

## Appendix F – Printing the paper pattern

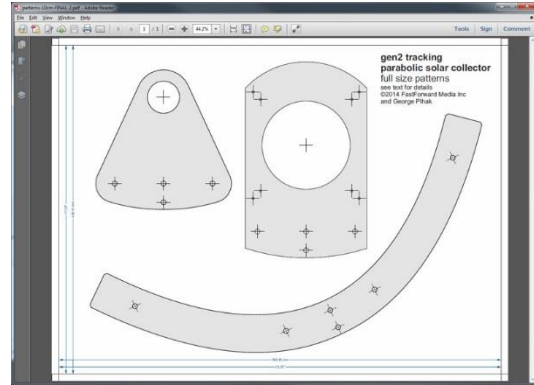
Provided with this book is a single full size drawing of the rib, the plain hanger and the ball bearing hanger all on one page 24"x18" (61x46cm). If you are going to make these parts by hand, you will need a full size paper print of this drawing.

The simplest alternative is to take the file (or send it) to a print shop with a large format printer, such as Kinkos (now <http://www.fedex.com/us/office/>) or a UPS Store (<http://www.theupsstore.com>) or an independent shop that is equipped to print large format drawings for architects and engineers.

You will only need one copy but I would have them make two so that you have a spare. You are going to cut it apart so having a spare might be good insurance. I have paid as much as \$5 to have this file printed. It should not be expensive.

If you have a shop make the paper prints for you, please check the drawings with a good quality ruler as shown at the end of this section to ensure that they have been accurately printed. That is the purpose of the dimension lines at the bottom and the left edge of the drawing, to check the accuracy of the print.

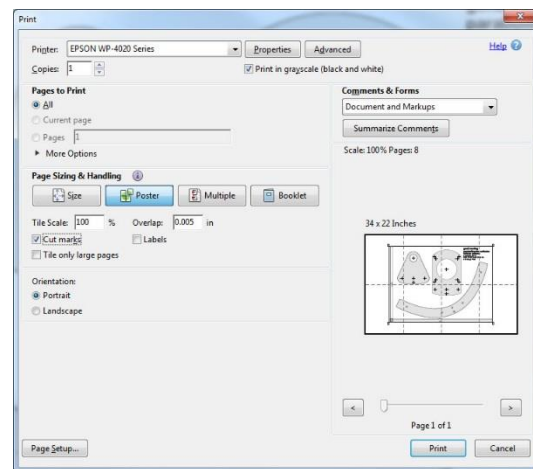
If you do not have a shop that can do this for you, you can make a very good paper print using an ordinary printer, a paper cutter, a roll of transparent tape and a bit of patience. Directions follow.



**FIGURE 122 PATTERN FILE OPEN IN ADOBE READER**

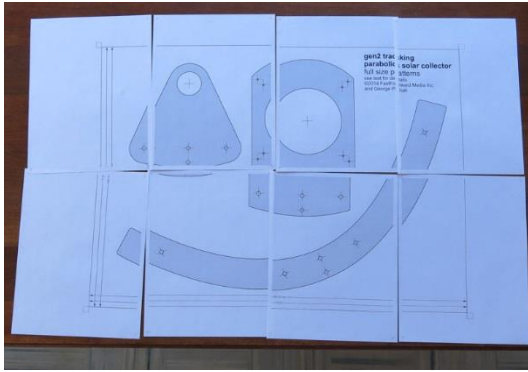
I am using Adobe Reader XI (actual version 11.06.06) above to open the .pdf file.

Open the FILE tab (top left) and select "Print".



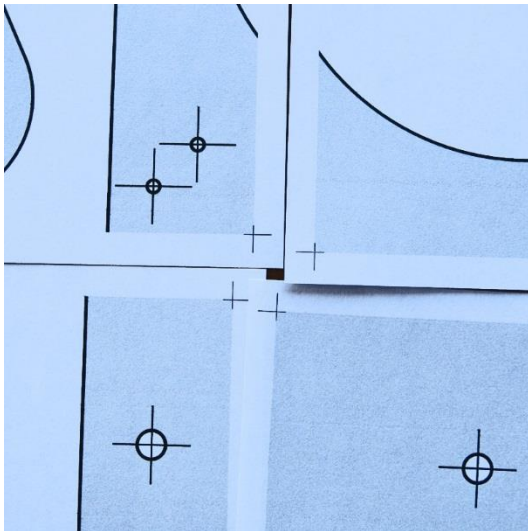
**FIGURE 123 PRINT MENU WITH POSTER AND CUT MARKS SELECTED**

I have selected the POSTER button and have selected CUT MARKS, then PRINT. You will see from the preview at the right that Adobe Reader expects to print eight pages with the drawing broken up into the eight panes shown.



