

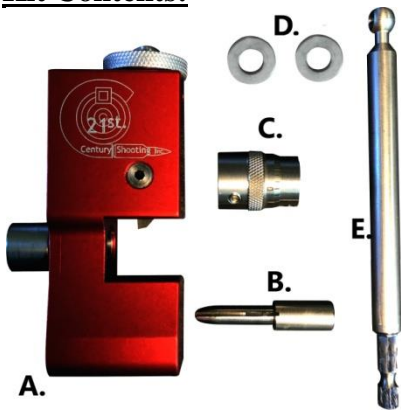


## 21st Century Innovation 3-Way Trimmer Attachment Kit (Standard Version)

(Video Instructions available at:

<https://21stcenturyinnovation.com/printable-instructions>)

### Kit Contents:



- A.) Cutting body
- B.) Cutting Arbor
- C.) Micro and Macro Length Stop Assembly
- D.) Aluminum Spacers (2)
- E.) Long Driver Shaft
- F.) 5/64" Allen wrench (not pictured)

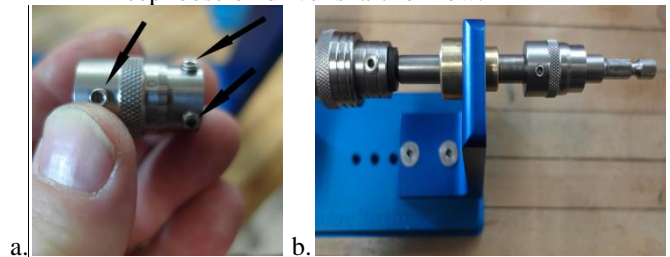
### Assembly

1. Remove tail-stock L-Bracket from lathe assembly with 5/32" Allen Wrench. Remove the standard driver shaft, case holder/driver and rubber washer.
2. Lube long driver shaft with light grease and insert in brass bushing in L-Bracket. Place rubber washer and case holder/driver you need for trimming. Tail Stock L-Bracket Should look like below image.



3. Re-attach L-Bracket to lathe base in appropriate holes with 5/32" Allen Wrench. Use hole setting that will that work best with the cartridge length you will be trimming. Use your best judgement to allow for room to work and full movement of driver. Don't worry the screws to reattach the L-Bracket are self-aligning!  
**\*\*\*NOTE: The standard lathe bracket will work with cartridges up to standard long magnums (7mm Remington Mag/300 Win Mag). Anything longer will require part number 905-50T "L-Bracket for 50/cal" etc.)**

4. Take Length Stop Assembly and loosen all three set screws with supplied 5/64" Allen Wrench. (Image a.). Ensure micrometer side of assembly is in a neutral position (not too tight or loose, in the middle). Slide the assembly onto back of driver shaft with larger side of assembly going on first (Image b.). Keep loose on driver shaft for now.



5. Back OD cutter (a) off all the way on the cutter body by turning cutter depth adjustment knob (b) counter clockwise. This will allow clearance to place cutting arbor in place and for initial trimming set-up.



6. Attach cutting body to left L-bracket with tool body screw (A) with the two aluminum spacers (B) on screw on the inside of bracket as pictured. Tighten screw (A) with 5/32" Allen wrench so that the cutter body is tight against the L-Bracket and the spacers without any play. Note (Do not use the rubber flat washers that are used in the neck turning set-up) Do not over tighten.

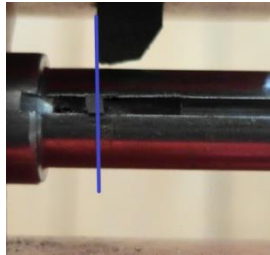


7. Cutter body should be at an angle where you can see the trimming operation. Roughly a 45 degree angle or more.



8. Place the cutting arbor into the cutting body so the cutter and slot in arbor are facing outward. Shown on image (a.) Flat on shank of arbor should be facing the dial side. The cutter face on the arbor should just be slightly to the right of a line perpendicular to the left side of the outside cutter ( blue line image b.).

