



KNIFE-EDGE draws a lot of ideas together and adds a few of its own. It's a "trendy" model with the slim, deep fuselage and pleasantly tapered wing, now becoming so popular. I didn't go completely Continental, in that I still prefer inset ailerons. One wing was built with strip ailerons with quite good results, but I wasn't quite happy with the roll rate, or response.

The natural evolution of the model is to have a retracting u/c on all three wheels. This has been designed into the basic shape of the fuselage and wing. Hence the deep parallel nose, where there's room to tuck a wheel under the tank, and a tapered-depth wing, nice and deep in the centre to take the wheels.

I like a side-winder engine mounted at the top of the bulkhead. This leaves room underneath for your nose wheel, mount and cables, and helps keep the silencer within the fuselage line.

Knife-Edge is an out-and-out

SANDY MORRISON'S "SEVENTIES" STYLE MULTI— "KNIFE-EDGE"

competition model, which is very quick to build (and re-build). It's very cheap too, so you can afford to build two at once, without ruining the piggy-bank.

It's a dream to fly, with no bad habits at all—yes, despite a tapered wing. I've really put *Knife-Edge* to the limit of its capabilities for the sake of this article, to see if it would stall out of the sky or fold that seemingly fragile wing. I've been really cruel, and it still comes back for more. I've flown from rough fields and hard tarmac, the u/c and mountings can take the lot. One memorable landing, I didn't flare out at all (quite unintentional). My thumbs were so cold I couldn't feel the sticks and whacked the model on to the deck. All three wheel marks are still on the underside of the wing and fuselage but didn't pull out the u/c!

Schedule-wise, it's the smoothest and yet most responsive model I've ever flown. Vertical climbs and rolls are effortless, stall turns

really positive and perfect hesitation rolls are limited only by your own skill on the box.

Have a quick peep at the plan now and a read-through of the building thoughts.

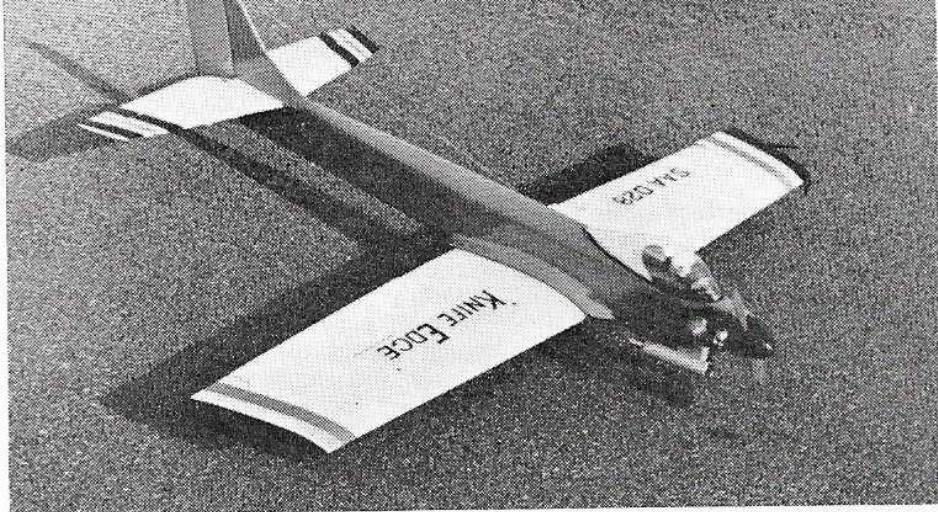
To build *Knife-Edge* quickly, treat the building room to a furious tidy up—it needs it. Now get cracking with the fuselage, which is too simple for words. Just "V" join the $\frac{1}{8}$ in. sheet sides at the back end, its more than adequately strong. Stick on the vertical $\frac{1}{8}$ in. balsa doublers with Evo-stik or similar, and cut out the wing shape seat. Balsa cement the $\frac{1}{2}$ in. triangles to top and bottom of the fuselage sides and you are ready to mount the one and only former—the bulkhead.

