

Resin Bottle Stopper Turning Instructions

By: Mack DeBose

Tools Required

- ◆ 3/4" or 1" Skew
- ◆ 1/4" or 3/8" Spindle Gouge
- ◆ 3/8" Detail Gouge
- ◆ 19/64" General Purpose Drill Bit
- ◆ 3/8" – 16 Plug Tap
- ◆ 3/8" – 16 Bottom Tap
- ◆ Tap Wrench
- ◆ 1/2" Drill Chuck w/ 2MT Shank
- ◆ Bottle Stopper Mandrel
- ◆ 4-Jaw Chuck w/ Standard or Multi-diameter Jaws
- ◆ 1/2" Collet Sleeve w/ Drawbar
- ◆ Spring Loaded Tap Guide
- ◆ 220 – 600 Grit Wet or Dry Sandpaper
- ◆ Small Water Bowl
- ◆ Buffing Wheel
- ◆ White Diamond or 555 Buffing Compound
- ◆ Shop Rags
- ◆ Live Center
- ◆ 3/4" Diameter x 1" Long Dowel w/ Center Point in one end
- ◆ 1" Painter's Tape
- ◆ Face Shield
- ◆ Dust Mask or Respirator

Procedure

- 1) Determine which end of the stopper blank will be the bottom.



- 2) Chuck the blank so that the bottom is facing the tailstock and adjust as necessary for it to turn true about the center axis.
- 3) NOTE: It may be necessary to wrap painter's tape around the blank to allow it to be gripped by the chuck jaws. Make sure that it is gripped tightly.
- 4) CAUTION: The resin is not toxic but breathing the dust is probably not a good idea. A face shield and dust mask or respirator are highly recommended.
- 5) Adjust spindle speed to approximately 1800 RPM. CAUTION: DO NOT EXCEED 2500 RPM.
- 6) Using LIGHT cuts, turn the face of the blank with a SHARP spindle gouge so that it is flat or slightly concave. A light shear-scrape is usually the best choice.



- 7) Spot turn a starting point in the center for the drill bit.

- 8) Using a 19/64" drill bit mounted in a tailstock drill chuck, drill into the center of the blank approximately 3/4" deep.



- 9) NOTE: When tapping, the tap must be kept straight and on center so that the threads will be concentric about the centerline of the blank. This is best accomplished with a spring-loaded tap guide mounted in the drill chuck.
- 10) Position the 3/8"-16 plug tap to start into the center hole and bring up the tailstock and spring-loaded tap guide or live center to support the tap wrench on center.



- 11) If possible, lock the spindle of the lathe to prevent rotation.
- 12) Turn the tap wrench clockwise while keeping the guide/live center snug against the wrench

until the tap bottoms out, then back off the guide/live center and reverse the tap to remove it.

- 13) Repeat the previous step using the 3/8"-16 bottom tap.
- 14) Remove the blank from the chuck.
- 15) Remove the chuck and install the collet sleeve and drawbar into the lathe spindle.
- 16) Grip the mandrel shank in the collet sleeve allowing approximately 3/4" of the shank plus the threaded portion to be exposed.
- 17) Select the proper size spacer ring for the bottle stopper cone that you plan to use and install it onto the mandrel with that diameter toward the tailstock.
- 18) NOTE: The larger diameter on the spacer ring is for the "Deluxe Chrome Stopper Cones" and the smaller diameter is for the "Niles SS Cones".
- 19) Screw the threaded blank onto the mandrel tight against the spacer ring.

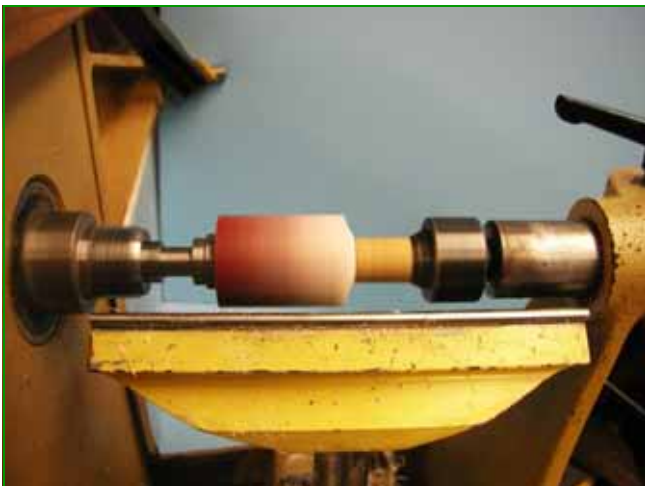


20) Using a SHARP spindle gouge, take LIGHT cuts to clean up the face of the blank.

21) CAUTION: Aggressive use of a gouge or scraping will cause severe flaking of the resin material.

