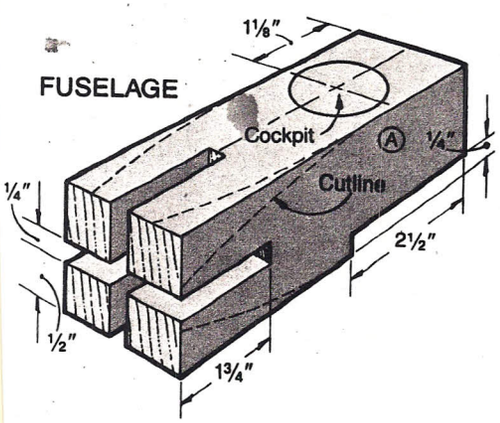
THE RED BARON, JR., TOY AIRPLANE

With your supervision, a youngster probably can handle most of the layout, cutting, and assembly of this high-flyin' project—depending, of course, on his or her skill level and age.

First you make the fuselage, wing, and stabilizer

1. Rip a piece of pine to 1½" square. Measure 5¼" from one end and cut the fuselage (A) to length.

2. Using the Full-Sized Patterns on page 63 and the drawing *below* for reference, lay out and mark the notches needed to hold the elevator (B) and the rudder (C). Do the same for the rabbet that will accept the wing. Then, using a bandsaw or a handsaw, chisel, and mallet, cut the notches to size.



And with a bandsaw or a dado blade mounted in your radial-arm or tablesaw, cut the rabbet in the underside of the fuselage.

3. Lay out the location of the cockpit, again using the drawing *above* as reference. Drill a 1¼" hole ⅜" deep where the two lines intersect. Now, drill a 1" hole through the center of the first hole and through the entire thickness of the fuselage, using a backer board below the piece being drilled to prevent chip-out.

4. Draw diagonal lines from corner to corner on the front of the fuselage to mark the center point for the prop shaft. With a ¼" bit, drill ½" deep into the front of the fuselage (A).

5. Using the pattern on page 63 as a guide, mark the taper on the tail end of the fuselage. Cut the taper to shape with a bandsaw or jigsaw. Now, round-over the square edges the length of the fuselage with a block plane or wood rasp.

6. Using tracing paper, transfer the shape of the rudder (B), elevator (C), and wing (D) onto ¼" stock. Remember to trace the notches and the strut holes. Cut the parts to shape, then cut the notches in B and C. (We resawed ¾" pine and walnut to form the ¼" thick stock.)

7. To form the strut holes, drill two ¼" holes side by side. Cut the rectangular holes to shape with a mallet and chisel.

8. Sand all curves smooth, and sand a slight chamfer on any sharp edges. Test the fit of B and C into the notches in the fuselage. (Some filing and sanding may be necessary for a good fit.)

Now you cut the propeller parts

1. Using a circle cutter on the drill press, cut the motor (E) and nose cone (F) to shape. Sand a slight round-over on the front edge of both. [To sand the round-over and other round parts smooth, we mounted the parts (E, F, I) on ¼" dowel stock. Then, we mounted the dowel in the chuck on our drill press, turned the drill on at a low speed, and sanded the parts smooth.]

2. Using tracing paper, transfer the shape of the propeller (G) to ¼" stock, and cut to shape. Drill a 5/16" hole through the center of the prop, and ¼" holes through the center of the motor and nose cone.

3. Cut the prop shaft to length (1¾") from ¼" dowel stock.

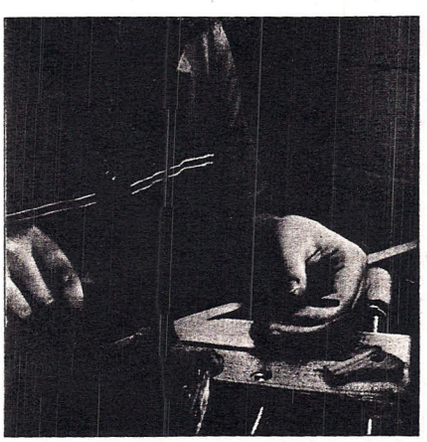
Here's how to guarantee a smooth landing

1. Once again using the Full-Sized Patterns, transfer the shape of both struts (H) onto ¼" stock. Cut the struts to shape, stick them together with double-faced tape, and drill a 5/16" hole through both for the axles. Check for a tight fit of the struts through the strut holes in the wings, and sand if necessary.

2. Use a small-diameter rasp or a ¼" dowel with sandpaper wrapped around it to form the groove for the guns on the top end of the struts as shown in the photo *below*.

3. Using a circle cutter, cut the two wheels (I) to size (1¼" diameter). Drill a ¼" hole in the center of each. You can also buy 1¼"-diameter wooden toy wheels, which also have ¼" axle holes.

