

A close-up photograph of a chainsaw chain being sharpened by a red electric sharpener. The sharpener's grinding wheel is in contact with the chain's teeth, creating a shower of bright sparks. The background is dark, making the red sharpener and the sparks stand out.

Fast, Accurate and Sharp

Electric saw chain sharpeners deliver faster and better cutting performance

After 20 years of sharpening chainsaws with a file, I don't do much of it any more. Not since I discovered how fast and effective pro-grade electric saw chain sharpeners are. Fast, accurate and cool. The technology makes financial sense, too. When you've got the ability to resharpen a dead chain three or four times faster than with a file (and a whole lot more accurately), it makes sense to do this work in-house, rather than farming it out to a sharpening shop or springing for a new \$30 chain

before you need one.

Chainsaws are completely useless when they're dull. And the difference between a dull chain and a sharp one comes down to the shape of the tiniest tip of each cutter. Getting this small but crucial detail correct is what electric sharpeners do so well. The two models I've been using are made by Oregon and cost \$320 and \$650. There are cheaper models out there, but don't waste your money. They're too imprecise and sloppy to yield fast, first-rate results.



The kind of sharpeners that make sense for serious chainsaw users look like miniature chopsaws. But instead of spinning a toothed blade, they spin a thin, abrasive wheel about 4" or 5" in diameter. Don't bother with consumer-grade sharpeners that use



tiny grinding bits in rotary tools. They're way too slow and the cute little abrasives wear out way too fast.

Abrasive wheels need to have a semi-circular profile to work properly, and the sharpeners I'm using here come with a plastic gauge to assess wheel shape. Regular maintenance of this wheel is vital, and happens by holding an extra-hard dressing stone against the spinning abrasive wheel to work it down to shape. A dressed wheel shows a shower of sparks, like you see

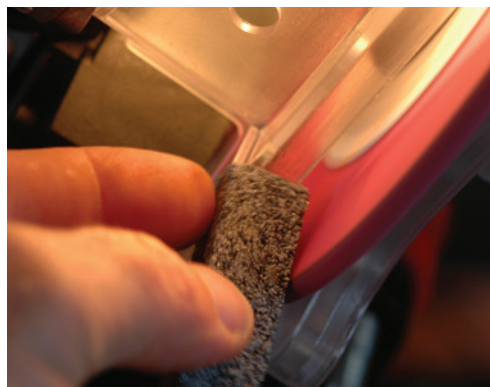


above. Even with the right equipment, there's finesse involved in successful machine sharpening. But before you can develop the touch, you've got to understand crucial steps in the sharpening

Two Chains Better Than One



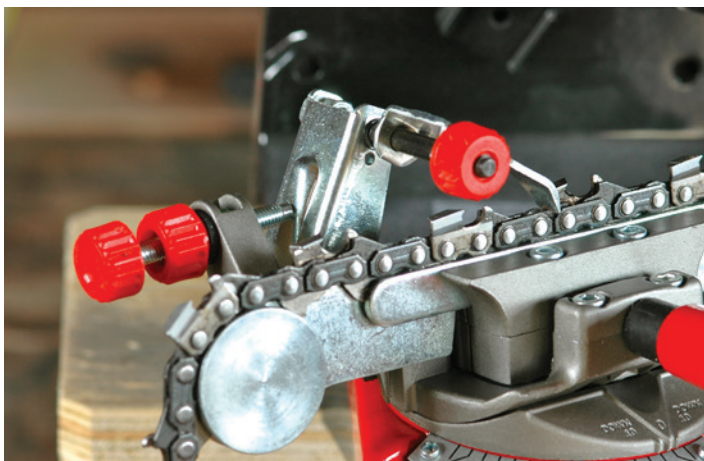
No matter how you use a chainsaw, it makes sense to keep an extra chain or two on hand, sharp and ready to go. When your chain cuts poorly, just take it off and replace it with one of your pre-sharpened ones. I keep spare chains in small, plastic containers in my saw box, ready to sling on as needed. It takes about two minutes for the swap. Keeping several chains in reserve also makes using an electric sharpener more efficient. Instead of setting yourself up to sharpen just one chain at a time, wait until you've got a few dull ones and some down time to fill productively, then grind away.



process. First, the chain comes off the saw. Place the chain on the sliding track underneath the abrasive wheel, adjust a couple of angle settings and depth stops (more on that later), then chop the spinning wheel down into

the chain so the abrasive contacts the very front edge of a cutter. It takes just a couple of seconds to make one cutter sharp. After that you're ready to slide the chain to the next link, then chop down and make more sparks fly. It's really fast.

All electric sharpeners have two adjustable stops, one that regulates the horizontal, side-to-side position of each cutter relative to the abrasive wheel, and another stop that regulates grinding depth. The horizontal stop determines how much metal will be removed



from the all-important leading edge of each cutter, and this is the control to start tweaking.

Start by examining the chain for any particularly damaged cutters. You'll need to grind all cutters down to this level so the chain remains balanced and cuts evenly. That's why you adjust the tool to suit the worst cutter. In practice the horizontal stop rests against the back edge of one cutter, holding it some fixed



distance from the side of the wheel.

