



MSG Mini Sawmill

When running a portable band saw, the cutting direction is determined primarily by the terrain and the lay of the logs. No matter how the mill is placed, the wind always seems to blow back sawdust in my face, the sun is in my eyes half the time, and half the logs are turned the wrong way. It hadn't yet occurred to me to grumble that the return of the carriage to the cutting position is wasted motion. That's just the way sawmills of all types operate. "Builds character," I mutter to myself through the sawdust between my teeth.

There is an interesting design that solves these problems by allowing the sawyer to cut from either direction. Simply pivot around the entire cutting head at the end of a cut, and the machine is ready to cut in the opposite direction. This design is the brainchild of Mark, Craig, and their father, Wayne Meredith of Spokane Washington. The Merediths now manufacture the mills under the name MSG. A large number of sawyers are putting their innovative design to good use, and according to Wayne, the most common reason for buying this mill is the saving in head-return time when cutting long beams. The blade stays in the wood in both directions.

Steve and Janet Funk's MSG Mini

Steve Funk knows firsthand the advantages of this mill. Steve and Janet Funk's home is tucked into the mountains near Coeur d'Alene, Idaho. An anesthetist by profession, Steve describes anesthesiology as "a machine with a person half-asleep at each end of the tubes." The Funks are also tree farmers, operate a small sawmill, and have some beautiful Percheron workhorses out in the pasture, though none have ever pulled a log out of

Top left inset: Adjusting the feed rate at the start of a cut. The variable feed rate ranges from 0 to 1 foot per second.

Below: Steve Funk pivots the sawmill head to make a return cut. The cutting head pivots on a threaded rod, allowing the machine to cut in both directions.



the woods. Although they were busy preparing a presentation for an upcoming tree farm conference at which they were to be honored as the 2010 Idaho Tree Farmers of the Year, Steve quickly put on his sawyer's hat and proceeded to demonstrate cutting with his MSG Mini sawmill.

The mill is inside a barn, which is open on one side. The MSG Mini—the only production model built by MSG—is, in many ways, typical of the small manual band saws. The unit is all electric, with a 10-hp, 220V, single-phase motor turning the 19-inch band wheel. The rest of the machine operates on 12 volts, which gives it the flexibility of operating off a car battery if the main power source is a gasoline engine. “This mill was pretty bare-bones when I got it,” Steve explained. One of his upgrades was a power log clamp. With no hydraulics, the two log clamps use acme thread rods, each powered by an electric motor, so that each operates independently. Another upgrade was an automated carriage height control for board thickness. According to Steve, it has increased both productivity and accuracy.

Although Steve has enough track to cut 60-foot-long beams, the longest he has cut so far has been 36 feet long—certainly long enough to make the turnaround feature useful. On the day of my visit, he was cutting 12-foot boards for a custom order, and did not have the track extensions installed. “There is no point in trying to cut softwood 2 x 4's that the big companies put out by the millions,” he explained. Niche markets are Steve's main business, and he particularly likes to cut beams because they saw out quickly. “I had a contractor who wanted a 12-inch by 14-inch by 14-foot-long beam. You don't go to Home Depot for that!” He noted that all the local commercial mills are geared for smaller logs and actually dock a lumber seller for any-

thing over 25 inches in diameter. Ironically, Steve's little mill is designed to handle the bigger logs. “A 30-incher is a little hard for me to muscle around,” he admits, “but I can get it on there.”

The MSG mill was a natural choice for Steve, partly because of its ability to cut long beams in both directions, and partly because of his proximity to the factory in Spokane, Washington, where they are built. Oddly, neither of these things played into his decision to purchase the mill. “I just happened to be reading the paper, and saw it in the want ads,” he recalled. “I'd always been hankering for a sawmill, so I bought it.”

Nineteen-inch band wheels are standard on the mill. Through experience, Steve has learned to reduce the number of broken blades by using a torque wrench set to 30 feet-pounds for consistent blade tension. Like many sawyers, he has also learned to change out dull blades before they break. He sharpens his own blades, using a modified chain saw sharpening system designed by Wayne Meredith. According to Steve, a blade is good for four or five sharpenings, unless, of course, he hits a nail. And he admits that he has hit a clamp with the blade (just once?).

