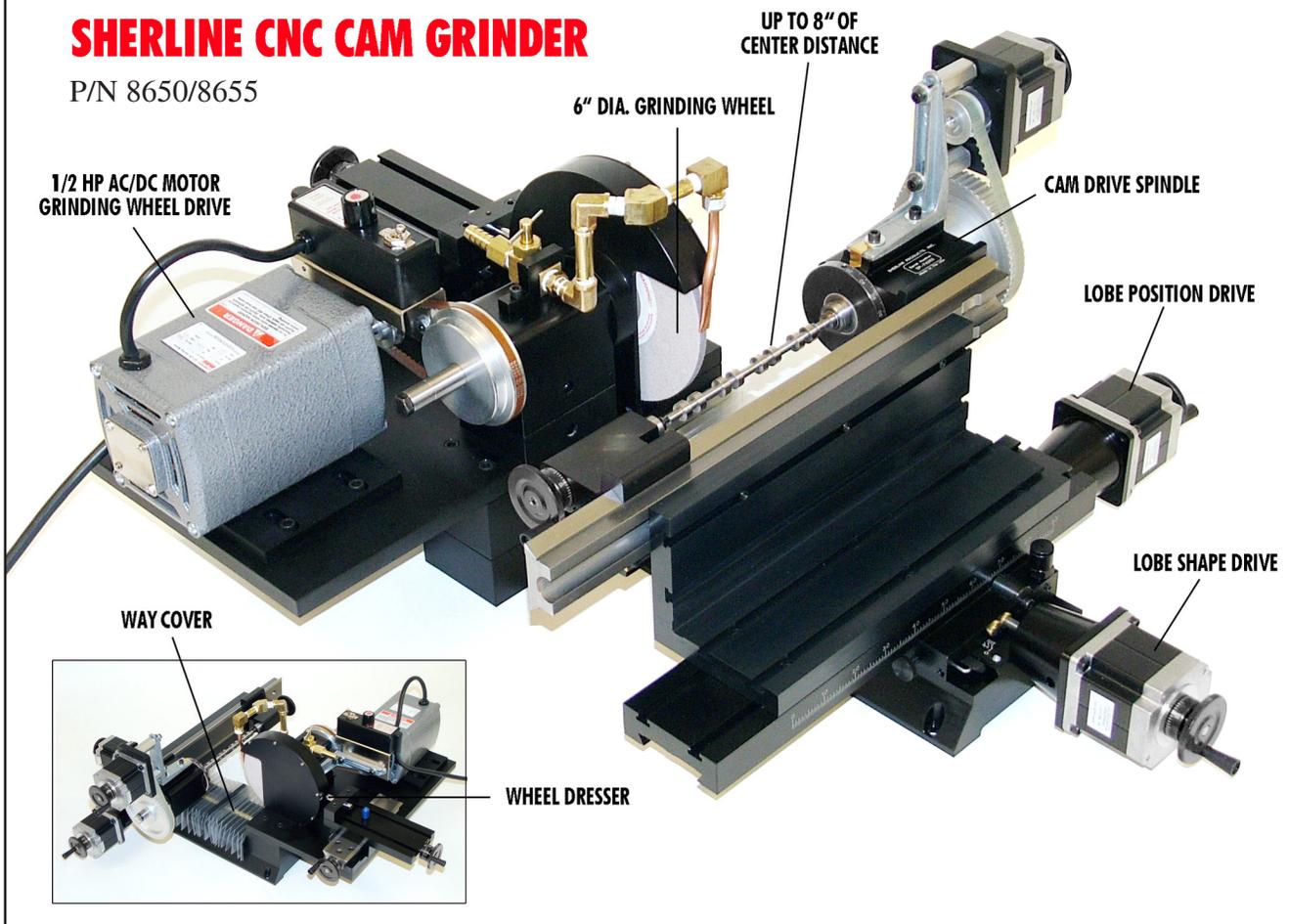


SHERLINE CNC CAM GRINDER

P/N 8650/8655



Assembly Instructions

NOTE: Your Sherline CNC Cam Grinder is double boxed and secured to a wooden shipping frame. Upon delivery, check the outer box for damage. If the box is damaged, take pictures prior to opening the box. After you have taken pictures, remove the contents from the box and check for damage.

