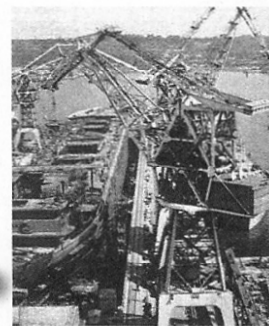


THE SHIPYARD

Byrnes Model Machines' 4" Table Saw Review

By Lee Byrd



I love tools and have purchased uncountable numbers of table saws, sanders, planers, routers, etc. However, my favorites are the table saws because of their universal utility. Therefore, when *Ships in Scale* asked me to do a tool review, it only made sense to start with a table saw. Looking through various sources, I found many reviews of models by Jarmac, Dremel, and Preac. However, I could find only one review by Phil Krol of the Byrnes Model Machines' 4" table saw. Since one review can be misleading, I thought it would be helpful to take another look.

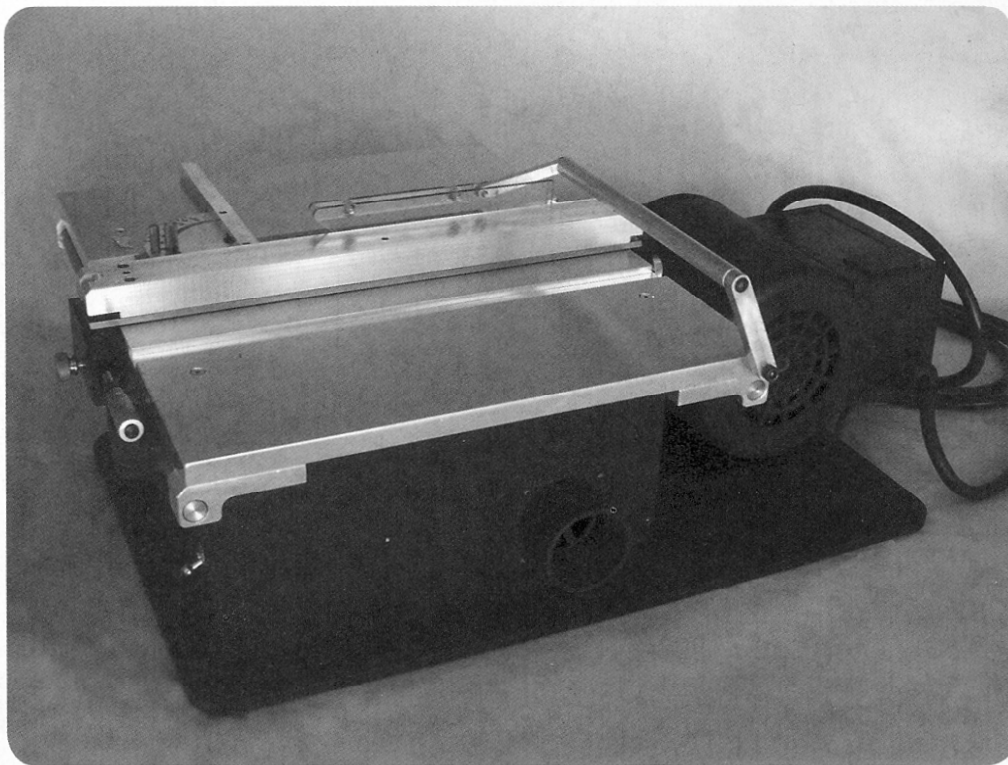


Photo 1. Byrnes' saw with extended fence option installed. In this picture you can see the 1 1/4" vacuum on the side of the base.

THE SAW

At \$440 this saw isn't cheap! But, do you get what you're paying for?

