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Table Saw Tenoning Jig

In this plan you will be getting:

- Step by Step construction instruction.
- A complete bill of materials.
- Exploded view and elevation drawings.
- How-to photos with instructive captions.
- Tips to help you complete the project and become a better woodworker.

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Table Saw Tenoning Jig

Here's an indispensable table saw accessory for cutting tenons, bridle joints and spline slots. It allows workpieces to be held safely on end, and a micro-adjust feature ensures pinpoint blade accuracy. Best of all, you can build this jig from scrap and save more than $100 over the cost of buying a commercial tenoning jig.

Equipping the tenoning jig with a toggle clamp and hold-down knobs makes the cutting operation safer and allows for easy adjustments.

There are many ways to cut tenons, but one of the easiest and most accurate methods is with a table saw and tenoning jig. Some tenoning jigs are quite elaborate, but the fact is, the simpler the jig the more it gets used. Complicated jigs take longer to build and set up, and the additional capabilities just aren't needed that often. Building a simple jig, on the other hand, takes only an hour or two and, when it's done, will provide a means for precisely cutting tenons as well as open mortises for bridle joints and spline slots.

This basic tenoning jig has two subassemblies: the base and the carrier. The base rides in the table saw's miter gauge slot to keep the jig parallel with the blade. The carrier slides back and forth in the base so you can adjust the distance between the blade and the workpiece. The knobs and bolts provide the fine-tuning control and a hold-down lock that keeps the jig in place.

Building the Jig

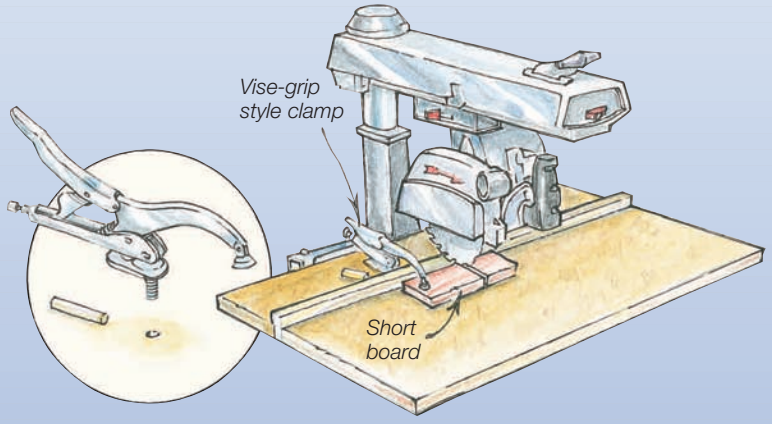
Begin by cutting the base (piece 1) to size and centering a counterbored pilot hole on the underside of the panel for a T-nut (pieces 2), as shown in the *T-nut Detail* on the next page. Install the T-nut, then rip hardwood for outlining the base. Screw two of the hardwood strips (pieces 3) along opposite edges of the base (make sure the strips are parallel to each other) and cut the third strip (piece 4) so it fits between the first two. Drill a pilot hole through the center of the third strip, as shown in the *Top View Elevation*, and install a T-nut in the hole. Screw the strip along the back edge of the base.

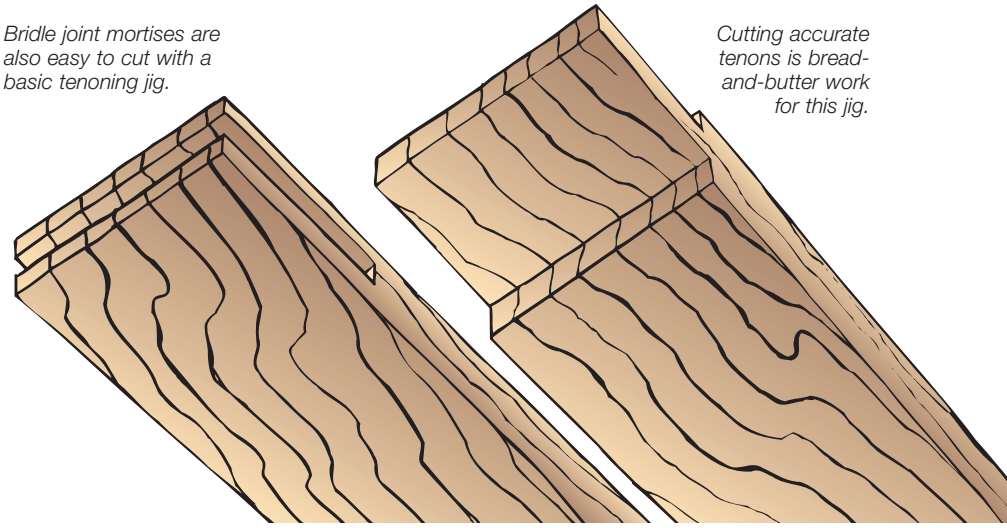
Now cut 1/2" plywood for the fence and the carrier plate (pieces 5 and 6)—the plate should slide easily on the base, but without any slop. Next, lay out and rout the slot in the middle of

