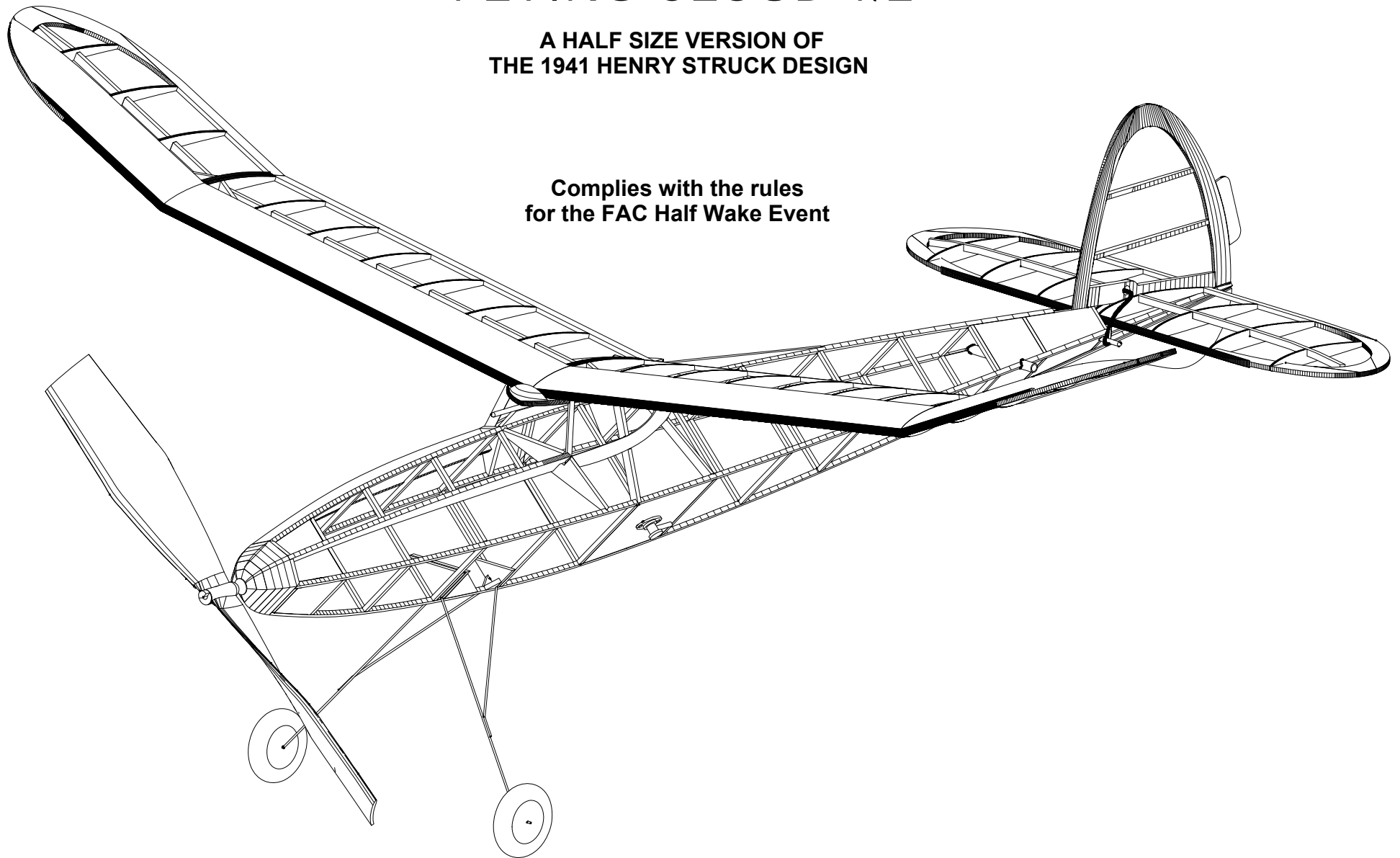


FLYING CLOUD 1/2

A HALF SIZE VERSION OF
THE 1941 HENRY STRUCK DESIGN

Complies with the rules
for the FAC Half Wake Event



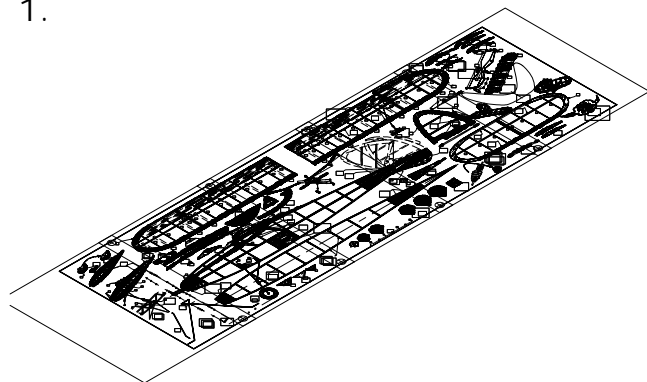
A RUBBER POWERED
21.25" WING SPAN MODEL

ASSEMBLY GUIDE

March 2018

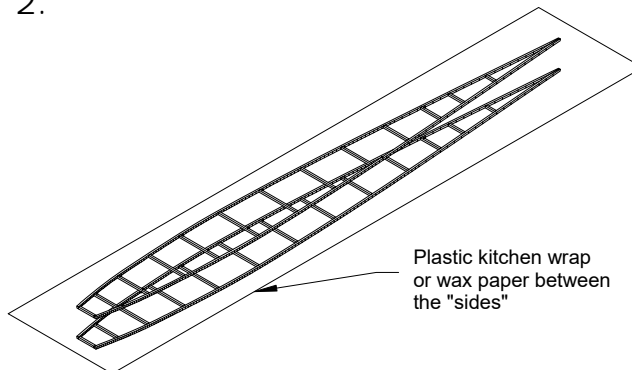
BY PAUL BRADLEY

1.



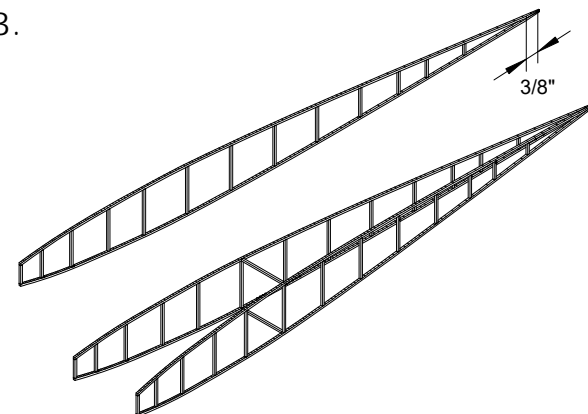
Tape the five plan pages together to form the building plan. Use the "+" marks for alignment of the pages.

2.



