
Saw Maintenance

These maintenance topics are intended for the crosscut sawyer. Some topics, such as saw filing, are included just to provide an overview. An experienced saw filer should actually do the filing. The *Crosscut Saw Manual* by Warren Miller (1977, rev. 2003) is an excellent resource for more information on saw maintenance and filing.



I cannot overemphasize the need to have saws professionally sharpened. I continue to see quality vintage saws being used as “misery whips” because they were not properly sharpened.

Cleaning the Saw

Saws need to be clean to function effectively. Clean saws at the end of the day before storing them.

The goal is to remove all deposits on the surface of the saw without causing any damage. When saws have not been properly cared for over a long time, permanent damage can occur.

To clean the saw, remove the handles and place the saw on a flat wooden surface that you don’t mind getting oily. I made a special beam table for cleaning saws. I took a smooth 8-by-8 timber 8 feet long and countersunk a number of magnets below the surface to hold the saw in place. These thin round magnets are sold as *pot magnets* at industrial supply houses. They have a hole in the center so they can be mounted with a screw. Place the beam on top of a couple of sawhorses that are about 30 to 36 inches high. Place the saw on the beam.

Rust causes more damage to saws than anything else. A wire brush can be used to remove loose rust and scale. Never use a power sanding disk on a saw blade. Remove light rust using steel wool. Normally, I use fine grade (No. 0) steel wool for saw work, although coarser grades are sometimes needed.

Use a pumice grill block to remove rust that is too heavy to be removed with steel wool. Pumice grill blocks are brick shaped (about 4 by 4 by 8 inches) and are used to clean grill tops. They can be bought at a restaurant supply house. Take long sweeping strokes with the stone back and forth along the length of the blade while you are standing over the saw. A liberal amount of cleaning solution or water will keep the block’s pores open.

Don’t apply too much pressure on the cutter teeth because you can remove metal from the set and shorten the teeth.

To remove heavier rust, use an ax stone. Always use a liberal amount of cleaning solution, either oil or water, depending on the stone. Never use a dry stone on the saw blade.

As rust is removed, the saw begins to tell a story. Sometimes you can see the original acid etching revealing the saw manufacturer and the name and model of the saw.



The manufacturer’s etching may be destroyed over time, so you should be careful not to rub it out during cleaning. As a safeguard, I use an electric etcher to record the manufacturer and model number near the handle. I also assign the saw a number and etch the number and the name of the USDA Forest Service administrative unit on the blade. Keep a paper record describing the general amount of use and the sharpening record, such as the date of sharpening, raker depth, and tooth set.

As rust and other deposits are removed, you will see imperfections in the saw blade. Shiny spots indicate high spots. Spots that are duller than the normal saw surface indicate low spots. A high spot on one side of the blade usually produces a low spot on the other side. These kinks or bends need to be hammered out by an experienced saw filer.

Cleaning Solutions

Field Cleaning

A saw that is well cared for will not rust, but it will develop pitch deposits during normal use. Some pitch can be removed with a citrus-based solvent as the saw is being used. The saw's motion scrubs away the buildup. Traditionally, kerosene was used to clean the saw, but it is not recommended today because of environmental concerns and potentially harmful health effects.

Even when the saw is being lubricated, pitch can be deposited on the saw. Pitch buildups can be removed at the end of the day with steel wool and a cleaning solution.

Limit the use of harsh chemicals in remote settings where it may be difficult to handle such products properly.

Shop Cleaning

Harsher chemical products may be used in a shop, but only if you have access to proper disposal and handling methods.

Wear the proper personal protective equipment and know how to use the cleaning solutions safely. Check the Material Safety Data Sheet (MSDS) if you are unfamiliar with the hazards of using and storing a particular product. A number of citrus-based cleaners on the market are effective and are safer than petroleum-based solvents. Citrus-based cleaners are recommended rather than the traditional cleaners because they are safer to use and less harmful to the environment. The cleaning agents should not be left on the saw for long periods.

Generally speaking, rust and pitch can be removed by dissolving the deposits and wiping the saw clean or by abrasion.

Diesel fuel is both a solvent and an oil, so it was traditionally used with a stone or pumice block to clean saws. Another product often used for cleaning was kerosene or Jet-A fuel. Kerosene worked better for dissolving pitchy surfaces and was historically the solvent of choice.

A solution of muriatic acid (a commercial grade of hydrochloric acid) worked well on heavily pitted saws. Soap and hot water with a degreaser like TSP (trisodium phosphate) or Spic-n-Span also removes pitch.

A plastic squeeze bottle is a good container for applying cleaners in the shop. The squeeze bottle is just for applying

the solution, not for storage. These products must be stored in an approved container.

Naval gel can be applied to remove heavy rust and scale. Use only as directed, with adequate ventilation. This product stops the chemical reaction of the rust.

Checking for Straightness

A saw should be checked for straightness if it receives any harsh treatment during transportation or use. A saw that is not straight can buckle on the push stroke. Additionally, a saw that is not straight will not cut efficiently. The narrower, lighter felling saws are most prone to buckling.

Using Straightedges

Remove the saw's handles and hang the saw from one of its handle holes. You will need a pair of straightedges. Saw filers usually have straightedges made especially for this work, available from sawmill supply companies (figure 17). Two combination square rules can be used. Two 12- or 18-inch metal drafting straightedges also work well. Before using the straightedges on the saw, hold them together and make sure they maintain contact along their entire length. You should not see light between them when you put them together and hold them up to a light source.

