



RM TEST
REPORT

STERLING'S
STINSON

RELIANT

— built and flown by DAVID WOMERSLEY

IT IS SAID that beauty is in the eye of the beholder and, if this is true, I must admit my first impression of the *Reliant* was that it was a rather ugly aeroplane. As the pieces went together and the model took shape, however, I began to appreciate its elegance of design—and now I think it is very attractive. It is certainly an unusual shape and has generated considerable interest at the club field.

The kit, as described in the April Trade News, is certainly aimed at the more experienced builder and is definitely no quick-build, mine

taking some nine weeks of fairly concentrated spare-time effort to complete. The plan is of good quality and the instructions fairly comprehensive—although there are a few errors, some of them trivial—others quite serious. Not included in the kit are tank, wheels, adhesives or covering material.

Getting it all together

The fuselage is built by fitting half-formers onto a balsa keel or crutch, pinned flat over the plan. Two horizontal sheet balsa crutches are persuaded into position and have

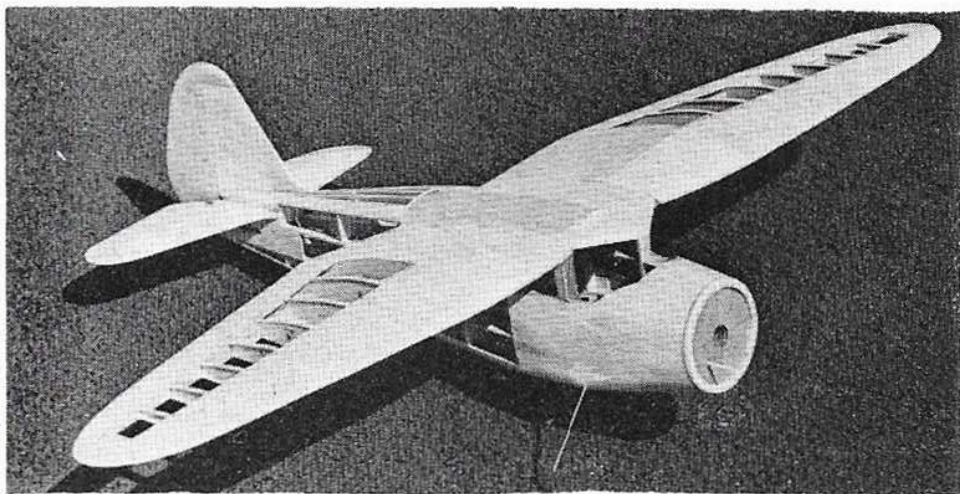
to be twisted quite sharply to follow the slots in the formers. I found at this stage that some of these slots were oversize, and the resultant gaps were too large to be filled with the usual overdose of adhesive, so balsa wedges had to be cut and pressed in to hold the crutches in position. After removing the structure from the plan, the other side is built onto it.

The 3/32in. sheet balsa provided was for planking much too hard to be formed around the fuselage contours, even well soaked, so I replaced it with a softer grade. I made a slight "mod" at this stage, by adding a stripwood strengthener across the tops of the cabin formers since, without this, they would easily be broken as their grain runs vertically.

