

Safety First: SawStop Model 31230 10" Cabinet Saw

by Jim Derby

It's usually 10 to 20 experienced woodworkers who meet every Monday night at Johnny Jones' home workshop in Boerne, Texas, a community in the beautiful Texas hill country 10 miles north of San Antonio. They bring samples of what they have been working on to show the others, or seek advice on a particular problem they are having, or just generally "shoot the bull" with their fellow woodworkers. This Monday, there would be much to talk about.

Yet another good reason to get together

The Hill Country Woodworkers Guild, also known as the "Monday Night Woodworkers," has been meeting for 10 years in Johnny's workshop. Members come from a radius of 100 miles, and attendance averages 18 men and women a week. At their meetings they have demonstrations, show DVDs on woodworking and turning, and work on projects. Of course, there is also a lot of discussion. If there are 18 members present, there will be at least 30 opinions on any subject!

The shop itself is large enough to accommodate the big group and well equipped with some very fine old three-phase equipment, a 16" jointer, an 18" planer, 20" bandsaw, a Oneway lathe, and a collection of more than 200 hand planes and antique tools that reflect Johnny's interest in the history of fine craftsmanship.

Projects of the group have ranged from making toys for Christmas to the completion of 16 Maloof-style rocking chairs. Members are active in a number of area groups, the Alamo Woodturners (San Antonio), the Hill Country Turners (Kerrville), and the Southwest Association of Turners. Some members of the group show their work at the annual Texas Furniture Makers Show at Kerr Arts & Cultural Center in Kerrville, and the Texas Mesquite Association Show.

Recently, Johnny asked me to visit the group. He said that Mike Sauder, owner of the five Woodcraft stores in Texas, was going to demonstrate a new 3hpSawStop table saw that Johnny was considering buying. The unique feature of the SawStop, he explained, is the brake that stops the blade instantly if a conductive material such as human flesh disrupts the low voltage, high frequency signal that is induced in the blade.

When I arrived at his shop on a hot August evening, Johnny was beaming. He had just decided to purchase the saw, and he and Mike had installed it that afternoon.

"What made you buy it?" I asked.

"I had heard about the safety aspect, but when I finally got to see it last week in operation, I saw how well it was built. I have had a Powermatic for about 15 years, which I felt was the finest saw on the market until I saw the SawStop. This is a little heavier; the trunion that holds the blade in place is

50% larger; the tabletop is machined flat, and I'm guessing that this saw weighs 150 lbs. more than the old saw," enthused Johnny.

Johnny, who lost half of the middle finger on his left hand seven years ago in a saw blade accident, went on: "Because I have so many people working in this shop, the liability factor came into play. This saw is truly amazing. In addition, the instruction manual is the most complete and clearly written and illustrated that I have ever seen."

The first impression

Mike and Johnny, who had done the heavy work of unpacking and setup, told me about their first impressions while other group members prodded, measured and peered at the table saw. Though very heavy, Mike said, "It is very well packed in a reinforced wooden crate."

Johnny was amazed that no initial adjustments were needed. "Everything fit," he said. "We didn't have to tweak anything."

"One wing came on the saw straight and level," Mike said. "The other went on without adjustment, as did the extension table."

Considerable safety

Mike then demonstrated the main safety aspect of the saw — its contact detection and braking system — by running a sheet of plywood and holding a hot dog, simulating a finger, across the cut. When the blade sensed Mike's body electrical resistance through the hot dog, the brake instantly stopped the blade and it retracted below the tabletop. Examining the hot dog, we could all see that it had received a slight nick that would have hardly needed a Band-Aid.

I asked Joe Ripkin, one of Johnny's neighbors who had just witnessed the test, for his reaction. "I was amazed that the blade stopped that quickly, and looking at that little nick on the hot dog was also amazing. I have a Powermatic and the premium you would pay for this machine is well worth it for safety," he said.

After the demonstration, Mike removed the blade and the aluminum brake, and we could all see that the blade rotation had stopped almost instantly as only one tooth had popped off before the brake embedded itself into the blade.

The braking system, while obviously the most spectacular safety feature, is not the only one. The riving knife, curved down to closely match the profile of the blade, is a serious upgrade from the traditional splitter. Its design keeps it so close to the spinning blade that it seriously reduces the chances of the back teeth grabbing the workpiece and sending it flying back toward the operator. The knife is easy to attach and retracts with the blade, making it very easy to use.

Other features

After the demonstration, we performed a number of tests. We checked the

flatness of the tabletop with a straightedge and feeler gauge and determined that it was excellent. We checked the run-out on the blade (to see how parallel it was to the miter slots), and it checked out to be within .0005". With an accurate 90° square we determined that the miter slots were dead on with the blade.

The tabletop of the 31230 is the most spacious of any similar one on the market and the optional extension table (which Johnny had sprung for) adds additional surface area of 40" x 30".

Someone wondered out loud whether a piece of wet wood could set off the braking system and force an unnecessary brake cartridge replacement to the tune of about 80 bucks.

Before cutting that wet wood, one can place the SawStop electronics into test mode, make a test cut on the wood and the saw will tell if it is OK to cut in safe mode or if you will need to place the saw in bypass mode. If the saw is placed in bypass mode and then turned off, when you restart the saw it will automatically reset itself back in safe mode. You can also test and cut some soft metals with the SawStop.

Mike told us that the saw's electronics are protected from day-to-day power fluctuations by an internal surge protector. To be safe and to guard against lightning strikes he suggested that the saw be unplugged or turned off at the breaker during periods of inactivity.

Conclusion

I asked Tom Ridout, who helped Johnny install the saw, what impressed him. Tom responded, "All of it! It's an incredible saw. It is much better built than what I have been using. Its smooth castings are fl at. It is easy to set up. Everything went together perfectly."

"Beyond the obvious and exceptional safety aspects of this saw, it is one of the best engineered and built power tools that I have seen," Rusty Fennell decided at the conclusion of our meeting. "I believe that its quality and accuracy will meet or exceed any 10" cabinet saw out there."

To date, over 4,000 saws have been sold, priced from \$2,799 to \$3,500 (depending on options), with 94 "finger saves" documented. For additional information and complete specifications, go to www.sawstop.com.

Sidebar: The Secret to Safety- Electronics with Heart

BEFORE

Shown here in the hands it was designed to protect is the high-tech replaceable electronic "brake" cartridge that induces and monitors a low-voltage electronic signal in the saw's blade. When the blade is touched, the high conductivity of the human body (wood has practically no conductivity) causes a change in the signal, which triggers the release of a heavy-duty spring that in turn pushes an aluminum block into the teeth of the blade.

AFTER

Sacrificing itself and the blade, the cartridge eliminates the danger in about

1/200 of a second. Blade momentum is used to retract the blade below the table, and the power to the motor is shut off. The cartridge mechanism (available for standard or dado blades) is a single-use component that costs about \$80 and must be changed after activation. Replacement is no more complicated than changing the blade.



BEFORE

