



Kansas LTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Road & Bridge Agencies

Before You Use that Chainsaw

By Nate Vander Broek

Read these tips for safety.

If you use a chainsaw once a year, or even every day, it never hurts to review important chainsaw safety and maintenance tips. The following questions were raised recently by LTAP customers.

How do you know if the chain drag is too high? The strongest indication is when you begin to see dust instead of wood chips emitting from the saw. This means the drag is too high and must be corrected. If the drag is too high, the chain will cut very slowly; if too low, the cutter will grab too much wood and jam, and may cause kickback.

To correct it, first, check the depth gauge for the correct height before you sharpen the cutters. Place the depth gauge on top of the chain so that one depth gauge is exposed in the slot. If the depth gauge sticks up above the slot, file it level with a flat file. Then make sure all the other depth gauges are filed to the same height. Finally, slightly file each leading edge to round the corner back to its original shape. When finished, test it again. You should be getting wood chips instead of fine dust.

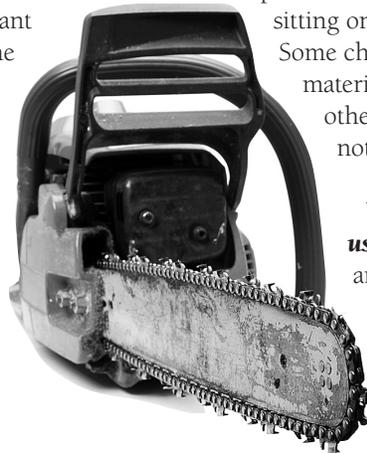
Can you use an angle grinder for filing? No, an angle grinder is too aggressive. It will create too big of a bite, causing the tooth to rock. This will create a wear pattern into the rivets and ruin a chain very quickly. A flat file is recommended.

For detailed instructions and illustrations, see Stihl's Sharp Advice for Chain Saw Owners at <http://www.stihllibrary.com/pdf/SharpAdvice061301final.pdf>

Do oil spots hurt chainsaw chaps? Can you wash them?

Yes, oil can damage chainsaw chaps if the oil saturates the chaps. When this happens, the material cannot respond and

protect as well as when it is clean. If the oil is merely sitting on the surface of the chaps, it is not a problem. Some chaps, such as those with Entex cut-retardant material, can be washed in a washing machine, while other chaps, such as those made with Kevlar, are not washable.



What type of clothing should I wear when using a chainsaw?

Clothing must be sturdy and snug-fitting, but loose enough to allow freedom to move. Avoid baggy jackets, scarves, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that can become entangled with the saw or brush. Wear heavy-duty, non-slip gloves and sturdy boots with non-slip soles. To protect your eyes, wear goggles or safety glasses with adequate top and side protection. Always wear a hard-hat to protect your head and ear plugs or ear muffers to protect your ears.

What's the difference between summer and winter bar oil? In the cold winter months, oil thickens, making the oil's viscosity similar to that of honey or molasses. When the oil is thick, it does not pour well. To solve this problem, when the temperature is below freezing, it is recommended to use winter-specific oil because the thinner oil will pour better in cold conditions. When the temperature is above freezing, summer bar oil works best. In Kansas, because of moderate winter temperatures, summer-specific oil will probably work for most of the year. Winter oil would be required for winter use in northern states, such as Wisconsin and Minnesota.

What are the best ways to avoid kickback? Kickback may occur when the upper quadrant of the bar nose on a moving chain saw comes into contact with a solid object or



is pinched. When this happens, the saw flings up and back, sometimes towards the operator. To avoid kickback:

- Hold the chainsaw firmly with both hands and maintain a secure grip.
- Be aware of the location of the guide bar nose at all times.
- Never let the nose of the guide bar contact any object. Do not cut limbs with the nose of the guide bar. Be especially careful when cutting small, tough limbs, small-size brush and saplings that may easily catch the chain.
- Don't overreach.
- Don't cut above shoulder height.
- Begin cutting and continue at full throttle.
- Cut only one log at a time.
- Use extreme caution when reentering a previous cut.
- Do not attempt to plunge-cut if you are not experienced with this cutting technique.
- Be alert for shifting of the log or other forces that may cause the cut to close and pinch the chain.
- Maintain saw chain properly. Cut with a correctly sharpened, properly tensioned chain at all times.
- Stand to the side of the cutting path of the chainsaw.