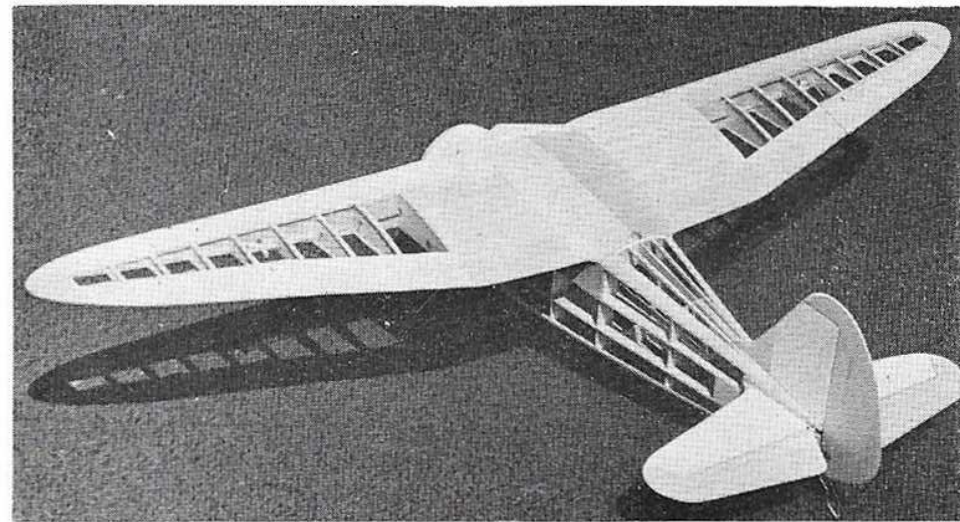
The wing is an unusual shape, both in planform and profile (somewhat reminiscent of the *Lysander*, only more so). About 8deg. of wash-out is built into each outer wing panel, achieved cleverly by building the appropriate part of the wing on an inclined sub-spar. The remainder of the wing is built conventionally, flat on the board. However, a major instructional error came to light when I was laying down the outer trailing-edge sheeting for the first three rib bays. Due to the built-in twist, the t.e. sheet has to be jacked up with wedges to contact with the ribs. The instructions, however, say that the sheet should be pinned flat onto the board—and it was fortunate that I did a trial assembly which showed up this error.

Another point concerns the aileron bellcranks. If these are mounted according to the plan, the pushrods don't line up and the rods to the aileron horns foul the bellcrank mounting plates. But, with the cranks turned over, the rods line up perfectly.

The model appears to have been designed around the K&B .40 shown on the plan because, with my Merco .49 fitted on the mounts provided, the prop looked too far in front of the cowl. I therefore added an annular



Heading shot is nicely posed, with prop just obscuring the cylinder head! The uncovered photos give a good idea of the "real modelling" type of construction—there's a "lorryload" of timber in the kit.



ring of $\frac{1}{8}$ in. balsa to the front bulk-head and cut the ABS cowling $\frac{1}{8}$ in. behind the mould line, thus closing the prop/cowl gap by $\frac{1}{8}$ in. As there was no way a commercial silencer could be enclosed in the cowling, I made one from thin stainless steel sheet. The tappet blisters (18 of them) are not moulded into the radial cowl but have to be separated from a vacuum-formed sheet and added individually. As this is almost $\frac{1}{16}$ in. thick and difficult to cut, I decided to omit the blisters; some versions of the *Reliant* were bereft of them anyway.

An 8oz. fuel tank is recommended, and I found the slant-front Powermax one ideal as it fitted the internal shape of the fuselage without breaking through the instrument panel provided.

Covering and installation

I must admit to dropping a clanger by installing my servos in the fuselage at the mid-chord position. The plan shows the servos at the rear of the radio bay—and I had to move mine there so as to get the c.g. further aft, but it was still $\frac{1}{2}$ in. forward of the specified position.

Finished weights were as follows: fuselage 34oz., wing 17oz., engine/tank 20oz., radio 14oz. Total: 5lb. 5oz. The control throws are not shown on the plan and mine started as follows: ailerons $\frac{1}{2}$ in. up, $\frac{3}{4}$ in. down; elevator $\frac{7}{8}$ in. each way; rudder $\frac{7}{8}$ in. each way.

Test flights

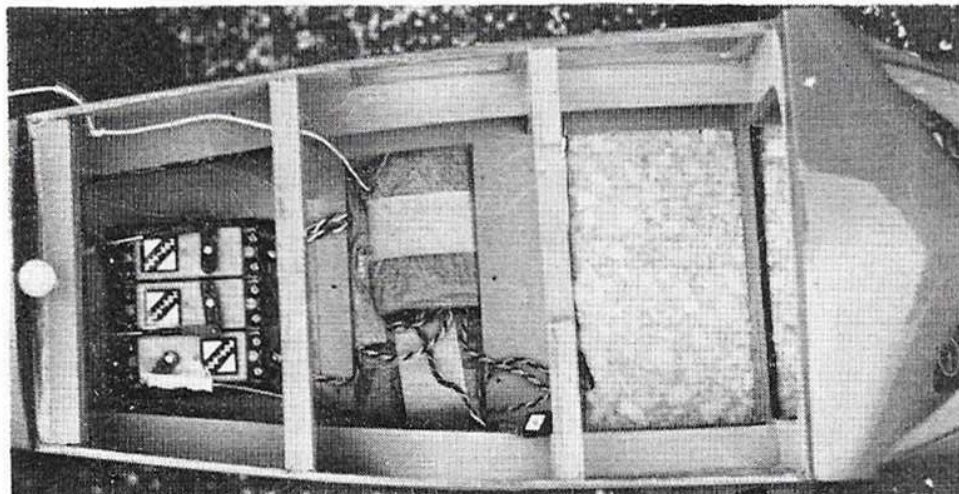
An evening following a thunderstorm was chosen for these, when there was virtually no wind. Ground handling proved excellent and the *Reliant* was taxied out to the strip looking most realistic. The throttle was opened gradually, holding in a little up-elevator and right rudder, but the model refused to lift and ran into the edge of the flying strip.

