#749-008-016
Sinclair Premium Neck Turning Tool

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Your Sinclair Premium Neck Turning Tool employs an eccentric adjustment mechanism to enable you to make cutter depth adjustments of .0002″ to .00025″ (two to two and a half ten thousandths of an inch) per click. This adjustment accuracy is assured when you are using Sinclair carbide mandrels. Using stainless steel mandrels may change the click adjustment accuracy slightly, but most reloaders will find the stainless mandrels entirely acceptable.

Installing and Locating The Mandrel:

1a) Back off the Cutter Lock Screw “A” (3/32 hex wrench) slightly. Back off the Cutter Adjustment Screw “B” (5/32 hex wrench) while pushing the cutter into the body of the tool until the cutter will allow insertion of the mandrel. Lock screw “A”.

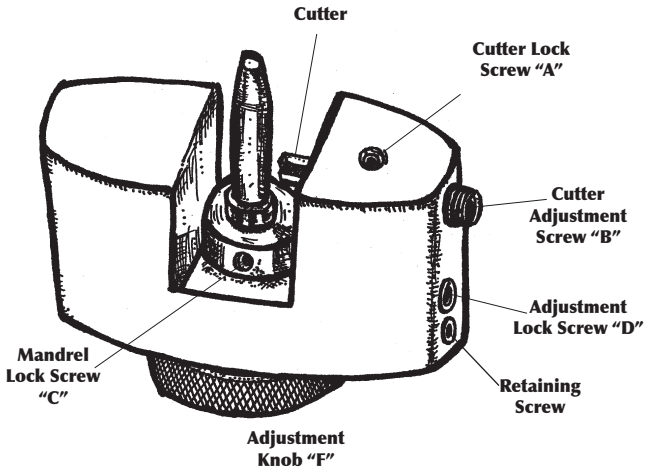
2a) Loosen the Mandrel Lock Screw “C” (3/32 hex wrench) until it does not protrude into the mandrel channel.

3a) Insert the mandrel with flat toward the locking screw until it stops, tighten screw “C” just enough to maintain the location of the flat, do not tighten completely. At this point the mandrel should not rotate, but should slide freely in the mandrel channel.

4a) Using the Mandrel Stop Screw “E” (1/8” hex wrench) and a case to be turned as a reference, locate the mandrel to the approximate location where the single point of the cutter will meet the case just past the neck/shoulder junction when the mouth of the case stops against the large diameter of the mandrel.

5a) Lock the mandrel in place.

Final location of the mandrel will probably not be set until you’ve turned a case.

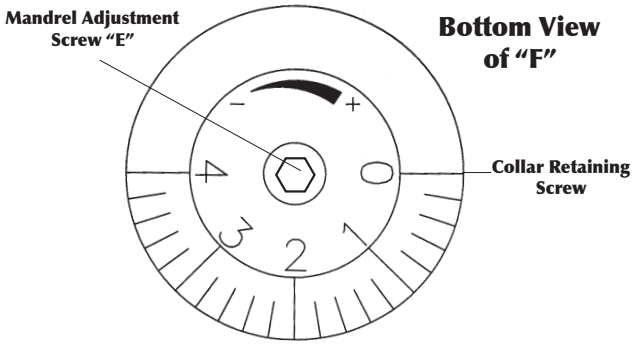


Adjusting Cutter Depth:

Important - Before adjusting the depth of cut, make sure the Cutter Adjustment Knob “F” is set on zero (“0” lined up with the mark on the tool body).

1b) Three laser marked feeler gages are provided with the NT-4000 tool. Use the feeler gage just thicker than the neck wall thickness you wish to turn for the set-up procedure (example: for .009” wall thickness, use the .010” feeler gage).

2b) Loosen the Cutter Lock Screw “A”. With the appropriate feeler gauge resting between the mandrel and cutter, lower the cutter using the Cutter Adjustment Screw “B” to just touch the feeler gage. Carefully remove the feeler gage then tighten the Cutter Lock Screw “A”. You are now ready to make your fine-adjustment.



