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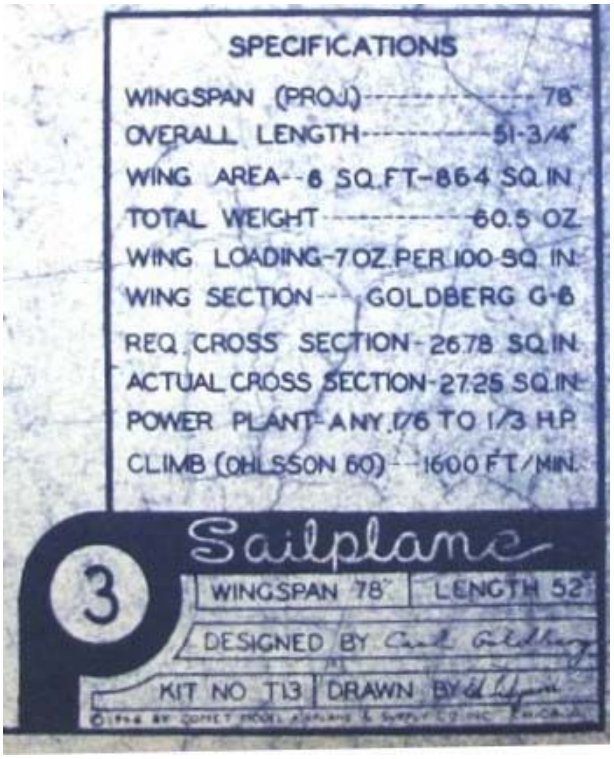
Date: 2/28/2009 3:07:48 PM
Subject: 51 Sailplane Configuration Documentation

Comet Sailplane Project

This report is dedicate to documenting the characteristics of the Comet Sailplane configuration.

The specifications for Comet Sailplane that I am currently building for the 2009 SAM champs are listed in the Specification Block shown below on Comet plan Plate No.3, which has a copyright date of 1946 in the lower left corner.



For the past few of days Alfredo Herbon, Jim O'Reilly, Gene Wallock, and myself have been involved in correlating and validating dimensions and areas of the Sailplane configuration geometry drawn on the Comet plan with the numbers in the Specification block. A summary of our collective findings are presented below, which will then be discussed further below.

Flat Plan Wing Area.....80-1/2 in.
Flat Plan Wing Span.....890 sq.in.

Projected Wing Span.....78 in.
Projected Wing Area.....864 sq.in.

Stab Span.....36 in.
Stab Area.....294 sq.in.

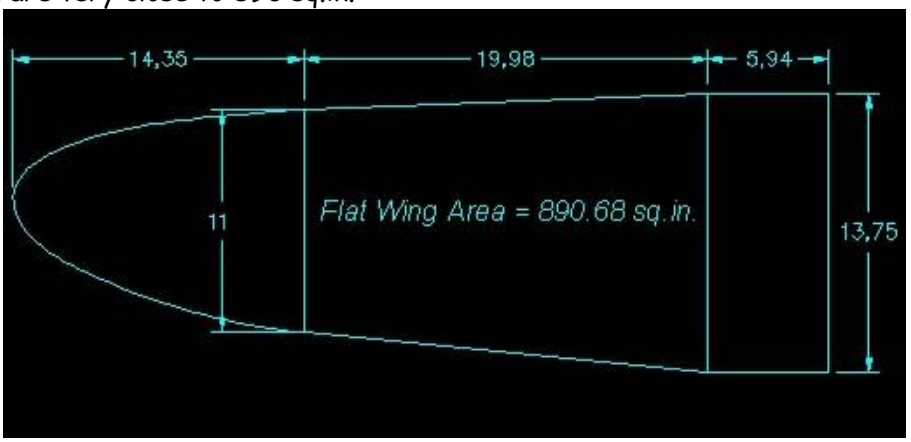
Rudder Span.....8 in.
Rudder Area.....47 sq.in.

Fuselage Length.....51 in.

