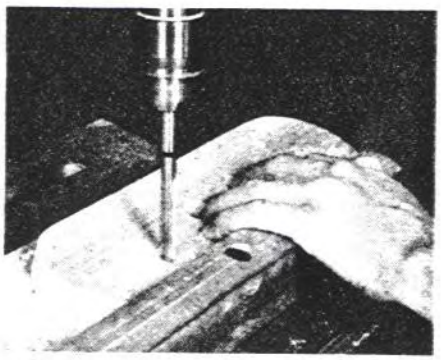
The Airplane

Children have a particular fascination for flight. The first toy airplane was manufactured years before the first airplane had ever flown. Here's a biplane, a design that has intrigued pilots (and future pilots) since the first days of powered flight.

Plan of Procedure

1. Cut all pieces to proper size and shape, using the patterns provided. Drill a 7/16" axle hole in each of the Landing Struts (K), with the center of the hole 1/2" from one end of the strut. Drill a 7/16" hole in the center of the Propeller (H), and 3/8" holes in the center of the Wheels (M) and Keeper (J). Drill four 3/8" holes at a 15° angle in the Top Wing (D) and Bottom Wing (E). Centers of the wing holes should be 3" from the wing tips and 3/4" from the leading and trailing edge, as shown on the pattern. Drill two 1" holes in the Bottom Wing (E). The centers of these holes should be 1-1/8" from the center of the wing, 1-3/4" from either edge.



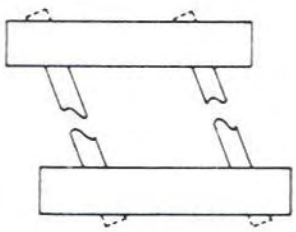
Drill holes for the Wing Struts (F) at a 15° angle.

2. Glue the Fuselage Sides (A) to the Vertical Stabilizer (B). Take care that the dadoes for the bottom wing line up exactly. Refer to pattern for position.

3. Glue the Horizontal Stabilizers (C) in the dadoes towards the rear of the Fuselage Sides (A).

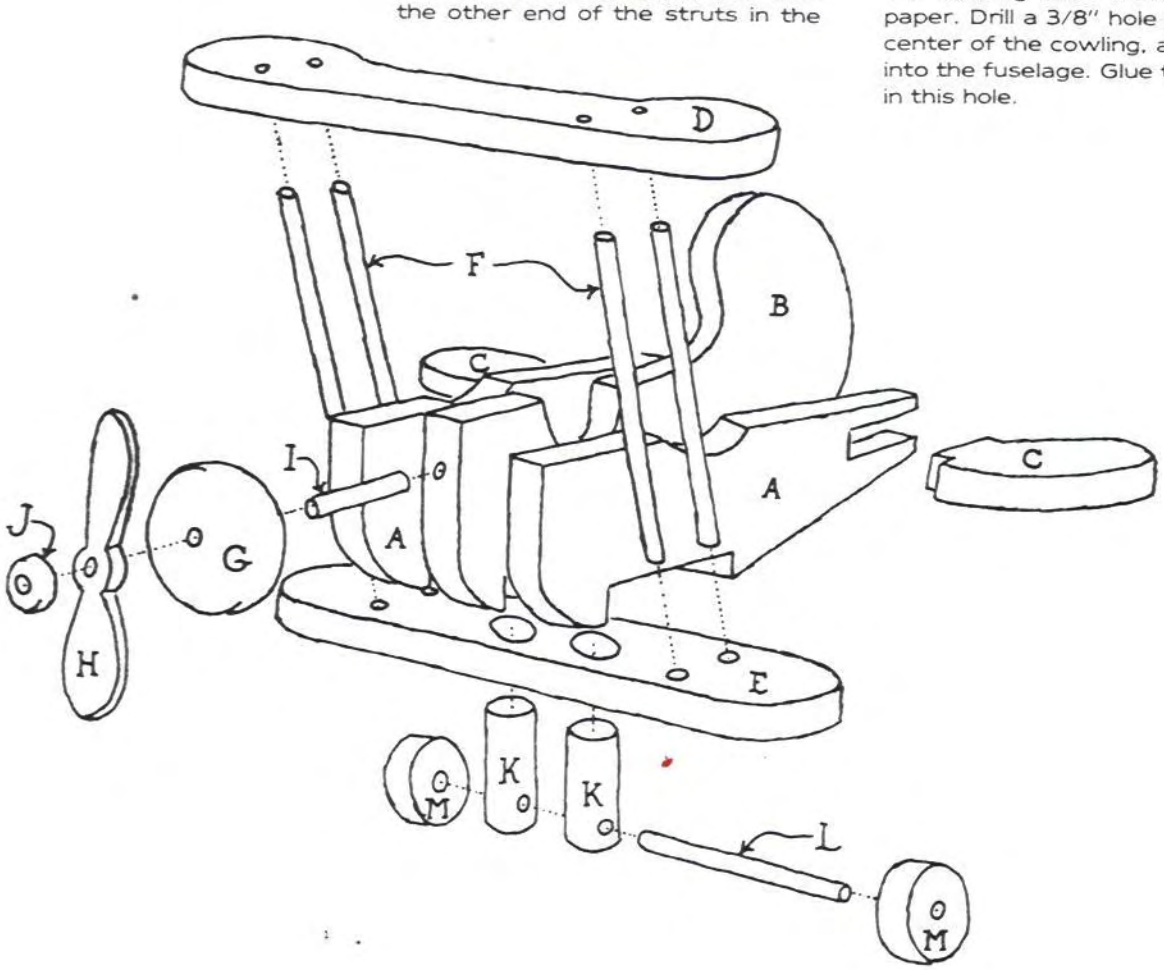
4. Glue the Landing Struts (K) in the 1" holes in the Bottom Wing (E), taking care the axle holes line up. Glue the Wing Struts (F) in the 3/8" holes in the Top Wing (F), then glue the other end of the struts in the 3/8" holes in the Bottom Wing (E). When all is glued in place, the wing surfaces should be parallel and the wings struts should stick out 1/8" above and below the wings. Sand the struts flush with the wing surfaces.