Byrnes Model Machines' tag line is, "Designed and Built By Modelers, For Modelers." It's not hard to see once you open the package that this is not just marketing hype. The saw is ready to run right out of the box. The only thing you need to do is wax the surface to make the wood slide easier. The overall impression is of a very solid and carefully machined unit. The saw is made of polished aluminum with the exceptions of the fence, shafts, and miter slide which are steel. The base includes a 1 1/2"

vacuum fitting on the right side. While the base fully encloses the saw blade and its mechanisms, the bottom is open. I would

have preferred a closed bottom to facilitate dust collection, but since you will most likely be using it on a bench, it is a minor

Basic Information

- **Table:** 12" wide x 10" deep x 3/8" thick
- **Motor:** 1/3 HP
- **Power:** 120vAC 60hz 2 amps
- **Rpm:** 3450
- **Cutting Capacity:** 15/16"
- **Blade Arbor:** 3/8" flanged to 1/2" and 20mm
- **Non-tilting**
- **Available Blades:** Carbide Blade - 24tpi .046 kerf, Carbide Blade - 36tpi .055 kerf, Slitting Blade - 80tpi .02, .03, 0.4 kerf
- **Available Options:** Fence Extension, Miter Slide Extension, Rip Taper Jig. Mic Stop

has multiple grooves that ride on matching pulleys. Access to the belt requires removing a number of small screws through access holes on the left side of the unit. I was unable to remove the belt cover because I didn't have a thin and long enough screw driver. It looks like putting the belt cover on after replacing the belt might be a challenge. How often a belt change would be required is uncertain. The trunnion is oversized for a modeling saw. It consists of 1/2" aluminum with a 1/2" arbor in sealed bearings. Machined flange plates (steel) are also provided and add to blade

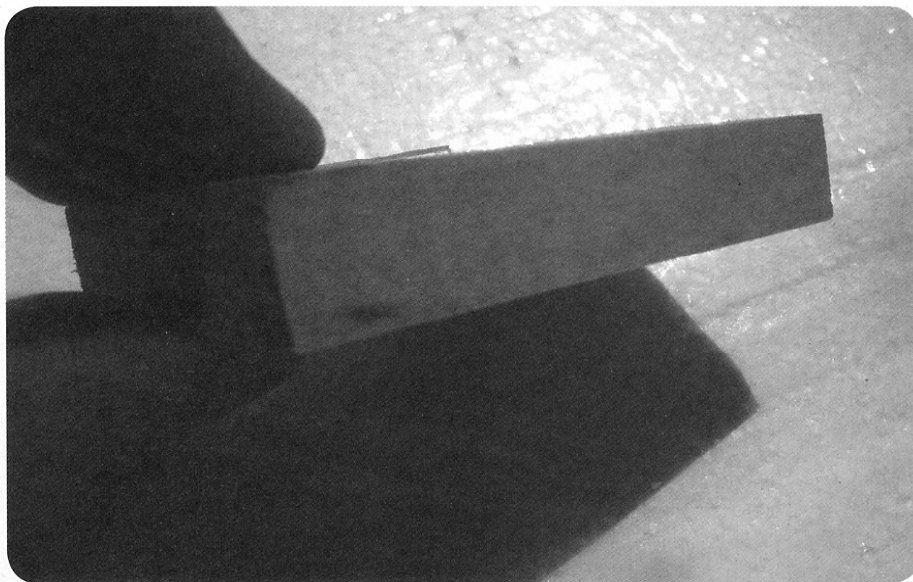


Photo 7. Example of the quality of the cut.

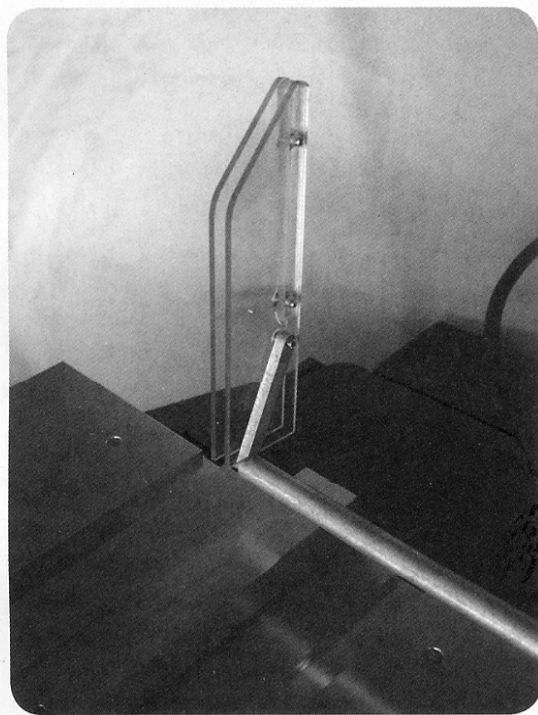


Photo 6. Blade guard in the up position.

stability.