4. Cut the wheel axle to length (4¼") from ¼" dowel stock. Using the same size dowel stock, cut the two guns to length. Drill a ⅛" hole



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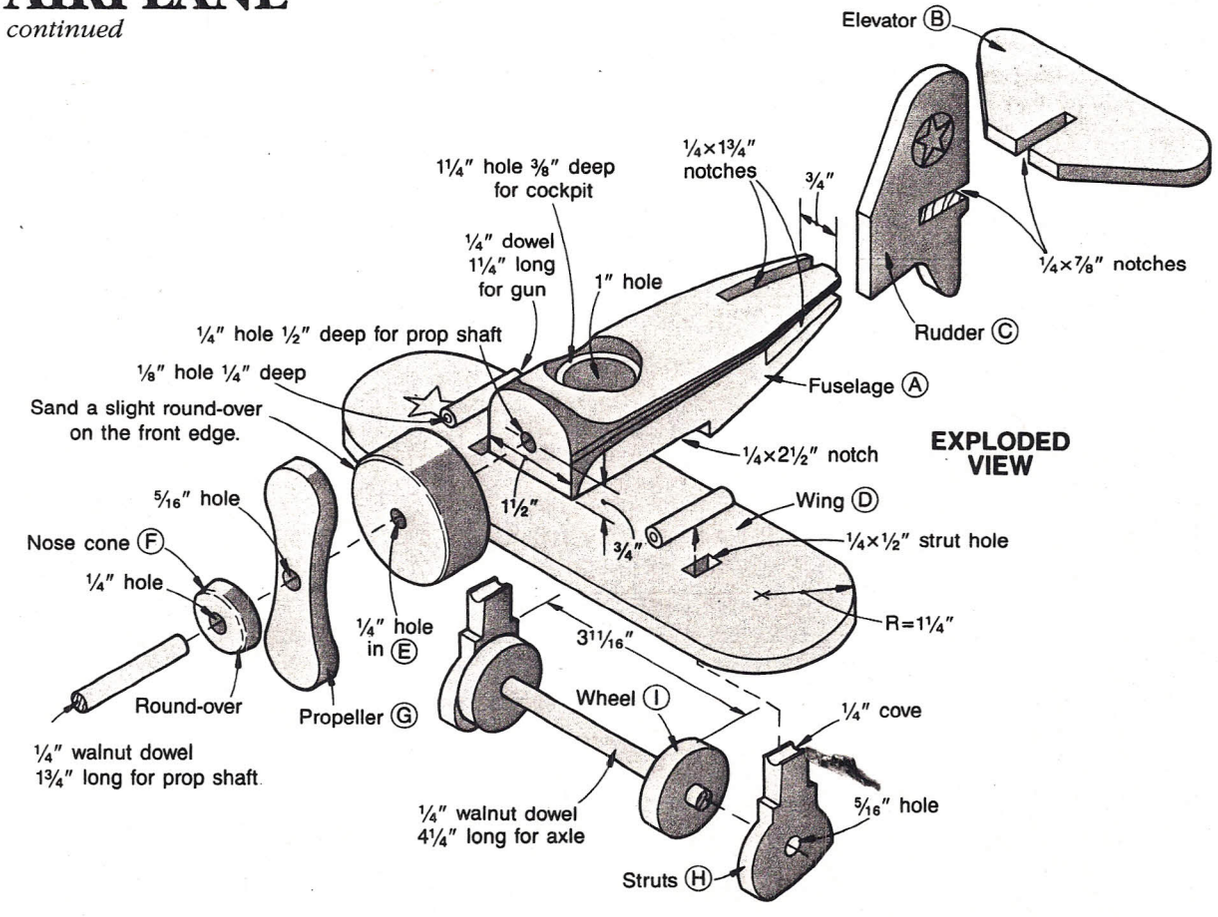


¼" deep centered in the front end of each gun.

You're almost ready for takeoff

1. Sand all the parts smooth, sand all sharp edges. (While most projects are sanded after completion, it is much easier to sand this one before gluing. It takes more time to try to sand around all the parts, especially the moving ones, later.)

2. Glue the rudder, then the elevator in the tail end of the fuselage. Glue and clamp the wing to the underside of the fuselage.

3. Attach the motor (E), propeller (G), and then the nose cone (F) to the fuselage (A) with the ¼" walnut dowel. Glue the motor to the body, and glue the nose cone to the dowel. (Be careful not to get any glue on the prop so that it can spin freely on the ¼" dowel.)

4. Glue the wheels (I) in place on the axle. After the glue dries, fit, but don't glue, the struts (H) onto the axle. Position and glue the struts in place through the wings. Finally, glue the guns into the coves on top of the struts.

