

# Tom's Tool Box – September 2009

## *Table Saw Tips and Techniques – Part Deux*

by Tom Walden

Last month I discussed many of the fundamental techniques for using table saws with regards to making miniatures. So this month I will take it up a notch and discuss some more advanced features of table saws. Then next month I will conclude this trilogy with even more advanced table saw techniques using various jigs and fixtures. Only three months on table saws may seem a trite much for some of you, but I could actually do a full year of articles on the subject of table saws. But I will be merciful and not put you through that much sawdust creation.

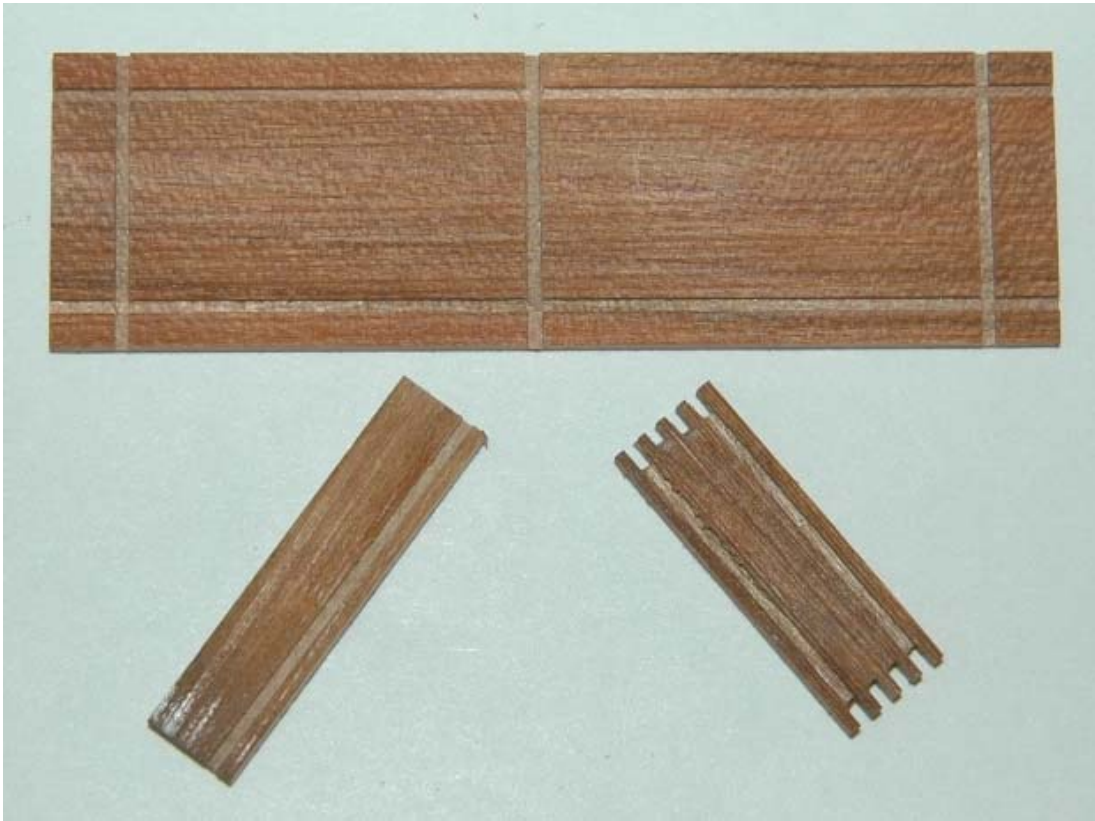
Obviously the main purpose of a table saw is to cut wood – and lots of it. But that is just baby steps in comparison to what you can really do with one. For instance, you can cut miter joints for picture frames, dados and rabbets for joints, finger joints for corners, beveled edges, tapered legs (on 2 sides), angled cuts to any degree, and much more. Some can be accomplished with the basic table saw itself, but most of these features require the use of some sort of jig or fixture. But let us talk about cutting joints first.

### **Joins**

A dado and a rabbet cut are pretty much the same cut used for making joints. The rabbet is cut along the edge of a piece of wood, while the dado is somewhere in the middle of the wood. All of the samples in Figure 1 are dado cuts (ignore the finger joints on the smaller pieces). Dado and rabbet cuts are typically used for joining wood at 90 degree angles, such as shelves or overlapping back panels.