There was only one thing about the saw I really didn't like. It was the blade guard. It is made of 1/8" acrylic. It has a fragile feel which is quite inconsistent with the rest of the unit. It did, however, stay up and out of the way when doing a blade change which is a nice feature. Still, I suspect it might easily be broken during normal usage. However, I will unequivocally say that if the

worst thing about a saw is the blade guard, you've got a good machine.

As a bonus, the saw comes with a full one-year warranty against defects in materials or workmanship, hand assembly, quality control testing and burn-in.

OPERATIONAL TESTING

I turned on the saw and the sound volume measured only 71 dBA (the sound of a window air conditioning unit). While cutting the sound volume increased only to 91dBA (similar to a power drill), a surprisingly low level. This is no doubt because of the

heavy aluminum base. However, as quiet as this saw is, prolonged exposure to sound in excess of 85 dBA can cause hearing damage. The saw also excelled on the traditional "nickel test." There was no noticeable vibration.

I decided to use some walnut and hard maple scrap for testing. Both are commonly used and available hardwoods. I started by ripping some 1/2" walnut

stock 12" inches long using the standard 24-tpi blade. It cut smoothly with no binding, slowing, burning, or kick-back. I repeated the test with a piece of

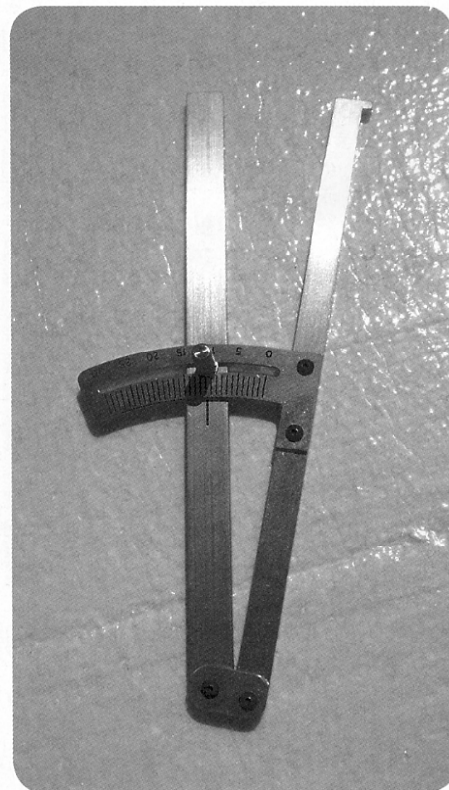


Photo 8. Optional Rip Taper Jig (\$40) fits securely against fence.

3/4" hard maple doing both ripping and cross-cutting; same result. All cuts were smooth and square

adding it to your purchase.

Like the miter slide, the fence is also finely made of steel 1/8" thick by 1" wide. It is secured to the saw with blocks which ride on round polished steel rods located just under the table, front and back. The fence travels across the table with ease, no binding or friction. We measured accuracy of the fence to be a very impressive. It is locked in position by tightening knurled thumbscrews in front and in back. You must be sure to follow directions and set the front screw first and then the back screw to achieve this accuracy. Another nice feature is the micrometer style adjuster for making 0.001" adjustments in fence position. Since the fence is smooth on both the top and sides, you can easily make specialized jigs that can slide across the top of the fence. In addition, there is an optional 5/8" slide extension plate (aluminum) supplied which screws onto the fence, raising the overall height of the fence to 3/4" for \$25. The fence extension plate is highly recommended. It makes cutting stacked sheets for planking much simpler, faster, and accurate.