To reduce the amount of heavy wiring, the 12-volt motors are actuated by solenoids and powered by a 12-volt battery on a charger. “The clamps work off electric jack screws that move them in and out, up and down,” Steve explained, as he rolled a 12-foot-long, 20-inch-diameter red fir onto the bed. He worked with Wayne to add a toe roller to level a log on the mill. This was built from a 12-volt jack purchased from a Harbor Freight catalog and designed to run from a car's cigarette lighter. “This was the first one,” said Steve proudly. Now, MSG offers it as an option on their mills. The optional carriage feed mechanism uses motorized wheels

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powered by a 12-volt motor with a speed control to adjust the carriage feed rate. A jam switch stops the feed in the event the carriage movement is stopped.

Steve demonstrated the turn-around feature on the mill on the 12-foot log he was cutting. At the end of the cut, he pulled out a pin, rotated the head 180 degrees, put the pin back in place, lowered the blade for the next cut, and sliced off another board. "I normally cut these shorter logs in the same direction, so that the sawdust all winds up in the same place," he explained. After cutting the first flat, Steve reached for a cant hook. "The log turner is the part I use the least," he said. "Usually it's easier to just grab the peavey, unless the log is too big."

The blade height control is simple to use—no computer programming required. It consists of an optical sensor on the threaded rod. Each pulse is 1/64 of an inch. To set it, Steve opened an electrical

MSG Mini

Max log diameter.....	30 in.
Max width of cut.....	22 in.
Cutting deck support.....	Single pivoting 1-1/2-in.-diameter threaded rod
Bed length.....	22 ft.
Max cutting length.....	16 ft.
Weight.....	1,200 lbs.
Towing package.....	N/A
Band wheel diameter.....	19 in.
Band wheel surface.....	Rubber belt
Band.....	1-1/4 in.
Band tensioning.....	Spring mechanical
Networks.....	Electric, threaded rod
Log turner.....	Optional
Carriage feed.....	12V friction drive wheels
Toeboards.....	Optional
Log lifter.....	Optional
Power source.....	10 hp, 220V single phase—gas, diesel, 3-phase available
Base price.....	\$9,500 (18 hp)

Options.....Bed-extensions, log lifter/turner, log clamps, toeboards, automatic networks

Contact info

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box and set the number of pulses of the optical sensor to drop the blade for each cut. "OK, I know that I'm going to cut one inch, so I put in 64, plus four clicks for the 1/16-inch kerf."

Steve keeps a can of WD-40 oil handy when cutting. "If I'm sawing red fir, once in a while you get into a pitch seam, and I just spray a little WD-40 on the blade and it cuts right through it. Normally, I use water with a little detergent."

Steve has a lot of ideas for modifications to his mill. One of his complaints is that the log turner turns against the clamp instead of a flat upright. "That's going to be my next project. I think I can pull it off without too much of a problem."

The Tree Farm

With the log sliced into boards, Steve offered me a tour of his tree farm. It is easy to see why he and his wife, Janet, were named Idaho State Tree Farmers of the Year. They must have driven me over



The MSG sawmill uses 12V electric motors for the clamping system. One linear actuator adjusts the clamp height, and a second one pivots the clamp into the wood.

every inch of the estimated eight miles of trails through their forest. In the process, I got excellent lessons on tree identification and the ecology and forest management of Idaho forests.

"In 1973 we had a forester come out, and that's when we joined the Tree Farm System," Steve told me. "We set up a forestry plan. Watershed is a big concern out here. We got more into it. We've had forestry field days and educa-

tional programs and Arbor Day plantings with the schools. I'm vice president of the Idaho Forest Owners Association. Last summer we had a legislative tour come through here to get a landowner's perspective." This year, the Funks will have teachers from all over the state tour the farm. They're also going to have the Idaho Department of Lands come out and do a fire demo and simulated rescue for the teachers. And, of course, Steve

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will demonstrate the mill.

The Funks manage primarily for white pine and larch, with Ponderosa pine on the drier sites. About 20 years ago, they purchased some logged-out railroad property. “I planted some cedar and white pine. Everything else is pretty much natural regeneration,” he explained. His wife, Janet, recalled, “We had a big ice storm in 1996, and sold just under a quarter million board feet. There was more than a half inch of ice, and you could just hear the trees breaking off. It sounded like explosions, just one after another.”

