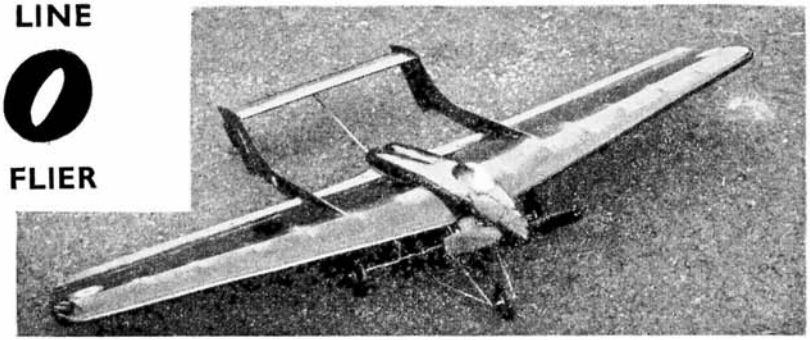
A SCALE CONTROL LINE D.H.110 WHICH IS A STABLE FLIER AND A FINE STUNTER

by T. W. J. Stoker



STUNT models have been my main interest for about four years. Most of them were just profile jobs, but I tried to develop a model that had a high speed, would stunt readily, and yet be rock-steady inverted. I succeeded in my aim, and had quite a few northern contest successes.

Once I knew what the essentials were for a good stunter, I designed the model of the D.H.110. It makes no pretence at true scale, but in the air deviations from true scale are not readily apparent. It flies at more than 60 m.p.h. with a good P.B. Amco, on an 8 × 8 prop. It is smooth to stunt, and punches straight through wind gusts when inverted.

Wing

This should be built first, as everything ties around this member. The wing ribs are cut on a line level with the bottom of the trailing and leading edge, so that the wing can be built flat on the board. The top spars are glued in position, and the whole wing left to set. After removal from the board, the lower half of the ribs are cemented in place. The tank must be fitted next, before the bottom spars are added.

Now the two fuselage bulkheads are cemented in. A wedge-shaped piece of balsa across the join of the two $\frac{1}{4} \times \frac{1}{8}$ in. spars will provide a good setting for the rear bulkhead. After this construct the two booms and cement them securely to the wing ribs and spars, making sure they are lined up properly. Next, shape and cement the fins in place.

The elevators are hinged to the tailplane with nylon. Care must be taken to ensure that the tailplane is lined up properly with the wing, when it is cemented in place on the fins. I suggest using a simple cardboard jig.

Don't spare cement when sticking the tail, fins and booms, and then it will take a hard crash to dislodge them.

The wing flaps can next be hinged in position on the trailing edge, after which the complete control system can be put in. Spare no pains in making sure that the control system works smoothly, for on it largely depends how long will be the life of your model! The lead-out wires are heavy Laystrate, and the bell crank and tail control-horn are 16 gauge dural. The wing flaps are connected by wire, on which is soldered a wire control-horn. After this, the centre section of the wing can be sheeted with $\frac{1}{16}$ in. sheet. The joints of the booms to the ribs can be further strengthened by $\frac{1}{4} \times \frac{1}{16}$ in. sheet.

Fuselage

Begin by cutting out the two sides, which are divided on the centre line so that they can be cemented securely to the wing sheeting and bulkheads after the booms are in place. The $\frac{1}{2} \times \frac{1}{2}$ in. engine bearers can next be cemented in. These will have to be cut away in between bulkheads to follow the curve of the wing sheeting.

Forward of the rear bulkhead is covered with three pieces of $\frac{1}{8}$ in. sheet balsa. Aft, the fuselage is divided into two dummy "jets," so that the two fuselage sides, which stretch only to the rear bulkhead, will have to be fitted. They form a V, and are stuck together on the bulkhead.

Each "jet" has a top formed by three pieces of $\frac{1}{8}$ in. sheet. The bottom of the fuselage is flat $\frac{1}{8}$ in. sheet, except near the "jet" orifices, where it is tapered so that the wedge-shaped pieces of balsa can be inserted in such a way that when sanded, the orifices are rounded. The whole fuselage is rounded as much as possible without sacrificing strength. The long extent of fuselage without formers has given no trouble. Fairings are added between "jets," and also between booms and "jets."

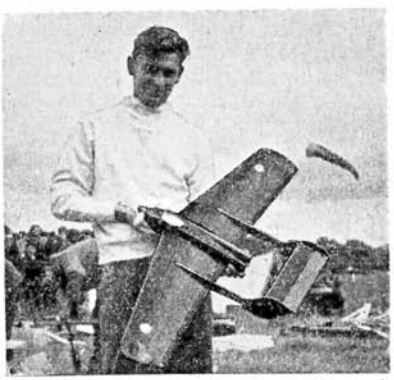
The engine was cowled with block balsa on the original, and a $1\frac{3}{4}$ in. spinner fitted to resemble the nose-shape of the D.H.110. A commercial canopy *offset* on the fuselage can next be fitted. Brass tubes can be fitted in the positions shown, for a tricycle undercarriage. It is well worth the extra trouble for exhibition flying.

The wing was covered with heavy-weight black Modelspan, the tail, fins and fuselage in lightweight. One coat of dope, and one of banana oil was given. A midnight blue effect was achieved by painting the entire model with blue Aerolac, which I find is fuel-proof also. One coat was given to the wings, two on the tail, and four on the fuselage.

Flying

Use 50 ft. light Laystrate, with swivels on the handle end. The model has a reassuring pull on the lines. This can be adjusted to individual liking by means of the hinged rudder on the outer fin.

On take-off, keep the model on the ground long enough to gather speed, otherwise she may drop back on the undercarriage, which certainly would not do the tissue covering any good.



The author with his model D.H.110 which won the stunt contest at the Novocastria Rally.