Stick in the bulkhead, the wing dowel ply plate, and a temporary spacer behind the wing seating. Draw in the tail end and cement it. Plonk the fuselage sides upside down on the 1in. block. Rough cut to the fuselage plan shape and cement in place. Add the $\frac{1}{2}$ in.

sheeting on the bottom front and back, and you'd be as well adding the fin and tailplane at this stage. Don't bother to make a laborious job of carving an aerofoil section, just round off the L.E. and T.E. later and that's it—what could be easier? You now have your basic fuselage shape with the tailplane and fin. If you can't reach that stage in a few hours then you're not trying yet.

If the balsa knife has cooled down now, get the wing ribs cut out, with the two mainspars to suit. This is the only tricky bit of the wing, the rest is straightforward.

Slide the ribs down on to the mainspar, but don't glue them yet. Join the mainspar at the centre with $\frac{3}{32}$ in. balsa sandwiched on either side—more than strong enough. Glue on the $\frac{1}{2}$ in LE; and pin all the ribs to it. This holds everything together while you push the wing ribs up and down on the mainspar, till everything is lined up. Now glue the ribs by



Two views of the model showing trendy deep fuselage.



running a fillet of glue down the corners.

I always build the wing in my hands—no need for complicated wing jigs. You see warps and can correct them as you go along. You'll have got the wing skeleton made, in about two or three hours. Now add the wing dowel and nylon bolt fixing plate, the $\frac{1}{8}$ in. ply u/c plate and u/c blocks.

A simple way to put in the bellcrank linkage is to cut the push rod to length, but don't bend the ends up yet. With an $\frac{1}{8}$ in. drill just rolled in your fingers, push the

drill through the wing ribs all the way from one wing tip to the inboard panel. Now slide in the push-rod from the wing tip and bend up the ends to take the bell cranks when it's in place. The bellcrank push-rods I leave in plain wire out to the ailerons. This means they can be cut accurately later and Quick-link ends soldered on. Much quicker and less fiddling than doing it at this stage.

The sheeting is best done using Evo-stik. I usually spread Evo-stik on the skeleton frame and press it on to the wing sheeting to give me the "skeleton shape" on the sheet. I then spread Evo-stik on the sheeting "oversize" on the

skeleton shape. This means when you've waited the requisite 10 minutes for the Evo-stik to go tacky, you have a $\frac{1}{4}$ in. at least to come and go when you finally and irrevocably bring skeleton and sheet together.

The whole wing to this stage has only taken about five hours, and you've only the tips to stick on and the ailerons to cut out and hinge. I use Solarfilm to hinge all my ailerons. It's quick, simple, light and cheap—so why use anything else that costs money, adds weight and takes time? This wing is much much lighter than a foam core, is quicker to build from scratch and costs less. (There I go again.)

If you leave the fuselage top square to this stage, you can line up the wing seating by the "upside-down-on-the-building-board" method. Now carve, sand, shape and plane—enjoy yourself for a few hours carving all that lovely block. Add all the push-rods, gear, engine, wheels, etc. and it's finished. Mine is covered in orange and white Solarfilm which makes quite a snazzy colour scheme.

When you reach the flying field for that first flight, it may be reassuring to know that, of three *Knife-Edges* built so far, the trim used on the transmitter didn't even justify half a turn on a quick-link! You'll find elevator silky smooth and aileron very responsive. Rudder really works edge-on, so watch it on take-off.

A whole range of engines and gear have been used on the various *Knife-Edges* so far. It flies nicely on a Merco 61. Mk. II, is lively to say the least on a Mk. III Merco and 11 X 7 wood propeller.

Skyleader SL4 fits nicely in the narrow fuselage and Simprop Digi-5 finds room to breathe in the none-too-spacious interior. I'm now flying the new Staveley Digital outfit which is inside this cramped space.

So that's it. I've built the model in a week just to prove it can be done. There is 40/50 hours' work from the first knife cut to the last click on the needle on the tarmac. Built light, it's a winner, so try not to go over 6lbs. and you'll have no problems. Don't lose it on that "one more flight" before dark—it disappears very fast.

See you in the competition line sometime—I'm just dashing off to the flying field now. . . . My *Knife-Edge* really works for its living.

Skyleader S-L gear installed in the slim fuselage.