QuickTip

Radial Arm Saw Holddown Clamp

Cutting small pieces with a radial arm saw is inherently dangerous because you have to put a hand too close to the blade for comfort. A better holddown solution than your hand is to use a vise-grip style clamp that bolts to the tabletop. Drill a hole adjacent to the saw blade, just large enough for the threaded part of the clamp. Sideways pressure may be enough to keep the clamp in place, but for safety's sake, secure the clamp to the table with a nut from below. Plug the hole with a loose dowel when you're not using the clamp to keep sawdust out.

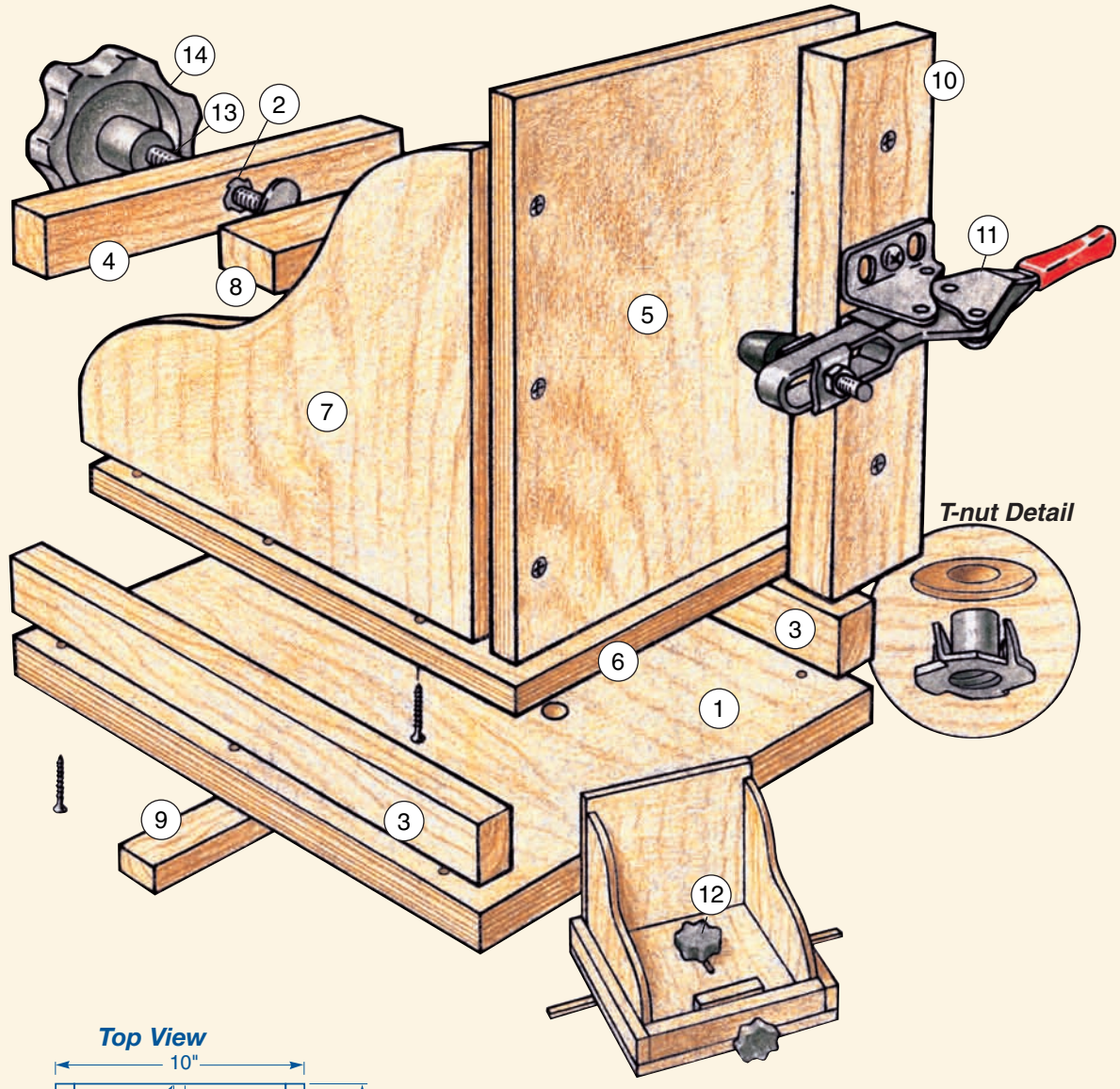


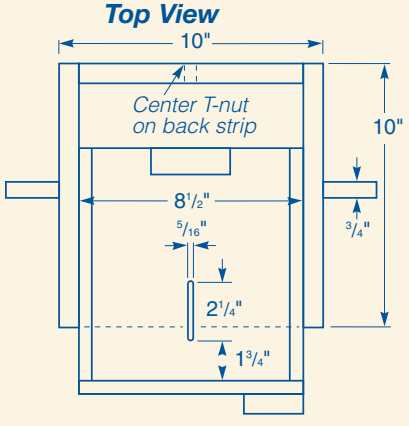


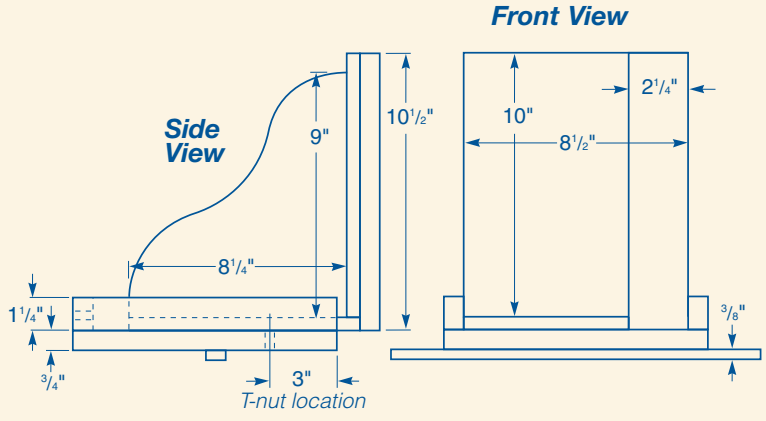
Bridle joint mortises are also easy to cut with a basic tenoning jig.

Cutting accurate tenons is bread-and-butter work for this jig.

Jig Exploded View







MATERIAL LIST

		T x W x L
1	Base (1)	3/4" x 10" x 10" (Plywood)
2	T-nuts (2)	5/16"-18
3	Side Strips (2)	3/4" x 1¼" x 10" (Hardwood)
4	Back Strip (1)	3/4" x 1¼" x 8½" (Hardwood)
5	Fence (1)	1/2" x 10" x 8½" (Plywood)
6	Carrier Plate (1)	1/2" x 8½" x 8¾" (Plywood)
7	Fence Supports (2)	3/4" x 8¼" x 9" (Plywood)
8	Bearing Block (1)	3/4" x 1" x 3" (Hardwood)
9	Guide (1)	3/8" x 3/4" x 14" (Hardwood)
10	Stop (1)	3/4" x 2¼" x 10" (Hardwood)
11	Toggle Clamp (1)	Post Handle Type
12	Hold-down Knob (1)	Handle with 5/16"-18 Bolt
13	T-bolt (1)	5/16" x 3½"-18
14	Knob (1)	Handle with 5/16"-18 Nut

the plate for the hold-down knob (see *Top View Elevation*).

Next, lay out the curved fence supports (pieces 7). When you cut these pieces to shape, make sure the corner of each one is truly 90° (you could make a jig for cutting angled tenons and mortises by cutting these corners at different angles). Now screw the fence to the supports, then screw the carrier plate to this assembly.