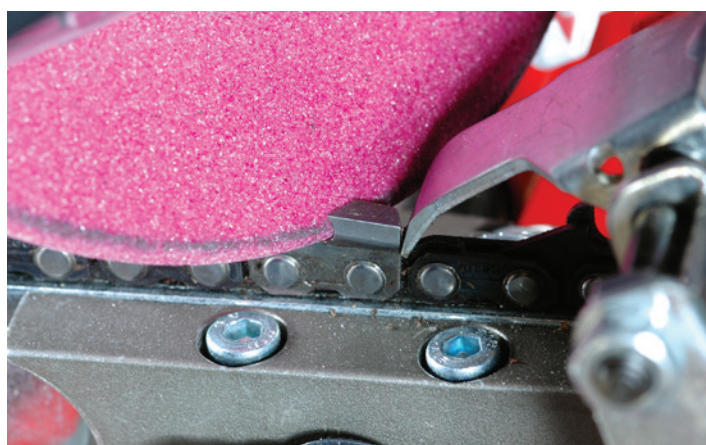
Place the chain in the holder groove, and adjust the swiveling table so the abrasive wheel encounters the chain at the factory-ground angle. All my chains are made with 30° angles, and yours probably are, too. Next, turn the threaded adjustment knob on the horizontal stop so just enough metal is removed from the leading edge of the cutter to make it sharp. Ginger-

The Essential Saw Box



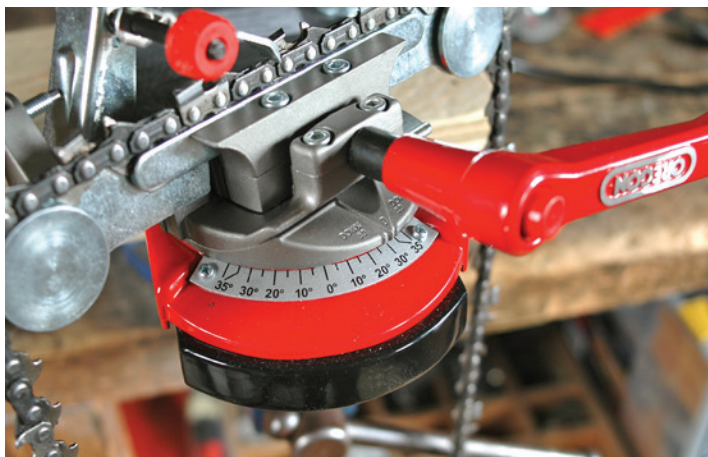
ly grind one cutter and readjust until you've got it right. Most sharpening jobs remove less than 1/32" of metal from the leading edge of the cutter.

Chainsaws need a lot of auxiliary stuff to keep them running right, and that's why you should keep a toolbox properly stocked for the job. You'll need a wrench to keep the chain tensioned correctly, some spare chains, a length of fresh pull cord, a spare spark plug, and your sharpening equipment. Does this kind of organization sound obsessive? It's actually a really nice way to work. I've owned three saw boxes over the years, and my weatherproof Stanley is the biggest and my current favourite. Everything is in one place, and I never have to wonder where I'll find all the little things that go with keeping a saw running and cutting well.



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Next, tweak the threaded adjuster that controls how far down the abrasive wheel chops. It needs to go down far enough to impart a hooked side profile to the cutter, though not so far that



it grinds down into the main body of each link. Try your set-up on a few teeth before getting underway. Grind each cutter repeatedly, but for a very short time – less than a second with each little chop – until full grinding depth has been achieved. Since the metal at the leading edge of the cutter is so thin, it's essential



that you don't overheat it by grinding too long. Any discoloration of the steel indicates a change in the metal and a reduced ability to hold an edge. A good edge looks clean and crisp and razor sharp. If the working edge of the abrasive wheel becomes dark, and doesn't grind the metal as aggressively as it once did, it means the wheel has become glazed. Work the surface with the dressing stone until the original colour is restored. This refreshed surface will cut more quickly and with less heat build up.

Since saw chains have cutters that alternate orientation along the chain (one pointing right, one left, the next right, etc), you need to sharpen all cutters on one side, then swivel the chain holder and tackle those pointing the other way. I mark the starting cutter with permanent marker, so you know exactly where to stop, without wasting any time accidentally regrinding sharp cutters.

Although successful saw chain sharpening is mostly about shaping cutters so they can slice, it's also about periodically adjusting the height of another part of the chain, a part called the

depth gauges. These rounded, curved extensions of metal sit in front of each tooth, regulating the bite that each one can take as it slides over the material you're sawing. After four or five sharpenings, the height of the cutters becomes reduced enough that



it's necessary to also reduce the height of the depth gauges correspondingly. Without this periodic maintenance step, no chain will cut properly during the last half of its working life.



Start by manually filing one depth gauge down to proper height using a guide made especially for this job and a flat hand file. The chain itself is stamped with a number that represents the number of thousandths of an inch that the depth gauges need to sit below the cutting edge. Next, use this filed depth gauge to set up the depth stop so the abrasive wheel grinds all other depth gauges to the same height. Electric saw chain sharpeners are ideal for this kind of periodic chain maintenance, though you will need to change the abrasive wheel to an extra-wide version made for this work.

If you use a chainsaw professionally or for making serious amounts of firewood for your own use, being efficient is important. Tooling up to sharpen your own chains costs less than you might expect and yields more than you'd guess.



Steve Maxwell has lived with his family on a 90 acre rural island homestead since 1985. Steve and his sons use and sharpen chainsaws all the time while they cut firewood, clear trails and keep the forest from moving onto their fields.