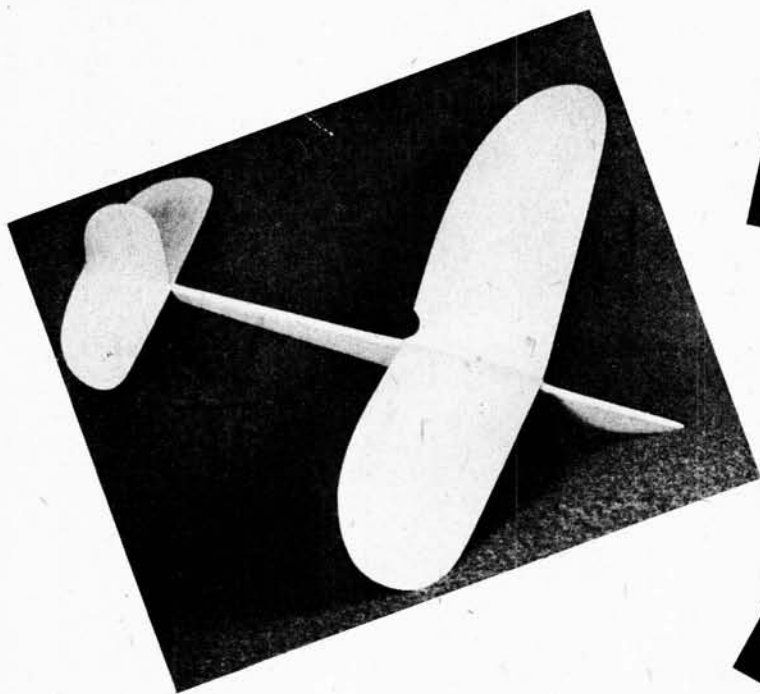


by Roland Mayer



# TOUGHIE



A rigid backbone enhances the durability of this Class B glider. The notch in the wing provides a convenient finger rest for hand-launching.

● In this corner, at three-quarters of an ounce, we have Toughie; a little contender which has the ability to take rough treatment, as well as the faculty for dishing out tough competition in any man's glider contest.

All hand-launched glider fans are well aware of the notoriously short life-span common to this type of ship. Usually a few good days of flying under anything but the best conditions are enough to make one of them eligible for scrapping.

Wing and tail surfaces are fairly easy to repair or replace—usually without changing the flight characteristics of a ship. But when you get a break in the fuselage, it is time to retreat back to the work bench and start over from scratch.

Toughie incorporates a type of fuselage construction that is much stronger and more flexible than the old one-piece type of construction. Also the fuselage is lighter, and assures more perfect align-

ment when mounting the wing and tail assembly.

Aside from its rugged durability, Toughie's sizeable contest record will attest to its flyability. To date it has taken first place in five out of six glider contests held by the Jersey Airwheels. And, at the A. S. M. A. E. Eastern States Championship at Bendix (Teterboro Field), New Jersey, gliders of this design placed both first and second in the senior hand-launched glider event.

So fellows, if you haven't been bringing home much hardware from local contests, here is your opportunity to get into the winners' circle and at the same time find out for yourself that hand-launched gliders can be rugged.

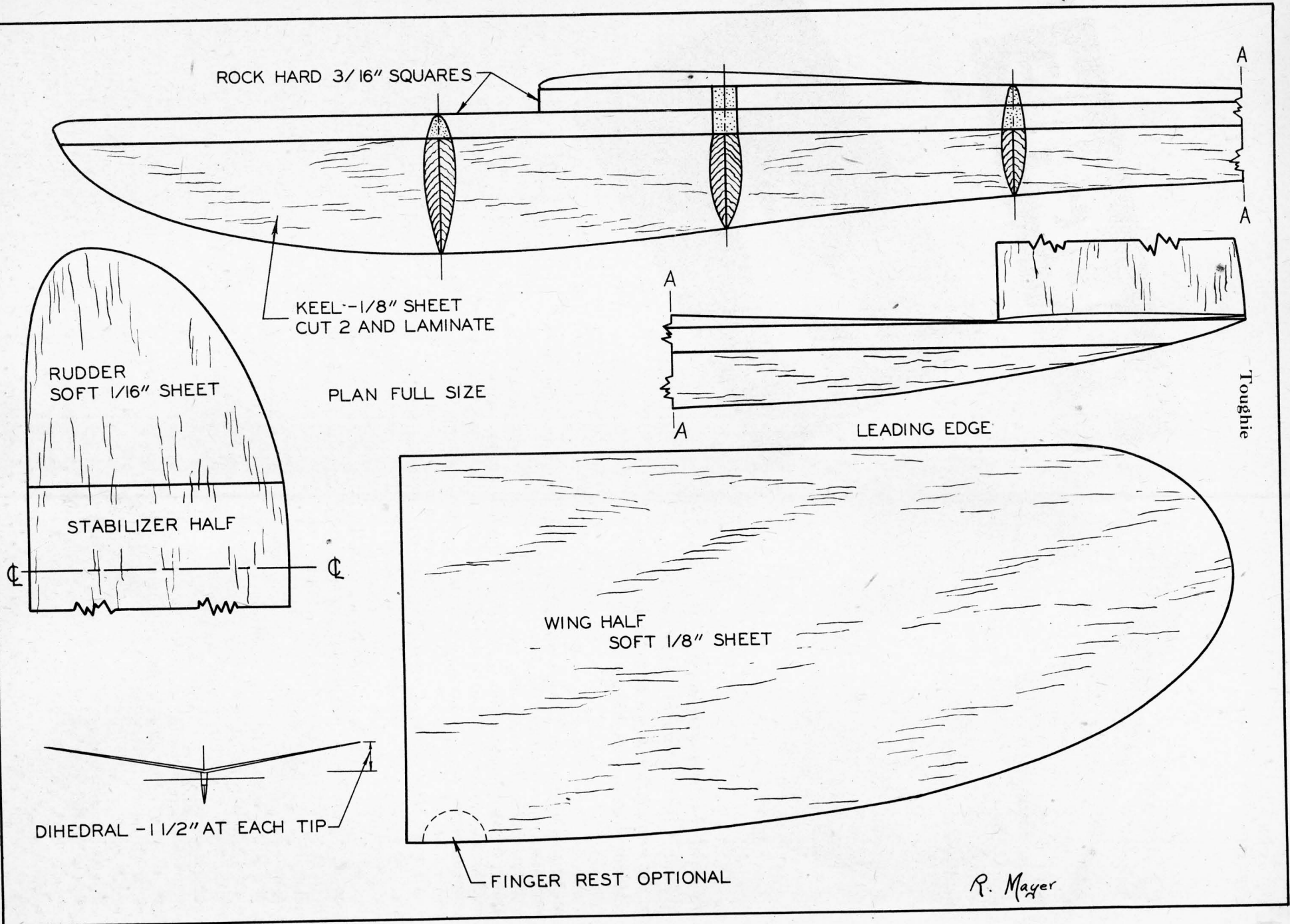
**CONSTRUCTION:** Since the plan is full-size, all dimensions may be taken directly from it. First cut the main longeron and the wing mount longeron to size from rock-hard 3/16" square balsa. Cement them together as shown. While they are drying, cut