The aluminum throat plate sits flush with the saw table and is removable by removing four small screws. However,

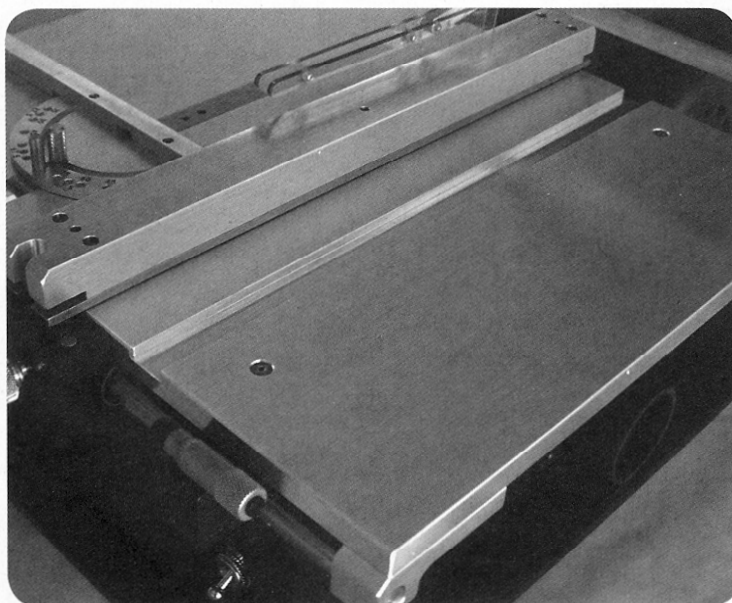


Photo 4. The deep slide guides cut into the table can clearly be seen in this picture. The micrometer fence adjustment is in the foreground above the on/off toggle switch. You can also see the miter slide with the optional extension installed in the top left corner.

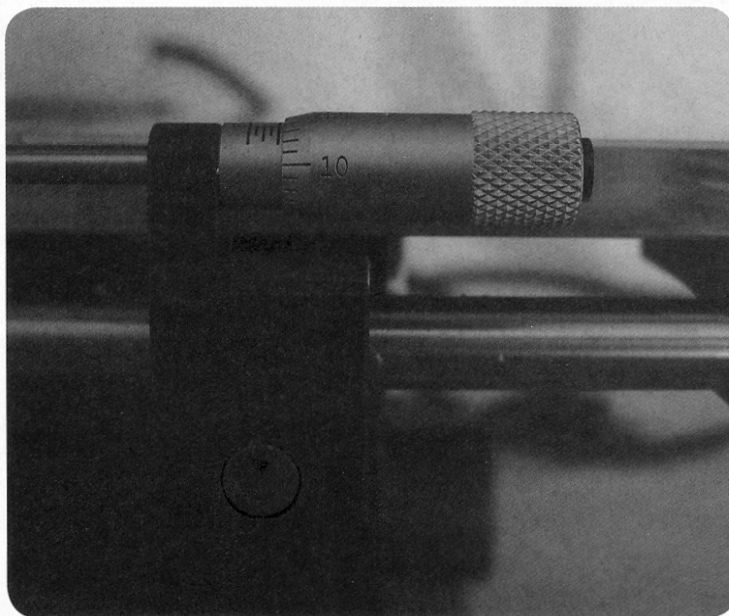


Photo 5. Close up of micrometer fence adjustment mechanism.

the screws are very small, so take care when removing them. I dropped one in my shop after removing the throat plate and was not able to find it again.

The saw comes with a 24-tpi thin kerf (.046") carbide blade. A 36-tpi carbide blade and an 80-tpi slitting saw blade are also available at additional cost. Raising and lowering the blade is

accomplished with a small knob located on right front of the base. Each full rotation of the knob raises or lowers the blade 1/16". The maximum height the saw can be raised is 15/16". Unfortunately, locking the blade height requires tightening a socket-head screw deep inside the base with a long T-handled Allen wrench (provided). You need to insert it through a hole on the right side of the unit and turn until the screw is snug. I personally am not a fan of specialty tools for adjustments or maintenance as they often go missing in my shop just when I need them. Unlike some other saws there is no tilt mechanism for making beveled cuts; however, this can be overcome by creating a few easily constructed jigs.

