Bowl Sanding Tool

By: Mack DeBose

Materials required; Bearing Assembly:

- 1 – ¾" PVC 45° Elbow
- 2 – Inline Roller Skate Bearings
- 1 – 5/16" x 1½" Hex Head Cap Screw
- 1 – 5/16" Locking Hex Nut
- 1 – ¾" x ½" PVC Bushing - or -
- 1 – ¾" x 1" Schedule 40 PVC Pipe

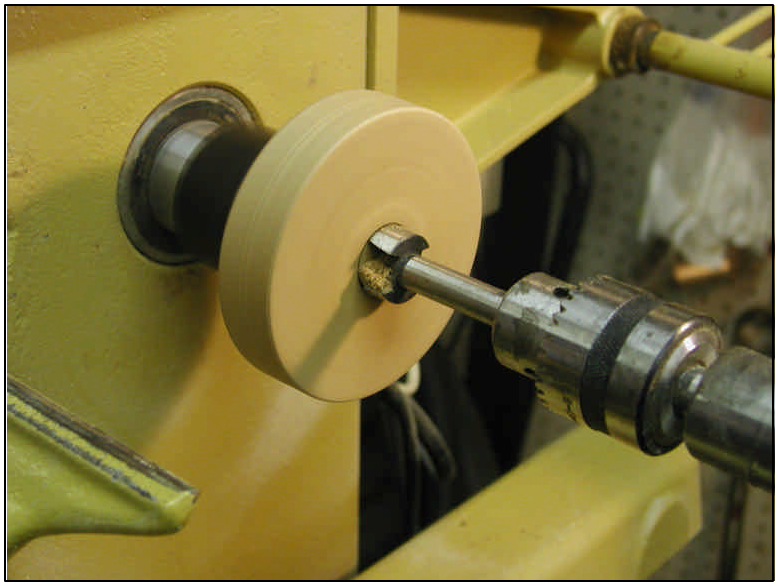
Materials required; Sanding Heads

- 1 – ½" x 2" Dia. Hardwood Blank
- 1 – ½" x 3" Dia. Hardwood Blank
- 2 – 5/16" T-Nuts
- 1 – ¾" x 3½" x 6" High Density Foam - Garden kneeling pads work well for this item.
- 1 – 3½" x 6" "Funky Foam" Sheet - Naugahyde can be substituted for this item.
- 1 – 3" x 6" Velcro hook material (not required)
- Contact Cement
- Sanding Disk Adhesive

Materials required; Handle

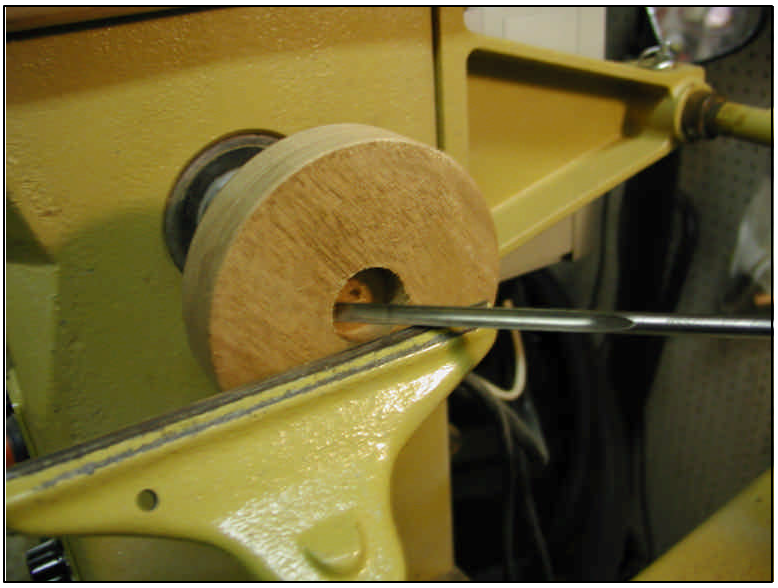
- 1 – Handle turned from any hardwood - or -
- 1 – ¾" x 7" Schedule 40/80 PVC Pipe - and -
- 1 – ¾" PVC Cap

Jam Chuck Preparation



1) Mount a hardwood or MDF block at least 3½" diameter and ¾" to 1" thick n a chuck or on a faceplate to be used as a jam chuck.
2) Turn the block until round. If mounted in a chuck, reverse and turn to blend.
3) Using a 1" diameter Forstner drill bit, drill a shallow hole 3/8" to ½" deep in the block.
4) Drill a 3/8" hole thru the center.
5) From the back side, opposite the counter bore, install a 5/16" T-nut.

