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 Date: 11/16/2017 9:57:59 PM
 Subject: 3 Lancer 72 - Original Lancer 72 Plan

*New Cyclone Lancer 72
 November 16, 2017*

Yesterday morning I had an e-mail from Alfredo informing me he had located the original plans for the Lancer 72. Part of his message was:

That the Outerzone web site had the original plans for Lancer 49 and Lancer 72 that used by Cyclone Company for their kits designed by Chester Chaplaskie.

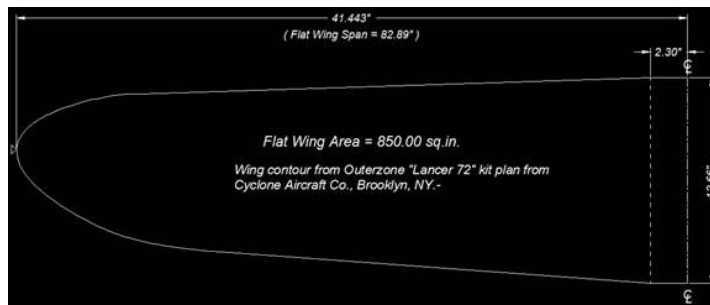


I immediately downloaded the free PDF file for the Lancer 72 plan and inserted it in ACAD. After checking semi span, root chord and rectangular center portion, I verified it was a really good plan and calculated the flat wing area resulted 641.396 sq.in. as shown below.....Alfredo.-

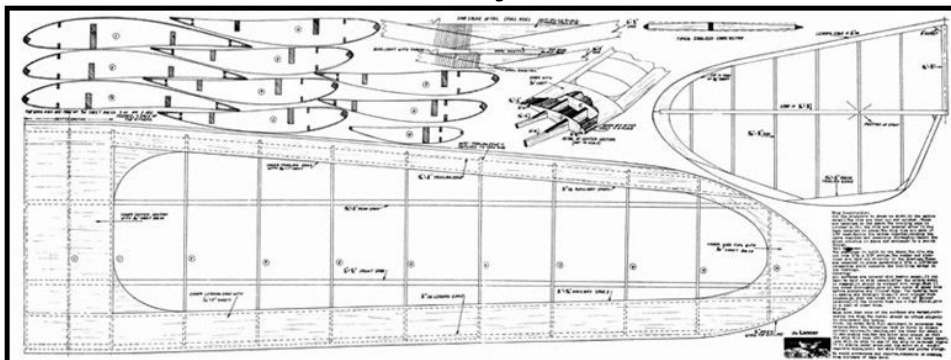


This changes the previous selection for the second time that I posted in my Tuesday Report No. 2. I am still planning on building the Lancer 72 scaled up to a 850 sq. in. wing area. However, I decided to use the new Hyperion 1600 2S 45C LiPo battery pack (*I have two new packs on hand*), even though I probably will have to add ballast weight to meet the Limited Motor Run (LMR) minimum weight rule. This scaled up Lancer 72 will have the following characteristics:

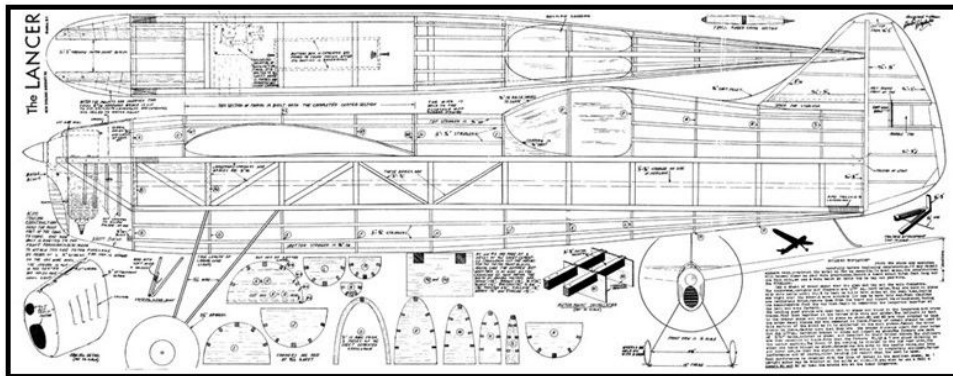
- Wing area will be 850 sq. in.
- Scale factor will be $\sqrt{850/641.396} = 1.1512$
- Wing span will be $1.1512 \times 72.0 = 82.89$ inches
- AR = $(82.89 \times 82.89)/850 = 8.082$
- Minimum weight is $(2 \times 1600)/50 = 64.0$ oz
- Wing Loading = $64/(850/144) = 10.84$ oz/sq. ft.
- LiPo will be the Hyperion 1600 2S 45C



