

# SAWMILL FORUM

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DOCTOR



**I just hit the carriage with my saw and wrecked it beyond repair as you can see from the pictures. I use the larger pin holes in my saws. Do you think that played a part in the outcome?**

Let me first say that the saw is not beyond repair, but upon close inspection it appears that the cost of repairing this saw would exceed the monetary value of a used saw. It would cost less than the price of a new saw, but anytime the repair cost starts to exceed a \$1,000, I tend to advise purchasing a new saw instead.

In the interest of clarification, when I started hammering saws the industry standard was 2" bore with two 5/8" pin holes on a 3" bolt circle. Sometime a little over 20 years ago Simonds International managed to change the industry standard to also include two 3/4" pin holes on a 5" bolt circle. So now most saws we see have both sets of pin holes. This way the mills can choose which set of holes they want to use.

The larger pin holes started to become more commonplace as the mills gravitated towards more power, higher feed rates, and increased production. Of course for the most part higher production rates don't really come from higher feed rates, but rather decreasing the time when the saw is not in the cut. In other words it was the increased efficiency in material handling that had the biggest effect on the production levels.

As mills had more power and started to feed faster, many of them had trouble shearing the smaller set of pins. 5/8" pin holes require 9/16" pins. And every time you stall the saw and shear the pins, you must resurface your collars because while the saw was standing still, the fast collar was still turning and depositing some of its metal on the collar line of the saw. Once that happens you have lost your taper in the fast collar.

As the mill managers got increasingly tired of having to resurface the collars, they realized that they could cut down on the pin shearing problem by simply starting to use the larger pins. 3/4" pin hole requires an 11/16" pin.

That was the evolution of the trend toward using the bigger pins. But we must remember what the purpose of the pins is. Sure, as lug pins they are there to drive the saw because relying on just a tight collar wouldn't be enough. But in reality, although they are traditionally called lug pins, they should really be called shear pins, because that is also exactly what they are designed to do. They are designed to shear at a certain load, or should I say "overload." The idea is that it is better to shear a couple of pins than to break a mandrel, pulley, or a saw. Many mills also have a shear pin either in a flex coupler or somewhere else in the mandrel system, while some don't.

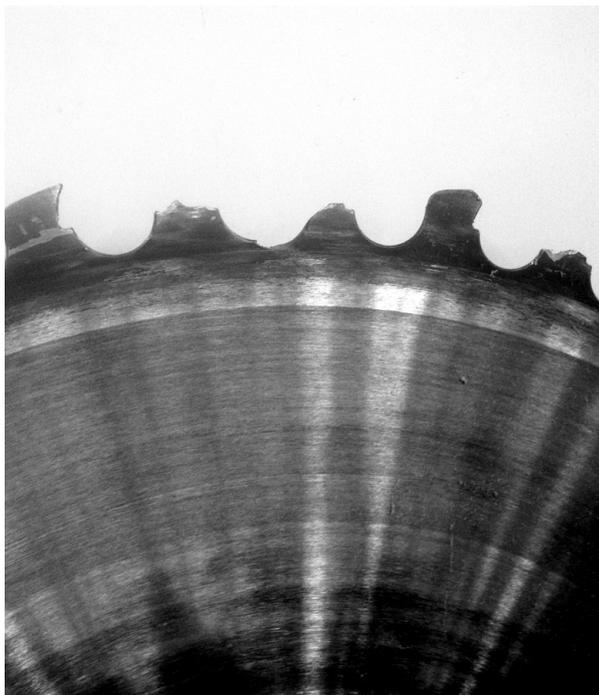
So the intention has always been for the pins to be the weakest link. When you go from the smaller pins to the larger ones, you are drastically increasing the strength of the weakest link. Is that such a good idea? I have my doubts.

In the case of the saw pictured here, I speculate that if it had been using the smaller pins when it hit the carriage, it might easily have broken only one shoulder and then promptly sheared the pins and stopped.

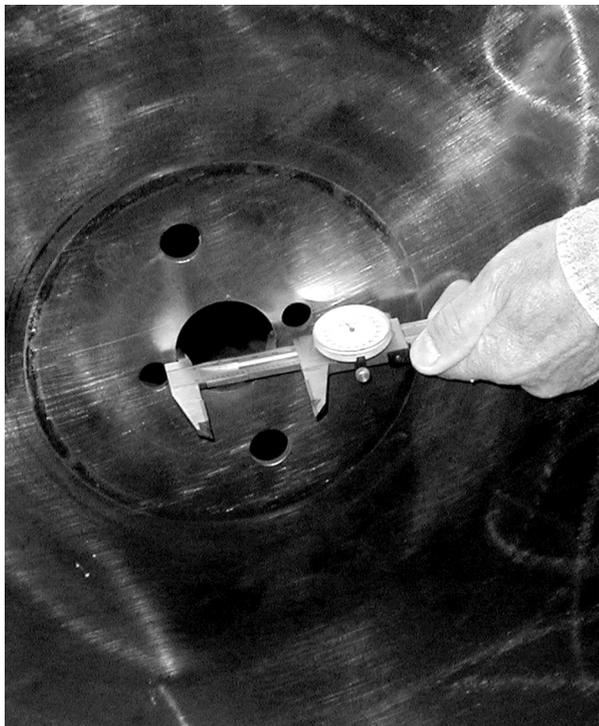
In that case it would be roughly \$125 to repair the broken shoulder and then they would have to remove the mandrel and send it to a machine shop to have the fast collar resurfaced, unless of course they happened to have a spare mandrel in stock and ready to go with all of the bearings and pulleys already on it. Then it is just a couple of hours of downtime to make the switch.

Like anything in a sawmill or any other part of life there are always going to be tradeoffs. Do you want to shear pins a little more often, or ruin saws? Of course you still have to find a way to maintain your current rate of production. In this case maybe it is worth the price to have to replace the saw every now and then instead of shearing the pins on a regular basis.

I suppose you could always just ease up a little and be a little kinder to your equipment, but in today's world of decreased profit margins, easing up a little doesn't seem to be the most popular option.



Probably not worth repairing.



Common two-size shear pin hole design.

One thing is for certain, the better you maintain your equipment, the more forgiving it will be when you try to push it to the limit.

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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