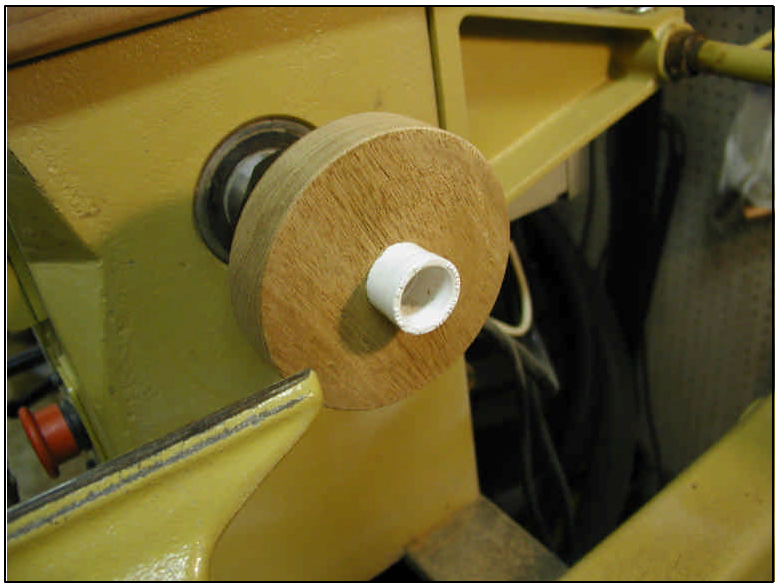
Bearing Assembly Process



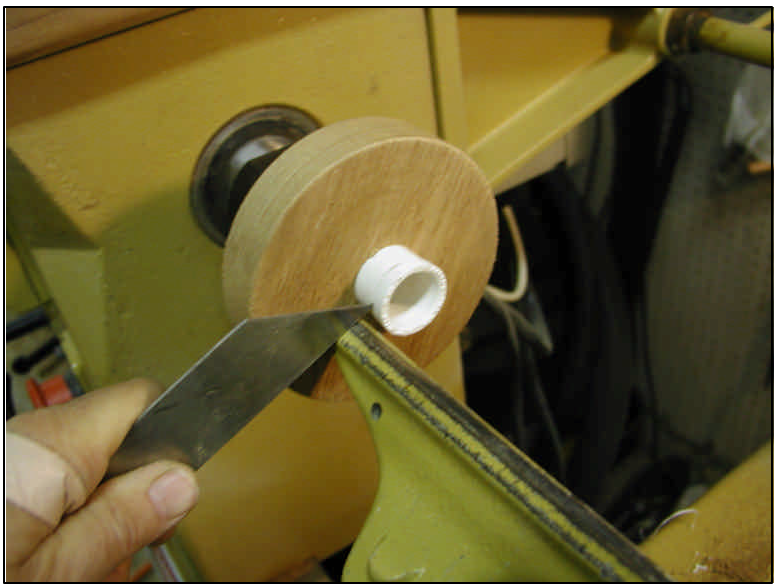
1) Remount the jam chuck with the 1" hole facing outward.
2) Adjust the diameter of the hole for a jam or press fit for the ½" PVC Bushing with the large end facing out. Alternately, a 1" long piece of ¾" Schedule 40 PVC pipe can be used instead of the bushing.

3) Insert the bushing or pipe segment into the jam chuck -- should be a tight press fit. If too loose, wrap bushing or pipe with masking tape so that it fits tightly.

4) Make sure that the PVC is running true and adjust if necessary.



