

TWIN-FIN was designed as a simple to fly R/C sports model for intermediate multi gear, with semi-scale appearance and the flying characteristics of a sports model, with particular emphasis on glide performance. There have been persistent requests for plans from numerous people who have seen it fly, so here it is.

Although the span is 65 in., the model is amply powered by a 2.5 cc diesel or equivalent capacity glow plug engine and while not intended to fly 'the pattern', it will easily perform all aerobatic manoeuvres on this power, with the exception of outside loops, whilst the glide is remarkably good - if there is any lift about it will stay up indefinitely. Over the last five years or so, the prototype has been flown with an *AM.2.5*, an *OS.19*, and an *Oliver Tiger 2.5*, the latter being particularly suitable. This is the maximum power that is recommended.

Fitted with *Grundig Varioton* radio, this model is well over the 3,000 flight mark which will give an indication of its durability - a recent mid-air collision which resulted in the wings parting company with the fuselage at 500 ft. resulted in merely superficial damage! Only aileron and elevator controls are used, although a recently built version is now flying with three function proportional incorporating throttle control.

Building

No difficulty should be experienced by the average modeller, normal construction methods being employed. The fuselage is a simple sheet-sided structure with 1 mm. ply reinforcement in the radio compartment area. The curved decking on the rear fuselage is easily applied in one piece - there is no need to plank it if a fairly pliable sheet of balsa is chosen. Merely moisten one side and heat the other in front of the fire and it will curve naturally and can be cut to fit by trial and error on the job before gluing. The undercarriage fixing is unusual, being of the plug-in variety, but it has the advantage of being easily removable without the use of rubber bands, and if the main legs become bent back after considerable use, then it is only necessary to unplug the unit, put it back in the other way round and let subsequent landings knock it back into shape! Be sure that the plug-in legs are splayed out slightly so that they have to be sprung in, and this will be adequate to retain

them in position - similarly with the nose leg. The brass tubes which take the legs are sewn and Araldited to their formers.

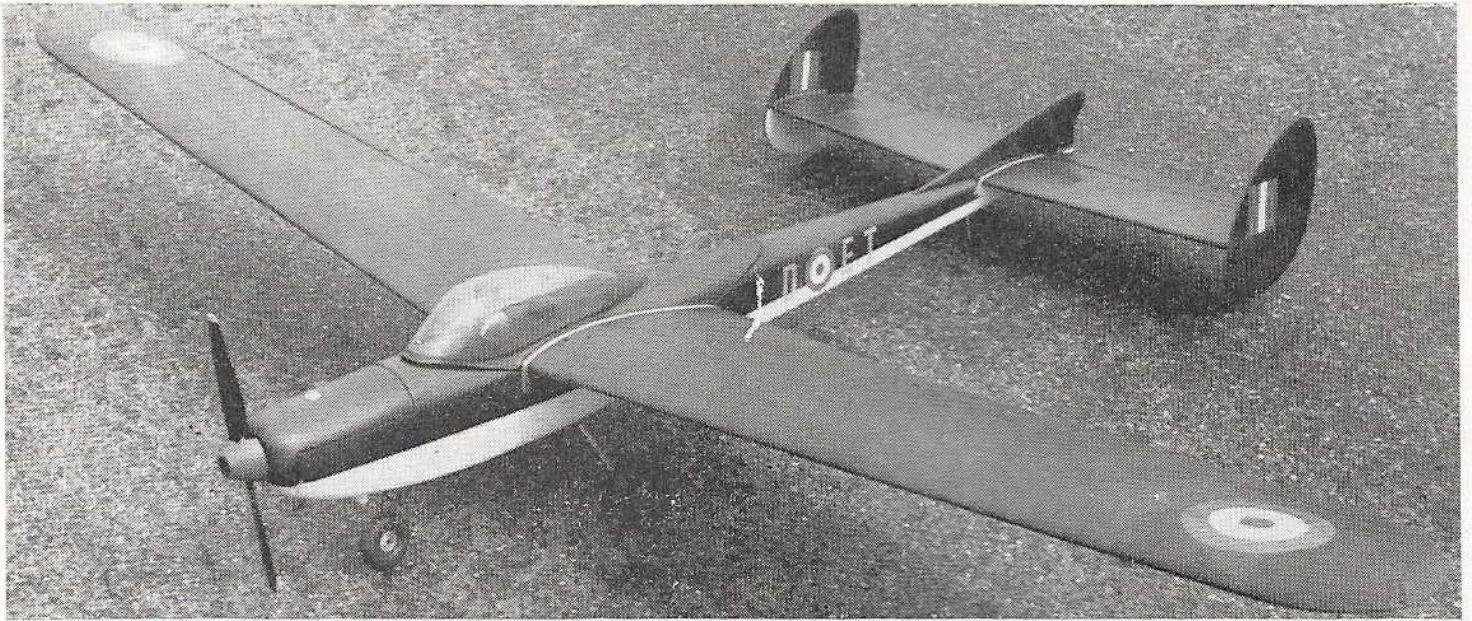
The wing is of conventional structure, the only feature which is in the least complicated being the decking over the centre section, which fairs into the fuselage. This is done by temporarily pinning the wing to the fuselage, fitting the half formers at the leading edge and trailing edge positions of the wing centre section, and then planking to suit (see Fig. 1).

