

From: "Tandy Walker" <rdb435021@icloud.com>

To: "Tandy Walker" <rdb435021@icloud.com>

Date: 3/5/2018 2:40:38 PM

Subject: 80 Lancer 850 - Evaluation of Wing Alignment

*Report No. 80
New Cyclone Lancer 850
March 5, 2018*

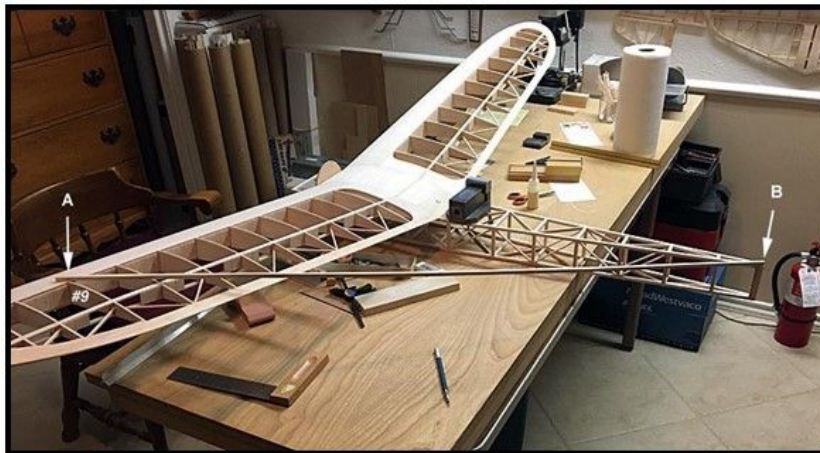
There are two checks that need to be made to evaluate the wing's alignment with fuselage. The first one is to check how close the wing is to being perpendicular to the fuselage and the second one is to check how close the heights of the wing tips on either side of the fuselage are to being equal.

Wing Perpendicularity to Fuselage

With the fuselage attachment block screwed to the bottom of the wing's center section, the wing dowels were inserted into the bulkhead C and the attachment block was pushed down between the two top longerons, but not glued, which firmly positioned the wing on the fuselage's frame. The center line of the wing center section's trailing edge was confirmed to be centered between the fuselage's two top longerons as shown below.

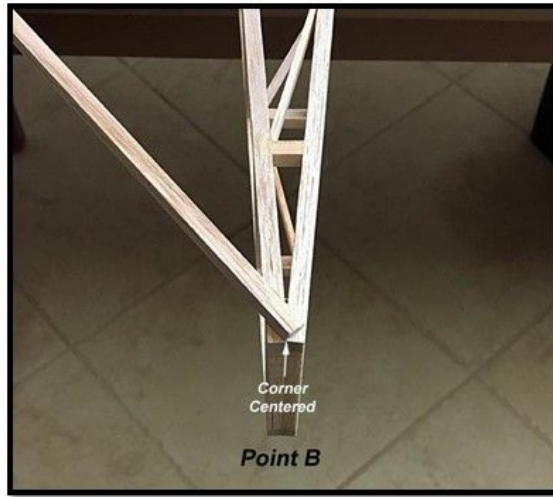


The fuselage frame was weighted down on the work table just behind the wing's trailing edge with the small heavy steel vise as shown below. A 48" long 1/4" sq. balsa strip was placed between the fuselage's tail post (Point B) and the left wing's #9 rib (Point A) also shown below.



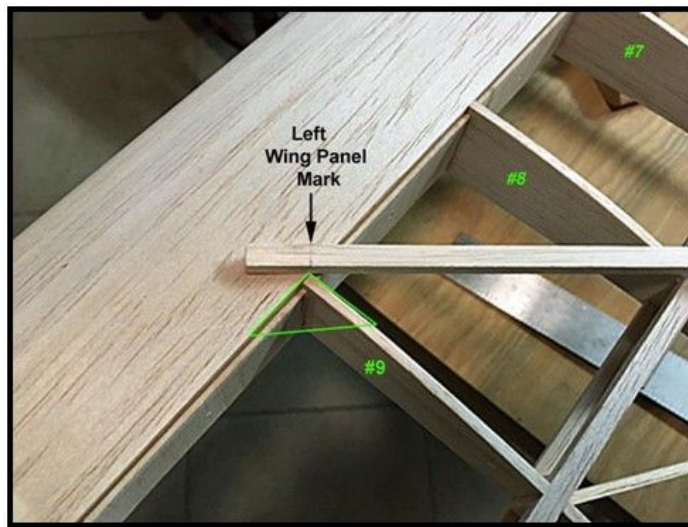
First the corner of the 1/4" strip was centered on the tail post as shown below.

