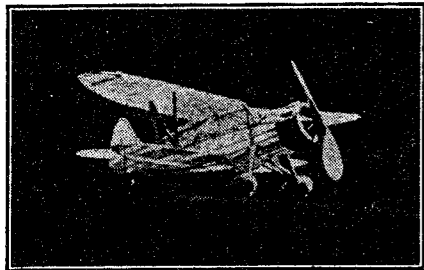


The Waco Custom Cabin

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All set for a trip aloft! This "snap" showing the Waco fitted with its flying prop tells you better than words what a fine model she is.

Well, Fans, here's this month's feature model—a beautiful plane that's tops both as a flyer and as a display ship. Wacos have always been favorites with model builders because they're such trim craft, and we're right here to tell you that this latest job is no exception. And Mr. Graffeo's drawings and instructions are so clear that you won't run into a single snag in turning out this great little ship.

MAY, 1936 ○ ○ ○

By Stephen J. Graffeo

HERE we go, fellows, with a flying scale model that's a knockout of a ship—the Waco Custom Cabin Model YOC. But first let us tell you about the real Waco: It's a four-place job designed and manufactured by the Waco Company of Troy, Ohio, and it's the last word in luxurious, practical, and economical air transportation. Some of the features of this swell plane are as follows—Rounded windshield which adds speed and improves visibility, safety glass in windshield and side windows, steering column and front seats adjustable fore and aft, stabilizer control mounted on steering column, balance tab on aileron for correcting wing heaviness when wing tanks are used separately (these tabs are adjustable in flight), and independently-controlled flaps.

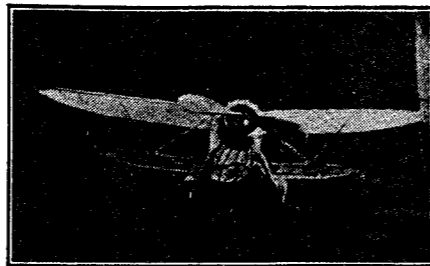
The Waco Custom Cabin is powered with a L-4 225 h.p. Jacobs seven-cylinder radial engine which gives it a top speed of 155 m.p.h. and a cruising speed of 137 m.p.h.

Our model incorporates all the beautiful lines of its larger prototype and is an excellent flyer. And now, before trying to construct the model, look over the plans carefully and familiarize yourself with the details and construction. After you feel that you understand the plans thoroughly, gather all the necessary materials together and start construction.

FUSELAGE

WE will start by cutting Plates 1 and 3 and joining them together. Place transparent wax paper on top of the plans to prevent the parts from sticking to them. Now make the fuselage sides from 1/16" square balsa strips as shown on the plans by heavy black lines. The long-rons and braces are held in place by inserting model pins on either side of the strips wherever needed. When the two sides are completely dry, cement 1/16" square balsa cross members into their proper places. Check carefully, front to rear, for alignment.

Now cut all formers from 1/32" sheet balsa and cement in their proper locations as detailed on the plans. Cut former F-3 from 1/32" sheet balsa to shape shown on Plate 4, then glue instrument panel to former F-3 and cement in fuselage. Make former "X" from 1/4" sheet balsa and glue in place. Make rear hook from .028 steel wire bent to shape shown and glue to former "Y."



And here's a "shot" from the front which shows the strut arrangement, the split-type landing gear, and the comparative spans of the wings.

Construct former "Y" by laminating two 1/16" balsa sheets. Now cement all stringers (1/16" square balsa) in place. Be sure to cement 3/32" square balsa strips on corners of formers as shown on plans. After stringers are securely glued to all formers, construct windshield from 1/16" square balsa.

Make lower wing fillets "C" from soft balsa as shown on Plate 2. Shape and sand fillets so that they fit snugly against sides of fuselage. Cement fillets to fuselage and allow to dry.

In covering fuselage, cover in sections so as to get a smooth covering job. Use banana oil or dope to cement tissue paper to fuselage. When completely covered, shrink tissue by spraying a light coat of water. When thoroughly dry, give one or two coats of clear dope.

WING PANELS

THE upper and lower wing panels are built in separate panels, one right and one left. (Right upper wing panel shown on Plates 3 and 5, left lower wing panel on Plate 2.)

