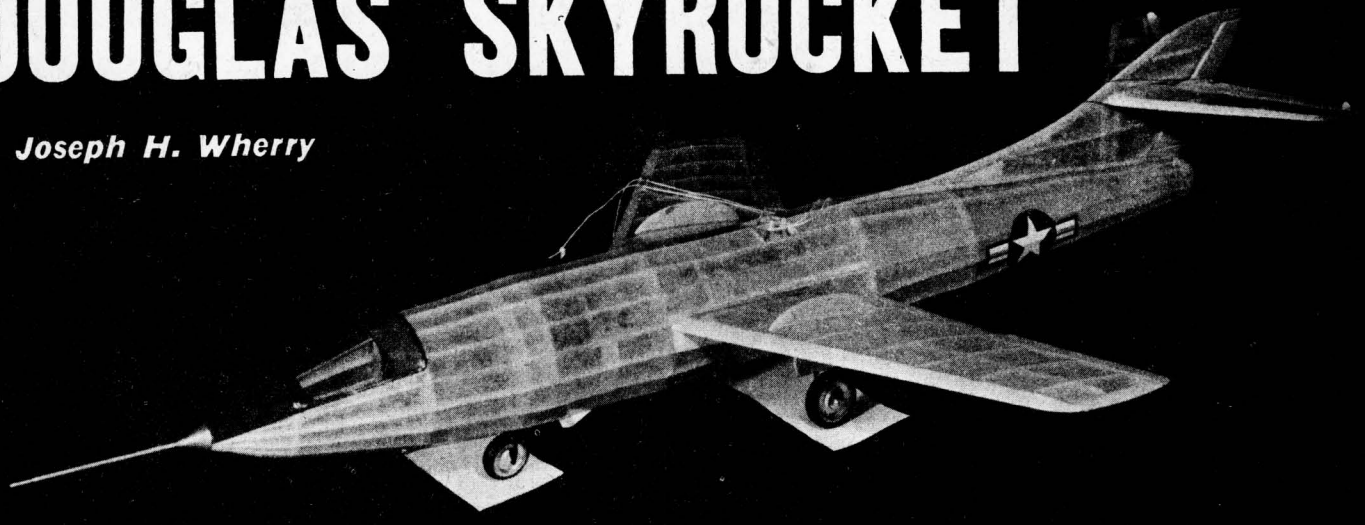
DOUGLAS SKYROCKET

by Joseph H. Wherry



Build this triple-threat model of the swept-wing D-558-2—as solid scale, or jet or whip-powered flying scale.

● Here's a CO_2 capsule-powered flying scale model of the U. S. Navy's Douglas D-558-2 sonic research plane. It flies on 20′ nylon lines; it also will perform admirably as a whip job. In either case a variety of control systems will work—ours may be seen in the photograph above and in the accompanying plans.

If you're a solid scale addict, you can construct a neat model by building the Skyrocket from solid blocks, directly from our published plans. Close attention to airfoils, fuselage cross-sections, wing droop, landing gear details, and the nose device will result in an exhibition model that will catch the eye of your fussiest modelling friend. A solid model built from our plans will be to the scale of ¼″ = 1′.

For a flying-scale job, the plans herewith should be enlarged to twice the size shown. This will give you a ship to the scale of ½″ = 1′.

BUILDING THE FUSELAGE: Cut two of each bulkhead-half, as indicated on the plans. Notch all bulkheads to receive top, bottom and side keel pieces, which are 3/32″ x 3/16″ balsa. All other stringers are 1/16″ x ⅛″ hard balsa.