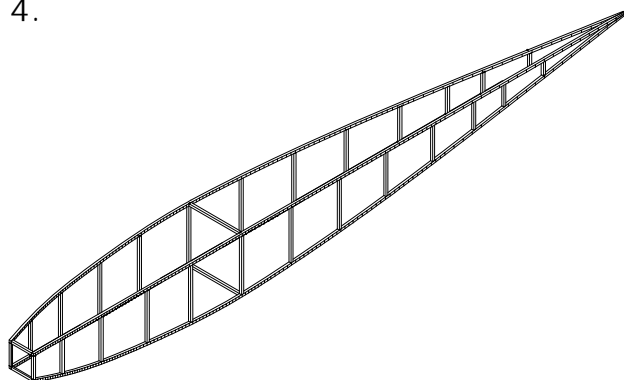
Using 1/16" square balsa, make up the two "sides" of the fuselage. When cutting the cross pieces, cut four of each. To insure both sides are the same, assemble the second side on top of the first. Use a layer of plastic kitchen wrap or wax paper between the two sides.

3.



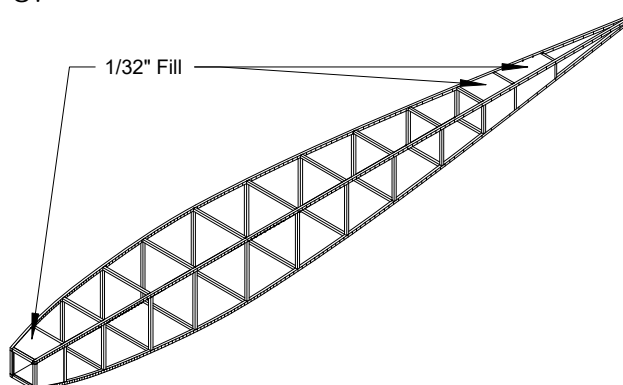
Make a left and right side by sanding a bevel on the inside face of each side that is 3/8" long. Starting with the widest cross pieces, glue the sides together as shown.

4.