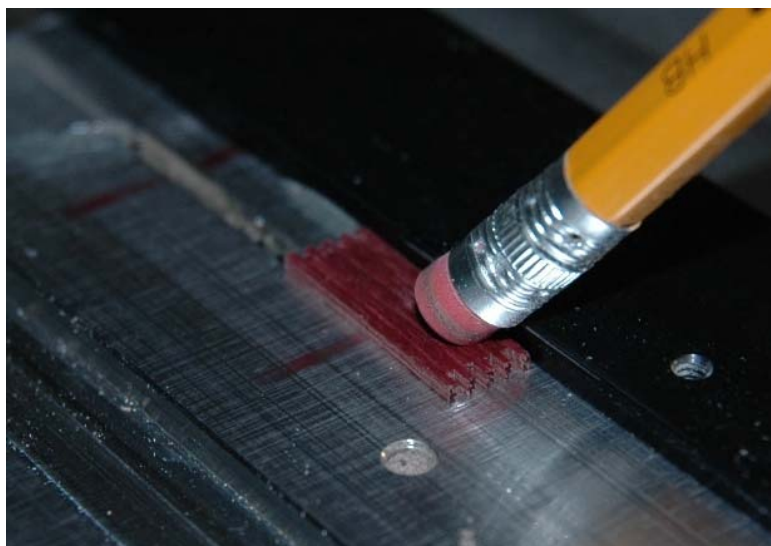
These cuts are most often cut 50% into the depth of the wood, but can also be other depths depending upon the project at hand. Obviously the width of the cuts will depend upon the width of the wood to be inserted into the cuts. Most often they are 1/32" or 1/16" wide for miniature furniture. The only real challenge with making these cuts is the setup. Adjusting the saw blade to cut exactly 50% deep (or whatever depth you need) takes considerable patience and testing and measuring – with calipers. I have sometimes spent more time getting the cutting depth correct than cutting the actual wood itself.

Yet another cut is the mortise, which is just a dado cut that does not extend through the end of the wood. However, by their very nature, mortises are normally done with a drill press – which is obviously another topic for another time.



**Figure 1 – Examples of Dado Cuts**

Okay, you know have the saw blade adjusted to the desired cutting height. Now it is time to adjust the fence to the exact width/position for your cuts (measure twice, cut once, measure again). So cut scrap pieces and check with calipers until you get the exact position for your final cut(s). If you look at Figure 2, you will see that I normally use a pencil eraser to press down and push forward the wood that I am cutting. The blade is only cutting half way through in this setup. If you do not use something like the pencil eraser to push down on the wood as it cuts, then you stand a very good chance of getting a wavy cut instead of a nice smooth, flat one. This is because the wood will try to float across the blade without pressure on it while cutting. We do not want skate ramps, but a nice straight alley.



