Chapter 10

# Making a Ribbed Part

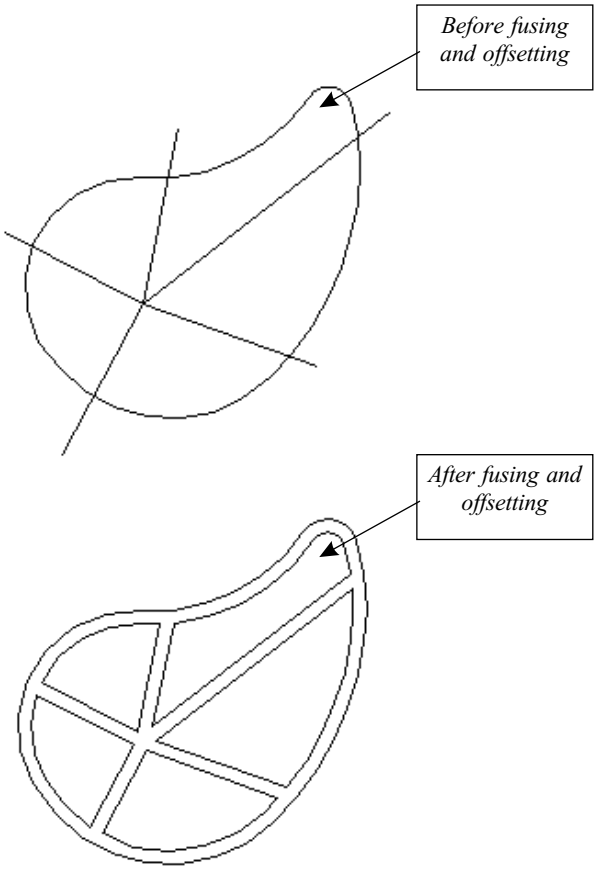



***Figure 10-1***

The fuse and offset functions make it easy for you to make ribbed parts when all you know about the ribs is their location of their centers and the thickness of the ribs.

Figure 10-1 shows the *before* and *after* of a part with five ribs. The *before* drawing is the center lines of the ribs, and the *after* drawing is the ribbed part. (This drawing is included on the MillWrite disk as a sample job file called *Create A Ribbed Part*.) This example will show you how to take the centerlines and create the ribbed part.

Figure 10-2 shows the centerlines as dotted lines on top of the final ribbed part to show you what they represent. Assume that all you know about this part is where the centers of the ribs are and that the ribs are .4 inches thick.

Since the five ribs that radiate from the center of the part are straight, they are made up of lines (rather than arcs or splines). The outer rib is a series of tangent arcs. However all of the ribs could have been made up of any combination of arcs, splines, and lines. In other words, there is no requirement that the ribs that radiate from the center be straight lines.

Notice that the five lines in Figure 10-2 extend beyond the boundary. The reason is that you'll be using the fuse function to combine the offsets of these lines with the offset of that boundary, so it's best to make the lines long enough so that they will clear all the offsets.