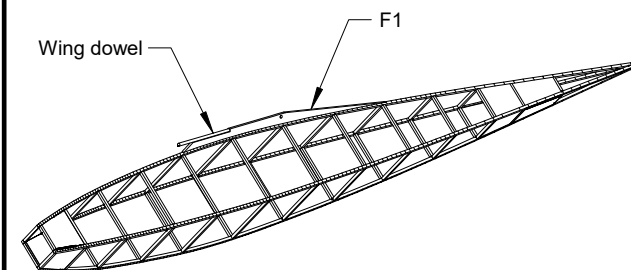
When the glue is dry on the first set of cross pieces, pull the nose together and glue in the nose cross pieces. A rubber band can help hold the sides tight to the cross pieces while the glue dries.

5.



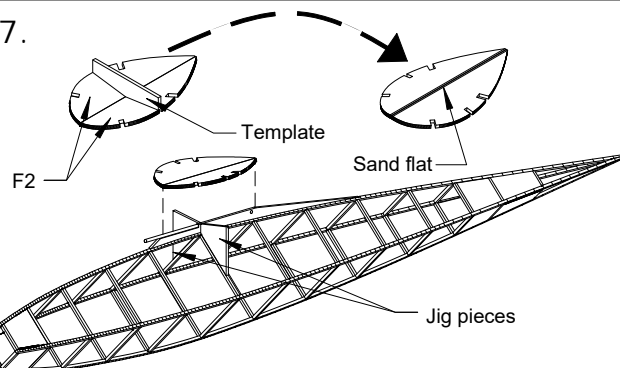
Glue all of the remaining cross pieces to the assembly. Also glue in the 1/32" balsa fill pieces where shown on the plan.

6.



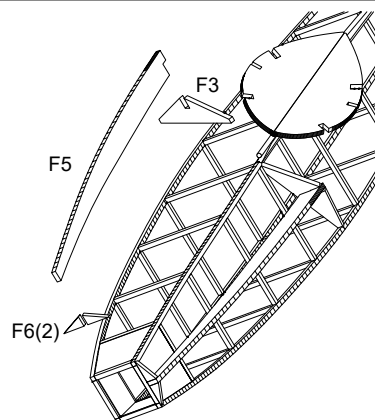
Rotate the fuselage structure 45 degrees and glue part F1 to the assembly as shown. Use the plan as a location guide. Also glue the forward wing dowel to part F1.

7.



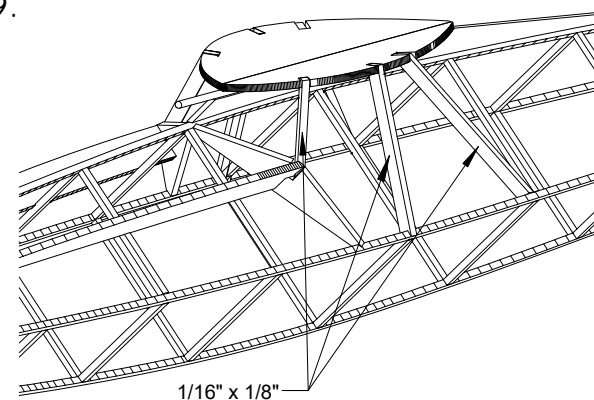
Sand a bevel on the straight face of parts F2. Using the template, glue the two F2 parts together to form the wing platform. Sand the bottom of the platform flat. Using the wing platform jig pieces, glue the wing platform to part F1. Remove the jig pieces when the glue dries.

8.



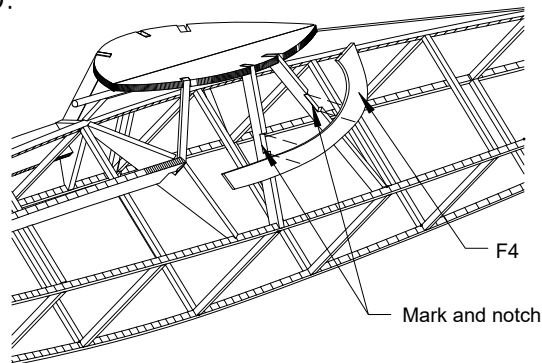
Glue the four part F6 pieces, two part F3 pieces, and the two F5 pieces to the assembly as shown.

9.