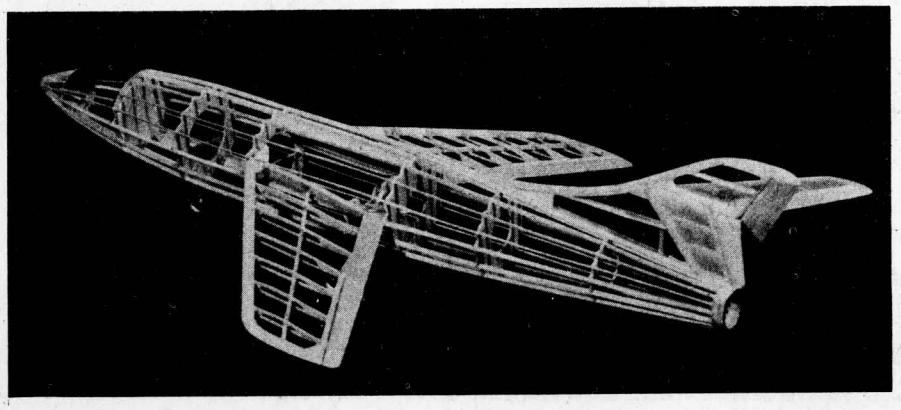
Build directly over the enlarged plans, pinning the top and bottom keel pieces in place first. Bulkheads cemented in place will result in a partially finished left half of the fuselage. Let dry, then remove from your workboard and cement the opposite bulkhead halves in place.

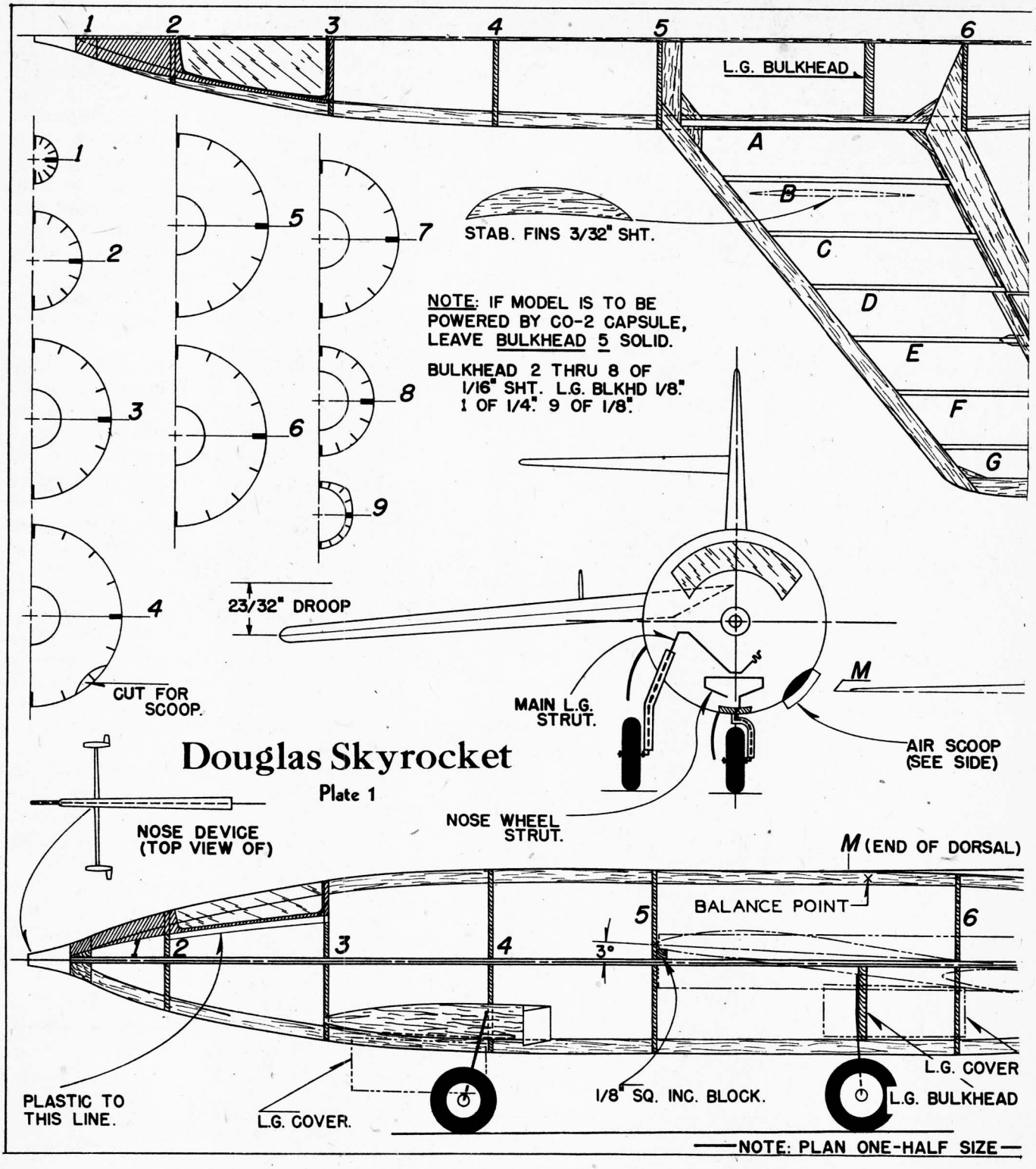
Next, place the stringers in position, cementing opposite (side) stringers, to prevent warpage. Not shown on the plans is the reinforcement of the top stringer between bulkheads 5 and 6, needed to carry the conduits which handle the control lines. This is accomplished merely by cementing extra sheet balsa to each side of the top stringer.

