

BY CASEY CREAMER

## I used to work in the filing room in a band mill. Now I have a job at a mill with a circular head rig. I know nothing about circular saws and this one doesn't seem to be running right. Where do I start?

The first thing you need to learn is that a saw is a saw, no matter if it is a band saw, a circular saw, metal cutting saw, or rock cutting saw. All of the same principles apply. My opinion is that any band saw filer who knows what they are doing can be taught how to hammer circular head rig saws in a day or two. And I assume that anyone who is proficient at hammering circular saws can easily be trained to bench wide band saws.

One thing that can be a small obstacle is the difference in terminology between band and circular saws. They both have a rim and a body, but the circular saw has an eye (center) while the band saw has what they call the back. Band saw filers also refer to a tire line when they are tensioning the saw while circle saw people don't tend to use that term although we still tension our saws in a way where there is a bit of a tire line there for those who want to use that term.

Both types of saws need to have tension in the body of the saw. The reason for this is to compensate for the stretch that is going to happen at the rim while the saw is in the cut. When inserted tooth circular saw are sharpened it does not affect the rest of the saw relative to needing to be hammered. Generally when circular saws do come in to be benched they are dished and need to be straightened and they are liable to have a little too much tension in them. Band saws and solid tooth circular saws are different in that sharpening them will cause them to need to be hammered. Here is why: When you sharpen an



inserted tooth saw you are removing metal or carbide from a replaceable tooth that is not really part of the body of the saw. With a band saw or solid tooth circular saw, when you sharpen it, you are actually removing metal from the entire rim of the saw as you grind the tooth, gullet and top of the shoulder. This metal removal aside from sharpening would be called stress relieving by metal workers. The result of removing metal on the entire rim of the saw actually does what we call taking tension out of the saw.

Now let me say that medical doctors tend to use terms that the rest of us don't understand and saw doctors are guilty of the same thing. Maybe saw doctors do it so that we will be the only ones who know what's going on. I won't speculate why medical doctors do it. Anyway, the reality is that tension can neither be added nor subtracted from a saw. We just use that terminology. We refer to adding tension or increasing tension, and taking some tension out of the saw. What is really happening is that there is a relationship between the length of the rim of a circular saw or band saw and the length of the body in either saw. And, of course, the length of the eye in a circular saw or the back in a band saw. Length is another way of saying stretch.

So, when I say I want to add some tension, what I really mean is that I want to stretch the body of the saw a little more in relation to the rim of the saw. When I say I want to take some tension out of the saw, what I will do is stretch the rim of the saw a little more to change its relationship with the amount of stretch in the body. If the rim of the saw is stretched more than the body we would call that negative tension in the saw. If I replace worn out shanks in a circular saw with new shanks, that process will stretch the rim more than it was when I started. It could even stretch it enough to create negative tension in the saw. To solve that problem I have to go in and start stretching the body of the saw more to get it to where it is stretched or longer than the rim of the saw so that when the saw is in the cut and the rim stretches from the sawing action, it will all equalize.

Just so that nobody gets the wrong idea here: No, the saw is not supposed to be dished and no a dished saw will not straighten up when it comes up to speed because of centrifugal force. A proper saw should be flat of the log side with the right amount of tension or stretch in the right location.

When you sharpen a band saw, that act of removing metal from the entire rim also stretches the rim a little in relation to the body so you have to go ahead and do what we call putting some tension back into the body of the saw -- which really means we will stretch the body of the saw a little more in relation to the rim.

On the other hand when you have a saw either band or circular that has too much tension that means that the body is stretched too much in relation to the amount of stretch in the rim. Or you could say that the body is too long for the rim. Well, we can't shorten the body so what we do is lengthen or stretch the rim a little to correct that relationship between the length or amount of stretch in the body, to the stretch or length of the rim.

Although sharpening a wide band saw or solid tooth circular saw is a bit more complicated than sharpening an inserted tooth circular saw, the same basic principles and goals apply to all of them. You want adequate and equal side clearance, meaning equal tooth to tooth and equal side to side. You want the cutting edge to be perfectly square and you want an accurate hook angle. On inserted tooth circular saws the top clearance angle is not adjustable or changeable, so we don't have to worry about that or even keep track of it like you would with any solid tooth saw.

