

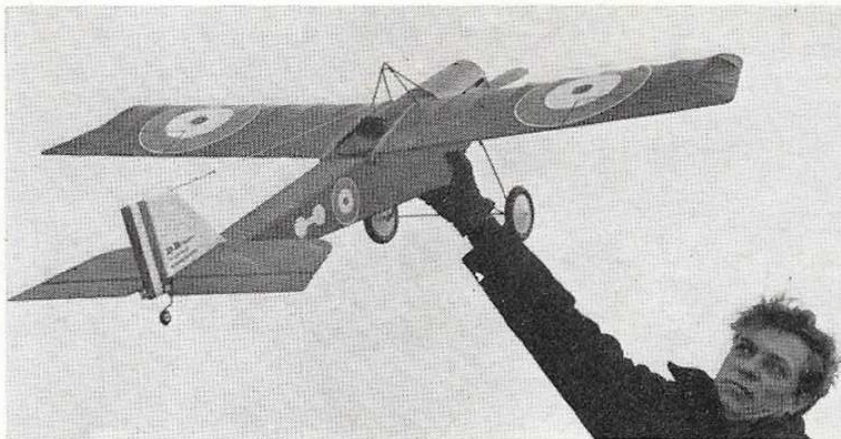
OLD BILL

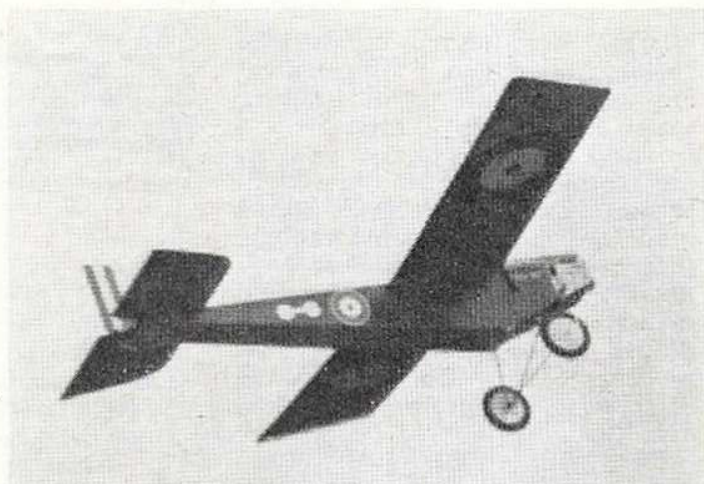
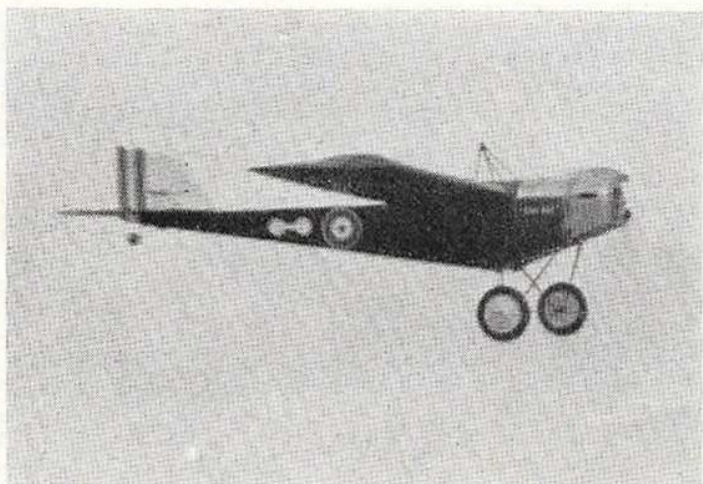
A sport multi
model with
realistic W.W.I.
appearance.

By David Boddington



RECENT reader surveys and requests suggest that sports scale models are high on the list of desirable plans these days. With greater use of multi channel equipment, both the new proportional systems and second-hand reed outfits, 'Mr. Average' is apparently looking for models that are not too difficult to build but have the appearance of the real thing. This interest in producing scale-like radio control models is partly, I believe, due to the increasing num-





ber of modellers entering the hobby with little or no previous experience of aeromodelling. Their idea of a model aeroplane is a miniature version of a full-size aircraft and flying in a like manner. However, because of the newcomers' limited building ability and other modellers' semi-dislike of building, the thought of constructing a sophisticated and complicated 'true' scale model is almost enough to put them off the hobby. The production of plans and kits

for sports scale and semi scale designs helps to get the modeller into the air (which after all is the primary aim of the hobby) in the minimum time but still with the satisfaction of having a model 'Aeroplane'.

