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When asked to write an article pertaining to the use of power saws for those unfamiliar with the proper handling and use of a chainsaw, an array of horror stories filled my head. Over the years, I have had the ongoing challenge of re-training many chainsaw operators across the state and nation in the safe and proper handling of chainsaws. I use the word “re-train” simply because most folks were taught to use a chainsaw by their father, grandfather, or some other mentor figure in their life that in most cases didn’t bother to read the directions that came with the saw in the first place. I would hope this article will bring back memories for some, close calls and learning experiences for others, but most of all remind each of us that a chainsaw is one of the most dangerous power tools that we will ever use.

Loggers and insurance companies have known for a number of years that logging is one of the most dangerous and life threatening careers on the books. Today, actual logging with chainsaws is limited; however, landowners, farmers, and outdoor enthusiasts have taken up the slack in power saw sales in the last 20 years. More and more accidents are recorded each year with these increases in sales. The first chapter of most saw operation manuals is dedicated to safety, and most of the entire manual is safety-related to ensure that the owner understands the liability associated with operation of the product.

With all of that said, let’s go over some basics. Personal Protective Equipment (PPE) is highly recommended by all manufacturers. Strong sturdy clothing that allows for movement but is not loose fitting is advised. Jewelry, long hair, and loose jackets are discouraged because they can

become caught in the moving parts of the saw. Good footwear with non-slip soles is important; steel-toed safety boots are advocated. Lastly, a hard-hat, ANSI-rated safety glasses, hearing protection, and leather gloves are good investments when using a power saw. Over the years I have always made the recommendation to landowners, firemen, and rescue groups to invest in chainsaw chaps. Chainsaw chaps are inexpensive insurance to prevent leg injuries. Chaps are filled with Kevlar (a trademark for a reinforcing material used in bulletproof vests) and bind the chain in the event the saw strikes the leg area of the operator. Studies show that the highest percentage of saw injuries occur around the legs; therefore, chaps are a good investment!

Let’s talk a little about your saw. Depending on the brand, the oil fill will be in the front of the saw toward the bar, and the gas mixture filler will be toward the handle. Remember, all saws use a gas mix; most will recommend 50:1 or 40:1 gas to two-cycle oil mix. Manufacturer bar oil is recommended, but substitute brands will work. Never use bar oil to mix with gas; only two-cycle oil can be used for the gas mix. Always fill your saw in a well ventilated area and wait until the saw has cooled before refilling. Never fuel indoors, and if you transport your saw inside the vehicle, purge (empty) the saw of fuel before transport.

Prior to operation, check your saw for proper condition including the trigger, chain tension, stop switch, chain catch, and most importantly, the chain brake. It is rare to find saws not fitted with chain brakes these days. Chain brakes were designed to prevent kick-back injuries most often associated with the tip contacting a hard surface.





Most arm, neck, and face injuries are the result of kickback, so the chain brake is very important to those that don't like to part their hair down the middle! Manufacturers are required to have chain brakes and reduced kickback (safety) chains at the point of sale. It is recommended that the normal consumer not modify or change the chain brake or type of chain sold with the saw. I would personally recommend replacing a saw without a chain brake and never buy a saw without the manufacturer-provided chain brake. Before, during, and after use of your saw, it is important to sharpen the chain and recheck many of the above safety items. A sharp chain will decrease your work and increase the life of your saw and saw bar. At each gas refill, take the time to sharpen your chain properly and check for any loose or broken parts.

Now let's discuss starting and using your saw. There are only two methods for starting a saw: on the ground with your foot firmly in the throttle well, or at arm's length with the handle secured between your thighs. NEVER drop start a saw (commonly seen as a wild throwing and jerking motion) because there is no control . . . none! If you are left-handed, learn to use your right hand; there is not a south-paw chainsaw, sorry.

There are generally three types of use for a chainsaw: limbing, bucking, and felling. With each type comes a different set of rules to follow and a different set of dangers.

"Limbing" is the systematic removal of limbs from a felled or standing tree. It is a very dangerous operation because this is where the biggest percentage of kickback injuries occurs. Sawyers and helpers (swampers) must constantly be aware of the saw tip to avoid kickback injuries to either individual. Helpers must remain clear of the saw which means twice the distance of reach. For example, a person who is 6 feet tall can reach 2 feet in any direction; a saw is generally 30-36 inches in total length; therefore, helpers need to keep twice the distance of total reach from the sawyer, or 10 feet.

When limbing, compression (wood that is bound) or tension (wood that is bent) is very important to recognize as you systematically de-limb the tree. Compression wood will bind the saw and produce kick-

back. Tension wood will break unexpectedly depending on the weight and can result in injury to the sawyer or helper. Never saw over shoulder height when limbing, and always be prepared to escape the tree in the event you cut the limb that is holding the weight. Even the smallest of trees can produce serious injury to someone holding a saw as the tree falls on top of them. Unfortunately, foot injuries are very common during limbing operations. Keep the tip of the saw in plain sight at all times.

