Tasco 7TE mount

Breakdown and Buildup

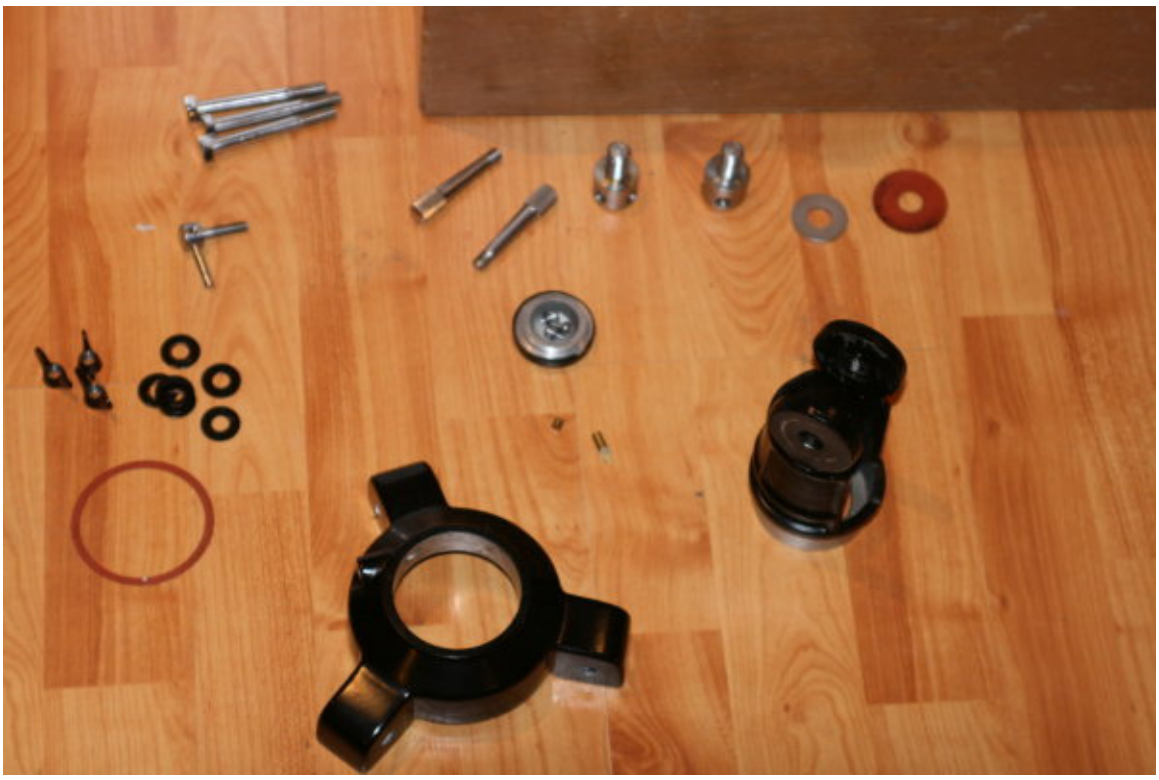
This style of mount is relatively easy to take apart, clean, re-grease then re-build. It just takes some time and some forethought. I have chosen to present this manual from a ‘rebuild’ perspective rather than from a take apart perspective. Please read the whole document to get a sense of some of the “tricks” to take apart.

When I take apart a mount, I use something to lay all the pieces on. And I try to keep them in the order that I have removed them. Then when I clean, I remove a couple of pieces at a time in order, then place them back in their place on the mat. I re-grease as I assemble.

Pic #1 – All the pieces to the top of the mount.