Cut away the stringers on the top of the fuselage between bulkheads 2 and 3 and cover the space with clear plastic, as shown. Air scoops may be added by rounding out the lower sides of bulkhead 4. This portion is covered with 1/32″ sheet balsa; the aft protruding scoop is carved from scrap balsa and cemented in place on each side.

The landing gear is formed of .040 steel wire. Then, the nose wheel strut is cemented firmly to bulkhead 4. The double main strut is cemented to the special landing-gear bulkhead (see plans), which is cut from ⅛″ hard sheet balsa and cemented in place. This landing-gear bulkhead is semi-circu-

The fuselage is built in halves, using bulkhead-stringer method. Wing ribs need not be lightened as shown. Control hook-up above fuselage is shown in heading photo.



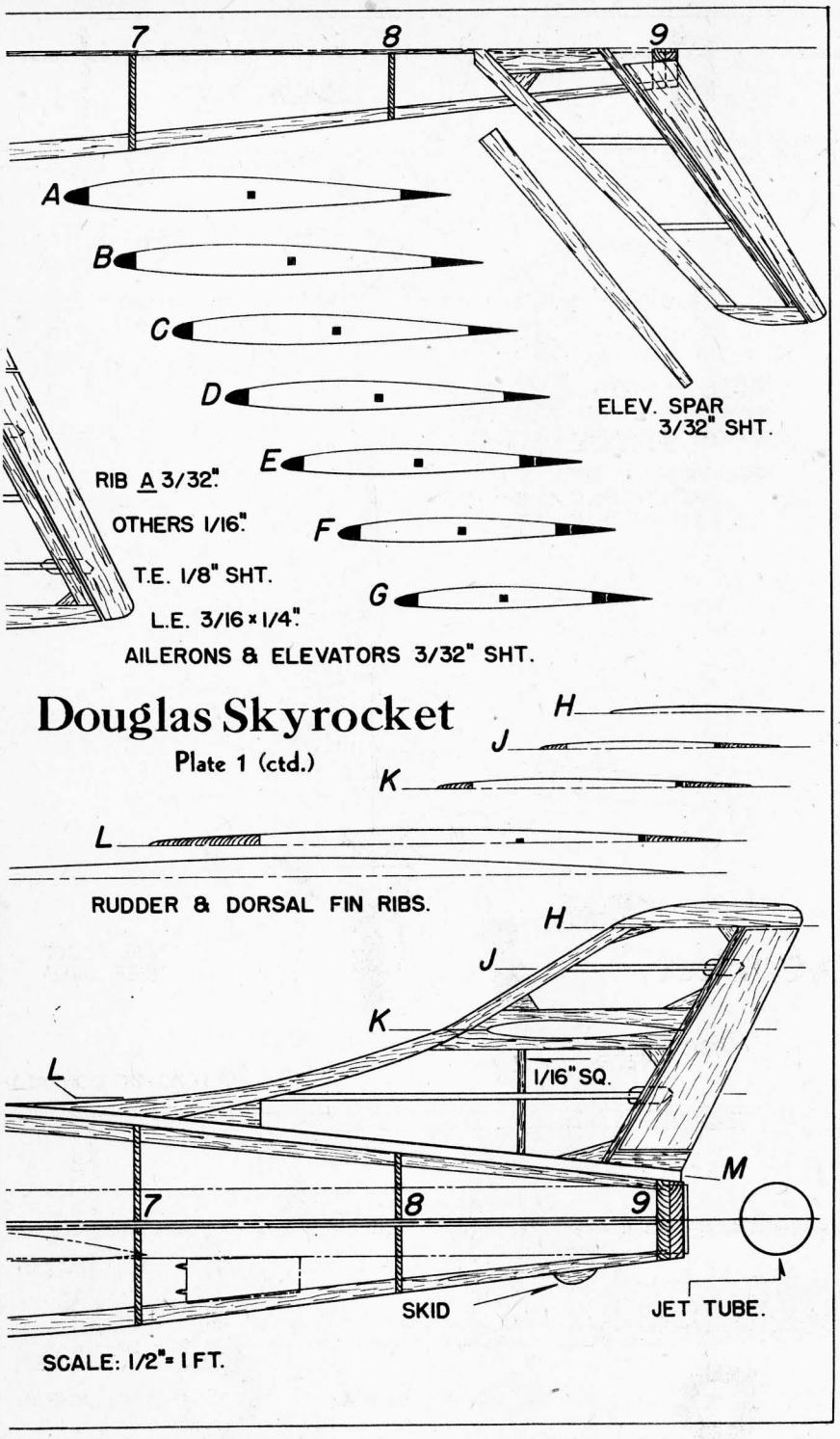


lar, cut out in the center the same as the other bulkheads. If cut with a radius of exactly 1", the landing-gear bulkhead will fit firmly in place, where it should be cemented to the inside surface of each stringer.

The nose device is constructed by cementing two layers of 3/32" sheet together, with a length of wire running between. Carve to round cross-section and sand smooth. The nose extension is carved from scrap and cemented directly to bulkhead 1. We omitted the instrument devices extending to each side of the nose, as they break easily when flying and landing.

BUILDING THE TAIL SURFACES: Build up the vertical fin in one piece, paying close attention to all cross-sections. Allow for the elevators in the center of the fin. Streamline the fin, sand smooth, and cut in two across section K.

The Skyrocket's elevators are unusual in shape, but are built in the conventional manner. They are attached to the stabilizer by silk covering on their top surface only. This done, they may be cemented in place on the bottom half of the vertical fin. When dry, cement the top half of the fin in



Douglas Skyrocket

Plate 1 (ctd.)

place, check alignment closely, and set aside for the time being.

