A Tenon Jig for the SMT

This tenon jig is a copy of one by R.J. De Cristoforo. I saw it in one of his books about 12 years ago. I don't have the book anymore so I'm working from memory. The original design was for a miter slot, but it was easy enough to re-engineer it for use with the sliding miter table (SMT) on the Ryobi BT3000 table saw. I've goofed around with the design a couple times and I feel the current version is simple and practical.

Note of Caution: The photos, which accompany this text and drawings, show the BT3000 without its blade guard. Not only is this for clarity's sake, but it would be difficult to cut tenons in end stock otherwise. As always, be careful. You only have ten fingers and you need every one.

Materials: I used 3/4" particle board and oak hardwood for the construction of this jig. I recommend that you use whatever you have available, your only concern is stability of the materials. I've kept a close eye on the unfinished particleboard in this on version. Over 5 months it has remained stable, no swelling or shifting. All the angles have remained perfect.

Bill of Materials:

Lumber:
1 - 8" x 10" 3/4" particle board (base)
1 - 9 1/2" x 11" 3/4" particle board (vertical plate)
2 - 2 1/2" x 11" x .75" hardwood (sides)
1 - 1" x 8" x .75" hardwood (support)
1 - 1 1/4" x 9" x .75" hardwood (vertical edge guide)

Hardware:
13 - 1.25" #8 flat head screws

Construction:
Accuracy is everything when building a jig. So now would be a good time to tune up your saw before you cut the jig pieces.

1. Attach the hardwood sides to the base using 3 wood screws per side. Be sure to drill pilot holes and countersink the screws to just below the surfaces.

2. Attach the hardwood support to the front edge of the base between the sides with 2 wood screws. Be sure to drill pilot holes and countersink the screws to just below the surfaces. This piece will help support the vertical plate.

3. Attach the hardwood vertical edge guide to the edge of the vertical plate with 2 wood screws. Be sure to drill pilot holes and countersink the screws to just below the surfaces. Pay particular attention to the placement of the screws. The lower one should be at least 4 inches from the bottom. Otherwise you will risk running your saw blade into the screw when the blade is at it's highest setting. The bottom 4 inches of the edge guide are meant to be sacrificial.

4. Attach the vertical plate to the base using 3 wood screws. One in each hardwood side and one into the hardwood support. Be sure to drill pilot holes and countersink the screws to just below the surfaces.

5. After completion, check the squareness of the surfaces in relation to the saw table. You may need to use shim stock between the vertical plate and the sidepieces to tilt it in or out. Take the time to get this square now and you won't be sorry later.

6. Cut the angle on the lower end of the edge guide by tilting the saw blade to 10 degrees and raising it to it's highest point. Set the jig as close to the blade as possible and make the cut. Cutting away this waste material now will save it from interfering with a tenon cut later.

Use: This jig was specifically designed for use with the SMT and the miter. Though I tried using bolts from the user kit to attach the jig to the miter on the SMT, I prefer the ease of using the hold down attachment. A simple C-clamp would also work. To hold the stock in place on the jig, I use a C-clamp or one of those nifty one-handed clamps.

Conclusion: I built this jig out of necessity. There's nothing fancy about it and I know it could easily be improved upon. For instance, I'd like to add a fixed hold-down of some kind. Or, I also thought I might re-engineer it to accommodate a sliding mechanism for a micro-adjuster. Now that would be neat.

P.S. Also included in here are pictures of a feather board and another jig I built which helped while making some repetitive cuts. No big deal, I know. Just a bonus.

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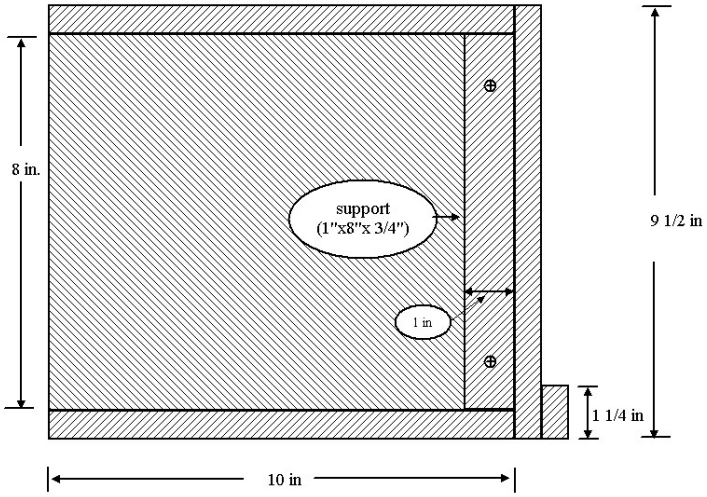
Overhead View



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Front View

Side View