1. Remove the wood shipping frame from the box using the zip tie handles on the top of the frame. Lift the wood shipping frame straight out of the box.



Fig. 1—Lifting out the shipping frame using the zip tie handles.

2. Remove all of the individual parts and boxes from the shipping frame.
 3. Remove the screws that hold the top piece in place and take the top piece off.
 4. Remove the screws from the Cam Grinder Base and lift the base out of the shipping frame.
- NOTE: One of the side pieces of the shipping frame should be marked to align it with the top piece. This is done so you can reassemble the frame if you need to send the unit back for repairs.*
5. Once all of the boxes and components of the Cam Grinder have been removed. Set them out on a table so they can be identified for assembly. Use the set of pictures that came with your machine for identification and assembly purposes.

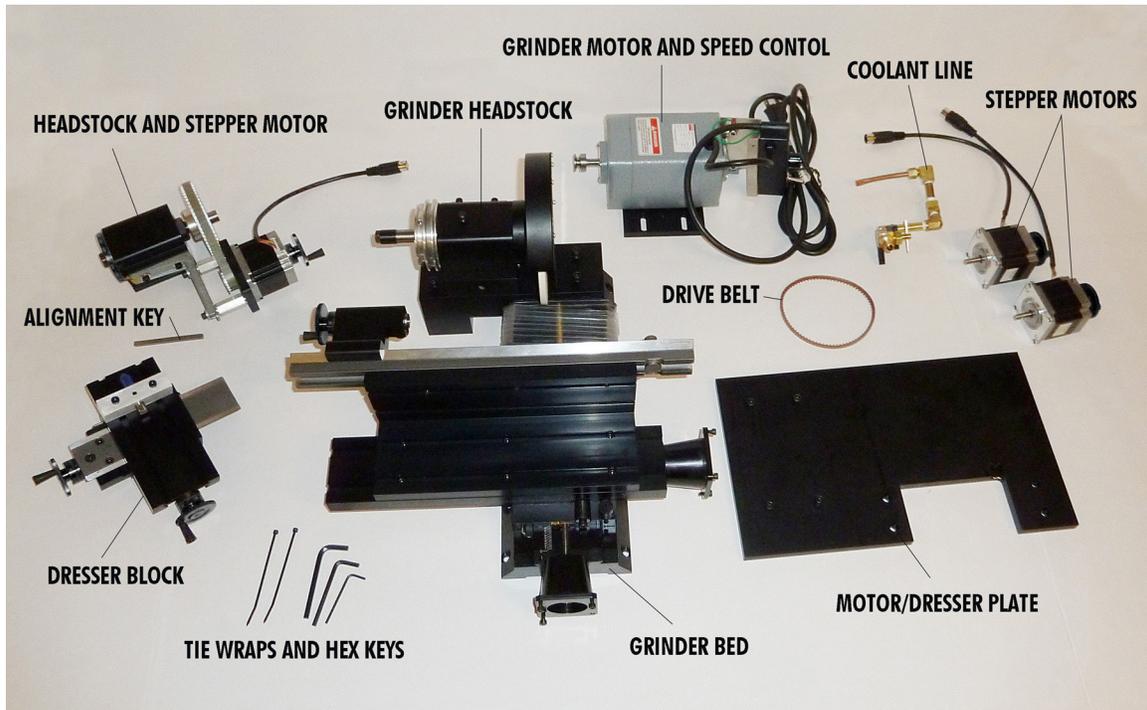


Fig. 2—The major components laid out ready for assembly.

6. In one of the boxes you will find a set of Allen wrenches that will fit all of the screws needed for assembling your cam grinder. When the cam grinder was disassembled, the screws were threaded back into their proper holes.
7. Place the cam grinder base on a work bench with adequate space for assembly.
8. Install the two stepper motors.
 - a. Each motor mount comes with (3) 8-32 screws in it. Remove the screws.
 - b. The set screw in the stepper motor coupling should be facing the access hole in the motor mount. If it is not, turn the coupling until it is aligned with the access hole. Insert the Allen wrench through the access hole and into the head of the set screw and leave it in position. This is done to prevent the coupling from turning during the assembly process.

