

Berea Hardwoods Co., Inc.  
Kit Instructions

## **Berea Hardwoods Shot Gun Shell Secret Compartment / Keychain**



Needed: Mandrel A

Bushings 27A

Drill 18 mm

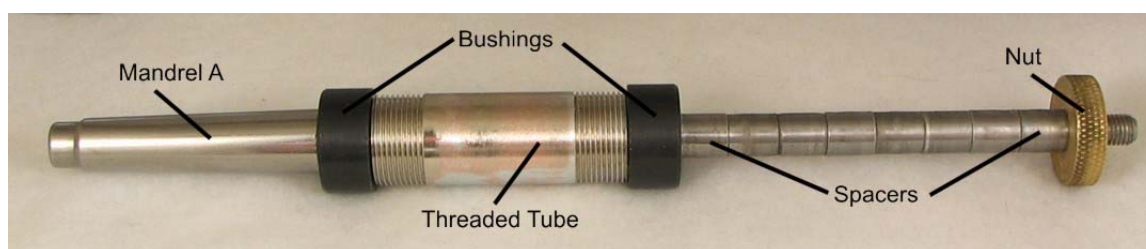
Wood Size 1" x 1" x 1 1/2" or 1" x 1" x 1 3/4"

### **Preparing the Material Blank**

1. Only 1 material blank is required for this kit. Cut the material blank slightly longer than the desired length of the shell.
2. Drill the blank through the center, lengthwise, with a 18 mm bit. Because of the large size a Forstner type bit is recommended.
3. Rough the surface of the tube with sandpaper. This can be done by hand or on a power machine such as a belt sander. The purpose of the sanding is to clean off the oxidation and roughen the tube so that the glue will have a better adhesion surface.
4. Plug the ends of the tube with the material of your choice. Some use base wax, a dental product, or Play Dough, or even a slice of potato. Just push the ends of the tubes into a thin section of the material. This will form a plug to keep the glue from getting into the tube.
5. Clean the tube, after plugging, with acetone or alcohol on a rag.
6. Now place a coating of petroleum jelly on the threads of ONLY ONE end of the tube. Be careful to only put it onto the threaded portion of the tube and only on

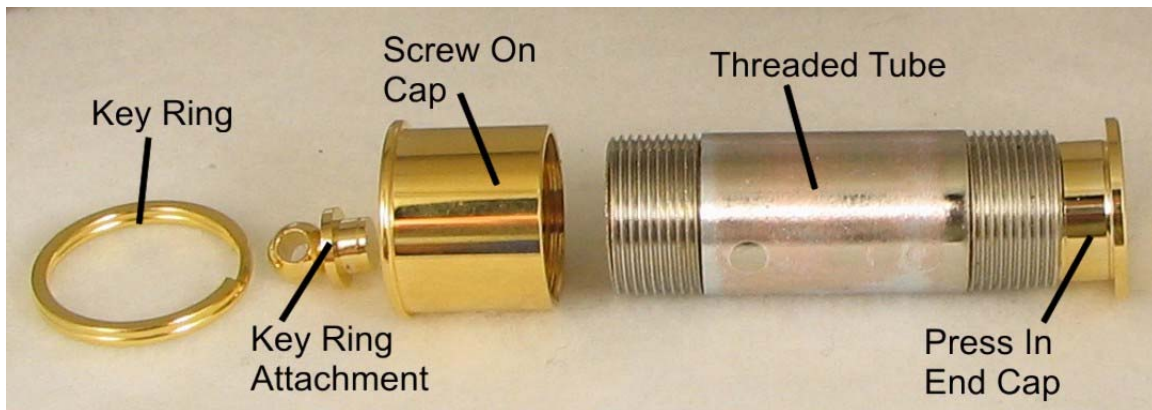
- one end. This keeps the blank material from adhering to the threaded portion on that end. Mark this end of the tube. This will be parted off later.
7. Prepare your glue. We recommend two-part epoxy glue that is available in all hardware stores. Use a fast drying type, one hour or less. Be sure to mix it thoroughly. (A Post-it Note Pad makes an excellent mixing place. When you are finished just tear it off and throw it away.) Polyurethanes and thick flexible CA's can be used, but they each have their drawbacks.
  8. Place some epoxy into the blank using a small piece of dowel or other small stick.
  9. Roll the tube in the epoxy, but try not to get glue on the lubricated threads.
  10. Insert the tube, NON-LUBRICATED end first, with a twisting motion until it is almost in the material blank. Then use the dowel to push it in until the end is flush with the blank. Use the stick to rake off the excess glue even with the blank and the tube. The object here is to get as little glue on the lubricated thread as you can.
  11. Remove any excess glue on the end.
  12. Move it aside for 60 minutes until the epoxy has had time to reach its maximum strength.
  13. If you are using CA glue, the wait is only about 60 seconds. When using polyurethane the wait will be about 24 hours.
  14. When the glue has cured use a hobby knife to remove the plugs from the ends. It is also a good idea to clean the tube with a brass gun cleaning brush to remove any glue that may have gotten into the tubes.
  15. Not cleaning out all glue from the tubes is the most common cause of pen failure. BE CERTAIN that all dried glue is removed from inside the tubes before proceeding.
  16. Using a barrel trimmer of the proper size, face off the ends of the blanks until you can just see the bright brass end of the tube. STOP facing at this point. Your pen's proper operation is dependent on having the proper length tubes. This facing operation can also be done with the proper jig and a disk or belt sander.
  17. Not having the proper tube length is the #2 cause of pen failure. Sanding, on a disk sander, using a jig to hold the tube square with the disk, is a more sure way of getting the proper length. It should be tried if you have any doubt as to your abilities to square the material with the barrel trimmer.
  18. Another good method of squaring the ends of the blank is to turn the blank until it is just round. Using a miter gauge to maintain the blank perpendicular to the sanding disk, just touch the ends to the disk. Once the blanks are square and you can see the ends of the tubes brighten, then return the blanks to the mandrel and finish the turning until the desired contour is accomplished.
  19. After the cleaning you need to use a counter sink on each end as there is a small lip inside the tube. If you do not have a counter sink then this lip may be sanded out.

### **Turning the Material Blank**



1. Assemble the blank on the mandrel using the 27A bushings. Selection of the bushings is easy since they are all the same size. Put any bushing in any position.
2. Since there is only 1 blank to place on the mandrel, you will have to place spacers on the mandrel in order to tighten the tube for turning. You can drill a 7mm hole in a piece of wood for a spacer or 7mm bushings make excellent spacers.
3. Tighten the tailstock before tightening the blanks on the mandrel. This will center the mandrel first. Then tighten the nut that holds the blanks.
4. Turn the blank to the desired contour making sure that the area next to the bushing is turned to the size of the adjacent bushing.
5. Measure  $\frac{1}{4}$ " from the end marked as being lubricated and mark or score a line.
6. Now, carefully cut a tenon all the way to the threaded portion of the tube. BE CAREFUL not to damage the threads. As you get close the material should pull away from the threads easily.
7. After turning the blank, sand the surface in progressive steps until you get to 400 or 500 grit.
8. If a higher polish finish is desired continue sanding with Micro Mesh through 12000 grit.
9. Apply the finish of your choice and polish.
10. Remove the blank from the mandrel.

### Assemble the Kit



1. **Press the key ring attachment into the end of the shot gun shell cap.**
2. **Attach the key ring**
3. **Press the press in cap into the end of the tube that has no exposed threads.**
4. **Screw the top on the exposed threads.**

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