

Preventive maintenance on sawing equipment

One investment that pays big dividends

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Practicing regularly scheduled preventive maintenance on band saws can help maximize sawing center productivity by lowering costs, downtime, and frustration. It also decreases the need to contract outsiders to finish jobs.

With preventive maintenance, machine and blade life increase, and overtime emergency maintenance repairs become less frequent. Well-maintained machines make efficient, safe, quality cuts, helping to enhance a shop's reputation.

It is especially important for fabricating and welding shops to use band saws that cut as efficiently and precisely as possible because of the nature of the work being done. Cuts must be straight and smooth, especially when they will be welded together.

A maintenance schedule outlining the steps that need to be taken should be located near each band saw. Not only will this remind operators to keep the machine running in optimal condition, but it also will serve as a record of the date each maintenance function was completed.

It is critical that time be dedicated for preventive maintenance at scheduled intervals. Usually no more than 30 to 60 minutes is needed to do all of the necessary checks and maintenance. That is a small investment of time in relation to the cost savings that can be attained by maximizing the life of the machine and blade.

Critical Checkpoints

To perform proper and thorough preventive maintenance, you must know the machine's specific checkpoints. Refer to the band saw's manual to ensure that no area needing regular maintenance has been overlooked.

Daily

- Clean chips from vise jaws, band wheels, blade guides and wipers, chip brush and pans, and machine surfaces.
- Inspect the blade, blade wipers, blade guides, and chip brush for wear.
- Replace worn parts.
- Check sawing fluid and lubricants.

Every Three Months

- Clean sawing fluid/lubricant reservoir and screen.

Every Six Months

- Change hydraulic fluid filters.
- Clean hydraulic fluid reservoir magnetic plug.
- Lubricate saw column pivot point.
- Inspect and adjust blade guides.

Once a Year

- Drain hydraulic fluid tank and change fluid.
- Clean hydraulic fluid strainer and fluid filter.
- Change transmission oil.

Checking and Adjusting Band Saws

Checking the working parts of a band saw on a regular schedule and making the necessary adjustments is just as important as routine preventive maintenance. As you will see from the following list, machine checks and adjustments ensure proper cutting and prevent serious damage to the machine.

Band Wheels—check at every blade change.

Surfaces: If out of round, cracked, or worn, replace the band wheels to prevent premature blade breakage.

Flanges: If worn, tapered, cracked, or chipped, replace the wheels to prevent premature blade breakage.

Fluid grooves: If the grooves are filled with chips, the blade will not run properly on the wheel. Clean them with a stiff wire brush, and be sure to wear gloves.

Band Wheel Bearings—check every six months.

Check the band wheel bearings for unusual wheel movement, and replace them as needed. This condition can cause premature wear on the backup guides. Resulting improper blade tracking can cause blade failure or more serious machine damage.

Band Guides—check every six months.

Trouble-free operation starts with proper installation. All guides should be installed according to the machine manufacturer's instructions. Improper installation may cause crooked cuts, premature blade failure, and possible improper sawing fluid/lubricant flow.

Side guides: If worn, chipped, broken, or contain seized roller bearings, side guides can cause crooked cuts, scoring on the sides of the blade, and short blade life. Rotate, grind, or replace the side guides as necessary.

Backup guides: Worn, cracked, chipped, seized, or missing guides can cause fatigue cracks on the back edge of the blade, swaging, loss of tooth set, and short blade life. Rotate, grind, or replace the backup guides as necessary.

Blade Tension—check at every blade change.

The blade should be tensioned to the machine manufacturer's recommendations. Undertensioned blades will cut crookedly and develop fatigue cracks, while overtensioned blades will stretch and eventually cause premature wear of the wheel bearing. Both conditions can cause bad tracking.

Blade Tracking—check before removing each blade.

When a blade is properly tensioned, the correct spacing between the back edge of the blade and the flange of the wheel should be about $1\frac{1}{32}$ inch. Improper spacing causes poor tracking, which can result in back edge fatigue, poor cuts, and possible machine damage. The machine manual will explain the proper way to adjust spacing.

Hydraulic System—check daily.

Low oil level can cause air in the lines and improper operation of anything that runs off the hydraulic system (feed system, vises, and so forth). Sediment from the bottom of the reservoir can cause blockage in the line and filter, resulting in loss of pressure. Check the oil level frequently.

Drives—check every six months.

Bearings and seals: Visually inspect all areas where bearings are. Check for oil leaks, which can indicate the failure of a bearing or seal, which can in turn damage the drive system. Check the oil level of the transmission during this inspection, and replace any defective bearing or seal.

Gears: Check the drive wheel of gear-driven machines for excess play. This can indicate worn gears. If you don't replace the gears when necessary, the machine can develop more drive shaft and transmission problems.

Pulleys: Check for proper alignment, tension, and wear. Improper alignment or tension can cause premature belt wear and bearing failure. Adjust the pulleys if possible, or replace them if damaged.

Belts—check every six months.

Drive belt: Check for cracks, wear, and stretching. These conditions cause the band speed to change, resulting in erratic cutting performance and reduced blade life. Replace the drive belt as needed.

Chip brush belt: Check for wear, cracks, and stretching. If there are problems, replace the belt according to the machine's manual. Don't wait until it breaks while cutting.

Guide Alignment—check daily.

When cuts start becoming incorrect or crooked, or if the blade fails prematurely, contact maintenance personnel to adjust the alignment according to the manufacturer's manual.

Vises—check every six months.

Check for wear on both stationary and movable vises, and adjust, repair, or replace them as necessary. Excessive wear results in crooked cuts.

Also check the alignment of the vise to the blade, and realign or adjust it as needed. A stationary vise should be at a right angle to the blade. Any other angle will produce a crooked cut.

Band Speed—check weekly.

Check the maximum and minimum speed range using a tachometer. The reading should be the same as the gauge. Improper speed can cause numerous blade problems. If the speed is incorrect, ask the machine manufacturer for the proper technique for calibrating the speed gauge.

Chip Removal System—check daily.

Inspect to make sure that the auger or conveyor system is working properly and removing all chips. Clean and inspect all screens to ensure that chips are not getting into the sawing fluid/ lubricant tank, which could cause the pump to stop running or stop the flow of fluid/lubricant.

Also check the chip brush. If it is not turning, it is worn out. If it is not in proper position on the blade, chips may be pulled into the workpiece and cause tooth strippage.

Sawing Fluid—check daily.

Check the condition and ratio of sawing fluid with a refractometer. If either is incorrect, the workpiece may overheat, and blade life may be decreased. Also keep the level of sawing fluid to the machine's specifications, and be sure the fluid is flowing freely through all fluid nozzles.

Lack of fluid because of either of these problems will cause the blade to heat up in the cut and the guides to score the sides of the blade, causing premature failure.

Shops that follow good preventive maintenance procedures will maximize their band saw cutting efficiency, precision, and safety while reducing expenses. Preventive maintenance does cost a little, but it pays more in the long run.

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