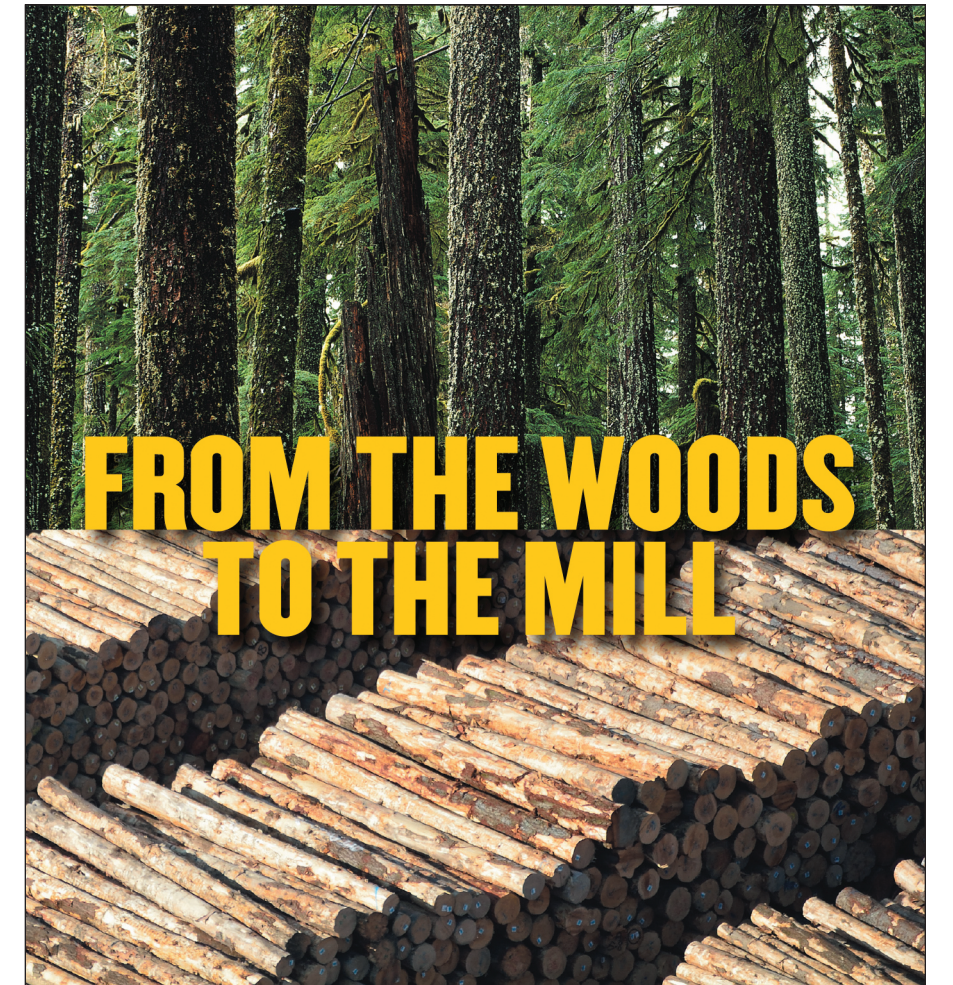
As for getting the mill to run right, the only real difference between band and circular is that circular saws have collars that we have to make sure are machined correctly. The immediate goal there is that when you mount the saw and tighten the nut from hand tight to wrench tight, there should be absolutely no movement of the rim of the saw as a result of tightening the nut. Of course with band mills you have to be concerned with the shape and alignment of the band wheels, not to mention the amount of strain on the wheels.

Otherwise, the carriage doesn't care what kind of saw you use to process the log that is on it. We have to remember that circular saws have to have 1/32" to 1/16" of lead in them where band saws don't have a real need for lead.

Essentially, if you knew anything about making band saws run properly, you now know all you need to know about how to make a circular saw run properly, and vice versa.

*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](mailto:casey@senecasaw.com).*



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