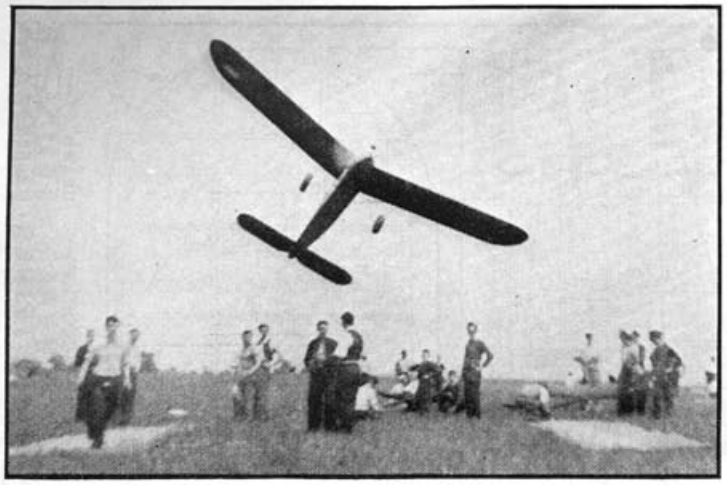
Building The Privateer

How You Can Construct a Sturdy Gas Model That Has Proved to Be a Consistent Contest Winner

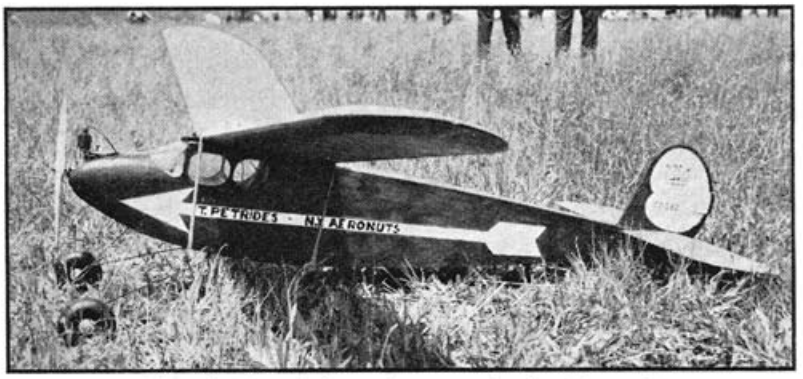
By THRACY PETRIDES



A perfect take off for a winning flight at Hadley Field.

HERE is a superperformer without superconstruction! Not only does it embody the unusual simplicity of square construction, but it also retains the desirable flying characteristics of a streamlined plane. To substantiate this claim, it flew out of sight after 11 minutes, 25 seconds, at the 1937 National Meet at Detroit. And after being recovered, it later flew for 32 minutes, 50 seconds at another contest. During this flight it drifted only about a mile and at the end glided in for a perfect landing, a few feet from the followers.

From the very first flight the model showed signs of a promising future, and its excellent consistency may be attributed to the well arranged aerodynamic forces. The line of thrust is well up in the fuselage, placing it above the center of lateral area. This set-up promotes spiral stability, which is essential in a gas model. Successful endurance models have a tight spiral climb as well as a tight turn in the glide, the latter being necessary for soaring (the glide, of course, being as flat as possible), and this model incorporates these desirable features. The correct fin area makes possible the combining of these two flight characteristics. Two rudders were tested before the desired results were obtained. It is hard to believe that ten to fifteen square inches, more or less, in the rudder can make quite a noticeable difference, but these tests have shown this fact to be true.