The 'Old Bill' design was influenced by a number of monoplanes of the early WW1 years, a period that produced a mixture of ultra simple and highly complex wire and strut devices. For me, I prefer designs where the rigging wires on

the model are purely decorative and that elastic can be used for simplicity. Even with the more simply-designed aircraft of this era there are usually some features that are not easily represented on a model. Perhaps the undercarriage legs terminate at 'difficult' positions on the fuselage or, as is normally the case, the wing section is highly undercambered and terrifyingly thin. These are the reasons for compromising and producing a near-to-scale model. My ad-

miration for the enthusiast who spends hour upon hour researching, designing and building superb scale models is limitless, particularly as the risk of destroying all this work on the first flight is even greater than with sports models. The fact remains, though, that many radio controllers have not the patience or wish to spend the time in building this type of model. So, as the customer is always right (at least until his ideals disagree with mine) may I present 'Old Bill'.

The time from conception to first flight was considerably longer with this model than most of my designs. Other projects and business had to take preference over 'Old Bill' and the skeleton framework was hanging up in the workshop a long time before it was completed. Of course, it may also have been something to do with the fact that covering and doping are not my most favourite parts of modelling. Fortunately I eventually had a Czech friend come to stay with me for some time and, as he was also a modeller and could not resist keeping his 'hand in', he finished off 'Old Bill'. Would you believe it?, he also enjoyed covering. Providing you stick at it, the model does not take long to build, very little longer than the average sports model, in fact. The only item that can be time-consuming is the decoration and here it is a matter of individual choice to what lengths you wish to go. Being only semi scale you can choose to camouflage the model in keeping with W.W.I period or, and it would be equally correct, leave the covering as natural linen with only the cowl and forward panels painted to represent aluminium panels. More important than attempting to accurately copy the authentic finishing of the period is to achieve a 'character' with the model. Surely one of the hardest words to define, 'character' is something that can be lacking in the best finished of scale models for a number of reasons. I do dislike seeing models, with open cockpits in particular, being flown without scale pilots. A pilot, of the correct size, sitting in the correct attitude, with an air of authority, helps tremendously towards achieving character with the model. (Anyone fortunate enough to have seen Jack Morton's miniature occupant of the 'office' of his Isaac's Fury will understand what I mean.) Another method of obtaining this elusive 'character'

Close-up detail of model showing rigging wires and undercarriage details. Williams type wheels help with the W.W.I style appearance.



on vintage models is by using pinking shears when cutting the nylon covering. This serrated edge to the covering at the overlap positions helps to give interest and yet it is completely unauthentic. Pinking shears were not used, if my information is correct, until about ten years after the end of W.W.I. Finally enough thread hinges - I am still a great advocate of this form of hinge - also look absolutely acceptable and I can state quite categorically that these are not scale.

First flights did not present any particular problems. The test glides were tried and the centre of gravity was kept well forward as a safety measure. Because of the state of the flying field, it was winter and the grass was long and the ground muddy, 'Old Bill' was hand launched to its maiden flight. The O.S. 40 was over-propped to keep the thrust down but even so she climbed away steeply but perfectly safely. Two faults needed correction following the first series of flights: (a) an increase in engine downthrust; and (b) a slight rearward change of C of G position. With these modifications the only other undesirable characteristic of 'Old Bill's' flying was a tendency to 'Dutch Roll', and the correction of this, and the other modifications have been included on the drawing. I will not promise you that the vintage type aircraft will perform the full aerobic schedule - it certainly will not.

Without the use of ailerons even a barrel roll is fairly diabolical, but no more so than the equivalent full-size aircraft could have performed. For all its lack of aerobic potential it remains great fun to fly, on the slow, low fly paste you are almost in the cockpit; if you insist on having a highly manoeuvrable model then change the wing section to symmetrical, put a 61 in the nose and - the best of luck.

Construction

I hate to think of the number of times I have started the building instruction with 'Construction of this model is conventional and you should not experience any difficulties' or words to that effect. What else *can* one say. So the fuselage is box section, the wings have balsa ribs and spars and the laid surfaces are flat plates! I have no doubt that the experienced builder has no need to refer to the instructions at all but, gentle reader, bear with the less fortunate of our company who have only had the benefits and delights of our hobby for a short time. For these members I will describe the construction in a little more detail.

Fuselage

Build two fuselage sides from $\frac{1}{4}$ in. sheet and $\frac{1}{2}$ in. sq. Note the direction of grain of the $\frac{1}{4}$ in. sheet. Glue the $\frac{1}{2}$ in. sq. engine bearers to the sides. Because there is no taper on the fuselage sides all formers can be fitted at the same time. It is difficult to get the fuselage out of square but check to make sure all is true before the glue begins to dry. Add the $\frac{1}{4}$ in. sq. balsa crosspieces to the rear of the fuselage and the underside sheeting. Decide on the method of fixing for the top cowl, I used locating dowels on F.1 and a cycle spoke (shortened and the nipple soldered to the shortened end) threading into a blind nut fixed under the paxolin engine plate. Sheet the top cowl with two layers of $1/16$ in. balsa or $\frac{1}{8}$ in. x $\frac{1}{8}$ in. strips. This completes the basic fuselage structure.

