

THE ORIGINAL IDEA for this project was born, like many ideas, from a sense of necessity. Having been flying models for about four years I had been bitten by "the bug" so much that whenever I went without flying for much more than a week I would get withdrawal symptoms. So, a couple of years ago when I was trying to find a use for a pair of old (unused) foam wings, I hatched this design. "Design" is not really accurate as it was cobbled together as it went. The main criteria, in order of importance were:

1. To be transportable in ordinary holiday luggage;
2. 4-stroke powered mainly for low noise but also for low running costs;

3. Sport/aerobatic/first low-winger type flying characteristics;
4. In order to keep to a reasonable weight any "special" bits to perform at least two functions if possible,
5. To be as large as possible within the above parameters.
6. To look reasonable. (So that not too many people would find the whole thing laughable!);
7. Inexpensive to build (except, perhaps, for the engine).

All these criteria have been satisfied. If you are still interested then read on.

Fuselage

Apart from the hinging but in the middle, the fuz is a straightforward sheet-sided affair

NOMAD

**Fold it up – pack it away
– take it on your travels**

sports model for
"30-48" engines –
by John Bransgrove



Looking quite conventional as held by the designer, John Bransgrove, the "Nomad" has hidden virtues as can be seen from the illustrations on the opposite page. Not an "after impact" photograph, the top left pic shows the "Nomad" in its component parts break down – you can surely imagine secreting in your wife's suitcase! Wing halves are secured with all "T" sections and the fuselage folds neatly in half, being held in the open position with the wing dowel. A steerable tailskin is indirectly connected to the rudder. Despite the narrow dimensions of the fuselage the radio equipment does not have to be "shoe-horned" into position. Thanks to brother Malcolm for taking the photos.

(have you ever had a sheet sided-affair, Missus!), with half inch triangular longerons. It also utilises three former/bulkheads, call 'em what you like. Thin ply doublers are used in the front section, the rearmost ends of which form the main joining tongue between the two "halves".

Study the plans carefully as it is not immediately obvious how the joint works. Basically, the rear end of the front section doubler fits into a narrow slot formed in the rear section by the 1/32in. ply spacer/doubler and the 1/8in ply "trebler". This trebler stops the tongue from distorting if placed under any stress. The removable rear wing-band dowel locks the tongue in the slot. The hinge keeps the top of the fuz together. The hole for the dowel is drilled after the hinge is fitted and with the fuz held

in the flying position. Using a straight edge/splint on the top while drilling the dowel holes will ensure that the incidences are preserved. The front dowel is also removable. Both dowels must be a tight fit.

The fuz is built over the plan as usual, but the fore and aft sections, although built at the same time, are kept separate. Make sure that you build a left and a right side. If you feel that a bit more room in the fuz would be handy then the height could be increased by, perhaps, 1/2in. but watch the weight increase. The formers are glued in using a square to ensure that you don't reinvent the banana. Top and bottom sheeting is then added. Carve the whole thing down around the triangular longerons to a semi-rounded shape. Drill the rear end of the fuz to take the dowel for the tailplane bands - the front

of which go around the fuz. It is very important to get the slots in the tailplane seat and the fin/tailplane assembly working correctly before glueing the seat squarely in place. Also make sure that the tailplane and wings are going to end up properly aligned.

Wings

The wings were "in stock" from an unbuilt trainer (a Jim Davies "Easy Bee" I think) but can be cut quite easily as they are of uniform chord and section. The jointing method used is perhaps a little unconventional. The brackets are made from "T" section aluminium extrusion available from DIY stores. The shape and sizes are shown on the plan. They have to be bent to the dihedral angle. The method shown on the plan utilises a vice and appropriately positioned supports. The ply plates need to be slotted to take the chamfered base of the "T".

The joint could be achieved just as well by using the steel dowel method favoured by glider guiders. The lower front joining bracket would still be needed to take the landing loads imposed by the undercarriage.