Point B



Then a mark was made on the strip where the inside face of rib #9 touched the strip as shown by the green triangle below.

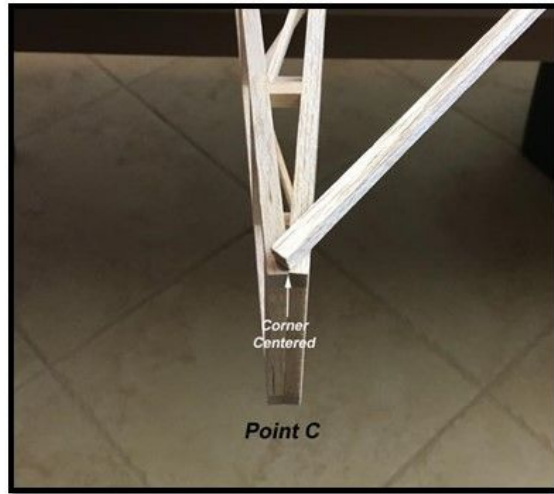
Point A



The 48" long 1/4" sq. balsa strip was then moved and placed between the fuselage's tail post (Point C) and the right wing's #9 rib (Point D) as shown below.

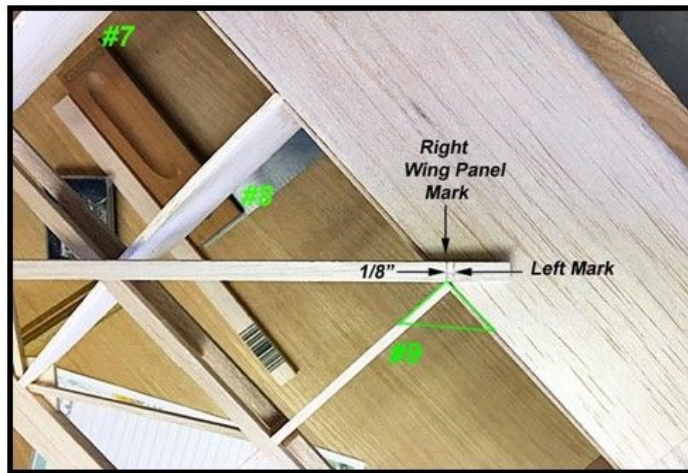


Again the corner of the 1/4" strip was centered on the tail post as shown below.
Point C



Then a second mark was made on the strip where the inside face of rib #9 touched the strip as shown by the green triangle below. The difference between the two marks was $\sim 1/8''$ as shown below. At the assembly level, getting this large wing's main spar perpendicular to the fuselage's center line to within an $1/8''$ is well within my building tolerance and certainly more than satisfactory.

Point D



Height of Wing Tips on Either Side of the Fuselage

The Lancer's 83" wing span is too long to be able to measure the wing tip height above the work table. So the inside face of rib #9 shown below was selected for the measurement. A try square was placed on the work table and placed against the inside face of rib #9 to measure the height of the top of rib #9 as shown below.

(In the past, I have always called this type of a square a "carpenter's square" until someone pointed out it is actually called "Try Square".)



The top of the left wing's rib #9 was $7/16''$ below the end of the metal scale as shown below.



The top of the right wing's rib #9 was 9/16" below the end of the metal scale as shown below. The difference in these two heights was only ~1/8" which again is well within my building tolerance and is more than satisfactory.



Having shown the wing's alignment with the fuselage to be satisfactory, the next step will be to complete the fuselage's attachment block and permanently integrate it into the fuselage's 1/4" frame work.....Tandy