

Figure 13-16. When cutting out the template, plan your cuts to avoid tight turns.

Finally, sand to the profile lines until the template is perfectly smooth. This can be done with sandpaper, triangle and half round files, or even an emery board. Remember that any bump or chip in the profile edge will be duplicated in your final turning.

SPINDLE TURNING

Spindle turning includes any turning where the workpiece is held between the drive center and tail-stock center. **Warning: When mounting spindles, it is important for the drive center and tailstock center to be driven at least 1/16" into the ends of the stock.** Although the tailstock live center is recommended for use with the lathe duplicator, the standard cup center should be used for scoring the end of the stock. Caution: Driving the live center into the stock with a mallet will damage the ballbearings in the live center.

Setup

Mount the template or pattern above the workpiece as shown in your Lathe Duplicator Owners Manual. If you are using a flat template, the centerline should be visible through the centering holes (Figure 13-17) and the end of the template should fit securely inside the template clamps.

If you are using a three dimensional pattern, rotate the template brackets and seat the tips of the template centers securely into the ends of the pattern (Figure 13-18), so it cannot turn during duplication. If your pattern includes a square section such as the top of a table leg, the **square corner must face the follower tip**, not the flat side (Figure 13-19).

Make sure the end lines of the template or pattern are inside the ends of the workpiece (Figure 13-20).

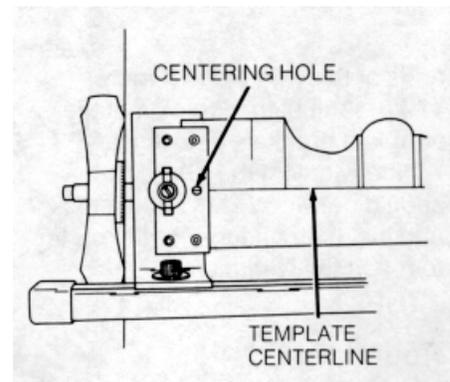


Figure 13-17. Use centering hole to align template.

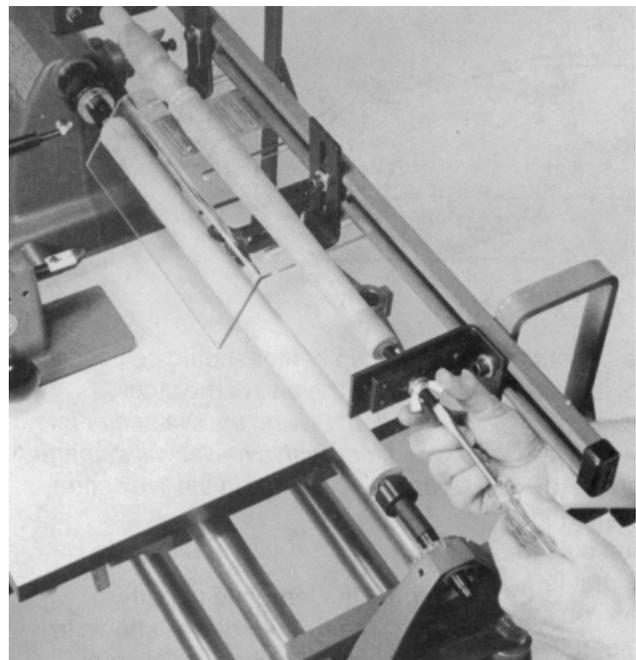


Figure 13-18. Seat template centers securely in the pattern.

Adjust the location of the template brackets if necessary.

Finally adjust the guard. It should be within 1/2" of the stock and just high enough for the cutter to reach the workpiece.

Rounding

Turn on the Mark V and set the speed dial to the proper speed.

Grasp the handles of the tool rest assembly and advance the cutter into the stock until it begins to cut. You can be aggressive, but do not force the cutter in so hard that it stops the workpiece.

Round off the corners, working in small sections from one end of the stock toward the other until it is completely rounded. If you are working on a long workpiece, round one area then turn off the Mark V and reposition the table and guard. **Warning: Check to be sure the stock is still securely mounted.** Then continue rounding.

Rough Shaping

During rough shaping you should leave about 1/32" of stock for removal during final detailing. This may be done by keeping the follower tip away from the template, but if you are new to the duplicator you may want to retract the cutter to avoid mistakes (Figure 13-21).