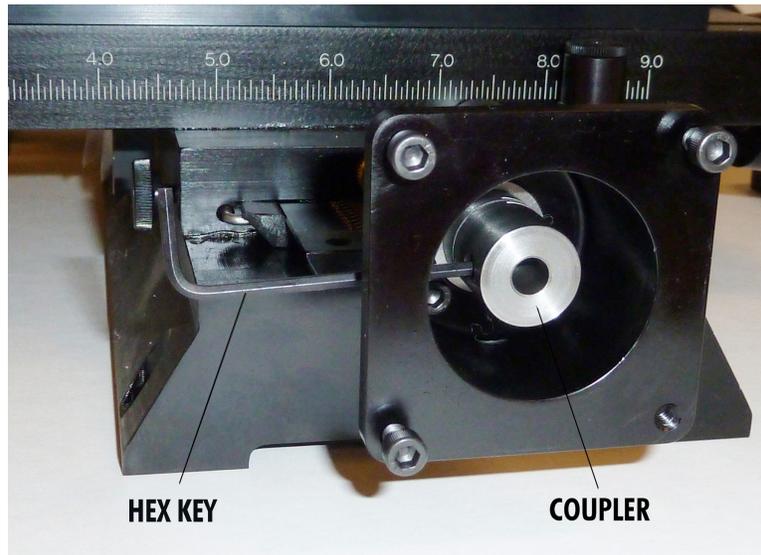


Fig 3—Allen wrench inserted in access hole picks up set screw on coupler.

- c. Look at the stepper motor shaft and find the set screw flat. Now see which number on the handwheel is aligned with the set screw flat. This is done so you can align the set screw flat with the set screw when you assemble the stepper motor.

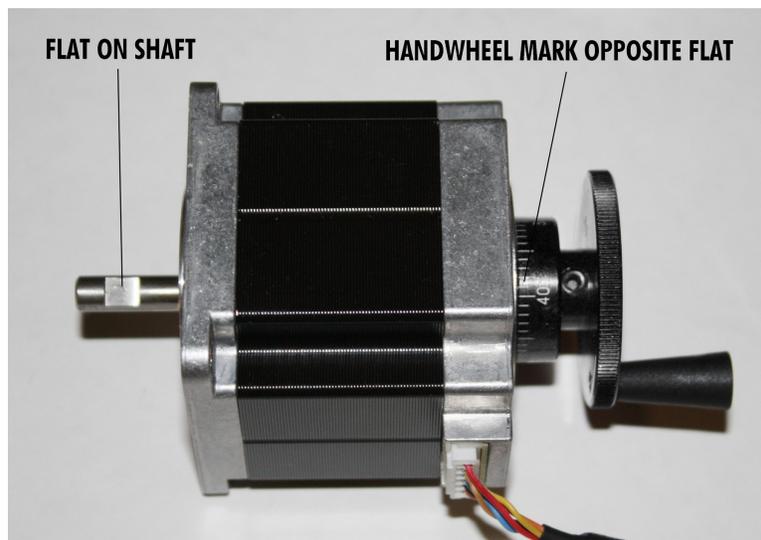
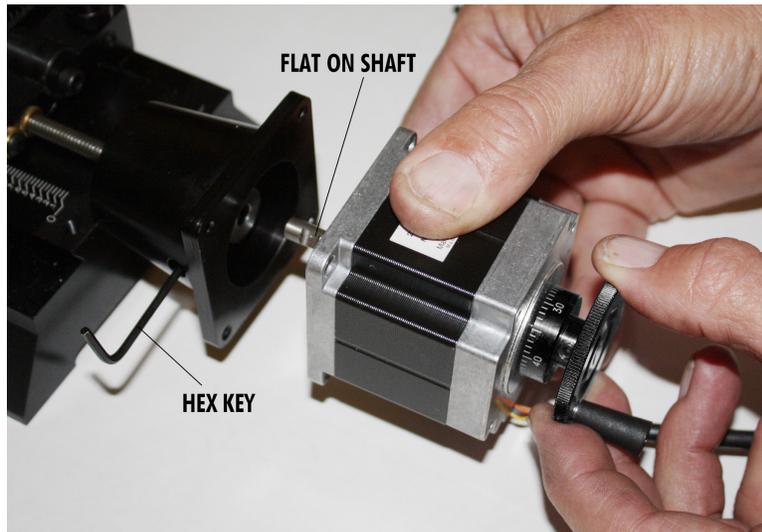