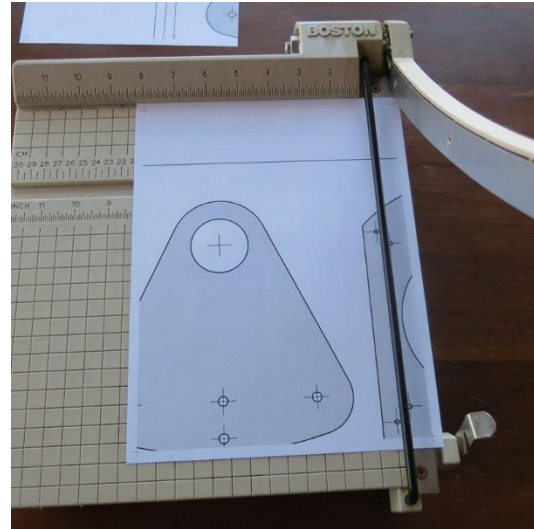
**FIGURE 124 PAGES PRINTED IN PANES ROUGHLY ASSEMBLED**

These are the resulting pages printed and arranged in position.



**FIGURE 125 CLOSE UP SHOWING CROP MARKS**

In this close up you can see the crop marks that Adobe Reader inserts on each page to show the edges of the document. There is a small margin to allow you to trim and overlap the panes to produce a complete drawing.



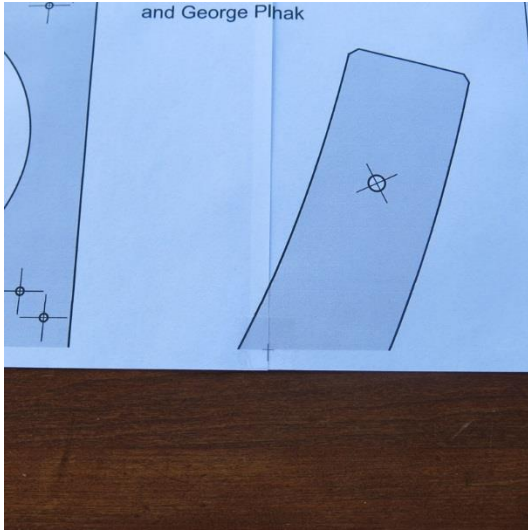
**FIGURE 126 USING A PAPER CUTTER TO TRIM SHEETS ON ALTERNATE EDGES**

I am using an office paper cutter with the panes held carefully square to the guide to trim as closely as I can to the crop marks. Only trim one side of each page margin.



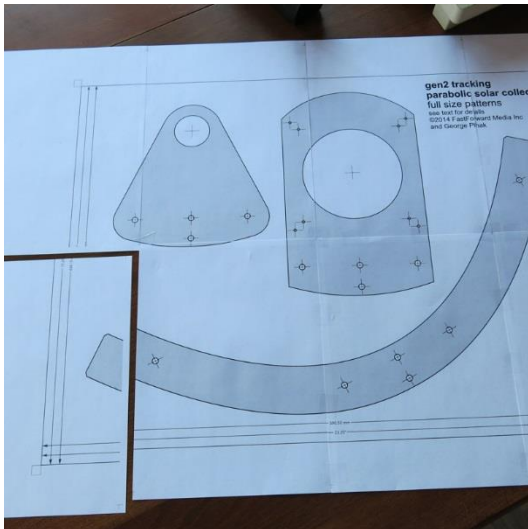
**FIGURE 127 COMPARISON OF POORLY TRIMMED AND GOOD TRIM**

Showing the results that should be possible (on the right) with a good page cutter and careful technique (see the crosshair trim marks).