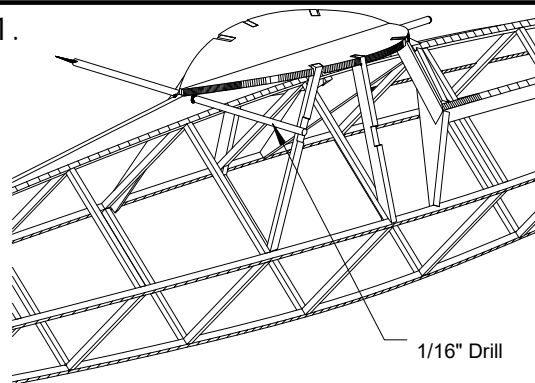
Using some 1/16" x 1/8" balsa strip stock, add the 6 wing platform supports to the assembly as shown.

10.



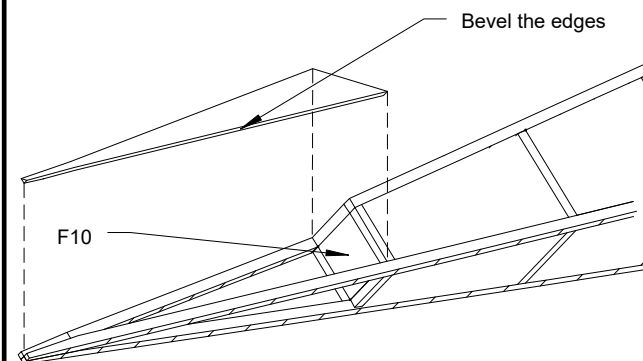
Lay the F4 parts on the wing platform supports as shown. Mark their location on the supports. Cut 1/32" deep notches in the supports. Trim the length to fit. Now glue F4 to the assembly.

11.



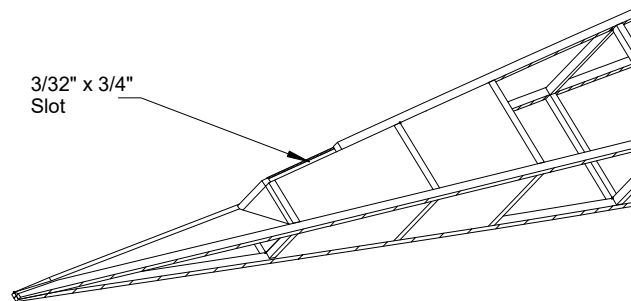
From the opposite side of part F4, drill a 1/16" diameter hole in F4 using the hole in F1 as a guide. Follow step 10 to fit the other F4. Glue the other F4 to the assembly. When the glue is dry drill the wing dowel hole with a 1/16" drill using the existing holes as a guide.

12.



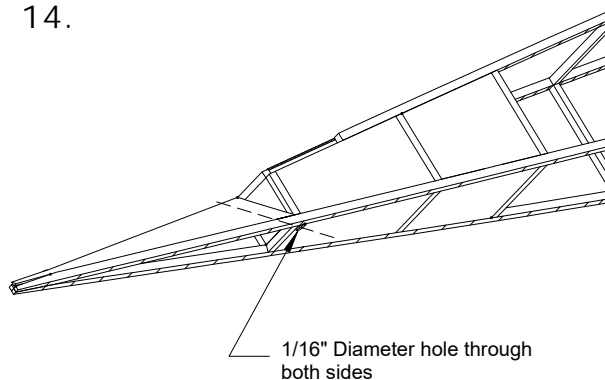
Cut and remove the top longeron behind the rear most cross pieces. Glue F10 inside the rear most cross pieces. Glue the 1/32" balsa stab platform to the assembly as shown.

13.



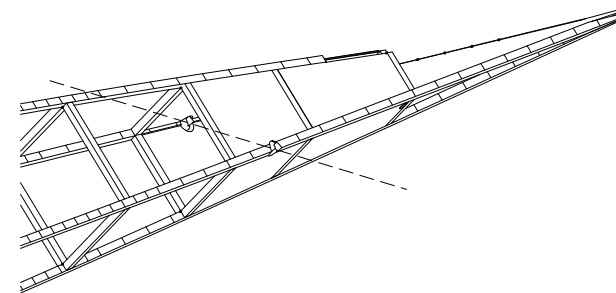
Cut a slot 3/32" wide in the top longeron and F10 3/4" long. This provides clearance for the fin leading edge when the DT is deployed.

14.