Fig 4—Note handwheel mark opposite flat on shaft. Align flat on shaft with allen key in access hole.

- d. While holding the Allen wrench in place, insert the stepper motor shaft into the stepper motor coupling. Gently turn the handwheel as you insert the shaft for easier assembly.



*Fig 5. Gently rotate handwheel back and forth while sliding shaft into coupler.
(When removing a motor from the unit, reverse this procedure to keep from breaking the coupling.)*

- e. Once the shaft is inserted to full depth and the motor is fully engage with the motor mount, insert the (3) 8-32 screws into the stepper motor. Leave the lower screw hole on the stepper motor wire side open. You will be securing the stepper motor wire to this hole with a zip tie.
- f. At this point the set screw should be loose. Now tighten the (3) 8-32 screws until the stepper motor is locked in place.
- g. While holding the Allen wrench in place, turn the handwheel until the number that is aligned with the set screw flat is lined up with the Allen wrench. Slowly tighten the set screw while turning the handwheel slightly to the left and right to align the flat with the set screw. Once the flat is aligned, lock down the set screw.



Fig. 6. Secure the set screw to lock motor shaft into the coupling.

- h. Secure the stepper motor wire to the lower mounting hole with a zip tie. This provides stress relief for the wire plug in case the motor wires are pulled. Finally, insert the plastic access hole plug into the access hole on the motor mount to keep chips out of the coupler housing.

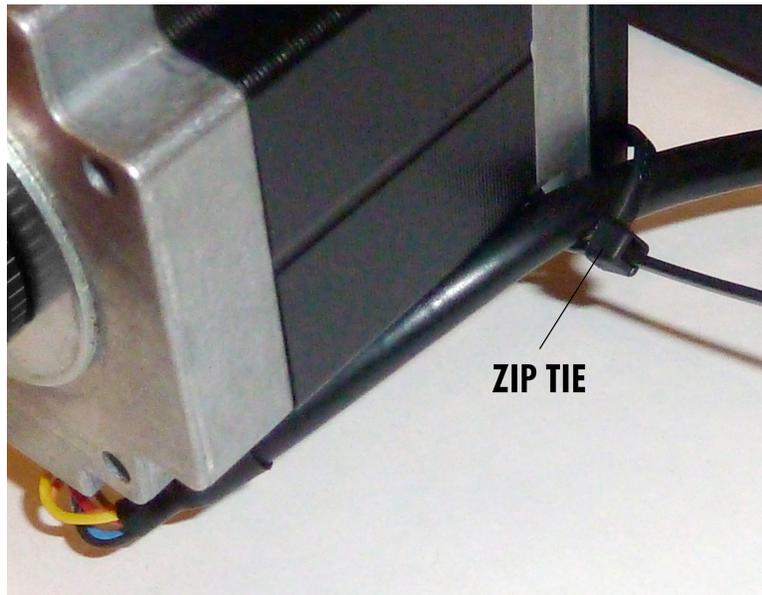


Fig. 7—The motor cable is secured in 4th screw hole with a zip tie to relieve stress on the plastic wire coupling.

9. Assemble the Dresser Block to the Motor and Dresser Plate using the (2) $\frac{1}{4}$ -20 screws. The screws come up from the bottom of the plate with the heads on the countersunk holes.

