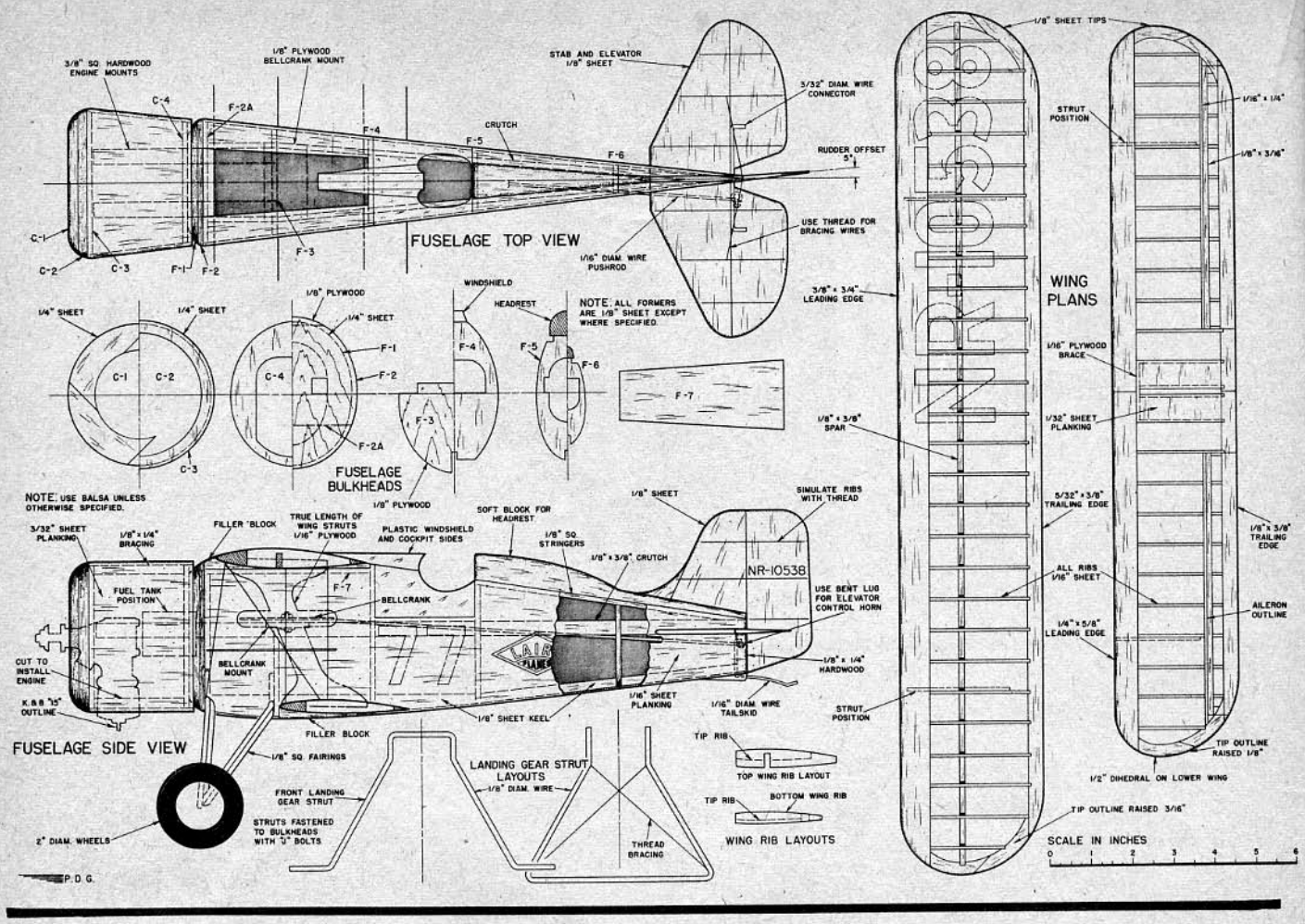
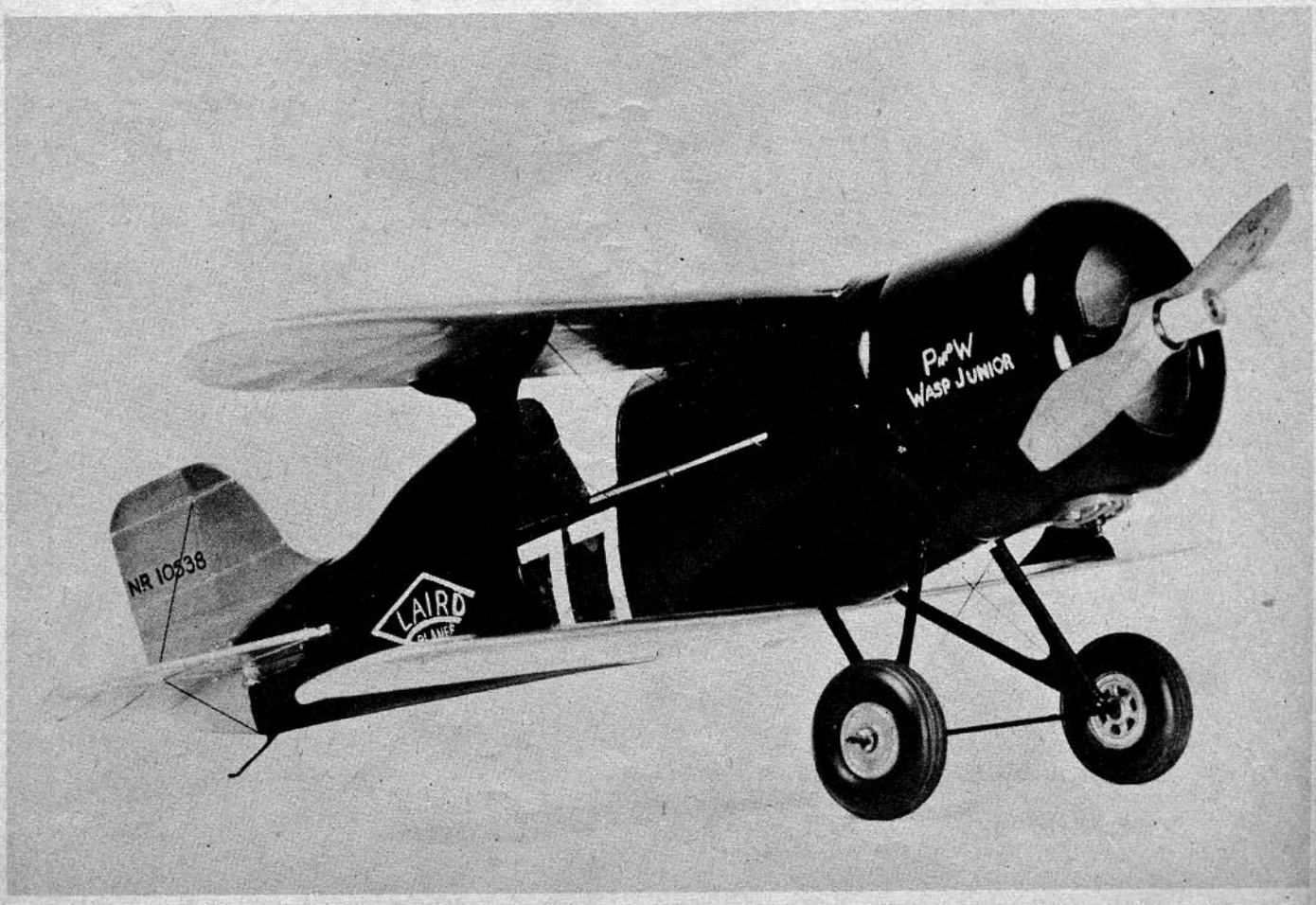
FULL SIZE PLANS AVAILABLE. SEE PAGE 60





