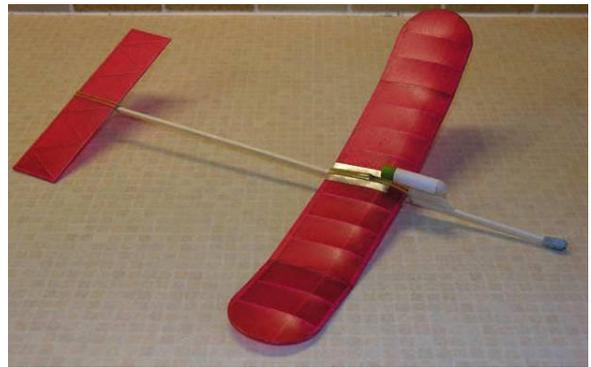
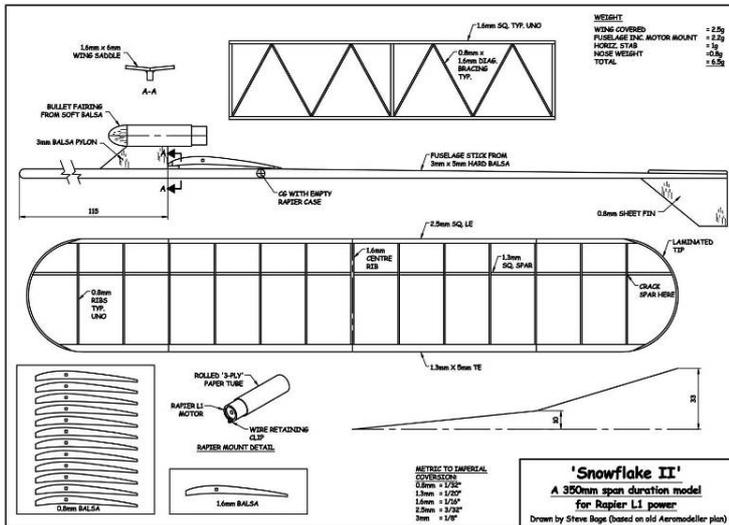


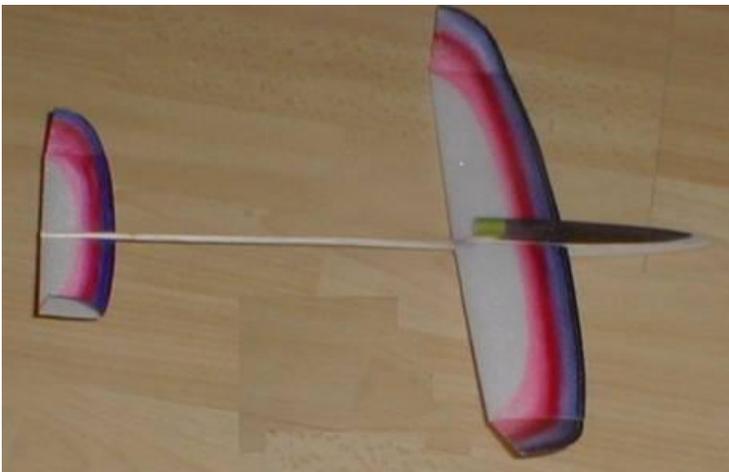
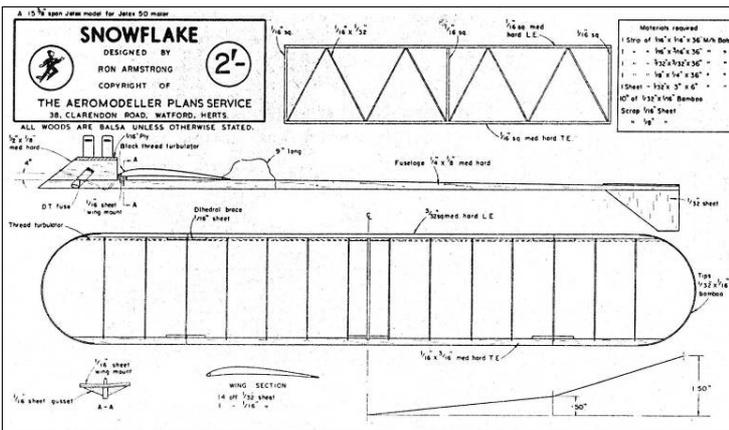
ROCKET POWERED DURATION MODELS

