

# A NEW BRITISH SAILPLANE

## *The "Viking"*

(from The Sailplane)



Designed by W. R. Scott of Scott Aircraft, Ltd., the successors to Scott and Zander, the "Viking" is a high performance sailplane for the private owner and clubs who need a ship with good performance without excessive size. It is a shoulder wing design employing a straight, full cantilever wing set with slight dihedral.

"The wings are easily attached with two tapered pins and one parallel pin in the rear. Both ailerons and spoilers connect up automatically and the wing makes a butt joint to the fuselage without fairings. The tailplane is attached to the top of a short fin with three bolts, the nuts for which are on fittings inside the fuselage. The rudder does not have to be removed to put the tailplane on, and on all future Vikings, the elevator control will interlock on assembly without pin.

"Diagonal grain plywood has been used in the covering of the rear part of the fuselage, which gives remarkable torsional stiffness and makes the skin stiff for man-handling. Two, light, intermediate stiffeners have been put in each bulkhead bay to give the ply local strength on the lower part of the fuselage.

"The cockpit is quite roomy, and arrangements are made for wearing a parachute without having a parachute box. The spoilers are operated by a small lever on the left-hand side of the cockpit, which is lined and upholstered with leatherette. The nose is removable and rudder pedals are easily adjusted.

"The ailerons can be trimmed both up and down during flight. The trimming is operated from a square-tooth, positive ratchet lever with half up and full up position and the same in the downward position, complete with indicator, so that the pilot can tell the position of the ailerons. This mechanism does not interfere with the differential of the aileron gear, which is about 6 to 1; but when the stick is over  $2\frac{1}{2}$  inches to 3 inches either side, the differential is 95%. This is done to prevent the ailerons moving down any more when circling with them in the fixed down position, thus avoiding stalling of the inner wing when circling slowly with ailerons down.

"The Viking is the first English machine to have this mechanism to alter the ailerons during flight. It has proved very valuable for speed range. Quite a number of these machines are now under construction."

## TEST REPORT

by R. P. Cooper

I was aero-towed in the "Viking" from Duxford Aerodrome on the morning of November 27th, 1938, carrying a barograph and cast off at 11:56 a.m. Wind almost due south, 15 m.p.h., later strengthening to 20 to 25 m.p.h. at ground level; cold sunny day with a light haze; high cirrus cloud; stable above 1,000 feet, but rather bumpy from this height to the ground level; no appreciable signs of thermal activity. Aero-tow to just over 4,000 feet on altimeter checked by barograph as 4,400 feet corrected.

Test made to determine sinking speed in normal trim with aileron trimming gear in the neutral position. Machine brought down at a constant speed of between 34 m.p.h. and 33 m.p.h. on the air speed indicator fitted, which speed appeared to give the minimum sinking speed on the variometer, until the bumpy conditions on the last few hundred feet of descent made it difficult to keep an absolutely constant speed. Variometer remained practically steady midway between the 3 ft./sec. and 6 in./sec. graduations for the first 3,000 feet of descent, the 3,000 foot and 2,000 foot levels on the altimeter carried being clocked at almost exactly 8 minutes and 16 minutes respectively by watch. Barograph shows approximately  $7\frac{1}{2}$  minutes per thousand feet for the first three thousand feet of descent as shown on the chart. A minimum of turns was done and these were kept gentle. On a few occasions on the latter part of the descent, the variometer dropped momentarily to the 6 in./sec. mark, returning to the 3 ft./sec. mark almost instantaneously, and thence returning to the midway position.

Landing made on the aerodrome at 12:25 p.m. Time of descent 29 minutes as taken both in the air and by ground observers.

I was launched again by aero-tow to 3,900 on the altimeter with the request from the designer and constructor to "throw her about a bit if you feel like it". The haze had thickened and the wind increased, and I released at 2:28 p.m. up-wind of the aerodrome. I stalled the machine with the nose well up, and put on full aileron and rudder to the left with the stick right back. The machine dropped her nose well down, did a half-turn of a spin, and then came out as before. I repeated to the right, and with a little coaxing, got her to hold a spin to the right. On centralizing the controls, she instantly came out. I repeated with similar results. The machine spun pretty briskly with the nose very well down, at about 50 m.p.h. and was picked out of the dive at 60 to 65 m.p.h., control being recovered almost instantaneously, and the machine having

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