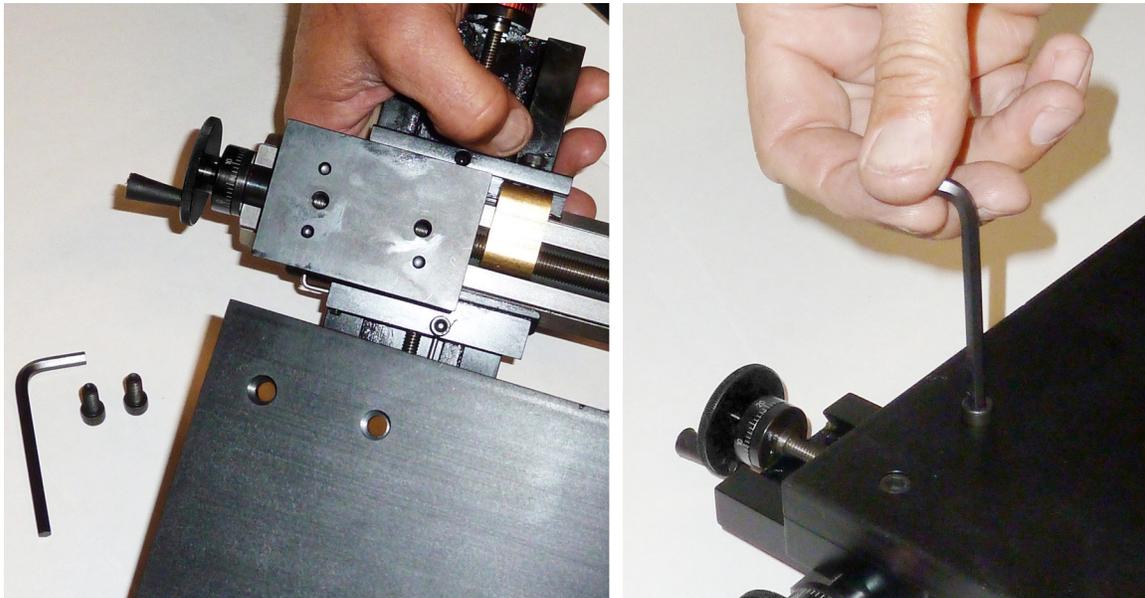


Fig. 8—Dresser block plate being attached to motor/dresser plate.

10. Remove the (4) $\frac{1}{4}$ -20 screws from the Grinder Bed Base on either side of the grinding wheel headstock.
11. Slide the Motor and Dresser Plate into place. Insert the (4) $\frac{1}{4}$ -20 screws. Tighten the screws down a little bit at a time (do not tighten them to full depth one screw at a time). The Allen wrench that is supplied will do the job; however, a ball end Allen wrench would be better.

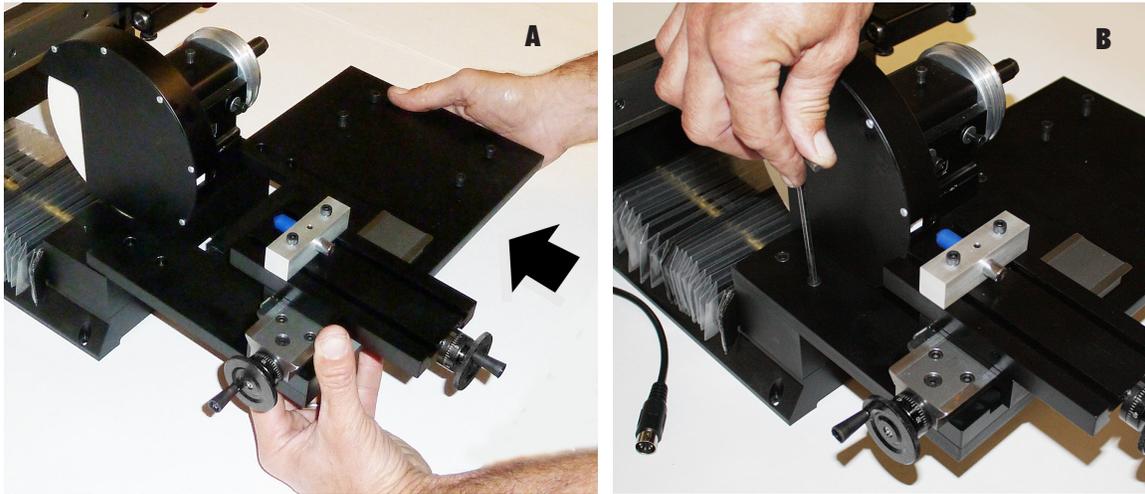


Fig. 9—(A) Sliding the motor/dresser plate into place. The last part of the insertion is a tight fit. Wiggle the plate side-to-side slightly while pushing until plate holes line up with four screw holes. (B) When fully seated, secure the four screws.