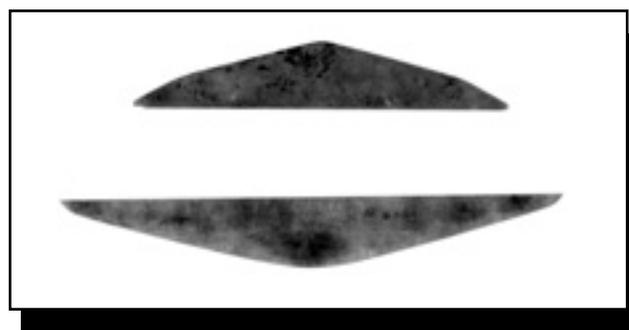


Figure 17—Examples of sawmaker's straightedges.

Straightedges work by allowing you to feel the difference in resistance between the saw and the straightedge as they are twisted back and forth over the saw's surface. Holding one straightedge in each hand, move the straightedges as a pair with the saw between them. You will feel increased drag on the ends of the straightedge on the side of a saw with a

depression. On the other side of the saw, the straightedge will pivot easily on the corresponding bump. Even resistance on both straightedges indicates a straight saw that does not have any kinks, bends, or bumps (figure 18).

If you find any major irregularities, mark them and tell the person who files your saws.



Figure 18—Locating kinks with two straightedges.

Often, a saw that needs straightening may be used until the next sharpening. However, the saw is more susceptible to buckling and will not cut as effectively. I don't recommend bending a saw that has a known irregularity so it can be transported. Such bending can compound the problem.

Testing the Saw

Testing determines whether a saw cuts straight, runs smooth, and produces long, thick shavings. The saw should produce shavings, not sawdust. The longer and more abundant the shavings, the better the saw is performing. Green logs produce longer shavings than dry logs. The shavings should be long and thick with smooth edges. If the edges of the shavings have "whiskers" or irregularities, the rakers are probably too long. If the shavings are paper thin, the rakers are too short (figure 19).

Tooth patterns without separate rakers (plain, M tooth, and Great American) usually do not produce long shavings, but produce chunky shavings with some sawdust.

Does the saw cut straight? Cut far enough into the test log to determine whether the cut is perfectly straight. Sometimes a sawyer standing in an awkward position can put a twist or bend on the saw that causes it to cut crooked.

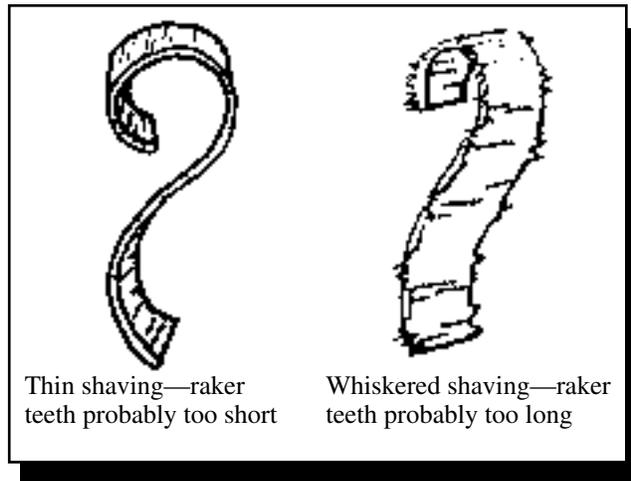


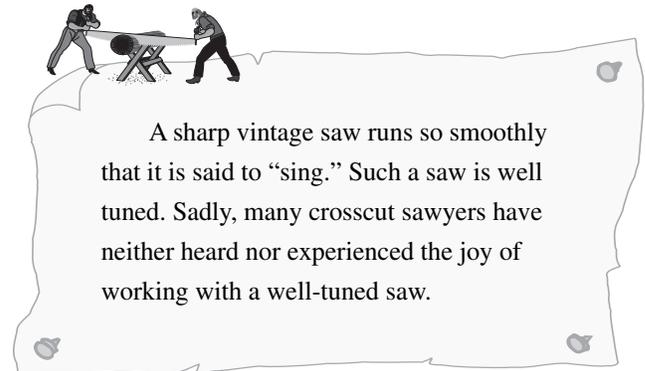
Figure 19—Examining shavings to identify sharpening problems.

However, if the saw consistently pulls to one side through no fault of the sawyer, the saw needs additional maintenance.

A saw will not cut straight if it is kinked or bent. Too much set on one side of the cutters can cause the saw to pull to that side. If a saw has been sharpened improperly, the teeth may be longer on one side than the other. The saw will pull to the side with the longer teeth.

Never field sharpen or touch up dull cutters. Doing so shortens the teeth, compounding the problem.

Does the saw run smooth? The saw may feel like it is alternately catching and releasing. A smooth-running saw, on



A sharp vintage saw runs so smoothly that it is said to “sing.” Such a saw is well tuned. Sadly, many crosscut sawyers have neither heard nor experienced the joy of working with a well-tuned saw.

the other hand, seems to cut effortlessly. Look for a saw that doesn’t chatter or seem like it is jumping as it cuts through the log.

Smoothness is most associated with the rakers. If a saw feels like it is snagging the wood, it is probably because one or more rakers have been filed incorrectly.

Inconsistent set in the teeth also can produce a jumpy saw. Look at the walls of the cut. A well-tuned crosscut saw leaves a smooth cut surface.

A cutter that has too much set may cause a saw to run rough. The saw may feel like there is a slight check or pause followed by a little jump.

A sawyer cannot do anything to fix a saw that is running rough. A qualified saw filer needs to make the necessary adjustments. Describe the problems to the filer.