

TRY A RED RACER

BUILD OUR BRISTOL M.1D

I CAME AWAY FROM last year's Indoor Nationals fired with enthusiasm to build an exotic successor to my Avian - so much so that I gave the Avian away to force myself to produce a new model! However, as we all know, there is never enough time to build all the models we would wish, and eventually the main criterion for my choice of subject was simplicity.

The Bristol Monoplane has been tackled many times, of course, but usually in its M1C version, the one with the enormous spinner which makes alterations to the thrustline a real problem. The M1D presented here was fitted with a Bristol Lucifer engine, and was raced successfully in the early 20s. Finished in scarlet and black with extensive white lettering, it is also an extremely attractive subject. However, nobody would claim that it was an ideal configuration for a rubber model. Bearing in mind its very short nose care must obviously be taken with the weight of the rear end - and remember that there is a weight limit of 85 grams for models entered for Indoor competitions (this year, at least).

The main lesson I learned from the Avian (published in the February 1986 *Aeromodeller*) was the benefit of designing the model as large as possible, using the weight rule to its maximum if necessary, in order to get a realistic appearance.

Especially for Scale

enthusiasts—this

'Twenties racer is hot

from Bill Dennis'

drawing board

The Bristol is a deceptively simple model which goes together quickly. It would certainly make a super CO₂ model, probably with a saving in weight too, and I shall probably convert it after this year's Nationals. Perhaps someone will beat me to it?

Build your Bristol!

There is a lot of wood in this model, so choose it carefully to do the job needed and no more. After laminating the outlines to wings and tail, be sure to let them dry thoroughly for a couple of days or they will spring out of shape, eventually to cause warps when forced back. The wing tip ribs are cut down in length and are carefully shaped to correct section, sanding them with a long block. Fit the wing tubes with

the aid of lengths of wire between each panel to ensure correct alignment.

The fuselage is built in the same way as the full size machine; that is, as a basic box with supplementary formers and stringers. A common error is to assume that the fuselage cross section is circular throughout but this is not the case, as it is almost rectangular at the position of the tailplane leading edge. The best way to make sure you get this right is carefully to sand the stringers while referring to photographs of the real G-EAVP!

The aluminium tubes for wing dowels and undercarriage are now fitted, and sheeting follows. The round nose cowling is shaped from balsa and hollowed, although a plastic moulding would look better. A reasonable facsimile of the Lucifer engine can be based on the large Williams dummy cylinders available from SAMS. The prop shaft is carried on two tinplate bearings, the rear of which can be adjusted to alter the thrustline. This is so much better than using bits of packing behind the noseblock.

Before covering, go around the model with a sharp scalpel and remove any wood that no longer seems necessary. It is

Below: Red with black tail and cowling, and with white lettering throughout, the Bristol M1D is a colourful addition to anyone's scale hangar. Note: G-EAVP may also be individually referred to as a Type 77 but never as a Bullet or a Racer; both off-seen mistakes.



surprising how much material is needed only to make construction easy! I also like to shave down stringers to a knife edge for realism. Cover the model with Jap tissue and steam shrink carefully. If there are any wrinkles, cut them out and repair at this stage, because with this tissue, unlike Modelspan, they won't disappear when doped.

I decorated my M1C by my usual 'car aerosol' process and applied the trim with decal. The only tricky bit is the word 'Bristol' on the fin. After an hilarious attempt at masking and spraying I tried this technique: the lettering was traced and strategic parts cut out with a knife. The tracing paper was laid over the fin and stippled through with white enamel on a dryish brush. Using these marks as a guideline, it was a fairly simple matter to finish the job freehand to a reasonable standard.

Trimming

Provided the model is reasonably warp-free and well-balanced, there will be no trimming problems because the layout is eminently suited to stable free flight. All-up weight of the original was 75 grams, and I used the remaining weight allowance of 10 grams for ballast, bringing the CG forward to 35% of wing chord. Initial trimming was done on four strands of 1/8in. (18in. long) which seems a good starting point.

Future indoor tests may show a need for more power to achieve take-off. Matching the motor and propeller to the model is a fairly time-consuming process, but is essential in order to get the best out of the model.

Proof - and painting . . .

Documentation for this model is fairly easy to obtain. The *Aeromodeller* three-view is quite accurate, and Profile No.193 includes a photo and full colour details. Other photos crop up in various Putnam books, and *Flight* magazine should be able to supply copies of photographs. A good shot of the Lucifer engine can be found in the *Encyclopaedia of Aero Engines* by Bill Gunston.

Finally, since unpainted scale models are a particular hobby-horse of mine, I have included some component weights which I think put things in perspective. The opaque, painted finish cost me only seven grams on this 75-gram model - I could have saved this by reducing the weight of the tail surfaces by one gram, thus needing less nose ballast . . .

Bristol M1C: component weight analysis

Component	Uncovered	Covered, Doped	Painted
Wings	9.2	12.6	16.6
Tail	2.2	3.6	4.8
Fuselage and U/C	17.0	19.1	21.0
Nose block and Propeller	21.0	21.0	21.0

Model plus motor, details and ballast: 84 grams total

Top: Bill's model has all the requirements for stable free-flight. Why not convert to CO₂ power? Installation would be simple. **Centre:** Construction is straightforward but take care with laminated outlines. **Right:** The full-size G-EAVP in action at the Aerial Derby Handicap at Croydon in 1922. Photo via *Aeroplane Monthly*.

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