

## Wide Crosscut Fence for BT3000 Designed by Jim Frye

This fence is used to extend the crosscut capacity of the Sliding Miter Table (SMT) from 16 inches to 23 ½ inches. The design was originally done to address a question someone had asked on the Ryobi toolforum about cross cutting wide panels. After several people had attempted to add a fence to the front edge of the SMT and had drilled holes in the table to do so, some folks argued that there ought to be a way to accomplish the mounting of the fence without defacing the SMT table. When I started thinking about this design problem, it occurred to me that I actually was going to need a wide cross cut fence for a future project I was planning. This fence attaches to the SMT with a 5/16" x 3" hex headed bolt and a 1 1/2" diameter threaded knob. You could use the knob and bolt from the SMT miter fence or make/buy a knob and a bolt. The original knob is 2" in diameter and will overhang the face of the fence slightly. This will not pose a problem as long as the work piece is less than 1 1/2" thick. There are two adjustment screws on the rear of the fence that serve two purposes. They allow the user to micro adjust the fence to the saw blade and once adjusted, they prevent the fence from shifting. This fence was designed to be 18" long like the stock miter fence, but it could be longer. An 18" fence should allow the user to handle a work piece up to 36" wide with good accuracy. Just remember to center the SMT under the work piece to prevent tipping.

This fence is made from three pieces of 3/4" thick wood. Plywood would be more stable, but because it is composed of two pieces of wood joined at right angles and a third piece laminated to the first two, even a good hardwood with a proper finish on it should remain stable. The fence pictured here was made with pieces of red oak and poplar from my scrap bin. In this article, the back of the fence faces the user, while the fence face is toward the saw blade. Remove the SMT table lock tab and screw from the SMT temporarily to allow the fitting of the fence to the SMT. You will need three pieces of wood 18" long. The base piece of the fence is 2" wide. It lays on top of the SMT with the 2" face down. A 5/16" hole is drilled 3/4" back from the fence face 9" from the end (thus making it centered). The rear part of the fence is 1 3/4" wide. The lower edge of this piece cut to the profile of the bottom of the front end of the SMT table. To lay out this piece, mark the center of the board and clamp it to the back edge of the top fence piece. Place this clamped assembly on top of the SMT centered on the fence mounting slot. Passing a 5/16" bolt through the SMT and the fence will align them. Then trace the outline of the under side of the SMT profile on the inside face of the rear piece. Also mark the area where the SMT lock tab is located. Remove the assembly from the SMT and unclamp the two pieces. Saw the rear board to the profile scribed on it. At each end of the remaining wide portion of the rear piece, drill a 5/16" hole so that it clears the 3/4" thickness of the base piece at the top of this board where the top portion of the fence will attach. Install a 1/4-20 threaded insert in each of these holes. Next, mark out and chisel a shallow mortise to clear the SMT lock tab. Don't forget to remount the lock tab. Now glue and clamp the two pieces back together. When the glue has dried, reinforce the joint with some 1 1/4" flat head screws. I use drywall screws on my jigs and counter sink them for filling with putty later. The third piece of this fence is the top and it is 2 3/4" wide. It is glued and screwed to the top of the lower assembly. This will create a fence face that is 1 1/2" high. When the glue is dry use the 5/16" drill bit to extend the hole drilled in the base piece previously. To true this fence assembly, sand the

back face straight and flat. Next, adjust the rip fence of your saw and make a jointing pass on the front face of the fence by running the sanded back face against the saw's rip fence. Epoxy a flat steel washer on the top of the fence centered on the 5/16" hole to provide a wear surface for the knob. I then thoroughly sanded the fence and finished with stain and varnish.

I make my own knobs for jigs by using a hole saw mounted in my drill press. I used a 2 1/4" hole saw which cuts out a 2" diameter plug. For a 1 1/2" knob, you would need a 1 3/4" hole saw. For this knob, I started by using the hole saw to cut about a 1/4" deep into the knob stock. I use 3/4" plywood for my knobs. This first step creates the center hole for the following steps and provides a registration ring to finish sawing the knob out later. Next, I counter bored the center with a 5/8" forstner bit just deep enough to receive the 5/16" nut. A 9/16" bit would be a better fit, but I don't own one. The next step is to bore out the knob center with a 5/16" drill bit. Lastly, remount the hole saw and completely cut the knob free by running the hole saw into the previously cut ring. I mount the knob blank on the bolt and secure it with two nuts. This assembly is mounted in the drill press and sand paper is used to round the corners and smooth the entire knob. I epoxy the 5/16" nut in the counter bore and epoxy a flat steel washer on the under side of the knob to provide a wear surface. I then finish the knob with stain and varnish. I use stainless steel hardware when ever possible. It looks neat against the dark finish of my jigs and it never rusts, discolors, or corrodes.

The adjustment screws are simply two 1/4-20 x 2" machine screws with a hex nut on each to serve as a lock nut when the fence has been adjusted. To install the fence, run the knob out to the end of the 5/16" bolt and insert the bolt head into the SMT slot just like the regular miter fence. Now slide the fence all the way to the front of the SMT and lower the lip of the fence over the end of the SMT table. Hold the fence as far forward as possible and tighten the knob until the fence is snug on the SMT table. Now slide the SMT rearward and use a square to align the fence with the saw blade. Tighten the adjustment screws until both are tight and the fence is at 90 degrees to the saw blade. Run the lock nuts up to the fence and snug them with a 7/16" wrench. Now tighten the knob securely and the fence is ready to do some wide cutting.