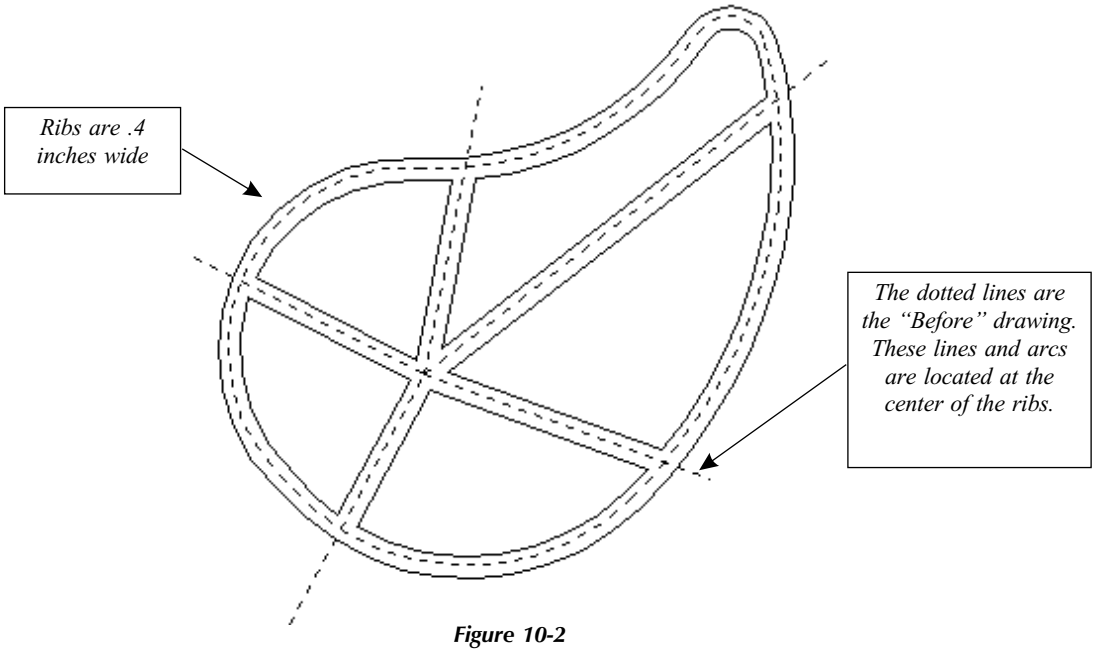



***Figure 10-2***

The first step is to create the offsets. Start the **Offset** function either by pressing the O key or by picking it from the **Edit** menu. Figure 10-3 shows the offset function after it has been set correctly. You want a CAD type offset rather than a CAM type offset. (Actually, MillWrite will not create a CAM offset of a single line anyway.)

Next notice that both the **Delete Original** box and the **Offset Both Sides** box have been checked. Since these lines run down the center of the ribs you want to offset ***both*** sides of them, and you don't need the originals when you're finished.

Because you're offsetting both sides of these lines, the offset value must be set to half of the rib thickness. So if the rib the thickness is 0.4 inch, the offset value needs to set to 0.2 inch. You would not want to ***drag*** the offset because then each offset would be slightly different. Rather, you want a fixed value for the offsets so that each rib is the correct width.

After you've set the offset options correctly, move the mouse into the drawing and click on each of the five lines and on the outer boundary. The result will look like the drawing in Figure 10-4.

You are almost ready to fuse these offsets to the outer boundary. However, the fusing function needs closed loops. At the moment, each of the five ribs is actually two individual, parallel lines. So now you must close them. Actually, you only have to close them at one end because, as described in Chapter 6, you can fuse shapes that are not closed if is MillWrite is capable of closing the shape by connecting the start node to the end node.

There are different ways to close these ribs. The easiest is to use the ***Join*** function from the node menu. Touch the mouse to any geometry of the drawing, click the right mouse button for the node menu, and pick the **Join** function. Then, as seen in Figure 10-5, touch the mouse to one of the lines and click the left mouse button when you see the mouse icon change to show the word **Join**.

Figure 10-6 shows how the screen will change after you've clicked one of the lines. The line you clicked on has become dotted to identify it, and MillWrite is asking you to click on the line you want to join to it.

The three mouse icons at the bottom, left corner of the screen show that the ***right*** mouse button is set to the ***Join With Line*** function. This is the function you want to use in this situation. This joins the two lines by creating a line between them. So put the mouse onto the other line of the rib, as seen in Figure 10-6, and click the right mouse button. The result is a polyline with three line segments, as seen in Figure 10-7.

You are done with this rib, so either click the **Done** button in the upper right corner of the screen, or press the Esc key, or press the Enter key.

Now move the mouse to one of the other four ribs and do the exact same operation on each of them.

If you do this correctly the resulting figure will be similar to what you see in Figure 10-8. Each of the five ribs is now a polyline that consists of three line segments. You are ready to fuse these ribs to the outer boundary.