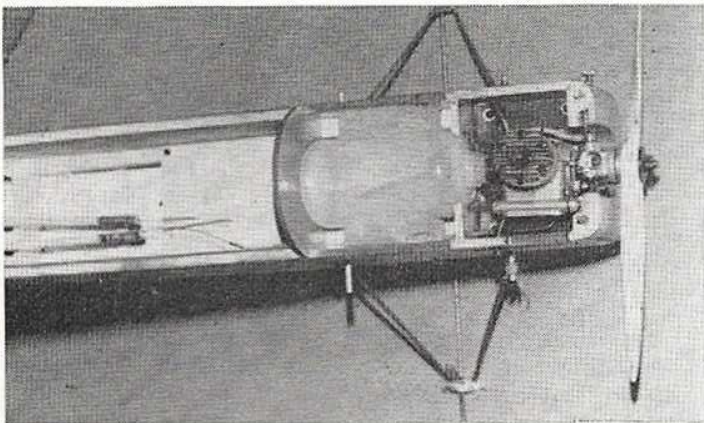
Undercarriage

This may seem to be a complicated piece of wire bending but it does keep soldered joints to a minimum and, therefore, strength

to a maximum. The front undercarriage fixing point, using rubber bands for shock absorbing, can be changed to a rigid fixing if you fly from smooth grass or tarmac areas. The 'bungee' method of retaining the axles is very effective and will take up all normal landing shocks.

Wings

Cut a set of ribs by the 'block' method using two master templates. Choose the materials for spars and leading edges very carefully—straight, firm, hard balsa, the same quality for each wing half. Pin down the 1½ in. x 3/32 in. bottom trailing edge, the 1 in. x ¼ in. bottom leading edge sheet and the front and rear spars. Pin down the 3/16 in. sheet wing tip. Glue all the ribs in position setting the root rib to the correct angle. Add the top front spar when the glue to the ribs has



The motor and tank bays, showing installation. Radio compartment is empty at this stage. Engine bay is roomy, and cowl removes to allow easy access to plumbing, etc. Wot! no silencer, Mr. B.?

dried followed by the 1½ in. x 1/16 in. top trailing edge and the ¾ in. x ½ in. leading edge. ¼ in. scrap sheet gussets are fitted to the wing tip and shaped as shown on the plan. When the wings have been removed from the board the ailerons (if being used) may be cut out, and the leading edge added together with the root rib, control horn, etc.

Cut slots for the dihedral braces and glue in position. Prop up the wing tips to the required amount (wing dihedral may be reduced for models featuring proportional controlled ailerons). The fuselage decking attached to the wings can either be made up with formers and sheeting or by carving from block balsa.

Tail surfaces

Build the tailplane and fin flat over the plan using sound, firm balsa strip. Note how the fin slots into both the tailplane and the top of the fuselage sheeting. Cut the elevators and rudder from medium

grade balsa. Round off the edges of the fin and tailplane and shape the elevators and rudder to the sections shown. Bind and glue the rear fuselage skid to the rudder.

Covering

Nylon covering is strongly recommended from the viewpoint of both appearance and strength. This is not the type of model for the glossy surface of Solarfilm Decoration, as stated before, it is a matter of personal preference, German, French or British marking would all be suitable. For a good matt fuel-proof finish use a clear eggshell polyurethane varnish.

Fittings and fixtures

The centre rigging post and various hooks are simple enough to make so do not omit them. Rigging of the model takes literally a

flat plate windscreen and, if you wish, a machine gun, also outline the cockpit area with thin rubber tubing.

Radio installation

Any proportional, reed or dual proportional outfit should fit in the copious fuselage area and still leave room for the prodding fingers to get at plugs, sockets, pushrods, etc. The pushrod exit to the rudder horn is via a slot in the rear fuselage rear former. Arrange the position of the radio equipment to obtain the correct centre of gravity without having to add further ballast. With the ample room available for radio equipment there is no excuse for anything but a neat, safe, workmanlike installation. No 'rats nests', dry solder joints or strained connections please! When the DEAC position has been determined between former F3 and F4 pack the area firmly with foam plastic or rubber to make sure the battery is not likely to move during flying sessions.

Flying

Flying the prototype has been covered in the introduction and the best advice I can give you is—if you are not very happy about carrying out the initial test flights, pick some poor sucker with plenty of multi hours to his name, and get him to fly it for you. Preferably take a small bottle of brandy with you to act as an incentive to the proposed test pilot. If, however, you find that it is necessary to consume it yourself during that first flight—I am sure you will be forgiven. One final consolation—if you feel like this flying a relatively simple semi-scale model for the first time, imagine what the poor devils feel like with their 1,000 hour scale beauties, the suicide rate is something terrible. Come to think of it I have not seen or about lately!

Another view illustrating the undercarriage and dummy rigging wires. Motor is totally enclosed, so allowance should be made for easy passage of air through the cowl for cooling.

