

P. J. Angus's
20½ inch span
all-sheet free
flying Jet fighter
for .5 to .8c.c. engines

SARACEN

EASY TO BUILD and capable of withstanding a lot of knocking about, *Saracen* is a "pusher" with a difference. Who would not agree that this is also the *right* shape for a "sport" model in 1962/3? Any resemblance to a very efficient Navy jet fighter is purely coincidental. The original models have flown well with a D.C. Dart .5 c.c. diesel and a Cox .049 glow plug Babe Bee. Visitors to the '62 rallies will have seen and been impressed by them in action.

If your engine is beam mounted, check the beam spacing and alter the drawing if necessary. Also, decide which way the side thrust should be. This depends upon whether you use a "pusher" prop as on the "Dart" (pointing to the left, viewed from above rear) or a tractor prop, running the engine in reverse, as for the "Cobra" or "Babe Bee", or Mills .75 (pointing to the right from above rear).

Be most careful to avoid making the model unnecessarily heavy; the drawing indicates correct grade for each component.

Wood for tail surfaces and fuselage sides should be sanded smooth while still in the sheet stage, before trimming to shape.

When assembling each half-wing, trim the inboard ends to match. Double-cement halves together and add the ply understrap. Allow to dry thoroughly before shaping. Use very coarse sandpaper for initial bevels when sectioning.

Here's a tip. After cutting fuselage sides, stick them together with about eight dabs of cement around the periphery and trim edges with sandpaper so that the two sides are identical. Before separating, mark the former position on the outer edges. Fix all the formers to one side, then add the other side. Add internal items. Cut top and bottom sheets and attach. Don't forget the fin-slot and holes in top. Cut nose ½ in. sheet items slightly oversize and fix. Finish the nose shape, trim off excess sheeting, round-off corners and smooth all over. Now fit dowels, fin and finished dummy intakes. The following joints should be double-cemented: (1) All joints to engine bulkhead and engine bearers, (2) All end grains on nose block. Trial fit the engine, but avoid oil stains on the woodwork.

Finish

The appearance of this model depends greatly on the colour scheme. Decorated with R.A.F. trainer colours as detailed on the plan it is a most attractive subject. If you want a different scheme, look for coloured pictures in the full-size aviation journals and you'll find plenty of ideas. Avoid "model" type patterns of scallops, rays, zig-zags and chequers.

Speedy to build.
Tough.
Easy to fly!

S n a p p y
 swept lines
 of one of the
 prototypes
 is well
 displayed
 in these
 two views.
Saracen has
 attracted
 considerable
 interest
 wherever it
 has flown at
 the 1962
 rallies, looks
 very realistic
 in the air



Here's how to do the R.A.F. trainer scheme. (i) Apply at least two coats of clear dope or sanding sealer, and rub down. (ii) Apply one coat of silver brushing cellulose dope, all over. (iii) Mask and paint colour patches (see plan) with one coat of glossy enamel. (iv) Apply transfers and address label. (v) Apply one coat of fuel proofer. It isn't really as easy as that, so here are a few more tips, stage by stage. After stage (i) fix temporary handles to fuselage, wing and tail to aid decorating, and don't remove until all painting is complete. (ii) Start silver doping by painting all edges, crevices and awkward spots with an almost dry brush, then quickly finish off the easy areas with a well-loaded brush. Don't let "runs" develop. Watch out for loose hairs on the brush; it's much easier to pick them off the brush than off the painted surface. (iii) "Blaze" is the correct colour, but you'll probably have to settle for a bright orange, or red, which will still look good. Press the masking tape down well, and strip off as soon as possible after painting. If the enamel does run under the tape you can scrape off the unwanted spots with a sharp knife when its thoroughly dry. To make narrow strips of masking tape, stick a wide piece of tape to a sheet of glass and cut off strips to the required width with a razor blade and a steel rule. Coloured gummed paper could be used as an alternative to enamel for these patches.

(iv) After applying the transfers, rub a drop of gum (mucilage) around their edges with a finger-tip and wipe with a slightly damp cloth. If the transfer edges are not well fixed they will wrinkle when varnished.

(v) It's very, very easy to miss a few patches when clear varnishing, so inspect very closely when you think you've finished.