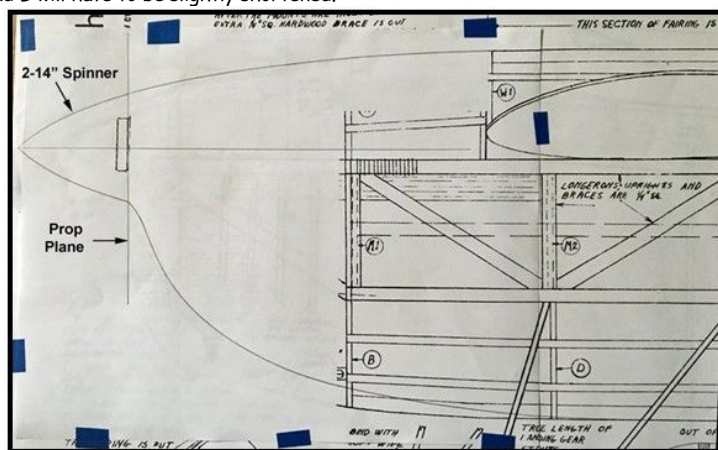
This is a print out of the two sheets on the Outerzone Lancer 72 PDF file.
 Sheet-2 Wing and Stab



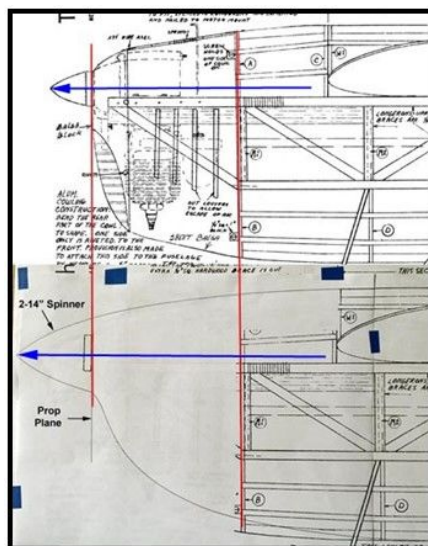
Sheet-1 Fuselage



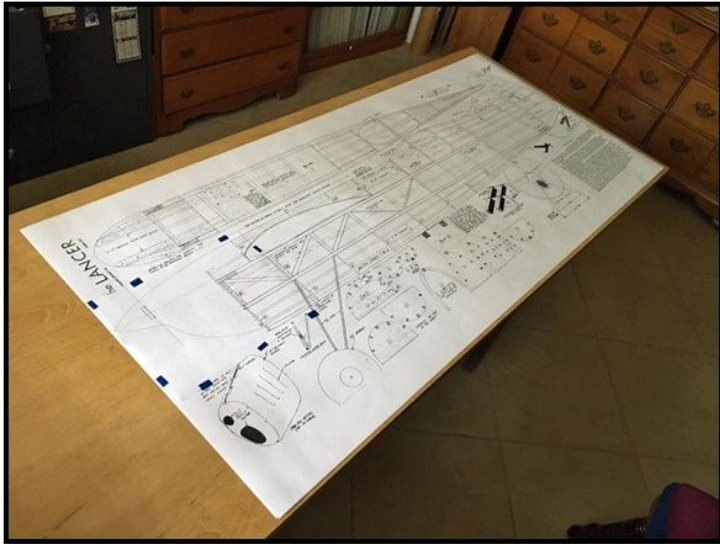
This shows the cowl modification sketch I made this morning for using an electric motor instead of the gas engine. The prop plane was kept in the same location, but the thrust line was moved down slightly ~ 1/4" with zero down thrust. The design contour of the cowl was based on using a standard 2-1/4" spinner. To smooth out the bottom contour, the bottom bulkhead B will have to be slightly shortened.



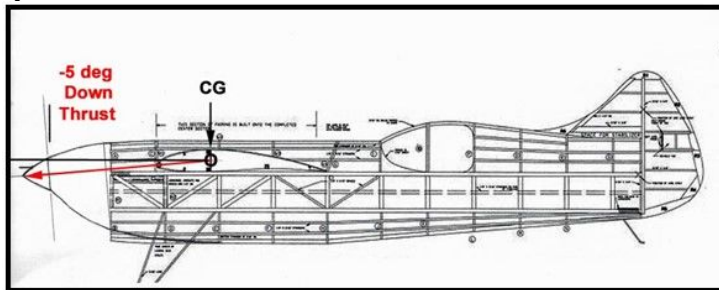
This minor modification to the cowl should not be objectionable because it is only a slight departure from the original cowl's bottom contour as the comparison below shows. The prop planes are the same, but the larger spinner extends out further.



The PDF file was taken to the copy center yesterday afternoon and scaled up print outs of both sheets were made using the 1.1512 scale factor. The fuselage Sheet-1 is on the work table below.



I would not think that this shoulder wing configuration would require any down thrust. However, I made an alternate sketch shown below just to see what the cowl would look like with a -5° down thrust line.



Before I start building the fuselage, I will have to first locate the firewall based on the length of the motor and its mount, and then address the issue of down thrust.....Tandy