

TAPER WING WACO

A grand old biplane, favorite of many a famous stunt pilot, returns as a slick control line flying scale powered with .29 to .32 engines

If you were old enough to tie your own shoelaces when "Lucky Lindy" made history in 1927, then you might recall the era of the stunt biplane, exemplified by the Waco Taper Wing.

Even if you can't remember "the good old days" you can see what a fine model this Waco is for stunting or for real detailed scale flying. With no apparent dihedral, an almost-symmetrical airfoil, and with its landing gear well forward, the WTW makes an excellent subject for U/C work. The Taper Wing, with its generally clean shape and efficient tapered wings, was a great improvement over its predecessor, the Waco 10.

Two models made by the author logged more than 150 flights, with one model taking stunt and scale honors in the same contest. The hot rock stunters can go easy on the super-

details for a lighter, more maneuverable ship. But loading the ship down with wheel pants, cowl ring and such will not take the edge off its stunting ability—it will still turn inside the other scale jobs and match some of the flying barndoors in intricate acrobatics.

Testing should be done with the usual balloon type wheels, the home-made scale type being saved for competition work. If wheel pants are used, stock wheels can be employed, as they will not "show" and a lot of work can be saved. Remember, with or without cowl and pants, the job is still true to scale, as the prototypes were flown both ways.

Now let's get a-building. Grab some 1/8" square balsa, but hard. The basic framework can be tossed together as per the side view. Allow the longerons to project slightly forward of Station 3, as they fit into notches in F3. Once

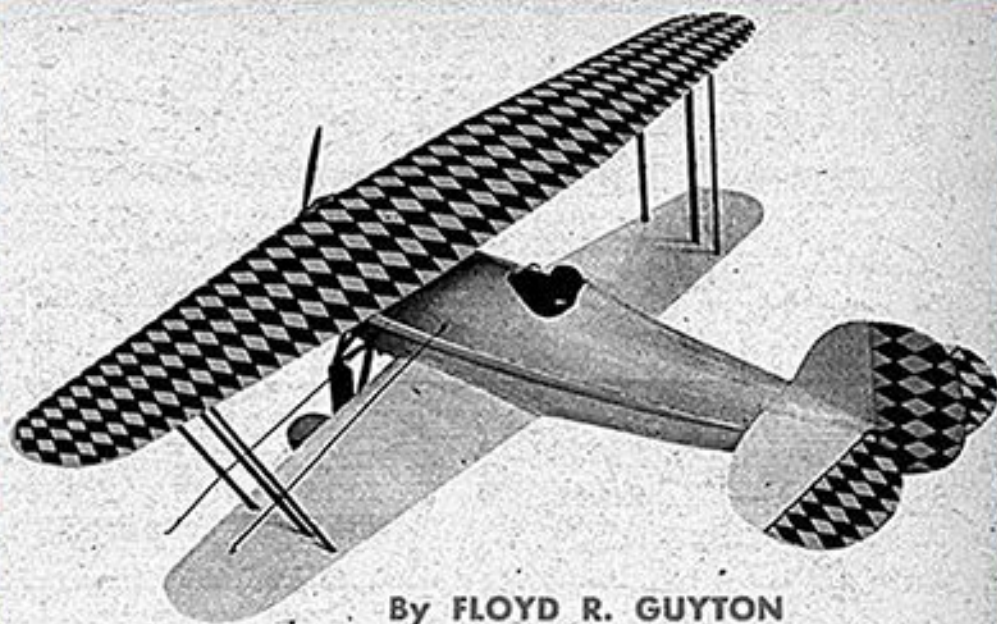
all the required cross braces and diagonals are in place, allow the cement ample time to dry thoroughly and remove from workbench. Building both side frames at once insures exact duplication, so play safe and do it that way.

Use a thin razor blade to separate the two frames and start assembly in the orthodox manner, tail-first. Work forward carefully, checking each frame for squareness as you go along. Note that the cross pieces at Station 3 are not equal, due to slant. If desired, diagonals at each station will help rigidity immensely, especially at Stations 5, 6, and 7. Hard 1/16" x 1/8" balsa is fine for this; it can be left in permanently if not in the way of the pushrod, or cut out when the fuselage is partly covered and has greater torsional rigidity. The plywood bulkheads F3 and

F4 can be slipped in place now and cemented securely. Be sure to get all the holes cut out or drilled through F3 and F4 before assembly.

The engine bearers can be slipped in place and cemented next. Note that the upper bearer is longer—extending beyond the rear of F4 to provide mounting space for the bellcrank. The bottom of this bearer is cut away to provide a horizontal surface for mounting aforesaid bellcrank which, incidentally, protrudes through F4 (see gourd-shaped hole made for this). Note that the pushrod arm of the bellcrank is bent down somewhat to clear the upper cross-brace at Station 4. Try to assemble as much of the control system as possible in the early stages of construction, as hooking up the pushrod to the bellcrank and other similar jobs are difficult once the stringers and covering have been practically done. This applies to the lead-out wires also.

The unorthodox position of the engine, with one engine bearer under the crankcase lug and the opposite bearer over the lug may seem unnecessarily complicated, but it is a fine way of hiding the K&B .29 and providing space for a fuel tank of moderate size, mounted in an ideal position. The usual upright position of a .29 in this ship



By FLOYD R. GUYTON

necessitates running the engine bearers right through that area where the tank should be—level with the needle valve. However, for some compact engines like the Forster F-29 it shouldn't be much trouble to "pad" the front of F2 with a slab of 3/8" plywood for a radial type mounting for even greater latitude in positioning the tank. In the event

that you rework the nose section for radial mounting, remember to beef up the construction enough to compensate for the absence of engine bearers. And leave the bellcrank where it is, regardless of what rework you do in other departments.

After bending the landing gear to shape, install (Continued on page 74)

