

THE "LITTLE ONE"

PHOTOS BY THE AUTHOR

By DICK SARPOLUS

For something different in fuselage construction, try rolled plywood. It's fast building and rugged. Along with this adventure, you'll also come up with an economy pattern ship!

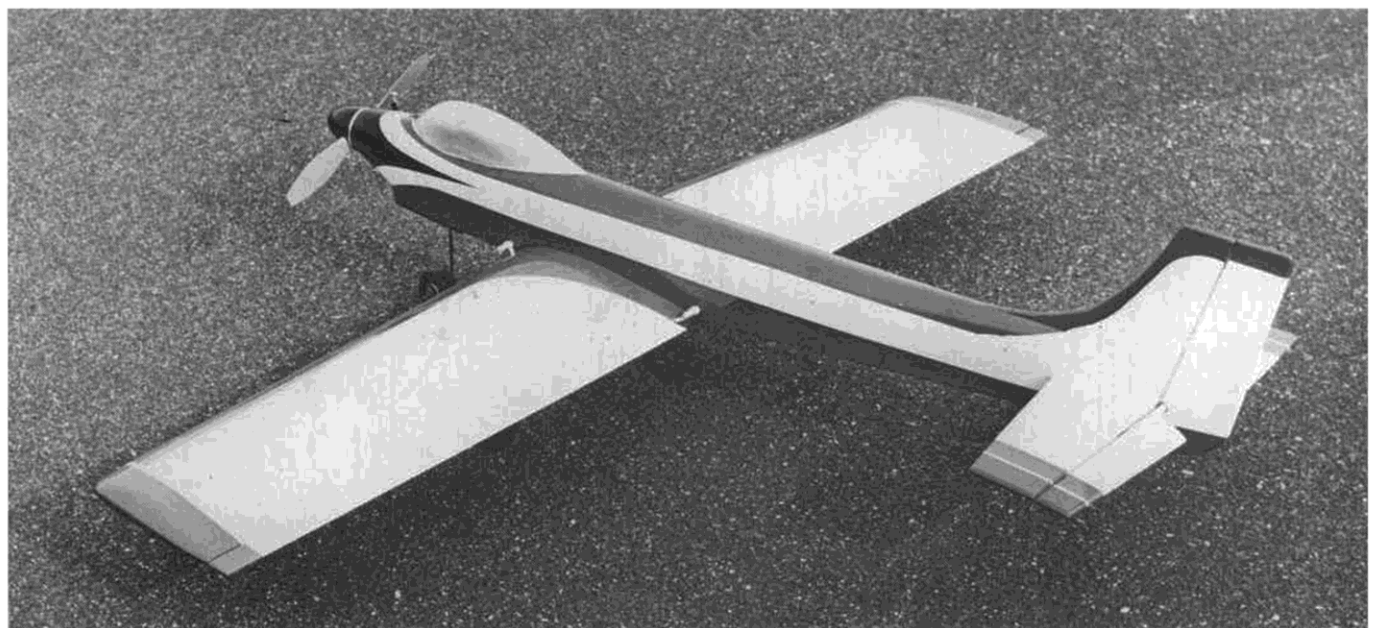
- This model is the first smaller-than-60 size pattern type ship we have tried in a long time. For serious competition work we are convinced .60 powered aircraft will always perform best. If the rules permitted .80s, we're sure the resulting larger designs would be even better fliers. This naturally doesn't mean that there is not a place for smaller engines and aircraft . . . their advantages are obvious; lower cost, lower operating expense, ease of transportation, etc. We enjoy flying the "Little One" and lately have been flying it more than the big ones . . .

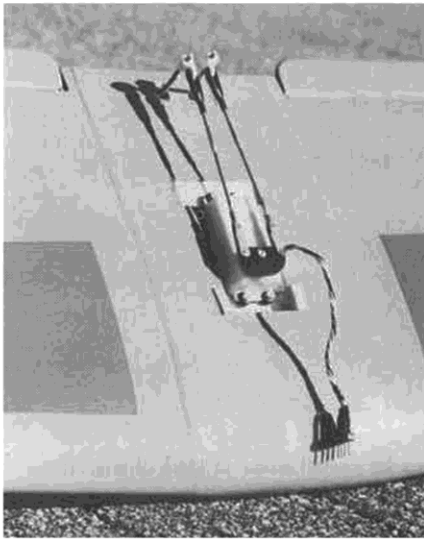
except for serious competition. For some types of Fun Fly competition, the smaller model even has an advantage.