**Figure 2 – Pushing the Wood Through a Dado Cut**

## Sliding Tables

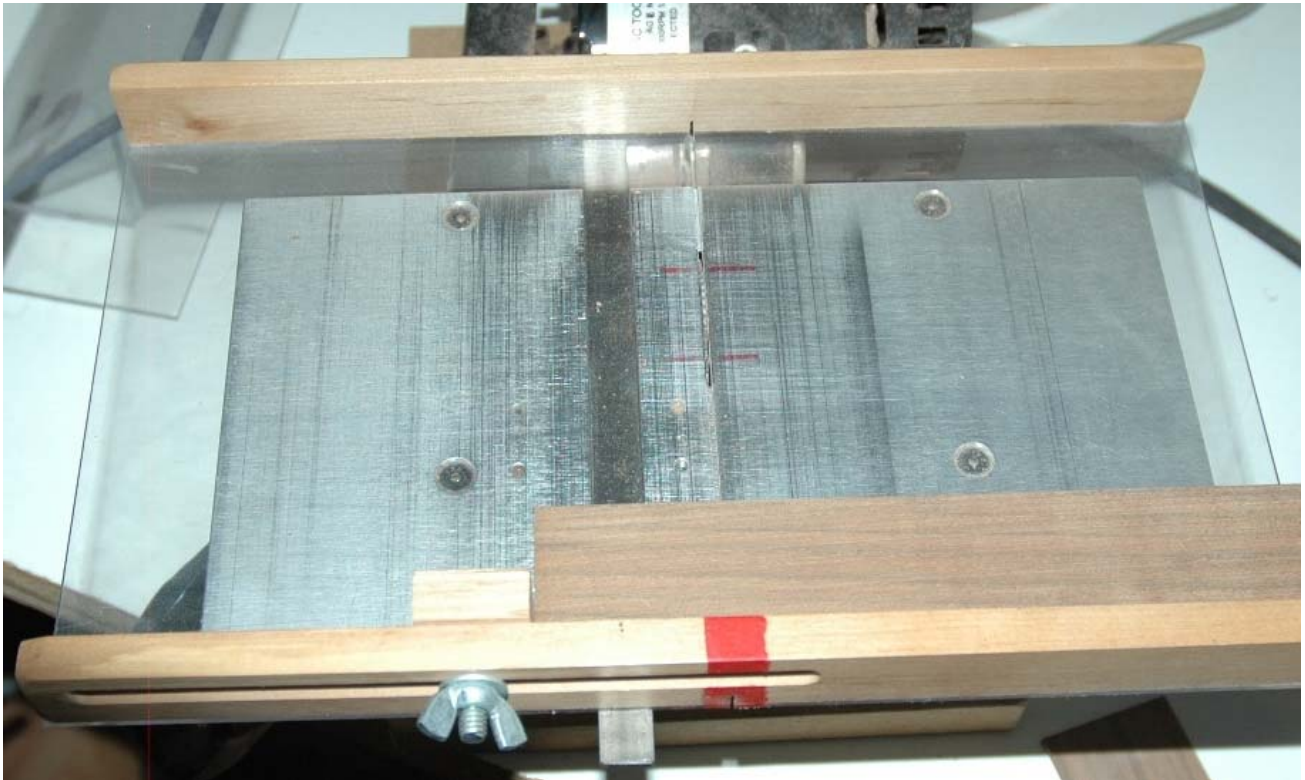
As mentioned last month, cutting with the grain of the wood is usually done with a fence, aka ripping. But the normal next step is to then cut the long pieces into shorter ones – via a cut across the grain (aka crosscut). If you just need a single piece or two, you might attempt to cut the wood with your 90 degree miter bar. However, I prefer complete accuracy, and quite often, multiple pieces of the same cut. Last month I taught you how to cut small crosscut pieces using a combination of the miter bar and the fence. But for larger pieces, it is much safer and easier to use a crosscut sliding table.

These sliding tables are generally model-specific. In other words, a Preac sliding table will NOT work on a MicroLux or Byrnes table saw. This is because the miter channels on the table tops are not the same distances from their respective blades.

Sliding tables are made with different materials – wood, aluminum, plexiglas, or a combination of them. If available, and they cost a lot more, I prefer the aluminum sliding tables. They are simply more rugged, easier to use, and last longer. In Figures 3 and 4 you will see examples of aluminum and plexiglas/wood sliding tables. Another nice feature of sliding tables is the ability to have adjustable stops. These stops (both sliding tables have one) allow you to cut multiple exact length pieces of wood. This is a “must have” feature when looking for a good sliding table.



**Figure 3 - Aluminum Sliding Table**



**Figure 4 - Plexiglas/Wood Sliding Table**

As a safety note when using sliding tables – some of them do not stop when it gets to the blade itself. Thus the blade passes completely through the sliding table on the side closest to you. I color this section in red (pseudo-blood) to remind myself. However, the aluminum sliding tables have a built-in stop to prevent that from happening.

### **Feather Boards**

In the workshops I teach, one of my drill press setups requires the use of a feather board. You have never seen a board with feathers? Then you need to get out more – after all, boards of a feather flock together. Seriously though, there are times when I use a powerful router bit in a drill press. As such, the power of the router bit tends to push the wood away from the blade – and with narrow pieces of wood this can be both a difficult and dangerous task. The purpose of a feather board is to keep the wood tight against the fence so the router bit can accomplish a nice clean cut.

If you look at the drill press setup in Figure 5, I am actually cutting a piece of wood into the shape of crown moulding using a Dremel router bit. Note that I have turned the wood around so that you see the shape I am actually cutting on the other side via the router bit. I need to keep the wood snug against the fence without sacrificing any of my fingertips. Thankfully, the feather board does the trick very easily. The purpose of the feathers on the board is to allow a little flexibility as the wood passes through it, and it also lets sawdust collect inside the feathers (and out of our cutting path). But enough about drill presses for now, let us build one of those feather boards using table saw techniques. This type of board should be in every table saw user's pile of accessories regardless.



