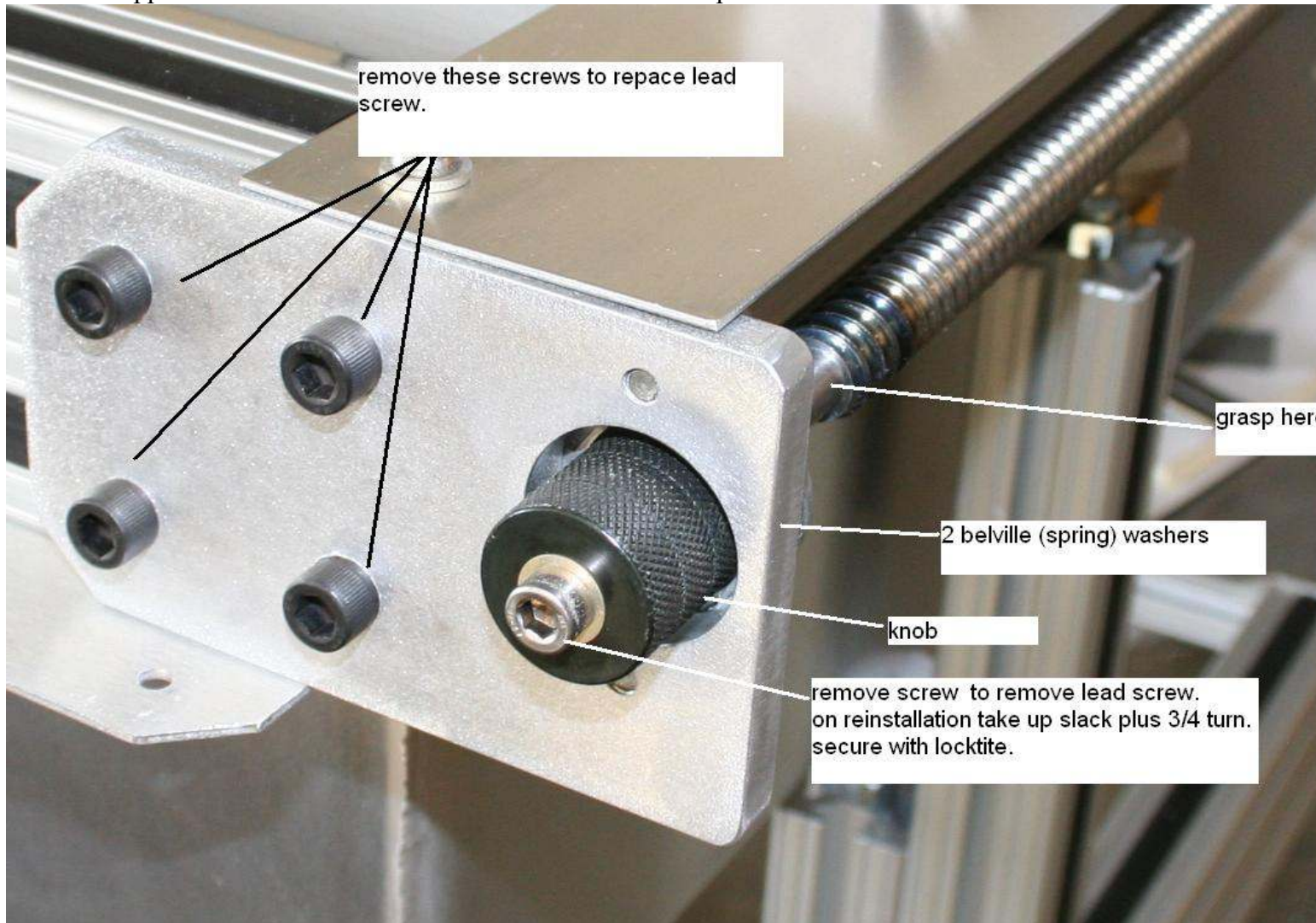


## X axis lead screw snap ring repair

Move the x axis carriage to about mid travel.

