

# LASER ALIGNMENT IN SAWMILLS

**Ultra-accurate scanning lasers can boost recovery and profits.**

Putting aside conventional methods like optical theodolites and wire, a steadily growing number of sawmills are aligning their machinery with scanning lasers. These systems offer greater ease-of-use, higher accuracy and excellent repeatability over older methods and so-called “pointing” lasers, and can produce significant gains in recovery.

For several years now, David Reed, Sr., founder of Cutting Edge Tooling, LLC, has been implementing laser alignment at sawmills—and winning converts. Based in Russellville, Ark., Reed’s company offers precision machining and alignment services for the forest products industry, and he has been using ultra-accurate scanning lasers to help sawmills align machin-

ery faster and more precisely, improving recovery in the process.

Reed uses laser alignment systems from Hamar Laser Instruments, Inc., headquartered in Danbury, Conn., to align most kinds of sawmill machinery, including sharp chain machine centers and other equipment. He serves corporate and independent sawmills throughout the U.S. and his regular customers include many of the leading names in the industry.

“Like Hamar Laser, we’re alignment specialists,” Reed says. “This is what we do every day, so our focus is very fine-tuned. Producing lumber is very hard on the sawmill’s equipment and foundation, so machine centers in the mills can frequently get out of align-

ment. Some sawmills routinely align their machines using a long wire and datum marks as a centerline reference. Our lasers can speed up the process of aligning these machines, and we can align them more accurately.”

Reed says the laser enables them to go deeper into fine-tuning the critical areas of cutting tools like feed rolls, centering rolls, chains and spline guides and align the machines more accurately and precisely, with greater repeatability of results.

## PERCEPTIONS

Reed believes the industry is changing its outlook on how to align machinery. “It took some time to get people to under-

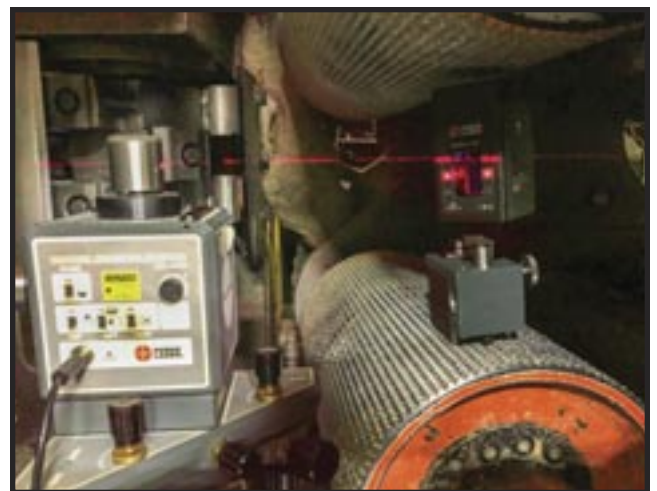


Adjusting straightness of sharp chain transport track thru primary breakdown center with the L-743 Ultra-Precision Triple Scan laser alignment system from Hamar Laser Instruments





**Aligning canter heads and anvils for lead, plumb and offset using the L-743 triple scan laser and A-1519-2.4ZB Wireless Targets. Below, at left, aligning track and rolls of secondary breakdown line; right, aligning bed and press rolls parallel and level on secondary breakdown**



stand that using wire is really ‘old-school’ and that the laser is a superior tool,” he says. “Our sawmill customers see that we can reach our alignment targets faster and more precisely with the laser. Often, they see right away how the laser’s extra precision contributes directly to greater recovery.”

Russell Roberson, president of Omega Solutions, Inc. (OSI), a leading manufacturer of specialized sawmill machinery that is also headquartered in Russellville, agrees and believes that Reed has been in-

strumental in helping many mills make the switch.

“Scanning lasers are becoming the preferred method for aligning machinery in our industry and much of this is due to David Reed and Hamar Laser,” Roberson comments.

Founded in 2000, Omega manufactures primary breakdown and mill floor equipment. The company focuses on precision machining centers and is best known for its patented sharp chain system. Omega also uses Hamar Laser align-

ment systems to install new machinery in its customers’ mills, as well as to align machinery in its own machine shop. Russell refers his customers to Reed for regular alignments after the installation of new Omega machinery.