The last of the daylight was draining from the sky in beautiful hues of crimson and white by the time we pulled back to the house. Usually this would be my cue to say good-bye and find a place to eat and a motel room for the night, but the Funks had already made it clear that I was to have dinner—and breakfast—with them.

The MSG Manufacturing Facility

While visiting the Northwest, I stopped by the MSG manufacturing facility in Spokane, Washington, where I visited with designers and builders Mark and



Steve Funk keeps an eye on the mill as it makes a cut. The variable-speed feed motor drives wheels on the track without a chain or cable.

Wayne Meredith. The factory is located just off the runway of the Spokane International Airport, which, according to Wayne, makes it easy for people from all over the world to visit and talk sawmills—one of his favorite subjects.

Wayne started out building packaging equipment. “I closed down the shop in the '80s, and worked with the kids pouring cement. I decided we needed to do something easier,” he recalled. He

now employs two of his sons, plus several other employees. One of his sons, Mark, added, “I enjoy working here. I remember coming here as a kid when he was building packaging equipment.”

Wayne cleared up any questions about the use of electric motors instead of hydraulics on his mills. “I spent time in submarines, and I had enough hydraulics to last me a lifetime!” he laughed. “I’m an electrician, so the mill has electric screw jacks. It’s nice, because you don’t have to run hoses all the way down there. It’s just a few light wires. No leaking hydraulic fluid everywhere.”

As for the idea of the pivoting head, he explained, “My brother bought a manual mill in 1992, and my sons and I looked at it and thought—we can build a better mill than that. “So I came home and came up with the idea of swinging around the head. We’re able to cut both ways with a conventional band.” His son, Mark, added, “Most of the people who are buying these from us are log home companies, because of the longer cuts. They’ll make a 40-foot cut, and then roll the log—and make a return cut—to make it flat on two sides. If you add up your



Wayne Meredith demonstrates the pivoting action of a partially built MSG sawmill. The saw is suspended from a 1-1/4-inch threaded rod, and can pivot 360 degrees.

time returning the blade, that's where it makes a lot more sense."

While MSG isn't exactly a household name (except in the list of ingredients in some foods), Wayne ships his machines all over the U.S., South America, the Philippines, and even Russia. So far, Wayne has turned down requests to build the mill on an axle because of liability concerns, but he went on to say that a lot of people mount them on trailers after they purchase them.

The MSG mills are built to order. According to Mark, it takes about a week to build a standard "Mini" mill; two weeks for one with power feed; and three weeks for one with all the options (log turner, clamps, and toe rollers). Larger mills are custom built to order. The normal power plant is an 18-hp Honda, which has plenty of power to turn the band wheel, as well as provide electricity for the rest of the functions.

Unwilling to limit his production

to sawmills, Wayne showed me a prototype self-loading log trailer he was designing. Mark explained that the controls are designed to be as intuitive as possible. "The ones they sell out there are full of levers, and no one can run them. On this one, whatever lever you activate is what the machine does." Twisting a lever, for example, rotates the arm. Ever the innovator, Wayne



Mark Meredith demonstrates MSG's blade sharpener. Based on a chain saw sharpener, it can sharpen any pitch chain without the use of cams or adaptors.

explained that one of the hydraulic cylinders came from a wheel shock absorber from an F-86 fighter jet that was in the building when they moved in back in 1969 (but it's just the shock absorber, not the entire jet, unfortunately). Although Wayne and Mark are building this loader for their own use, they indicated that they would gladly build one to order.

After the tour, Wayne invited me to his home for lunch. "Home," as it turned out, was another of Wayne's innovations—a geodesic dome of his own design with round windows, possibly reminiscent of his days as a submariner. Leaning against a wall was another of Wayne's interests—an upright bass which he plays in a band. Next time, I'm bringing my guitar! ■

Dave Boyt has a BS degree in Forest Management and an MS in Wood Technology. He manages a tree farm (2006 Missouri Tree Farm of the Year), and operates a band saw sawmill.

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