Loosen motor coupler (7/64 allen)

Remove stepper motor. Do Not remove the 4 5/16 screws in the picture below.



Remove 6mm socket screw (5mm allen) from knob end. The screw is secured with locktite. Grip lead screw with pliers in the beginning of the threads to break the Loctite loose. Do not grip on the 10mm machined surface that goes through the bearing

Remove the socket head screw.

Remove the knob.

Note the 2 belville (spring) washers between the knob and lead screw bearing. Note the orientation. The washers are coned, and the pointed ends point away from each other.

Do not loosen the flanged lead screw bearing.

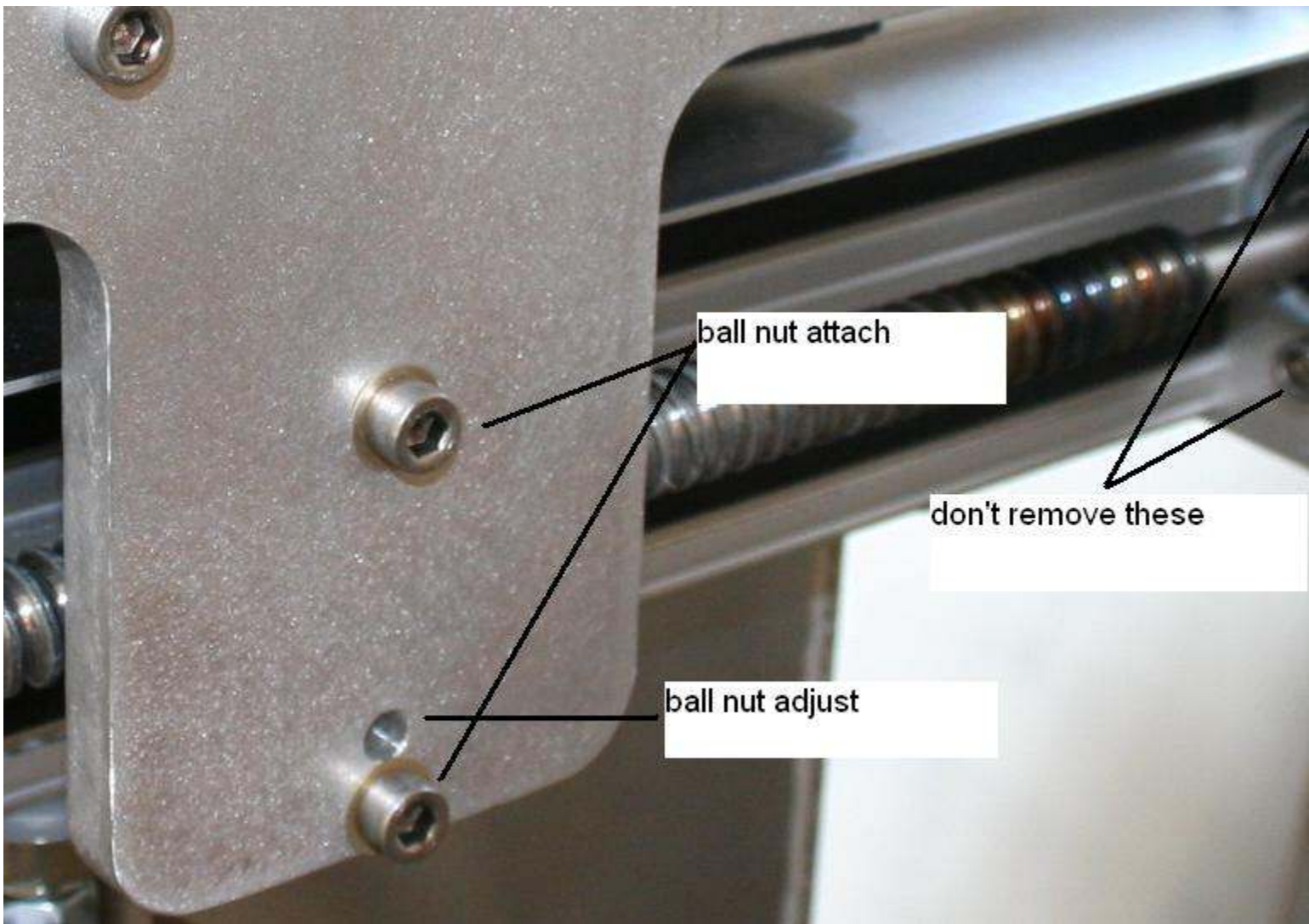
The picture made for replacing the lead screw instructs you to remove the 4 5/16 x 18 socket head screws (1/4 allen) on knob end plate. This should be ignored for a snap ring repair.

