Byrnes Saw Operation Tips

The Model Machines or "Byrnes Saw" is the gold standard for model shipbuilders. Because I use this saw to produce all of my stripwood, I would like to pass on some of my thoughts on its operation.

If you are not familiar with Byrnes products, then you may wish to visit their website here.

All of their products are extremely well built allowing for both a high degree of accuracy and durability. I am still using the original tablesaw that I have used to produce over 500,000 strips. Routinely I receive comments from new customers, many of whom are long time modelers, who say that they have never received stripwood products that are so precisely milled. I credit my Byrnes saw for this success.

I hope that you find the information shown on the following pages helpful. It is based upon my personal experience and there are many ways to accomplish any given task, so there is no perfect right or wrong way. If you have any comments or suggestions, please drop me an e-mail at HobbyMill@cinci.rr.com

Setup

If you are new to table saw operation or even if you are a veteran, I always suggest picking up a basic table saw book from your local library. Many of the basic operational and safety tips that are applicable to a full size table saw are also applicable to a modeling saw.

Locate your saw on a very stable bench or table with ample clearance. My strips are all 24" long, so I need at least that much clearance in front and back of the saw. Ample space on each side or nearby for tools and wood supplies.

Task light overhead along with good lighting in your shop. If you cannot see your wood being milled, then you will not achieve the saw's potential for accuracy.

Apply wax to the table periodically. I have a spray designed for table saws, but car paste wax will do.

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I change blades regularly throughout the day so I have the following next to my saw.

- Small Phillips screwdriver for screws in zero clearance plate
- Zero clearance insert plates for different kerf blades
- Open end wrenches for the arbor nut and shaft end for changing blades
- Allen key used to tighten or loosen blade height adjustment
- Spare blades for different cutting operations
- Mitre gage for modelers - I'm mostly ripping strips, so I store this elsewhere
- Calipers

Dust Control

- I wear a good quality mask whenever I am in my shop
- There is a dust port on the saw and you can hook up your shop vac to it with an adapter
- My shop vac has a fine inner bag for drywall sanding and also a HEPA filter
- You can add an electrical outlet available from Sears that you plug both saw and shop vac into. The outlet allows you to control both your shop vac and the saw by using the switch on the saw.
- Of course you can also hook your saw to your central vac system
- It's the dust that you can't see that is the stuff that will hurt you.

Noise Control

- I wear both high quality ear plugs and muffs
- Used to run shop vac all of the time when running saw, not sure if the noise was good on my hearing. My shop air filtration unit is located just overhead of my saw.

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Saw Blade Selection

I realize that many people use the carbide blade that comes with the saw, but I use slitting blades almost exclusively. My reasons are 1) I did not find the carbide blade to be as accurate as slitting blades and I would need to redimension wood after milling with the carbide blade. 2) The kerf of the carbide blade is .055" vs either .030" or .040" for the slitting blades. 3) Most importantly, blade selection is greatly dependent upon the thickness of the wood. The blade should always be in contact with the wood when cutting to avoid interrupted cuts, so the thinner the sheet to be cut, the finer pitched saw blade should be used.

The only time that I use the carbide blade is to slit some wide sheets down to 1" or 2" widths. Another application would be cutting stock that is thicker than 3/8". I use my full size tools for those cuts.

The picture above shows the slitting blades that I use. I use Thurston blades, which are the same brand offered on Jim's website, but most brands should work. Notice that I added the Thurston catalog number and their specification to the picture. Note the difference in the number of teeth.

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As I mentioned above blade selection is dependent upon the thickness of stock to be milled. I will provide some guidelines on which blade that I use; however some species of wood tend to have chipout. If the lower edges of your cut have chips, then use the next finer pitch blade and that will eliminate the chipping. Another factor to consider is blade deflection. If the blade is too thin, it will tend to deflect as you are cutting which results in strips that are inconsistent in width.

For sheet stock above 3/16" or 4.5mm: Use the I-293 .040 kerf blade. Actually you can use this blade on thinner stock but it has a thicker kerf (more waste) and a few less teeth than the I-292 blade (chipout sooner with thinner stock)

For stock between 3/32" (3mm) - 3/16" (4.5mm): Use I-292 .030 kerf blade. If there is chipout around 3/32", go to the #99 blade

For stock between 3/64" (1mm) - 3/32" (3mm): Use #99 170T blade. Main change in blade is the finer pitch

For stock thinner than 3/64" (1mm): Use #100 224T blade.

I also have the 4" dia version of the .040 kerf blade as I-293 above and sometimes use it for thick cuts, but mainly I just use the I-293. The 4" version is supplied with the Byrnes tilting table accessory.

Ebony is very hard on blades, so I have a dedicated set of those blades just for ebony.

Blade Height: Set blade about 1/16" above top of material

Wood Orientation: In most cases if I am milling 1/16" x 1/8" strips, then I will mill them from 1/8" thick sheet stock. Some species such as holly tend to look better if they are milled from sheet stock that is the same as the thickness of the planks or in this case 1/16" sheets. The orientation of the grain of the stock that you are using impacts which orientation is best. I take this into consideration when I am milling sheet stock for customers if I know that they will be ripped into planks.

Cleaning Blades: I use Awesome Cleaner which is a water based cleaner available from the Dollar Store. It is also used as a pretreatment for laundry. Any tar or resin on a blade will cause burning. Just place the blades in a plastic dish, spray with Awesome, and scrub with a toothbrush.