“We’ve been using a Hamar Laser alignment system for 15 years,” Roberson says. “When anybody sees it in action, they see how accurate it is, how it shows alignment data in real time and how easily the results can be repeated. After that, well, the skeptics become believers.”

## ACCURACY

To align most sawmill machinery, Reed uses Hamar Laser's L-743 Ultra-Precision Triple Scan Laser Alignment System. Reed says the system's high accuracy, repeatability and ease-of-use are what make it really shine. "Cutting Edge Tooling has never used wire in sawmills," Reed says. "Using the laser gives us the ability to get machines level, true and plumb with an extremely high level of confidence, instead of running a wire that's got sag to it and other things like wind that affect its accuracy."

Reed says because it has three auto-rotating scan planes, they are not limited to setting up the laser at the end of the machine, but can set up in the middle of most machine centers, closest to the cutting tools. From that setup they can check the squareness and cross alignment of the bandmills, as well as the vertical plane of the chip heads, anvils and saw guides. "The laser also makes the center adjustments of any top rolls very easy, like the hourglass rolls in a DLI," he adds.

The L-743 is used in conjunction with multiple Universal Wireless Targets and transmits alignment data in real time to a Wireless PDA Readout or a designated computer, using proprietary software designed for specific applications. Getting near-instantaneous alignment data is a feature Reed finds especially helpful. "When using the laser, we can read the alignment numbers and make adjustments in real time," he says.

Reed also likes the laser system's reliability and repeatability. "Any one of our guys with any one of these lasers can go behind each other and be able to repeat the same numbers, every time," he emphasizes.

A laser alignment pioneer founded in 1967, Hamar Laser reports it makes the only alignment systems in the world

with automatically rotating laser scan planes. The L-743 Ultra-Precision Triple Scan laser planes are flat to .00003 inches/foot (0.0025 mm/m). "The laser planes are the references from which the measurements are made," Reed says, "so these let us align machines with extreme precision."

## RECOVERY

At the end of the day it comes down to recovery, and precision machine alignment contributes directly to greater recovery in a number of ways. Although



Aligning log carriage track and knees

specific results will differ from mill to mill, many of Reed's customers have shared with him significant improvements in recovery, as well as saw blade deviation and other machine parameters after laser alignments. Depending on the size of the mill, even relatively small improvements in recovery can have a big impact on profitability.

Roberson provides some figures for a typical mill: "The raw material accounts for 60 to 75 percent of the cost of finished lumber," Roberson says. "The manufacturing process accounts for the rest, so maximizing recovery is highly important. If a sawmill with \$100 million in sales increases recovery by just two percent, that's \$2 million. So, obviously, precision alignment can pay for itself very quickly.

Even a \$2 million upgrade would pay for itself in just one year.

"It's extremely important to cut accurately and you can only do that with a machine that's lined up accurately," Roberson adds. "A properly aligned piece of machinery will always have a higher recovery rate than the same machinery that is not aligned properly. When David does an alignment, even when the sawmill is not replacing their old machinery, his customer will see a measurable increase in recovery about 90 percent of the time."

In addition to better recovery, laser alignment offers other benefits. "After an alignment I hear people say that there is a notable difference in the sound of the machine," Reed says. "This is because the centerline flow is smoother. This not only improves recovery, but also lengthens the life of the saw blades and other wear parts, helping to reduce overall machine downtime. Laser alignment also allows some operators to run their machines at higher speeds and tighten their gaps for increased production."

Alignments provide a good idea of the condition of the machinery because broken or worn parts are fixed in the process, Roberson notes. "Machinery that's aligned properly and regularly not only picks up recovery, but aids in reliability. It runs better, lasts longer and doesn't break down as often."

"Based on my customers' results, they see that better recovery and other benefits can make precision alignment pay for itself very quickly," Reed says. "Most sawmills have accepted lasers. We don't have to convince anyone anymore. We have been very busy." TP

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