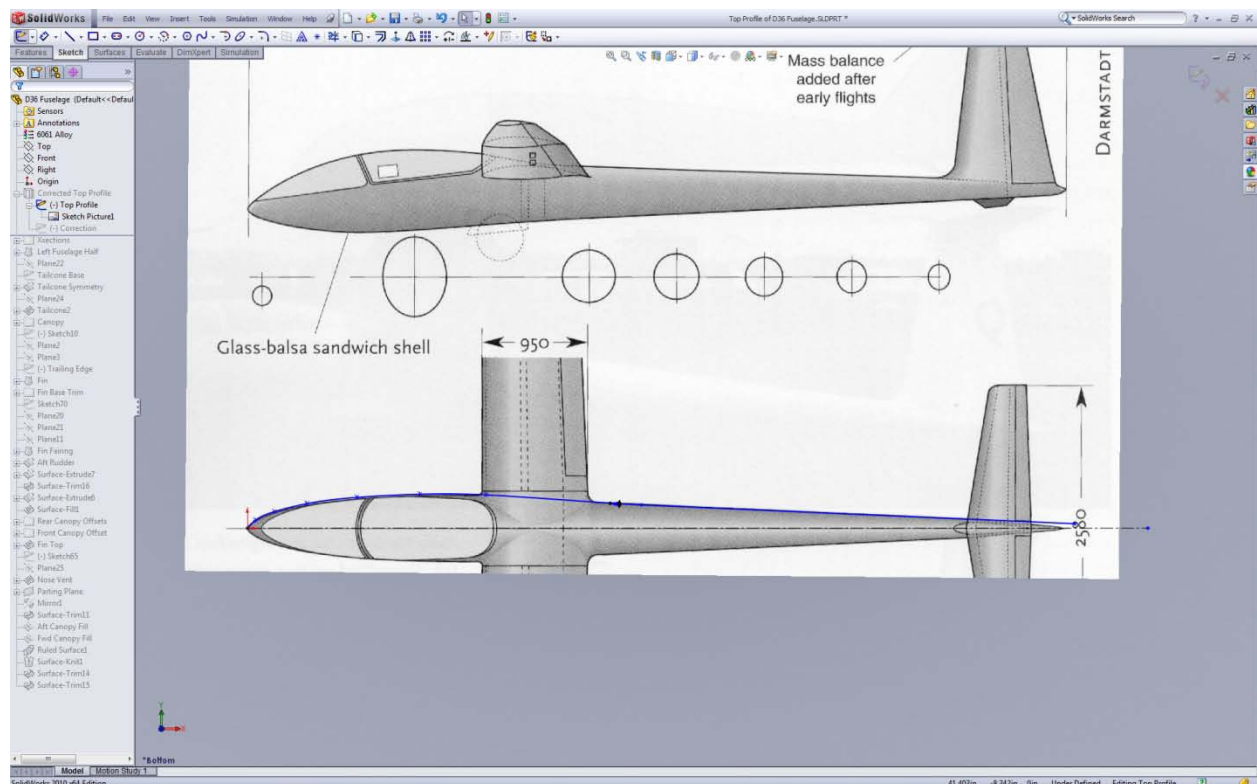


Creating a 3D Model From a 3-View Drawing Using Solidworks

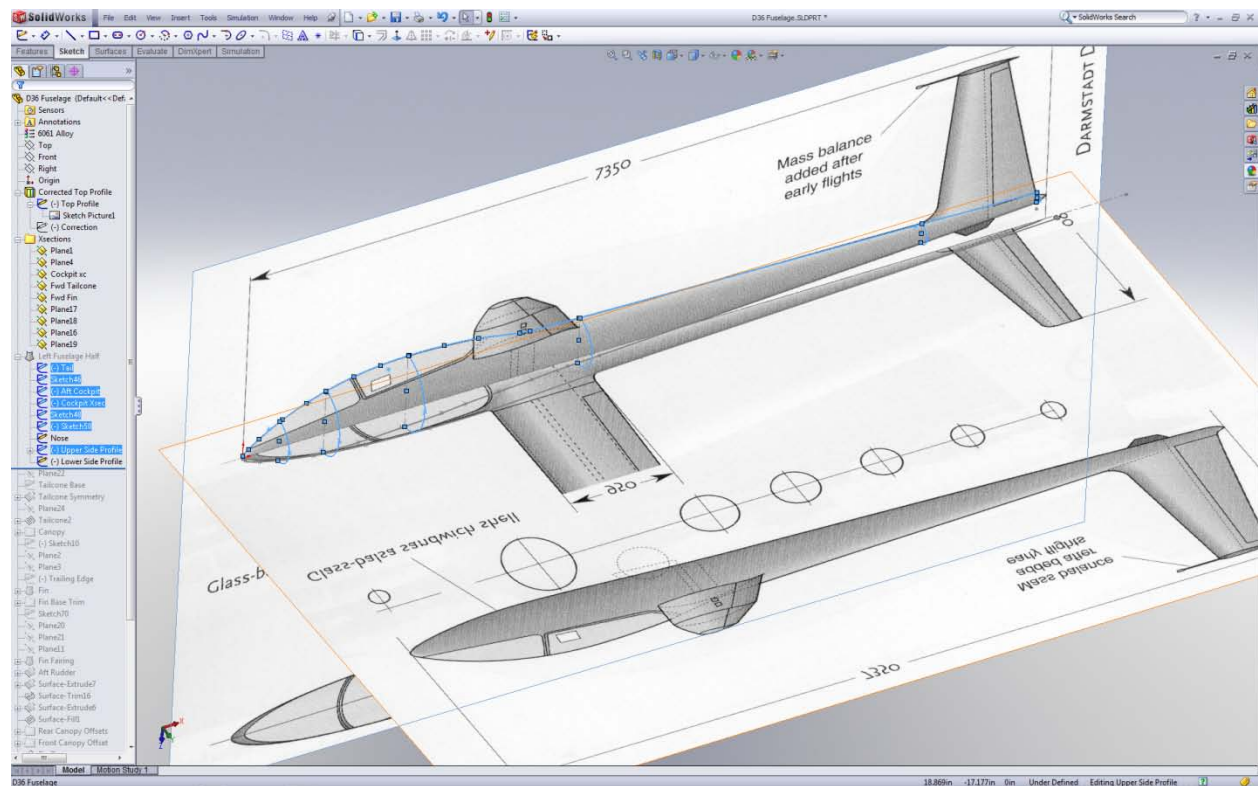
The following is brief overview of creating a 3d CAD model of the Darmstadt D-36 Circe from a 3 view drawing. The main goal was to create a fuselage model that could be used to generate the g-code to route out the molds for ¼ scale model on a CNC router...

The side view of the .jpeg 3 view is inserted as a “Sketch Picture” (background image). (Solidworks allows scaling of the image when it is inserted, so you can start with whatever size you drawing you have. I usually create these CAD models full size, so any additional information I find can be quickly added. Any scale size for the model can then be created easily by using the “Scale” command).

