Inlaid half blind dovetail joints

I planned to make inlaid half blind dovetail joints for the frame of the knife display case. The frame is made from African Mahogany and the inlays are tiger maple. This article will show how I made the joints. For more information on the Leigh Jig please visit their website. The article which I followed is one of Leigh’s technical bulletins. Their manuals are very well written and illustrated. Another excellent source for information on the Leigh Jigs is Al Navas’s blog, Sandal Woods.

When making half blind dovetails with the Leigh Jig it is critical to understand the following:

- Bit selection is based on the thickness of the pin board.
- The bit selected will only produce one specific cutting depth. If you have the bit set to low the joint will be too tight, if you have the bit set to high the joint will be too loose. Only one depth of cut will make a perfect joint.
- The pins and the tails are both routed with the same bit.
- The scale setting determines how much the pins protrude from the tails. You only want the pins to protrude by
about 1/64” to make for easy clean up of the joint.

The process for making inlaid half blind dovetail joints consists of first making a set of end on end half blind dovetails with two pieces of contrasting woods. Then making a regular half blind dovetail joint where the tails are smaller.

The first step was to prepare the lumber to the right dimensions. While I was doing this I also prepared a couple of test pieces to use in setting up the router and jig and to practice the joint on. I marked all the pieces with white chalk, indicating the sides of the frames (the tail boards) and the front/back of the frame (the pin boards). I also marked the show side or outside of the frame.

As well as the four sides of the frame, I also needed to prepare a spacer board, the inlay board and two shims. The spacer board is used on the Leigh Jig to rest the guide fingers on. The shims are used to help set the fingers of the jig when doing the inlay. The inlay board and shims needed to be milled to a particular thickness. The pin and tail boards are 5/8” thick and I wanted an inlay of 1/16” thickness. I was using the 120-8 cutter (router bit) which has a 14 degree angle and a cutting depth of 7/16”.

The inlay board thickness needed to be equal to the cutting depth + inlay thickness. i.e 7/16” + 1/16” = 1/2”

The shim thickness was determined by the following formula in the Leigh Bulletin: inlay thickness x 1.28 i.e 1/16” x 1.28 = 0.08” (The angle of the cutter bit determines the factor by which you multiply the inlay thickness by in order to determine the shim thickness.
Having prepared all the lumber the next step was to layout the fingers on the jig. As my board was only 2 1/2” wide there were not going to be many dovetails! It is important to make sure that you have room for at least two shim thickness between each pair of fingers. The guide fingers need to be moved by this amount later in the proceedings.

The assembly is then rotated into the half blind pins mode with the scale set to the thickness of the tail board. The pin board is placed horizontally in the jig and moved forward so that it touches the tail board that is vertical in the jig. You can see in the image below that the tail board is set low enough that the router bit will not touch it!
The pin board is then routed. This is not the normal procedure when making half blind dovetails using the Leigh Jig. Normally the tail board is routed first. For inlaid half blind dovetails the pin board needs to be routed first so that an inlay can be glued into the pins.

The assembly is now rotated to the half blind tails mode and the inlay board is placed horizontally in the jig. It is moved forward so that it is flush with the front face of the tail board mounted vertically in the jig. The inlay board is routed out. When routing the inlay board you need to make sure you route back far enough so that there is enough of a tail to fill the tail sockets.
After making a test fit I took the inlay board to my cross cut sled on my table saw and cut off a couple inches of the end which had been routed. I then glued the inlay into the pin board. As you can see in the image below I did this on both ends of the pin board.

Once the glue had cured, I took the piece to my cross cut sled again and cut the inlay board flush with the end of the pin board.

Now comes the magic trick. With the jig assembly still in the
half blind tails mode the guide fingers need to be moved so that the next set of pins and tails that are cut are slightly smaller than the first set. The Leigh Bulletin does a great job of explaining how the guide fingers need to be moved, I’ll do my best here.

The right hand fingers are loosened and moved to the right by one shim thickness. They are then tightened. The left hand fingers are then loosened, slid to the left so that two shims fit between the left and right fingers, then the left finger is tightened. The half pin guides need only to be moved inwards by one shim thickness. The easy way to do this is to move the “spare” fingers (the ones to the far left and right of the joint that are just used to rest the router on) flush to the half pin guides. Then the half pin guides are loosened, slid in by the the thickness of one shim and tightened. The “spare” guides are then moved back out. It sounds pretty complicated, but it is actually fairly simple to do.

Having moved the guides, and with the assembly still in the half blind tails mode, the tail board is routed out. As you can see in the image below the tail board is mounted vertical in the jig and raised so that it touches the underside of the guide fingers.

We’re nearly there!! The assembly is rotated to the half blind pins mode. The pin board with the inlay is mounted horizontally in the jig and moved forward so that it touches
the tail board that is vertical in the jig. Again you can see in the image below that the tail board is set low enough that the router bit will not touch it!

The pin board is routed out and finally the inlaid joint is revealed! I don’t need to tell you how exciting a moment this is!

The results of all those steps, an inlaid half blind dovetail joint.