Pic #2 – The Base of the Mount



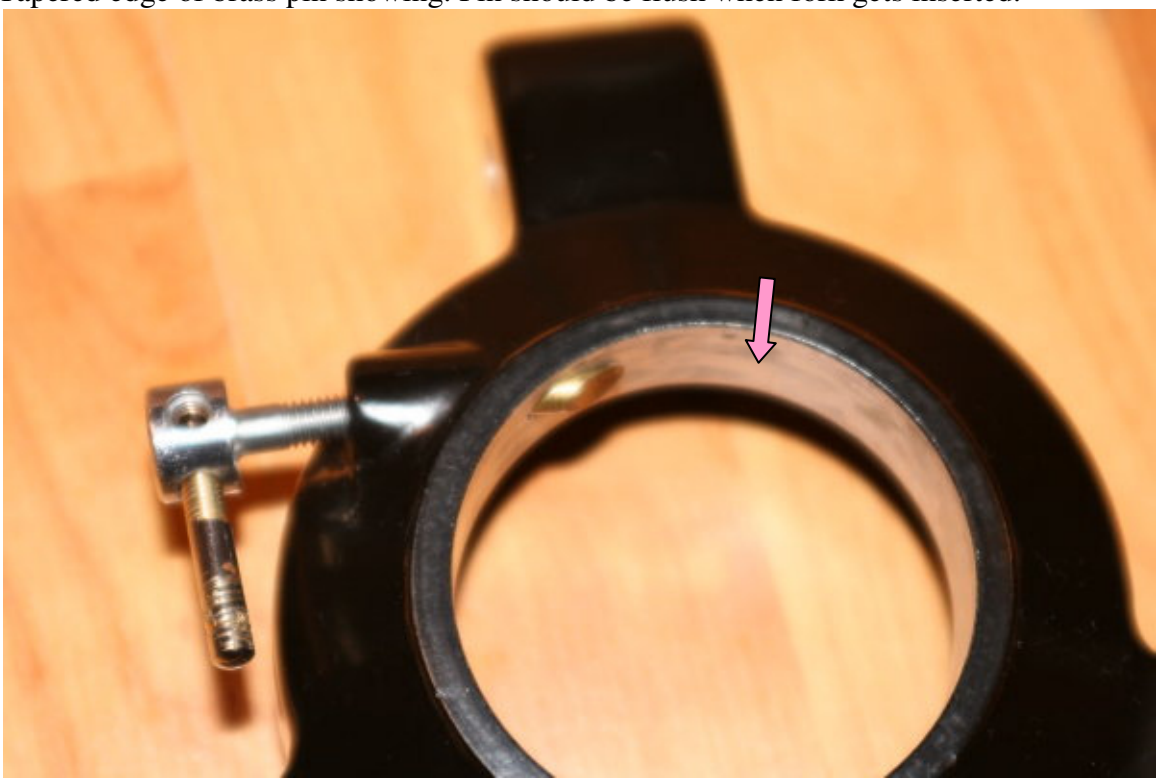
MOUNT BASE

Start with the base of the mount. Notice the 2 brass pieces along with the locking bolt. These go in the direction as they appear in the picture into the hole. The Tapered edge of the long brass pin is flush with the inside curve of the mount. Pink arrows show what areas need grease.

Pic #3 – Three pieces of the locking nut for the base and hole. Pink arrows show what areas need grease



Pic #4 – Tapered edge of brass pin showing. Pin should be flush when fork gets inserted.



Next place the fiber washer on the bottom of the fork and insert fork into base plate. Remember that the brass locking pin needs to flush for the fork to slide easily.

Pic # 5 - Pink arrows indicate where I put grease



Pic #6 – Notice the screws that hold the Latitude Indicator Circle. Nice feature.



RIGHT ASCENSION

First is the R.A. housing. On my model the fiber washer was opposite the Latitude Adjustment Indicator. Not sure if some units come with 2 washers.

Pic # 7



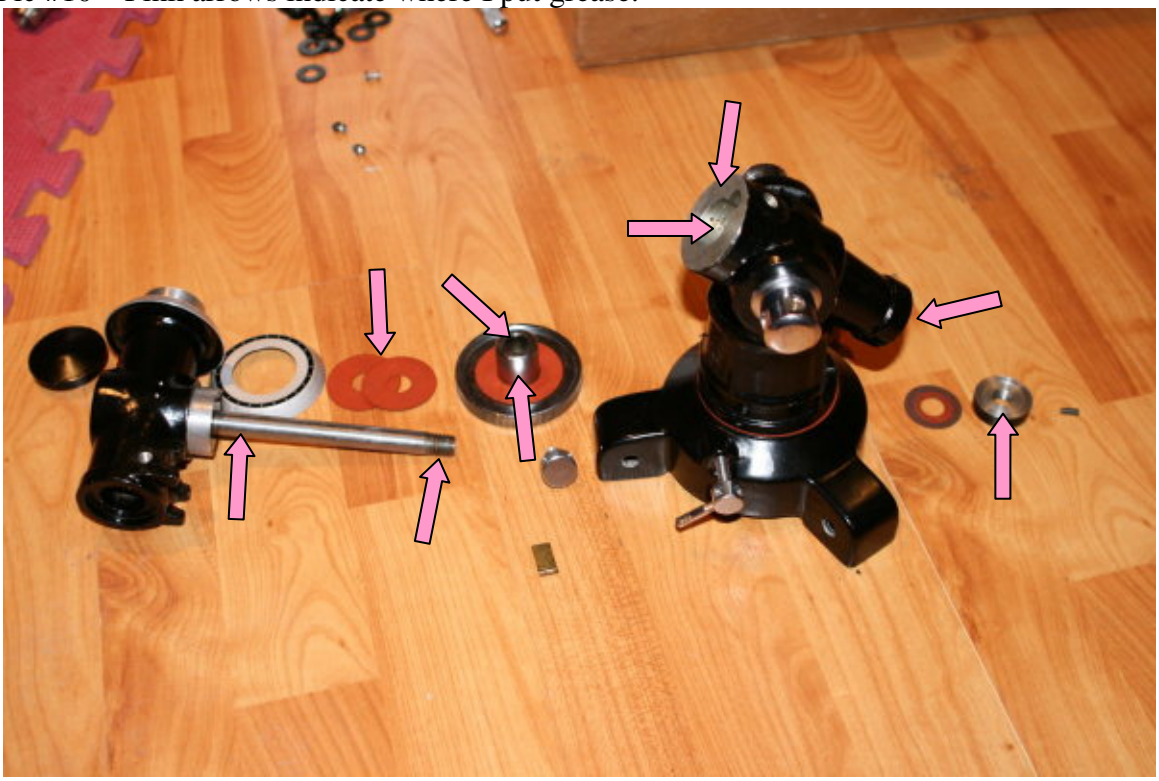
When putting the bolts in I use a bit of grease.