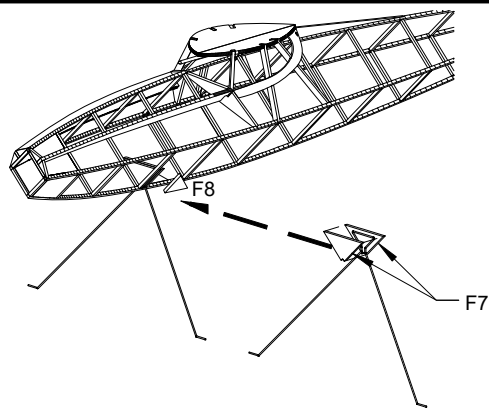
Refer to the plan as a location guide and drill 1/16" holes in the 1/32" filler pieces just below the side longerons and forward of the rear most cross pieces for the DT pull rubber band dowel.

15.



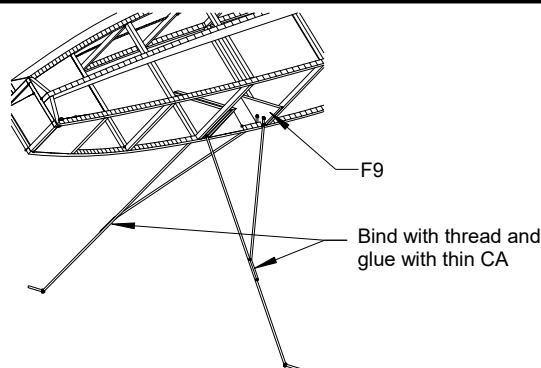
Use a piece of sharpened 1/8" diameter brass tubing and drill the motor peg holes as shown.

16.



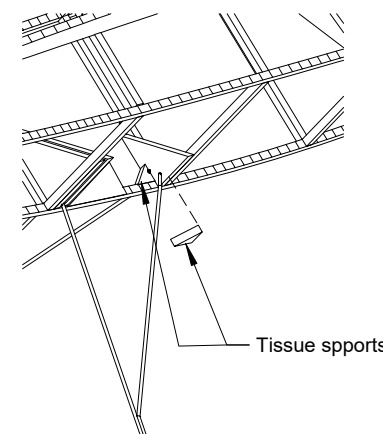
Make the main landing gear leg component using .025" piano wire. Glue the main leg piece between the two F7 parts. When the glue is dry, glue the assembly to the fuselage behind the cross pieces as shown on the plan. Once the glue is dry glue in the F8 pieces.

17.



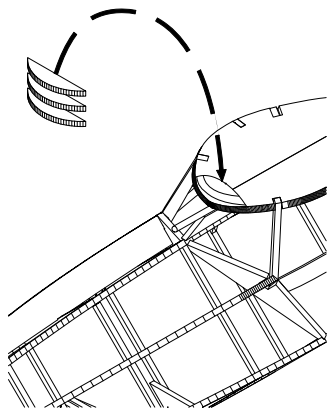
Glue part F9 to the forward face of the cross pieces just behind the landing gear assembly. Make the two landing gear leg supports from .025" piano wire. Glue them to the landing gear legs and part F9. Wrap the joint between the supports and the legs with thread and fix with CA.

18.



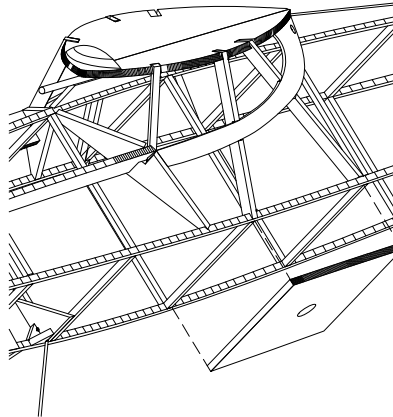
Add tissue supports to the area where the landing gear leg supports exit the fuselage.

19.



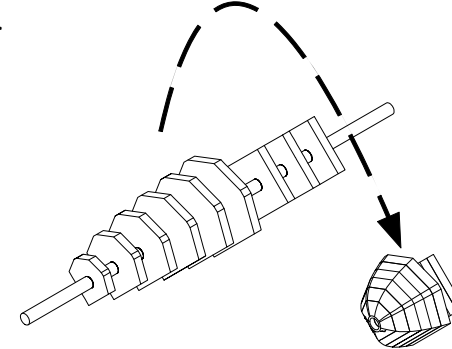
Glue the wing leading edge fairing laminations together. Sand the bottom to match the wing dihedral angle. Glue the fairing to the wing platform and sand it to shape.

