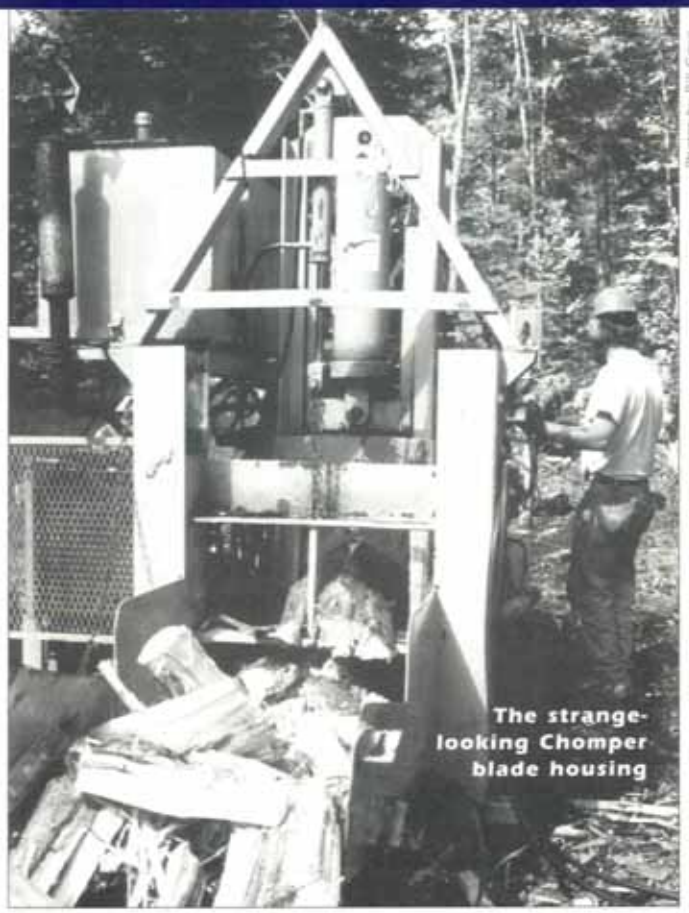
Reviewed by Bill Gove

CHOMPER MODEL 16 PDA

The Chomper stands in a class by itself with some distinct advantages over conventional processors.



Photos by Bill Gove

The strange-looking Chomper blade housing

As I walked into a muddy log yard one day in central New Hampshire, stepping over old logs and blocks of wood and jumping over puddles, I came across one of the strangest machines I had ever seen. I had heard a report about a machine that sliced up firewood rather than sawing it, but I had never seen one. My curiosity got the best of me, and even though nobody was around, I decided to take a look. I walked around and nearby this machine with its maze of hydraulic hoses, wondering how it could ever work. My curiosity was piqued even further.

The name plate on the machine said CHOMPER and gave an address in Oregon. Anxious to see one of these unusual machines in operation, I called the company, and my discussion with Warren Aikins, President of Rainier Hydraulics Inc., turned out to be a most pleasant conversation. Rainier Hydraulics was incorporated back in 1976, and has been involved in a number of research and development projects. Development of the Chomper began in 1981, with the first production model sold in 1984. With some names of owners from Mr. Aikins, I set out to see a live demonstration of this firewood processor that has no saw.

Arriving at a back road woodlot in Londonderry, Vermont, I was met by a work-honed farmer and logger named Karl Pfister. His lanky frame showed a hard worker of many occupations: he raises horses, grows hay for the commercial market and logs in the winter months, mostly with horses. Firewood has been a sideline for many years, and it was big enough a part of Karl's activity that he purchased a Chomper Model 16 seven years ago. Karl gave me a demonstration of how the Chomper works, and to say the least, I was surprised and impressed.

Watching the machine automatically cut and split a full-length log, I realized that it is more appropriate to say that the machine shears the wood instead of slices it. And the entire log moved through without the operator handling any controls after the shearing action started. In the whole process there were only two principal moving parts on the machine: a sliding frame under the log and a vertical shear blade.

The log is winched into the machine, butt first, with the butt brought up against the shear blade in a lowered position. A clamp arm is then lowered against the log surface to prevent the log from being pushed backward during the process. Then the patented automatic cycle is turned on.

The half-inch thick shear blade raises to its open position, and the shear blade frame moves

Karl Pfister, (above left) winches a log into his Chomper Model 16 PDA. The outfeed end of the machine can be seen (above right) as Karl's conveyor fills.