Can marks be put on the bar to indicate where the “kickback” zone is? Yes, marks can be added to the kickback zone, which is the upper quadrant in the nose. The circle in the image at right shows the kickback zone as a saw makes contact with a log. Use this image as a guide for marking the kickback zone in the upper quadrant of your particular chainsaw.

What is the difference between pull-in and pushback?

Pull-in occurs when the bottom of the bar on a moving chain saw is pinched or catches or hits a foreign object, causing the saw to suddenly stop and pull the saw forward. To avoid pull-in, start a cut with the chain rotating at full speed and the bumper spike in contact with the wood. Also, use wedges to open the kerf or cut.

Pushback occurs when the chain on the top of the bar is suddenly stopped when it is pinched, caught or encounters a foreign object in the wood, causing the saw to drive towards the operator. Pushback frequently occurs when the top of the bar is used for cutting. To avoid pushback, do not cut more than one log at a time, do not twist the saw when withdrawing the bar from a plunge cut or underbuck cut

Chainsaw Tips from an Expert

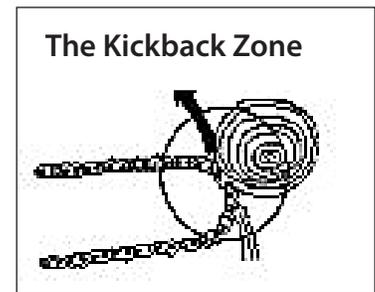
Larry Wilson, Douglas County Public Works Employee and owner of a firewood business in Lawrence, offers the following chainsaw tips:

- A sharper chainsaw is safer and more productive than a dull one. When a chainsaw is creating fine dust, instead of woodchips, and when you have to push on the saw instead of allowing it to self-feed, it may be time to sharpen it. If possible, carry a spare sharpened chainsaw with you.
- Consider the size of the chainsaw versus your experience level. A small saw is easier and safer to handle than a large saw. But, also make sure the size of the saw matches the job. For instance, it does not make sense to use a 12 inch bar for cutting a 30 inch diameter tree.
- When moving between cutting areas, shut off the chainsaw or use the chain brake.
- If your chainsaw has a two cycle engine, be sure to use the correct gas oil mixture ratio. Consult your chainsaw owner’s manual for the correct ratio. To help figure out how much oil to add to achieve the recommended ratio of gas to oil, use an online calculator, such as the one found at <http://www.csgnetwork.com/oilfuelcalc.html>.

because the chain can pinch, and be aware of situations that may cause materials to pinch at the top of the chain.

What is the best method for starting the chainsaw?

The best method is when the chainsaw is on the ground. First, make sure the chain brake is engaged and then place the chainsaw on firm ground in an open area. Hold the front handlebar firmly with your left hand and press down.



<http://www.ccohs.ca/oshanswers/safety>



Sources:

- Stihl Chain Saw Safety Manual. http://www.stihl.com/p/media/download/uk-en/STIHL_Chain_Saw_Safety_Manual.pdf
- Stihl - Sharp Advice for Chain Saw Owners. <http://www.stihllibrary.com/pdf/SharpAdvice061301final.pdf>
- Interview – Kevin Viestenz, Stihl Representative, December 20, 2011
- Oregon – Frequently Asked Questions. <http://www.oregonchain.com/pro/service/faq.htm>
- Canadian Centre for Occupational Health and Safety http://www.ccohs.ca/oshanswers/safety_haz/chainsaws/sawoperations.html



If the saw has a rear handle that is level with the ground, put your right foot's toe into the rear handle and press down. Using your right hand, pull out the starter grip slowly until you feel resistance, and then pull it back quickly and forcefully.

Another method allows you to start the chainsaw while holding it between your legs. First, make sure the chain brake is engaged and hold the front handle of the chainsaw with your left hand. Your left arm should be in a locked or straight position. Next, hold the rear handle of the saw very tightly between your legs, right above the knees. Pull the starter grip slowly until you feel resistance, and then pull it back quickly and forcefully.

Consult the sources below for more information on chainsaw safety. ■

Reprinted from the Winter 2012 issue of the *Kansas LTAP Newsletter*, a publication of the Kansas Local Technical Assistance Program (LTAP) at the Kansas University Transportation Center.