Tighten arbor into place with arbor tensioning bolt with a 5/32" Allen wrench. Keep a good space between outside cutter and arbor to allow neck clearance when setting up.



9. Take the O-Ring off the end of the driver on the case holder driver. This eliminates any variances the flexibility the o-ring may cause.



**\*\*\*Re-Mount Lathe to work surface prior to next steps. Some disassembly will be required to access mounting screws.**

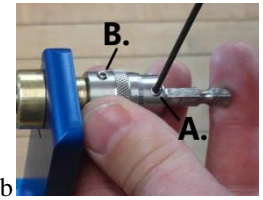
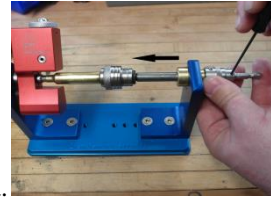
### Trimming Prep/Set-up

10. All cases should be sized and properly expanded prior to trimming with 21<sup>st</sup> Century Shooting's expander mandrel in expander die body. The cutting arbor is designed to fit brass prepped this way. Cutting arbor is sized .003" under bullet diameter and micro polished to help avoid galling of brass. Not properly expanding brass will result in chatter and inconsistent trim lengths.
11. With driver rod pulled all the way right and rubber washer behind driver in contact with the brass bushing, place case to be trimmed in case holder and tighten until it stops. The stop assembly loosened and pushed all the way to the left (image below



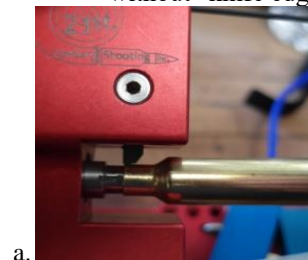
12. Carefully slide driver rod from right side to push case mouth on arbor to just touch the cutter surface. Stop assembly should easily slide on rod and stop when the case stops on cutter.(image a.)While applying slight pressure on rear of driver rod and ensuring stop is in contact with rear of brass bushing (image b.)

tighten 2 set screws (A) with 5/64" Allen Wrench. Leave set screw B. loose.



### Trimming

13. Lube the trimming arbor with a proper lubricant such as Imperial Wax or a good gun oil.
14. After following the set up procedures and properly prepping all brass to be trimmed measure the overall length of a piece of from case head to case mouth and record. Place into case holder/driver and tighten until it stops.
15. Run the case onto the cutting arbor under power with power screwdriver or drill **CLOCKWISE** at a slow speed (under 200 RPM).. It may trim some of the brass slightly initially. If it does trim, once it visibly completes removing any material, remove the case and measure.
16. To adjust trim-length, use the micrometer portion of the stop assembly to lengthen or shorten. Clockwise shortens length and counter-clockwise lengthens. Each hash mark is approximately .001". Once trim length is achieved, lock down set screw on micrometer part of stop with 5/64" Allen Wrench. (reference step 12 image b set screw marked "B" . Your trim length is set.
17. After trim length is achieved it is time to adjust the outside diameter cutter. With trimmed piece of brass run it onto cutting arbor. At the same time slowly turn knob on tool body clockwise to bring cutter in contact with outside of case (image a.) and it **slightly** removes the burr caused by trimming. Do not remove too much material. It should be a sight cut without "knife edge" as shown below (image b.)



18. Trimming should be set up at this point. Continue trimming and adjust if needed (although should not be necessary if set up was done properly). Clean trimming arbor and cutters after each trim with acid brush to remove shavings.

### Tips:

- Be sure to size brass then use proper expander mandrel. Failure to do so will result in poor consistency and chatter.
- Keep cutters and arbor clean.
- Keep a "dummy" piece of brass that is at trim length for easier future set up.
- Keep driver shaft rod clean and lubed with a light grease.
- Do not trim at too fast of an RPM. This will cause galling of the inside of case mouth, poor results, and potential damage.