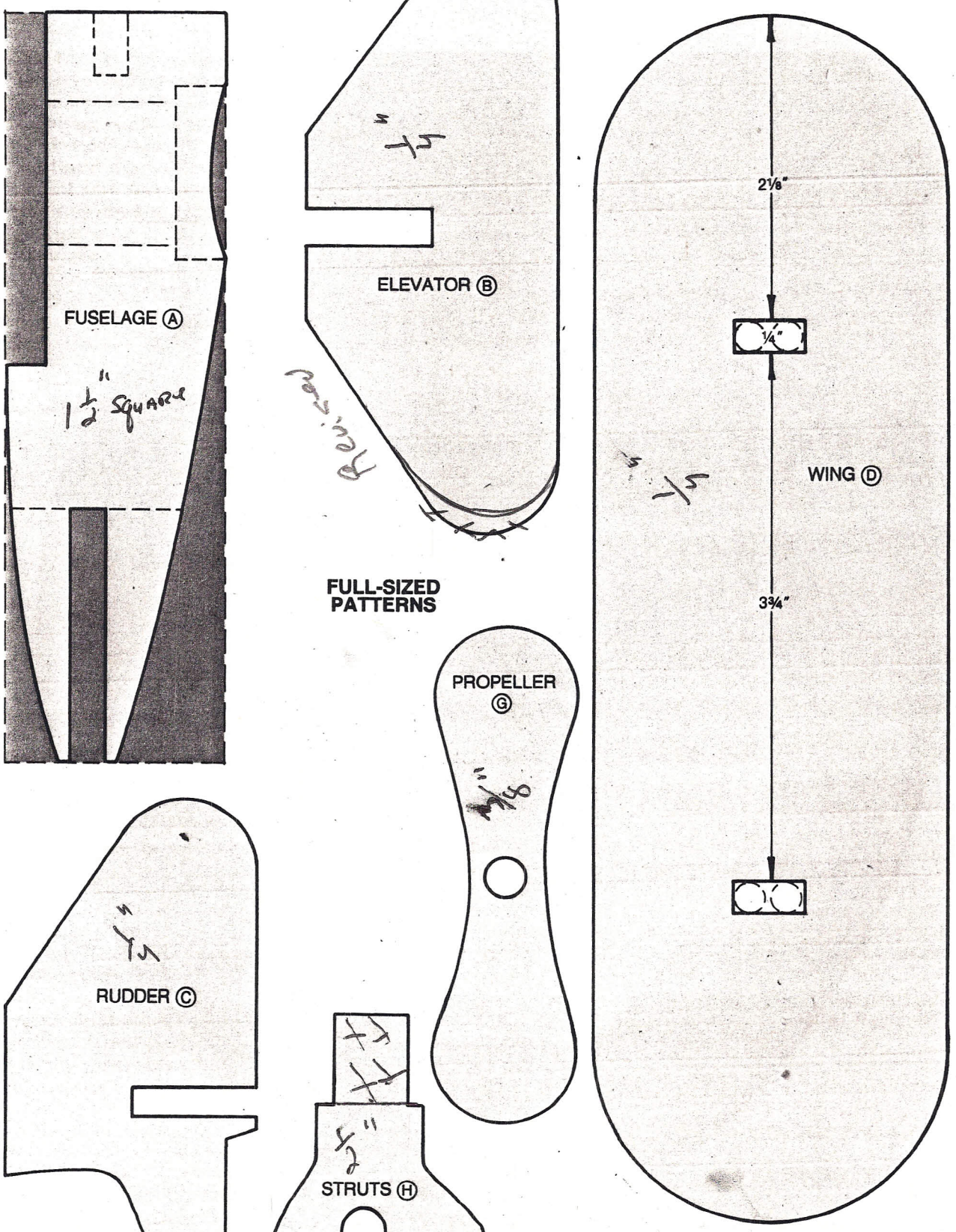
5. If you want your airplane to look exactly like ours, attach colored tape and decals. (We found the colored tape at a local hardware store and decals at a hobby shop.)