Pic #9



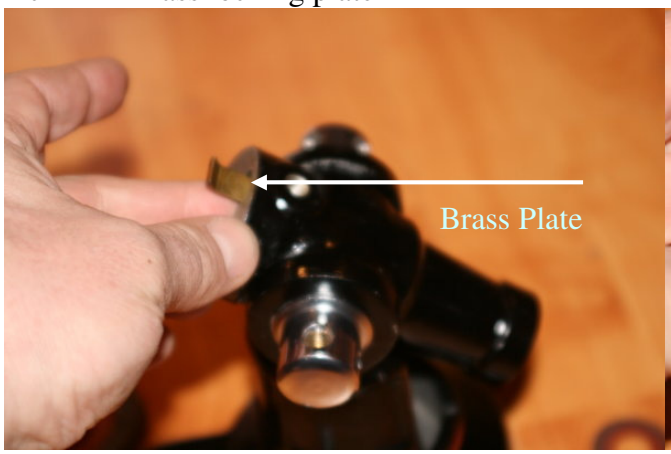
I laid out all the components for the R.A. shaft in order. Again, I grease as I go along.

Pic #10 – Pink arrows indicate where I put grease.

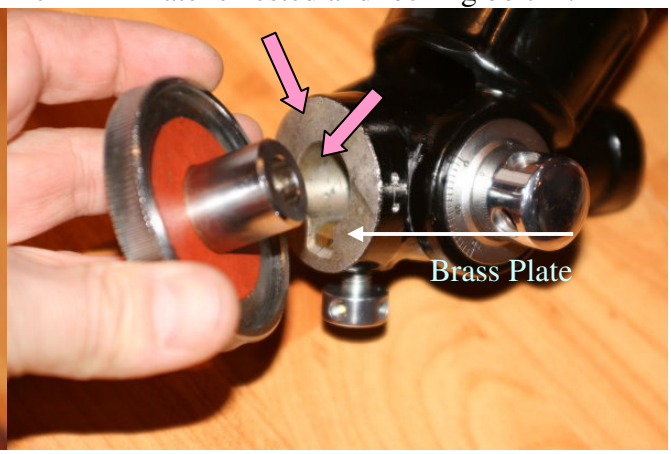


There is a small brass plate that goes in first then the R.A. gear. Notice the orientation of the plate in Pic #11. I flip the whole mount to lay the plate down. I insert the locking bolt, then I insert the gear. Don't forget the washer and to grease (pink arrows).

Pic #11 – Brass locking plate



Pic #12 – Plate is nested and locking bolt in.



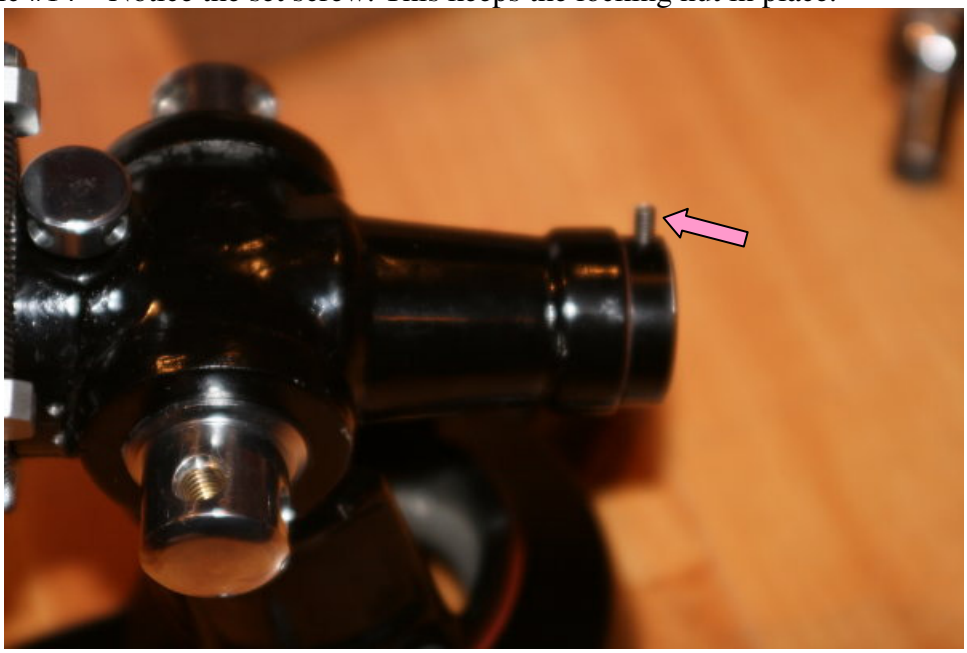
Next, the shaft slides in. Notice that I have 2 washers.

Pic #13



After the shaft is in, slide the fiber washer for the locking nut then thread the locking nut. The set screw gets tightened once the locking nut is secured.