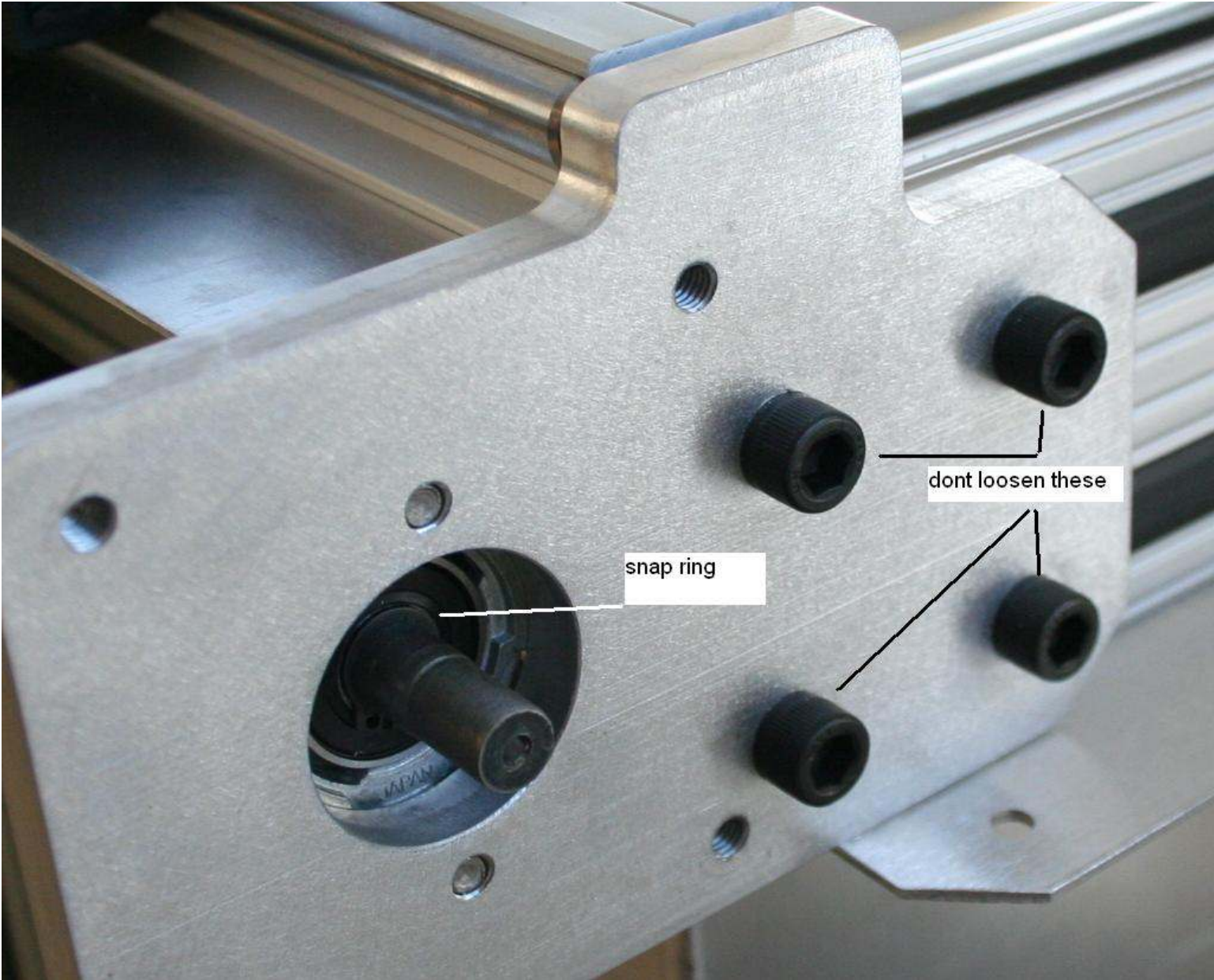
Slide the x axis to the right to expose the snap ring.

