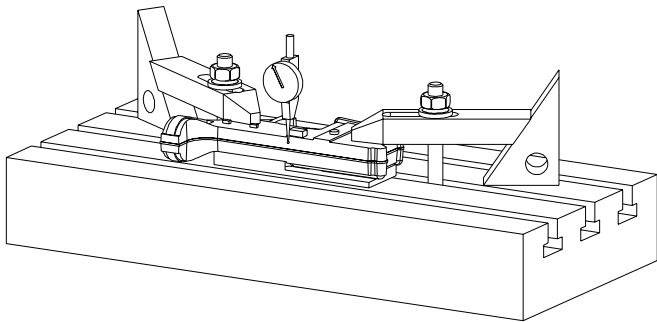
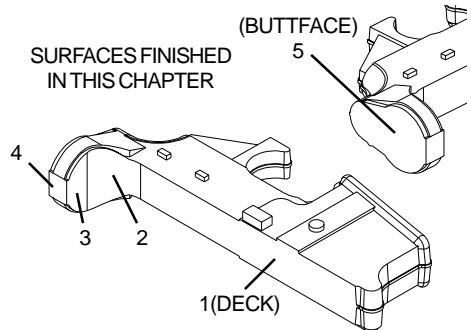


Chapter 2

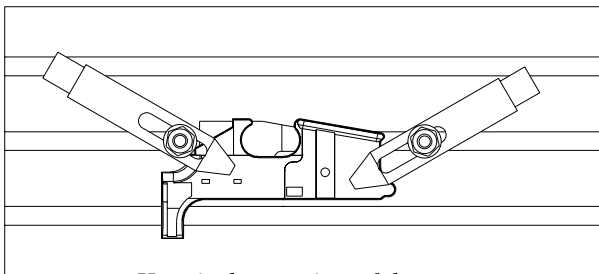
The First Setup

With forgings (as well as castings and weldments) that require final precision machining, the big problem is where to start. If you cut too much off of one side, there may not be enough material on the other side to clean up and now you have one expensive piece of scrap. It is like cutting a diamond. You must make the first cut just exactly right in order for everything else to fall in place.

This chapter takes you through the first setup and the first, and most important, cuts. When you complete this chapter, you will have five finished surfaces on your forging.

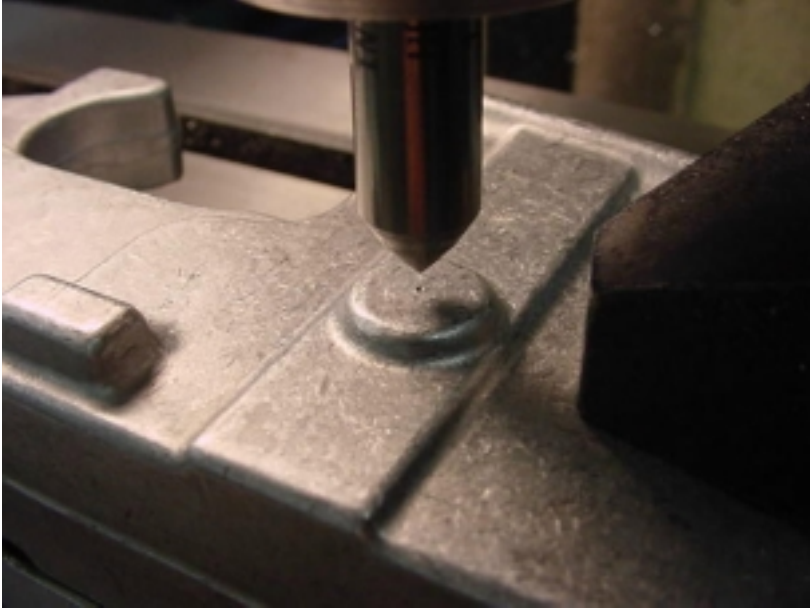


Begin by clamping the forging to your milling machine table using the passenger side clamping pad. Then indicate the forging true to the x axis.