**Figure 5 - Feather Board Setup for Moulding**

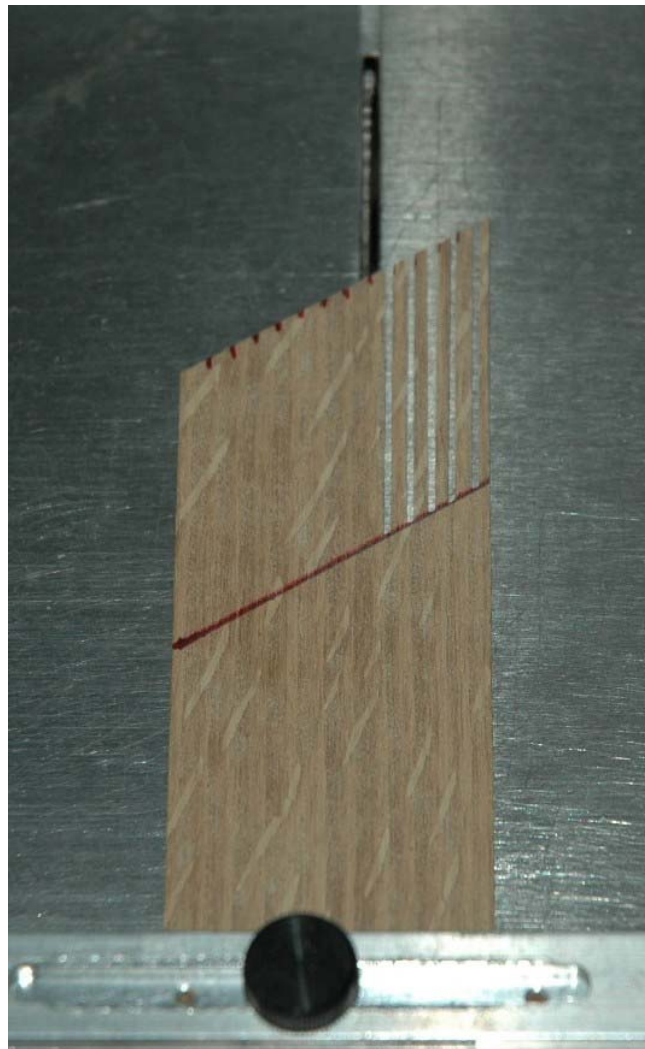
Find a 1/8" thick piece of hard scrap wood – like maple, oak, or ash, and cut it to about 4" long by 1 1/2" wide. Now you need to cut one of the ends at a 30 degree angle. If you look at Figure 6, I did this with an adjustable miter bar. But you could also accomplish the same affect by using a small 30 degree triangle held against your 90 degree miter bar (or inside a sliding crosscut table). This needs to be a very straight cut, so I do not recommend cutting the angle by hand.