Important - Lock screw “D” must be loosened before making any adjustments with the Adjustment Knob and tightened before neck turning any cases.

3b) Loosen the Adjustment Lock Screw "D", rotate the Adjustment Knob "F" one click counter-clockwise for every .0002" adjustment you require. Our .009" example requires five clicks (from the .010" feeler gage setting) or to the number "1" engraved on the knob (the numbered marks on the knob represent approximately .001" of cutting depth movement). Tighten lock screw "D". Turn a test case and measure the neck wall thickness with a case neck micrometer or ball (tubing) micrometer.

4b) If your neck wall thickness measures larger than your desired wall thickness, rotate the Cutter Adjustment Knob "F" counter clockwise (remember – each click of the knob equates to .0002" change in cut depth, each number on the knob is .001" advance) to advance the cutter. If your neck wall thickness measures thinner than you desire, rotate the Adjustment Knob "F" clockwise the amount you need to raise the cutter. Tighten the Adjustment Lock Screw "D" when you are finished with the adjustments.

Note: If you would like for the adjustments to be even finer than .0002" - .00025" Sinclair suggests removing the detent ball from the body of the tool. This is easily accomplished by loosening the "Collar Retaining Screw" located in the adjustment knob (in line with the "0" mark) using a 1/16" hex wrench. Slowly remove the adjustment knob from the stainless steel tool collar. On the underside of the adjustment knob you will find a 1/8 ball bearing, remove this ball bearing and the spring captured inside the tool body (by using your 1/16" hex wrench as a pick) and re-install the adjustment knob to the tool, being careful to keep the "Collar Retaining Screw" aligned with the flat on the stainless collar. Tighten the "Collar Retaining Screw" using your 1/16" hex wrench. You can now make adjustments that are finer than the .0002" - .00025". The engraved marks can now be used as reference marks to indicate .0002" - .00025" adjustment.

5b) Turn another sample case and measure with the neck micrometer to confirm your adjustments. Proceed to turn your batch of cases.

Turning Necks:

1c) The fit of the case neck on the turning mandrel is critical to quality neck turning. Our expander mandrels are nominally .001" larger in diameter than our stainless steel or carbide neck turning mandrels, and running new cases on the expander mandrel in our expander body will produce the correct case neck fit on the turning mandrel.

2c) Lubricate the turning mandrel between each case (even if you are using a carbide mandrel). One of our favorite mandrel lubes is Shooters Choice FP-10, place one drop on the mandrel where the taper starts, or, squirt a little in a bottle cap and use a toothpick to put a dot of lube on the mandrel. Imperial die wax works well if you are turning by hand. Many other lubes, oils and case lubes will also work fine.

3c) The handle which comes in our neck turning kits will turn any size cases. Adjust the "button head" screw (1/8" hex wrench) so the handle sides are about parallel when the case is held tight just above the case head (cases should be held by the web area of the case). Use the thumb screw to tighten and remove the cases.*

Note - Turning necks "under power" (using a drill, power screwdriver or Sinclair Power Center) is much faster, smoother and more consistent than turning them by hand.

4c) Be sure to set the mandrel position so the cutter leaves a witness mark up on the shoulder (see 4a. above). This will insure that you cut into the neck shoulder junction. If you stop turning short of the neck shoulder junction, cases will often develop a "donut" (thickened area of constriction) at the junction angle.

5c) The cutter will usually make a fine cut (produce a hair like thread of brass) as the case is removed from the mandrel – this is perfect. Withdraw the case from the tool no faster than you fed it on, and never turn backwards even when removing the case from the mandrel.

6c) If case necks look like they are "threaded", the feed or advance rate is too high – slow down the advance and let the cutter do its work. A great rule to remember for perfect neck turning is "SLOWLY ON AND SLOWLY OFF".