

Construction Notes for the BT3000 Tenon Jig

Designed by Jim Frye

Drawings by Kevin Lynch

This jig is based on the Highland Hardware design that appeared in their catalog some years ago. I would consider this version an evolution of that original. I made some construction changes and couple of feature additions. It would be advantageous to read the Highland Hardware text to get more background on the construction and use of this type of jig.

The added features include a handle for increased safety, a removable tenon fence or stop, and T-slot rails to enhance accuracy. The handle improves accuracy by allowing the user to push directly in line with the rip fence. The removable fence allows different stops for cutting angled tenons. The T-slot rails ensure that the jig stays in line with the rip fence. The rails also eliminate tipping, rocking, and lifting of jig while in use.

The construction changes involve dado joints and vertical fence braces to help keep the jig true. The Highland version used a toggle clamp to secure the work piece to jig face and one could be use on this version as well. I use a 6" Quick Grip clamp since I have them and didn't want to spend the money for a toggle clamp. This jig is best built from 3/4" plywood to ensure stability. Cut the various parts to size and assemble the jig on the saw's rip fence to make it accurate and square. Wax the saws rip fence prior to starting construction to prevent glue and the jig from adhering to it.

Begin the jig assembly by gluing the left fence (D) to the top plate (E, or bridge as Highland called it). Clamp the two parts together and clamp the assembly to the rip fence in both planes. When this joint has dried, mark the location of the T-slots on the back of the left fence and on the underside of the top piece. Glue and pin the top (B) and left (A) T-rails in place at the front end of the jig. Note the differing lengths of the T-rails. The top rail is shorter to clear the rip fence screws that are on the top front of the saw's rip fence.

The next step in the construction process adds the right side. Start by positioning the left side/top assembly on the rip fence and clamp the right side (F) in place. Mark the location of the T-slot on the back of the right-side piece. Remove the right-side piece from the assembly. Glue and pin the right side (C) T-rail in place on the back of the right-side piece. After this joint has cured, glue and clamp the right side to the left side/top assembly. Again, do this on the rip fence to ensure accuracy. Before clamping this joint, slip the three braces (G, H, & I) in place between the sides to make sure they will be square. Clamp this assembly and leave to dry. After the glue has cured, glue the three braces in place. Once the glue has cured, reinforce all of the joints with 1 1/4" screws that are counter sunk. Fill all screw holes with wood putty.

The handle is made from two pieces of 3/4" thick wood laminated together. The opening was cut by drilling a pilot hole and sawing it out with a jigsaw or a scroll saw.