The heart of any table saw is the power train (motor, belt, trunnions, and arbor assembly). The saw uses a 1/3 horsepower induction type motor drawing 2.5 amps on a

120V circuit. The motor provides substantial power. It easily cuts even the hardest stock up to 3/4" smoothly and without binding, or burning. The motor is mounted on a heavy-duty swinging gravity bracket. It is designed to maintain uniform belt tension throughout the full range of raising and lowering the saw blade. The belt

disadvantage. The motor is mounted on the back of the unit and connected via a drive belt. This placement makes routine motor maintenance a snap. The on/off switch is a toggle on the right front panel. I would have preferred it to be on the left side as I often feed stock using my right hand. The left side placement required me to cross-under with my left to shut off the saw. Also, I twice hit the micro fence adjustment while turning the saw on and off. However, neither of these were serious problems.

The table measures a large 10" x 12" and comes with deep (3/16") precision machined table slots for the miter slide on either side of the blade. The deep slots ensure a tight fit for the slide. In other model saws I've used, the slots were only half as deep. As a result, on other saws the slide tended to rise up in the slot causing a shimmying of the slide and a loss of precision on the cut. This should never be a problem with the Byrnes' saw. As clear evidence of the precision construction, even with the deep slot, the slide action is smooth and consistent front to back. We measured the slot accuracy to within 0.0125 of a degree; more than accurate enough for any project. Another nice feature is that the table edge is beveled ensuring that the miter slide won't get caught on the edge of

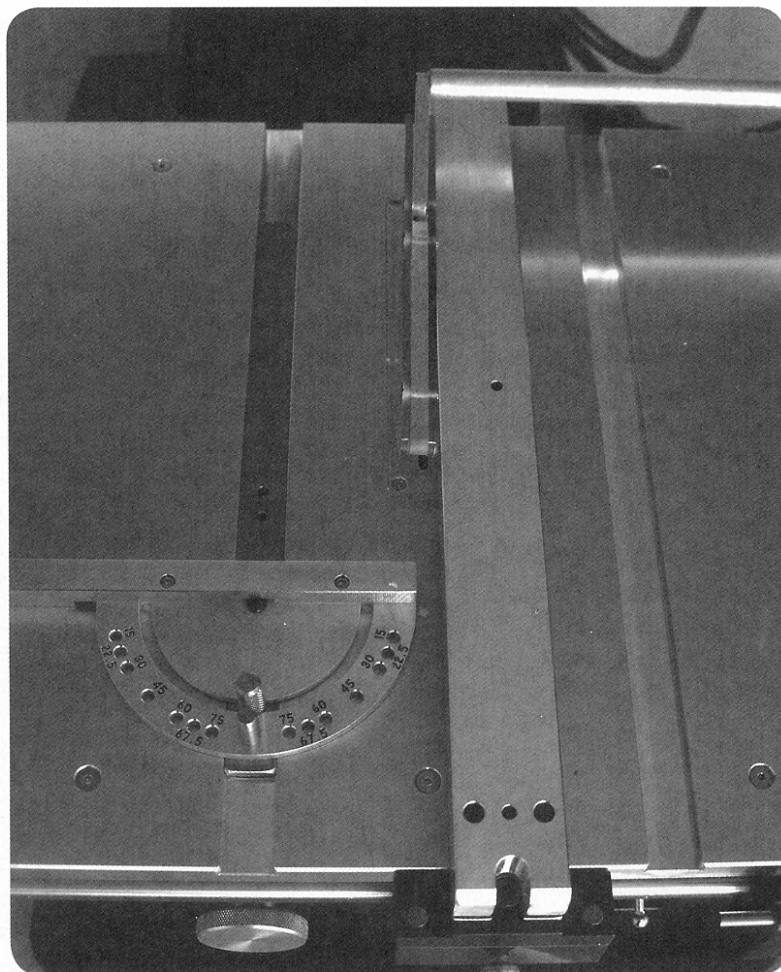


Photo 2. In this picture the precision of the table slide guides can be seen. Extended fence and miter gauge options also installed.

the table when working with a larger piece of stock. Although the table doesn't include extension wings, they may be available in the future.