To retract the cutter, loosen the three setscrews that hold the cutter support and turn the cutter adjusting knob one-half turn counterclockwise. Press the cutter support back against the adjusting stud and **tighten the front and rear setscrews only**. The center setscrew cannot seat in the positioning groove when the cutter support is retracted.

To begin shaping, move the table and guard to either end of the workpiece. Turn on the Mark V and set the speed dial to the proper speed.

Start by shaping the larger diameters and then progress to the smaller ones. Don't force the cutter into the stock or press so hard that you deflect the turning. Use a steady rest (Figure 13-1) to support long or thin turnings.

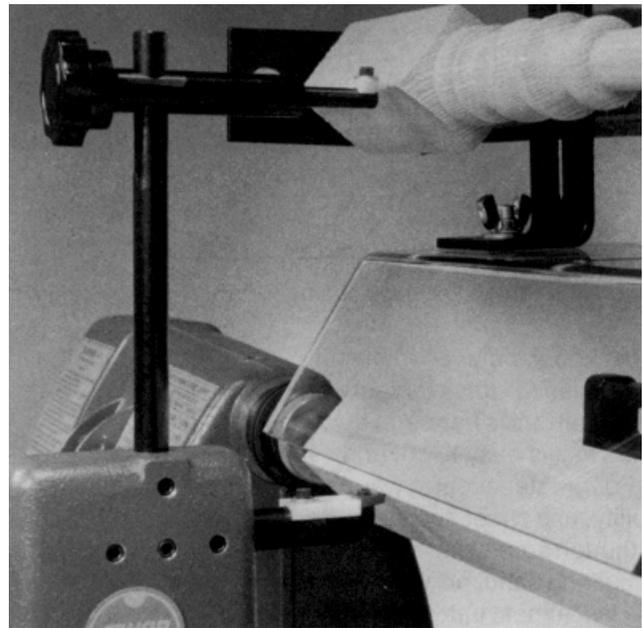


Figure 13-19. Corners of square sections must face the follower tip.

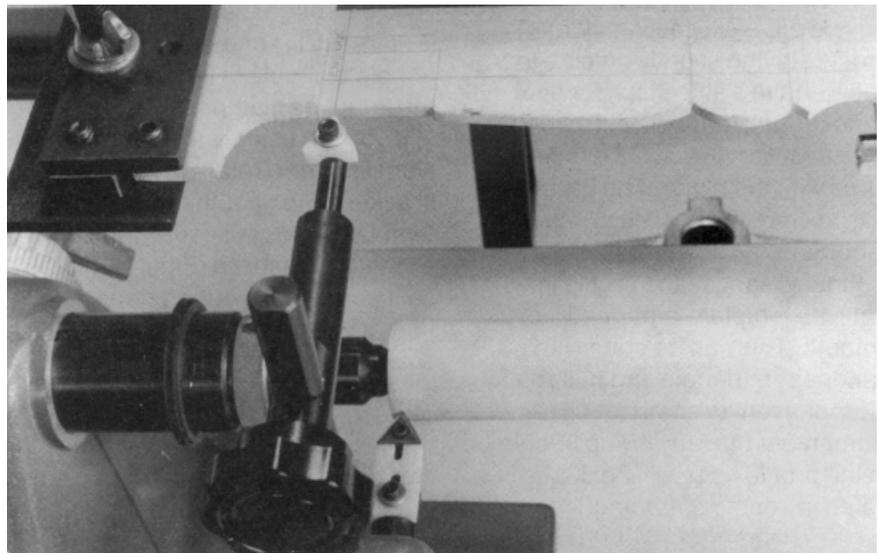


Figure 13-20. Make certain both end lines are inside the ends of the workpiece.

Use a back and forth motion, working down into each contour. Also keep the follower perpendicular to the profile of the template (Figure 13-22), so extra stock will be left on all surfaces.

When you are cutting properly, you will produce large chips, not fine dust or a burnished surface. If cutting is slow, check the table height adjustment to be sure the cutting edge is even with or slightly below the centerline of the turning or lathe centers.

Final Detailing

If you have retracted the cutter for rough shaping, it should be readjusted before making your final passes. Be sure that the center set-screw is seated in the positioning groove of the cutter support, so that the cutter is exactly even with the follower. Align the cutter support as described earlier and tighten all three setscrews.