In laying out the design for the Little One, we went for a very conventional layout . . . normal areas, moments, airfoil, etc. An honest airplane. Appearance of the prototype was average, with an upright uncowed engine. The next version had a side mounted, faired in engine, swept fin/rudder, and a forward mounted canopy for a "faster" appearance. The cosmetic changes had no effect on the flying characteristics. The

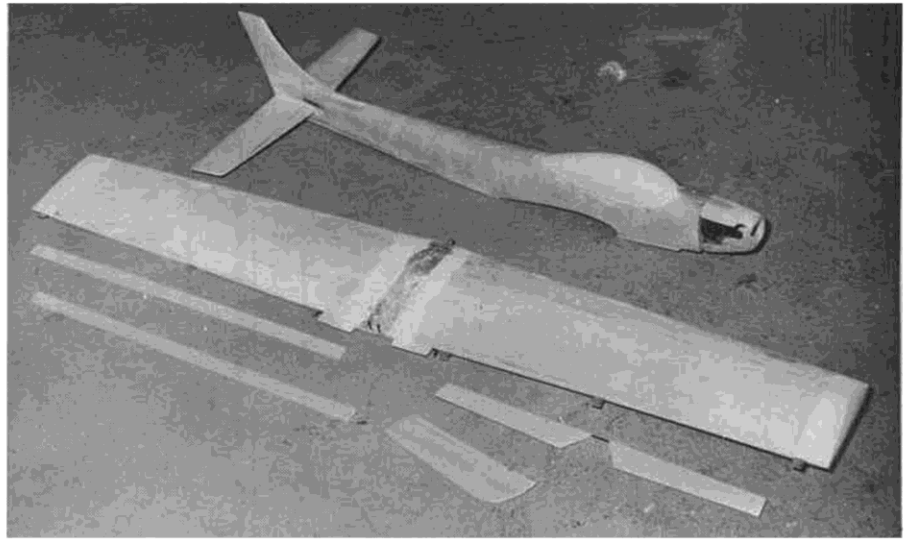
styling was in part dictated by the construction; the rolled 1/32 plywood fuselage, quick and easy to build, does not offer much design flexibility. The inherent sway-back toward the tail is disguised with a dorsal fin, and a faired-in engine streamlines the nose section.

The rolled plywood fuselage is not a new idea, of course. We really believe in it for sport aircraft, and wondered if it would result in a light enough model in this small size. It does . . . and it is very rugged. A foam core wing was used, for simplicity and speed of construction.





Strip aileron linkage is typical for low wing configurations.

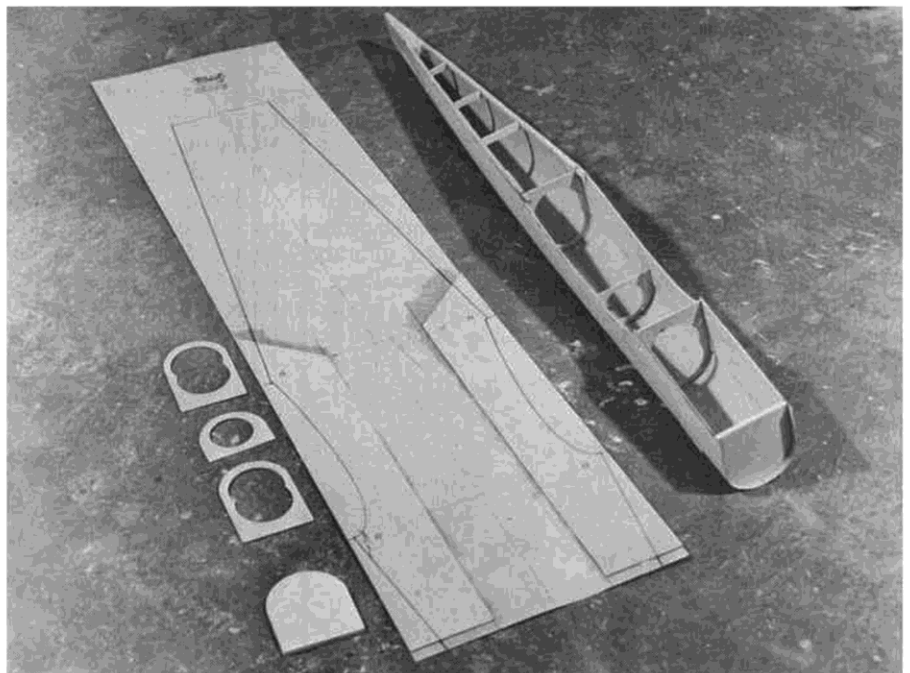


Basic components of the "Little One" before finish and assembly. Tapering of fuselage width toward the back automatically creates the upswept profile.

