

USING THE TOSAI MOTOR SHARPENER

by Richard Steiner



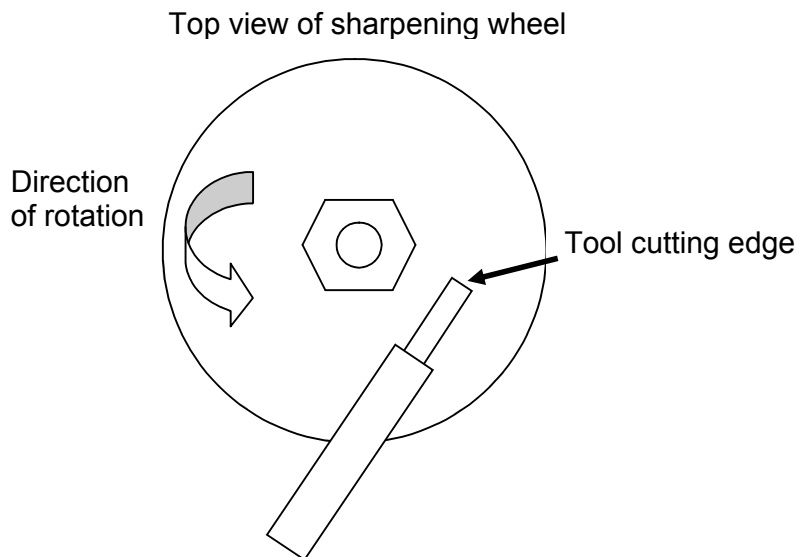
Tosai Motor Sharpener with (from left to right) packages of adhesive sandpaper, white honing compound, cleaning stone, wrenches and metal honing disks

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Safety considerations

1. Always wear safety glasses while using the Motor Sharpener.
2. Do not operate the Motor Sharpener continuously for more than thirty minutes to avoid overheating the motor.
2. Turning the Motor Sharpener on makes the wheels spin in a counter-clockwise direction. Always hold tools with their cutting edge pointing in the direction of the spin (to the right). A knife with its blade held against the spin can fly out of your hand and injure you or someone else.



Preparing the leather wheel

Turn on the motor. On the spinning leather wheels, apply a thin and even layer of white honing compound by moving the compound stick back and forth across the surface of the leather. Do not press down so hard that the wheel's spin slows down. Likewise, too light a touch will leave no compound on the leather at all. Be sure you have safety glasses on because little bits of the compound may fly off.

Sharpening technique on the leather wheel



The knife is held beveled side down

To hone the basic knife (*hangi to* or *sho to*) or chisel (*aisuki* or *hira to*), hold the bevel side of the tool flat against the spinning leather. (The bevel of every knife is always laid parallel to the wheel's surface, never perpendicular.) Do not hold the knife in just one location on the wheel;

instead, move it back and forth across the surface of the leather. Do not press hard enough to make the motor slow down. Do this for only a very few seconds. Lift the knife up and then lightly and gently place the back of the cutting edge parallel against the spinning wheel once or twice to remove the tiny burr of metal that forms while sharpening.

The curved U-gouges (*komasuki* or *maru to*) are more or less honed in the same way. Hold the bevel perfectly parallel to the surface of the wheel. Move it back and forth across the surface of the wheel and at the same time rotate the u-gouge from corner to

corner of the cutting edge. Be sure to use the whole surface of the



wheel. The burr is removed by holding the inside surface of the U-gouge parallel against the edge of the wheel for just a second or two. For smaller U-gouges, use the angled edge of the smaller, upper wheel (see photo). With the very smallest U-gouges, a tightly rolled piece of sandpaper also works well.

The V-gouge (*sankaku to*) is the hardest to hone. Hold the left side of the blade and the right side of the blade for exactly the same amount of time against the wheel, say three seconds each side. Otherwise one side of the blade will wear down too far compared to the other side and the V-gouge will become asymmetrical. If this happens, the V-gouge will be useless. A V-gouge (or any knife) that is not honed properly can be returned to the maker or taken to a professional knife sharpener, though you may be without it for a long period. (You can also return any tool you purchase from McClain's to them and request that it be returned to the manufacturer in Japan for sharpening.) The only other option is to just keep sharpening it until you have figured it out. You may go thru several V-knives before this occurs. No matter. In the end, you will know how to sharpen it very well. Remove the burr by holding the inner part of the V parallel against the edge of the upper, smaller leather wheel very briefly.

Refreshing the leather wheel

After honing two or three knives, you will notice that the surface of the leather has become black. This is iron from the back of the knife. Also, the white compound has probably worn away. This black metal must be removed from the wheel before another layer of compound can be applied. This is the job of the black lava rock. Use it to erase the metal off the leather by holding one of its broad, flat sides against the wheel while it turns. Alternately, press against the wheel with any of the long or short edges of the stone. But never use the pointed corners, since they will drill groves into the leather, which you do not want.