Cut hardwood to size for the bearing block (piece 8) and screw it flush with the back edge of the plate. The bearing block provides a footing for the fine-tuning bolt to press against.

Carefully fit a hardwood guide (piece 9) to the miter gauge slot in your table saw, then clamp the guide to the bottom of the base. Since each table saw is a little different, you'll want to position the guide specifically for your machine. Clamp the guide so the front edge of the base will fall about 1" from your table saw blade—be sure the guide is parallel with the carrier fence—then drill countersunk pilot holes and screw it to the base.

Screw a stop (piece 10) to the fence so it's 90° to the saw surface—drive the screws above the blade's path. Next, secure a toggle clamp (piece 11) to the stop for holding your workpiece. Now set the carrier on the base and install the hold-down knob and the fine-tuning T-bolt (pieces 12 and 13). Spin the knob (piece 14) onto the T-bolt, then take the jig apart and coat it with varnish. You'll improve your jig's performance by waxing the base and guide regularly.

While this jig won't do everything, it will do a few things very well. Woodworkers who cut lots of tenons will appreciate the accurate, repeatable results, and they won't get bogged down building a jig that's over-designed and difficult to set up.

QuickTip

Magnetic Push Sticks

Push sticks are essential safety items when using a table saw or jointer, but they're easy to misplace. Here's a simple solution: Drill shallow holes in all your push sticks and cement small, round rare earth magnets in the holes. These rare earth magnets are amazingly strong, and your push sticks will stay put wherever you place them.