THE LAIRD SOLUTION

by DAVID BRAZELTON

The only biplane ever to win the Thompson Trophy Race, the black-and-gold Solution presented for U/C, .15's to .19's.

► The Laird Solution has on its record a number of "firsts." It was ordered only about three weeks before the 1930 National Air Races by B. F. Goodrich for entry in the first Thompson Trophy Race. A modified Laird Speedwing, it represented Matty Laird's first attempt at building a purely racing type aircraft.

The Solution had only slightly more than ten minutes flying time logged when Charles "Speed" Holman took off in sixth position for the start of the 20-lap, 100-mile race. By the fourth lap, Holman and Jimmy Haizlip, in a Travelair "Mystery", were disputing second place having been lapped by Captain Arthur Page in his Curtiss XF6C-6, the only military plane in the race. Holman claimed first place in the 17th lap when Page was overcome by exhaust fumes and crashed.

Holman crossed the finish line to become the winner of the first Thompson Trophy, the first and only biplane to win the Thompson, and the first civilian plane to average 200 miles per hour in a closed-course race.

The plane was cleaned up and flown by Dale Jackson to third place in the 1931 Thompson. Three Lairds were in the 1931 race, the Solution, Doolittle's Super-solution, and Ong's stock Speedwing. Only the Solution and the Speedwing finished to signify the last appearance of biplanes in the Thompson.

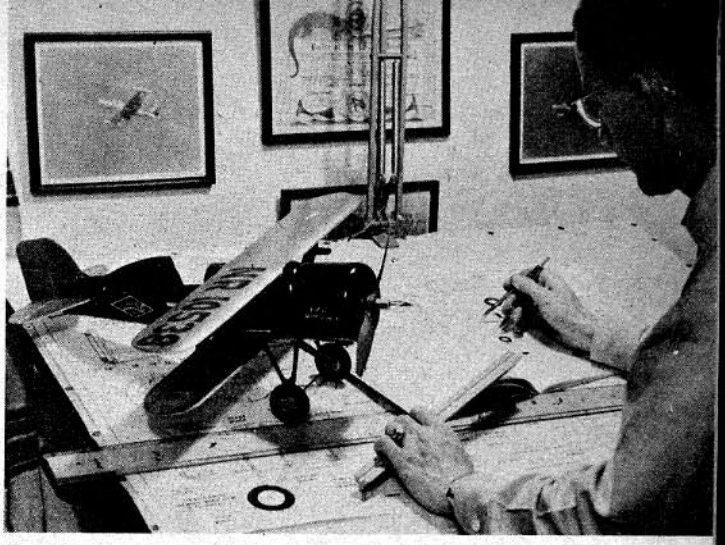
Here is the Black and Gold Solution presented for reproduction at 1″=1′. It is an easily built, sturdy model for engines from .15 to .19 cu. in. displacement. The construction is common crutch and former and will go together easily. The following instructions point up some of the more important points and the decoration. A study of the plans and instructions, a trip to the hobbyshop, and you are ready to build a fine scale sport plane.

Wings: The wing construction is conventional with the upper wing made flat in one piece. Start construction by stacking 25 pieces of 1/16 balsa for top wing ribs and 22 pieces of 1/16 balsa for the lower wing ribs and shaping to the outline of the ribs.

