

YOUR FULL SIZE PLAN

A 38 in. span single channel model

Designed by John Bowmer

Construction is a slight break from the conventional, too. With the main initial consideration of reducing building time, "all balsa" construction is employed, and the resultant strength is amazing, while the weight compares favourably with conventional methods. It is suggested you cut out all the parts first, then you will have, for a very modest outlay, a "pre-fab" type kit, and you can settle down to the enjoyable bit of gluing it all together.

The importance of selecting the correct grade of balsa for the job cannot be over-emphasised, in particular the wood for the wing skin, which should be straight grain med. soft. An indication of the grades to use for the different parts is indicated on the plan, but everyone has different ideas of what "medium soft" means, so one must use ones common sense, giving consideration to the loading and function of each piece of wood in the model, see last month's "Basic Aeromodelling". Anyhow, take time and care in your selection, even if it does result in strained relations with your favourite dealer. Build the model all of soft and you are setting yourself up for a steady job in the repair business. Accent on the hard and you will finish up with the proverbial winged brick.

As this design is not intended for the beginner, construction notes cover mainly points where the method deviates from normal practice.

Study carefully the sketches on the plan. Prepare and join the skin sheets, sand smooth the outer surfaces, cut the U/C slot and chamfer the trailing edge of the lower skins using a razor plane. Cut the ribs as illustrated and cement the inner leading edge strip, R2 to 6. W1 to 3 and R1 in place in that order. Accurately cut the triangular strip for setting the washout, and lightly cement in place under the TE, $\frac{1}{8}$ in. end to the tip. Pin the whole work down to the board. The upper skin is attached with P.V.A. glue, allowing several hours to set before removing the wing from the board.

Remove the strip from the underside of the TE and use in construction of the other wing half. Wing tip blocks are cut to profile and cemented on, finally shaping when set.

No dihedral braces are used, the butt joint being extremely strong when covered with the nylon strip.

Cover with lightweight tissue and give 2 coats of dope. Make up main U/C legs and cement in place.

Fairly conventional structure is used for the fuselage and sheet tail. After cutting out F1, assemble the nosewheel leg and mounting plate, as F1 can be used to align the mounting nuts for soldering. If you cannot find a suitable hinge, a brass tube soldered to the plate will suffice, as landing loads are quite light at this point. The lower plate should also be fitted at this time if your engine is radially mounted, the engine also being in place when positioning the nuts for soldering, but take care not to get solder on the bolts.

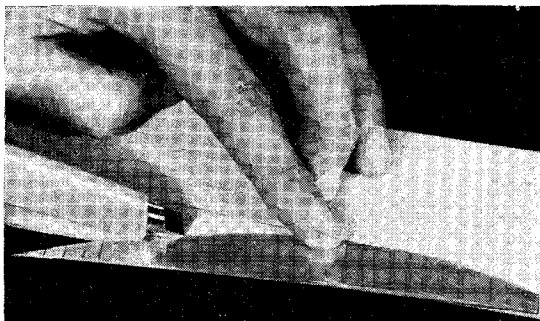
Note the differences at the aft end of the fuselage depending on whether torque rod or push-pull linkage is to be used. Make up the two fuselage sides complete and join using F1, 3 and 5. When set join aft end at tailpost. Pre-slot the soft $\frac{1}{4}$ in. balsa top for the fin, and chamfer to allow for tailplane incidence, then

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At first glance "Swannee" is a scaled down version of the popular type of multi-channel stunt model. The lines may well have a touch of Ed Kazmirski's "Taurus" but aerodynamically it could not be more different. Neutral stability is just the job on RCS 10 or Bonner Digimite, but it won't do for single channel work. This bird has every trick in the design book built in to ensure it knows which way is right side up, with adequate dihedral and decalage a pinch of washout, large tailplane, old Uncle Frank Zaic's Year Book and all.

The Japanese (refer to David Boddington) have gone in for ailerons in a big way for single channel low wing, but unless you are a bit of a gadgeteer, or possess a motorised actuator, it is not exactly the easiest way of doing things. Because of the design features mentioned, this model controls quite happily on rudder, and it does have better control on take off. It doesn't roll out from a turn quite so readily as the conventional high wing sports model, but one soon develops a touch of the opposite control to speed recoveries. While not so easy to fly as the designer's "Erk" (M.A. Feb. '63). It certainly looks better, is stronger, faster, takes off and lands better (with the wing only a couple of inches from terra firma on touchdown, the ground cushion effect is quite noticeable.)

Curved aluminium wing rib template as marked on plan. Bend so that finger pressure gives it a non-slip grip on sheet.



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cement in place. Shape the top fuselage to as rounded a cross section as possible, taking the corners down to the edge of the $\frac{3}{8}$ in. sq. strip. Add tailplane, fin and dorsal strip, making sure the fin is accurately aligned.

Mount the escapement or actuator on $\frac{1}{8}$ in. ply and position between F4 and F5, complete the linkage to the rudder and check operation. When all is well, fit the bottom $\frac{3}{8}$ in. sheet and complete the shaping of the fuselage. Obtain a smooth surface with the aid of sanding sealer.

Radio Installation

Both push-pull and torque rod systems have been used, and standard practice was observed in the linkage. A relayless receiver is used, the battery being a 3.6V DEAC 225. This is positioned well forward in the nose compartment to obtain balance with a Cox Babe Bee (radial mounting is lighter than beam). As a guide, the radio installation in the original weighs 4 ozs. all-up weight is 16 ozs. and a

good rate of climb is obtained using an .049 engine and 6 in. x 4 in. prop.

In order to keep the weight penalty to minimum, the wings and tail were covered with light coloured lightweight tissue and given two coats of clear dope. The fuselage was finished with Humbrol enamel, and the whole model fuel-proofed.

Flying

Set the rudder linkage for $\frac{1}{4}$ in. trailing edge movement each way at first. Adjust the elevator trim tab for a smooth fast glide, with no trace of stall. Run the engine rich for the first power flights, and adjust the side thrust for straight flight, executing only gentle turns when low down and giving opposite control if the turn appears to steepen. Keep increasing power, and adjust side thrust until a dead straight climb is obtained, checking any tendency to stall by increasing downthrust. The original trimmed out with 3 deg.-4 deg. *right* and 3deg. *down*, but each model will vary, and caution is advised until the correct settings are obtained.

At left, Swannee displays its elegant lines. Below, a relation inspects his/her wooden brother outside our editorial offices at Hemel Hempstead, Cox Babe in fixed wing version.