Final detailing requires a certain "art", but the duplicator makes it easy to learn. Use a light touch and move the cutter in an "uphill" direction when shaping beads and coves (Figure 13-23). The smoothest surface is usually produced by dragging the cutter sideways-not by approaching the workpiece with the point of the cutter.

Also be careful not to press so hard that you deflect the template or rock the base of the tool rest assembly. If you do happen to make a mistake, don't panic. It is often possible to save the turning by removing the follower and smoothing out the mistake by turning free-hand. Although the piece will not be an exact duplicate, slight variations may not be noticeable in the final project.

Turning to Exact Diameters

You can turn duplicate pieces even if a template or pattern is mounted slightly out of alignment, but some projects require turning to an exact diameter. Creating a tenon for joining a spindle and faceplate or sections of a long bedpost are two examples.

To verify the alignment, turn a flat area at the desired location, but leave enough stock so that the follower tip does not contact the template. (The cutter must be in its normal position-not retracted.)

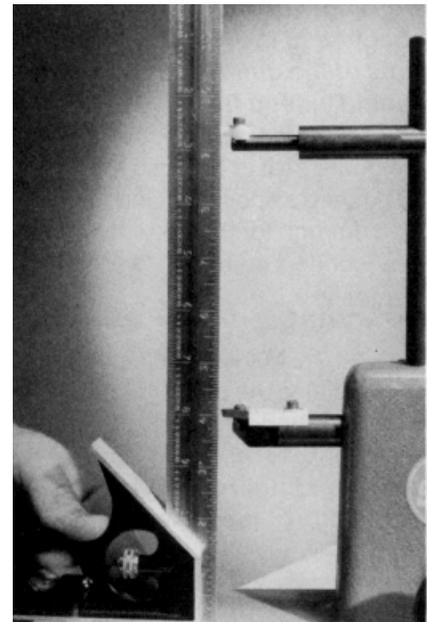


Figure 13-21. The cutter tip may be retracted for rough shaping to leave stock for detailing.

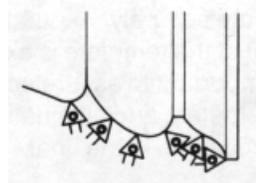


Figure 13-22. Keep the follower perpendicular to profile of the template during rough shaping.

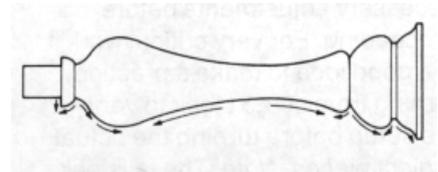


Figure 13-23. Cut in an "uphill" direction when detailing beads and coves.

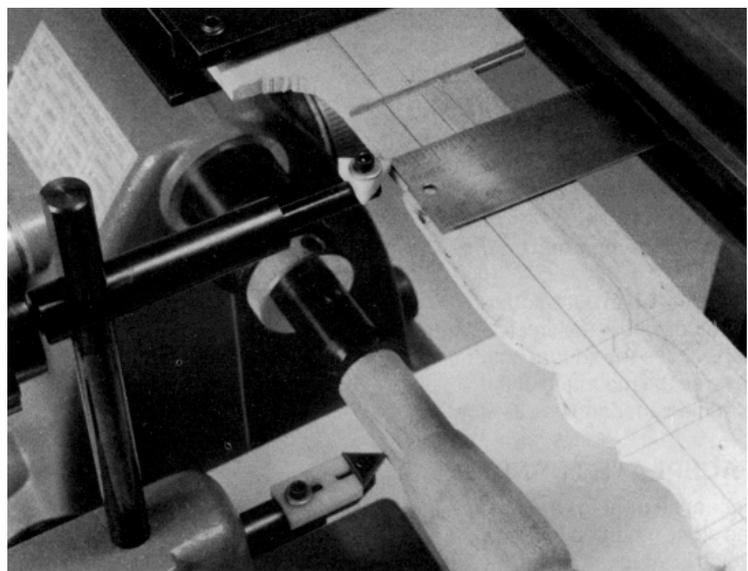


Figure 13-24. Checking for exact diameter. Follower tip to template centerline should be exactly half the diameter of the turning.