How to make a Stock Removal Working knife

By

Jeff Crowner

The first thing I do personally is make a template out of Polycarbonate approx 1/8 to ¼ inch thick. I then take the template and handle it in various grips until it almost feels comfortable in my hand without scales on it. Thru experience of making many knives this way, I have found that this method works good for me. I think that if a knife without the scales on it almost feels right in the hand then when the scales are on it, one could assume that it should be just right. By the way, when I make a new design or template, I carry it around with me trying to get a feel for it. I fiddle with it looking for uncomfortable excess things while I simulate using it for various task. I do this, because I have made a lot of knives and thru discovery and experience kind of know what a knife is suppose to feel in my hand. Keep in mind not every knife you make is going to fit another's hand. People have different hand shapes and sizes. Thus the custom maker is in business to meet the needs of those special people with giant or hobbit like hands.

This particular piece is called my High Cascade Bush Knife (HCBK)
I designed this one for the Wilderness survival instructors over in Bend Oregon.
They (Wilderness Survival Instructors) wanted a blade like this as well as the Little Bear knife design.

The above pic is the Little Bear Design by myself and Joel Lisson of REACT Wilderness Survival School. This piece is CPM 154 with G10 handle material and Kydex sheath.

The next thing I do is find a piece of steel that is annealed for scribing the blades profile on. I usually try to find a piece of steel to meet the needs of the tool that I am making. For example, I would not choose to make a katana with a piece of D-2, or a neck knife out of saw blade if I was going to be doing salt water diving. Steel is so cheap nowadays to buy. If you figure out the cost of your time, equipment, propane, electricity..etc, it is easier to buy a piece of annealed steel from the mill and stock removal the thing. Most steels that you get are already annealed with the smallest grain structure possible off the get go. Heat treat is 70-80 % of the performance in my opinion.

I selected a piece of 1/8 inch thick 1095 Carbon steel annealed in the above pic for this project. You will need a C-clamp, Permanent marker or carbide scribe for drawing the profile. I have found that both will work, but however the scribe seems to be better in my opinion being that it will not rub off when working the steel…

If you noticed I used both methods of marking the profile. Keep in mind there are many other ways to do this method. These are two that I use often.

This a one of my most used tools for cutting a profile from annealed steel. This is a modified portaband saw. Many other knife makers use them. They are built to be rugged with most gear driven and loads of low end torque. I highly recommend them. Dave Ryder has one exactly like mine, or is mine exactly like his?

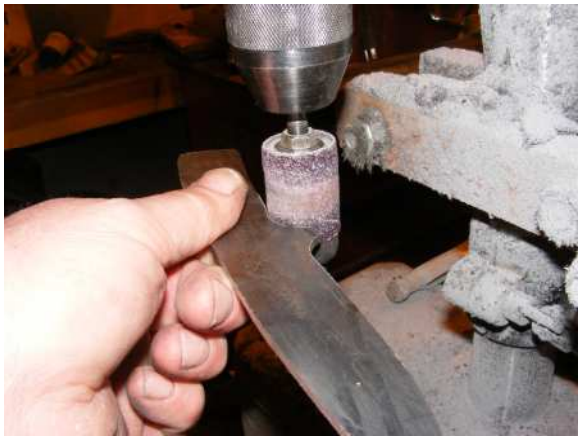
I am about to cut the piece of 1095 in the above pic.

Almost done with cutting out the rough profile with my portaband.

Once my piece is cut out from a piece of steel, there are many sharp jagged corners. I adjust my shelf 90 degrees from my platen to refine the profile of the blade shape. Making blades is one of refinement. It takes time and patience. Most of all Passion!