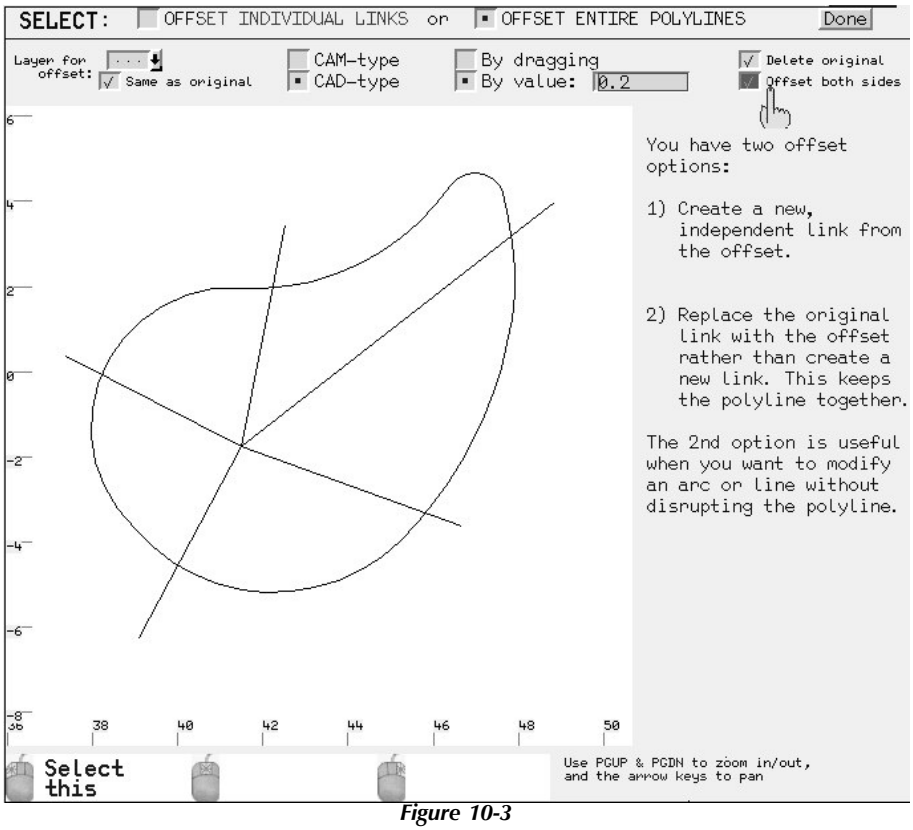



*Figure 10-3*

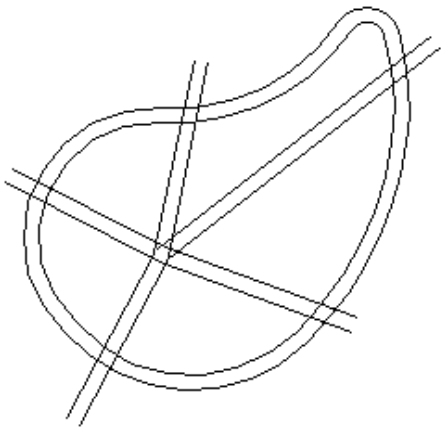


*Figure 10-4*

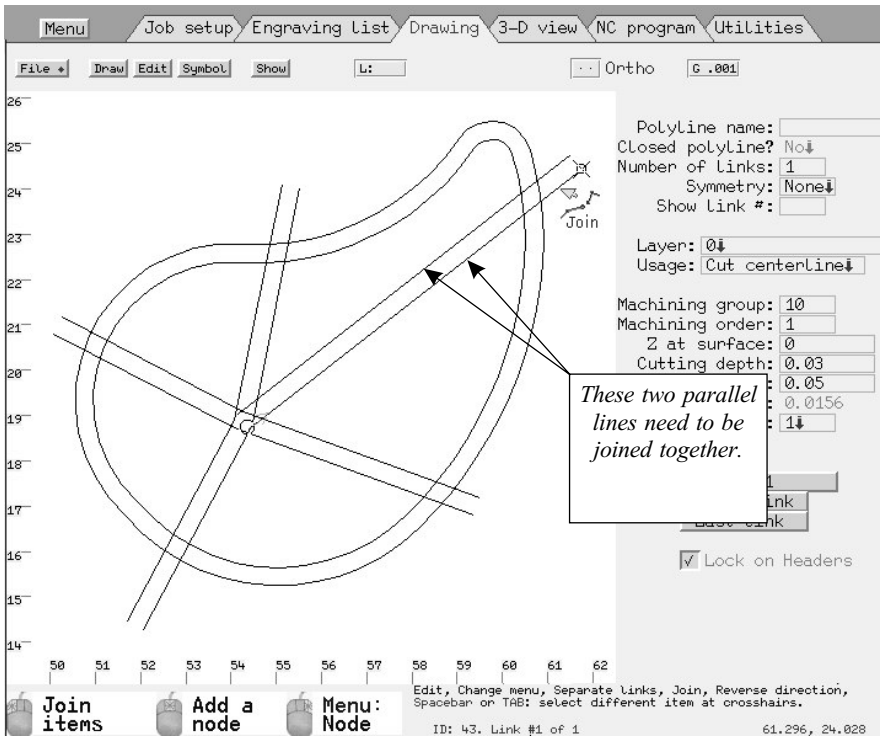



*Figure 10-5*

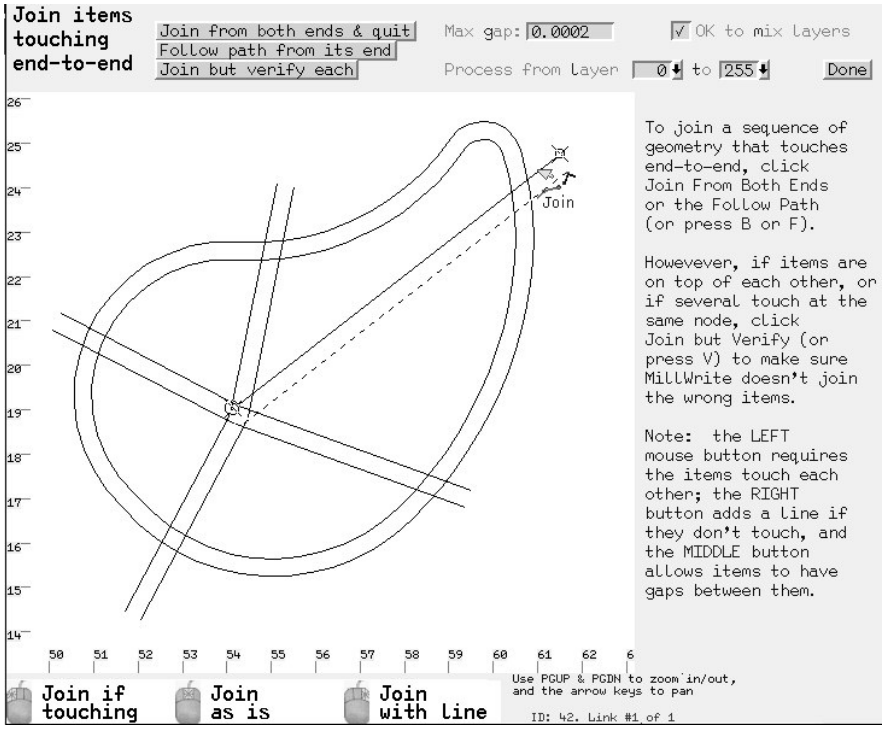



*Figure 10-6*

*Figure 10-7*

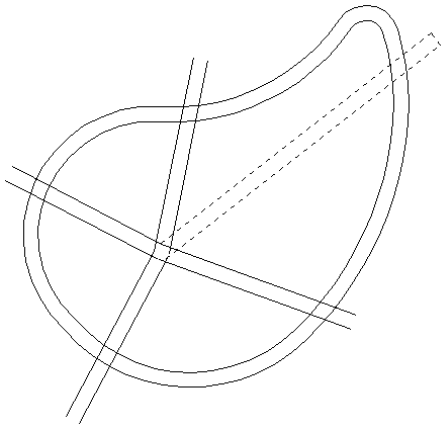
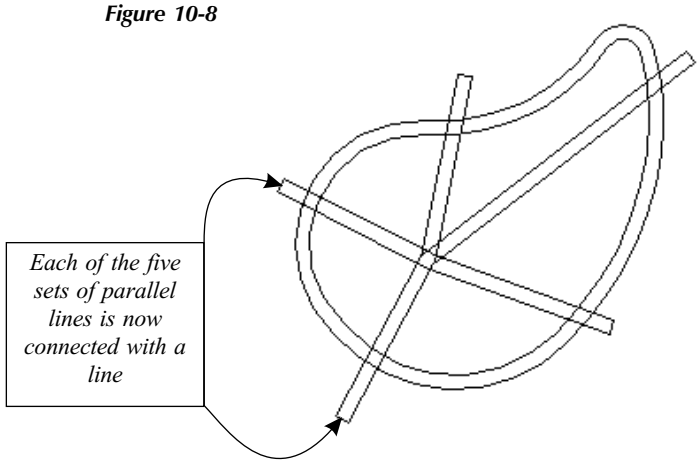


*Figure 10-8*



Start the **Fuse** function either by pressing the F key or by picking it from the **Edit** menu. There are five ribs, and each one needs to be joined to the boundary. It doesn't matter which rib you join to the boundary first. So just put the mouse on one of the ribs and click the left mouse button. When MillWrite prompts you to pick the item to join to it, pick the inner of the two boundary shapes. (See Figure 10-9.)

After you've picked the two items to fuse together, the screen will change to that of Figure 10-9. You now have to pick the combination(s) you want to keep. The one you want to keep is the one in which the rib has been ***removed***.

Next you pick one of the other ribs and fuse it to the boundary. Figure 10-10 shows the result of the first fusing, and it shows the next rib about to be fused.

Figures 10-11 and 10-12 shows the results of fusing two more ribs together. Notice which of the four fusing combinations is checked. You always pick the one in which the rib is being removed.