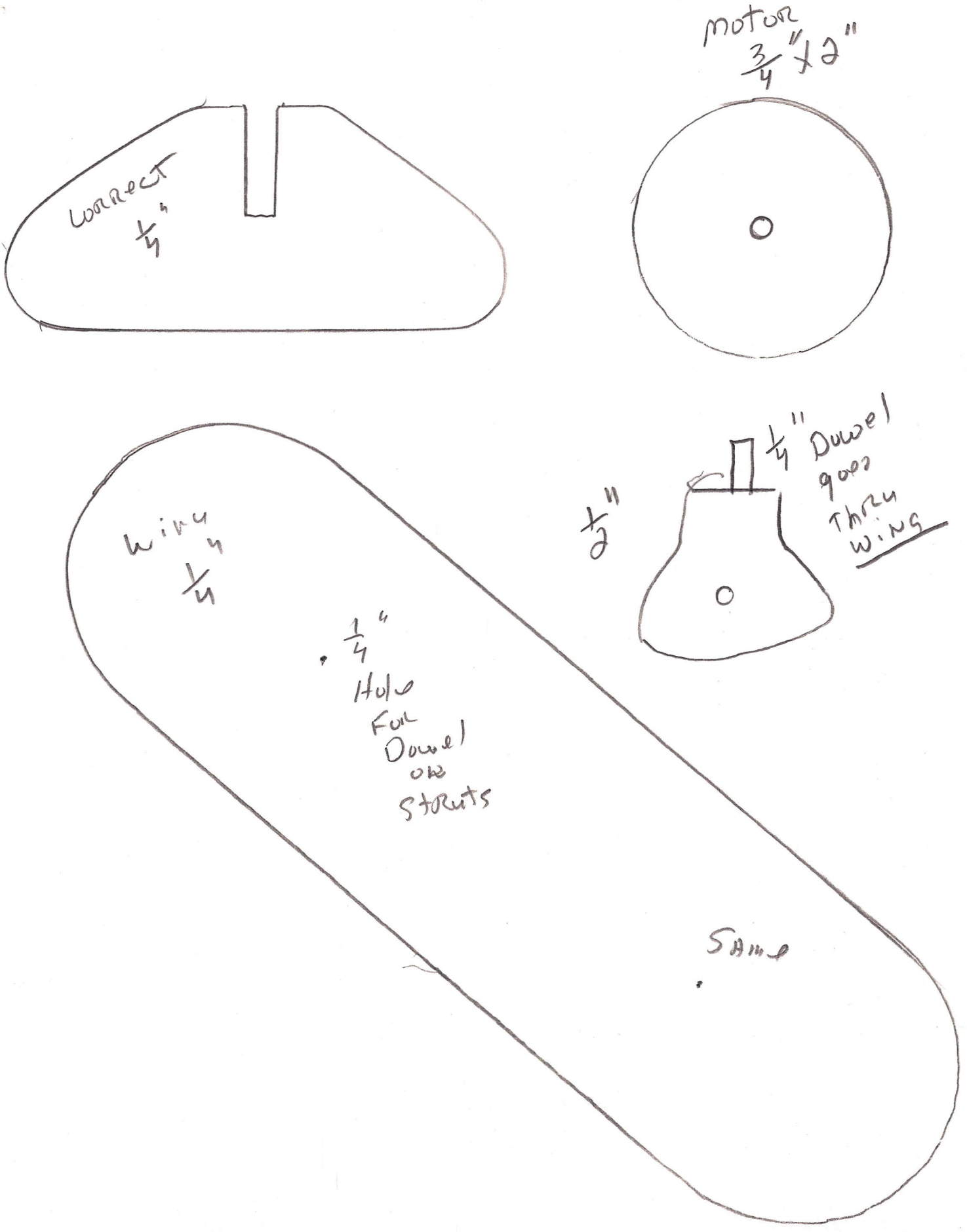
6. Finish the entire airplane (we used several coats of tung oil), and you're ready to fly.

Bill of Materials

Part	Finished Size T	W	L	Mat.	Qty
A fuselage	1½"	1½"	5¼"	P	1
B elevator	¼"	1¾"	4⅛"	P	1
C rudder	¼"	1¾"	3½"	W	1
D wing	¼"	2½"	8½"	P	1
E motor	¾"	2" diam.		P	1
F nose cone	¼"	1" diam.		P	1
G propeller	¼"	1"	3½"	W	1
H struts	¼"	1½"	2"	W	2
I wheels	¼"	1¼" diam.		P	2

Material Key: P-pine, W-walnut
Supplies: ¼" walnut dowel, ¼" birch dowel, tung oil, pilot figure (you can use a Fisher-Price Air Pilot or order a wood "person" from most toy-part catalogs), adhesive-backed decals and colored tape.


FUSELAGE Ⓐ
1½" SQUARE
ELEVATOR Ⓑ
FULL-SIZED PATTERNS
PROPELLER Ⓖ
WING Ⓓ
2⅛"
¼"
3¾"
RUDDER Ⓒ
STRUTS Ⓗ


motor
3/4" x 2"
Correct
1/4"
1/4" Dowel goes thru wing
1/2"
wing
1/4"
1/4"
Hole for Dowel on struts
same