The miter slide is just as solid as the saw. It is made of polished steel and fits into the slot with a close tolerance. Most modeling saw slides are cheap, inaccurate metal stamping with degree markings that are at best approximate. They use tension screws to hold the slide angle

settings. I find it hard to tighten these screws sufficiently to avoid slippage during repeated usage. The Byrnes' saw has a rock-solid solution to this problem. The slide prevents such slippage by using pinned location holes deeply engraved with the degree numbers blackened for better legibility. The degree numbers start with 90 degrees in the center, and radiate out on both sides to 75, 67.5, 60, 45, 30, 22.5, and 15 degrees. The accuracy of these marked positions is as precise as everything else on this saw. Cutting at any of these angles is so simple and accurate there's no need to double check. If

necessary, you can set the slide for other angles by removing the pin and picking an intervening position between the pre-set points. Even without the pin in place, the slide stays in position very firmly. Byrnes also offers a miter slide extension bar. At only \$5 more, I'd recommend

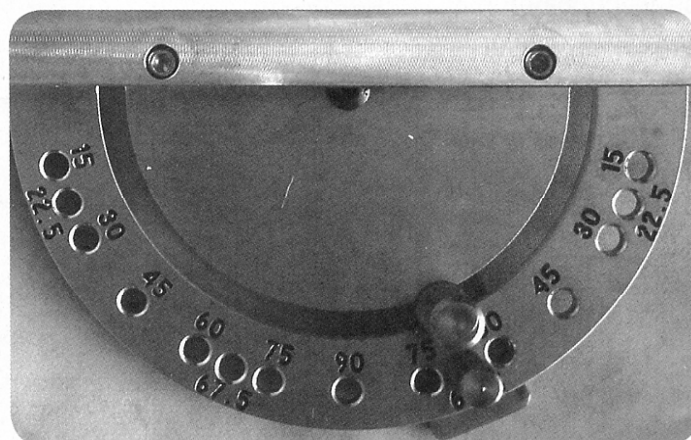


Photo 3. Detailed view of miter slide pre-sets and pin.

and would only require minor sanding to finish. The motor was able to keep the RPMs consistent even when feeding the stock rapidly through the blade.

I switched to the optional 36-tpi blade. The blade change is pretty standard. You remove the throat plate; raise the blade; place a wrench on the arbor to prevent it from turning; loosen the nut; remove the blade; and repeat the process in reverse. I was also able to cut strips 1/16" thick from some fine 1" pine stock which I then processed using a second pass into 1/32" strips. The cuts leave a smooth finish with no splinters, splitters, or raised grain. Using the micro gauge was very helpful in making these cuts. A word of warning, when using light stock, watch out for pieces being flung back by the saw. I had one small piece shoot 14'

cross the room. It's not a big issue as the pieces are very light, and if it hits you anywhere but the eye, you'll probably hardly notice. It's more of an issue of having to go find the part cut.

SUMMARY

This saw is a winner. It's well made and allows for very accurate and repeatable cuts. The 1/3 horsepower motor provides plenty of cutting power. It's quiet and virtually vibration free. The precision of the fence and miter slide are design strong points. You can make very clean and precise cuts as small as 1/32". The optional accessories add even more value. I've spoken to five different users of the saw, and their experiences have been universally positive.

Though it is not cheap, it could easily pay for itself in the savings

you can obtain from cutting your own planking, etc. from raw stock instead of purchasing ready cut material. If you are looking for a quality modeling table saw and can find the money, look no further.

Jim Byrnes' comments:

- The bottom is open because not everyone hooks a vacuum up to the saw. If it was closed in there would be no way to get the dust out.
- The fence is tapered. It is square from the front of the saw to the blade center. After that, it tapers 0.005 on both sides to the back of the saw, so you don't get any kickback.