out the two halves of the keel from medium 1/8" sheet balsa, so that the grain of one piece will run approximately 45° to the grain of the other piece. Cement them together in this laminated position.

Now the two wing halves may be cut from soft 1/8" sheet balsa (glider stock) and the rudder and stabilizer from soft 1/16" sheet balsa. By this time the fuselage parts should be dry and the keel may be cemented to the main longeron in the position shown in the plan.

While this is drying, carve and sand the wing, stabilizer and rudder to the airfoils shown. Notice that the rudder and stabilizer have symmetrical sections.

Now bevel the wing halves slightly so that they make good butt contact when the dihedral is added and join the wing halves at the proper dihedral. This is easily accomplished by pinning one half down flat and butting the other half against it with its tip raised three inches. (Turn to Page 61)



## LILLIPUTT

(Continued from Page 15)

ing will be done. The larger the "airport," the longer the line.

**FLYING:** Start off by hand-launching the model, to familiarize yourself with its flight characteristics. After thorough testing, the Lilliputt will bring many happy landings to the flier and audience.

We intend to try movable controls on our next job, now that we have all the bugs out of our system. Why not try this yourself after you are completely satisfied with the model's flying ability?

One precaution: If the control lines are shorter than five feet in length, do not try to go around with the model. The Lilliputt is much too fast for this radius—it will be almost a lap ahead of you before your wits are coordinated . . . and, Brother, that dizziness!

## TOUGHIE

(Continued from Page 33)

After cementing the joint about three times, allowing it to dry thoroughly between coats, the wing may be removed from the board and the bottom side of the joint coated several times with cement.

While waiting between coats of cement on the wing joint, the fuselage may be carved and sanded to the shape shown in sections on the plan. When the proper shape is obtained, apply a cement skin over all the joints.

The glider is now ready for assembly—the most important part of its construction. Since all parts of a hand-launched glider are cemented permanently, misalignment at this point can mean the waste of a lot of good time and material; so proceed with care—it will pay off in the end.

First, cement the stabilizer in position, making sure that no positive or negative incidence is introduced. When this is dry, complete the tail assembly by cementing the rudder in place. The rudder and stabilizer can now be used to sight on to insure proper alignment of the wing. Hold the wing in place with pins while the cement is drying, to insure against any shift in its position. Finally go over all joints again with a coat of cement, and the model is ready for finishing.

A smooth glossy finish can be obtained by first giving the fuselage two coats of thin wood filler, sanding after each coat with fine sandpaper—No. 280 waterproof will do nicely. Next apply two coats of clear dope, sanding after each coat with No. 320 waterproof sandpaper. Finally, for a high gloss and to add flexibility to the control surface, give the model one coat of glider polish or top coat, which can be purchased at your local model shop.

The model is very stable and no difficulties should be experienced in adjusting it if all the surfaces are aligned properly.

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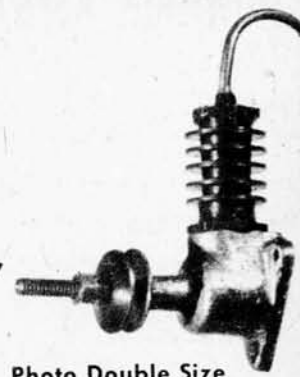


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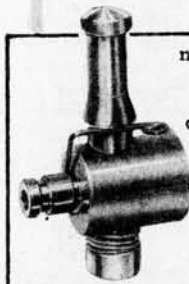
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