NAKAJIMA B5N1 KATE – by M. F. Hawkins

This ¾ in. to 1 ft. scale model can be built in four versions—free-flight sport, free-flight scale, control-line semi-stunt and control-line super scale. Just take your pick—all versions detailed on the one plan.

THREE years ago I built a C/L stunt version of *Kate* to go with my *Zero* and Nakajima B6N2 *Jill* (already in the M.A. plans range). With an A.M.2.5, it flew loops, bunts, eights and inverted, but was too heavy for square manoeuvres. A friend suggested that it would make a good F/F model so this year I built a sports version in twelve evenings and fitted it with a D.C. Merlin. Much to my surprise and delight it flew well, at a weight of 14 oz.

Encouraged by this success I then built an all sheet covered, highly detailed F/F version for the Nationals. This weighed 18 oz. and was rather tricky to trim, but it did fly—into the only ditch within miles—and the fuselage, stuck with P.V.A. (which is not waterproof) came apart!

As a point of interest, the outer wing panels of the sports version, having 1/32 in. sheet back to the spar and silk covering, weighed 2 oz., whilst the all-$\frac{1}{16}$ in. sheet panels for the scale model weighed 2½ oz. Much less difference than I had expected.

The plan enables any of four versions to be built: i. F/F sport; ii. F/F scale; iii. C/L semi-stunt; iv. C/L scale. So now you must decide which version to build, then spend some time studying the plan, so that you know exactly which type of construction you will be using throughout. Follow the building order—it makes things much easier.

Step-by-step Constructional Notes:

Wing

1. Make undercarriage. Note that torsion bar should rotate freely in outer bearing to allow leg to spring back and forward. Do not attach wheels until later.
2. Laminate centre section mainspar, bolt and "Evostick" u/c in place.
3. Make up top and bottom surfaces of centre section from soft $\frac{1}{16}$ in. sheet stuck edge to edge. Balsa cement is best for this as P.V.A. leaves hard ridges after sanding. Make surfaces oversize to allow for camber.
4. Assemble centre section structures on lower surface. Pin down on the building board to avoid warps. (U/C legs hanging down over the edge.)
5. Add wing tongues, with plenty of scrap bracing, or, in the case of the C/L version, control plate and push rod.
6. Cover top of centre section and cut out wheel wells.
7. Build outer wing panels—for scale versions assemble on lower surface. For F/F note ¼ in. wash-out at tip. Do not stick R2 and tongue box in place until wing has been matched to centre section and dihedral and root rib angle checked for a good fit. For C/L there is no R2 in outer wing—sheeting fits over R2 in centre section. For the all-sheet covered C/L *scale* version, thread should be passed through line lead-outs during construction of outer wing. This is used to pull wires through when wing is assembled.

Fuselage

1. Laminate F1 and assemble to bearers and F2. Install C/L fuel tank.
2. Attach fuselage crutch (⅛ in. sheet) to bearer assembly and insert other formers.
3. Build stabiliser of appropriate type

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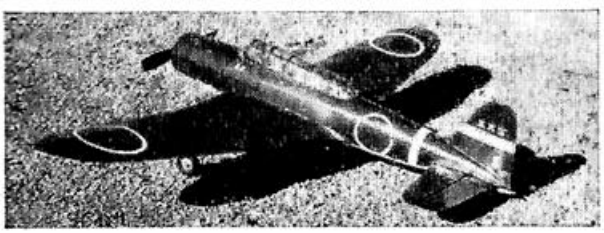
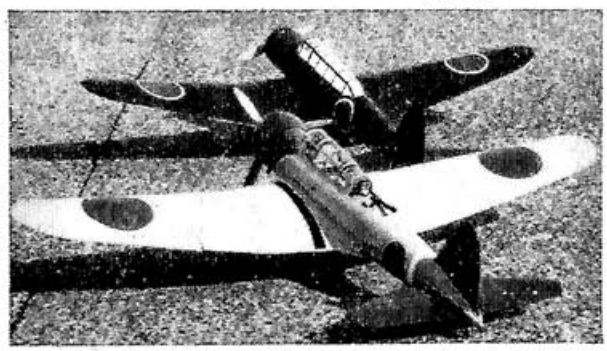


Our heading photo shows the scale C/L version: left we have the C/L semi-stunt, below left the writer in action with the F/F version and, right, the F/F and scale C/L models.



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and slide through slots in rear of crutch.

4. Stick wing to F2, F3, and F4. Add the fin and ensure that everything is properly lined up. Add rudder and elevators.
5. Complete planking of fuselage with $\frac{1}{16}$ in. sheet. Sheet cover the cockpit wells for sports version.
6. Make up tail block and fix tail wheel strut with Araldite.
7. Make wing fairing from plastic wood (smoothed down with a finger dipped in thinners) back as far as F3. Behind this point notepaper is used in two sections jointed at the $\frac{1}{16}$ in. former at the wing trailing edge.
8. Instal engine and build cowling. Versions I and III have a simple cowling held on with a rubber band. Version II has a cowl which completely encloses the engine, with the compression screw bent down. It has separate aluminium cooling gills attached with Evostick. The lower part of the cowl is attached to F1 by ply mounts on each side and plenty of $\frac{1}{4}$ in. sheet gussets. The spring clip is retained with a strip of fibreglass. Linen tape soaked in cement makes a reasonable substitute.
9. Paint inside of fuselage yellowish green and add cockpit details. Crew were made from Hong Kong type policeman dolls (1s.) which were decapitated and re-headed from Class A team race pilots!
10. A simplified canopy can be made from four pieces of celluloid for sports versions. Scale versions need seven pieces which should have frames cut from thin aluminium. Simplified framing can be made from painted notepaper (yellowish green on one side, and fuselage colour on the other), cut into strips and fixed with Evostick.

Finishing

Give two overall coats of talc and 50/50 dope/thinners and rub down well. Cover wing panels with silk where necessary, then cover entire model with lightweight Modelspan (over the silk too after doping as it avoids "pinholes"). Give two coats of clear dope and two thin coats of talc and dope well rubbed down. Colour dope, or use two coats of gloss Humbrol enamel as it is light in weight and fuel proof. See photos for colour schemes. The models are dark green and pale grey or red and yellow respectively. Add any further details such as bomb racks etc., after painting.

Flying

(a) *C/L versions*: Check that the C.G. is on, or slightly in front of the point given. *Do not fly if it is not.* For 2.5 c.c. engines use about 45 ft. lines. Do not try stunts until you are used to the model.

(b) *F/F versions*: My sports version needed no ballast. The scale version had $1\frac{1}{2}$ oz. of lead in the cowling. Both used a 7×4 nylon propeller. Find a field of *long* grass. The model flies fast, so a "hard" launch is required. Trim for a very gentle turn on the glide using the movable control surfaces. After glide-trimming, *cement these surfaces in place* and use *only* trim tabs for power trimming.

Use moderate power at first and trim for a gentle turn—it is quite safe either way but the nose drops if the turn is too tight. The model will R.O.G. well from tarmac and looks most realistic in the air. (We can confirm this—Ed.)

Should the wing tongues become loose with use, cement a layer of Modelspan onto the tongue. This can be repeated as necessary. The best of British luck to all *Kate* builders, Banzai!