



Bristol SCOUT TYPE 'D'

I STARTED out with the intention of making a semi-scale sports model which was quick to build, but under the influence of Eric Coates' excellent series in *Aeromodeller* on scale biplanes it turned into quite an accurate model. Not so quick to build, but still quite straightforward, and very satisfying.

Eric Coates' series was mainly about free flight models; with free flight you stand a reasonable chance of keeping the wing loading low enough for the model to fly somewhere near scale speed. Unfortunately this is not so with small radio controlled models. There is no way of making a small, scale W.W.I biplane, with multi-channel radio, fly at a scale speed. They seem quite slow, especially if you are used to pylon racers, but a trip to Old Warden brings disillusionment; those real biplanes creep about the sky like little snails. Nevertheless, this model is great fun to fly and the effect in the air is quite real, because the way the model flies is right, even if the speed is wrong.

The *Bristol Scout* was one of the first British single seaters used for fighting, as opposed to purely observation duties. As such it played a significant part in fighter aircraft development. Frank Barnwell, the designer, made several changes to the Scout during the years that it was in service, and the various modifications to airframe, engine and armament are described in detail in Profile No. 139. In fact there are so many possible permutations of engine, armament, aileron size, tail-plane size, rudder size, centre section shape, cowling shape, dihedral angle, etc., that few of the 374 Scouts made can have been exactly the same. The aeroplane was very popular with pilots, having beautiful handling qualities, but for an unknown reason it did not

remain in production when gun synchronising mechanisms became available. Its effectiveness as a fighter was consequently always limited by poor armament.

The Model

I decided to use coupled ailerons and rudder on this model, after experience with a similar *Sopwith 1 1/2 Strutter* which was very sluggish turning on rudder alone. Everyone seems to agree that ailerons alone don't work too well on scale biplanes, there wasn't room for four channels, so it had to be C.A.R. It does save weight too. In practice it has been completely successful; the model is very quick to respond to turn signals, which is a great help in gusty conditions. Flying qualities generally are pleasant and viceless. I have tried it occasionally on ailerons without the rudder connected, and it still seems to turn quite well. I usually get nervous and suspect that it is not going to respond at a vital moment, and quickly reconnect the rudder. I don't have much inclination to experiment with scale models, once they are flying well!

There are no serious departures from scale as far as I am aware, although a certain amount of fine detail has been left out.

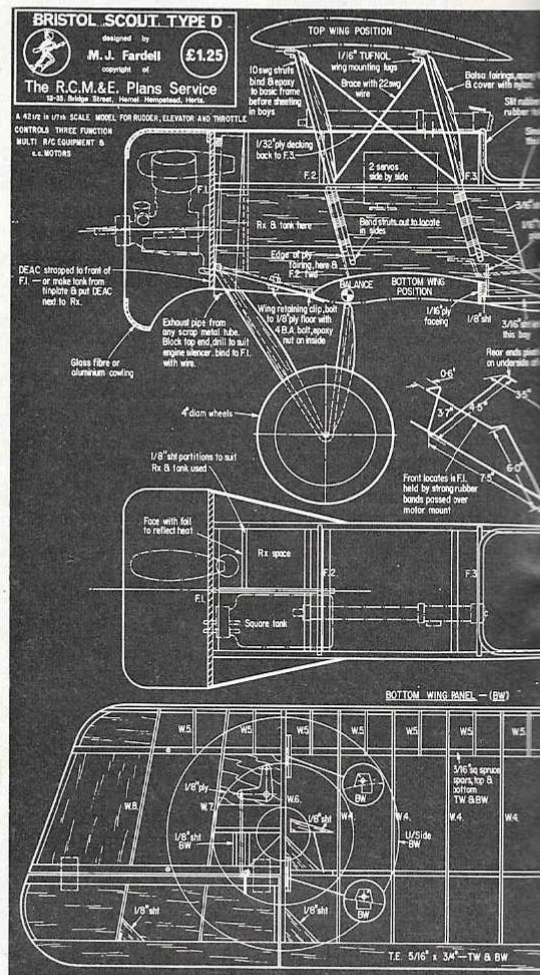
Construction

The plan is intended to be self-explanatory, but the following points might be helpful.