12. Place the main motor and the speed control behind the motor and dresser plate. Now you can mount the speed control onto the grinder headstock using the (2) 10-32 screws.

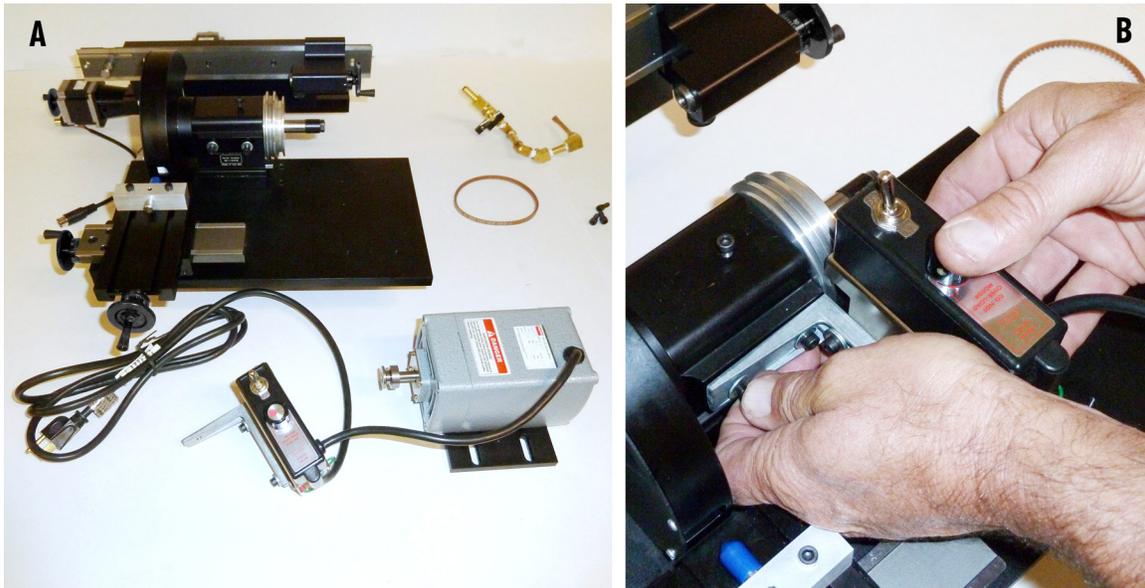


Fig. 10—Mounting the speed control. (A) Set motor/speed control next to dresser plate as shown. (B) Attach speed control bracket to side of headstock with two screws.

13. Place the main motor on the motor and dresser plate. Put the drive belt on the large diameter belt groove on the headstock pulley. Now slip the belt over the belt groove on the motor pulley. Align the slot on the motor bracket with the (4) holes on the plate. Insert the (4) $\frac{1}{4}$ -20 screws. Pull back on the motor to apply tension to the belt. Lock down the (4) $\frac{1}{4}$ -20 screws.