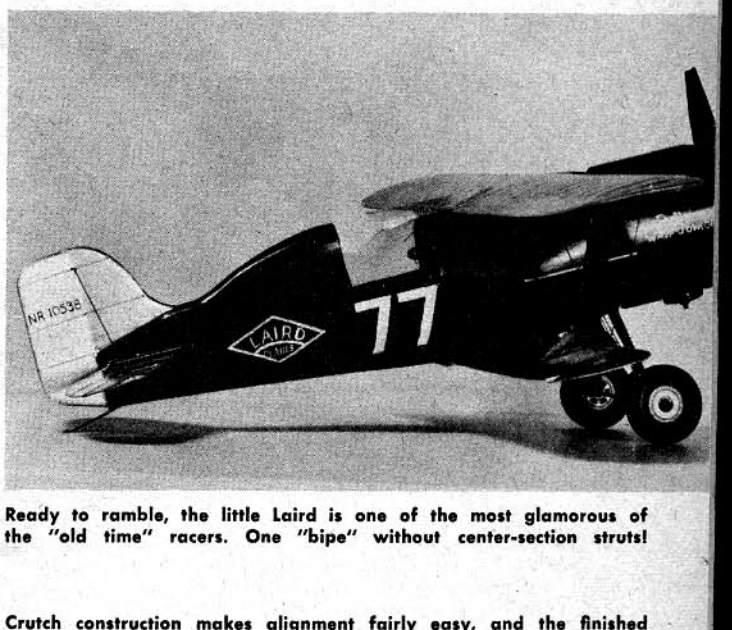
Cut and shape the leading and trailing edges and pin to the board with the leading edge blocked up 1/16 inch, the trailing edge ⅛ inch. Cut out the tips, pin into place and cement the two sections together (do not cement to leading or trailing edges yet). When dry, cement in place with the outboard end of the tip blocked up 3/16 inch above the bottom of the trailing edge. Cement the spar in place and install the ribs. When dry, shape the tips and cut out and install the tip ribs.

The lower wing is built in the same way, with the exception of the two inner ribs, which are not installed until the ½ inch dihedral is cemented in. The trailing edge should be cut for the ailerons after the wing is completed. The wing and ailerons should be covered and finished separately.

(*Continued on page* 41)

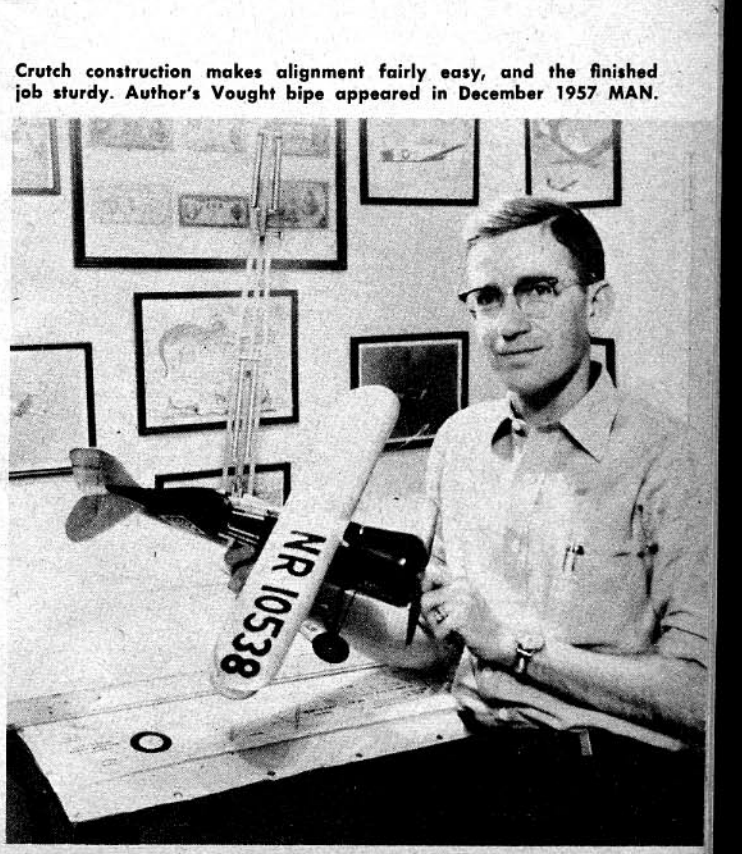


It will turn a pretty fair loop, says the designer here checking out plans, but, like most biplanes, is sensitive to overcontrol. Careful!



