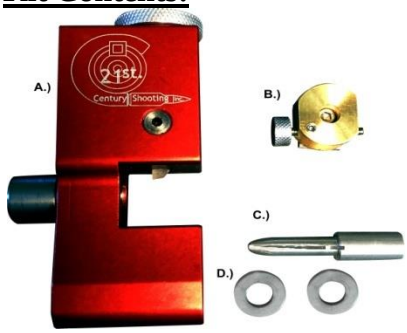
21st Century Innovation
3-Way Trimmer
Attachment Kit (Power Version)

(Video Instructions available at: https://21stcenturyinnovation.com/printable-instructions)

Kit Contents:



- **A.) Cutting body**
- **B.) Dead-stop assembly with micro adjustment knob**
- **C.) Cutting Arbor**
- **D.) 2-Aluminum spacers**
- **E.) 1/16" and 7/64" Allen wrenches (not pictured)**

Assembly

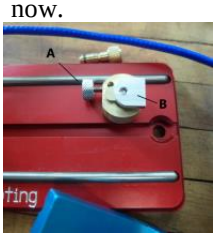
***Note: If your power lathe is mounted to work surface be sure to remove and take out mounting screws. Re-mount after assembly**

1. Remove L-bracket with power housing from lathe by pulling brass pin from handle linkage (image a) and carefully sliding L-bracket to the right off of lathe base (image b).

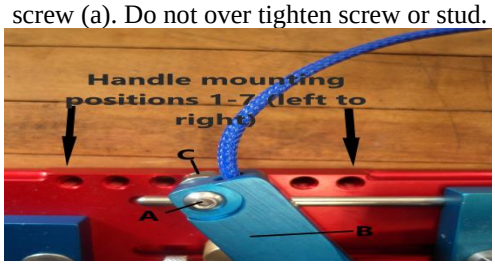
a.  b. 

*****Push down on linkage arm while pulling pin. Also use extreme caution not to pull on the power handle cord!**

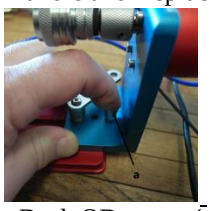
2. To install dead stop assembly on base be sure to have the micro-adjustment knob (A) and the rounded edge of the T-Nut (B) on bottom facing toward left. Loosen T-Nut Set Screw (C) with 7/64" Allen Wrench. Slide Stop assembly into base slot in the pictured orientation. Leave dead-stop assembly sliding loose in slot for now.

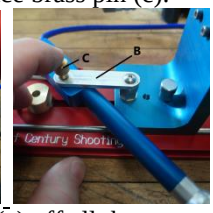


3. There are 7 positions that the lathe handle can be attached to. Your power lathe came set to what specified cartridge you ordered it for. Positions 3-5 are the most commonly used. Position 3 is used for 223 based, PPC and BR sized cases. Position 4 is used for 308 based (or similar sized through standard magnum cases. Position 4 is used for 338 Lapua and larger. To set lathe handle position remove screw (a) with 3/32" Allen wrench. Carefully lift and remove handle (b). Remove handle stud (c) with 7/16" wrench. Re-install handle stud (c) into desired position. Replace handle (b) and attach with screw (a). Do not over tighten screw or stud.



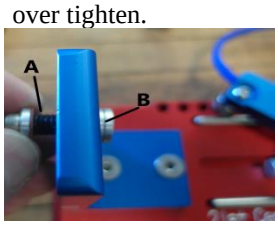
4. Place L-Bracket with power housing back onto base by depressing button (a) and carefully sliding bracket back into base slot. Swing handle linkage (b) to line up with pin hole on handle and Replace brass pin (c).





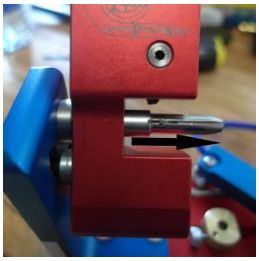
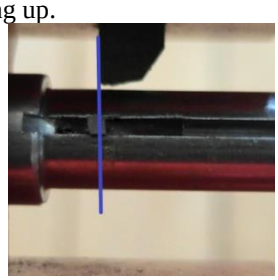
5. Back OD cutter (a) off all the way on the cutter body by turning cutter depth adjustment knob (b) counter clockwise. This will allow clearance to place cutting arbor in place and for initial trimming set-up.

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.

a. 
b. 

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.

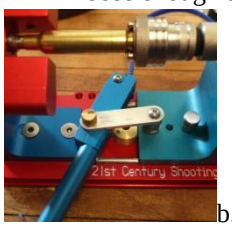
*****Re-Mount Lathe to work surface prior to next steps. Some disassembly will be required to access mounting screws.**

Trimming Prep/Set-up

10. All cases should be sized an d properly expanded prior to trimming with 21st Century Shooting's expander mandrel in expander die. 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. Dead-stop assembly should be loose in base slot as mentioned in Step 2 above. Micro Adjustment knob should be in a neutral position on dead-stop.(see image below.).

12. **a.)** With handle in far -right position place case to be trimmed in case holder and tighten down until it stops. <u>WITHOUT</u> using the power slowly move handle to the left sliding the case onto the arbor. The dead stop should move in slot with handle. Stop when case mouth just comes in contact with cutter. (Image a.) <u>DO NOT</u> slam case onto the cutter.

b.) Slowly return handle back to the right and ensure dead-stop remains in place on base where it was located when case mouth was touching the cutter. Tighten Dead Stop in place with 7/64" Allen wrench (image b.). Keep micro-adjustment knob set screw loose enough to allow adjustment. (image c.)

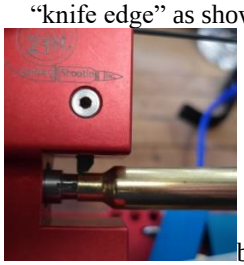
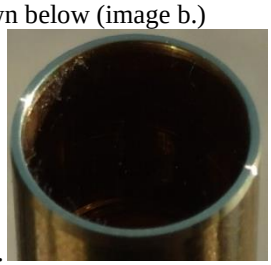
a. 

b. 

c. 

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. 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 length of trim use the micro-adjustment screw to fine tune trim length. Clockwise will result in longer trim lengths and counter clockwise results in shorter trim lengths. One full rotation of micro-adjustment knob is approximately .020". Once desired trim length is achieved gently lock down micro-adjustment knob set screw shown in image c. above. ***Don't use "gorilla fingers".
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 **<u>slightly</u>** 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.)

a. 
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.