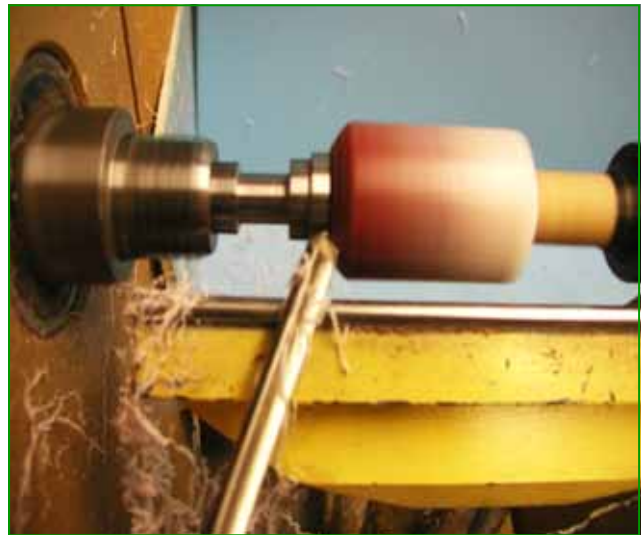


22) Bring up the tailstock and live center to support the blank using a wood dowel or block of wood to prevent the center point from penetrating the blank.



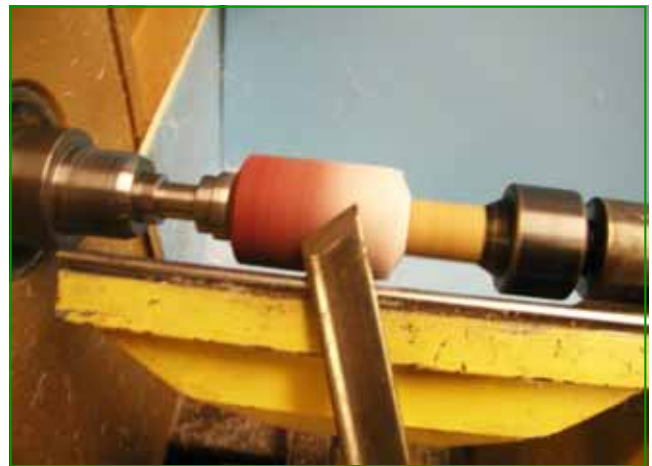
23) Using a SHARP spindle or detail gouge with LIGHT cuts, establish the finish diameter at the spacer ring.

24) NOTE: When turning resin, the “shavings” will tend to adhere to everything and will interfere with your view of the cuts. A small brush, compressed air or vacuum will aid greatly in keeping this to a minimum.



25) Using a SHARP skew and/or detail gouge with LIGHT cuts, finish turn the desired profile on the body of the blank. REMEMBER that there is a 3/8” diameter hole in the bottom portion.

26) CAUTION: Use extreme care to avoid aggressive cuts or accidental contact while turning the resin as severe flaking can result.

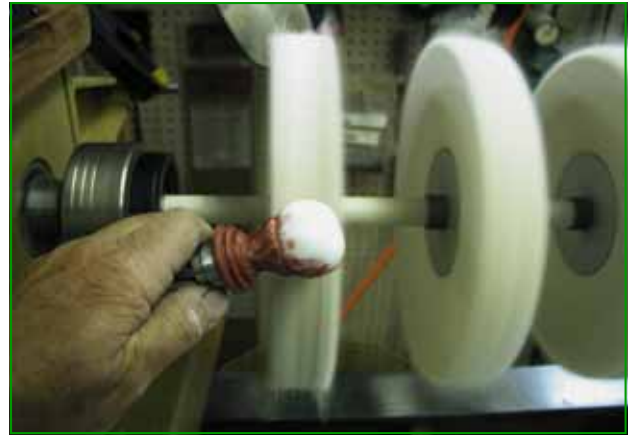


- 27) Remove the live center and finish turn the end of the blank.
- 28) Make sure that there are no voids or flaked areas in the finished profile. Minimal shear-scraping can be utilized but only with extreme care.



- 29) Reduce the lathe's spindle rotation to approximately 800 RPM.
- 30) NOTE: This next step tends to be messy so it is advisable to protect the lathe bed as well as your clothing with some sort of cover. Reversing the spindle rotation during this operation will assist in sanding as well as re-directing the slurry as it is slung from the sanding.
- 31) Beginning with 220 grit wet or dry sandpaper, sand wet using water, progressing through 600 grit. No scratches should be discernible when finished sanding.
- 32) With a damp rag, clean off all sanding residue.
- 33) Remove mandrel from the lathe with finished stopper still attached.

- 34) Buff with a cotton flannel buffing wheel and white diamond or 555 buffing compound until the surface of the stopper is bright and shiny. During this operation the mandrel serves as a handle providing a better grip on the stopper as it is being buffed.



- 35) Clean with a dry rag and remove from the mandrel.
- 36) Install a metal cone onto the finished stopper.
- 37) Display with pride!