Bruce Cheney's Chomper is an ideal workmate with his team of Belgians. Because the machine is at ground level, the logs can be dropped by the horses within easy reach of the winch cable.

the blade back along the log to a preset length. The shear blade then penetrates downward about 80 percent of the way through the wood, powered by a cylinder with a 7-inch bore. Continuing the auto cycle, the shear blade frame then slides the other way, forward, moving the entire log further into the machine. As it does, the nearly severed end piece of the log is forced part way through the splitter head, which is mounted a short ways beyond the shear. After the sliding frame stops, the shear blade completes the cut through the log, is raised to an open position, and is moved back along the log for the next cut.

The splitter head has staggered splitting knives, and is adjustable vertically by hydraulic action, which means it can be used for 0, 2, 4 or 6-way splits.

Karl's machine ran well in the auto-cycle with little work needed by the operator. But as Karl cautioned, the operator still has to be attentive. On rare occasions the shear would catch on an irregularity of the log as it was moving back. Also, split wood would sometimes jam at the mouth of the conveyor. But when set on auto-cycle, the machine would usually not lose any production time as the operator took care of any bottlenecks.

Loading a log into the machine was equally fascinating and unique. There's no need for an infeed conveyor or grapple. A winch mounted on the rear pulls the log into the mouth of the machine from the spot where the log was dropped by the skidder or–in Karl's case–the horse. The machine processes the logs at ground level, so there is no need for an extra machine in the yard to load the logs on a deck. When the log is winched over from a location off to the side of the machine, it obviously won't be in proper alignment with the infeed of the processor. But Karl demonstrated an interesting way of fixing the problem. Vertical guide arms on the back of the machine are able to move from side to side with enough force to push the log sideways into proper alignment.

An adjustable infeed ramp is another feature that Karl likes, and one that he uses frequently. The ramp is a plate which actually tips up or lowers the back end of the machine. Raising the infeed helps a crooked log feed in without hanging up on the ground. But since there is some bouncing action during the cutting cycle, lowering the infeed end keeps the end of a long piece setting on the ground. I noticed that if the wood was very crooked Karl would shut off the automatic function and work each cut individually in order to prevent hang-ups or damage to the machine.

Karl said knotty wood and large limbs give him trouble, as does frozen wood and wood that isn't freshly cut. The maximum diameter that the Chomper Model 16 can handle is 16 inches; but the ideal from a production standpoint is 12 inches. Karl was cutting logs that had been sitting in a pile for a few months, but the 80 HP John Deere diesel motor didn't struggle any.

Karl doesn't stockpile any of his split firewood. He makes delivery right from the machine to his customer base of local residents and second homes of out-of-staters. His price of $90 a cord reflects the abundance of firewood resources in Vermont, which keeps the prices down.

Not satisfied with viewing one machine, I arranged for a visit with Bruce Cheney in Paxton, Mass. Bruce is also a horse logger, and he makes most of his income with his pair of Belgian mares.

Bruce bought his Model 16 Chomper back in 1990 with the thought that this type of firewood processor would work well with his horse logging. It was no problem for the horses to drop the logs within reach of the winch cable. And since ground skidding with horses makes for dirty logs, Bruce wanted to get rid of the chore of sharpening saw chains. Chomper's shear blade never even needs sharpening, I was told.

Bruce has made some modifications on his machine, specifically on the infeed. He placed large pipes over the vertical guide arms to use them as rollers for the infeed cable when pulling from the side. He also installed an eye on top of one of the guide arms where he could place a snatch block if needed. This is particularly handy when it's a 90 degree turn for the cable. The machine comes equipped with a stabilizer leg on each back corner, a necessity for tough sideways winching.

On the outfeed end of his Chomper, Bruce added an upright wing on each side to guide the split wood into the conveyor. He uses

CHOMPER 16 PDA SPEC SHEET

MODEL
16 PDA

POWER UNIT W/HP
80 HP John Deere diesel

PUMP
Shear: 55 gallons per minute
Splitter: 12 gallons per minute

CYLINDER SIZE
Shear: 7-inch bore, 18-inch stroke
Splitter: 5-inch bore, 22-inch stroke

