How I designed and built my lumber straightening jig – by Paul Comi

Please note: I do not accept or extend liability for any injury occurring from use or operation of woodworking tools. I am sharing this jig in the spirit of being a contributor to other woodworkers and I am not liable for anyone else's use or misuse of this jig. This jig was designed to be used on a cabinet saw and would be dangerous to attempt on a small bench table saw model.

What is it? A straight edge jig that slides on top of a key in the miter slot of a table saw.
What is it used for? Cutting a perfectly straight edge on either solid woods or scraps of plywood or other sheet material.
Why do I need one? At some point, you have a board that would take a lot of work to try to put a straight edge on using your planer, or at some point you have perfectly good pieces of sheet material like veneer plywood that do not have a single straight reference edge to align with your table saw fence.
How does it work? Position the "key" in the right side miter slot of your table saw. Place the aluminum channel located on the bottom of the jig on top of the miter key so that it slides freely back and forth. Lay your board on top of the jig and lock down using hold down hardware. Pass the jig with clamped board through the table saw to make the cut.

The jig works great even on small boards that need a straight edge. Here's a picture of putting a straight edge on a piece that is under 4 inches wide and isn't very long.

I have a jointer, but it's only a 6" unit and if I had a lot of material to remove to put a straight edge on some boards, I'd use this jig at minimum to get the boards down to a nearly finished edge. Then, I could finish up on the jointer if I really wanted to.

Recently, I had some free time and decided to build a drill press table for my drill press. I had everything I needed and a free evening so I got started. The only thing is, when I pulled out the piece of plywood I was planning to use, it didn't have a single good edge to reference to make my saw cuts. No problem! I reached for my straightening jig and after about 2 minutes flat my piece of plywood was in position, the saw was turned on and I made my cut. 1 more minute later the jig was put away and I was back to work.

I don't know what it is, but I absolutely hate to drag out a straight edge and cut plywood with a circular saw. Perhaps its because I feel like its not very safe, or because its awkward having to bring the saw to the board. Plus, it makes a mess of my bench and it's a pain to clean up afterward. All I know is that now that I have this jig, I don't need to reach for the clamp and circular saw and that's a good thing.
How I made it:

I intentionally designed this jig to be able to handle plywood cut offs that are 8 ft long. I don't mean full sheets of 4 x 8 plywood, but I guess I could do that if I really needed to (though I'd have a second person help me guide the sheet through the saw to make it

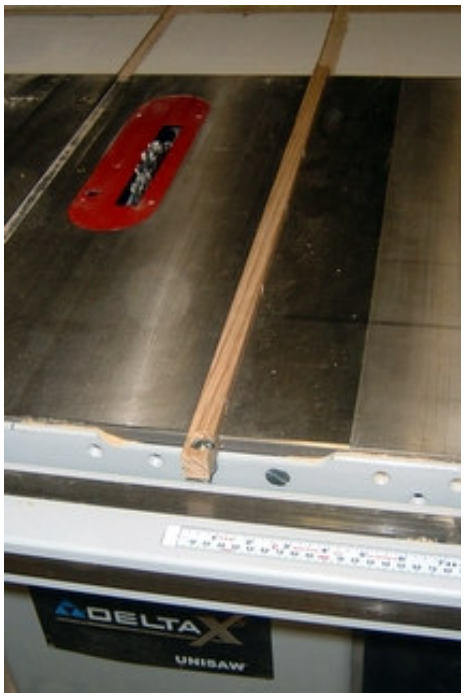
safer). The jig was initially built using a piece of 8 ½ ft pine to see how it would work. After I was satisfied with the basic design, I built this final one out of ¾" birch plywood.

But, how can you handle an 8 ft long section of plywood or other board for that matter if your jig board is only 8 ft long?

I got around that problem by staggering two sections of T track so that they extended on both ends by five inches. The T track is attached to the jig with gorilla glue and some screws so its securely attached.

How does the key in the miter slot work?

Actually, I made the miter slot key first. I made it out of a piece of white oak I had left over from another project. I ran it through my jointer to get it roughly to size and then used my planer to get it to fit snuggly into the miter slot. But, unlike a regular miter slot runner, this key sticks above the surface of the table saw by about 3/8". To prevent it from sliding around and to enable adjusting of the jig to the key so that there was virtually no slop or wiggle, I countersunk several brass screws into the side of the key. I also countersunk a bolt into the tail of the key so that the key would not slide forward or backward when in position. The bolt locates between the table saw fence rail and the table saw top (on the front side of the saw).



On my prototype, the jig rode on the miter key and rubbed pine against oak. It worked well enough to know the jig was effective, but I knew that it would be ideal if I could come up with a jig to key connection that was more positive and wouldn't eventually get sloppy with wear so I came up with the idea of using a piece of aluminum channel buried into the bottom of the jig that would slide on top of the miter key. I found that a ¾"

aluminum channel piece fit the miter key perfectly but still decided to countersink brass screws into the miter key for future adjustments. To bury the aluminum channel in the jig board, I set up a stacked dado set in my table saw and affixed the channel to the jig board using gorilla glue.

While it was drying I was careful to use clamps to ensure the channel would stay put. Gorilla glue expands and unless you do that, it will definitely push the channel out of position.

If you decide to build one of these, here are some important tips:

1. Start by making the miter key first. Use a piece of hardwood like oak. I considered using something like plastic, but I didn't want any flex or potential movement and its worked out well for me. The miter key should be at least as long as the top of your table saw to provide stable feeding of the jig past the blade.
2. Next cut your jig board. I made mine 8 ft long x about 10 inches wide. This width will eventually be reduced to about 7 inches.
3. Plow a dado in the bottom of the jig positioned so that you leave part of the jig in the path of the saw blade and about 2-3 inches to the right of the miter key.
4. Gorilla glue in the aluminum channel in the bottom of the jig and let it dry for a day.
5. Take a candle stick and rub the top and both sides of the miter key. This will make the jig slide smoothly.
6. Before cutting a dado for the top T track hold downs, put the jig in place on the miter key and pass the jig through the saw blade. This will give you a zero clearance effect as long as you left material to the left of the blade.
7. Place the T track in the top of your jig at a safe distance from the path of the saw blade, but you want it fairly close to the edge so that you can handle narrow

boards if needed. Remember to extend both sections of track so that they extend at least 4 inches over the jig length.

8. Gorilla glue the T track to the jig and clamp it in place. Allow the glue to dry for a day.
9. Attach the hold down hardware to the T tracks and find a convenient place to store your jig.

I store my jig on the top of my rolling lumber cart. Its out of the way but when I need it, its easy to grab.

Enjoy and be safe!