We hate to cut out wing ribs. Full symmetrical section. Tail surfaces are simply sheet balsa. In total, it is about the fastest way to build an airplane we know of, and still get a good looking model.

CONSTRUCTION
Starting with the fuselage; the rolled plywood may be new to many builders. Don't worry . . . it does not result in a "brick" and it is easy. Cut the 1/32 plywood to shape and assemble as many pieces to it as possible before rolling; this would include the 1/16 plywood doublers, the balsa wing saddles, 3/16 square lower fuselage edge pieces, and the tail block. Wet the plywood on the outer surface center line toward the tail; if it cracks at all, the crack will be covered by the fin. Roll the fuselage and insert Bulkheads 2 and 3. We have used large C-clamps to hold this assembly while drying, later pulling the tail together and gluing. We have also used five-minute epoxy and simply held the fuselage rolled over the two bulkheads until the epoxy cured. The firewall is added, along with bottom fuselage

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Fuselage construction is fast and rugged. Doublers have been glued to ply blank at left. Masking tape on the outside of the curve at the back could prevent possible splitting.



The so-called "quick and dirty" nose, with upright engine and open cowl. Requires higher tank location for proper fuel feed.



Side-mounted engine with nose faired into 2 inch diameter spinner. Stepped fuselage profile permits proper alignment.

planking.

We mount the nylon nose gear block with flat head bolts so the radial engine mount . . . Kraft, Tatone, or Edson . . . will mount over them. A Sullivan SS-6 or SS-8 fits well. We considered retractable landing gear, but the weight increase might be a bit much on a small plane like this. With the engine mount installed with engine, cowl blocks can then be shaped around the engine, faired into the spinner.

Foam core wings are pretty common now; most clubs seem to have a member who can cut them to order. If you can't find a foam cutter locally, write me at 32 Alameda Ct., Shrewsbury, N.J. 07701 and I can help you. Going to a built up construction could be done if you really want to . . . with the tapered wing, probably sandwiching balsa blanks between a root and tip rib pattern and sanding to shape would be the easiest way to go. We inset hardwood landing gear blocks into the foam core with a length of 1/2 inch dowel at the torque leg end. Edge-join 1/16 balsa to make up wing skins; sand before contact cementing to the foam. Use any contact cement sold for hobby foam use; why take chances? We have seen some contact cements melt the foam away, one case overnight after the wing was completed. (*Wilhold's new Super Latex Contact Cement works great and is easy to apply. wcn*) Add leading and trailing edges after the skin is on, and sand to shape. We butt glue the halves together and wrap the center section with a 4 inch wide fiberglass cloth and epoxy. Ailerons are standard 1 inch tapered stock; wing tips are shaped from soft blocks.

The tail surfaces are simply 1/4 inch balsa sheet.

Everyone has their own personal technique on finishing. For lightest weight, Monokote the wing and stab, paint the fuselage. We don't like to Monokote fuselages. For painting, we use automotive lacquer primer and finish with butyrate dope. To each his own.

Check alignment carefully before test flying. Very little control surface deflection is needed, except for the rudder, which can use plenty of throw. My trimming "technique" is to set aileron throw so full movement is just enough for the three consecutive roll maneuver, elevator throw just enough for good loops (more up elevator only if needed for spins) and just enough rudder throw to insure a good spin. Balance point is moved to the rear until we can do three consecutive rolls with very little down elevator when the plane is inverted. This is all to suit individual style . . . we also use strong centering springs on our transmitter control sticks and fatter knobs on them. Again . . . to each his own.

Why the name we used? Among the dozen or so planes currently in the hangar, this was always referred to as the little one. So now it's official.

Good Flying. ●