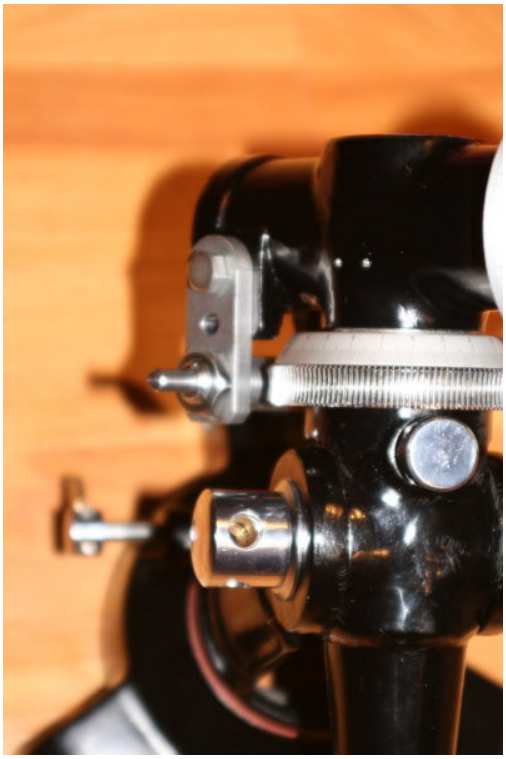
Pic #14 – Notice the set screw. This keeps the locking nut in place.



Tip - I found that to get a good balance between smoothness, friction and no-play, I have to almost fully tighten the lock nut, then with the set screw almost completely tightened, I turn back the locking nut a bit then fully tighten the set screw. I have to play with this a bit to get the right balance. Careful not to strip!

Before I replace the Dec axis, I put on the R.A. worm gear and slightly tighten, but do not adjust till the OTA is on the mount. Adjustments are at the end of this manual.

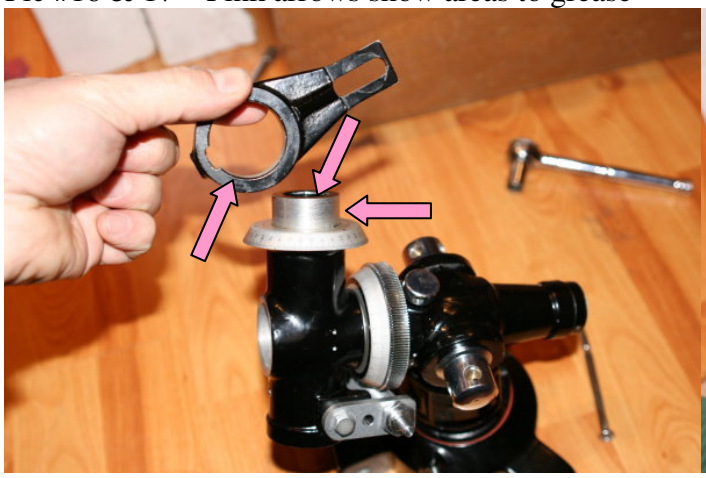
Pic #15



DECLINATION AXIS

We start with the locking bracket. Again, I grease as I go along.

Pic #16 & 17 – Pink arrows show areas to grease





The next series of pictures needs to be looked at collectively. There is a brass sleeve that has 2 (two) fiber washers. That sleeve gets inserted into the hole to accommodate the Dec shaft. It has to be greased. But before that goes in, there is another brass locking plate that has to be placed. So in order…

- I grease the sleeve and top portion of the locking bracket
- Then I insert the brass locking plate
- Thread the Dec locking nut
- Lastly, insert the brass sleeve.

Pic #18, 19, 20, & 21 – Pink Arrows show where to grease



Now it's time to slide in the Dec shaft. I used an exploded view to get a broader sense of where parts go and where to grease.

Pic #22 & 23 – Pink Arrows show areas to grease



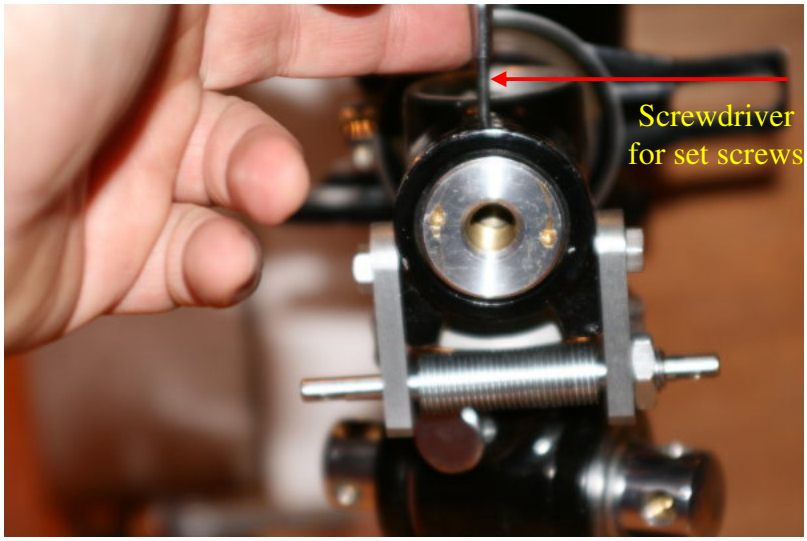
Secure the Dec axis. The Dec shaft locking nut has 2 set screws. Thread the set screws into the nut until flush with the outside of the nut. Look inside the nut to see if the set screws are protruding. If they are back them off. Grease where applicable then thread the locking nut onto the Dec bolt. You will need a spanner wrench to remove and replace this nut.

Pic #24, 25 & 26 – Pink Arrows show areas to grease.



There is a hole in the Dec housing to allow you to tighten the set screws. Use the same procedure as with the R.A. axis then tighten the set screws firmly. Be careful not to turn the locking nut with the set screws tightened as it will strip the threads on the Dec shaft bolt.

