

# SAWMILL FORUM

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**I have a softwood mill running a 56" 2 ½ pattern saw at 900 RPM. I have been shipping my saws all over to get them hammered and it seems that nobody can get these saw's right. Doesn't anybody know how to hammer saws anymore?**

There are a few different issues on the table here. The first problem stems from the traditional secrecy that the old saw doctors and saw filers created in the hopes of creating job security. Instead, an atmosphere evolved where most people who wanted to hammer saws had to try to teach themselves, with no real foundation to start with and no known standard to be judged against. A few managed to get it right while most came up with their own ideas and misconceptions of what a finished saw should look like and how to get it to that point.

A higher percentage might have been more successful if there had been some sort of public and widespread agreement on what a good saw should look like. But without that proper goal to aim at, there was very little hope of gaining the professionalism needed in this trade--or craft as some would call it. And of course a few have even called it witchcraft.

The end result that there is still a percentage of self-proclaimed saw doctors out there who actually don't agree on what a properly put up saw is supposed to look like. So if

you are shipping your saws around, chances are that at least some of the people working on them are not even aiming for the right target.

Statistically speaking, I would guess that a very small percentage of the people you are shipping your saws to actually do know what a properly put up saw looks like. And even if they did, they wouldn't know how to get your saws to look that way.

When you can trust how your saws are being hammered, you tend to find all of the other problems on your mill because you know that any problems are not being caused by the saw. So when there is a problem you start looking closer at the sharpening accuracy or lack thereof, the collars, etc. But when you have no faith in who is hammering your saws, you tend to assume that they are not running properly because they weren't hammered properly. And statistically that's a fair assumption.

There is also a larger underlying problem here. A 56" saw running at 900 RPM is turning 13,188 SFPM. That's too fast, even for softwood. I find that the ideal speed for a production mill sawing primarily hardwoods is 8,000 to 9,000 SFPM, while softwoods will require a speed of 9,000 to 10,000 SFPM. Running 13,000 SFPM is as inefficient as driving your car in first gear on the interstate. You can imagine that anyone who



**Saws need to run at the right speed for the material they're cutting—in this case, white cedar.**

would drive their car on the interstate in first gear, probably wouldn't bother to make sure the tire pressures are correct either.

Aside from the wasteful nature of turning a saw too many revolutions per hour or per board foot, there is an additional problem here. Those of us who know how to hammer a saw properly, know exactly what a proper saw looks like, assuming we are hammering it for a normal or at least close to normal speed. Whether we trained under someone, or were self-taught, or both, we were never trained to hammer a saw for a totally unrealistic speed. We know what a slow saw running only 7,000 SFPM should look like compared to a normal speed and we also have no trouble dealing with saws that run a bit too fast at maybe 10,500 or even 11,000. But 13,000 is frankly outside of our range.

So, for the rare opportunities where we have to deal with that sort of speed, we are more or less guessing. And it is hard to know if we guessed right because chances are that a mill that runs the wrong speed and refuses to take steps to change it, also has many other overlooked problems going on. In those cases, if the saw doesn't perform properly, we can believe it is our fault because we are in uncharted territory. But even if the saw is, by chance, hammered properly for that speed, and even if it is sharpened properly and all of the other ducks are in a row, it still won't run right. That's because the tooth is hitting the wood too hard at that speed and no matter how fast you feed, it still won't take a big enough bite and make the right size chip. So now you are trying to get a properly hammered, properly sharpened saw to perform well, while it is most likely spilling sawdust.

You may be able to get by that way because inserted tooth circular saws are very forgiving as compared to other types of saws, but you will never be able to be as accurate and efficient as a properly run mill that is sawing at the right speed.

People who work in machine shops will tell you that they change the cutter speed on their milling machines based on the relative hardness of the material being milled. The harder the material, the slower the cutter speed. And they know what the right speed is for any material they are likely to work with. You know they would like to be able to mill everything faster in hopes of increasing production. But they were lucky enough to learn from all of the machinists before them that running the cutter too fast will only cause problems that will harm tool life, accuracy of the product, and will decrease production.

My advice is to invest in whatever you need to change to a more normal tooth speed instead of spending money trying to find someone to guess at how to hammer your saws.

**Questions about sawmills and their operation should be sent to Forum, The Northern Logger, P.O. Box 69, Old Forge, NY 13420, FAX #315-369-3736.**

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