Ready to ramble, the little Laird is one of the most glamorous of the "old time" racers. One "bipe" without center-section struts!

Crutch construction makes alignment fairly easy, and the finished job sturdy. Author's Vought bipe appeared in December 1957 MAN.



The Laird Solution

(*continued from page* 29)

Fuselage: Nothing difficult about the fuselage. Build a crutch of ⅛ x ⅜ balsa and install motor bearers. Attach bellcrank and pushrod to mount and cement in place. Cut fuselage formers F-4 to F-6 out of ⅛ balsa, slip over crutch and secure.

Bend the two parts of the landing gear from ⅛ music wire. Cut former F-2 and F-3 and fasten the landing gear to them. Cement F-1 and F-2A to F-2, hook the main strut in the rear strut so that the horizontal section of the rear strut forms the crossbar, and cement F-2 and F-3 in place on the crutch. Cut out the keel and secure in the notches in the bottom of the formers. Sew and cement the tail skid to a piece of ⅛ pine and set in place between the crutch and keel. Solder the front and rear struts securely together.

The stabilizer and elevator should be built and installed next and the control system hooked up. Cement the ⅛ square longerons to the top of the formers. Carve the head rest and cement in place. Install F-7 and plank the entire fuselage with 1/16 x 1/4 balsa strips. Cut and shape the fin and rudder and cement in place with about five degrees right trim in the rudder.

The cowling is built on the same principle as the fuselage. Start construction by cementing C-3 and C-4 to each end of two ⅛ x ¼ balsa strips at top and bottom and squaring up with a piece of 1/16 x 1/4 planking on each side. Cement C-1 and C-2 to each other and to C-3 and proceed to plank the cowl being sure to leave ⅛" overhang at the rear.

The cowling and fuselage now are sanded well and all cracks filled with plastic balsa or a mixture of dope and talcum powder. Cover with Silkspan.

Finish and Assembly: On a biplane, finish must be accomplished before final assembly. After covering with Silkspan, all units are given six to nine coats of sealer with sanding every third coat. The wings and tail surface are painted gold. If your favorite fuel-proof dope does not come in gold color, most art stores carry gold powder which will mix with clear dope to make an acceptable finish. Do not rub a metallic finish with compound unless you have a few coats of clear on top. The registration numbers are applied in black. The fuselage and cowl are black with white lettering on the side.

Cement the upper wing on top of F-7 and fair in with block balsa. Finish as above. Now you can install the windshield. Two 1/16 square strips, painted black, are cemented along the joint of the windshield and the wing as shown in the top view.

Cut the interplane struts from 1/16 plywood to the shape shown in the dotted outline. The right wing strut need not have the "ears" for the line guides that are shown. Drill ⅛ inch diameter holes in the line guides of the left strut and bush with ⅛ inch eyelets. Finish in black.

The covering of the wings is slit at the attachment points of the struts. The lower wing is fastened to the fuselage and the struts are installed at the same time. Fairings are built on the landing gear and finished in black.

Rigging: Rigging is not complicated and well worth the effort although it does not contribute very much to the strength of the model. Use black carpet thread and do not dope. A single wire is crossed in the plane of the front strut. Single wires brace the stabilizer. With a needle and thread run through the fin, through one stabilizer, around the fuselage behind the tailskid, through the other stabilizer, and through the first hole in the fin.

The lift wires on the wing run from the main gear to the forward end of the strut, back to the fuselage, and up to the rear end of the strut. A single landing wire runs from the upper wing-fuselage juncture to the front of the strut on the lower wing. A piece of 1/16 dowel is cemented to all wires as shown dotted in the side view.

Flying: As in all biplanes, the Laird tends to be sensitive to overcontrolling. It is advisable to set the lines as close together as your handle will permit. After you get accustomed to flying it, the Laird will turn a pretty fair loop. It is a fairly stout airplane and will take a reasonable amount of punishment.