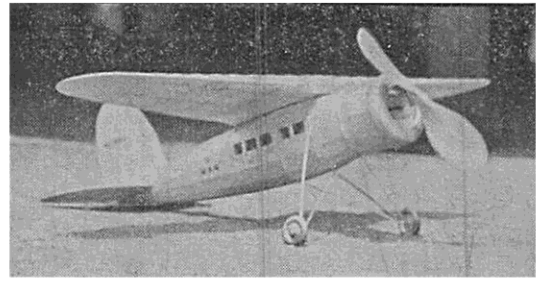


# Build A Flying Scale Model of Wiley Post's Lockheed Vega

By J. D. BUNCH



The finished model ready for flight.

**T**HE very first word the name Lockheed "Vega" calls to mind is efficiency, and the flying scale model Lockheed "Vega" inherits the efficiency of the full size ship. The writer believes that the "Vega" design makes about the best flying scale that can be built at the present time, and certainly many builders will want a good model of this beautiful ship.

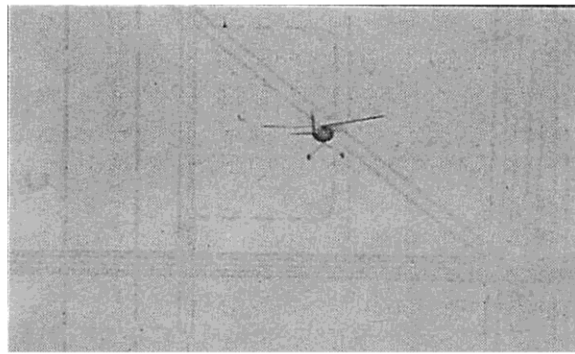
After assembling the drawings, start construction by building the internal fuselage. The structural balsa specified is medium grade. The propeller and nose piece if turned nose is used is of a medium light grade. Cut the longerons, struts and diagonals from 1/16" square stock and assemble over the drawing in the usual manner, using pins to form a jig. Use good model airplane cement.

When both sides are finished, install the horizontal struts from station E forward. Next install the rear struts at K. Put these in, one at a time, with the fuselage pinned over the drawing. While the cement at the rear is still slightly flexible, install the remaining struts.

Cut all formers from 1/32" sheet balsa. Former AB means—former for station A and that it goes on the bottom of the fuselage. AT means former is for station A and that it goes on the top of the fuselage. Formers AS are for the sides. As the formers are cemented in place, they should be matched up with the side view drawing to make certain they are right side up, otherwise the stringers will not run correctly. Also the formers must be trimmed slightly to fit where the diagonals meet the longerons. Note the formers at CT and DT are doubled. Formers at CS, CB and DB are four in thickness. Where formers fit against a strut, the inside lip must be cut off.

Cement lightly together and be sure the notches

## A Scale Model That Will Give Some of the Most Remarkable Flights You Have Ever Seen



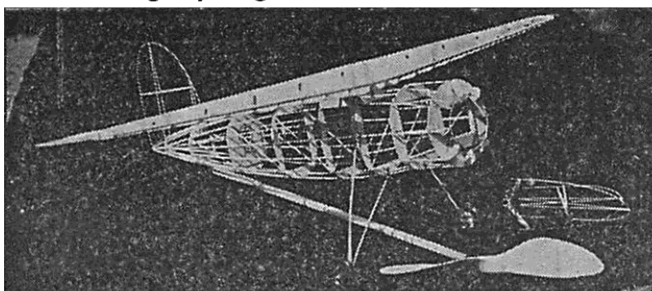
The Lockheed has just taken off and is gaining altitude quickly.

line up. Also note 1/16"x 1/32" bamboo reinforcement inside side center stringers between station C and D and on bottom center stringer between stations C and D. The bottom reinforcing bamboo, should run 3/8" to rear of station D. These reinforcements take and distribute concentrated loads from the wings and undercarriage. Install the NACA cowl formers and stringers and then to the rear side of vertical struts at A, install a 1/16"x3/16" reinforcement. To the lower A horizontal strut a 1/16"x1/8" strip, then a 1/8"x1/4" strip as shown. This structure makes the front motor support bulkhead. Cement the .020 wire