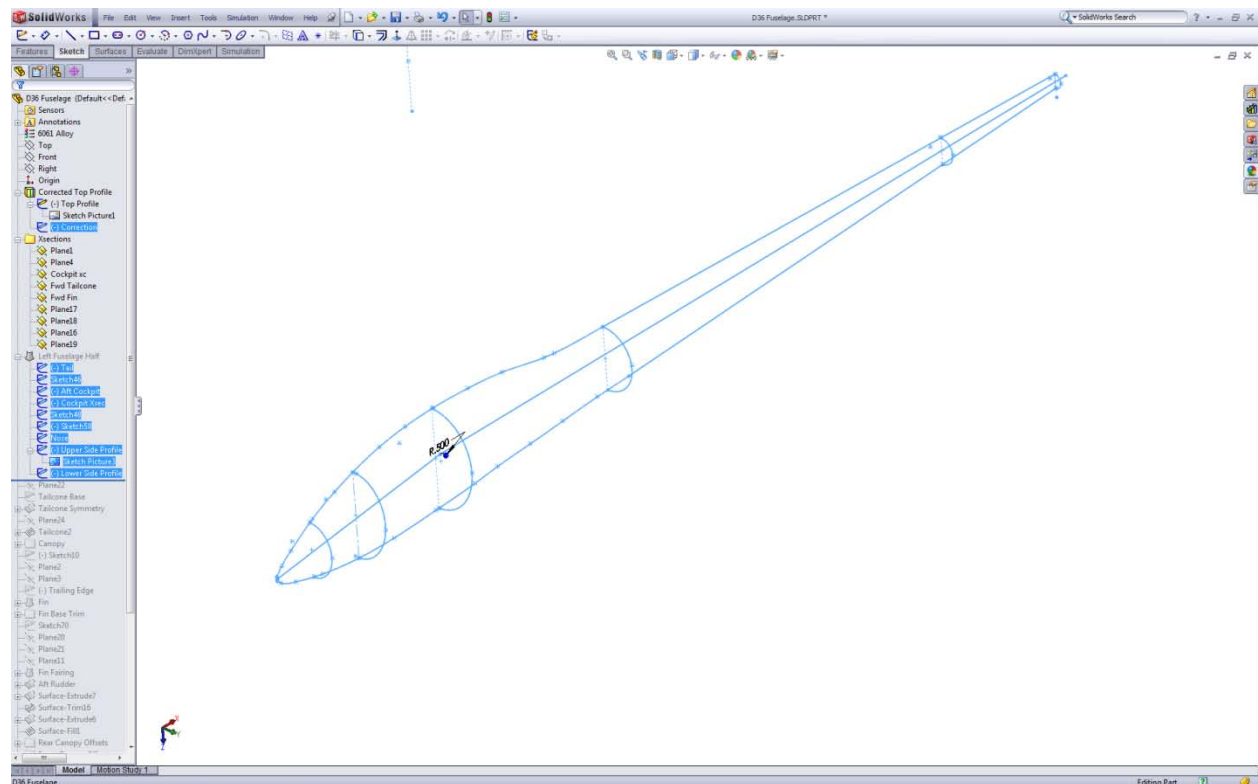
The side profile outlines are traced using sketch elements. Note that there is no link between these sketch elements (mostly splines and lines) and the sketch – the sketch is simply used as a pattern. (I’ve had better results this way than converting raster images to vector and then importing them directly. Native elements seem to behave much better when creating lofts and more complex features).