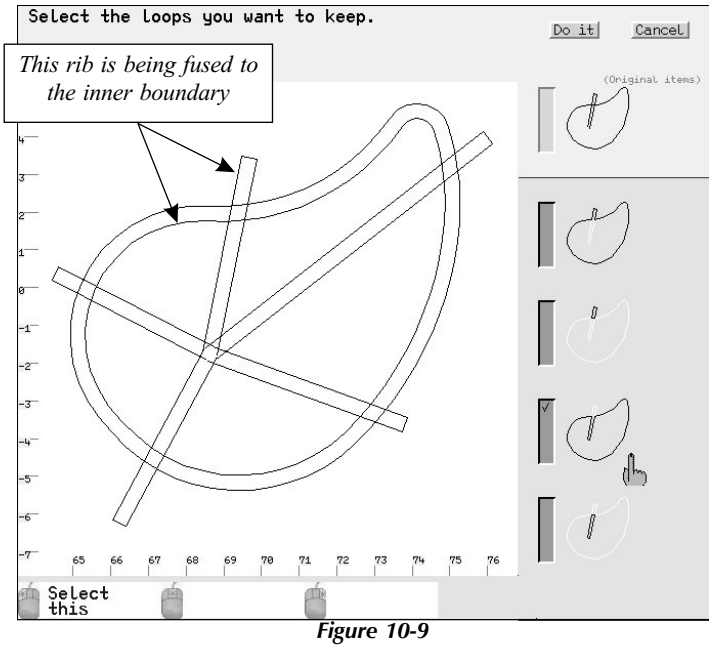



*Figure 10-9*

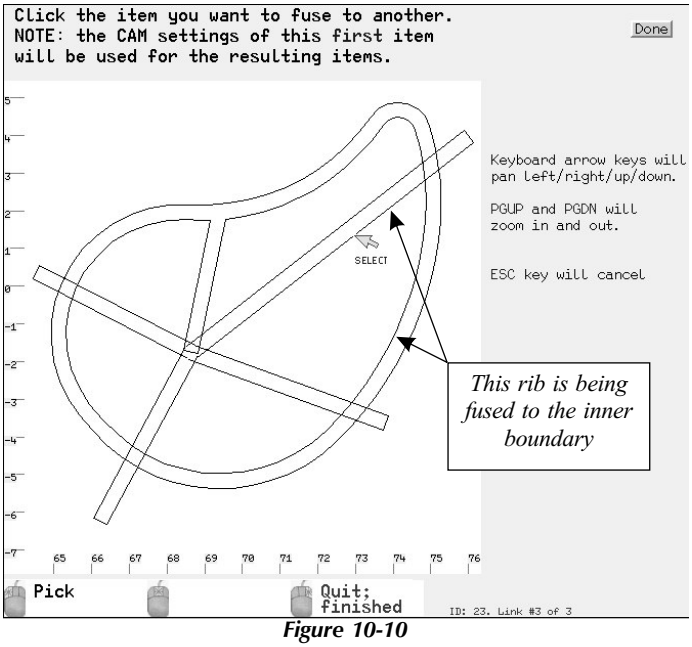



*Figure 10-10*

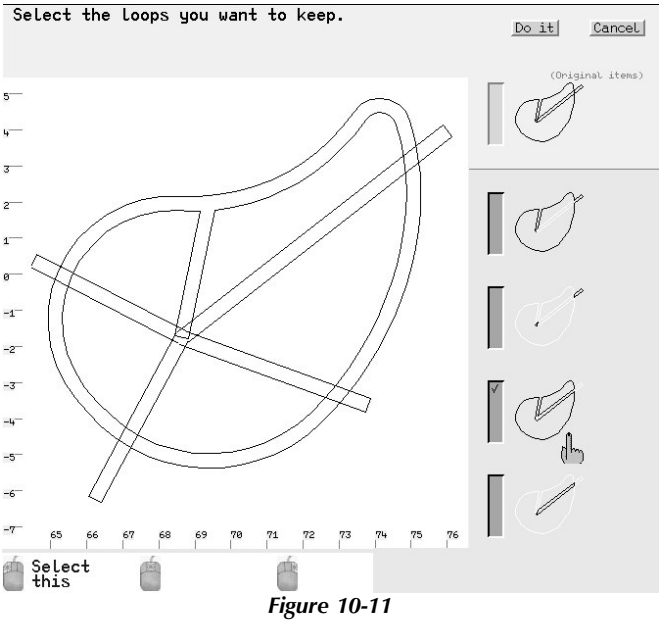



*Figure 10-11*

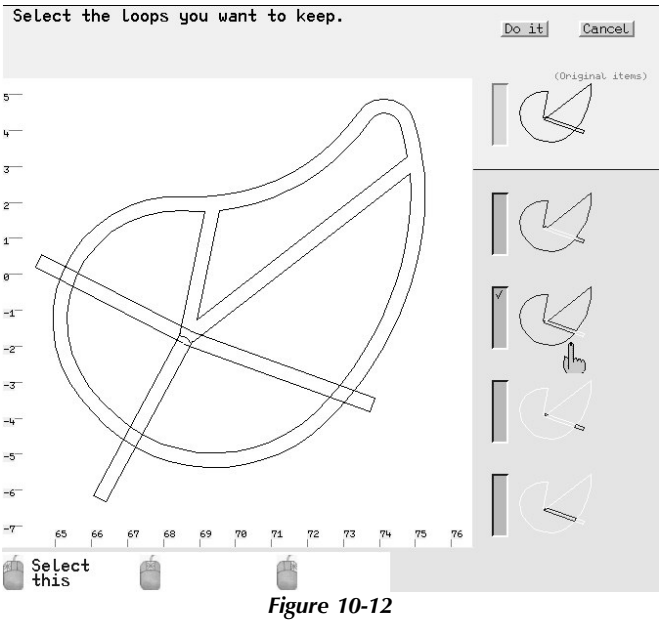



*Figure 10-12*