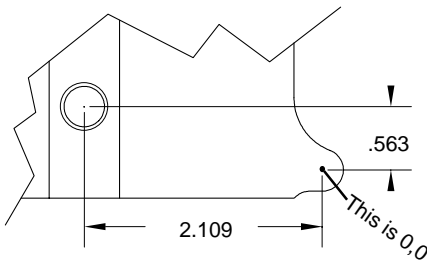


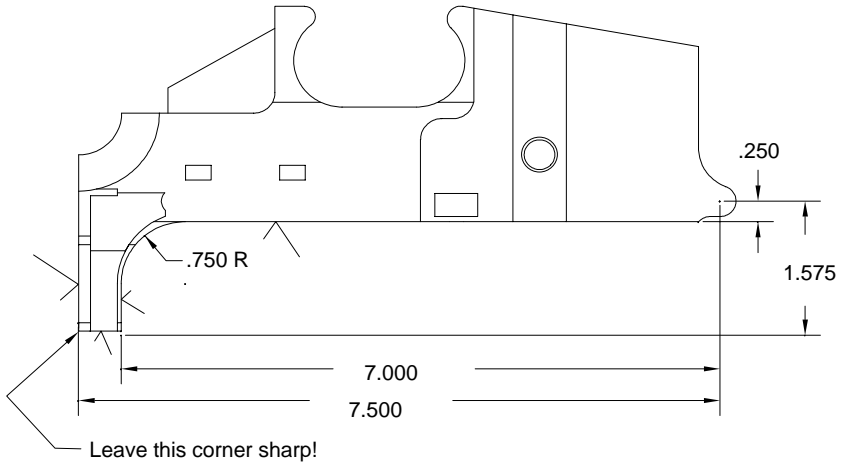
Here is the top view of the setup.

Now the forging is parallel and aligned to the table in the x axis. We will now cut the five surfaces. But, first we have to locate the piece in order for our machining to line up with the various features on the forging.



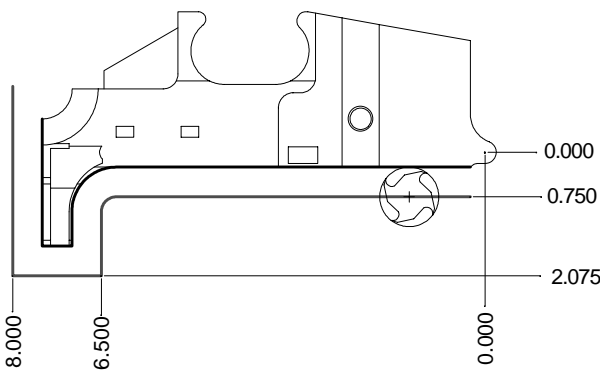
I like to pick up the round boss where the magazine catch will go. This is a good feature to locate on as it will give both x and y. Use a center and center it on the boss. You can easily get within .005" by eye. Zero your digital read out. For those without DRO's, it will take you longer and you will have to be more careful, but those are your only handicaps. Move the spindle to the pivot pin hole location and check the alignment with the forging. If it looks good make this position your absolute zero.





Above are the five surfaces to finish in the first set-up or hold. I use a 1" endmill because it makes for easy math. For the 3/4" radius I x-y it with the 1" endmill in 18 steps (5 degrees each) and it comes out very smooth.

Nothing more needs be said for experienced machinests. However, I will add somethings for the benifit of the beginners. Since you will be working close to the table, set your spindle stop to keep the cutter from hitting the table. Don't try to take off all the metal in one cut. Take rough cuts and leave about .010 for the final cut. A light final cut will deflect the cutter less and give you a better finish. When you think you are finished cutting, clean all the chips away and take a look at your work.