20.



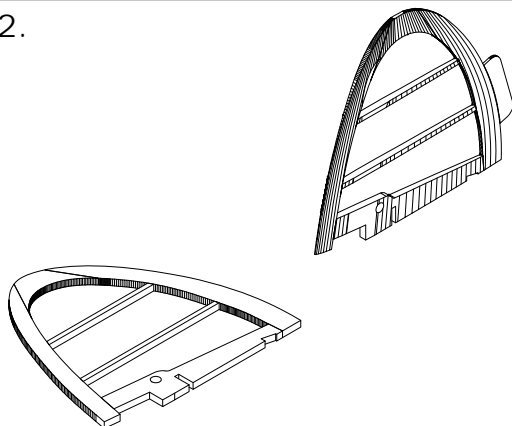
If a mechanical DT timer is being used, glue a piece of 1/16" sheet filler to the fuselage structure where the timer will be mounted. The plan shows a suggested location aligned with the CG.

21.



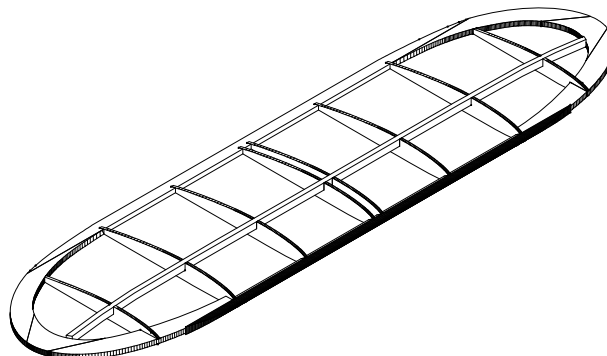
Glue the six 3/32" balsa nose block laminations together along with the three plug laminations. Make sure the grain of each layer is at 90 degrees to the adjacent layer. Use a length of 1/8" dowel to align everything and then remove it before the glue dries. Sand the nose block to shape when the glue dries.

22.



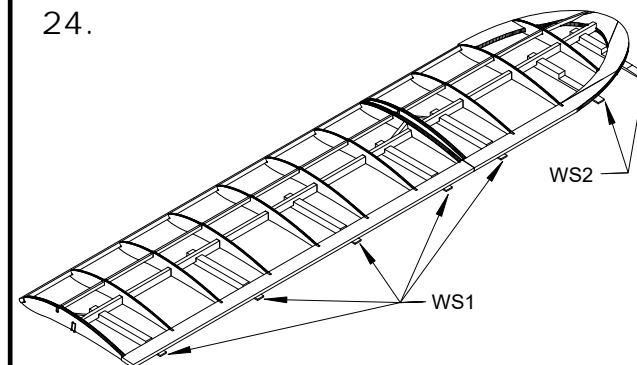
Build the fin. Once the glue is dry, sand the fin to a symmetrical cross section as shown on the plan.

23.



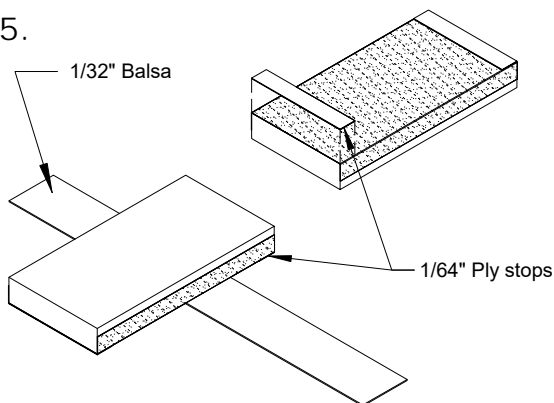
Build the stab. When glue is dry, sand the leading edge, trailing edge, and tips to shape.

24.



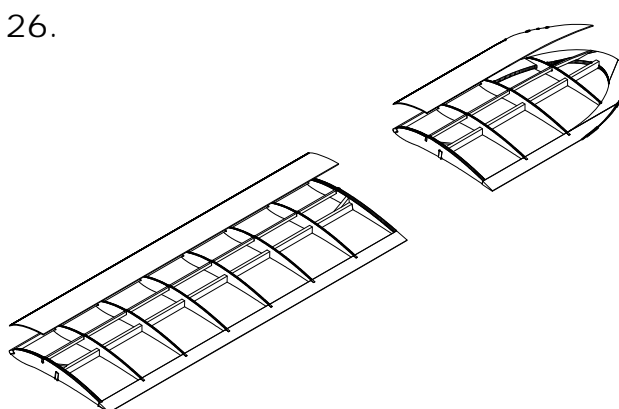
When building the wing, supports are used under the main spar and trailing edge to maintain the proper shape of the airfoil. Build the four wing panels. The three tip pieces are assembled before they are glued to the main assembly.