Pic #27 – Notice hole for the screwdriver for the set screws

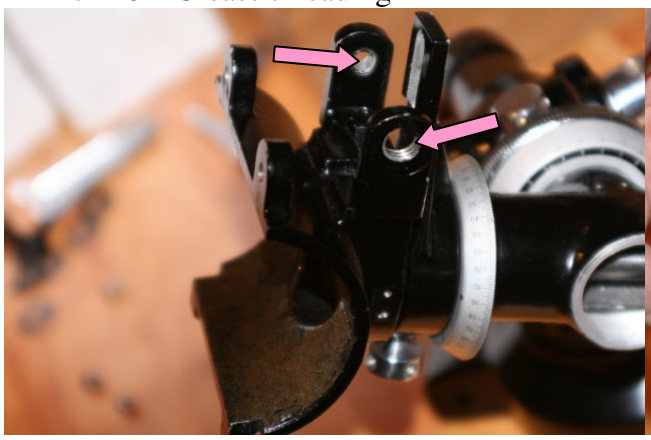


DEC AXIS WORM GEAR.

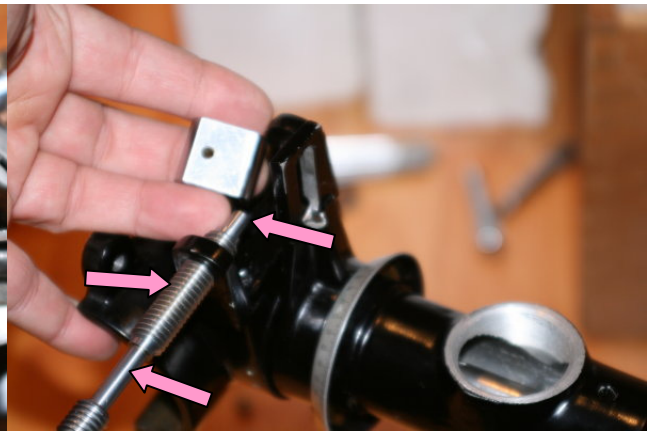
I grease everything first, then thread, THEN, I un-thread everything to remove excess grease or to add grease where necessary. The goal is to make it smooth but not messy.

The progression is fairly straight forward.

Pic #28 – Grease threading



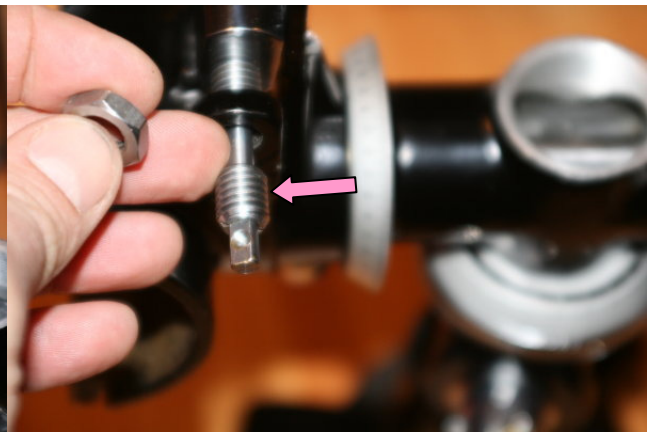
Pic #29 – Grease worm then thread into bracket