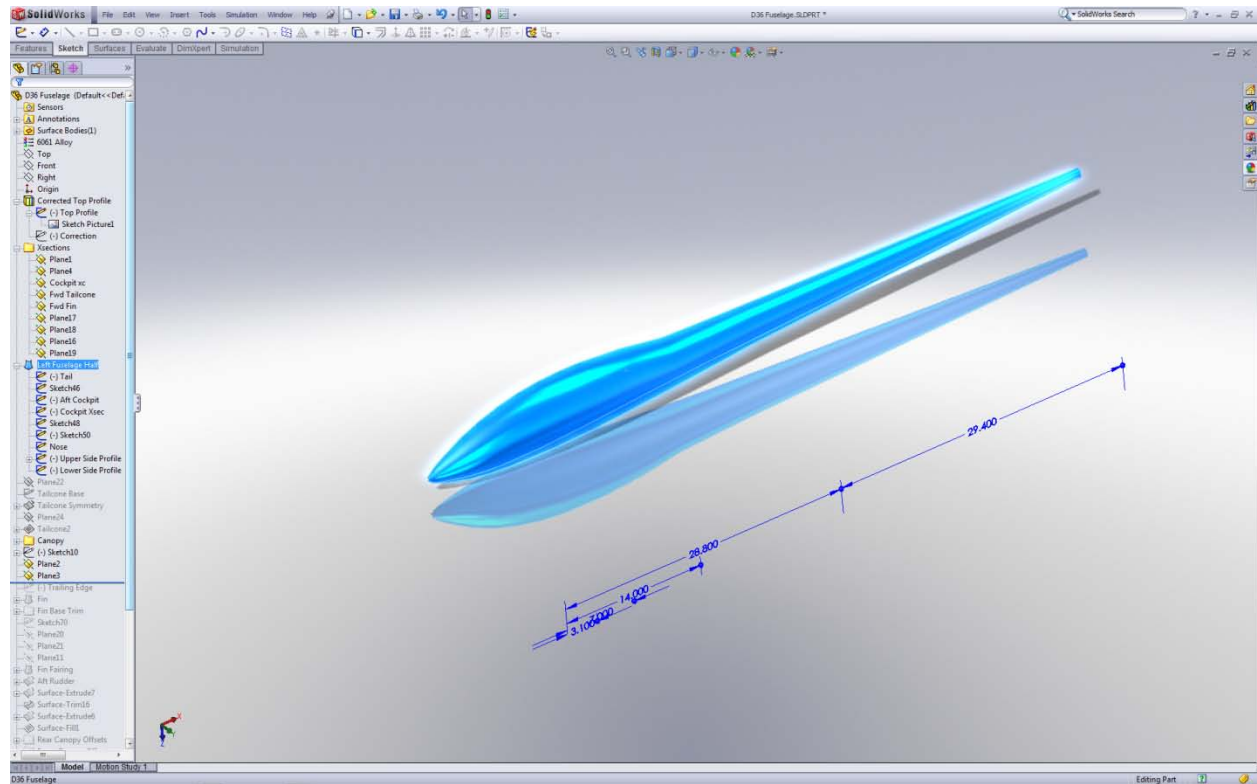
Similarly, the top view is inserted (being careful to align it properly with the side view!) to obtain the side profile:



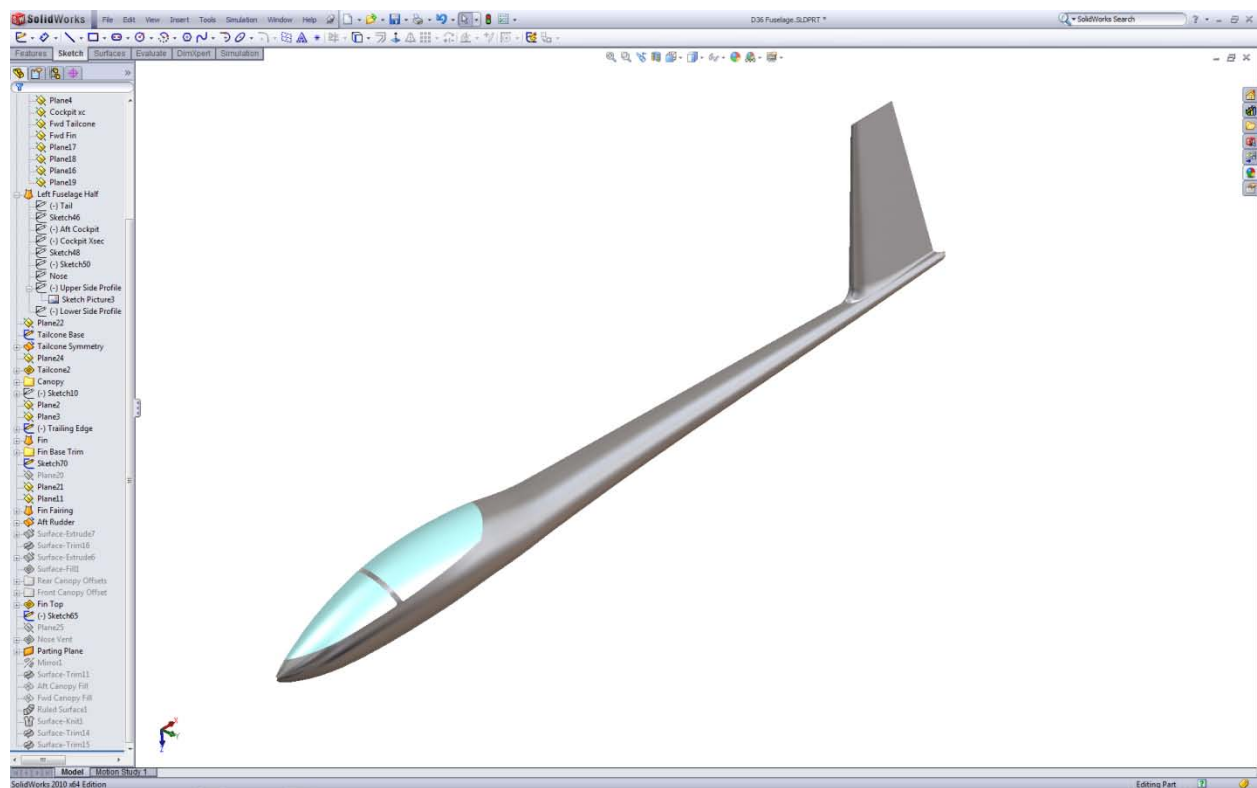
A sketch is created at each station line where there is a cross section, and the above sketch insertion process repeated for each section (If the aircraft has an elliptical or circular cross section, a picture doesn't to be inserted into station sketch – just draw the entity in the sketch). The fuselage “skeleton” sketches look something like this:



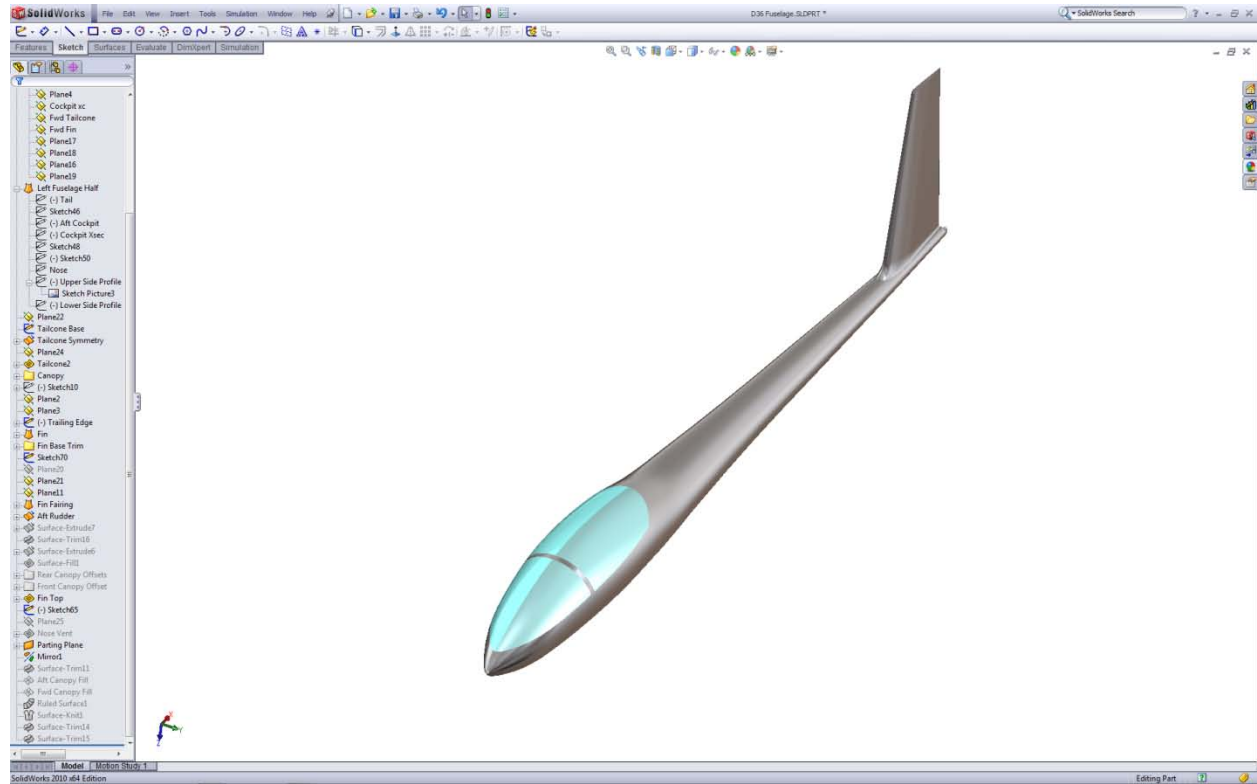
After making sure that the sketches intersect each other, a surface loft is created using the sketches:



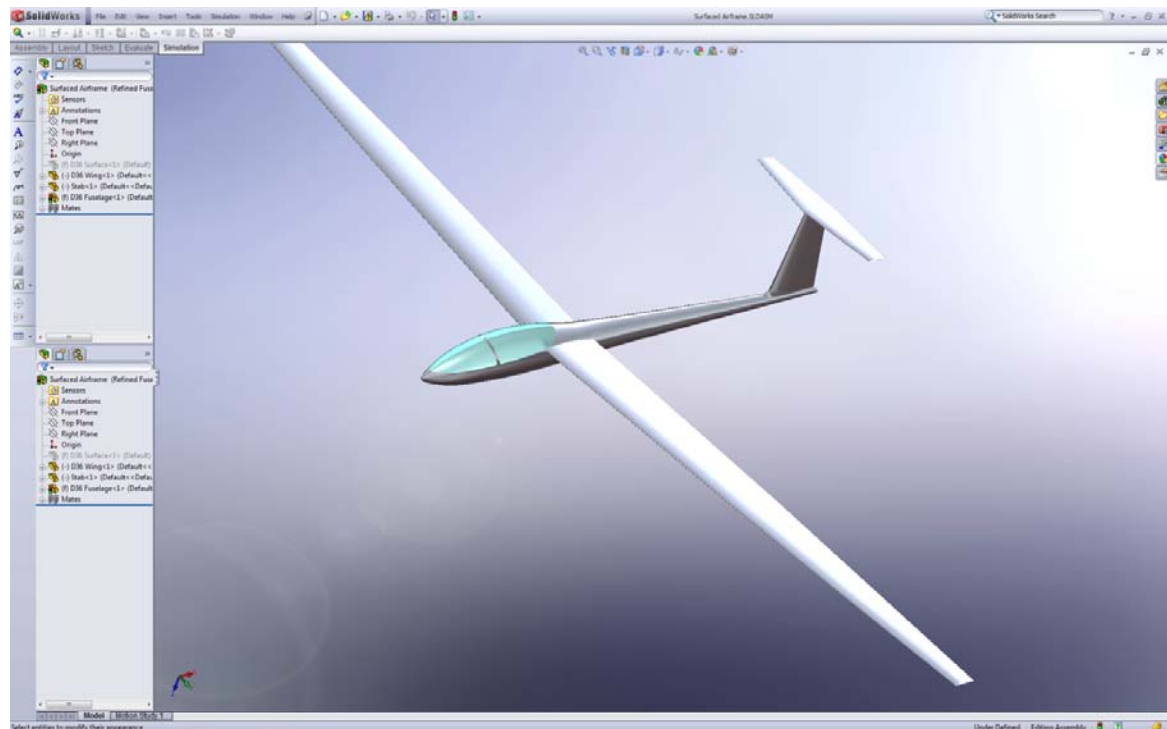
Similarly, the fin is created, and then the canopy sections defined using split lines projected from the side view:



Finally, everything is mirrored to complete the fuselage:



The same process is used to create the wings and tail:



Once you get the hang of using the Solidworks tools, you can pretty easily create a decent 3D CAD model of any aircraft from a 3 view drawing with cross sections in a few hours.

S. Fahrner

4/21/2011