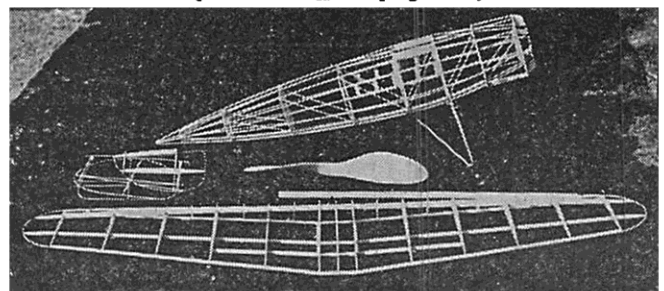
motor clip to the bulkhead and then a strip of 1/32" sheet against the front of the clip to finish it off securely in place.

The nose of the cowl may be finished with built-up formers and covered with tissue or a light balsa nose piece can be cut for it. Turning on a lathe is simplest, but it can be easily carved. Work carefully on this fuselage as an accurate fuselage is a major requirement for a good model. A standard hook fitting is shown in the drawing. Install these with cement and thread. Do not install hooks which hold the wing until later as a small variation in the wing will call for a slight adjustment of these hooks. All hooks are made of .026 wire. The windows are cut in a sheet of 1/32" balsa and cemented in place. Panes may be made of cellophane but the windows look better if just left open. The rear motor support bulkhead is cemented in place after station F. Cut it from 1/32" sheet balsa.

**T**HE wing is self-explanatory. The dihedral is formed by the taper in airfoil section and the main  
(Continued on page 39)



The construction resembles a full scale plane.



The framework of the parts is finished.

## Build a Flying Scale Model of Wiley Post's Lockheed Vega

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spar at the top runs flat. Build the wing in halves and then butt joint the short spar lengths for the center part with liberal use of cement. The leading edge is  $3/16''$  sq. tapered to  $3/32''$  sq. The front, rear, and auxiliary spars are  $1/8''$  sq. The trailing edge  $1/16'' \times 3/16''$  and the main top spar is built up of 2 strips  $1/16'' \times 3/16''$  and the main top spar is built up of 2 strips  $1/16'' \times 1/4''$ . The tips are bamboo  $1/32''$  sq. Make the wing hooks of .026 wire. The tips of the rear hooks should be  $1/8''$  longer than the front hooks. This will make the wing easier to snap into place. Bind and cement these hooks in place on  $1/8''$  sq. strips and then cut, fit and cement to the wing as shown. When this is finished, measure carefully and install the standard hooks to the top of fuselage formers CT and DT with thread and cement. This part of the work will call for one or two check measurements as the hooks must engage properly and hold the wing in correct alignment.

All ribs are cut from  $1/32''$  sheet balsa. The undercarriage struts are all  $1/32'' \times 1/8''$  bamboo. The front struts of the Vees are  $5\frac{1}{4}''$  long. The rear struts are  $6\frac{1}{2}''$  long. Make 4 Us of .020 wire  $1/32''$  wide and  $5/16''$  long, binding and cementing these to each upper strut end. The top of the loops should extend  $1/16''$  beyond the strut end. The axles are .033 wire. Bend one end into a light loop  $3/16''$  long to fit flat against the lower end of the front Vee struts and bend the other end out parallel to the ground to hold the wheels. Bind and cement the axles to the front Vee struts.

Allow an axle length of  $3/8''$  more than the wheel hub, so there will be room for the shock cord, which is one loop of .045 sq., rubber and the wheel retainer. Bind and cement the lower ends of the Vee struts together. The tops should be just far enough apart so the loops will engage the bottom hook fittings. It is best to measure this distance accurately and pin the struts to a board while drying. The shock strut is shown in the drawing. The axle guide fitting is made of .026 wire and fastened securely to the strut with thread and cement. Bind a loop fitting to the top end to engage the hook fitting installed on center stringer at station C.

