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In the September 2009 issue of *The Northern Logger* I wrote an article about scragg saws that both ran out of the log. It seems this is a problem that, while odd for most conventional saw mills, is fairly common with scragg setups.

Generally when a conventional-head rig sawmill has trouble with a saw, the saw is running out of the log as opposed to running in. Occasionally I will see a saw with reported symptoms of running in. In these cases, the saw appears to be dished towards the log side--either from an operational incident, or from being hammered by someone who subscribes to the old and worn theory that circular saws should be dished towards the log side so that they can stand up straight when up to speed. Most of you know what I think of that theory.

Now, whenever both saws are either running in or running out on a scragg, you start scratching your head because you know that if there was a problem with the bits, one would run in while the other would run out. Of course a collar problem on both collars could dish both saws either toward the log or toward the board side, which would cause them to both run in or out respectively. However, even collar problems usually tend to manifest themselves in a way where they dish each saw towards the board side when they are tightened instead of toward the log side.

I have discussed the running in problem with many mill owners and managers, but I often don't believe that I am getting accurate enough information when I have them check certain things and then get back to me with the results. That is because with scragg saws, especially those with sharp chains, it's a lot trickier to accurately measure the lead or the alignment, compared to a conventional track and carriage head saw.

But I have developed a theory, thanks in part to observations by a few of my more trustworthy colleagues. Let's look at some other things that are common to scragg mills and a bit uncommon to conventional head rigs to try to figure out what's going on.

Scragg mills tend to run a high-speed/low-feed relationship compared to conventional head rigs. I know it seems like they are going plenty fast enough and they certainly process a lot

of logs in a day's time, but the reality is that they are usually feeding a bit slower in relation to their RPMs than a regular mill. Part of that is because scragg mills feed logs with a sharp chain instead of being dogged to a heavy carriage. The worry is that if they were fed a lot faster they might hit that magic spot where they tend to self feed, which means the log just might become a projectile in the mill. So they are fed a bit slower to prevent the possibility of that problem.

Scragg saws tend to be smaller diameter, usually 36" to 48" as opposed to the common 56" diameter head saw that most conventional circular sawmills use.

Most head saws in the Northeast are either 7 by 8 gauge or 6 by 8 gauge. I prefer the 7 by 8, but that is another story.

Scragg saws are generally a bit thicker at 6 by 7 gauge or even 5 by 7 gauge. And I probably see more at 5 by 7 than 6 by 7 gauge.

Saw manufacturers use something called Birmingham (Stub's Iron) Wire Gage for the thickness measurements.

8 gauge = .165"
7 gauge = .180"
6 gauge = .203"
5 gauge = .220"

That means that a 48" scragg saw at 5 X 7 actually measures .040" thicker at the center than at the rim.

Most mills running that blade configuration are running 5/16 bits which means the teeth are .312" wide when new. Now subtract the blade thickness and divide by 2 to get the side clearance at the rim of .065" per side.

But if you subtract the blade thickness at the center and divide by 2 you get only .046" per side. Sharpen those 5/16 carbide bits a few times and you are down to 9/32 or .281."

There is one problem with that math. Remember that a handed blade means that the log side is flat and all of the taper is on the board side. At the rim the previous math works out

okay, but at the center of the saw you have to add all of the difference between the two gauges.

You have a 5/16 bit that is worn to 9/32 which is .281" or a side clearance of .050" per side at the rim. But the eye of the saw is .040" heavier than the rim so that you now have .050" clearance on the log side, but only .010" on the board side. That's not enough.

If this were a 56" saw, it wouldn't be much of a problem, but with the scragg saw being only 48" you can see where it is a much different angle than it would be with a 56" saw. We know that the board shouldn't rub the saw nearly as hard as the log would, but in this case with only 0.10" side clearance, and the log being fed relatively slowly, I can easily see where you might run into a problem with the board side of the saw heating just a little bit on every log you saw. And the warmer that board side gets, the more it stretches, and the more it stretches the more the saws will each tend to dish towards the log side and run into the log.

The solution in my mind is fairly simple. Start buying straight 7 gauge saws and



A log's eye view between two scragg saws.

the problem should go away as long as you have your other ducks in a row like proper sharpening, lead, and alignment. I see no need for a saw that is so thick in the center, especially in a saw that is as short as 48."

The added benefit of going to a straight gauge is that theoretically you would be able to run either saw on either side, although I would think that whichever hand they were hammered for would probably be the better place for them. Technically if you have the log side flat on a straight

gauge saw, the board side would also be flat. But since there is no such thing as perfect, each saw would most likely do just a little better on the side it was hammered for.

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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