25.



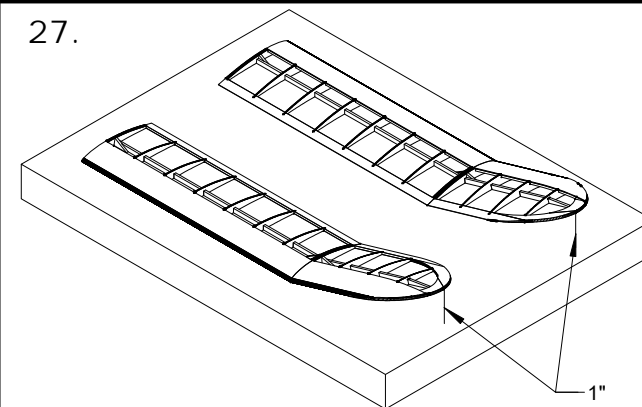
Sand some 1/32" balsa to a thickness of 1/64". This can be done by placing strips of 1/64" plywood under the sanding block to serve as thickness stops.

26.



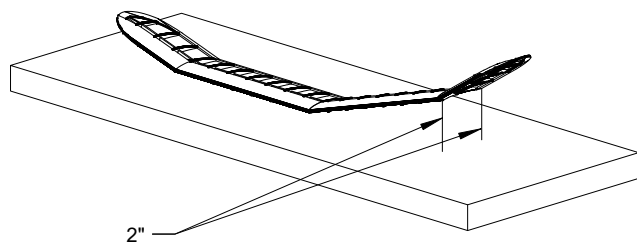
Cut the leading edge sheeting from the 1/64" balsa and glue the sheeting to the wing panels. Sand everything to shape when the glue dries.

27.



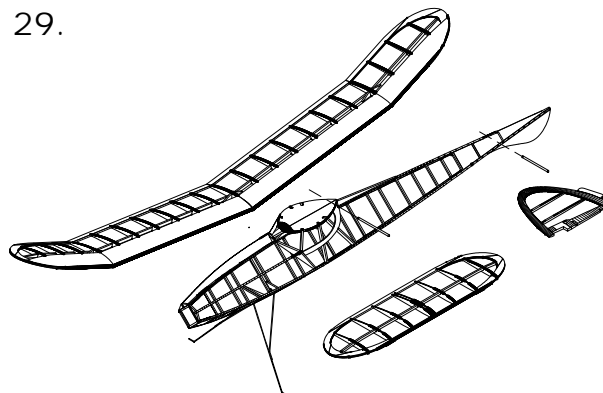
Glue the wing tip panels to their respective main panels. There should be 1" under each tip when the main panels are flat on the building surface.

28.



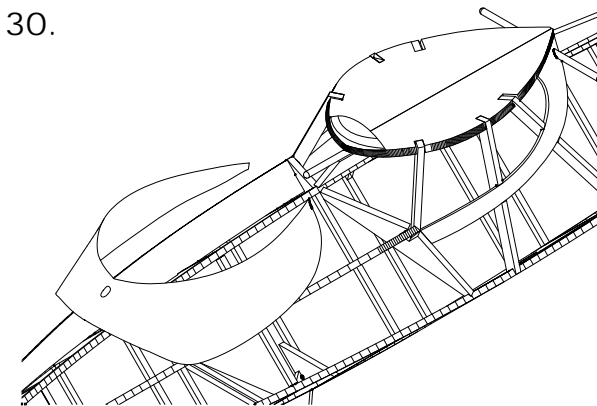
Glue the main wing panels together. There should be 2" under the tip dihedral break when the opposite main panel is flat on the building surface.

29.



