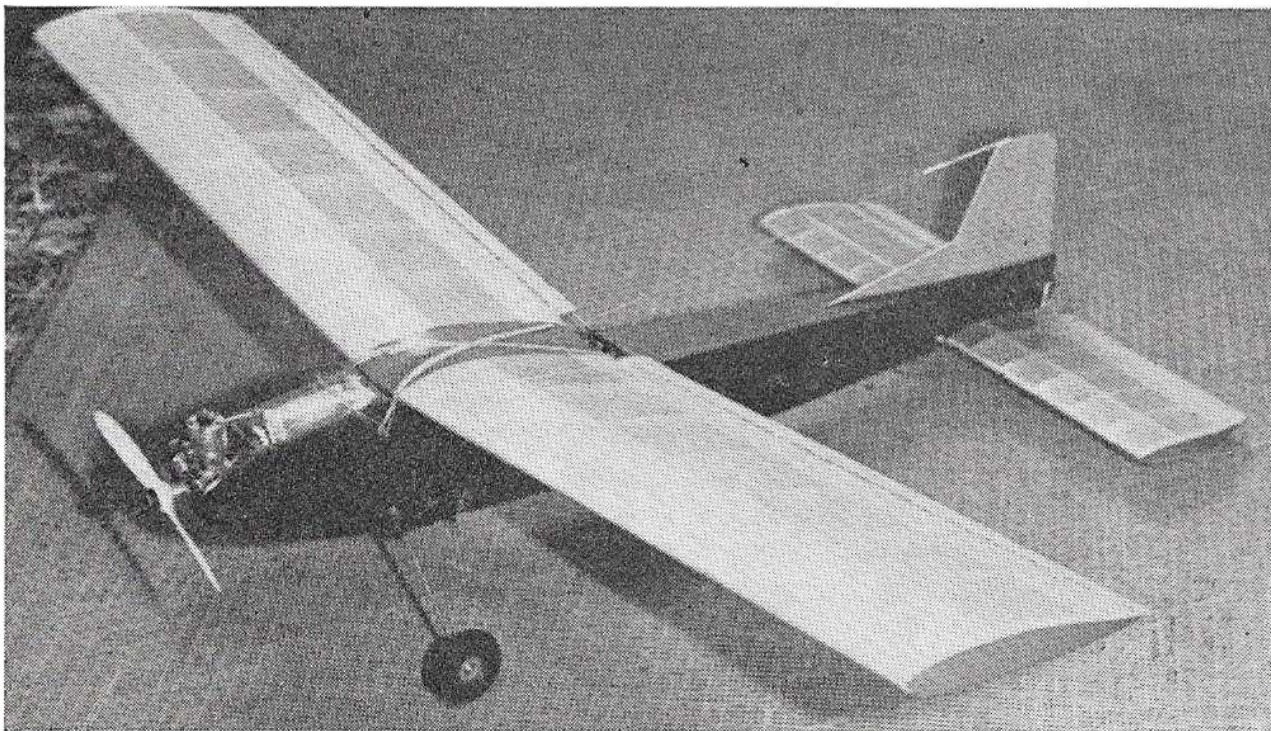


**"AILERONS-  
ONLY" S/C  
MODEL for  
1.5 cc engines**

You've read all those letters on the "Ailerons versus Rudder" controversy—now you can decide for yourself with—



# BANKER

by CHRIS GRUBB

**T**HE urge to progress, to improve on one's flying ability and to try out new developments, led to the building of this model, as a determined effort to get out of the rut. Aileron-only control seems to be used a great deal in Japan, so I thought there must be something in it. Now I would not revert to rudder—unless it was to try kick-up elevator again.

You see, the *Banker* was originally fitted with kick-up elevator and this proved only partially successful in that, although it would loop and half-roll off the top, it had a nasty habit of pointing its nose up at about 60 degrees every right-hand signal. The Elmic Compact escapement rotates through the "up-elevator" position after each "left" signal and the elevator, therefore, kicks-up just before right-aileron, causing this to happen. I have since removed the elevator function and *Banker* flies very smoothly indeed. Spiral dives are fairly wide, and the model will loop and roll, etc., using normal "rudder" flying techniques.