To set up the undercarriage, snap the tops of the struts in place and slip the axle through the shock strut guide. Tie the shock cord in place and install the

wheels.  $1/8''$  celluloid wheels are all right. The hubs should be reinforced by cementing washers to them. The wheels can be securely retained with a small washer and binding the end of the axle with thread and cement. A light piece of soft wire should be twisted across the lower inset of the axle guide to keep the shock cord from slipping out. The tail skid is made of .020 wire. Bind a flat loop to cement against former HB. The lower end should curve upward so the skid will slide smoothly.

The stabilizer spars are double  $1/16'' \times 1/32''$  bamboo. The tips are lightly bound together and the inside ends spread to take the main rib and the base rib. These parts should be assembled over the drawing. The outline pieces are  $1/32''$  sq. bamboo. The base ribs are reinforced with a  $1/16'' \times 1/8''$  strip set on edge. The ribs are  $1/32''$  sheet. The rudder is constructed in the same manner, but has a double front spar also. The rear main spars are  $1/16'' \times 1/32''$ . The front spars are  $1/32''$  sq. This type of tail is a little more difficult to build, but is very strong for its weight and will not be cracked up in collisions or by weeds.

**T**HE motor stick is  $1/4'' \times 3/8'' \times 18''$ . Bind and cement a strong bearing in place. Run the binding back on the stick  $1\frac{3}{4}''$  to form a good gripping surface for the motor clip. The rear hook is .033 wire and raised above the stick, so the rubber line is parallel to the stick. The "S" hook is .033 wire. The propeller is carved in the regular straight blade method but has a wide blade. The diameter is  $12''$  and the block should be  $1\frac{1}{4}'' \times 2\frac{1}{2}''$ . The hub when finished should be  $1\frac{1}{2}''$  wide and  $3/4''$  deep. Cement washers to the center hole and install an .033 shaft. Reinforce the hub with cement and give the propeller and motor stick three coats of banana oil.

Cover the model with Japanese tissue. It is best to proceed in this manner. Make a small, strong frame of scrap and cover it with tissue, then spray with water. Use this pre-shrunk tissue to cover the tail group. Do not pull the paper very tightly on the tail as the paper cement will cause some shrinking. The tail covering should, if anything, be slightly loose. Next cover the fuselage between stations H and K. Just in front of formers at station H from side center stringers, cement a  $1/16'' \times 1/32''$  bamboo strip across the fuselage to carry the front of the stabilizer.

Cement the stabilizer in place at an angle of attack of  $2^\circ$  and with a slight dihedral angle. Cement the rudder in place with the spars astride the top center stringer. Set front spars even over the center stringer and the rear spars over to give the model right rudder to counteract torque. When the tail group has dried in place cover the remainder of the fuselage, a section at a time. The wing is covered top side first. The tips should be covered last. Give the covering a light water spray to shrink the paper, which will tighten up about all the frame can stand without serious distortion. Due care of course, must

be observed to keep all water spray off the tail group.

The writer's test model is finished in silver, the finish used by the trans-continental Air Express Corporation. The finish was applied with a spray gun using one part banana oil and two parts thinner. Use the smallest amount possible of silver or aluminum powder. The finished model should be just barely covered with the pigment. For hand brush finishing, the dope should be 1 part banana oil and 3 parts thinner. Brush lightly with a soft brush.

License numbers and decorations are best cut out and pasted on the covering with mucilage. The windshield should be cut from celluloid and cemented to the fuselage, the lower front part against the back of the cowling. The top of the windshield may be made of celluloid or sheet balsa. When installing the windshield, make certain it does not interfere with the wing's movement into its hooks.

Power the model with six strands of  $1/32'' \times 3/16''$  rubber or ten strands of  $1/32'' \times 1/8''$  rubber.

Far better flights can be made by using a good rubber lubricant. Launch the model in level flight. Only very slight balance adjustments will be required, if the drawings are closely followed and these can be made with a small alteration in the length of the motor stick.