On the second attempt, after some up-trim and a little right had been wound on, a straight run was achieved, with lift-off into a steep climb after about 50ft. On neutralising the elevator, I found that the model wanted to dive—even with full up-trim—and was much too sensitive to the elevator control. So I landed promptly and reduced the elevator throw to $\frac{1}{2}$ in., but retaining the up-trim of $\frac{1}{4}$ in. with the transmitter trim lever at neutral.

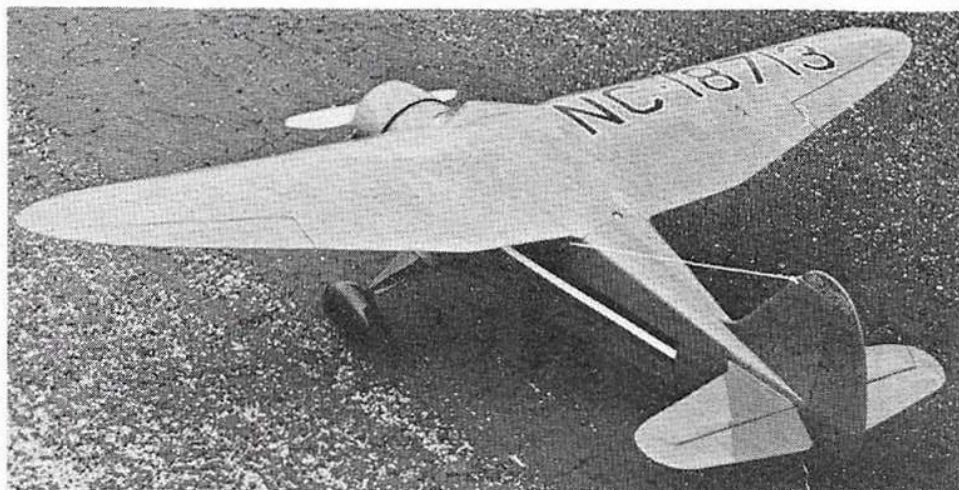
The second takeoff was perfect, with just a touch of elevator required to lift off into a very realistic climb-out. A few circuits and figure-eights at various throttle settings and I was surprised at how little throttle was required to maintain height, although



Our test-reporter with the finished model—wish you could see it (them!) in colour!