The tailplane presents no problems, but the method of retaining the end-plate fins should be explained. End-plate fins tend to be more vulnerable than the conventional single fin, although little trouble has been experienced with Twin-Fin. But in the event of one being knocked off in a bad landing or crash, this system entails no damage to the fixing and replacement is simple. The end ribs of the tailplane have a 1 mm. ply facing with two $\frac{1}{8}$ in. dowels protruding. The end fins are glued in place using contact adhesive (after they have been nylon covered), and thus no structural damage occurs if they

TWIN FIN

An unusual multi sports design spanning 65 in. for 2.5-3.5 cc motors

By
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are knocked off, and they can easily be stuck back with contact cement. The tail skid normally provides ample protection.

The cowl is built up as shown in Fig. 2, the nose block, which is glued to the front of the removable cowl, being cut away to suit the motor. Fixing is by press studs or any other favourite method. To preserve the clean lines of the model, the motor is fitted in the inverted position. For strength, the whole model including the fuselage is nylon covered, and the W.W.2 colour scheme of dark green and dark earth upper surfaces with light blue under surfaces is attractive and gives a scale appearance. All-up weight of the prototype came out at 3 lb. 5 oz.

A couple of points of general interest – the control horns on the elevators and ailerons are of 1/16 in. ply, set into slots in the control surfaces and glued with PVA, and they still show no signs of wear in the way of enlarged holes after 3,000 flights. And for durable cheap hinges, buy a small plastic

bottle from F.W.W., cut a few pieces measuring about 1/2 in. x 1/4 in. from the *thinner* parts of the bottle, then take each piece and bend it right back on itself across the centre, pressing it flat between finger and thumb. Repeat this a few times in each direction and a score mark will appear at the hinge line. Fit in the usual way, pinning with cocktail sticks or 1/16 in. dowel, and you have a virtually indestructible hinge – mine have never shown the slightest sign of wear over the years. But be sure you choose the thinnest pieces of material or the hinge may be too stiff.

Flying

Take off presents no problems without rudder – the model runs straight and becomes airborne very quickly. Even if lifted off prematurely it will not stall or drop a wing. Aileron response is good but not over sensitive, but the elevators are quite powerful and the movement should be restricted until experience with the model is

gained. Very tight loops and tight vertical banked turns can be performed with full elevator, and the model rolls well, but it is necessary to pick up speed in a shallow dive before lifting the nose and going into the roll, not forgetting to apply down elevator whilst in the inverted position. Twin-Fin will also fly inverted despite the generous dihedral.

Another attribute of the model is its ability to loop and roll whilst on the glide – merely dive to pick up speed and go into the manoeuvre in the normal way. The model is, in fact, highly manoeuvrable whilst gliding – it is virtually unstallable, and steeply banked turns can be pulled near the ground without loss of height, whilst the glide can be 'stretched' interminably on the approach to land. This makes spot landings easy in fact, Twin-Fin won the *RAF Review Cup* a few years back. For even better glide performance, unplug the undercarriage and go hunting for lift when power runs out – it really will stay up there!

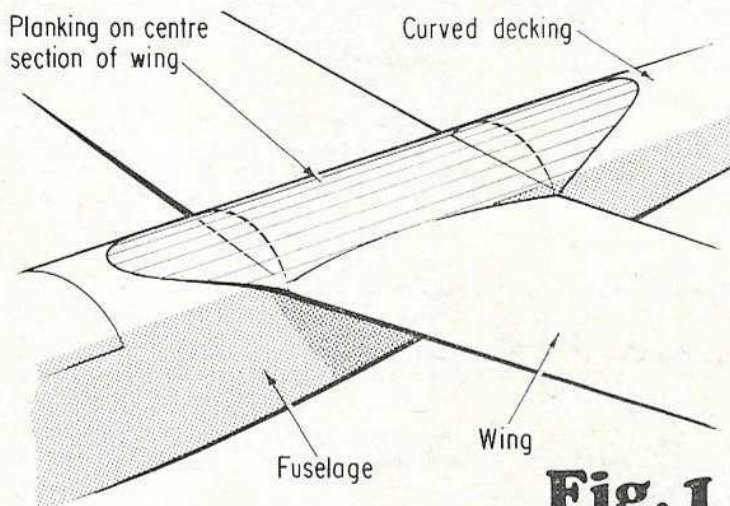


Fig. 1

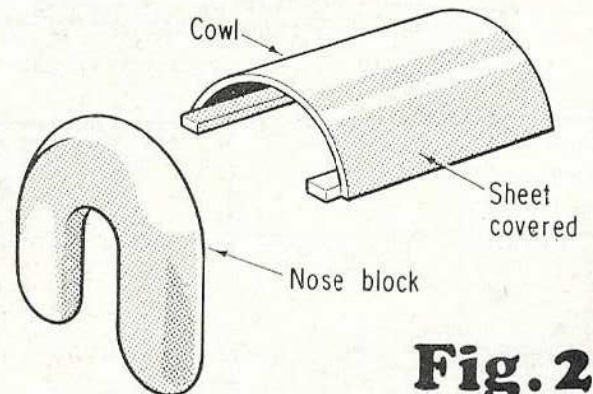


Fig. 2

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