The aileron servo bearers are cut and fitted as two halves in their respective wing panels. Fitting the torque rods is quite conventional. Note, however, that the prototype features top hinged ailerons. Although these are preferable they are by no means vital. Just make sure any gaps are kept minimal.

Tailfeathers

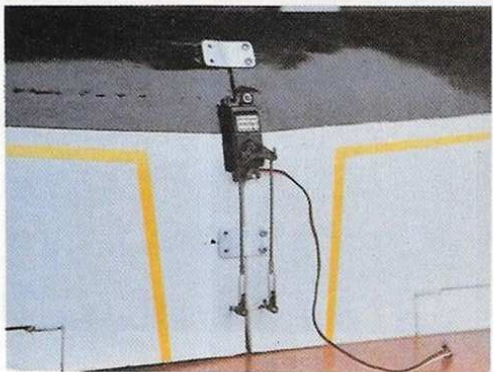
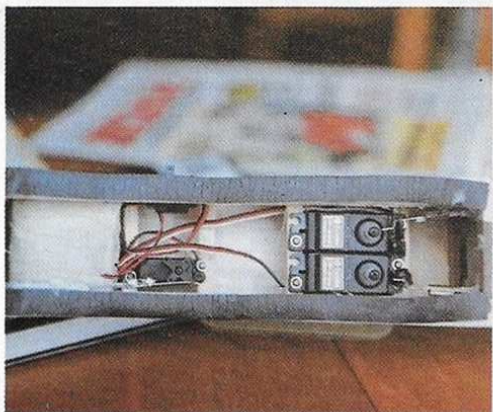
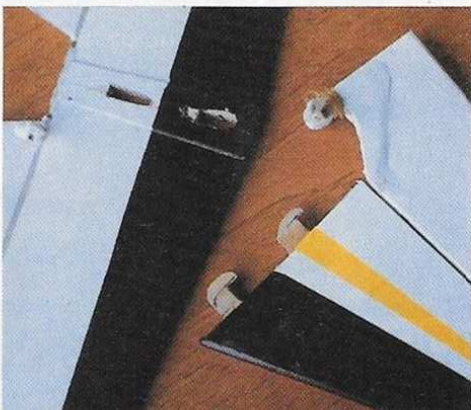
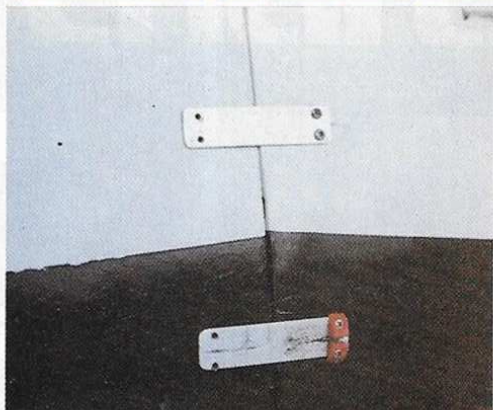
These are cut out as per plan. Main points of care are that the hooked tongues in the fin should be a snug fit in the tailplane. This method allows these surfaces to be held firm and square but also to allow them to be packed flat. The locating dowel was added after a few flights as the tailplane was inclined to shift backwards slightly making small trim changes necessary.

Installation

This is straightforward although must be described as snug. Standard servos were used for the main controls and a mini servo for the throttle. The layout should be watched carefully as things can get a bit tight, there not being a lot of room over the aileron servo when the wing is in place. The positions indicated on the plan allow the model to balance on the point shown.

Snakes were used for the elevator and rudder. I must admit I don't like snakes, but they do make the fuz hinging process easier and have not caused any problems. The control surface throws shown on the plan are the maximum used so far and certainly the elevator movement should not be increased further, indeed, should be reduced by 1/4in. for first flights and trainees. Aileron movement could also be reduced if required.