Roger Simmonds

First, note the title of this epistle: though it is perfectly possible to fly vintage Jetex these days, my brief is to discuss duration models powered by the newer 'one shot' Rapier rocket motors, or, as we prefer to call them these days, 'Model Jet Propulsion Units', which, contrary to what you may have heard, are still available. The two most popular sizes are the L-2, with a thrust typically of about ½ oz (140 mN) which is what the old Jetex 50 put out, and the smaller L-1 with a thrust that can range from 60 to 100 mN. Recent duration contests have been for this motor and the experts' response to has been some very sophisticated models, for example Steve Bage's traditionally-built Snowflake II and, a complete contrast, Howard Metcalfe's Depron 'Stylus'. Both these were designed for the 'Carlo Godel Memorial' event in the US.

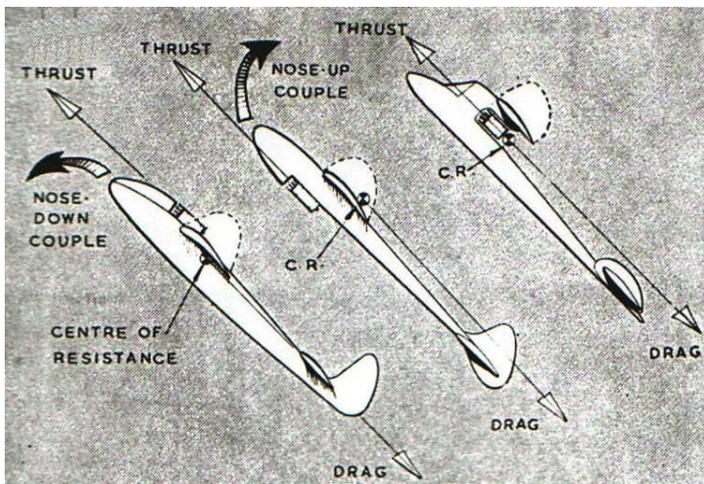


Above and top left: Steve Bage's Snowflake II based a 1950's design for Jetex 50 (left, middle). Comparison of the two (a picture is worth a thousand words) shows that apart from a reduction in size (to about 70% of the original) little modification for conversion to Rapier power is required: the aerofoil section and high thrust line are retained and the only obvious change in construction (apart from reducing the wood sizes) is the sensible addition of a wing spar. Importantly, however, the motor has been moved back as Rapiers lose a far greater proportion of their weight in use.



So, the vintage-minded free flight modeller need have no qualms about the viability of the old Jetex designs powered by a Rapier, and the choice is vast – from Dick Twomey's Twizzler to John O'Donnell's large 'Castaway'.

For those who fancy something modern, the Stylus (bottom left) is a splendid exemplar – Howard has kept a high thrust line but the planform, and aerofoil, are modern.



Above right: the Pfuf is a typical mid-fifties sport/duration model modified for Rapier L-2; **right:** Dick Twomey's contest-winning Twizzler has been kitted by Bluebottle Squadron.

The illustration top left, which first appeared in *Model Aircraft* in the 1950's, is still a useful guide to planforms and thrust lines today, and examples of each will be found in the plethora of vintage plans out there. All can be built with confidence for Rapiers, and how far one wants to modify them with carbon fibre spars of fuselage booms and Mylar covering is a matter of choice. One caveat: it is not a good idea to expose the fin to Rapier exhaust, which is hotter and dirtier than Jetex and the addition of foil to protect the fuselage is also recommended.

My final advice it is to try an all-sheet design like the Fizzel-Fazzel or Space Jet first to learn the basics, and avoid overpowering them, resisting fitting an L-2 HP until you have trimmed your model with a standard motor. Own designs can then follow: models can be put together quickly and cheaply, and – a big consideration – losing a model does not mean (as it did in the old days) losing a valuable motor. See you on the flying field!