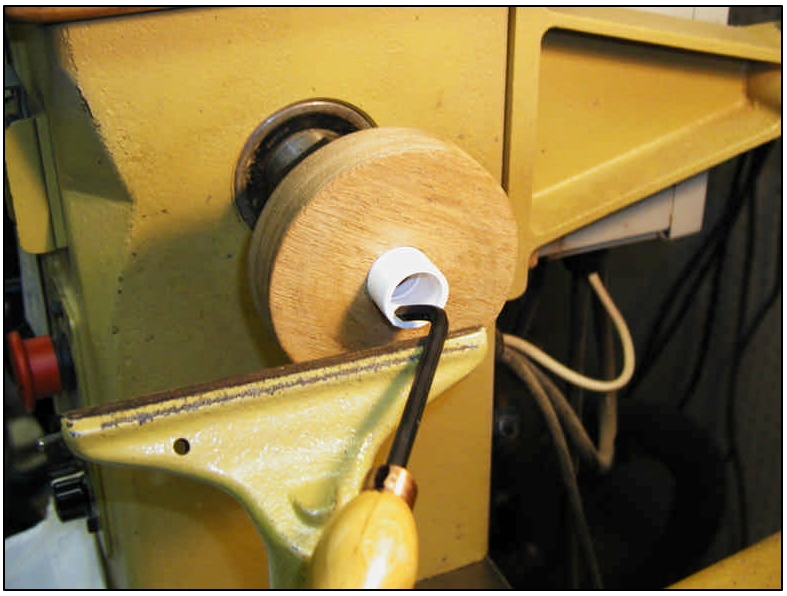
5) With the bushing jammed in place, part off or face turn the ridge off of the bushing so that the entire OD is of one diameter and the total length is approximately 7/8". If pipe is used, there is no ridge to turn off but each end will need to be squared up, especially if cut using a PVC pipe ratchet cutter.



6) Carefully counter bore the ID for a press fit of the skate bearing. The depth of the counter bore should not be greater than the thickness of the bearing. Use a bearing mounted on a cap screw as a gage. Bearing should fit tight so that the race will not rotate within the PVC shell.

7) Remove the bushing and reverse into the jam chuck.

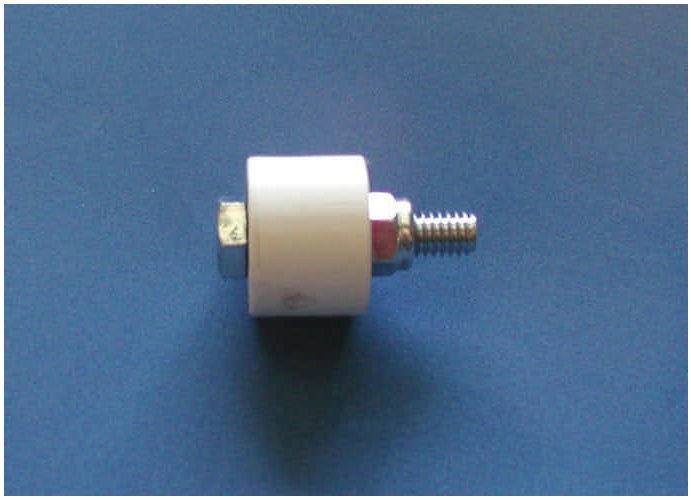
8) Repeat step 6.



9) Remove the completed bearing housing from the jam chuck.

10) Install a skate bearing into each end of the housing.

11) Insert a 5/16" x 1½" cap screw through both bearings and secure with a lock nut. Adjust preload on the bearing by tightening or loosening the lock nut. The cap screw should turn freely with no noticeable resistance.