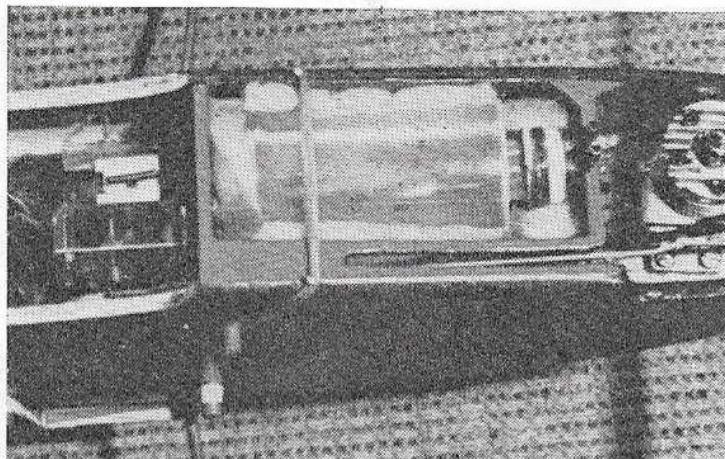
A low-wing configuration was considered to be a little dodgy for a first try at aileron-only, hence the somewhat stereotyped general layout. Construction was kept simple and the fuselage is wide enough to take most receivers. The wing features a full-depth sheet spar, and wide leading-edge sheeting. The engine used on the original is the O.S. Max 10, which gives ample power. Radio gear is a MacGregor Minimac receiver, Elmic Compact escapement, coupled with Fred Rising clockwork actuator for motor-speed control.

If the model is to be used without the motor-control or the 225 DEACS shown, it would be advisable to lengthen the nose by about  $\frac{3}{4}$  in. to keep the centre of gravity in the correct place without ballasting.

## Construction

When choosing your balsa, select the correct grade of wood for each part—e.g. medium-hard for spars, soft, straight-grained for l.e. sheet, and so forth.

**Wing.** This is quite straightforward. Try and make a neat job of cutting the rib slots to ensure a true wing. Slots which are too wide tend to "bow" the spar as the cement dries. Join the spars with the dihedral brace, before fitting the ribs, then pin one panel on to the plan, together with the trailing edge. Cement ribs, top t.e. and l.e. Repeat for the other half. When fitting the leading-edge sheet, pin the wing panel to the building board with about 2 in. of the l.e. protruding over the edge. Use a P.V.A. adhesive to attach the sheet, as its relatively slow-drying properties will allow time for adjustment. The ailerons must be made from very hard stock, to minimise twisting, and



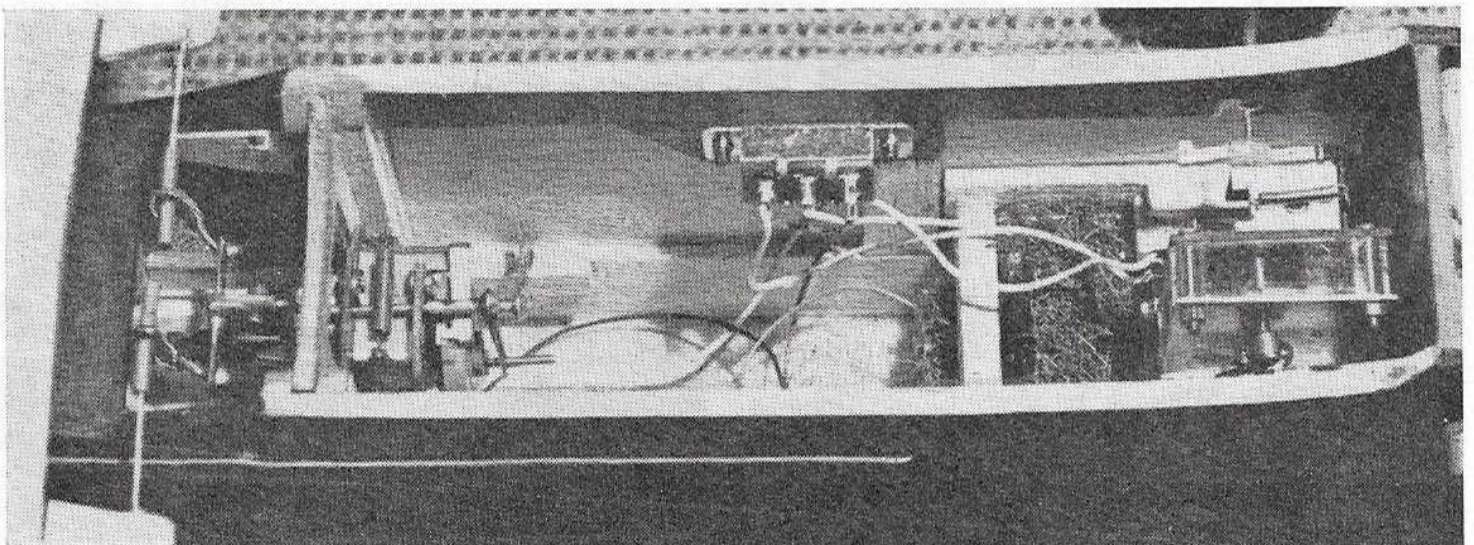
This installation shot shows the throttle escapement and the tank-bay. The right hand part of the tank bay is boxed-in, as can be seen, to provide for the throttle pushrod clearance.

