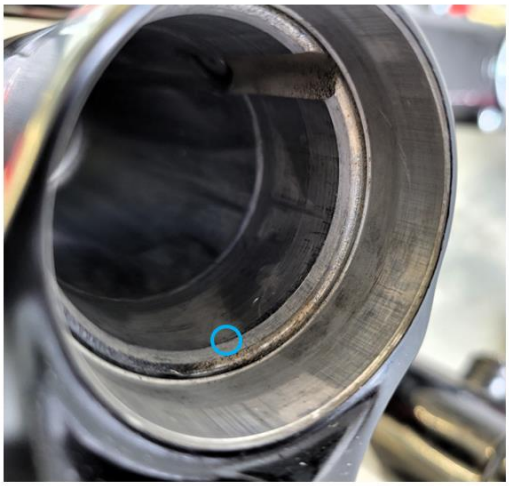
In this case the install extension tube was not required as there is still clearance between the lower casting arch and the handle.



7. To reset the tool for installation of the other lower bushing, unthread the capture nut at the very bottom of the fork, slide the whole assembly out, and then unthread the handle enough to allow the main screw and extension shaft assembly to protrude from the bottom of the lower legs to allow the capture nut to be affixed again for installation of the other lower bushing.

## Installation of the Upper Bushings

The installation of the upper bushings is an identical process to the lower bushings, but the upper bushings are much simpler. They are installed to match the depth of their seat area as shown below:



There is a shoulder below the upper bushing seat that can also be used as a hard stop when installing the new bushings but if using this shoulder to stop the upper bushings care must be taken not to drive the bushing too firmly to the shoulder or it will cause the lower edge of the inside of the bushing to shrink somewhat causing excess friction during operation of the fork. Bushing sizing / burnishing may also have a difficult time rectifying this situation meaning the bushing may have to be slightly pulled back up, which can be accomplished with the bushing installation and removal tool.