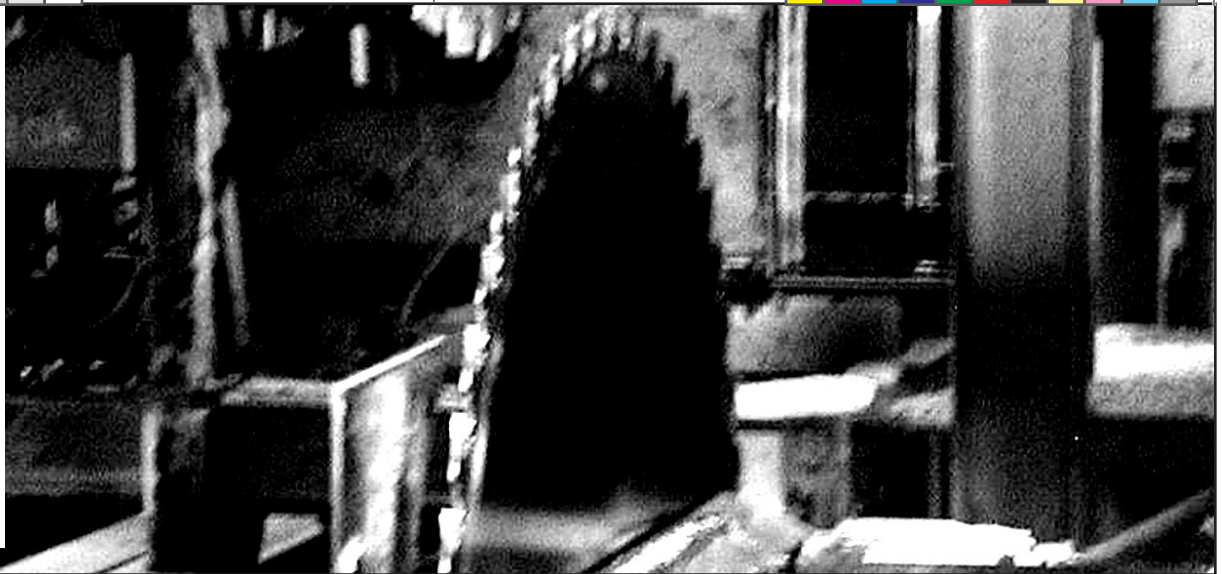


SAWMILL FORUM

CASEY
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I just wrecked my best saw. I have heard that you can't weld more than three shoulders in a row or more than six on the same saw. Then I have heard other figures from other experts. What is your opinion?

When it comes to replacing broken shoulders by welding new ones on, there are a few things we have to consider.

1. Safety.
2. Accuracy and effectiveness.
3. Cost effectiveness.

This is an all or nothing proposition. If it isn't safe, it doesn't matter how cheap it is or how well done it is. If it isn't accurate enough, it won't be a useful saw. And of course if it isn't cost effective, the rest really won't matter at all.

I too have heard a lot of opinions and so called rules on this subject and for the most part I don't buy into any of them.

Numbers one and two actually go hand in hand. For the weld to be safe, it has to be welded and annealed properly so that the finished hardness is very close to its original hardness. That is of course hard to achieve without using a welding rod that is a very close match to the saw and shoulder that you are trying to join. I prefer to use a TIG rod that is made of Swedish saw steel.

The weld also has to be done in a manner where there is 100 percent penetration or it will lack sufficient strength. The socket geometry also has to be extremely close (I would like to say perfect, but many of you know how I feel about that word.). If the socket geometry isn't close enough, you run the risk of the bit flying out of the saw.

If the geometry is such that the tooth is high, it will surely break, while if the geometry is such that the tooth is low, the next tooth will be carrying too heavy a load and be subject to breakage. Of course any time something breaks off of the saw there is a definite safety consideration. By the same token, if the welding and fitting is done in an inaccurate manner, there won't be much effectiveness to this saw.

That leaves us just one very important category: Cost effectiveness. You can look at the replacement cost of the saw or you can look at the market value of the used saw. Most saw doctors get at least \$100 to weld a new shoulder onto your saw. So welding ten at a time brings your cost up to at least \$1,000 without counting any missing shanks or hammering the saw.

As far as I am concerned, if the welding and fitting process is done properly with the proper hardness and socket geometry and the right filler material, you can weld as many shoulders as you want to without worrying about safety or usability issues. But as soon as you get much past ten shoulders, you do start to get into that territory where replacing the saw may be a more cost effective way to go.

My rule is don't weld so many shoulders on that you have to charge more than the repaired saw will be worth. Otherwise I think when its done properly, it would be safe to weld every shoulder on the saw if they were all broken. Just not cost effective.

As an aside, I do remember working on saws for one particular prison system a number of years ago, when I was informed that the department of corrections would not allow any welding to be done to any of their saws because they didn't think it was safe enough for prisoners to be working around saw blades that had been welded. Of course when done properly it is considered safe enough for the rest of us to be working around welded saws, but just not safe enough for convicted criminals.

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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