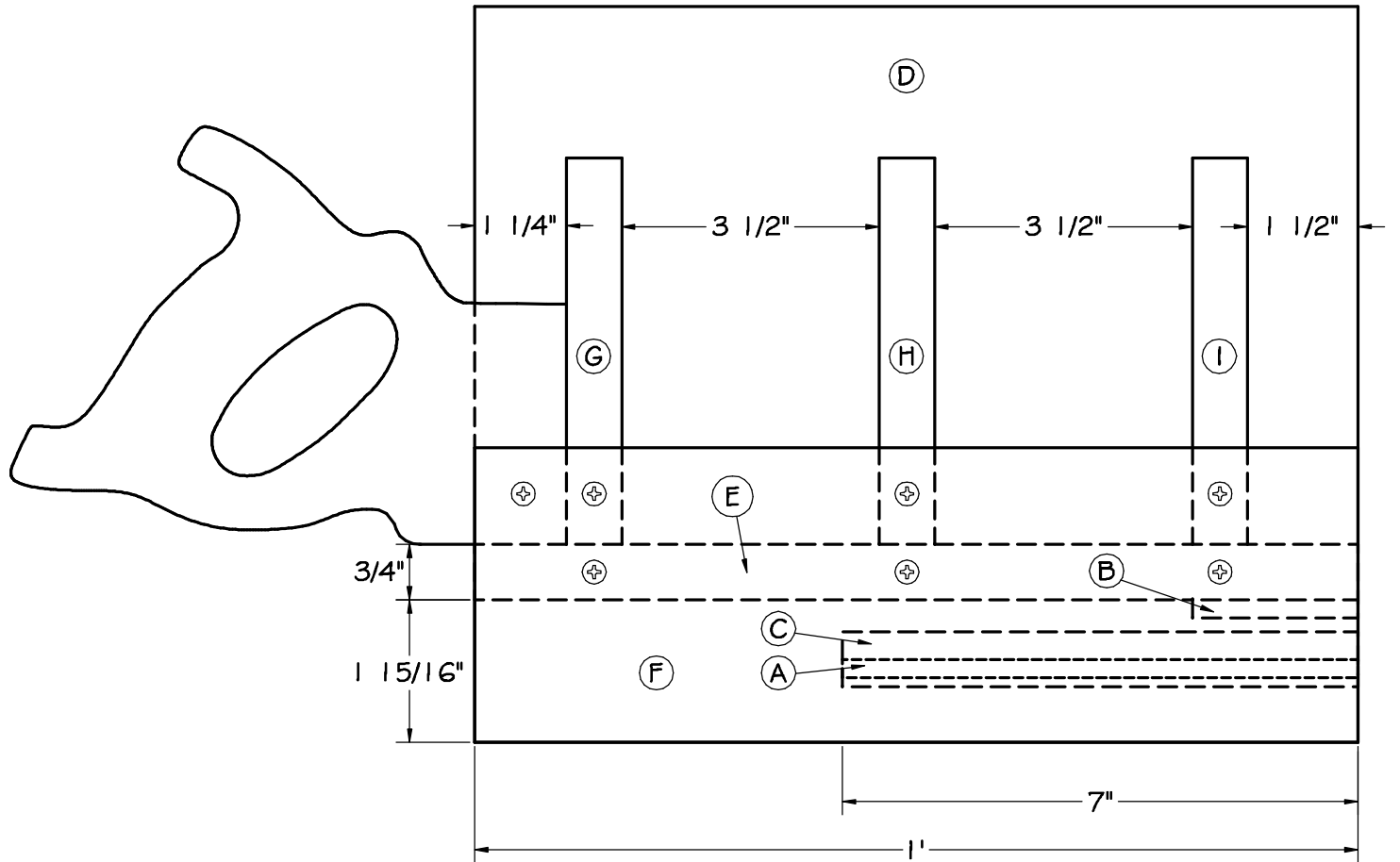
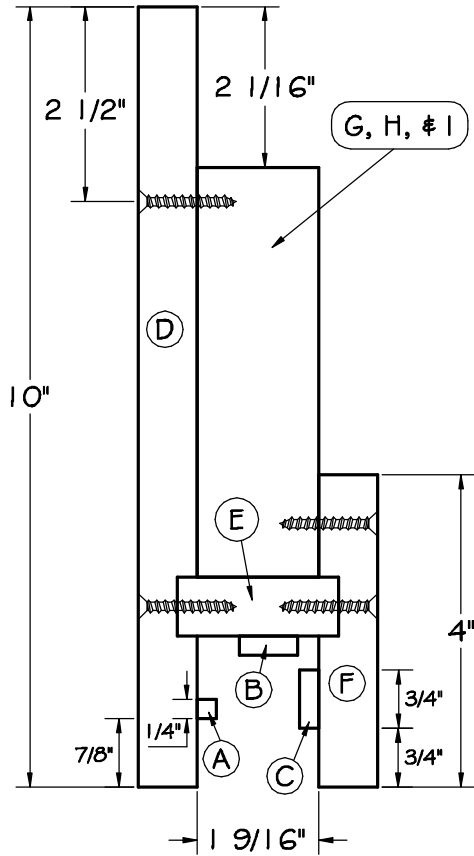
The opening was smoothed with a rasp and sandpaper. It must be smooth as it will be used later to guide a round over router bit. The remainder of the handle can be cut with a jigsaw, scroll saw, or band saw. This edge must be smoothed also. The edges of the handle where the user grips were rounded with a 1/2" round over bit with a pilot bearing. The remaining outside edges were rounded with a 1/4" round over bit with a pilot bearing. I did this work on the router table as it was easier due to the size of the work piece. After sanding the entire handle smooth, glue and clamp it to the rear of the tenon jig assembly. When the glue has cured, reinforce the connection with a couple of screws.

Install two threaded inserts in the face of the left side to mount the fence stops with. Make sure the lower insert will clear the longest tenon you will cut. The Highland Hardware text recommended 3 3/4" to clear the saw's 3 9/16" maximum depth of cut.

Now thoroughly sand the entire jig to at least 220 grit. It is the builder's option on how to finish the jig, but I think that all reusable jigs should be fully finished. It makes them last longer, remain more accurate, it makes your work look more craftsman like.

If the jig ends up being the least bit loose on the rip fence, wipe on coats of varnish thinned 50/50 with mineral spirits or VM&P naphtha until it moves without any sloppiness.

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A = 1/4" X 1/4" X 7"

B = 3/4" X 1/4" X 2-1/4"

C = 3/4" X 1/4" X 7"

D = 10" X 12" X 3/4"

E = 2-1/16" X 12" X 3/4"

F = 4" X 12" X 3/4"

G,H,I = 5-1/4" X 1-9/16" X 3/4"

HANDLE FOR TENONING GUIDE