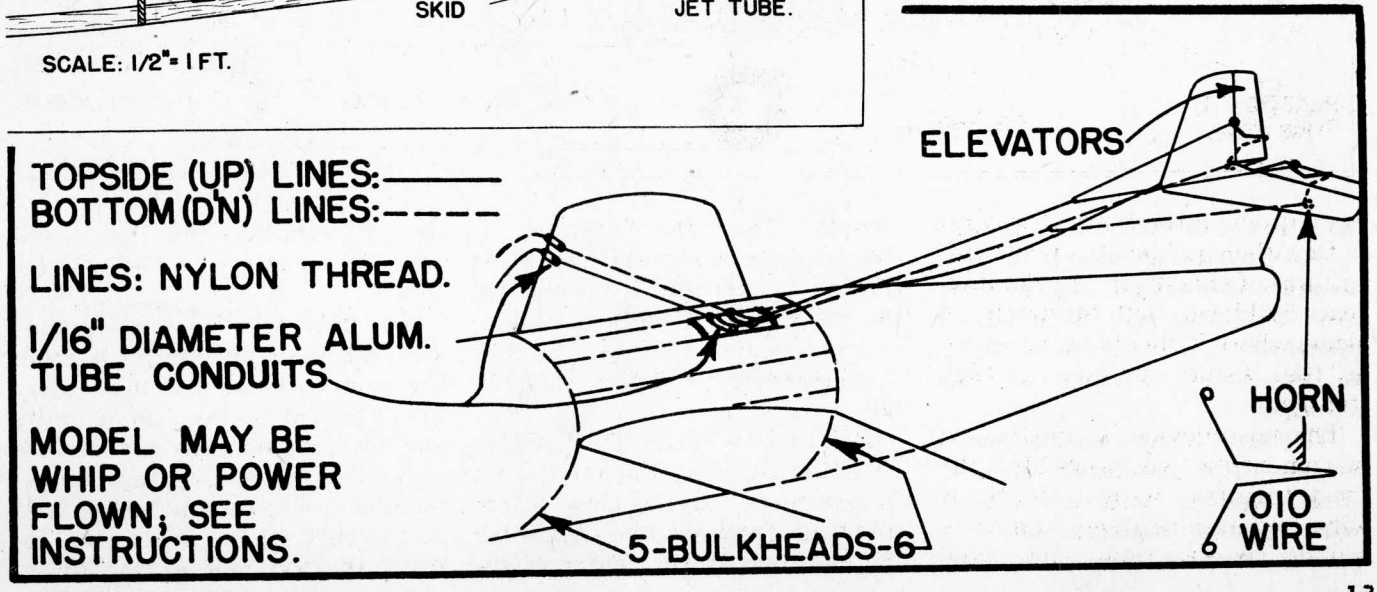
CONSTRUCTING THE WINGS: Wings are built over the enlarged plans. Trace a right wing panel and build both simultaneously. Ailerons are made of sheet balsa, as indicated. Attach ailerons to wing panels by means of small bits of sheet aluminum. The same method is used to attach the adjustable rudder. Because of its small wing area, this model is a bit tricky—therefore the adjustable ailerons are certainly worthwhile.

Study the front view — then shape the root extensions of the leading and trailing edges so that they will fit against the jet tube.

The jet tube (for the CO_2 capsule) is formed with two layers of good quality bond paper and Scotch tape. Roll the paper around two CO_2 capsules spaced so that one is toward the front of the tube and the other to the rear. In this manner you will be assured of making a good fitting tube. Take out the capsules and slide the tube into the rear end of the model, holding it in place by tension against the inside cut-outs of bulkheads 6 through 9.

Our model balances with the CO_2 capsule at the extreme front of the tube, where it is held in place against the solid center bulkhead 5 (see note on plans).

The Skyrocket is covered with good light tissue, with the grain running lengthwise to the part involved. The *(Turn to Page 61)*



FLY THE FLIP-FLOP

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panels should be covered with heavy silkspan or silk and, if desired, the balsa pod structure can be filled and sanded for a good finish. We prefer to put on only the minimum amount of dope necessary to oil-proof the model, usually about three to four coats.

FLYING: A landing gear has been omitted in order to save weight, but a dolly can be used if desired. The original Flip-Flop has been flown off a dolly successfully, but hand-launching is preferred. Which brings up the main reason for the canopy and rudder on top of the wing. This serves as a hand-hold when launching.

The most common technique for hand-launching the lighter control-liners has worked well with our Flip-Flop. Simply grasp the tail and inside leading edge, take a quick step forward and throw forward in a manner similar to throwing a basketball. Be sure to move and throw at right angles to the control lines to guard against slack, and throw upward slightly at an angle of 20° to 30° to put altitude under the model right away. The pilot can time a short backward step with the throw to gain immediate control.

If the model is balanced as shown on the plans, no tricky or over-sensitive flying should show up. The Flip-Flop will fly along smoothly in a flat groove and yet will answer your every control, whether you try loops, eights or inverted outside what-nots!

