Sawmill Forum

BY CASEY CREAMER

When you are straightening a saw with a hammer, how do you know how hard to hit it?

The easy answer is that we don't know for sure. Before I get started, I should tell you that saw doctors don't usually use the term straightening a saw. We call that leveling a saw. Why do we use that terminology? Simple: we want you to think that we are the only ones who know anything about working on saws. And in keeping with historic saw doctor tradition, we don't really want any of you to know how we do what we do. They used to call that job security. I call it a bad policy that definitely has done much more harm than good to our industry.

But to get back to your question: There is a reason why I say we really don't know how hard to hit a saw at any given moment. The more experience you have hammering saws the better chance you have of knowing exactly how hard to hit a saw, but it will always be, at best, an educated guess.

The most important thing you can learn about how hard to hit a saw is that when it comes to how hard to swing the hammer. There are only 3 choices.

1. Nothing happens and the ridge you are trying to level just laughs at you because you didn't hit it hard enough.
2. You hit it too hard and that ridge goes through to the other side.
3. You hit it just right and the ridge goes down completely without going through to the other side.
4. I suppose there is a 4th choice in that the ridge can go down partly, but not all the way because you hit it hard enough to move it but not hard enough to get rid of it.

Just as there are a tremendous amount of variables in troubleshooting a sawmill, there are also a lot of variables just directly related to how hard to hit a saw at any given moment. Whenever you are in the process of leveling a circular saw, you should take into account as many of these variables as possible because they all have the potential to directly affect how hard you should be hitting the saw at that moment.

Some saws tend to be a little bit harder or softer than others. That may vary per manufacturer or it can vary based on when it was made at which manufacturer. It's a subtle difference, but it certainly can be enough to change just how hard you need to hit the saw to accomplish what you are trying to accomplish.

A 4 ½ pound Combination Hammer on a sawmaker's anvil.

Of course, the severity of the bend in the saw will directly affect how hard you need to hit it with a hammer, but there is more to it than just that. How much tension does the saw have? If it already has too much tension in the body, you will have two problems. Leveling the saw will make it gain tension, which you don't want if there is already too much. And when you try to level a saw that has too much tension, you will find that the sweet spot between doing nothing and hammering the bend through to the other side is very tiny. This makes it almost impossible to put a ridge down without putting it through to the other side. Then you have to turn the saw over and level it from the other side, which will of course make it gain even more tension and increase the chances that the bend goes through to the other side.

On the other hand, it is also very hard to level a saw that doesn't at least have a working amount of tension. Too little tension will make it so that you will have to hit extra hard to try and get the lump, bump, or ridge to move at all. And if you keep swinging hard, the ridge will laugh at you for a while and then, all of a sudden, you will hit it one more time hard and bang, it will go through to the other side. At least the process of bringing it back might just gain you the tension that the saw sorely needs at this moment.

Then there is the obvious variable of the thickness of the saw. Is it a 7X8 gauge saw or a 6X8 or even 6X7? The smaller the number, the thicker the plate and, of course, the harder you have to hit it. Which kind of saw hammer are you using? (I won't discuss trying to hit the saw with something other than a real saw hammer). Saw doctors who work on circular saws use hammers that weigh anywhere from 4 to 8 pounds. I prefer a 4½ pound combination hammer, but when I am working on a slasher saw I find myself wishing I had a heavier hammer. Of course, you would use a lighter hammer to work on wide bandsaws. And there are different types of saw hammers. There is the doghead hammer that has a round

face, the combination hammer that has a round face on one side and a long face on the other side. And the cross-face hammer that has a long face on one side facing one direction in relation to the handle and a long face on the other side facing the other direction. The long face on either hammer will tend to move more metal in a specific direction than the round face will because the round face moves it in all directions out from the blow where the long face will move most of the metal perpendicular in two directions from the length.

There are a number of variables associated just with what is underneath the saw when you swing your hammer. You need a good sawmaker's anvil mounted on firm ground. How thick is your anvil? How hard is your anvil? How much crown do you have in your anvil? If the anvil is closer to flat than crowned there will be more chance of the lump going through to the other side when you hit it. The anvil should be harder than a file (65 Rockwell C). If it is softer than that there will be more opportunity for a bend to go through instead of just down. Bandsaw filers use what is called a leveling block which should be flat instead of crowned and I believe that it is not supposed to be as hard as what we circle saw folks work with. Being a little softer it is less likely to gain as much tension as a byproduct of leveling.

Some circle saw people actually use a thin leather leveling pad between the anvil and the saw. It's a matter of preference, but I prefer to avoid that technique. The purpose of the pad is so that you can do your leveling with a hammer without having to worry so much about the saw gaining tension during that process. I have two reasons why I don't like to use a leveling pad. First, I find that the pad makes it much easier for the bend to go through to the other side when you hit it because the sweet spot between hitting too hard and not hitting hard enough is that much smaller because of the cushioning action of the leather pad. Not to mention that the saw doesn't slide across leather as easily as it slides across a hardened steel anvil. My other reason is that I tend to use the fact that leveling a saw with a hammer on a bare anvil changes the tension, to my advantage. If I have a saw that is a little shy on tension, I look for some leveling to be done down in the lower body area so that after doing the leveling the saw will have hopefully gained just the right amount of tension if I don't put the bends through to the other side and have to bring them back. If the saw has a little too much tension, I look for some leveling to do closer to the rim of the saw so that the collateral effect of the leveling will be to stretch the rim just enough to get the tension where I want it at exactly the same time that the saw is level enough for me to say that it is flat on the log side with an acceptable amount of runout at the rim.

And then there is always the possibility that I have some leveling to do to a saw, but the tension is very good just where it is. In that case I use the leveling roll on my stretcher roll and just get it level without having to worry about changing the tension as a result. But then we are back to making an educated guess as to how hard to pull the lever on the stretcher roll based on most of the variables that will affect your decision on how hard to swing the hammer at any given moment. Show me a sawsmith who always knows exactly how hard to hit a saw, and I will show you one who isn't checking their saws as closely as I think they should be checked.

Interested to learn more from Casey Creamer? You can watch our video on how Casey hammers circular saws on The Northern Logger *YouTube page. Just search for "The Northern Logger" on YouTube and click the video entitled "How to Hammer a Circular Saw with Casey Creamer." Please send future questions about sawmills and their operation to Casey Creamer, saw doctor and president of Seneca Saw Works, Inc., PO Box 681, Burdett, NY 14818, (607) 546-5887. You can also reach out by email: casey@senecasaw.com.*