Remove the snap ring. Install the 7-0100-0 snap ring repair clamp with the lip in the existing snap ring groove. If the snap ring grooves have a burr, blend them out with a small file.

Clean the shaft in the area of the snap ring. Install and tighten the clamp with a drop of red Loctite between the shaft and the clamp. Don't get any Loctite between the shaft and bearing.

Do not loosen any of the screws on the motor (right hand) plate other than the motor itself.





Slide assembly right through bearing far enough to expose snap ring groove. Remove and discard the snap ring.



Install snap ring repair clamp pn 7-0100-0 with the lip in the existing snap ring groove. Use of red Loctite on the mating surface is recommended. Do not get Loctite on the mating surface under the bearing.

Slide assembly left till snap ring is up against bearing.

Slide left plate over lead screw. Do not allow any weight to hang on lead screw.

Reinstall left end plate. 1" screws are threaded into extrusion, 3/4" screws are threaded into the nut plates.

If there is a collar to secure the left bearing to the shaft, leave it off. It defeats the ability of the Bellville washers to react to thermal expansion.

Snug the 5/16 screws for now, but we will be adjusting later.

Install the 2 belville washers with the point of the coned end away from each other.

Install the knob on the shaft making sure that the 2 cone washers are between the knob and bearing. The point of the cones should point away from each other.

Clean the old locktite off of the 6mm socket head screw, put a couple drops of new locktite and install it through the knob. Take up the slack and then tighten another 1/2 turn. Proper adjustment will allow the knob to turn the shaft when the controller is off or disabled. When the controller is enabled, the knob may slip. Note that turning the knob before the locktite has set may turn the screw destroying the adjustment you just made. Over tightening will destroy the flange bearing on one or both ends.

Install the stepper motor and coupler.

It is best to leave the locktite set overnight, and then proceed with the rest of the adjustments, or you can do the rest of the adjustments and leave the locktite till last.

### **Adjustment:**

If the end plate on the knob end and the motor mounting plate have not been disturbed, no further adjustment should be needed.

Using AvCAM jog, run the x axis to the right. Verify there is no binding.

Lightly snug the ball nut attach screws.

Run the x axis to the left, at or near the left hand stop.

Loosen the (4) 5/16 socket head screws. Wiggle the plate and allow it to take it's natural position.

Run the x axis left and right and listen for noise, and especially binding. It is normal for the ball nuts to be noisy. The noise from a properly adjusted ball nut is generated from the recirculation path of the bearing balls. If the ball nut adjustment screw has been over-tightened, then flat spotted balls could be the source of noise.

If the noise seems excessive, set the traverse speed lower, like 50ipm. Loosen the ball nut attach screws. While traversing tighten the attach screws.

The adjust screw should normally not be touched, but may be loosened very slightly (1/8 turn max) to reduce noise or backlash. **Do not overtighten, or you will ruin the ball nut \$\$.**

Please return existing screw and ball nut properly supported in the container the replacement was shipped in.  
UPS surface is fine.