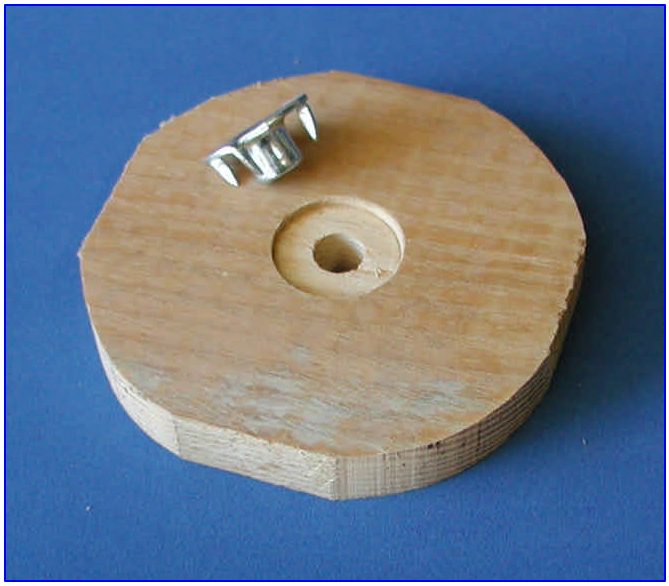


Sanding Head Process

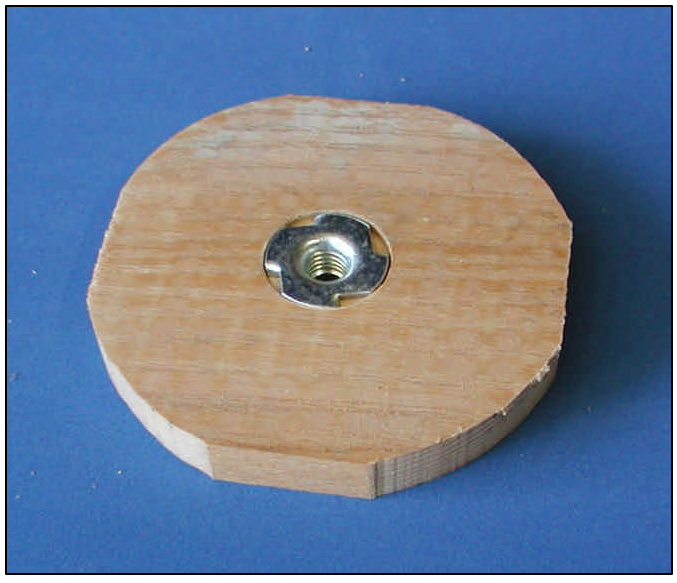
1) Locate the center of each hardwood blank.

2) Spot drill with a 1" diameter Forstner bit, 1/16" deep.

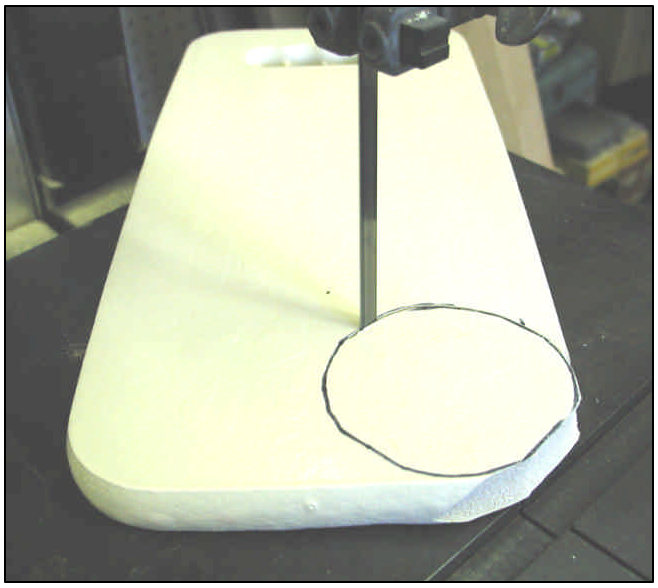
3) Drill a 3/8" dia. hole thru the center of each blank.



4) Press or hammer a T-Nut into each blank.



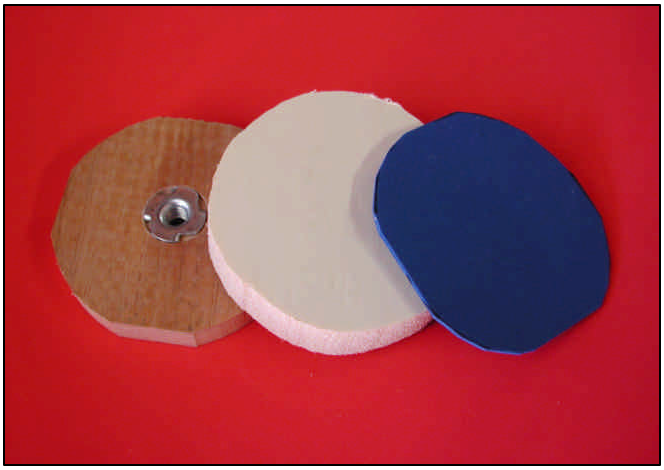
5) Mark the diameter of the hardwood block on the high density foam and cut out the circle on a Bandsaw. A copen saw also works well; scissors do not, as evidenced by the corner cut in the photo.



6) Using contact cement or spray adhesive, glue the high density foam onto each hardwood blank on the side with the T-nut.

7) Glue a piece of “Funky Foam” to the high density foam. Naugahyde or leather can also be used.