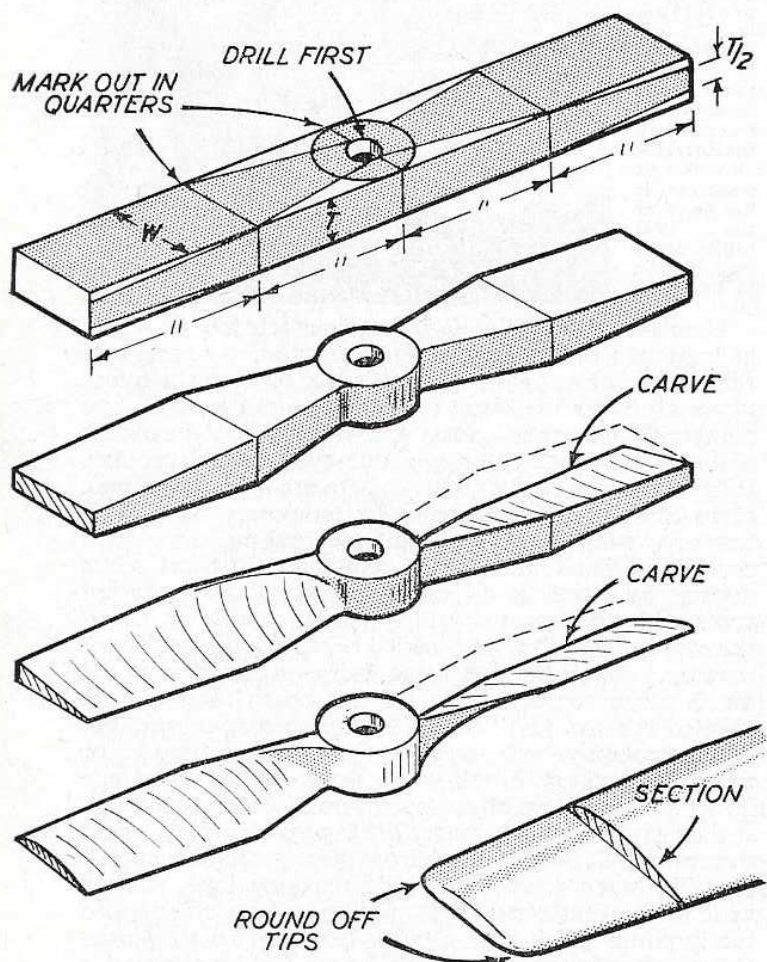
Unless you are quite sure of your materials, you should try out the paint scheme first on a piece of scrap sheet balsa. There are many paints on sale which "lift" if over-painted and if this happens to your model when it's nearly finished, you'll wish you had heeded this advice.



Trimming the SARACEN

Adjust engine sidethrust by sighting the prop line over plan. Balance complete model where shown and seal weight box with Plasticine. No turn should be apparent from a hand launch glide. Adjust if necessary by warping the fin or weighting a wing tip with Plasticine. Send her off at full power with fuel tank $\frac{1}{2}$ full. A fast launch is required, especially if there's not much breeze to launch into. Best trim is a very wide circle, in either direction but same way for both power and glide, and not too close to the stall. On calm days one can fill the tank and enjoy really high altitude flights, as *Saracen* is not a likely type to drift away in a thermal!

Carving a PUSHER PROP for SARACEN



BEECH, ASH or a *hard* mahogany are suitable woods for carving a power prop. First job is then to cut a true rectangular shape on which to mark out the *propeller blank*. To arrive at suitable proportions for the width of block (W) and thickness (T), use the following simple rules.

(i) Width (W) should be *one tenth* of the diameter—i.e. for a 6 in. diameter prop blank width = .6 in.

(ii) Thickness (T) depends on the propeller pitch required. The following are approximate figures for *all* diameter sizes (provided W is made one tenth of the diameter).

4 in. pitch, T = $\frac{1}{4}$ in. 7 in. pitch, T = $\frac{7}{16}$ in.

6 in. pitch, T = $\frac{3}{8}$ in. 8 in. pitch, T = $\frac{1}{2}$ in.

Having cut the block to the required proportions, mark out in quarters as in the top diagram, then draw on the *blank* outlines as shown. Drill the hole in the hub (to suit the engine crankshaft) and then cut out to the propeller blank shape (second diagram). Use a small stiff-back saw for all cuts except the round hub, which you can cut with a fretsaw or carve.

(iii) Now follow through with carving stage, shaping the *back* of each blade first. Note that you carve away the *top left hand edge* of each blade (facing away from you), to produce a pusher prop. Carve down to a flat undersection, then turn over and carve the upper side of each blade to shape. Aim for equal thickness on each blade and taper the thickness from hub to tip. Leave a generous section near the root for strength. Aim for thin sections near the tip.

Sand the whole propeller down smooth, rounding off the tips slightly. Check for balance by mounting on a drill or dowel which fits the hub hole and remove wood from the heaviest blade until the prop. balances level. Good balance is as important as getting a good section on the blades.

A *final reminder*—at stage three when you start to carve, start whittling away on the left hand edge always (facing away from you).

"I'll say this for Fergusson, lazy as he is; he's sure got his wife under full control."