are best covered separately and stitched to the wing after final finishing and fuel proofing.

*Fuselage:* This needs no special instructions other than a reminder to keep the tail-end light. Box in the right-hand side of the tank bay and slot it for the motor-control push-rod. The bolts for

the dural motor mount must be fixed with tinplate straps on the inside of the formers.

*Tailplane.* This is symmetrical and of quite a thick section. One way of making the  $\frac{3}{4} \times \frac{1}{16}$  in. trailing edge called for is to cement two strips of  $1 \times \frac{1}{4}$  in. t.e. section stock together, then trimming off the



This close-up photograph shows the aileron linkage for rubber driven escapements, as well as the position of the clockwork escapement for throttle control. If you use motorised actuators, of course, the linkage shown is not required, and an ordinary "multi-type" set-up can be used.

fore-edge to give  $\frac{3}{4}$  in.—but be careful not to produce a heavy t.e. in doing this, as the tail must be kept light.

#### Installation and linkages

First make the aileron yoke and fit it to the escapement. It is made as a removable unit, being retained by means of an 8BA bolt and spring washer.

The Deac battery must be in its correct position before spot-cementing the motor control escapement (if used) to the slides. Both motor and aileron linkages must be absolutely free, with no chance of binding. To obtain motor change on full rubber turns (I prefer  $\frac{1}{4}$  in. strip rubber for driving the Compact), requires a really fast tap on the button (*unless you're using the R.M. Combo-Coder, with its electronic quick-blipper!—Eds.*), but, as the turns are unwound, motor change becomes progressively easier to attain. When signalling "right-aileron" there must be a sufficiently long pause between "blips" to avoid the throttle changing inadvertently, so if you are a fast button-pusher—slow down! This, of course, does not apply if a simple sequential actuator such as the Elmic Conquest, is used instead of the Compact.

#### Trimming

Before venturing out-doors, check all flying surfaces for warps, and correct, if necessary, either by heat from a radiator or steam from a kettle. Test-glide *Banker* over long grass. The glide should be fairly fast, flat and, of course, straight. Try first power flights on a  $\frac{1}{4}$ -full tank and half to three-quarters full power. Allow the model to climb to a fair height before trying your first aileron-turns. Aileron takes slightly longer to become effective than rudder (with this model, at any rate), and signal length must therefore be adjusted accordingly, which may take a little trial-and-error practice. *Banker* responds with smooth,



Designer Chris Grubb about to launch "Banker" at the local flying field. This model's smooth, banking turns are a delight to behold, and—once the knack of aileron-flying is acquired—manœuverability is probably more precise than with a yaw-turn type rudder control action.

banking turns which can be held on for longer than is possible with rudder, enabling one to empty a full 2 oz. tank with plenty of escapement-turns left for safety.

A little practice will see you able to give commands immediately after hand-launching—and I guarantee that, once you have flown aileron-control, you will not want to use rudder-only again!