The flat battery pack (cells laid side-by-side, not uncharged!) was made up on a 1/32in ply base. This is wedged under the wing seating treblers, along with some foam packing, to hold the receiver in place. It will be necessary to relieve the treblers slightly to achieve this otherwise the receiver is going to pop out through the top of the fuz! Oh yes, I used a mini Rx due to the lack of space. As already mentioned, the fuz could be made up to 1/2in taller to make things easier but then the idea was to make the whole model as small as practicable.



Transit

Now for the interesting bit! I suppose if you have managed to build one of these kites to this stage you are not going to need much advice on disassembly/reassembly. However, perhaps a few tips I have learned may be useful.

The major components are packed in plastic dustbin liners (Hopefully, it is not a dual purpose bin liner. DB). Only a small amount of local packing is required as the idea is to use the clothes in the holiday cases as the main shock-absorbing material. The local packing would consist of small pieces of foam to protect the top of the fuselage from any screw heads etc., when it is folded. A strategically-placed wing band or two can work wonders too. I normally leave the aileron servo and joining brackets attached to one wing panel, because I'm lazy.

The trick with the tail feathers is to assemble them and band them on before attempting any of the control connections. The bands go around the fuz in front of the tailplane, over the fin, and fiddled around the rudder horn and on to the dowel. One nice new thick band has proved sufficient as long as you check the condition regularly. Two bands give peace of mind though.

The snakes have to be disconnected at both ends to allow the fuz to hinge. Clevises make this procedure easier, but do lock the

threads after any flying trim corrections have been completed. If you use bolts and blind nuts for the engine mount then the whole engine/mount assembly can be removed and carried in hand luggage - a ball-joint on the throttle arm helps here too.

A word about oily bits seems pertinent at this point. Make sure that all parts are as oil free as possible. You will not be popular if the wife's clothes get oily (you are going to put the plane in HER case, aren't you?). The most critical area is where the canopy is going to be taped on. The electrical insulation tape used has not been a problem in normal operation. Do make a complete tape joint right the way around though. Of course the model can be flown minus the canopy if required. The cowl can also be left off when on holiday otherwise this adds considerably to the assembly time.

Assembly of the wings is just a case of replacing the screws in the brackets, and the servo. Don't forget to take the screws with you! All the small parts can be carried in an old film container or similar.

A front wing band holds the front of the undercarriage in its slot. The band takes a turn around the U/C wire, back over the dowel, and then continues under the wing to the rear dowel. The other bands go direct from dowel to dowel but over the rear U/C wire. The undercarriage is designed to pop

out of the front slot, or the split rear saddles, during swipes at the ground.

The airlines I have dealt with so far require that the batteries are removed from the model. Also the transmitter must be "disabled". This I do by removing the batteries, the aerial and the crystal. **CARRYING MODEL FUEL ON AN AIRCRAFT IS STRICTLY FORBIDDEN.** So, you'll have to buy some when you get there or rely on the local lads for your "go-juice". So far I have only transported the model to UK territories so if you need to go through customs clearance yer on yer own'. (Normally there are no problems with European countries. I have taken models to France, Belgium, Holland, Germany and Majorca without encountering any customs problems - D.B.).

Flying

The only point worth watching is that, with the balance point and elevator movement shown, it will flick-roll if stalled while pulling full up. This was noticed during a too rapid recovery from a stall-turn. Moving the balance point forward and/or decreasing the elevator movement by 1/4in. will stop this, but it does make the flight pattern less aerobic. Otherwise the stall is progressive and well mannered due to the thick blunt section. Just don't pull full up unless you are in aerobic mood of course! Spins are great and have a positive entry and exit. Favourite manoeuvre is consecutive loops with flick rolls at the top.

Altogether a good "all rounder" that could be made without the folding capabilities for general sport flying. It would also turn out slightly lighter than the prototype's 4lb. 3oz. dry weight. Fitted with an original O.S. 40 four-stroke the performance, although good, is not stunning but it will prop-hang for a few seconds at the top of stall turns. With the "Surpass" version (or a 48?) it would end up with a vertical performance. Good luck!