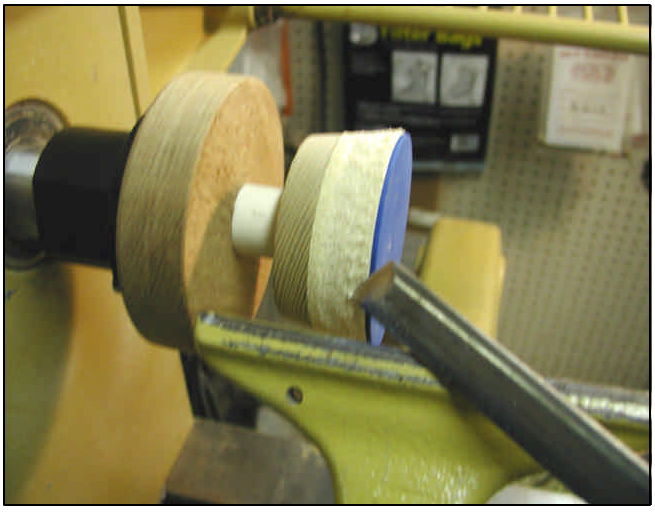
8) If desired, a piece of adhesive backed Velcro hook material can be applied for use with hook and loop sanding disks.



9) Screw a 2” length of 3/8” all-thread with a hex nut into the jam chuck T-nut. Tighten the hex nut to secure the all-thread. NOTE: When tightening the nut, try to eliminate any run-out on the all-thread.

10) Mount one of the blanks onto the jam chuck all-thread. A short piece of pvc pipe can be used to space the blank away from the jam chuck for turning clearance. NOTE: True up the spacer before mounting the blank.

11) Turn and sand the OD of the glued-up pad with a 10° angle. The minor OD of the angled edge must be toward the lathe headstock. The major OD should be either 2” or 3” depending upon which blank is used. A skew chisel works well for this cut.



12) Replace the turned sanding head with the second blank.

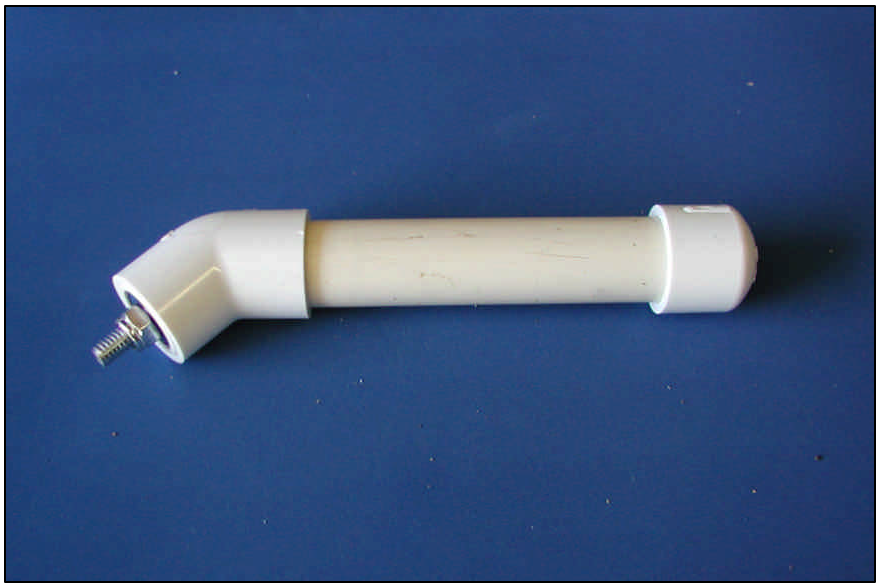
13) Repeat for the other size blank.

Tool Assembly

1) Turn and finish a handle from any appropriate wood and press fit into the 45° elbow. CA glue will hold it in place.
   - or -

2) Cut a piece of ¾" PVC pipe to approximately 7" long. Glue a ¾" cap onto the pipe and glue the pipe into the 45° elbow.

3) Insert the bearing assembly into the 45° PVC Elbow with the threaded end of the cap screw exposed. Bearing assembly should fit tight enough without gluing. This will allow for removable if bearings should ever need replacement.



4) Screw one of the sanding pads onto the cap screw tightly against the lock nut.

5) Coat the back side of a sanding disk with sanding disk adhesive and allow it to dry. Apply the disk to the surface of the pad.

6) The use of sanding disk adhesive, commercial sticky-back or hook and loop disks will allow for easy replacement of the disks.