

## A Review of Chainsaw Safety



**By Asst. Chief Eric Johnson**  
De Pere Fire and Rescue Dept.

On a damp, cold Saturday morning on October, 15 members from several northern Oconto County fire departments gathered at the Doty Fire Department to attend a chainsaw safety class. Not knowing what to expect or what kind of training I would glean from a class like this, I must admit I was a bit apprehensive.

I don't admit to being anything like Paul Bunyan, but this was not my first day operating a chainsaw. As I sat in class listening to the instructor sharing his knowledge about saws and his vast experience from being a logger in Michigan's Upper Peninsula, I quickly became humbled and realized I was not about to waste a valuable weekend day just to attend another class.

The instructor was representing the Forest Industry Safety & Training Alliance, Inc. based in Rhineland. Although the class was not intended specifically for firefighters, much of the information is applicable whether

you are operating a chainsaw on top of a building's roof or using a chainsaw to clear trees that may be lying across the road after a storm has passed through your response district.

A good preventative maintenance check on our vehicles has us referencing a checklist to ensure that nothing is missed, discrepancies are documented, necessary repairs are addressed, and that the vehicle is ready for its next response. Have you ever pulled a piece of equipment off a truck at an incident (including chainsaws) and that equipment malfunctioned? Perhaps it wasn't in the compartment you know it should be in, you couldn't get the motor started or it wouldn't stay running, or maybe it didn't get filled with gas after its last use. Or perhaps the chain was too loose and it slipped off the bar.

The following is a list of what to look for as you conduct a preventative maintenance check on your chainsaw. Note: Many of these items can apply to other tools on your apparatus as well: Positive pressure fans, K12 or similar cut-off-saws, power units for your extrication equipment, etc.

- Loose screws, nuts and bolts
- Cracks/damage to the saw's body
- Missing or damaged spark arrester
- Proper tension on the chain
- Operational chain brake
- Operational start/stop switch
- Operational throttle trigger lock
- Intact chain catch and hand guard
- Bar oil reservoir full?
- Fuel reservoir full? With proper oil/gas ratio?

After completing a visual check of the equipment, it is time to make sure the engine will start. This is where a pet peeve of mine comes into play. The person performing the check should be wearing hearing protection – period. The fireground is an exception, but there is no excuse not to wear it under controlled circumstances. Another aspect that gets me going during preventative maintenance checks is when the operator doesn't allow the engine to warm up sufficiently before shutting it off. The engines on the equipment should be brought up to operating temperature before they are shut off. Run them at idle for a minimum of 2-3 minutes so the fluids have a chance to warm up and properly lubricate everything, before shutting down. And of course, allow the motor to cool off before putting the tool(s) back into the compartment. The only exception to this procedure is if you get interrupted by a call during your check.

### **Chainsaw injuries**

According to the Occupational Safety and Health Administration (OSHA) operating chainsaws produce over 36,000 injuries annually. Of course, these are not necessarily firefighters operating them at the time, but this sure is an eye-opening statistic. Further research shows that 40% of these injuries occur to the legs while another 35% are inflicted on either hand! Kickback is listed as the most common cause of chainsaw injuries. This gives us reason to take a look at what causes kickback when using a chainsaw.

## Kickback

Kickback is the most common cause of injury and poses the greatest hazard. Kickback occurs when the rotating chain is stopped suddenly by contact with a more solid area, throwing the saw rapidly backward toward the operator. The cause of most injuries can be traced to improper use of the saw or poor judgment on part of the operator.

The following is an excerpt from a Texas A&M University safety bulletin: Kickback is the most serious risk of chainsaw operation. It occurs when the tip of the guide bar and chain contact an object, forcing the guide bar violently backward and upward. Kickbacks can occur in less than one-tenth of a second, causing severe

review safely operating chainsaws (all power equipment) with your crews annually. If you don't believe me, then do a search on your computer for images of injuries from chainsaw accidents. You will be convinced, I promise you.

## Safety Equipment

I would be remiss if I didn't include some safety guidelines for operating a chainsaw that you should review (and hopefully enforce) with your personnel. Taken from the training class back in October, the following safety equipment is recommended:

- Hard hat
- Eye protection
- Hearing protection
- Chainsaw chaps or specific safety pants

power of your chainsaw failing to start or run properly. Even if your department runs your power equipment with alcohol-free gasoline, unless you change out the fuel periodically with "fresh" gas, the gasoline will break down and create problems for you. Many departments are switching to running their



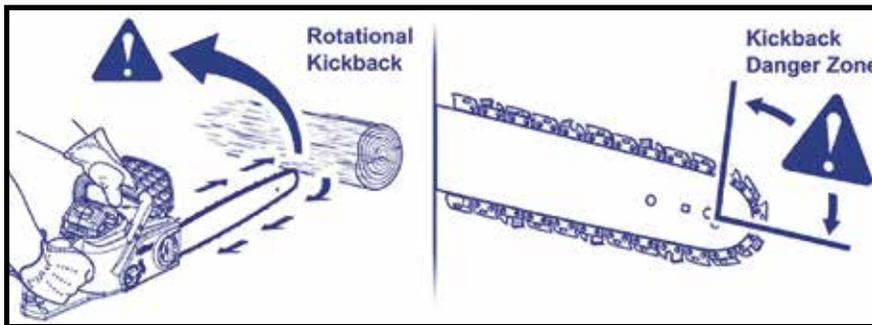
power tools with commercially available pre-mixed cans of gas. This is a bit more costly but can save a lot of frustration when your equipment fails to start. The accompanying photos depict holders available for storing the gas in your compartment on the apparatus— they help to keep the containers from shifting too much.

## Additional Safety Guidelines

- Never operate the saw above the level of your shoulders
- Always run the saw full throttle (sawzalls are an exception)
- Keep the saw out in front of you with arms extended when sawing
- Carry the saw by the handle with the motor stopped, chain brake set and the bar and hot muffler away from your body
- Keep your thumbs tightly wrapped around the handlebars when operating the saw

This article may not be as exciting as it would be learning a new tactic or procedure, but it is worthy of reviewing and possibly preventing a firefighter from injuring themselves during a non-emergency call for service.

Make 2021 a safe year!



*Diagram courtesy of the Chainsaw Journal*

head, face, neck, shoulder, and hand injuries. Since 1985, chainsaws have been equipped with special safety

features, including kickback protection and chain brakes. However, chainsaws are still among the most dangerous power-driven tools available on the market.

Though I couldn't find recent data about firefighters suffering injuries from operating a chainsaw, I did discover that in 2017, a wildland firefighter in California died as a result of striking his leg and cutting his femoral artery while clearing brush with a chainsaw. This is enough reason to

- Protective footwear
- Hand protection

Of course, there is some carryover from our issued firefighting gear that would suffice, but one piece of equipment that I would recommend placing on a vehicle is the chaps. Our turnout gear pants do not provide a sufficient barrier to prevent being injured if the operator were to strike their leg with the saw.

## Fuel

Unless you have a newer battery-operated saw, your saw is powered by a gas to oil mix— usually a 40:1 or 50:1 ratio. This is probably the biggest cul-