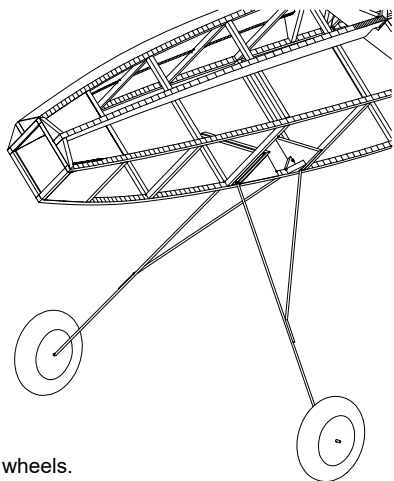
Cover the wings, tail surfaces, and fuselage with tissue. Also glue in the rear wing hold down dowel and the stab DT dowel. This illustration and subsequent illustrations will not show the tissue covering.

30.



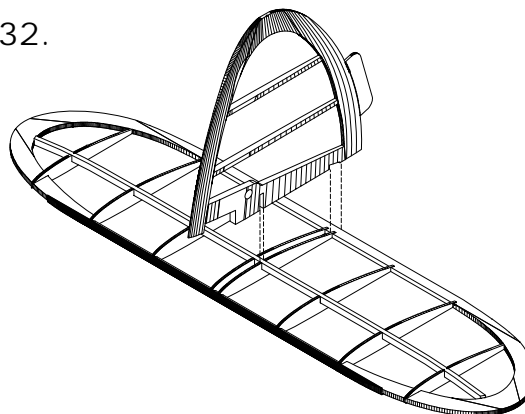
Using the pattern on the plan, cut out the windshield from clear plastic sheet in the .007" thickness range. Glue the windshield to the fuselage as shown.

31.



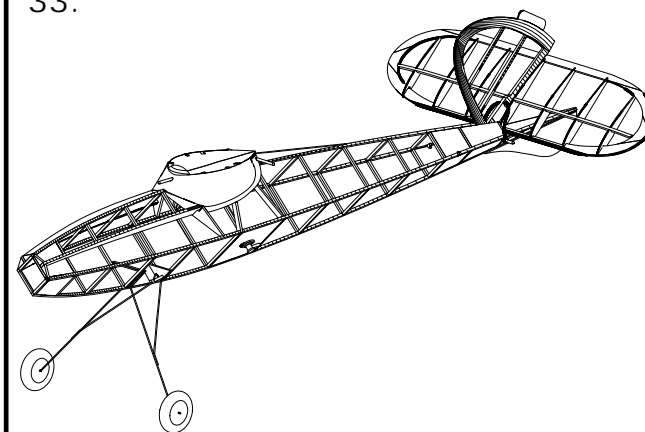
Install the wheels.

32.

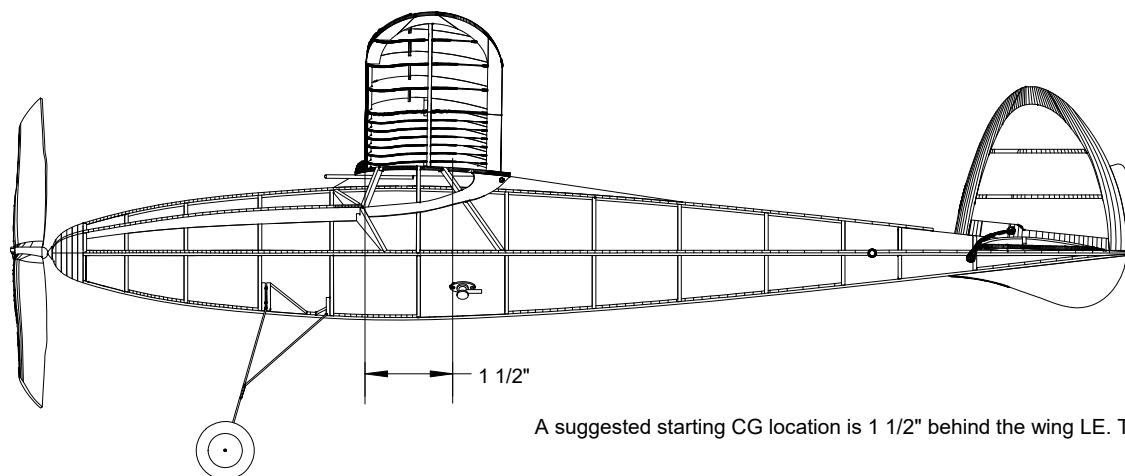


Remove the tissue from the top surface of the stab between the two center ribs. Glue the fin in the opening making sure it is seated fully to the bottom of the stab. Make sure the fin is square to the stab.

33.



Install the sub fin and rig your preferred DT set up.



A suggested starting CG location is 1 1/2" behind the wing LE. The model is intended to climb and glide right.