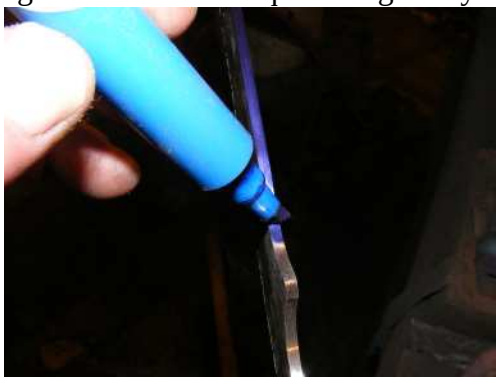
Working on profile refinement

This is a bench top drill press. I dedicate this one for profile refinement and fit and finish. These are usually on sale at Harbor Freight tools for approx 30 dollars. This is one of my most valuable tools for drum sanding. I use a foot on off switch on all of my drill presses for safety. Remember, never use gloves on any machinery like grinders, drills, saws..etc…Mine is set up that if my foot comes off the switch, it kills the power. Remember also to use safety glasses when in the shop using power tools.



Working a profile with my drill press and sanding drum.

Once the profile has been worked down to a pleasing curved shape then it is time to place the center scribe lines on the blade face. There are many different ways to do this. I am going to show one of the ways I do this. The first this I do is invest in a decent adjustable scribe that will center up perpendicular the blade face every time. You can make your own as well, but my time is important while have no time to make one. I would be rather making knives and money. I usually take the blade face down to 220 grit with my belt sander or hand rub. It seems to transfer the scribe line better to the annealed steel blade face. Before I scribe the lines I use a poor mans Dykem Blue. I go to the the dollar store and pick up a wide faced blue magic marker. I coat the blade face and the scribe the lines on the blade. I usually make the center line approx the width of a US Dime. I found that that is a good thickness for quenching in my opinion.



The above pic is having the poor mans blue applied to the blade face.

Scribe tool

After I have adjusted the tool I scribe up and down the blade on both sides having the lines approx the distance of what a dime would be.

Once the scribe line have been established I then start think of where I am going to drill out my holes for pins. What I do is place the blade blank down and draw a picture of the handle on the steel and then in this case I just eyeball where to place the pin holes. This one is a simple work knife, thus it is not critical that the holes are exact distance from handle ends. I can get away with doing it like this because once again if you have made about 50 of these things it gets really simple. With this blade I chose ¼ inch brass tube stock from Gene Martin. He and his wife were kind of enough to give me a bag of the pin stock at the last knife show. Thank you guys, a lot!

I use the tool in pic to set the divot for the drill press. These tools are cheap and worth it. It keeps your drill bit from doing the funky chicken dance all over the steel face

Placing my dots for where I am going to put my divot

Using my punch tool to place divots in the handle for pre drilling

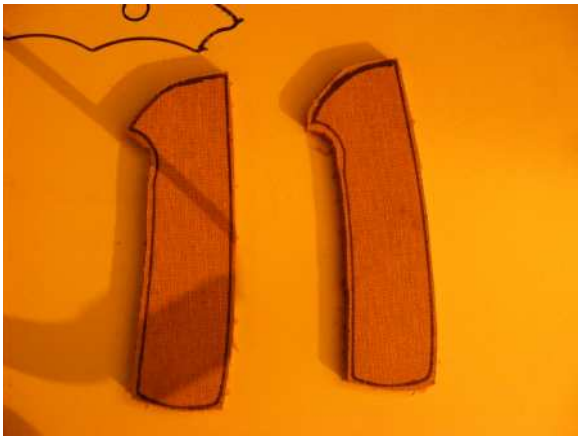
Aligning up the drill with the divot then drilling out the ¼ inch holes

Once I have drilled out the holes I start to think about the handle slabs that are going to go on the simple work knife. For this blade I chose Red/Maroon TeroTuf from Cascade Industrial off of Hwy 99 and Airport road in Eugene. I like the stuff for the working knife. The way I finish it, seems to still grip when wet.

Here is what you need to get started. I use a black marker on this particular set up. I like using the maker because I can see it better with this material rather than a scribe line. Also when I cut the handle out they will be slightly over size which is nice to have when grinding the pit and finish profile with handles on it.

I kind of eyeballed the front of the handles but traced the rest of it to the profile of the blade handle. Remember having a little extra material over lap is ok.

I use a bandsaw to cut the handle pieces out.



A couple of pieces ready and slightly over size for the blade when ready.

That's part 1. Let us know if you think this is valuable and if so I'll work up the rest of the instructions as time allows.

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