SPLITTING FORCE
22 tons

SPLITTER CYCLE TIME
6 to 8 seconds

HYDR. TANK CAP.
60 gallons

WEDGES (STANDARD)
0, 2, 4, or 6-way hydraulic adjustable

MACHINE WEIGHT
7,000 pounds

TRANSPORT LENGTH
13 feet

TRANSPORT WIDTH
8 feet

TRANSPORT HEIGHT
9 feet

TIRES
235/85 R16

HITCH
2 5/16 inches ball

FRAME
3" x 6" rectangular tube

AXLES
Single, 7,000-pound drop

WINCH
75-foot, 3,000 pound line

MAX LOG DIAMETER
16 inches

MAX LOG LENGTH
Tree-length system

SALES PRICE (BEFORE OPTIONS)
$32,500

OPTIONAL EQUIPMENT
John Deere 100 HP turbo diesel engine, Belt conveyor for 20 or 30-foot trough, Conveyor hydraulics, Trailer package for highway towing, Murphy shutdown system, Hydraulic limit switch adjustment

MANUFACTURER
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Chomper's shear blade rarely needs sharpening.

a variable-speed conveyer powered by hydraulics from the processor pump.

The shear blade on Bruce's machine has not held up as well as he had hoped it would. The manufacturer acknowledges that during the early years of production the metal used for the shear was not satisfactory. Now, however, an alloy steel with special heat treatment is being used that is said to be holding up well with most users.

But Bruce has had a vertical crack develop in the center of his shear. After cutting almost 500 cords he found it necessary to weld a patch on both sides of the blade. It does not appear that Bruce's problem is the norm, however.

One of the manufacturer's selling points is that there is no sawdust produced with the Chomper. True enough,

An ajustable infeed ramp tips or lowers the back end.

but there are still plenty of fines and bark pieces. The shattering action produces splinters, especially with logs that aren't freshly cut.

Frozen wood also tends to shatter more easily. For this and other reasons, Bruce doesn't run the machine much during the winter. The processor tends to start up hard, and besides, he doesn't like to stockpile his split wood, preferring to deliver direct from the processor. The initial thought of the sheared wood might conjure up an image of shattered, even mangled, sticks. True, the ends are not nearly as smooth as sawn wood, but the sheared ends I saw were not objectionable. That is, not unless you want firewood to look beautiful resting in a holder next to the fireplace.

The shattered ends have one significant advantage over sawn ones: faster drying time. Moisture loss occurs through the ends of the logs or sticks, and it makes sense that ends which have a multitude of small splits and breaks would have more surfaces for moisture loss. Tests sponsored by a US Department of Energy grant have shown that hardwoods dry about twice as fast when sheared instead of sawn, at least in the initial drying stage. Both Karl Pfister and Bruce Cheney said they noticed a shorter drying time. They both deliver the wood right from the processor.

As for production rates, these two operators are probably not a good measure of the Chomper's capability. They mix in many other chores and do not keep their machines running steadily. Karl works

alone, cutting only about 50 cords a year during the season when he doesn't have many farm chores. He averages about 1 1/4 cords an hour. Bruce produces up to 1 1/2 cords an hour, but as he says, that is "from the woods to stacked on the truck." His crew of two or three people is also involved in felling and horse skidding the logs up to the processor.

Bruce said his hydraulic hoses have held up well while exposed to the weather, but the number of exposed hoses and wires makes him a little uncomfortable. He's always aware of the possibility of damage by a limb or other piece of wood.

Bruce was quick to sing praises about the help given him by the manufacturer, as was Karl. Company president Warren Aikins has been able to walk them both through any problems. But, as both Bruce and Karl said, there really haven't been any start-up or maintenance problems.

Bruce's market is in a well-populated area of Massachusetts, and reflects a different situation than the rural areas of upper New England Karl serves. Bruce is able to command $125 per cord for his wood. He maintains a card file system of his firewood customers, which reminds him when to call them, the length they asked for and when to deliver.

With these two field visits my curiosity was pleasantly satisfied. The Chomper stands in a class of its own, with some distinct advantages which only this type of firewood processor can offer. If you are looking to buy a processor, you would do well to personally view the Chomper in action. ■

Bill Gove is a retired forester who last worked for the Vermont Department of Parks and Forests.

MANUFACTURER'S COMMENTS

The CHOMPER firewood processor is not like the conventional type firewood processor, which uses chain or circle saws, separate splitter heads, infeed conveyors, grapples, and live log decks. All CHOMPERS use a shear blade for cutting to length, and require only one person for operation. All of the competitive processors require a minimum of two people and other supporting equipment for functional operation. The difference in labor costs of one person can pay for the CHOMPER.

Firewood production is notorious as being the toughest and most labor-intensive product in the wood products industry, and in the past most people have shied away from the firewood business for this reason. Rainier Hydraulics has addressed the problem by designing machines which eliminate the backbreaking labor and reduce the other labor costs to a minimum, making firewood production a profitable product.