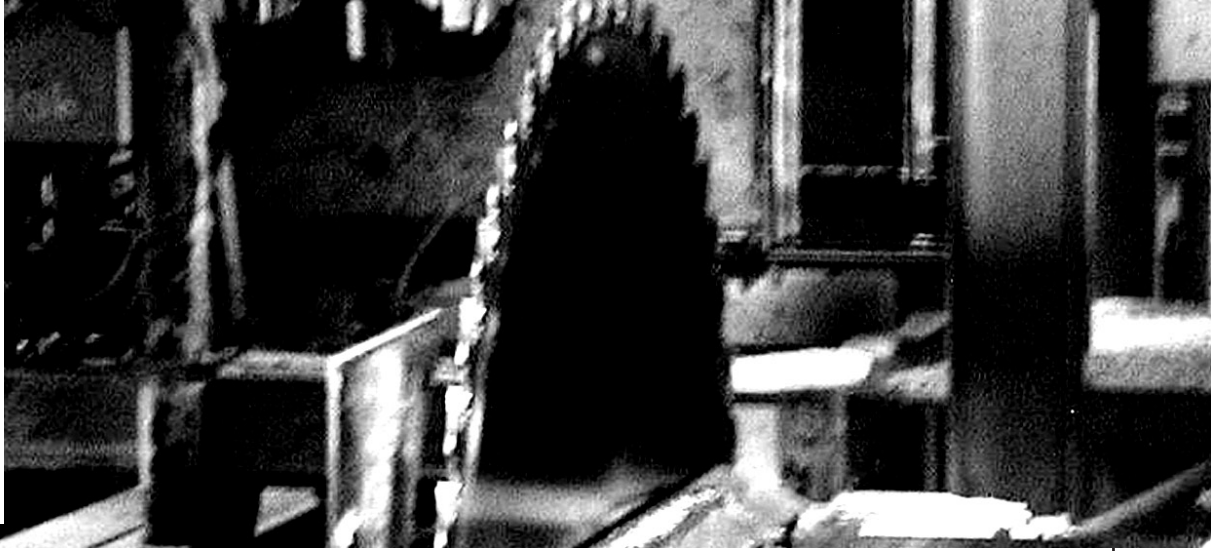


SAWMILL FORUM

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I am hammering a circular saw for one of my customers and I seem to be stuck with a tension problem. The tension feels right when you stand the saw on the floor and shake it. And when I have the saw in the horizontal tension checking position it checks out fine on the log side. But when I turn the saw over and check the tension on the board side, it appears to have too much tension. Now what?

Although there are very few absolutes in the world of saw hammering, there is one rule of thumb that you can usually count on. Remember that a finished saw can be described as being flat on the log side, with an acceptable amount of wobble and the right amount of tension (stretch) in the right location. That means that when working on a saw we have to deal with both the levelness (straightness) of the saw and the tension. Most of the things that we do to a saw during the hammering process will affect the levelness and the tension regardless of which one we happen to be trying to work on at the time.

It is quite common to use a series of straight edges and curved tension gauges to ascertain what condition the saw is in before, after, and during the hammering process. One would assume that we use the straight edges to read the flatness (levelness) of the saw while we use the curved tension gauges to read the amount and location of the tension in the saw. While that assumption is correct to some extent, we also use the straight edges to check tension and will occasionally read the levelness with our tension gauges.

The big mystery is when you see a lump or a hollow with either a straight edge or a tension gauge, are you seeing a flatness problem or a tension problem? Now it's time for that rule of thumb that most saw doctors tend to live by.

Whatever you see on one side of the saw (whether it is a lump or a hollow), if you see the exact same thing in the same place on the other side of the saw, you are seeing tension. If you see the opposite in the same place on the other side of the saw you are reading a levelness issue. The only exception to that rule that I can think of would be if you happen to have

a saw with a body that was misground at the factory or by some fool with an errant hand-held grinder.

So, whether you're using a curved tension gauge or a straight edge, if the gauge rocks on one side of the saw and it rocks in the same place on the other side, that happens to be a lack of tension in that location. And if your gauge had too much light gap on both sides in the same place, that would indicate too much stretch (tension) in that area.

Conversely if you read a lump on one side and a hollow on the other side you have a bend in the saw in that area.

According to the description from the questioner, there is no doubt in my mind that you have a saw that is not yet level enough and you are stumped because what you think is a tension problem is actually a flatness problem. Chances are that you have a bend in the eye of the saw, right at or near the bore that is giving you a false reading as you try to check the saw for tension.

It is good that you said when you shake the saw it feels like the tension is okay because that should be your first clue that something is amiss.

What can you tell by just standing the saw on the floor and giving it a good shake? The more experience you have working on saws the less things you have to check to be able to know what condition the saw is in. When you shake the saw you are trying to find out how the tension is. That is only one very small test in a whole bunch of tests you must do to determine how much tension, the location of the tension, and the evenness of the tension.

If all you do is shake the saw, you won't know very many details about the tension in the saw. On the other hand if you use the shake method to give you just a little input into what the tension is, you will have a very useful tool.

Here is a list of how many things I do to determine tension aside from shaking the saw every time I have it in my hands while it is standing on the floor.



In the vertical position on the test arbor I push the rim a little towards the board side at 12:00 to see how the rim at 9:00 (where my dial indicator is) reacts. If the rim at 9:00 moves in the opposite direction, I have a saw with negative tension in it. If the rim at 9:00 moves exactly half the distance that I moved the rim at 12:00, and in the same direction, chances are I have close to the right amount of tension for a saw running at a normal speed.

Next I put the saw in a horizontal position on my hammering bench. I now lift the rim with my hip at 6:00 while the rim at 12:00 is resting on the bench. This is called suspending the rim at 12:00 and 6:00. It is also called the tension checking position

From this position I first use a long (48") straight edge from 9:00 to 3:00 to look for a light gap under the straight edge. At this point I am mostly just looking for positive instead of negative tension and noticing the feel of the saw as I flex it. Next I use a 12" straight edge across the eye of the saw. I am hoping to see a blackout there. Then I slide that straight edge out towards the rim at 3:00 looking for where the largest light gap is underneath the straight edge. The area that shows the most light is where the bulk of the tension is located. That is how I determine if the tension is in the right location or not.

Next I use a curved tension gauge for a specific SFPM (surface feet per minute) to determine if the saw has the correct amount of tension for the speed and feed rate it is running.

Using any one of those tests alone will not give you much of

the tension picture. But when you put all of those methods together, (including the shake method) you get the complete picture. Having said that, most very experienced saw doctors will often skip several of those methods when working on a saw that they feel confident about the saw's condition. But every now and then, even the most experienced saw doctors when faced with a saw that has them a little bit puzzled will go back to basics and perform every one of those tests to make sure they are fully aware of everything that saw has to tell them.

In other words the shake method is just one more piece to the puzzle. And when you use the shake method to see if what you feel agrees with what you are seeing, you know you don't have to worry. But when the shake method disagrees with what your tension gauge told you, it is time to look a lot deeper into the condition of that saw.

With just about everything I check on a saw, I try to use at least two different methods to make sure that they agree with each other. If my straight edge tells me one thing while my dial indicator tells me something completely different, I know that at least one result is false and I have to look even deeper to find out the truth about that saw.

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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