

# Making all-purpose wooden boxes



Here's a great jig for making multiple boxes...and step-by-step instructions for making a simple 3" x 5" x 8" all-purpose box.

The next time you're faced with making several gifts for friends and/or relatives for the Holidays ...or any time of the year for that matter...consider the benefits of mass production techniques.

And the best way to reap the benefits of mass production is by using specialized jigs and fixtures that help you perform a variety of operations quickly and easily, with significant improvements in repeatability.

Since wooden boxes have always made popular gifts, we've developed this simple jig to quickly and easily make multiple box parts. The variations are endless. Choose different woods. Alter the sizes. Partition the interiors or not. Hinged or removable top. It's easy to make your boxes as individual as you like.

Start by building this easy-to-use jig...then use it to build the boxes of your choice.

## IMPORTANT NOTES:

- This jig was designed to make boxes with 45-degree mitered corners.
- Our example jig was originally built to work with a Model 500 Shopsmith MARK V. Dimensions will vary for Model 505, 510 and 520 machines...so you'll have to adjust the dimensions accordingly.

## Making The Jig

**1: Accuracy is essential**, so check all of your machine alignments before you get started.

**2: Cut the guide strips (B).** Make them out of a durable hardwood such as hard maple, oak or ash. Note that the width and thickness of these strips will vary from machine-to-machine, so be sure to measure your Miter Gauge slots carefully before cutting the strips.

**3: Cut the plywood table (A)** to size. We recommend that you use 3/4" plywood for stability. A high-quality, multi-layered Baltic Birch or Apple-Ply product without unsightly voids is best.

Next, lay your guide strips (B) in the saw table slots, then lay your jig table on top of thee with the left edge of the jig table flush with the left edge of your saw table. Drive some small brads through the jig table top and into the guide strips. **NOTE:** Leave the brad heads protruding above the top of the jig table so you can remove them once you've permanently attached the table to the guide strips.

Attach the guide strips permanently to the plywood table with some short, flathead wood screws, driven up from the bottom. Use about three screws per strip and be sure to countersink their heads below the guide strip surface. Be sure to keep all screws away from the location of the groove you'll be cutting in Step 4, below.

**4: Use your dado blade** to cut a 3/4" wide by 3/8" deep groove in the plywood tabletop to accept a Featherboard.

**5: Tilt your saw table to 45-degrees.** Use a carbide-tipped combination blade set to a depth of 1-5/8" to saw an angled through kerf 11" into the plywood table surface.

**6: Using an accurate triangle** or square, draw a line perpendicular to the kerf you cut in step 5. This line will be used to position the jig fence accurately.

**7: Cut parts (C,D,E,F)** to size and glue them together according to the drawings. This assembly will form the slotted fence. Use screws and glue to attach the fence to the plywood table, flush with the line you drew in step 6 above. As an alternative, you could make a solid fence and cut a 5/16" wide travel slot in it with a router bit.

**8: Cut out the guard (G)** and attach it to the plywood table, behind the fence, and in line with the saw kerf. This piece will act as the saw guard.

**9: Make the stop block (H)** and mount it through the slot in the fence.

**10: Use a Scroll Saw to cut out the handle (J).** Use glue and screws to attach the handle over the right hand guide strip on the plywood table. Place the jig on the table and make a kerf cut at 45-degrees into the fence. Do not cut through the guard (G). After cutting, slide the jig back, away from the saw.

## Bill of Materials

(dimensions in inches)

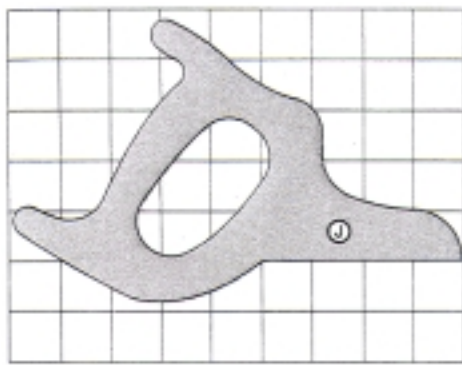
<b>A</b>	Plywood table	3/4 x 13 x 22
<b>B</b>	Guide strips (2)	1/4 thick x (width of miter gauge slot) x 14
<b>C</b>	Fence (top)*	3/4 x 1/2 x 22
<b>D</b>	Fence (spacer)*	3/4 x 5/16 x 1
<b>E</b>	Fence (spacer)*	3/4 x 5/16 x 8
<b>F</b>	Fence (bottom)*	3/4 x 1 x 22
<b>G</b>	Guard	1-1/4 x 1-3/4 x 4
<b>H</b>	Stop block	3/4 x 1-3/4 x 1-3/4
<b>J</b>	Handle	3/4 x 5-1/2 x 9