5. Glue the wing assembly to the fuselage/stabilizer assembly, slipping the Bottom Wing (E) into the dado at the bottom of the fuselage. Reinforce the glue joint with dowels or screws.



The wing surfaces should be parallel and the struts should protrude above and below just enough so that you can sand them down flush with the wings.

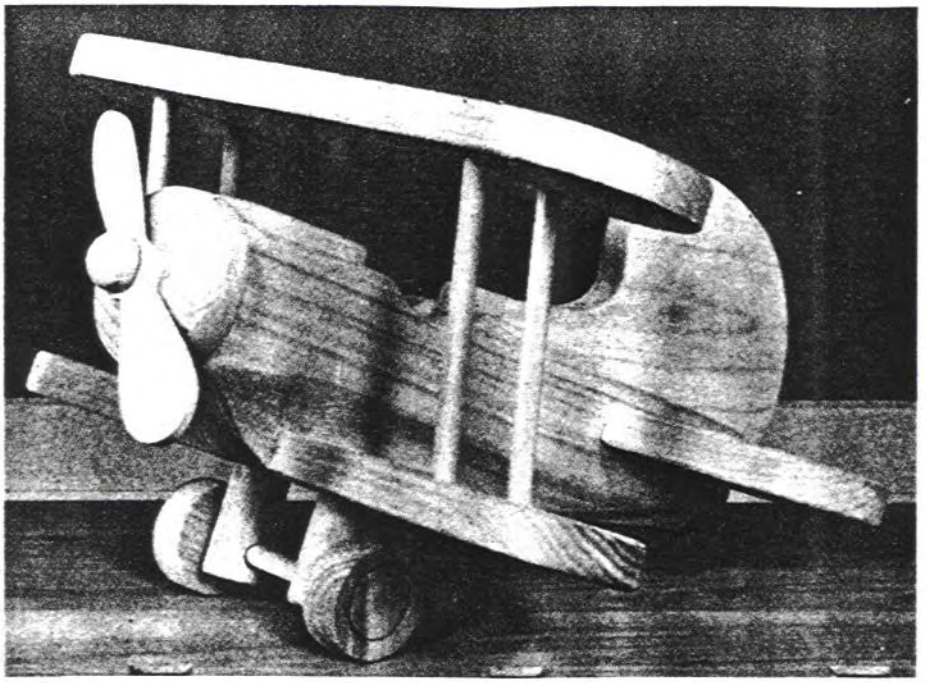
6. Glue the Cowling (G) onto the front of the fuselage. If you wish, you can round the leading edge of the cowling with a rasp or sandpaper. Drill a 3/8" hole through the center of the cowling, at least 3/4" into the fuselage. Glue the Pivot (I) in this hole.



7. Place the Propeller (H) on the Pivot (I). You can put a realistic pitch in the blades of the propeller with a rasp or sander. With the propeller in place, glue the Keeper (J) on the Pivot (I), leaving enough room for the propeller to turn freely.

8. Insert the Axle (L) into the holes in the Landing Struts (K), and glue on the Wheels (M).

Caution the aspiring pilot to whom you give this airplane that this is *not* a free-flying model. Flight plans should include a great deal of ground support.



THE AIRPLANE
Bill of Materials (in inches)

A. Fuselage Sides (2)	12 x 3-1/2 x 3/4
B. Vertical Stabilizer	13-1/2 x 6-1/2 x 3/4
C. Horizontal Stabilizers (2)	4-3/8 x 4-1/8 x 3/4
D. Top Wing	14 x 4 x 3/4
E. Bottom Wing	14 x 3-1/2 x 3/4
F. Wing Struts (4)	6-1/2 x 3/8 dia.
G. Cowling	3/4 x 3-1/2 dia.
H. Propeller	6 x 1-3/8 x 1/2
I. Pivot	2-1/2 x 3/8 dia.
J. Keeper	1/2 x 1 dia.
K. Landing Struts (2)	2-1/2 x 1 dia.
L. Axle	4-3/4 x 3/8 dia.
M. Wheels	3/4 x 1-3/4 dia.