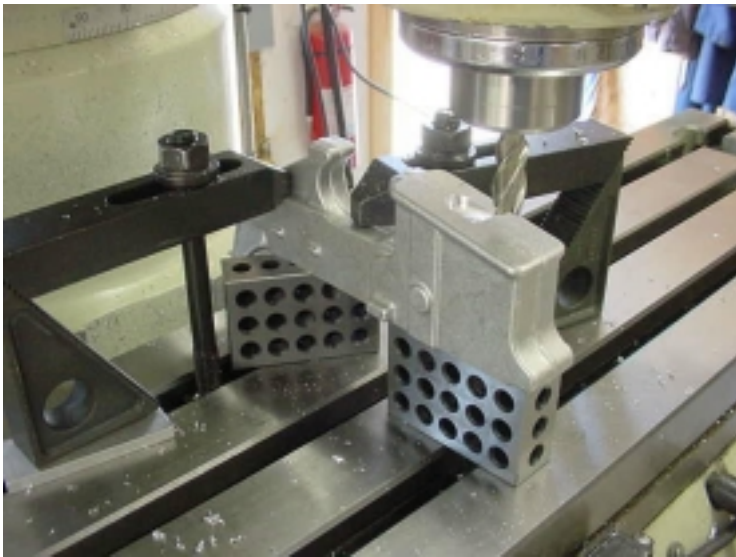
X	Y
-6.250	-0.750
-6.270	-0.750
-6.291	-0.753
-6.311	-0.757
-6.331	-0.763
-6.350	-0.771
-6.368	-0.780
-6.386	-0.790
-6.403	-0.802
-6.419	-0.816
-6.433	-0.830
-6.447	-0.846
-6.459	-0.863
-6.469	-0.881
-6.478	-0.899
-6.486	-0.918
-6.492	-0.938
-6.496	-0.958
-6.499	-0.979
-6.500	-1.000

Above is the tool path for a 1" dia cutter. On the right is the table of the 18 steps around the 3/4" radius. The first and last coordinates are the ends of the straight tool paths.

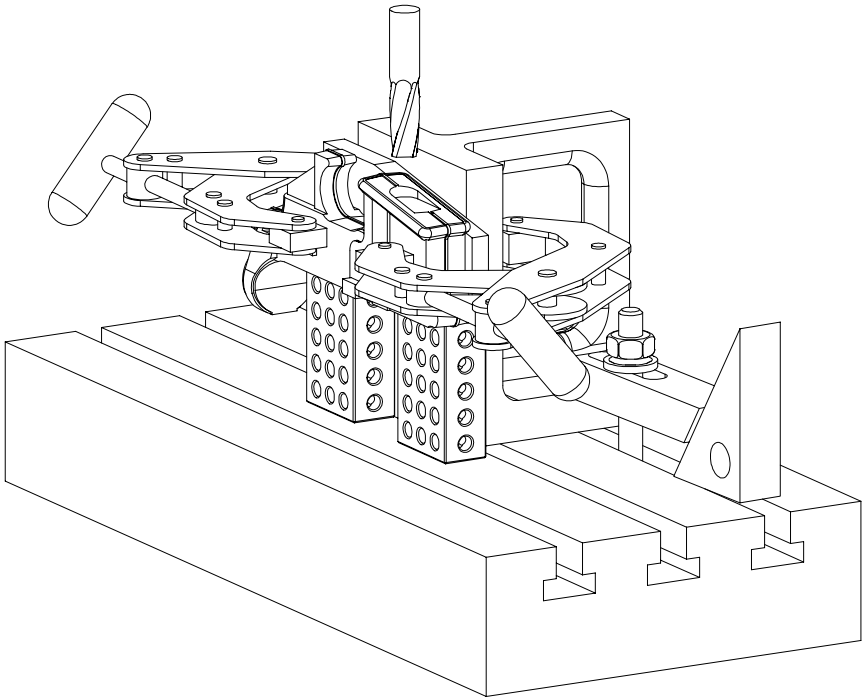


Make sure you have done all the cuts scheduled for this setup before you break it down.

Now that we have established our initial finished surfaces we can hold the forging for the placement of pin holes etc. But before we do, we need to cut a small flat in the bottom of the magazine well to aid in clamping.



Put the lower on a couple of 1-2-3 blocks and clamp as show above. Using a 1/2" cutter make a flat in the middle of the magazine well, centered and about 3/4" long. Cut this flat in the material that will be removed when we cut the magazine well.



Here is an alternate method for cutting the clamp flat. Support the lower on a 1-2-3 blocks and using the passenger side clamp pad, clamp it to an angle plate. You can also hold the lower in a vise using the driver side and passenger side pads.

If you prefer to work in a vise, take the optional cut shown below across the bottom of the trigger guard bosses. When clamping on these bosses, be careful not to overtighten and crush your forging.