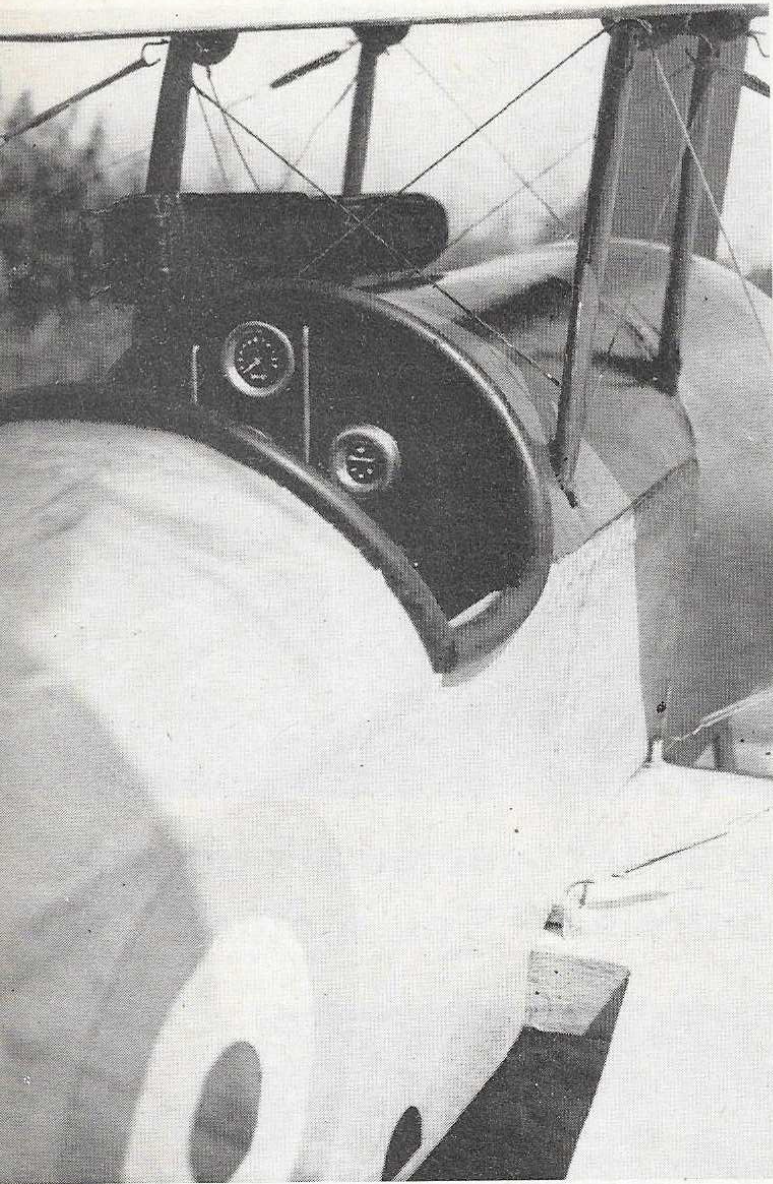
The Fuselage

This is just a straightforward box with top decking. It is essential to pre-bend the lower longerons. I didn't do this, and had to add diagonals to straighten the thing out, which is a pity as they look wrong through the covering. Fix the cabin struts to the fuselage sides accurately so the top

By
M. J. FARDELL



FULL-SIZE COPIES OF THIS PLAN, SHOWN HERE



Above: close-up detail shows the cockpit interior, the cockpit surround and the attachment of the bracing wires. Below: the Bristol Scout has always been a favourite among enthusiasts for W.W.I aircraft models. Simple yet attractive lines of machine as seen here show why.

wing sits correctly automatically. Get the radio and tank installation sorted out at an early stage as there is not much space to spare.

Tail Surfaces

These are a real pleasure to build using Eric Coates' method of building up on a sheet centre. Apply candle wax to the sheet between the ribs before covering, to prevent sticking if the covering sags.

Wings

The wings have spruce spars as they are very thin; they are intended to be flexible. The tips are made from 1/16th sheet with 3/4th sq. outline. The grain direction of the 1/16th sheet is important - I had it wrong, with the result that the tips became far too under-cambered when the top covering tightened. All the fittings for the struts, etc., are intended to be added after covering, purely to make covering a more pleasant job. The struts and bracing wires are vital to the strength of the wings.

Covering and Finishing

Give the whole airframe two coats of sanding sealer, and cover with lightweight nylon. Avoid getting the nylon too tight in the spanwise direction to reduce the tendency to pull in elliptical dihedral. Adding castor oil to the dope will also prevent over-tightening. For a very realistic natural linen effect, simply add a very little yellow, white and brown dope to the clear dope, and apply several thinned coats in the usual way over the white nylon. I originally intended to have the top surfaces olive drab, but the linen effect was so successful that I used it overall. Most Bristol Scouts were, in fact, left natural linen, and it certainly makes a change from the usual run of olive drab Pups, S.E.5As, etc. The top decking and struts should be painted or stained to represent dark wood; the cowling and curved panels back to the front cabin struts silver doped and polished to represent aluminium. Profile 139 has plenty of marking schemes, but some study is needed to sort out all the variations in airframe and engine to make sure that the markings chosen apply to the version built. Some of the finer detail is not shown on the plan; this can also be got from the Profile if required.

Flying

Ready to fly, my model weighed 3 1/4 lb., which was heavier than I hoped, but I don't see any way of lightening it significantly (apart from taking the radio out and letting it go free flight). Anyway, it flies very nicely, so why worry? Take-offs I find virtually impossible on bumpy ground, mainly due to the stinky undercarriage, I think. Hand launches, however, are very easy - a gentle push is all that is required. The down-thrust shown on the plan is the most that could be incorporated without it being too noticeable; in fact, it is not quite enough, so the stick needs holding back slightly on the glide. Don't omit the pilot; mine turned out rather odd-looking, so I took him out for the photos, but in the air he makes all the difference.

