

SHARPENING TECHNIQUES AND EQUIPMENT

There are many ways to sharpen a knife blade, many different hones or stones and many different techniques. I am outlining here what has worked best for me on the blades I make. This is a free hand technique and there are machines out there that can help if need be. All of this is a matter of practice and feel and is not that difficult. I have never used a machine or gadget to sharpen a knife and take a certain amount of satisfaction from that. My Grandfather taught me the basics on how to sharpen a knife 50 years ago, but I struggled due to the lack of the right equipment. Wayne Goddard introduced me to the right equipment and that made all the difference. I give him credit here for that, and if you ever get the chance to go to one of his sharpening seminars at a knife show it is well worth the time.

I heat treat blades to the highest hardness possible but strive to retain reasonable ductility. As a result of the high hardness only quality stones will work well for sharpening. The CPM steels I use have very hard Vanadium Carbides in the matrix. The stone has to be hard and sharp enough to cut these cleanly or a lot of time will be wasted trying to get an edge. The best edge for a working knife (hunter, every day carry knife, fillet knife, kitchen knives) is a fine grade "toothy" edge. A polished "hair shaving" edge is not very useful in taking the hide off an animal, filleting a fish or cutting a tomato. In addition a fine polished edge will be easier to roll if pushed hard. The stones and techniques below will result in an aggressive, long lasting edge.

Sharpening Stones:

Diamond or Silicon Carbide will work well on all steels I use. Both of the minerals are harder than the Vanadium Carbide in the CPM steels and will cut cleanly. The most useful all around stone is the Silicon Carbide stone made by Norton. They call Silicon Carbide "Crystalon". This stone comes in a 12 inch long by 2 inch wide medium grit with "Crystalon" on one side and "India" on the other side. The India is a reddish yellow color and the "Crystalon" is the gray side. "India" is Aluminum Oxide and is not very effective on the hard carbide steels. Norton also makes a coarse grit and fine grit "Crystalon" only stone in an 8 inch length. The fine grade is a good choice for touch up and maintenance work, but the coarse is only good for very aggressive blade re-shaping. The diamond stones made by DMT and others also work well for the hard steels but require more work to get to the same result in my opinion. The DMT "red dot" is a good choice for an all around diamond stone. Diamond stones are very expensive and cost about 3 times what the Norton stones cost.

I cut manila rope to test edge sharpness and durability. A fine toothy edge will cut rope cleanly and continue to cut for a long time. If you can cut manila rope cleanly then you can cut elk hair or pig bristles or field dress a deer and slice cardboard all day.

A good place to start for your sharpening kit is the Norton medium combination in the 12 inch and the fine in 8 inch. These two will do it all. As the stones wear they will tend to cup in the center. It is important to keep them flat to get the best

sharpening results. I use 100 grit lapidary compound and water against a flat steel or cast iron surface to do the flattening work. Work in a circular motion against the hard surface with the cutting medium and water to make slurry. The stone will flatten very quickly and the process also cleans the stone and keeps it cutting efficiently.

Leather Strop:

After the edge is formed with the hone a "burr" will be present. This is a very thin piece flexible steel at the very fine edge that just bends back and forth. This must be removed so the edge will cut cleanly. Obtain a piece of leather 2 inch wide by about 12 inch long and glue it to a backing board (smooth side up). Rub some of the slurry from the Silicon Carbide stone into the leather to act as a cutting compound. You now have a very efficient strop. Use the strop to remove the burr formed during the sharpening.

Lubricant:

The Norton stones can be used with water or oil but I have found that the best lubricant is something like "Windex". You can pick up a house brand window cleaner cheap at the Dollar stores and as a bonus you have a spray bottle that makes application easy. This fluid lubricates cools and does not leave an oil residue on the blade. Just rinse the stone in water and it is clean and ready to use again. Keep the stone very wet so that metal particles will float out and not imbed in the stone.

Sharpening Technique:

The thumb is used to feel the sharpness of the blade. Place the cushion of the thumb on the blade with the edge up. Start at the guard end and very lightly slide the thumb forward. Needless to say use very little down pressure. If the blade is dull you will feel the flat spot and the thumb will slide. If it is sharp you will feel it grab the skin. It is best to try this out on a dull blade from the kitchen and then move to some sharper blades. It takes some practice to develop the feel of what sharp and dull are. But after awhile it will be second nature. Again you can't sharpen a blade if you can't tell when it is sharp, so it is worth the effort to get good at this step.

The most important thing in sharpening is to hold the blade at a constant angle against the stone as you slide it across the length. You want the same exact angle on both sides of the blade. Draw the blade across the stone like you are cutting a very thin small slice off the stone. Hard pressure is not necessary, let the stone do the work. The angle should be fairly shallow, shoot for 10 to 20 degrees between the flat of the stone and the blade. A shallow angle will cut better but will be a little weaker under hard use. As you come to the tip of the blade raise the handle about an inch. This will insure that the angle is increased slightly at the sharp tip and that over time it will not be ground away. My blades are very thin at the edge so you won't need to use many strokes to remove enough to form an edge. Typically 4 to 5 strokes on the fine stone per side are adequate if the blade is not

completely dull. The objective is to make the angle exactly the same on both sides and for the flats to come together forming the edge V.

Some burr may form at the edge. The amount of burr will depend on how hard you push the hardness of the steel and the grade of the stone. With a fine grade stone, light pressure and a hard blade there may not be enough burr to feel. This is typical of S30V, S90v and 10V.

The burr can be felt with the thumb moving down from the flat of the blade at right angles to the edge. As you slide your thumb down, the burr will tend to catch on the skin

and you can feel it. It may only be on one side and it may take a very light touch to pick it up. To remove the burr, slide the blade away from the edge against the leather strop at a little steeper angle than what was used on the stone. Just like the old days with a straight razor. Two strokes per side will be adequate most times. More strokes will dull the blade.

If no burr forms after 4 to 5 strokes on the stone and it feels sharp with the thumb test go to the strop and give it 2 strokes on each side to give the edge a slight polish.

Sometimes for some steels you can skip the stone step for a few sharpenings and go right to the strop to restore the edge. This is typical of CPM 154 and AEB-L

Alternate Sharpening Methods

I rub some Silicon Carbide slurry into the edge welt on my hunting knife sheath. A couple of strokes on that will get a workable edge back on a field knife with just a little effort. The butcher type diamond steels also work well for field touch up and also are handy in the kitchen. Just a couple of strokes per side does the job on thin blades. These steels when new are very aggressive and it is a good idea to sharpen all your kitchen knives to "break in" one of these. The shorter ones (5 inch) fit nice in a fanny pack and are very light as well.

I will sharpen your knife at no charge whenever you want. Just pay the postage and insurance to and from my shop. If you have any questions on all of this feel free to give me and e mail or call. I am usually available in the evenings.

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