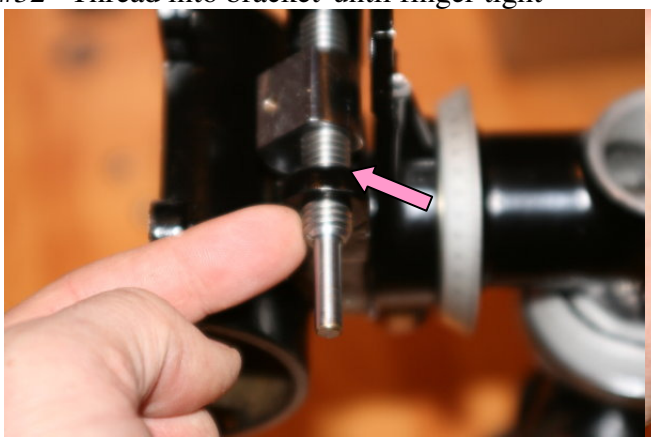
Pic #30 – Hold square nut and thread



Pic #31 – Grease short thread



Pic #32 –Thread into bracket until finger tight

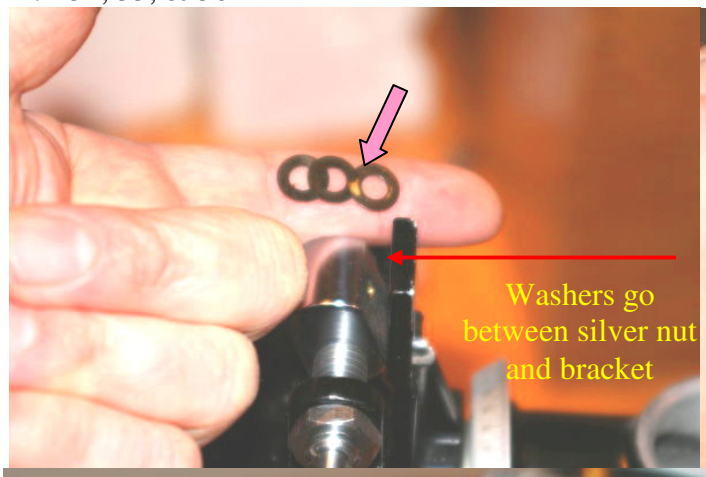


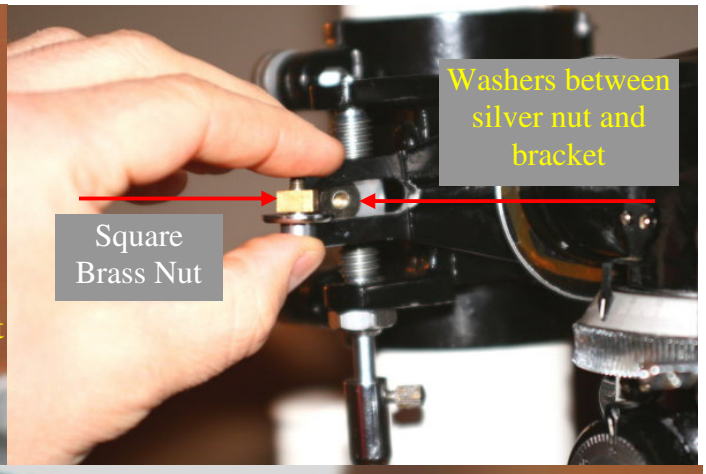
Pic #33 – Thread locking nut

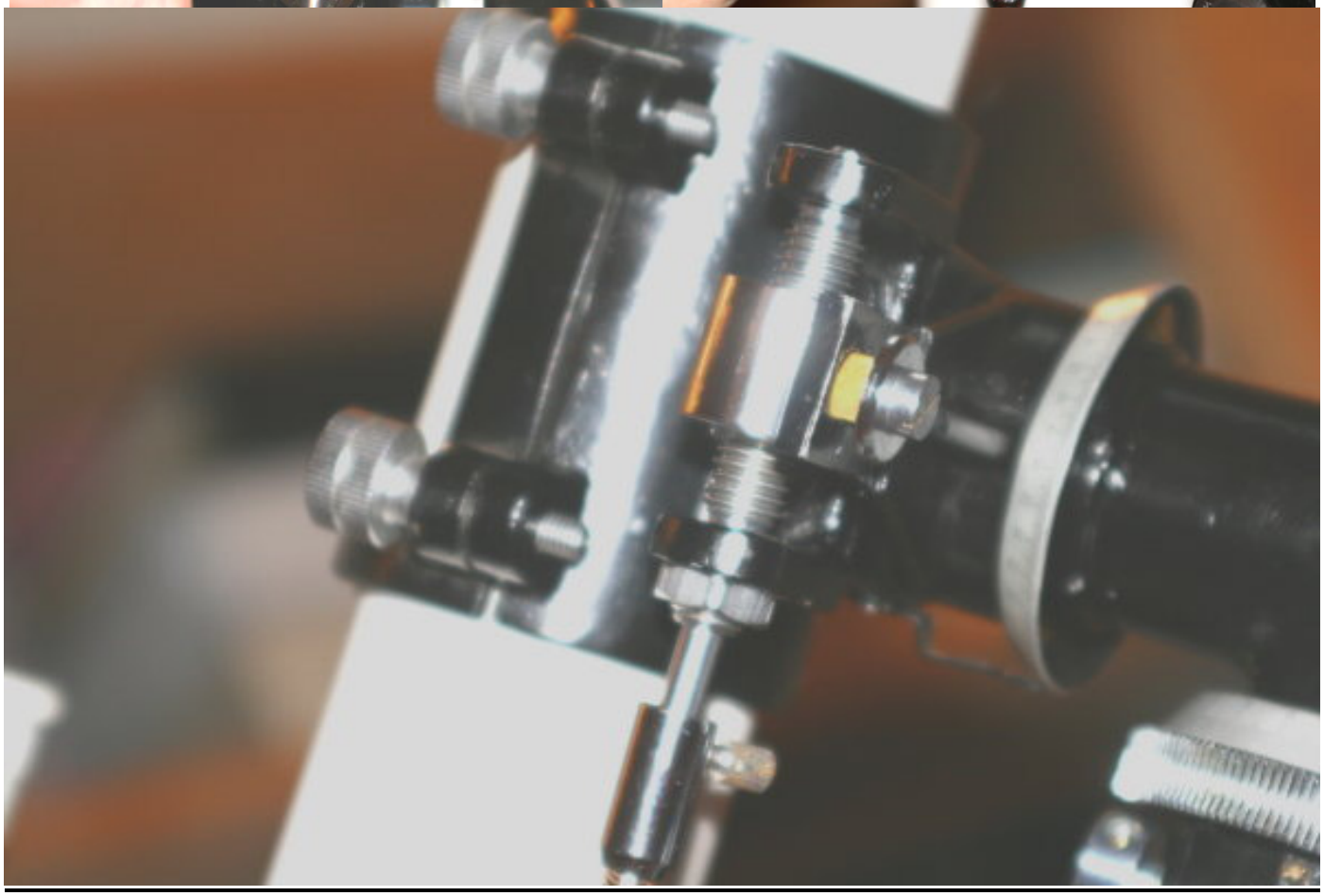


I had three (3) small washers. They get greased then fitted between the square nut and the bracket. Then the smaller Square Brass nut slides into the bracket, the silver washer is next, then the bolt is threaded through all items into the large silver square worm nut.

