

# the TWO TIMER

By LYNN SKINNER

**Are you flying a 1935 style glider? Why not get hep with a real flying machine, one that can beat a minute reliably in dead air? Sheet or built-up.**

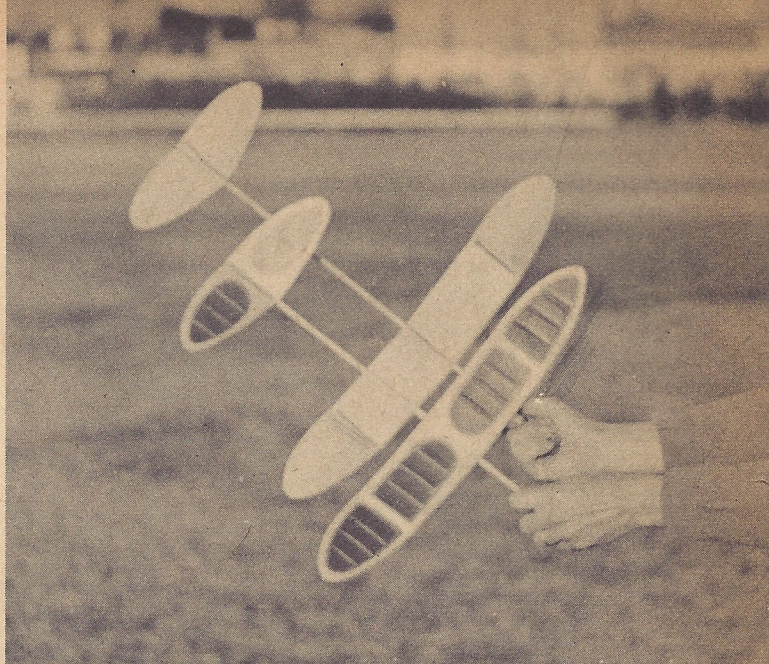
► The development of the Two Timer began in the late summer of 1953. At the time we were attending a large Southern meet and naturally were looking at the many models that surrounded us, particularly the hand-launched glider entrants. There was visual evidence that the glider designs being flown that day were of the 1935 vintage. Why was it that this phase of our hobby had not seen the advancement design-wise as had gas, rubber, etc.?

At the majority of the meets we have attended, the awards for the glider events were just as large as those of the rubber and gas classes. Certainly, the time and money involved in the building of a glider are nil. The facts as we see them are that glider designs are at a definite stalemate. That night, while returning to our home from the meet, we began to think of ways to improve upon the present designs in an effort to remove this phase of modeling from the rut it was surely in. After mulling over the subject for several days, we set out to work.

To date eight gliders have been constructed and test flown. The design presented here incorporates the most desirable features of the eight test designs. The evaluation of these features is based on actual performance data. Therefore, the design is not an overnight innovation, but one on which considerable time and effort has been expended.

Each of the test designs utilized a different arrangement. Both high and low aspect ratio wings were used along with undercambered and flat bottom airfoils. Each design incorporated individual moments. Tests were made under calm weather conditions and also under some of the most adverse. At this point perhaps you are wondering what kind of flight times we were obtaining. The top design at about mid-point of the over-all test was clocking an *honest* 50 to 55 seconds consistently in dead air. At this stage of the test we were feeling very well satisfied with our effort. However, this contentment was very short lived. We soon began to toy with the idea of installing thread turbulators on the wings. After convincing ourselves that the model was gliding at an angular degree high enough to bring out the desired effects of the turbulator, we proceeded to install them on the wings. The turbulators increased flight times until we were consistently obtaining flights of over one minute. We would also like to mention the fact that the glider displayed a definite improvement in longitudinal stability with the application of the turbulator.

We will not go into the full details of construction as most builders are fully familiar with procedure. Note that both the solid as well as the built-up type may be constructed from the same plan sheet. The wing tip outline is also the outline for the stabilizer. Since the main theme of this design is a light and efficient wing, care must be taken to select prize lumber. For the wings, choose a piece of glider stock of about 6 lb. density. Use medium weight wood for the stab, and hard for the fuse. For those who have never constructed a semi-built-up type glider wing and would like to try one, it is very simple. First, using a soft lead pencil, mark off the sections to be cut out of each panel. With (Continued on page 53)



Built-up, all-balsa versions built from the full size plan on opposite page. Use of turbulator thread increases stability, time another 5 secs.



Author with another test model. Launch nearly straight up, with no roll, until momentum slows down. Half-roll results at top, going into circle.

Fred Pearce with a test glider in summer of 1953. Note small floating wing trim tab. A light and efficient wing is the secret of its high time.

