

IN THE HANDS of an experienced, capable operator a smooth running chain saw is a high production harvesting tool. It can be a pleasure to watch a skillful operator using a chain saw effortlessly as if it were a part of himself. Some of these men are "artists" who never appear to waste a single movement and are capable, productive and safe chain saw operators. This requires experience, alertness, concentration and, above all, knowledge. Knowledge in the case of safety refers to understanding the potential hazards and the limitations of the operator himself and his chain saw.

What Causes Accidents?

Three basic factors must be considered in examining possible chain saw related accidents: the environment, the operator and the machine. Environmental factors include terrain, ground cover (understory), timber type and density and, of course, the weather. Operator factors involve training, experience and skill to recognize unsafe acts or conditions. Alertness and attitude are also important, plus attention to such details as footing, clothing and personal protective gear. But the major cause of accidents is fatigue.

Machine factors involve selecting the right size and type of chain saw and cutting attachment, in addition to proper maintenance. Weight and balance are important for safety, as are handling characteristics. Noise, smoke and vibration contribute to operator fatigue. Ease of maintenance, elimination of fire hazards and availability of special protective safety devices also should be considered.

One of the less obvious environmental factors is ground cover. Thick brush, heavy blowdown and soft or loose rocky ground certainly affect footing. Since man is a two-legged animal, his own balance is vital, especially when he has a chain saw in his hands! The timber type and density can affect his cutting technique and present varying degrees of hazard. Rain, snow, ice or wind can double the hazard since they can affect mobility, footing and the operator's grip on the saw. Frozen wood reacts to cutting and splitting quite differently from wet or green timber. The weather affects the operator's mental attitude as well (who can possibly feel good

Proper Handling For Chain Saw Safety

By BLAKE STRETTON
Vice President, Stihl American, Inc.

when every branch you touch with your hardhat pours half a cup of icy rain water down your neck!)

Training, Experience and Supervision

Many progressive companies engaged in wood harvesting have initiated training courses for their chain saw operators. Most chain saw companies are usually willing to provide maintenance and operating instruction, and a few provide some form of operator safety training. Many of the timber companies who have such training programs can also point to their safety records with a great deal of pride.

Experience cannot be acquired merely by instruction, but good supervision is important. Supervisory staff should be quick to point out any unsafe acts that they observe saw operators performing, and to help the operators recognize potential cutting hazards on the job.

An operator's personal health can also affect his mental attitude and alertness. No responsible supervisor will allow a man who is "not really feeling well" to operate a chain saw, or they are both asking for trouble.

No supervisor should allow a chain saw operator on the job without proper personal protective gear and proper footwear or clothing. This includes a hardhat, with or without screen visor. Goggles are not always the best since they fog up, get covered with fine saw or bark dust, and can limit the operator's peripheral vision range.

Good fitting boots with steel toe caps are needed, and they must be in good repair.

Durable, properly fitted clothes are also important to safe operation in the woods (too snug can affect mobility and too loose can catch on brush or tangle with the saw). Hearing protection should also be considered, depending on the brand or model of saw being used. Fatigue is one of the biggest factors contributing not only to chain saw mishaps but all industrial accidents.

Fatigue and Handling Ease

Many characteristics of the chain saw itself can contribute to fatigue. These include vibration, noise and exhaust smoke, as well as balance, handling and control of the saw. Chain saws vary greatly in such areas as design, construction, power output, balance, handling and reliability. But let's talk about the machine factors: To help in selection of the right tool for the job and to provide some guidelines for the selection of a safer tool, here is a "checklist" of design parameters that apply to any chain saw used in commercial cutting.

Weight and Power

Low weight is useless if the unit is so flimsy that it lacks durability and reliability, or has limited fuel and chain oil capacity. Don't be misled by "dry weight — less bar and chain." Some saws run considerably longer on the same quanti-

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Important factors in operating a chain saw safely are good footing and a clear area.

ty of fuel. I've yet to see any chain saw cut much wood empty and without a guide bar or chain. Compare "ready to work" weights only.

An operator should not carry more saw than he needs, for this affects his mobility, tires him quickly and is a poor investment. Consider the weight-to-power ratio. Very few chain saw manufacturers provide horsepower rating and there are no industry standards. Displacement is not necessarily a

reliable guide to power output, either. Some makes of chain saws derive much more power per cubic centimeter or cubic inch than others. Always compare two saws with the same chain and guide bar length, because the type of bar and chain can greatly affect cutting speed.