Further suggestions

Never use water on this machine. Do not hone any knife for a long time, or it will get hot and lose its temper. If you frequently hone your knives (and you want to get into the habit of doing this), bringing them back to maximum sharpness will require 5 seconds or less on this sharpener. Also, taking frequent breaks to hone the knives will give your eyes, shoulders, arms and hand muscles a needed rest from carving.

Repairing a tool edge

If you break a knife's cutting edge, that edge needs to be removed and a new edge created. This is the job of the three sandpaper faced metal sharpening disks.



Place one adhesive disk of coarse, medium and fine grit sandpaper on each of the three metal disks. You can mark the disks if you

like, but feeling the sandpaper will also tell you which is which.

Remove the nut on top of the smaller leather wheel with the wrench included with the sharpener. Screw the coarse wheel onto the center bolt firmly.

Put a glass of water on the table next to the sharpener and dip the knife into it frequently while sharpening so that the knife will not get too hot. Put on a pair of safety goggles. Turn the machine on.

Holding the knife in both hands perfectly upright, perpendicular to the inner surface of the spinning wheel (not over the outer edge, which is spinning much faster than the inner part), lower it onto the sandpaper and press down gentle and slowly. Sparks will fly. What you want to do is remove the broken cutting edge of the blade.

This will take almost no time at all, less than 5 seconds. However, stop and dip the knife into the water several times so it does not get too hot.

Then hold the now reduced or shortened beveled side of the knife at the proper angle to the sandpaper and press it gently but firmly to the sandpaper's surface to make a new, sloping bevel. Watch carefully that you do not change the angle of this cutting edge to the knife blade. Usually, 40 degrees is what you want, although 35 degrees may be better. The angle is a matter of personal preference. (Just remember that the sharper the angle, the more chance there will be for the tip of the cutting edge of the blade to snap off or the blade to chip.) Move the knife evenly back and forth across the sandpaper disk. Dip the knife into water frequently. In the case of the U-gouges, rotate the blade from corner to corner, the same as when honing them on the leather wheel. Be very

careful not to dish the center of the U-gouge by sharpening the center more than the outer sides. Frequently dip the U-gouge into water as you work.

Take the coarse grit disk off and put on the middle grit disk. Continue to smooth the metal of the beveled side of the blade's cutting edge. Try now to get a sharp edge. Not more than 5 or 7 seconds is needed here. Dip the tool into the water often.

Put the fine grit sandpaper disk on and finish putting a sharp edge to the blade. Remove the disk, replace the nut, and hone the knife on the leather wheel as usual.

Tips

To test whether the edge of any knife is really as sharp as possible, hold the knife in one hand with the blade hovering over the thumb nail of the other hand at a 45-degree angle. Gentle try to slide the blade across the thumbnail. If it slides rather easily, as a butter knife would, it is not sharp. But if it catches into the nail, it is sharp.

Frequently hone your tools while you carve, especially the ones you are using the most. Taking a sharpening break every 15 minutes will rest your arms, hands and eyes, and keep the knife at its optimum sharpness, requiring shorter sharpening sessions.

Keep the motor sharpener unplugged and covered when not in use. You will probably never need to replace the lava stone. The leather wheels may need replacing once in 5 years. The white compound will wear away quickly, perhaps in a year. Order a new one before the old one is gone as it may take some time to fill your order.

With the motor sharpener you also get spare sandpaper sheets. When one is worn out, peel it off the aluminum wheel and lay on a new one. The coarse sandpaper, #120 grit, is 荒砥 (*ara-togi* in Japanese); the middle grit, #240, is 中砥 (*chu-togi*), and the fine grit, #400, is 仕上砥 (*shiage-togi*).

There is also a small L-shaped Allen wrench. Very rarely the post on which the wheels sit will become loose from the drive connected to the motor below. This wrench is to tighten the six-sided nut on the side of the post below the larger leather wheel.

With this model of sharpener, the motor can run continuously for up to thirty minutes. But no one would ever run the unit that long. The whole purpose of owning this sharpener is to get the job done in only seconds, so turn it off as soon as you are finished and the motor will last much longer.

I have used water stones for many years; I am also familiar with the various motorized grit stones that spin vertically on a horizontal drive bar, lined up side by side – the most common type of sharpening machine. From talking with professional knife sharpeners, I have learned that the spinning, vertical wheels are not what we really want. They tend to re-bevel the knives while honing them, thus making the blade shorter, thinner and weaker. They are also harmful if you touch them accidentally. The leather wheels are absolutely safe, even for young people. Horizontal honing is far better for the knife than vertical honing.

This motor sharpener is quiet, light, safe and inexpensive. It has a long life and it is very easy to use. With its small footprint, it fits

easily into any studio. Take good care of your Tosai Motor Sharpener and it will last into the next generation of printmakers, who will thank you every time they hone their knives.

Replacement compound, wheels and sandpaper can be ordered in the USA from McClain's Printmaking Supplies at 800-832-4264 or www.imcclains.com.