<u>Wing Discussion</u>

Alfredo developed the wing planform below with his AutoCad program. All measurements of the wing dimensions shown were taken from my copy of the Sailplane Comet plan. Alfredo use AutoCad to determining

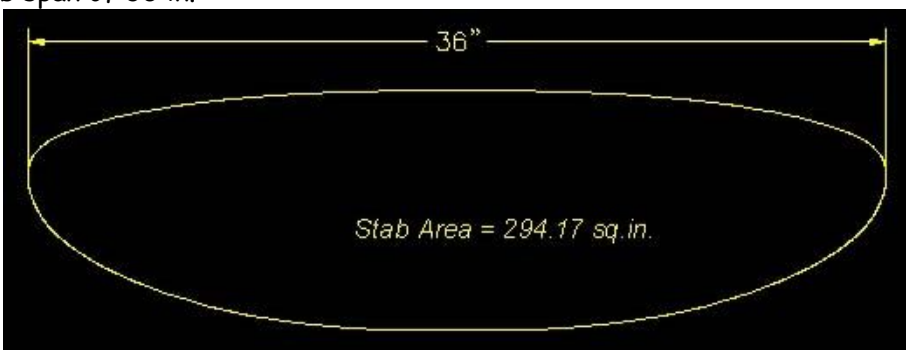
the flat plan wing of 890.69 sq.in. Jim O'Reilly independently came up with a flat plate wing area of 889.7 sq.in., both of which are very close to 890 sq.in.



Using 10 degrees for the wing's inner panel dihedral angle, 28 degrees for wing's tip panel polyhedral angle, Alfredo calculated the projected wing semi-span to be 38.29". This was close enough to the specification value (78/2) = 39", considering paper shrinkage and measurement inaccuracies, to conclude that the Specification Block 78" span and 834 sq.in. area are ***"PROJECTED"*** values.

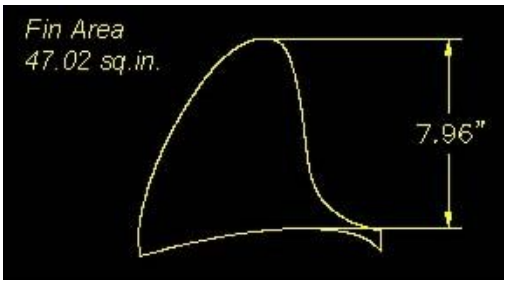
Stab Discussion

Alfredo developed the stab planform below with his AutoCad program and determined the area to be 294.17 sq.in. based on a stab span of 36 in.



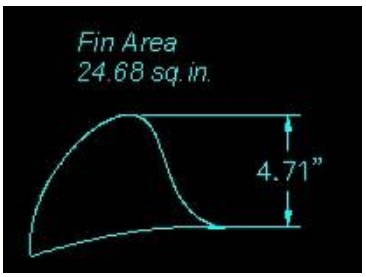
Rudder Discussion

Alfredo developed the rudder planform below with his AutoCad program and determined the area to be 47.02 sq.in. based on a rudder span of 7.96 in.



Small Rudder Discussion

In the latest issue of SAM Speaks, Gene identified two Sailplane configurations, on with a large rudder and one with a small rudder. The one with the small rudder is seldom seen, but Alfredo was aware of it and actually had seen one fly. He said it was literally uncontrollable under full power due to a violent Dutch Roll tendency. This Sailplane with the small rudder was built from a Sailplane plan that appeared in the excellent Argentine magazine "Aeromodelismo", published during late 1940's and early 1950's in Buenos Aires. Alfredo was able to developed the "small rudder" planform below with his AutoCad program and determined the area to be 24.68 sq.in. based on a rudder span of 4.71 in.



Fuselage Length Discussion

I measured from the Bulkhead No. 1 aft to rear tip of the stab platform to be 47-1/8". I then measured the cowl (shown on a different place on the plan) from the Bulkhead No. 1 forward to the front face of the cowl to be 3-7/8". The measured length from the front face of the cowl to the rear tip of the stab platform is therefore 51". Gene Wallock indicates that total length is generally measured from the prop back to the tail, which would account for most of the 3/4" difference in the specification value of 51-3/4" value.

I want to extend my personal thanks and gratitude for all of support in this effort, but especially to Alfredo Herbon who responded so generously with his time and his interest.....Tandy