**FIGURE 128 FIRST EDGE JOINED WITH TRANSPARENT TAPE**

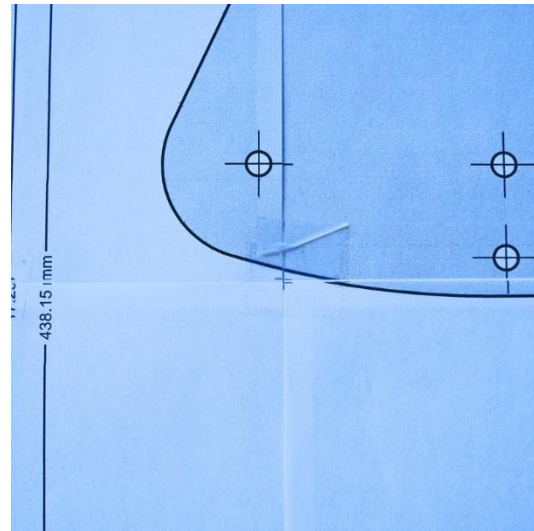
Joint the first edge together while carefully lining up the crop marks (or what is left of them after trimming) with short pieces of the transparent tape. Join the panes at the top and bottom and then add two or three pieces of tape down the edge near the center of the joint.



**FIGURE 129 CONTINUE JOINING THE PANES TOGETHER**

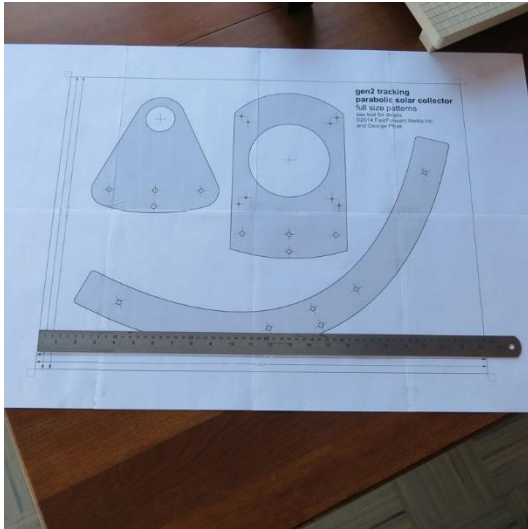
Continue in a systematic manner to join the panes together to get a complete

sheet. It does not matter which way you go. I joined the sheets from right to left and then added the bottom row in the same direction. I had made the trims in that order and I joined them in that order.



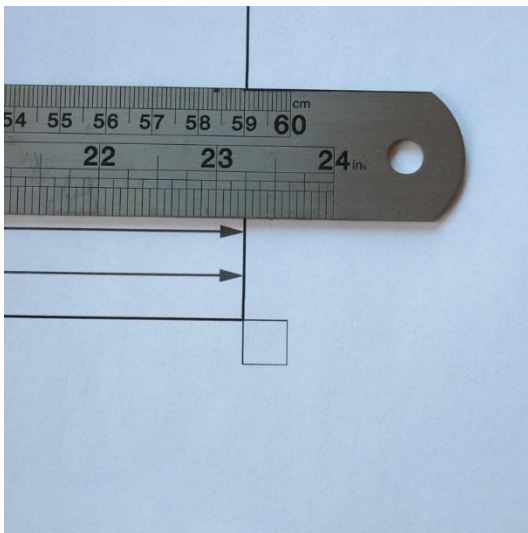
**FIGURE 130 BADLY MATCHED CORNERS**

I included this picture so that you can see that I am not perfect. I could print the panes and try again? Continue until you are happy with your result. The most critical is the rib, the hangers are not so critical, but with a bit of care, you should be able to get a very good match.



**FIGURE 131 MEASURE THE DIMENSION LINES TO CHECK YOUR RESULT**

Use a good quality ruler (like a machinists steel ruler) as I am doing in the picture above to check the dimension lines at the bottom and left edges of the drawing.



**FIGURE 132 A GOOD MEASUREMENT RESULT**

I am measuring the horizontal dimension of the drawing to be 23.25 inches (or 590.6cm). The lines of the border of the drawing are 0.5mm wide. If you want to be really careful, be sure to

measure at both ends to the MIDDLE of the lines and you will have the most accurate result.

In this case, even though the drawing has the defects in positioning I showed you in the pictures earlier, the errors seem to have averaged out and I am happy with the resulting print.

I would go ahead with making templates from this drawing.

As a final step, I would add an additional strip of tape over the parts at the joint of the panes to hold them together when I cut them out of the sheet.

I do not put tape on the back side since I will be gluing the patterns to the template material and the tape might inhibit the glue.