BILL OF MATERIALS

(Hard balsa unless otherwise specified)

3—1/4" x 1/4" x 36" ..... Leading Edge, Spars
1—3/16" x 3/16" x 36" ..... Rear Spar
3—1/16" x 1" x 36" ..... Trailing Edge
4—1/16" x 3" x 36" ..... Wing Covering
4—1/16" x 1/4" x 36" ..... Cap strips
1—1/8" x 3" x 36" ..... Ribs, Elevator
2—3/32" x 3" x 36" ..... Ribs, Fuselage
1—3/8" x 3" x 36" ..... Fuselage
1—6" x 12" x 1/8" (plywood) ..... Fuselage
Scrap 1/2" sheet

Shim brass for fuel tank; heavy silkspan; 1/16" diameter piano wire for push rod; scrap brass for control horn; cement; dope; engine; spinner (optional).

DOUGLAS SKYROCKET

(Continued from Page 13)

elevator top is silk-covered—to provide a hinge. Wings are covered first; then carefully cemented in place. Yes, the model flies with the wing droop as shown. The 1/8" square incidence blocks provide a 3° positive setting.

The fuselage is covered after the wing is in place. Then the tail surfaces are covered and cemented in place. Accuracy on the dorsal fin will result in a near-perfect streamlining job.

Rubber tubing is used to add realism to the landing gears. Rear wheels are 1" in diameter and the nose wheel is 15/16" in diameter. Don't omit the small vertical stabilizing fins on the top surfaces of the wings. Add the wheel covers of 1/16" sheet. The small auxiliary tail-skid is of 1/16" thick hardwood.

Spray the entire model with water, using an atomizer. When dry, coat twice with thin clear dope. The shaded nose portion is doped dark green; wheels are aluminum in color with black tires. Add the new U. S. insignia to the fuselage sides only. Don't forget the red bars!

Our original model had built-up ribs, but these were tedious to build and saved very little weight. Care with sandpaper and razor blade will result in the smoothest model you have yet built.

Don't expect this stubby-winged craft to glide—it's a hot rock, so treat it as such. The "X" on the plans, near the center of the top keel piece, marks the spot where the model should balance, so whatever control system is chosen should center at that point.

CO_2 capsules provide power. The capsule is easily removed but requires a firing gun with a handle extension added to fit down the long, narrow tube. The model responds nicely to control—it can be whipped or power-flown with equal ease.

One last word of caution: Extreme accuracy is required when rigging this model for flight. All component parts *must* align perfectly.

BILL OF MATERIALS

(Balsa unless otherwise specified)

1—1/16" x 3" x 36" ..... Fuselage, bulkheads, keels, wing ribs, rudder ribs
1—3/16" x 1/4" x 36" ..... Wing leading edge
1—3/32" x 3" x 18" ..... Wing ribs, ailerons, elevators, rudder
1—1/8" x 3" x 18" ..... Bulkheads, wing trailing edge
16—1/16" x 1/8" x 36" ..... Stringers

Scrap 1/32" sheet balsa for landing gear covers; 1 pair 1" diameter wheels (main); 1 15/16" diameter wheel (nose); .040" steel music wire for landing gear; good light tissue; light-weight silkspan; cement, dope, scrap celluloid.

LUCY IV

(Continued from Page 16)

FLYING: Without clay, the model balances tail-heavy, so bring it up to a slightly tail-low attitude by adding modeling clay to the nose for testing. Before going outdoors, warp the rudder slightly for a left turn in the glide, and warp down the trailing edge of the right wing and right elevator. This will tend to roll the model out on top of the launch.

When glide testing, adjust for a smooth left circle, gliding and checking each time. Grip the glider with your thumb and forefinger and flip it out sharply, a little harder each time.

When satisfied and ready for a launch, give it enough heave so it has a chance to recover if it stalls out. The best time for testing and getting a fine adjustment is in the evening.

With the long moment arm, Lucy seems to hang in a nose-high attitude. Try to keep the glide just under the mushing stage and it should really turn in seconds. If properly built and adjusted, your glider should average over 50 seconds in calm evening air.

BILL OF MATERIALS

(Balsa unless otherwise specified)

1—5/32" x 3" x 36" (Jasco glider stock) ..... Wings
1—1/16" x 2" x 18" (medium) ..... Tail surfaces
1—1/8" x 2" x 18" (medium hard) ..... Fuselage
Wood filler; cement; clay

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