Pic #34, 35, & 36



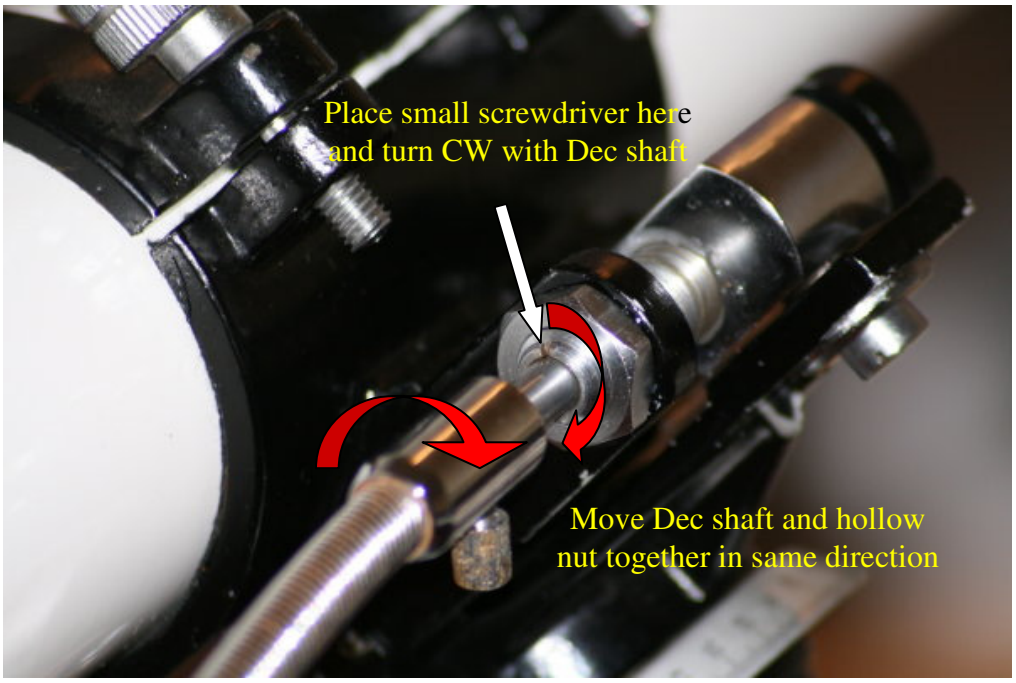




ADJUSTMENTS.
The next series of pics show some tips on adjustments. I have the OTA in the cradle when I do this.

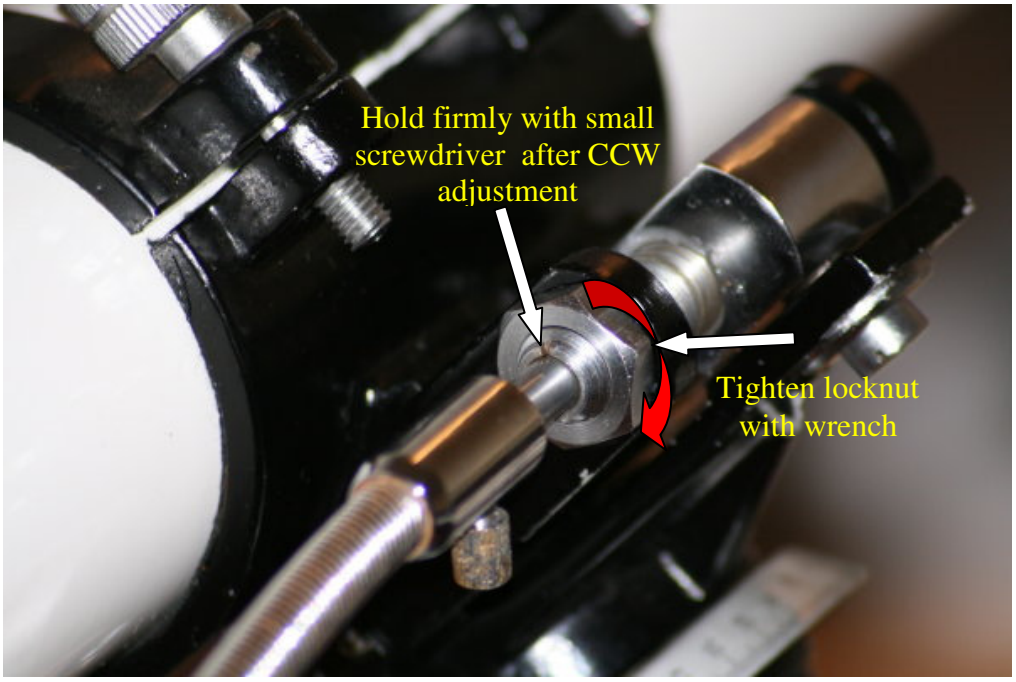
The short hollow threaded nut on the Dec shaft should be snug and its locking nut should be barely hand tight. Then place a small screw driver into one of the slots on the hollow nut. Turn the Dec shaft (worm gear) and hollow nut together in clockwise fashion until really snug. The Dec axis should now be very difficult to turn.