**Figure 6 - Cutting the End of the Featherboard**

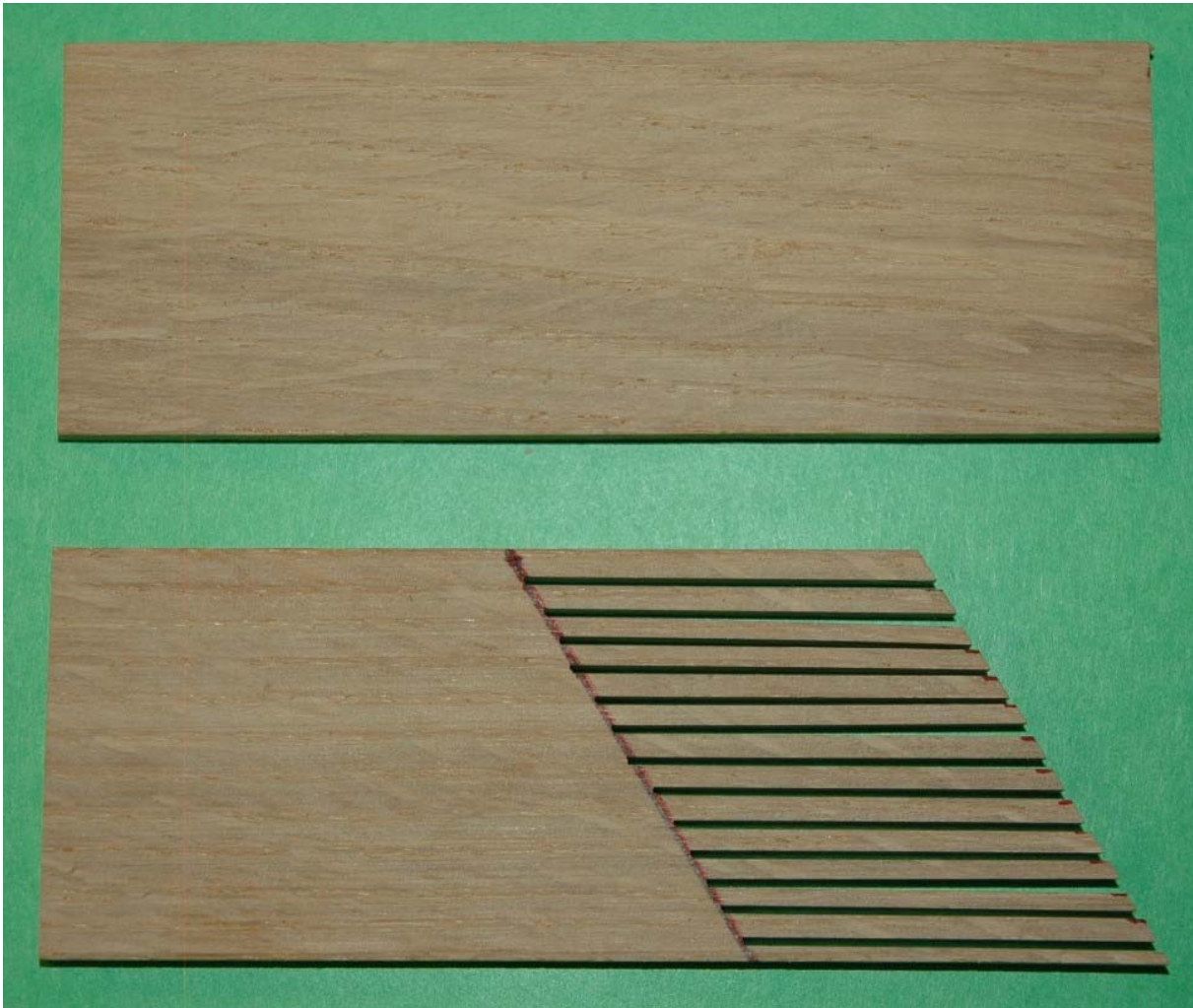
Now from both top edges of the mitered end, measure and mark down 1 ½” inches on each side. Then draw a line connecting your two marks. The line should be parallel to your 30 degree miter cut. You can see an example of the line (it is red) in Figure 7. Next you need to make marks to cut along the top of the miter end (look closely, they are in red also). I normally use a 1/32” kerf (width) slitting blade for making feather boards, but you can use a wider one if necessary. From the lower edge of the miter edge, I make those marks exactly 1/8” apart. At each of those marks I will cut a slot in the board. You may need wider marks if using a thicker saw blade.

Try to be fairly accurate and methodical when cutting each slot. I used a sliding table (highly recommended), but you could carefully use a plain miter bar. You need to hold the wood steady on both sides as you cut the slots. Stop cutting each slot as the saw blade cuts to the line you drew (see Figure 7 again) and pull the wood back out from the blade. Cut all slots across your wood.



**Figure 7 – Cutting the Feathers in the Board**

You can see the before and after results of making a feather board in Figure 8. As you now see, it is not difficult to make one of these with just a table saw, and you now have a very useful accessory for your table saw. Feather boards are not limited for use only on drill press setups, they are also great for router and table saw similar scenarios.



**Figure 8 – Featherboard Before and After**

In this article I discussed many more table saw techniques – and there are considerable more that could have been mentioned (no book writing for me). Remember to keep in mind that these techniques were mostly geared towards the Preac 2” blade table saw. If you use any of these techniques on a 4” table saw – make sure it has a “slitting blade” of 1/16” or thinner.

Please note that at the time of this writing, the creator of the Preac table saw was recovering from cancer surgery. Thus the entire Preac product line is now in jeopardy. Hopefully he will recover soon for many reasons.

Next month I will conclude this trilogy and work on the screenplay for it. We will discuss using specialized jigs for such things as tapered legs, mitered picture frames, finger joints, etc. Then I will finish the year with a couple of articles on the concept of pin routing – a very useful, yet not well known, science of its own in the miniature world.

You may contact me directly for comments and/or suggestions for future tool articles at: [tom@TomWalden.name](mailto:tom@TomWalden.name) . Visit my web site at [www.TomWalden.name](http://www.TomWalden.name) to see some of the furniture and flooring I have made using the techniques discussed in these articles. If you wish to see me in action teaching one of my drill press workshops, I will be at the Philadelphia Miniaturia in November, Sarasota in January (no workshop), and Orlando in February.