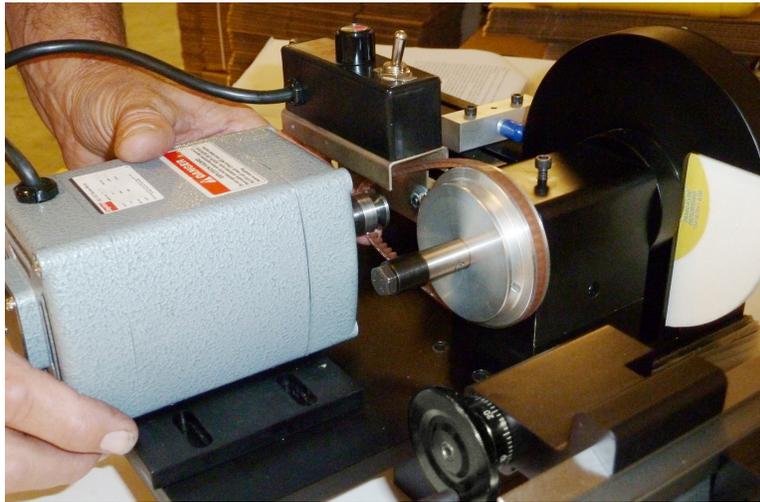


Fig. 11—Move motor into position and place the drive belt over the larger of the two spindle pulley positions on the headstock and over the drive pulley on the motor.

NOTE: With the motor belt on the large belt groove on the headstock pulley and the speed control set at its highest limit, the max RPM of the spindle will be 3600 to 3800. The max RPM of the grinding wheel that we supply with the cam grinder is 4140 RPM.

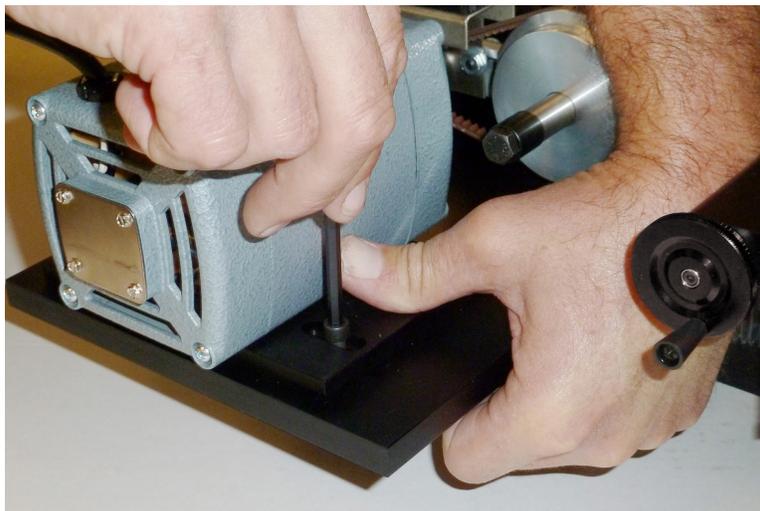


Fig. 12—Push against the motor plate while tightening the screws to adjust tension in the drive belt. Belt slack should be about 1/4" of up/down movement between the pulleys. It does not need to be extremely tight.

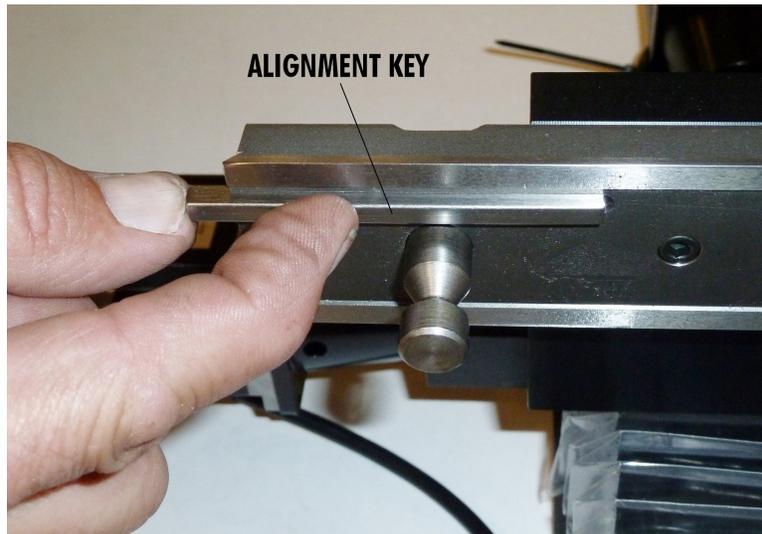


Fig. 13—Placing the alignment key into its slot in the bed.

14. Mount the headstock and stepper motor assembly onto the “Grinder Bed”. Place the Head Key into the keyway slot on the bed. Then lower the Headstock onto the Pivot pin. Secure the headstock to the bed by tightening the 5/16-18 set screw that is in the side of the headstock. Be sure that the headstock is seated firmly against the bed.