## Miscellaneous

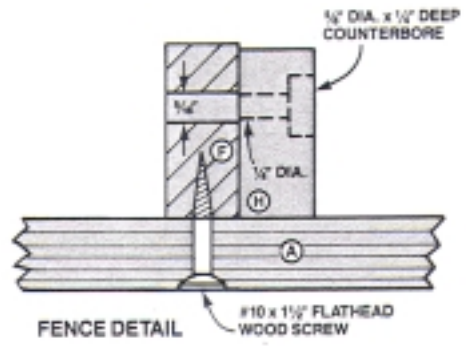
1/4" Knurled knob

1/4" x 2" Carriage bolt

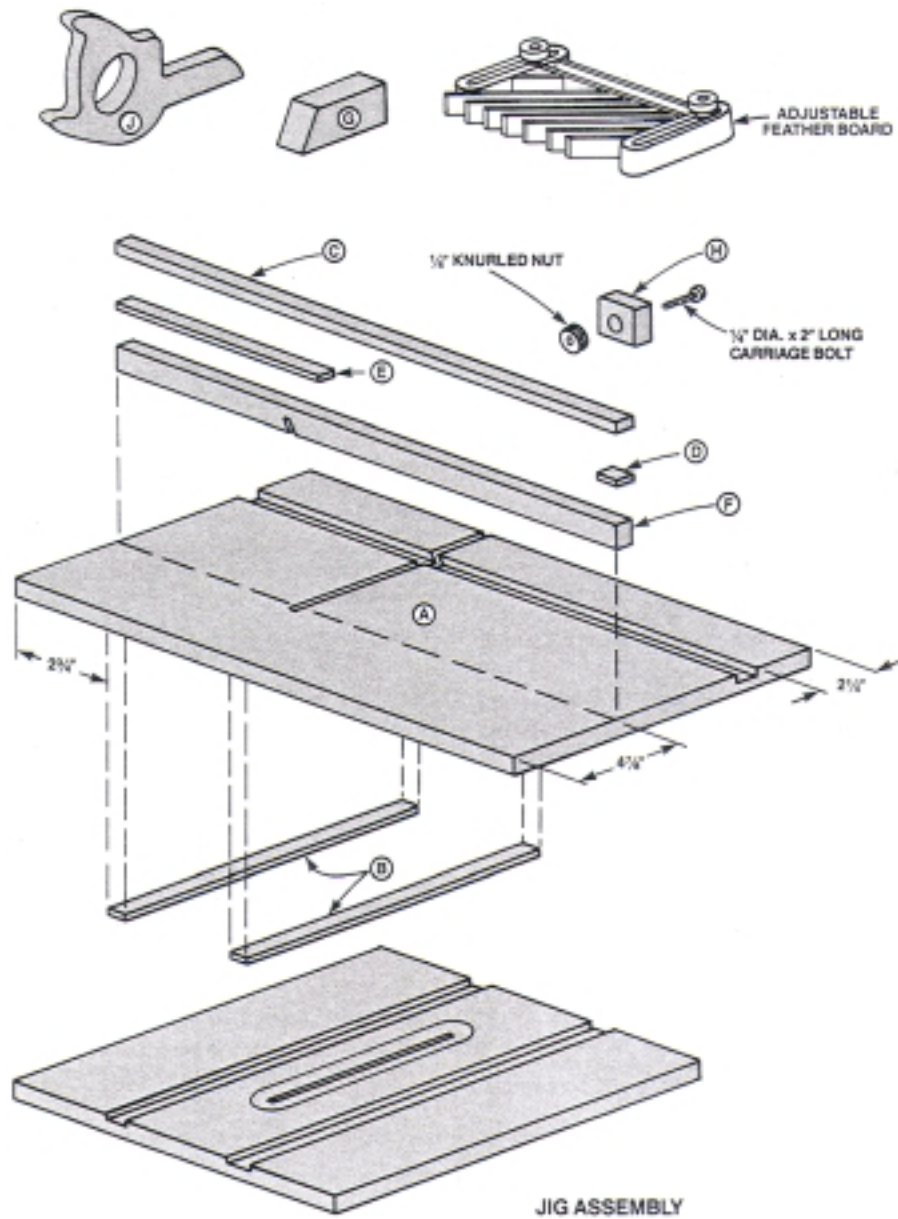
\* For making a four-piece Fence, as shown in the drawing. As explained in step 7, you could alternatively choose to make a one-piece fence with a routed 5/16" travel slot.



HANDLE LAYOUT 1 SQUARE = 1"



FENCE DETAIL #10 x 1 1/2" FLATHEAD WOOD SCREW



JIG ASSEMBLY

## Using the Jig to make boxes

Once you've made the Jig, creating a variety of different sized and shaped boxes is fast and simple. Here's how to make a box that's 3" high x 5" deep x 8" long. We used 1/2" thick stock for the box sides.

**Step 1:** Prepare the stock for production. Start by using the table saw to rip a series of 2-7/8" wide pieces of stock for the box sides. Then use your Jointer to bring them to a final width of 2-3/4".

Next, use your Bandsaw with a 5/8" Resawing Blade to thin your stock down to slightly thicker than 1/2". Use your Jointer or a Thickness Planer to bring your stock to a final thickness of 1/2". Crosscut your prepared stock into two 8-3/8" lengths and two 5-3/8" lengths.

Now, prepare two pieces of stock 3/16" thick x 5-1/8" x 8-1/8" for the top and bottom.