Cut all ribs from 1/32" sheet balsa unless specified for 1/16" sheet balsa, as shown on Plate 3. Lay a sheet of transparent wax paper on the plans and pin front and rear spars in position. The ribs are now placed in their proper locations and glued. Slant rib K (upper wing) and rib E (lower wing) for correct dihedral angle. The leading and trailing edges are sanded to shape shown and glued in place. Make wing tips from 1/16" sheet balsa. We recommend this type of wing tip as it is easier to build and gives a neater appearance.

To cover, use separate sheets of tissue. Cover tops of wing panels first, and then the bottom. Use banana oil or dope to cement paper to wings. Shrink and dope wings in the same manner as fuselage.

MOTOR COWL AND MOTOR

MAKE cowl front "J" by laminating two 1/4" balsa sheets cross grain to avoid splitting when carving. Carve and sand to shape as shown on Plates 1 and 2. Next cut out and sand rear cowl front "V" on Plate No. 6 from 1/8" sheet balsa. Now make the

crankcase from a 1 5/16" x 1 7/8" balsa block, and cement to former "V." Cut out seven celluloid cylinders from a standard 3-inch celluloid dummy motor, and glue the cylinders to the crankcase as shown on Plate 1. Then cover the rear part of the cowl with 1/32" sheet balsa. This completes the cowl and dummy motor, with the exception of the fourteen valve covers which are glued around the outside of the motor cowl as shown on Plates 1 and 6. The motor cowl is detachable to permit the use of a winder.

LANDING GEAR AND TAIL WHEEL

THE streamline wheel parts are cut to shape and built up in three sections as detailed on Plate 1 and 6. Carefully carve and sand to a streamline shape (Section B-B). Now make the landing gear struts from 1/4" x 7/8" balsa as shown on plans. Next assemble the landing gear struts and cement to fuselage as detailed on plans and allow to dry.

Make tail wheel assembly as detailed on plan Plate 3.

TAIL SURFACES AND PROPELLER

PIN a 1/16" x 1/8" balsa spar to the plan; cut out the leading and trailing edges from 1/16" sheet balsa for the stabilizer. Cement 1/16" x 1/8" balsa ribs as shown on Plate 4. Make the

rudder in the same manner. When dry, taper the ribs from the spar toward the leading and trailing edges. Cover the tail surfaces in the same manner as the wing panels. Spray lightly with water and dope. After the tail surfaces are sprayed with water lay them on a flat board and place weights along their outline to keep the tail surfaces from warping. Use the same procedure for wing panels.

Make the propeller from a 3/4" x 1 1/2" x 8" block of medium hard balsa, and cut to shape shown on Plate 5; then carve and sand propeller in the usual manner. Dope the finished propeller two or three times, sanding between each coat to insure proper balance of the propeller.

The scale propeller is clearly shown on plan Plate 3. This should be used for exhibition purposes only.

Make the propeller shaft from .028 steel wire and bend over to shape shown on plan. The propeller shaft is inserted through the crankcase, washers, and propeller hub. Then it is bent over and imbedded into the front face of the propeller hub, where it is cemented.

Power the model with six or eight strands of 1/8" flat brown rubber, depending on the weight of the model.

ASSEMBLY AND FLYING

CEMENT the tail surfaces onto fuselage, being sure to get the correct stabilizer setting. Next glue lower wing

panels to wing fillets "C" and allow to dry. Then cement upper wing panels to fuselage as detailed on plans and allow to dry. Cement struts in their proper location and make sure that the wings have the correct amount of dihedral. Use strong silk thread for bracing tail surfaces.

Glide the model over tall grass to see if the model is properly balanced. If the plane is tail-heavy, add some weight to the nose until you get an even glide. After the model is balanced to glide at an even angle, you are now ready to test your model under power. Any adjustments regarding the flight of the model may be made later by adjusting the stabilizer setting.

That's the story, model builders—and now let us wish you lots of luck with your Waco! And let's have a few pictures of your completed job for the FLYING ACES model builder's photo page.



20" FOKKER D-7 50c p.p.



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37

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