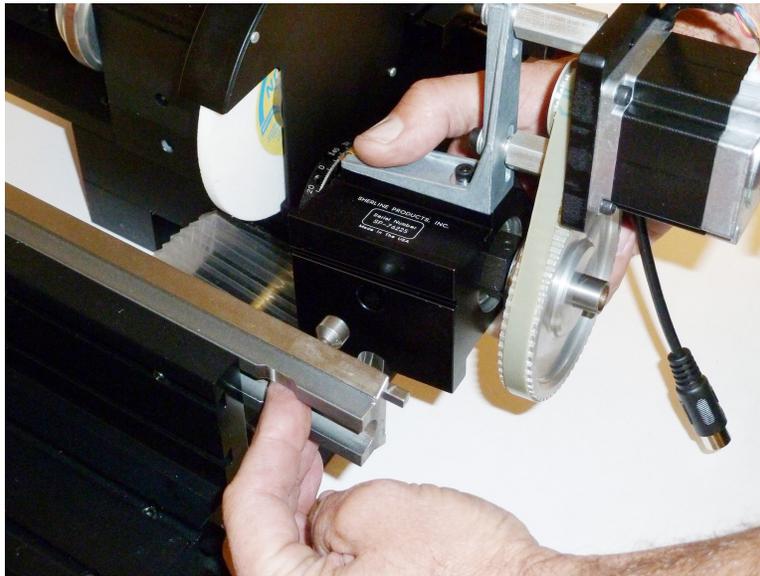


Fig. 14—Slide the headstock onto the pin while pushing the pin into place with the other hand.

15. Clamp the coolant line onto the top of the grinder headstock using the 10-32 screw.

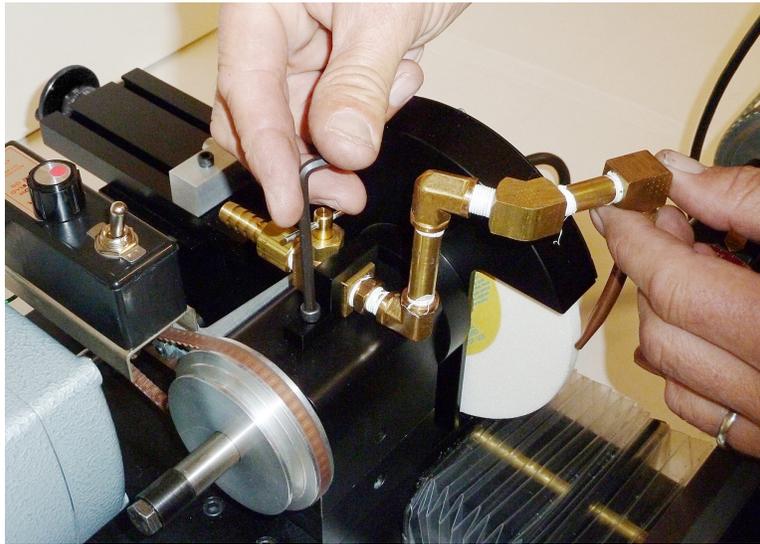


Fig. 15—The coolant line assembly is attached to the top of the headstock with one screw.

16. At this point your grinder should be fully assembled. You will need to indicate in the bed to make sure it is square to the headstock and square to the table.

NOTE: Be sure to remove blue plastic protective cover from wheel dresser tip before beginning grinding operations.

Operating Instructions

The attached Quickstart sheet includes a web address that will take you to your personal copy of the operating instructions on the Internet. Listed in the instructions are a few components you will need to purchase locally to complete the coolant recovery system such as a bucket, drip pan, tubing and a small water pump. The grinding wheel should be “ring tested” for cracks before use. This test is also described in the instructions.

A two-part video of a typical cam grinding operation can be seen at www.youtube.com. See the following links:

Part 1: <https://www.youtube.com/watch?v=RrpdJHTPXFI>

Part 2: <https://www.youtube.com/watch?v=PffRGZjagBs>

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