PROCEDURE FOR SWELLED BUTTS

The Morgan Hand Mill will generate swelled butts up to .060" on a single strip or .120" on the finished rod. The swell is generated in a unique procedure of raising the anvil a pre-determined amount from the swell to the tip end of the butt. The initial raising of the anvil occurs over 2 ½" giving a pleasant looking swell to the butt.

The accessory package for swelled butts consists of these instructions and 100 precision plastic shims in four sizes--.060", .030", .020", & .010". By using combinations of these four sizes finished swelled butts of .020", .040", .060", .080", .100" & .120" can be attained. Do not make a swelled butt over .060" per strip for a total of .120". The .060" shim is provided only to make it easy to shim the maximum height by using one shim. If you make a swell greater than .060" per strip you may damage your anvil.

A common swell is approximately .100" on a finished butt so this example will explain the procedure for setting the anvil .050" above normal for a single strip.

First, you determine where on your butt you want the swell to occur and mark this on a butt strip with a pencil. Second, mount your butt strip on the butt-finishing anvil using the correct fastener hole for final milling. It is my suggestion that you mount the strip so the swell ends over a taper setting station or as close to it as you can. You also want the tip end of the strip to end near the left side of your anvil, as is the normal practice. Third, mark on your anvil directly below where you want the swell to start. Remove the butt strip from your anvil.

The anvil is held down every 2 ½" with an 8-32 flat head fastener. Slightly loosen all of the fasteners towards the tip from where the swell will start so your shims can slide under the anvil. **With the plastic shims you must leave the space where the swell is open without any shims for the anvil to raise.** Beginning with the first open space between fasteners towards the tip and past the swell insert a .030" shim and a .020" shim. As with any other procedure involving mounting the anvils make sure there is no debris between the anvil and adjustable bed. Continue up the anvil towards the tip putting a .030" and a .020" shim between each fastener and between the adjustable bed and anvil while partially screwing the fastener into the anvil. When you are finished with this go back and tighten all of the anvil fasteners to the correct tension.

You now have a .050" swell in your anvil over a distance of 2 1/2" and the anvil from the start of the swell to the end is also up .050".

Now you must set the taper in your section. Normally, there is no taper in the butt section before the swell so your adjustable bed will not be set to a taper up to where the swell starts. From the swell to the tip of the butt your taper will be set in the normal manner.

When you start to set the taper in your adjustable bed it should be tight against the base two stations past where your swell ends. Place the dial indicator over the first station above the swell with the weight on the plane. Set your dial indicator to "0". This is your reference setting for adjusting the rest of the adjustable bed. Now loosen the locking fasteners to the left (towards the tip of the butt spline) of your reference station. Don't loosen the locking fastener of your reference station. Adjust the remaining stations to your taper in the normal manner.

You now have the adjustable bed set with the taper you want and a swell of .050". The same procedure can be used to set any swell the precision plastic shims provide.

The milling procedure needs to be changed some to accommodate the swelled butt sections. When you are milling a section and the plane comes to the rapid rise in the anvil the tip end of the strip is actually raised as the plane passes over the swell in the milling process. If you are making a heavy cut it is possible for the cutters to dig into the bamboo at the swell and actually cut more than they should right at the swell. This would leave a narrowing of the strip greater than it should be over the swelled area.

It is helpful to rough cut your butt strips close to the finished size that you want. In most cases they would probably be heat treated before you finish mill them. Then you want to take light cuts (.001"-.002") on each pass being careful to make smooth, even cuts over the area of the swell.

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