TechLine

Forest Products Laboratory

Bandsaw Cracking: Troubleshooting Causes

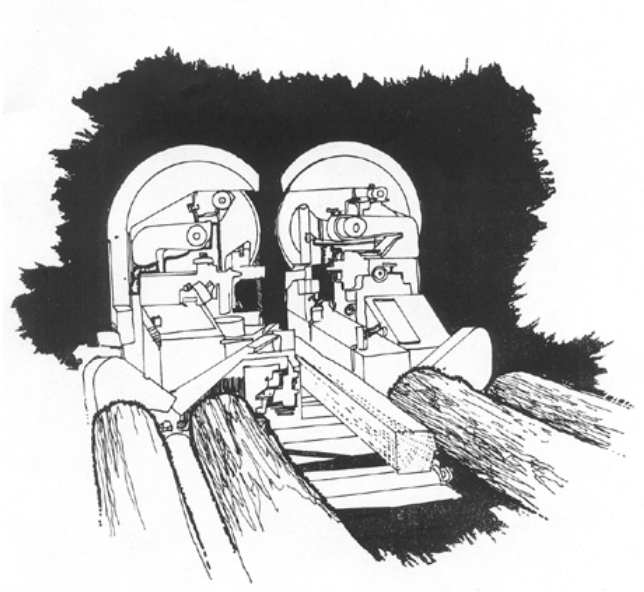
Troubleshooting the causes of bandsaw cracking is not a simple matter. An in-depth understanding of sawfiling practices is required for efficient operation and maintenance of bandsaws for sawmilling. Bandsaw cracking can result from one or several factors. The following information and checklist provide a starting point for sawfilers in determining causes of cracking in bandsaws that are 6 in. and wider.

Front cracks can result from the following problems:

1. Allowing the wheels to wear round at the front, or tracking the saw too far off the front, either of which will leave the front edge unsupported
2. Casehardening the throats of teeth by using a grinding wheel unduly hard, running at too high a speed, or feeding too rapidly to the saw
3. Cross-aligning the wheels
4. Improper tension with the saw too open (i.e., too large a tension radius) just below the teeth

Center cracks in line 2 to 3 in. back from the points of teeth are generally caused by tracking the saw too far forward of the wheels or by rounded wheels on the front edge, or both.

Barring accidents and incompetence, a 12-in.-wide 14-gauge saw on 8-ft wheels should never crack within a reasonable lifetime, and should wear down to at least 10 or even 8 in. in width. It is not good practice to put a narrow 14-gauge saw that was previously run on 8-ft wheels onto smaller wheels.



The sawfiler must always check to see that saws have uniform tension, proper pitch (to prevent crowding the back on the wheels), properly aligned wheels, perfectly square or balanced swaging, perfect side dressing (to provide suitable side clearance), rounded gullets, and sharp teeth with points free of glaze or casehardening. Vibration increases undue bandsaw strain. Consequently, particular attention needs to be given to the wheels, their shafts, and bearings. Wheels must be round and balanced, and shafts must be free of play.

Occasionally, sawfilers can determine causes of cracking from past knowledge of the bandsaw's performance. When this does not work, however, the accompanying checklist can be used to systematically check off potential causes until, by the process of elimination, the actual cause is found.

Recommended References

Hanchett, Kent S. 1956. The Hanchett saw and knife fitting manual—A treatise on the care of saws and knives. 8th ed. Big Rapids, MI: Hanchett Manufacturing Co. 471 p.

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Bandsaw Cracking—Checklist of Causes

- ☐ Overfeeding the saw and overloading the gullets
- ☐ Excessive stresses beyond the tensile strength of the blade (such as a result of overfeeding)
- ☐ Excessive saw strain—running the saw under too high a strain
- ☐ Too much or too little saw tension or unevenly distributed saw tension
- ☐ Dull sawteeth—using the saw when teeth are too dull
- ☐ Excessive sawtooth speed
- ☐ Insufficient tooth hook angle
- ☐ Irregular and uneven sawteeth, causing undue strain at spots
- ☐ Improperly adjusted saw guides
- ☐ Unsuitable guide pins or guides improperly set
- ☐ Overheating during grinding the gullets, causing bluing and casehardening
- ☐ Filing or grinding sharp angles at base of gullet, causing stress fracture points
- ☐ Forcing steel unduly and too rapidly swaging and shaping or too much swage
- ☐ Lumps or ridges in the saw
- ☐ Improper hammering of saw, causing marks or dents
- ☐ Leaving file marks on saw
- ☐ Hammering the saw too hard, causing casehardening
- ☐ Braze not properly dressed, leveled, and tensioned, or hardening of the saw at the braze
- ☐ Thick and thin spots when dressing the braze
- ☐ Having the saw pulled off the bandmill wheels
- ☐ Worn or loose wheel bearings
- ☐ Too small a wheel diameter for gauge of the blade
- ☐ Accumulation of gummy, dirty, encrusted, and rusty patches on the face of the band wheel
- ☐ Chips, sawdust, and other debris dropping between the saw and lower wheel
- ☐ Running saws on out-of-alignment wheels or wheel face out of true
- ☐ Canted wheel so as to run the saw hard against the back guide
- ☐ Neglect to relieve the wheel strain when the saw is idle
- ☐ Uneven and improper expansion of the back edge
- ☐ Careless handling on or off the mill and improper saw storage (overstressed)
- ☐ Carriage and track (or end-dogging transport system) out of alignment with the bandmill