Revised 12/15/13

Kaleidoscope Egg Kit

Product #147487

General Instructions

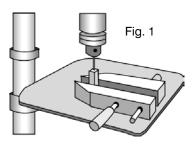
Whether you're a novice turner or a pro, you'll find these projects are all quick and easy to make. Using cut-offs and shorts, the type everyone saves but doesn't know what to do with, you'll find yourself making handsome, custom woodturning projects which are great for gifts or for sale. The following is general in nature, please refer to the instruction sheet on the opposite side for specific dimensions and sizes for your project.

1. Cutting Blanks

Cut wooden blanks to the size specified in the enclosed instructions. For your safety, be sure that the blanks are solid and have no holes, checks or other defects.

2. Drilling Blanks

Center and bore a hole through your stock as specified in the Project Instructions on the opposite side. The center of the blank can be located at the intersection of diagonal lines, drawn from opposite corners. All holes



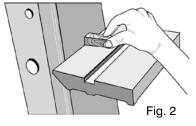
are easily drilled using a clamp and a drill press (FIG. 1). Before you start to drill be sure that your blank is at 90° to the drill press table. You may also chuck and drill the stock on your lathe.

3. Gluing Blanks to Tubes

Rough the brass tube's surface with a fine grit sandpaper and use a quick drying CA type glue to secure the brass tubes into the blanks. Rotate the tube as you insert it to ensure maximum surface coverage of glue. If you find that CA glue is not providing adequate bonding, an alternative is any two part epoxy type glue.

4. Sanding Blanks to Length

Using a belt or disc sander, square the ends of the brass tube/wood blank. The blank should be flush with the brass tube on both ends. Care should be taken to not sand



into the tubes (FIG. 2). If any excess glue remains inside the tubes it should be gently scraped out.

Tip: Excess glue can be scraped out using the threaded end of the mandrel when mounting the blanks for turning.

5. Mandrel Preparation

Woodcraft's new Pen and Pencil Maker's Mandrel system allows you to turn a variety of small projects without requiring the purchase of a unique, special mandrel each time. The only item you will need to purchase to turn new projects is the specially designed bushing set for the project of your choice. The mandrel is provided with either a #1 Morse Taper (141468) or a #2 Morse Taper (141469). If you prefer to use the mandrel in a three jaw chuck, simply loosen the Morse Taper set screw and slide the Morse Taper off of the shaft. Now the mandrel shaft may be mounted directly in your three jaw chuck. With the bushing sets specified on the project instruction sheet, mount your wood blanks and bushings as depicted for each project. With the mandrel mounted in your lathe, slide a bushing onto the mandrel, followed by a wood blank and a second bushing or spacer as required, followed by the second wood blank if required. With the wood blanks installed on the mandrel, secure the wood blank/ bushing assembly using the washer and retaining nut provided. Bring up a live center in the tailstock to support the threaded end of the mandrel. Do not over tighten the tailstock or the mandrel will flex and bend causing oval shaped turnings.

6. Turning Blanks

Place your tool rest parallel and as close as possible to the blank. Rotate the blank by hand to ensure it will not touch the tool rest when the lathe is turned on. Using a turning speed of approximately 1,000 RPM begin turning the blank to a diameter slightly larger than the bushings. You can work the stock down to just short of the desired design or diameter by carefully scraping or sanding.

7. Finishing the Blanks

Blanks can be finished like any other wood project. Using a fine grit sandpaper, sand the blank until it is flush with the bushing for parallel sided projects or until the desired profile is obtained for custom projects. Use a wood filler, if desired, to fill any grain openings in the blank. Final sanding with a wet/dry paper will create a blank which is glass smooth. Tip: We have found that use of Micro Mesh sanding paper (11L61) after wet/dry sanding creates a perfect, glass smooth finish.

8. Assembly

All parts should fit together as depicted in the parts diagram for each project. In some cases a pen press or machinists vise will be needed to completely press the parts together. Protect all plated parts from scratching by covering them with a cloth or thin pad before placing them in a vise. Proceed carefully, many of the kit components are delicate and uneven or excessive pressure will cause permanent damage.



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1. Cutting Blanks

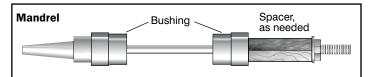
Cut a blank to a minimum of 2" x 2" x 21/2".

2. Drilling Blanks

Using a $^{13}/_{16}$ " brad point bit drill a hole lengthwise through the center of the blank. Once the hole is drilled, cut the blank to exactly $2^{5}/_{16}$ " long.

3. Mandrel Preparation

Slide a bushing on the mandrel largest diameter toward the head-stock, followed by the pre-drilled blank. Make sure the "step" of the bushing seats into the hole in the blank. Slide the second bushing onto the mandrel smallest diameter first and make sure the bushing seats in the blank. If you are not using a Woodcraft Professional Adjustable Pen Mandrel a you will have to make a wooden spacer to fill the unused portion of the mandrel. Secure the entire assembly on the mandrel with the washer and nut.



4. Turning the Blanks

The only critical dimensions are the bushing diameters at each end. This Kaleidoscope can be turned egg shaped, or to your own custom design.

5. Finishing the Blanks

See General Instructions for details.

6. Assembly

When handling the lens and mirrors for this kit we suggest wearing cotton gloves to prevent leaving fingerprints which may affect the quality of viewing. This kit contains one small, and two large lenses.

- 1. Place the small lens (B) inside the eyepiece (A) and secure it in place with the snap ring (C).
- 2. Set the object holder (I) threaded side up, then insert one of the two larger lens/diffusion disks (F) inside the object holder making sure it lies flat against the bottom of the object holder.
- 3. Place the black spacer ring (H) into the object holder on top of the lens previously installed.
- 4. Carefully pour the assorted acrylic viewing shapes (G) into the spacer ring and lay the second large lens/disk (F) on top of the spacer.
- 5. Screw the eyepiece/lens assembly onto one end of the brass tube (D).
- 6. Hold the brass tube/eyepiece assembly horizontal and carefully slide the mirrors* (E) into the open end of the brass tube with the marked sides facing outward toward the sides of the tube, so they form a triangle.
- 7. While still holding the tube with mirrors horizontal slide your turned blank onto the tube, then carefully screw on the object holder assembly (I), securing the entire assembly in the blank. *NOTE: before assembly, remove plastic protective film from mirrors.

