

# SAWMILL FORUM

CASEY  
CREAMER

SAW  
DOCTOR



Emails, I get emails.

To: [casey@senecasaw.com](mailto:casey@senecasaw.com)

Subject: Tolerance in saw mandrel bearings

*Hello Casey, I am Henry D. Sawyer (the name has been changed to protect the innocent). I have been in the sawmill business since 1982. I read you're Sawmill Forum every issue but cannot find my problem. We built a new mill and building and started it June of 2008. I have had saw trouble since day one. Checked track for straightness and level, checked all over carriage, checked track frame for movement with dial indicator and heavy log on carriage, checked husk for movement, checked collar for straightness and cup, everything I can think of many times. I checked mandrel bearing for movement with 1 foot bar and one hand between shaft and husk next to collar and found tolerance of 7 thousandths up and down so I'm sure it would be side to side also, (could hear knock in bearing, not bearing to shaft or bearing to husk). Under warranty the mill manufacturer sent out a new mandrel and bearing. I am having same problem same tolerance only difference is I can't hear the knock. I think it was 7 thousandths, it's been awhile. My question is how much tolerance is acceptable? I will check my tolerance Monday morning, will be putting fresh saw on again (normal routine). Any help will be appreciated and let me know how much I owe for your expertise. Thanks and Merry Christmas! Henry*

Hi Henry,

I don't like the knock in the bearing, so it is good that it has been resolved.

I am more concerned about endplay, than I am about movement up and down. Movement straight up and down, or forward and back, shouldn't actually cause much of a sawing problem on a headrig. I can guarantee that your carriage moves up and down a lot more than .007".

Sideways or lateral movement is what we are worried about, whether the carriage does it or the mandrel does it. Some sawmill manufacturers use fixed bearings while others

use a combination of fixed bearings and expansion bearings. The expansion bearings allow for a lot of endplay to accommodate any growth related to heat in the mandrel or the bearings that transfers to the mandrel, while fixed bearings are meant to control and limit endplay to only a couple of thousandths.

You should check the endplay and also determine if you have all fixed bearings, all expansion bearings or a combination of both. The bearing closest to the saw should definitely be a fixed bearing and as a result should have almost no detectable endplay.

That is the bearing part. What symptoms are you having? Does the saw exit the cut cleanly, or does it exit with a lot of drama and leave a bit of a beard on the log? Does the saw get hot at all? Does it wobble?

You said you checked the collars. Did you do the "tighten the nut trick" to see if the rim of the saw moves when you go from hand tight to wrench tight?

And as always I have to ask first, what do the teeth look like?

Additionally what do we know about your saws? Who hammered them and what shape are they in? Has anyone checked them to make sure they weren't mis-manufactured?

Whenever anyone implies that they think they have checked everything, I can always come up with a list of things that haven't been checked yet. It is just the nature of sawmill troubleshooting.

Anything I can do via email or telephone is at no charge to you. You always have the option to fly me out there to check out your mill completely, and of course that would carry a charge. You can also bring or ship your saws to me to have me inspect them to make sure that they were manufactured correctly, and have also been hammered correctly. The place to start is to answer the questions I have posed here, and see where that leads us.

To my readers:

One thing that is very interesting about this case is the fact that he put in a new mill in a new building, with presumably new saws.

When you are having trouble, one of the things we look at is chronology. When did you first start having this problem, or when did you notice it? Then I try to match up what else happened at the same time. If the problem started as soon as you put in new teeth, I would look in that direction. If the saw ran fine with new teeth, but as soon as you started sharpening or swaging them the trouble started, guess what I suspect? Maybe your problem started when the weather changed and the logs became partly frozen. Or maybe the weather changed and your inadequate foundation started to move.

In Henry's case he started with a new mill in a new building with new saws. That means that there is nothing at this location that we can say has ever worked properly before he started having trouble.

Accordingly we should really go right through from top to bottom and thoroughly check everything and every aspect of that mill because we can't assume that anything is correct.

If the saws had worked properly at one time, we could at least concentrate on what has happened to them since they stopped performing properly. But they never ran okay. So we should look very closely at all aspects of the saws. Not just how they were hammered and sharpened, but they should also be inspected to make sure there are no manufacturing defects in them.

The mandrel was replaced with another new one that was presumably made by the same person on the same machinery. So there is no reason to assume that the second mandrel is any different than the first one. And the list goes on and on for everything in that mill including the foundation.

Since the mill has yet to function properly, we have absolutely no known quantities to start with. There is nothing that we can point to in the mill where we can say that it functioned properly before, so it probably hasn't changed by now.

We all want to assume that anything that is new is properly manufactured. Unfortunately when something is new it can be even more suspect than something that worked properly until recently.

On the other hand, there are a lot more properly manufactured saws than defective ones and more properly manufactured saw teeth than defective ones. The same can be said for just about every component in that mill. And most sawmills make much more lumber that is within spec than out of spec.

But the fact remains that until you measure the lumber you can't assume anything about it and until we completely check out the mill, anything is up for grabs.

That is how the process works.

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**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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