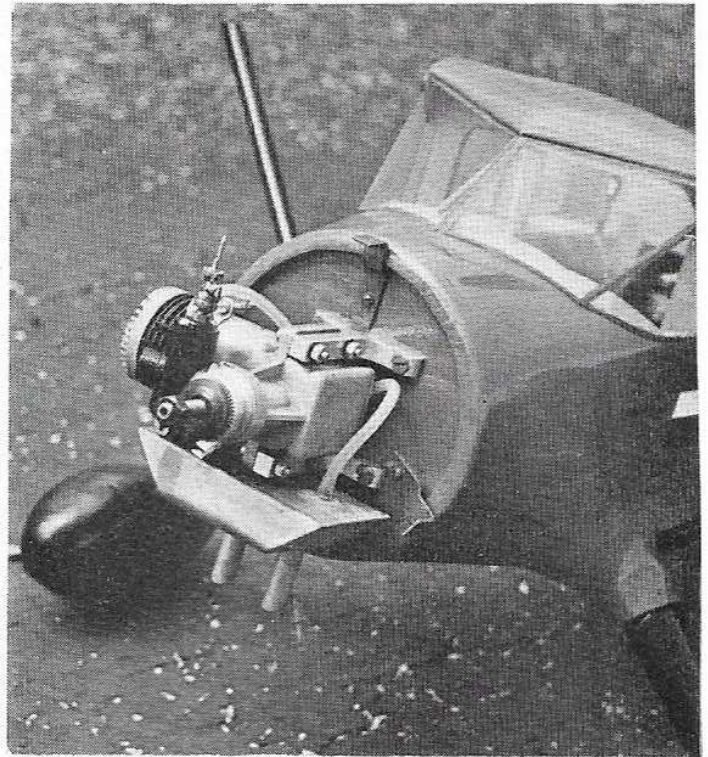


Bags of room inside! Whatever your radio equipment, there should be no difficulties in installing it here. Below: this rear view shows the characteristic wing shape and "hump-back" look.



a little up-elevator had to be held in to prevent the nose dropping on low throttle. The elevator was still quite sensitive but I soon got used to this. The ailerons were perfect—but the model could, in fact, be steered quite adequately using rudder instead of ailerons, suggesting that a 3-function radio could be used if required.

My Merco .49 driving a 12x6 prop at full bore was really overpowering this model, but the excess power was useful during some of the manoeuvres, as the loops could be quite large and a true vertical climb was possible, into a very positive stall turn. Manoeuvrability was excellent for this type of model;



Dave made his own muffler for the Merco .49 to fit within the radial cowl.

covered that it has a glide to match a thermal soarer as it disappeared over my head to land about 150 yards away!

loops could be large or small—and the axial rolls were very good, using a little down on the way round. Even inverted flight could be maintained, but this needed practice, as the *Reliant* tried to roll out, while flick-rolls were savage—and certainly a test of structural strength.

The machine would not spin using rudder and elevator only, but putting ailerons in as well produced

one that was crisp and flat. The stall was very gentle—and, in fact, was difficult to achieve, the model hovering for a few seconds before gently nosing down with no tendency to drop a wing. Landings were easy as the controls remain positive right to touchdown, and the *Reliant* could be slowed down for a real greaser. On the third flight, in fact, having flown the tank dry, I dis-

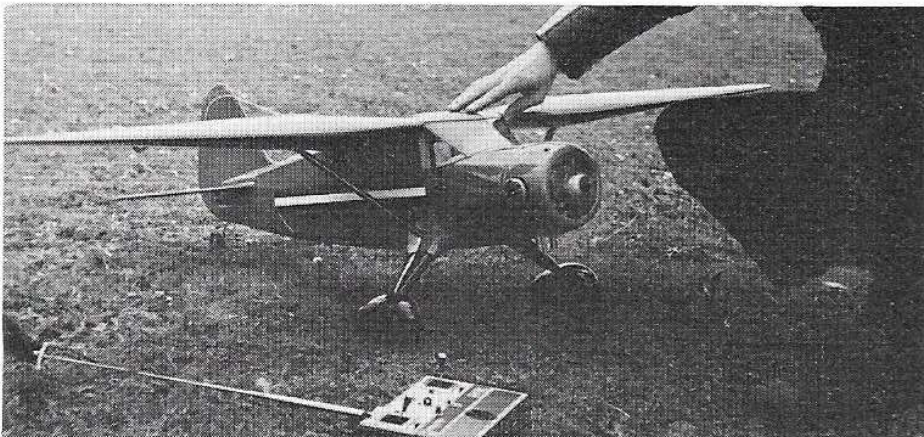
Summary

This kit certainly builds up into a very attractive model which has an excellent flying performance. I would recommend it only to the fairly experienced builder—although anybody with a few hours' 4-function experience should have no problems flying it. Value-wise, compared with other high-wing scale monoplanes currently available, I feel that the price seems related to the complexity of the design rather than the contents of the box.

The .49 is really overpowering the model, and I am sure that any of the currently more popular .40's would be more than adequate—the lighter engine helping to get the c.g. nearer to the correct position, too, so that less up-trim would be needed and that nose-down trim-change on low throttle probably disappear.

Manufacturer: Sterling Models Inc., Philadelphia, U.S.A.

Distributor: Ripmax Models, Ripmax Corner, Green Street, Enfield.



This "starting" snap shows well the *Lysander*-like wing-thickness double taper—the *Reliant* is sometimes referred to as "Gullwing" due to this appearance. Below: up . . . and away!