The next type of operation is "bucking." Bucking was very common years ago when logs were cut to length and shipped to the saw mill. Today, bucking is a common term used for cutting the log into movable pieces or firewood. Firefighters and road department workers are often faced with removing logs from the highway and after they limb the tree, they begin bucking the remaining main stem into rolling size pieces that can be rolled to the edge of the road. Dangers often associated with bucking

involve kickback, pull-in, and push-back. *Kickback* occurs when the tip of the saw contacts something, usually on the back side of the log, and causes a reactive force in the sawyer's direction. Always watch the tip of the bar regardless of the situation; the tip is the most dangerous part of the saw.

Pull-in occurs when cutting with the bottom of the bar. As the chain spins around the bar, another reactive force will pull the motor and the sawyer toward the log. Although this is not as dangerous as kickback, it is a reactive force that the sawyer needs to be prepared to handle.

Push-back is the opposite of pull-in, where the saw is pushed toward the sawyer when using the top of the bar to buck the log. What makes push-back particularly dangerous is that when the saw is pushed back, eventually the tip of the saw will reach the log and create its own kickback situation and therefore endanger the sawyer. Physical strength, technique, and experience play an important role in bucking logs. Always remember, the tip of the bar is the key to preventing injuries while bucking logs.

Finally, there is "felling," the cutting of standing trees. I have seen many injuries in limbing and bucking, but felling is the most life threatening. I have seen livestock, pets, sheds, vehicles, and a couple of good houses destroyed while felling trees.

(Continued on page 24)



CHAINSAW SAFETY 101

(Continued from page 23)

Inexperience and determination are a dangerous combination. Most often the tree we need to remove is in the way of progress. We cut down trees to improve our property, open a road, clear for a garden, or simply because it was leaning toward the house after the last thunderstorm. That last one is my favorite. Instead of hiring a professional, we are going to just hook a rope to that old tree and start cutting. Unfortunately for the insurance companies, the rope never holds and the homeowner has a lot of explaining.

There is not enough room in the magazine to properly explain the geometry associated with sizing up a tree, but trees with a noticeable lean should be felled in the direction of their lean – never against their lean or pulled with the family car. Trees that lean away from the house are always fine; it's those that lean toward the house that worry most homeowners late at night. When you have a tree that leans toward the house, the barn, or whatever you have insured, call a professional and have the tree taken down. In the event of lightning, don't wait more than six months to remove the tree. Insects, decomposition, and damage associated with lightning strikes will increase the cost of removal after six months and create a dangerous situation for the tree service.

As for those trees not endangering any personal property, there are several different methods available to cut a tree. Most folks are content with the traditional or conventional method of cutting a modified "L" shape in the direction of the fall, and then cutting the back cut until the tree simply falls. Generally, that is a safe method as long as you can run. For those of us that have a few years experience, a safer approach would be using a wedge and leaving a little holding wood in the tree so we can ease the tree over and calmly walk away while the tree begins to fall.

Whether you use the Humboldt, Conventional, or Open Face method to guide the direction of the fall, it is important to remember that control is the key to a successful felling opera-

tion. The back cut can be done in two ways, although I have seen countless modifications to the same routine. First, a sawyer can cut in from the back a couple inches above the horizontal plane of the face cut and simply cut levelly toward the face, until a measured amount of holding wood is reached. Set the wedge, and finish the felling process. The second method was always

prohibited by my father: bore cutting. Just like the former process, cut whatever face cut you prefer, but instead of cutting from the back, you bore through the tree from the side of the tree, parallel and above the back of your horizontal face cut, leaving a predetermined amount of holding wood to control the fall of the tree. This method requires a certain amount of skill and control of the saw since you are required to push the tip of the bar through the tree and kickback is highly probable. With practice, many sawyers prefer bore cutting since they can bore, set wedges, and determine their best route of escape while safely standing under the tree.

After the wedges are set and all outside influences are controlled (helpers, media, cars, livestock, family pet, truck, etc.), you can simply cut the remaining portion of wood at the rear of the tree and exit the stage at 45 degrees. Always exit, regardless of the size of the tree. DO NOT hang around to admire your work.

In closing, watch the tree; the saw is doing all the work. Your job is to protect your life and those around you. The tree is very dangerous; don't take your eyes off of it. All too often I work with sawyers who watch the saw. Learn to listen to the motor (RPMs) and it will tell you if the saw needs attention. Otherwise, watch the tree for dangers falling from above and act accordingly.

I hope this has given you a few pointers and brought back some memories of days gone by, but most of all, a reminder that complacency is a killer, especially when it comes to chainsaws. 🙏