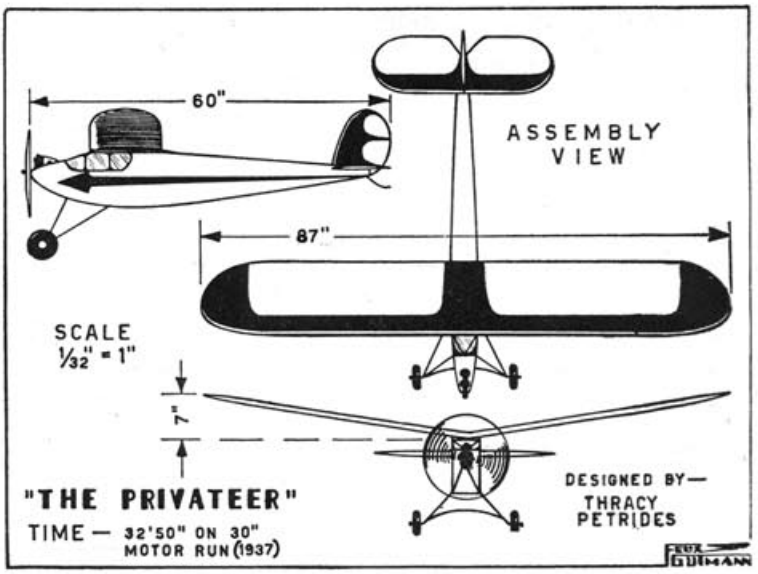
The wheels well forward prevents broken "props."

Construction

Wing

It is advisable to begin construction with the wing as this requires great care.

The rib shown is half the actual size, so it must be scaled up by plotting. Make a graph of half-inch squares on cardboard, plywood, or thin metal. Reproduce the section by making a small mark where the airfoil outline intersects each vertical station. Then connect the dots with drawing curves. Draw in the correct spar positions. When this is done cut out the template, and use it to make twenty-seven ribs on 1/8" medium balsa sheet. The builder may use his own favorite method of laying out the wing. All sizes of spars, etc., for the wing are noted on plate 1. The wing tips are 1/4" thick, being made by laminating 1/8" sheet balsa, and attaching them at a 45 degree angle. The method of joining the wing center section is clearly shown on plate 2. These center joints should be reinforced with heavy thread binding. The wing is covered with heavy bamboo paper.



The gusset plates are of 1/4" sheet balsa and play a great part in preventing wing warpage. Notice the method of cap-stripping the wing with 1/16" medium sheet balsa.

Tail

The tail construction is similar to that of the wing. The tail mount perspective clearly shows how to assemble the rudder and elevator on the tail center block. The rudder section is symmetrical, and the ribs are of 1/8" sheet balsa.

Fuselage

Obtain a piece of shelf paper 15" by 60" minimum. Draw the center line of the body so that when plotted it will be clear of the edges. Lay off the horizontal stations on this line, and through each point draw a light vertical guide line. Using a pair of dividers, get the length of each portion of each station above and below the center line, as shown on the drawing, and lay it off eight times on the corresponding guide line on the full size drawing. A proportional divider set to an eight to one ratio will save time if used here. When the side view is drawn up, it is mounted on a large board or table, and two fuselage sides constructed on it. The fuselage is finished in the orthodox manner. After the base motor runners are mounted in the plane, as shown in the drawing, two side cowl blocks are cemented in place securely. When the latter have been cut to approximate shape, the extraneous space is filled in with 3/8" sheet balsa. The landing gear is tied in place with heavy cord at stations A and C. Cover the body with bamboo paper. The inside of the cowling surrounding the motor is covered with 1/16" plywood. Two coats of dope are applied to the model.

Flying

The angular adjustments of the model should coincide with those on the table

(Continued on page 48)

Building the Privateer

(*Continued from page* 13)

in plate 2. This will make the model fly to the right. The first flight should be made in the evening when there are no atmospheric currents. Such procedure will ascertain the attitude of the ship in flight. The plane is first tested by gliding, and when the flattest possible glide is attained then fly the ship under low power till a smooth right circle is obtained . Gradually increase the power, thus increasing the climb, always making sure that the spiral is not too tight. This arrangement will definitely produce consistent results under any flying condition.

Any questions should be addressed to the author, care of MODEL AIRPLANE NEWS.

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