**Step 2:** Tilt the saw table to 45-degrees and set a hollow-ground or carbide-tipped blade height to 1-5/8" (without the Jig in place). Make test cuts on scrap stock to check the accuracy of your cut.

**Step 3:** Set the Jig on your saw table and place one of the 8-3/8" pieces in it. Adjust your stock against the fence so that the end to be cut protrudes 3/16" past the kerf cut into the fence (See Fig. 1). Slide the stop block up against the other end of your stock and tighten the bolt. Adjust your featherboard against the edge of the stock so the stock will be held firmly against the fence. Bevel one end of each 8-3/8" board.

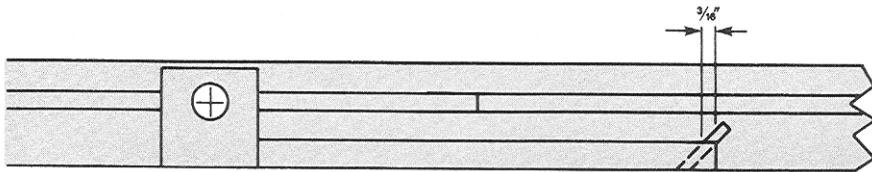


Fig. 1. For the first cut place the stock in the jig 3/16" from the inside kerf in the fence.

**Step 4:** Measure 8" from the mitered end and mark the stock on the uncut end. Set this piece in the jig, align the mark with the kerf and re-adjust the stop block (See Fig. 2). Cut all remaining ends of the boards.

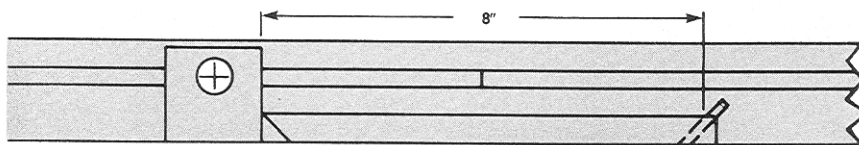


Fig. 2 For the second cut, obtain the final length of the piece by measuring from the inside of the fence kerf to the stop block.

**Step 5:** Repeat steps 3 and 4 for the 5" sides of the box.

**Step 6 (Optional)** Reinforce the mitered corners with splines made from contrasting wood. For tips on performing this operation, refer to your copy of the "Power Tool Woodworking For Everyone" textbook that came with your MARK V.

If you want dividers in your box(es), remove the jig from your saw table and cut 1/8" or 1/4" wide dados on the inside faces of your stock to accommodate these 1/8" or 1/4" thick dividers...prior to assembly.

**Step 7:** Use woodworker's glue to assemble the sides of your box(es). To clamp, use large rubber bands (See Fig. 3) or pieces of an old rubber inner-tube. Once the glue has dried, carefully sand the top and bottom edges flat using your Belt Sander. Be careful not to remove more stock than necessary.

Position the tops and bottoms so they overhang the edges of the box by about 1/16" all the way around. Apply glue and weight them with bricks or similar heavy objects (See Fig. 5) until they dry thoroughly.

**Step 8:** Once the glue has dried, use your Belt Sander to sand the box(es) so the tops & bottoms are flush with the sides.

Next, use your Bandsaw with a 5/8" resawing blade to cut the lid from the box. If you like, you can tilt your Bandsaw table 5 to 10-degrees when doing this for a different look (See Fig. 7). Be sure to follow-up by belt sanding the rims carefully to be sure they're flat and true.

**Step 9:** Mount the hinges, attach the lid, then apply the finish of your choice.

As you can see, the potential for boxes is limitless. Using various woods, altering their sizes, adding partitions, inlaying decorations or adding decorative hardware are only a few creative ways to mass-produce stunning gift boxes for friends and relatives.

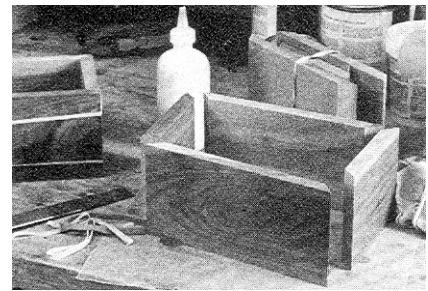


Fig. 3. Use rubber bands or pieces of inner tubes and woodworker's glue to assemble the boxes.



Fig. 4. After the glue has dried, sand the boxes. When using the belt sander, keep the box moving from side-to-side.



Fig. 5. Apply the top and bottom and place weights on top.



Fig. 6. Sand the sides flush after the glue has thoroughly dried.

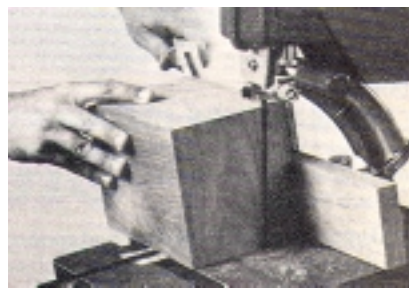


Fig. 7. Use the bandsaw to cut the lid from the box. Use a belt sander and carefully remove the saw marks from the top and bottom rims.