

YAK - 9UM

Andrew J Allen has discovered Depron... (Look for full-size plans on pages 22-23)

The world of indoor air racing is an unforgiving place. Not only is the competitor up against others but is also against the clock, wake turbulence that can throw a model off line and the ever present possibility that collision with the floor, walls, other participants and even the pylon tether string, or even the balloons themselves.

Having competed in 10 such races and even won a couple, my experience led me to conclude that by no means had I made the perfect aircraft for the task. Using all wall-insulation foam, then moving to wall-insulation foam with "meat tray" wings, produced aircraft that were light and had good duration, but were terribly weak when asked to absorb accident damage. I liked the dense flexibility of meat tray foam, but the limited size of available trays restricted freedom of design, so I decided to try "Depron".

STATEMENT: Depron is wonderful stuff!!.

It is available in 3mm and 6mm thick and in sheet sizes of 50mm x 25mm, (or 30cm x 21cm). It is similar to meat tray in appearance, but is slightly softer (this is, made up for by using 6mm - of which, more anon) which helps its crashworthiness, compared to the stiff, moulded meat tray. Depron can be worked like balsa in the sense that it can be cut, carved and sanded normally - but of course, like all polystyrene foams, the glue that you use is critical, i.e. NO standard cyanoacrylate! - Instead use "Bison Clear Adhesive" (turquoise and white tube), UHU Solvent-Free, or ZAP-O "Odorless CA+".

Those who read my earlier article from a year ago, about the mainly wallinsulation foam SIAI SE-260, will know about the need in that type of model, for balsa strip stiffening. None of this is required in a Depron model, except for obvious bits such as nose former, rear motor peg surrounding, and detachable noseblock.

GETTING IT TOGETHER

Construction is extremely simple, as it is like using sheet balsa to produce a box-like fuselage. Take care to select the right direction of the sheet to make the part, because Depron has a kind of "grain" that makes the sheet more flexible one way than the other. On the 50mm x 25mm sheets, this effect is helpfully along the sheet, but in my experience the smaller sheets tend to be the "wrong" way.

Make up the nose former F1 from very hard 3/16 square balsa. Angle F1 slightly downwards and forwards to get slight downthrust and to allow for the taper of the nose when the other side is joined to it.

Note: The foam formers can either be cut with

shallow V-shaped lower halves, or cut out with the bottoms square to the bottom line of the fuselage sides, then add V-shaped pieces to the gap between the wing, and F2/F3. Either way, this greatly aids strength in quite a critical area.

The wings are simply cut from 6mm foam, and sanded to the section shown on the plan. The tail surfaces are from 3mm and follow the same pattern. The thick sheet of the wings helps offset the slightly 'softer material' affect. I would certainly not use 3mm Depron on an indoor racer of 16"! It is however, quite acceptable on Peanut-sized models, and is lighter than meat tray. The 6mm Depron top decking really adds strength to the fuselage and is cut to longitudinal "grain" direction.

Drill the fuselage at the anchor points for the 3.2mm dia. aluminium tube motor peg. You could also, cut an access hole for easier motor installation below this.

Make-up the noseblock, from a lamination of 0.4mm ply and 1/16" balsa. Roundoff the edges to emulate the curves of the edges of the nose.

Drill it for the 2.5mm dia. "Plast-Struct" white plastic tube bearing, for the 18swg. propeller shaft and motor hook. Add the KK/Amerang 5" dia. prop (this gives noseweight, as well as being a near scale spinner shape with the correct number of blades).

Overall, acrylic airbrushing adds 2 grams to the airframe weight, and care must be taken to achieve a thick enough paint/water mix that will not run on the smooth surface of any unsanded

Depron surfaces.

FLYING

For flying, add 3-4g of noseweight to the rear of the 3/16" noseblock 'lock' piece, to position the CG about 1.5" back from the root leading edge. Use 'Blu-Tack' or Plasticine to lift-off the top of the noseblock about 3/32" - 1/8", to give downthrust.

Depending on whether you are flying indoors or outdoors, you will use either a 20" lap of 0.120 for indoors, or 1/8" for outdoors. The rubber is TAM II and any variations will depend on the amount of paint you have applied, and whether you are using a different propeller.

Bend the fin to give some left rudder and the left aileron down very slightly, you may not need any up elevator.

Apply 800 turns and see what results you get - it should fly a few left circles in a steady climb. Observe any deviations and correct these with the appropriate control input - Do remember that the foam is flexible and that any inputs applied could bend back in time, so check carefully before flying after an "off" period. Usual flying requires 1200 turns and gives 40secs. of flight.

The excellent results of this model construction have convinced me that the use of flexible, water-resistant, consistent-quality Depron, is the potential future for simple and strong small free-flight rubber models. Let's see your Yak at a free-flight meeting, soon!

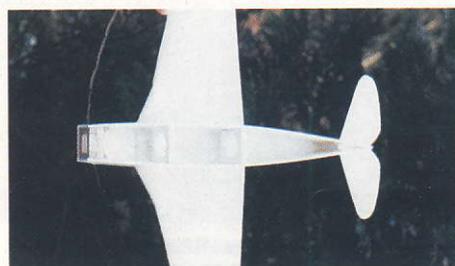
AM



A trio of Yaks at Watford (?). Alan Clarkson (left) is finishing his in a white "winter camouflage" finish. Andrew's two prototypes show the colourful schemes available for this type.



Spotted flying outdoors at Old Warden, Andrew's all-red '9' certainly flew well in the near perfect conditions.



The use of Depron allows minimal number of components, making it a very simple build.



It flies as well indoors, too! - you can almost hear the roar of the V12 motor, on its way up among the roof beams!

