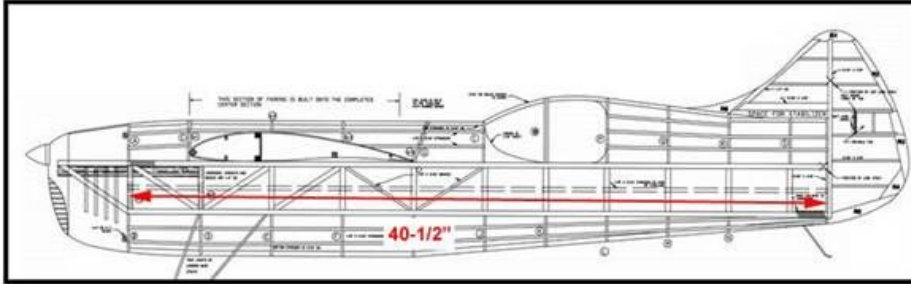


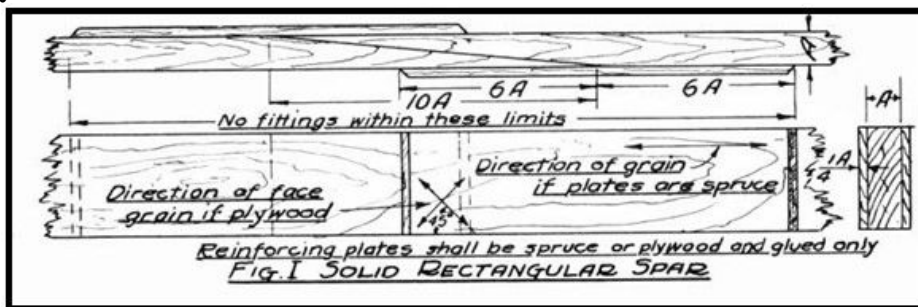
From: ["Tandy Walker" <rdb435021@icloud.com>](mailto:rdb435021@icloud.com)
 To: ["Tandy Walker" <rdb435021@icloud.com>](mailto:rdb435021@icloud.com)
 Date: 2/19/2018 9:22:18 AM
 Subject: 67 Lancer 850 - Splicing Fuselage Longeron

Report No. 67
 New Cyclone Lancer 850
 February 19, 2018

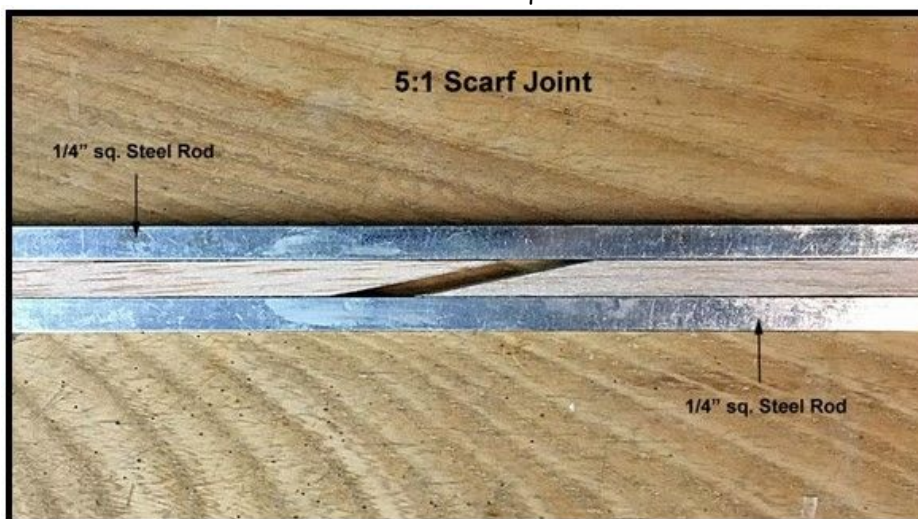
The fuselage's four 1/4" square longerons must be at least 40-1/2" long as shown below. Friday evening one of the 36" long 8 gram balsa strips was cut into four 8" segments for splicing onto the other four 36" strips.



The recommended joint for splicing longerons is referred to as a "scarf" joint. The picture below taken out of an aircraft maintenance manual shows the scarf joint for an aircraft spar. The scarf joint is defined by the ratio of the spar's diagonal cut to the spar's depth. As you can see in the picture below, the ratio is 10A/1A, or simply a 10:1 scarf joint.



It is rather difficult to get matching cuts for a 10:1 joint by hand. Several years ago I found that a 5:1 scarf joint clamped and glued with aliphatic glue proved to be sufficiently strong enough for balsa longerons. So Friday evening I started splicing the first 1/4" square balsa longeron for the Lancer 850 fuselage. The matching cuts for the 5:1 joint are shown below between the two 1/4" square steel rods.



Pre-gluing consisted of forcing Titebond Extend wood glue into the grain on the face of

each cut with thumb pressure. Then a thin layer of glue was applied to 8" piece and place against the 36" piece on top of wax paper. Pressure was applied by clamping the joint between the two 1/4" square steel rods with 3 "Quick Grip" clamps. Two additional clamps were used to clamp the steel rods to the work table as shown below. Notice that the yellow rubber pads were removed for clamping the steel rods.



After the glue in the joint had dried overnight, the clamps were removed Saturday morning. The resulting longeron splice is shown below. Notice how tight the joint is with no gaps or voids.



The other three longeron matching cuts shown below were also made Friday evening.



I got up early Sunday morning and jiggled up the second longeron splice before leaving for early church. I took Sue out for breakfast after church. After some 5 hours later, I removed the clamps and jiggled up the third longeron splice. Late Sunday evening, I removed the clamps and jiggled up the fourth longeron splice before I went to bed. This morning I removed the clamps on the fourth longeron. A close up of the four scarf joints are shown below.



All four of the 44" spliced longerons are shown below. When I receive the PDF file for the fuselage's 1/4" square primary structure drawing from Alfredo, it will be taken to the copy center and the plan printed out. Then I can start building the structure.....Tandy