Balance and Handling

Look for excellent balance in both felling and bucking attitudes. This makes a saw "handle better" and feel lighter which, of course, reduces fatigue. Look for a low, narrow profile, a smooth bottom and an exterior with no sharp corners, exposed linkages, oil lines or parts that will catch on clothing or brush. Try the saw "limbing" to see how it handles.

Note the controls. Are they simple? Positive action? Within easy reach of the control hand? Does it have a throttle trigger interlock? (This means the operator "control" hand must be firmly in place before the throttle can be opened.) Are all rotating parts enclosed? (except the chain, of course) Is it equipped with a front hand guard? (to prevent the "holding" hand from slipping onto the revolving chain.) How about a rear or "control" hand from whipping brush, stubs or a broken chain "fling" as well as accidental activation of the controls. Some saws are available with an automatic chain brake that stops the chain in the event of a kickback in less than two-tenths of a second.

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WEEDS TREES and TURF



Steady the saw, keep your balance and start the saw on the ground or other solid surface.

Note the direction of the exhaust gas and cooling air discharge. Is it away from the operator? Is he protected against contact with a hot muffler surface?

Does it have an automatic oiler? This lets the operator concentrate on more important things than keeping his chain and bar properly lubricated. Does it have a flow adjustment for this lubrication to conform to timber type and size, season, temperature, and larger length bar and chain? Does it pump at idle, wasting oil and making a slippery mess? Do the chain saw tanks hold enough, and are the fuel and lubricating tanks integrated to avoid bothersome and unnecessary refilling stops.

Is the spark plug located where it will not shock the operator if it has a leaky "boot"? (This can surely make a man jump at the wrong time.) Does it start easily? (Some accidents have been caused by an exasperated operator violently yanking on the starter cord of a balky saw and soon finding a running saw in his lap.)

Noise, Smoke and Vibration

Check the noise level. Observe the muffler design, location, construction and shielding for the operator against hot surface contact. Under the Walsh-Healy regulations, some brands of saws can be run twice as long as others without hearing protection. Not only has noise been proven to effect fatigue, but it pre-

vents voice warnings or the "crack" of a tree going over from being heard easily.

Can it be equipped with an approved U. S. Forest Service Spark Arrestor Screen? How about smoke and exhaust fumes, which can restrict vision and produce nausea? Can it use a low oil/fuel ratio mix? This eliminates most smoke, reduces carbon build up in exhaust ports and actually extends spark plug life.

Try the saw to feel the vibration level. Vibration like noise, induces fatigue. Does the saw have an anti-vibration system? Does moving the saw within the vibration mounts affect the throttle action? This could hold the throttle open at the wrong moment.

Fire Hazard Reduction

Note the location of the fuel tank and the filter opening size and location. Some saws have a "drain" for the carburetor chamber immediately above the muffler! Can it spill on the spark plug or high tension lead? Is the muffler shielded against contact with dust, dry moss or needles? Is sawdust discharge easy and direct? Some saws have places where oily chips can build up in the muffler area, presenting a potential fire hazard.

Selection and Maintenance

Guide bar nose contour must match the chain being used. If the "geometry" of these two parts is not correct, particularly if the guide bar

nose radius is too large, it can cause very severe kickback during nose contact with the wood.

One serious hazard in the woods today is the so-called "safety" chain. There is no such thing as a safe chain. As one safety director put it — "if it will cut wood — it will cut people." These chains are best referred to as "reduced" or "anti" kickback chains and do help to reduce kickback during certain types of limbing and brushing operations. Remember that the best and safest cutting attachments designed are also only as good as the maintenance they receive.

Many sharpening and maintenance publications are available from chain saw manufacturers and replacement chain manufacturers. Some companies also conduct "clinics" and maintenance classes. Simple tools are available to aid in better sharpening, jointing and maintenance of cutting attachments. These tools are a good investment since any chain that is properly and evenly sharpened (and jointed) is a smoother cutting, safer chain. A shop type chain grinder is also a good investment since it produces more consistent results.

Over the years, Stihl-American, like other conscientious chain saw manufacturers have diligently worked at making their saws safer more dependable.



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