Pic #37



Now slowly, incrementally, move the Dec shaft and hollow nut COUNTER CLOCKWISE until the Dec axis moves smoothly. Gauge the location where the slot ends up when the Dec axis is smooth. Then hold the hollow nut firm with the screwdriver at that location and tighten the lock nut firmly with a wrench.

Pic #38



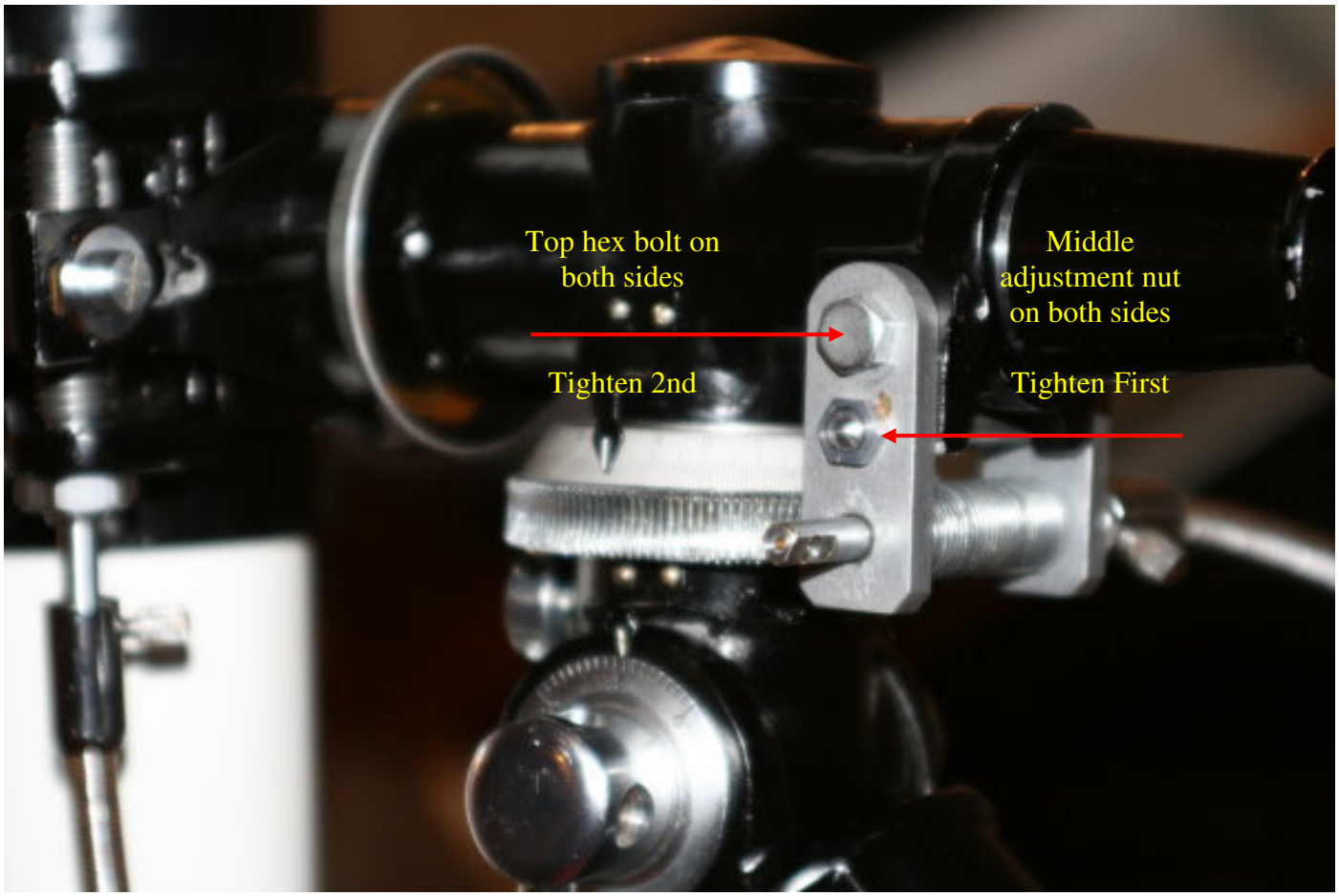
The R.A. gearing is a bit more finicky. I found that if the top hex bolts are tightened too much too soon, then it is difficult to adjust.

The starting point I use is with the middle bolt and nuts being be fairly loose and the top hex bolts being tight. Then, loosen the top hex bolts enough so that the whole worm gear housing can be pushed snugly and balanced against the R.A. gear. Then tighten the smaller hex nuts (middle nuts) until it is difficult to turn the worm gear shaft (use the slo-mo cables). Then tighten the top hex bolts. When tightening, turn the shaft back and forth. There will be a point where it should move really well.

If the top bolts are not snug enough, the worm gear will eventually loosen itself. If to tight, then there will be either to much slop or it won't move.

I found this to be a back and forth procedure until I found the right balance. Basically, tightening the top hex bolts last is the best procedure I found so far. Remember the worm gear needs to be square to the RA gear.

Pic #39



The goal with both the R.A. and Dec gears is to have buttery smooth control with no binding or play. An observer while looking through the Eyepiece, should be able to turn the slo-mo cables and see immediate movement.

The rest of the set-up should be pretty straight forward. Hopefully this has helped. Enjoy.

James