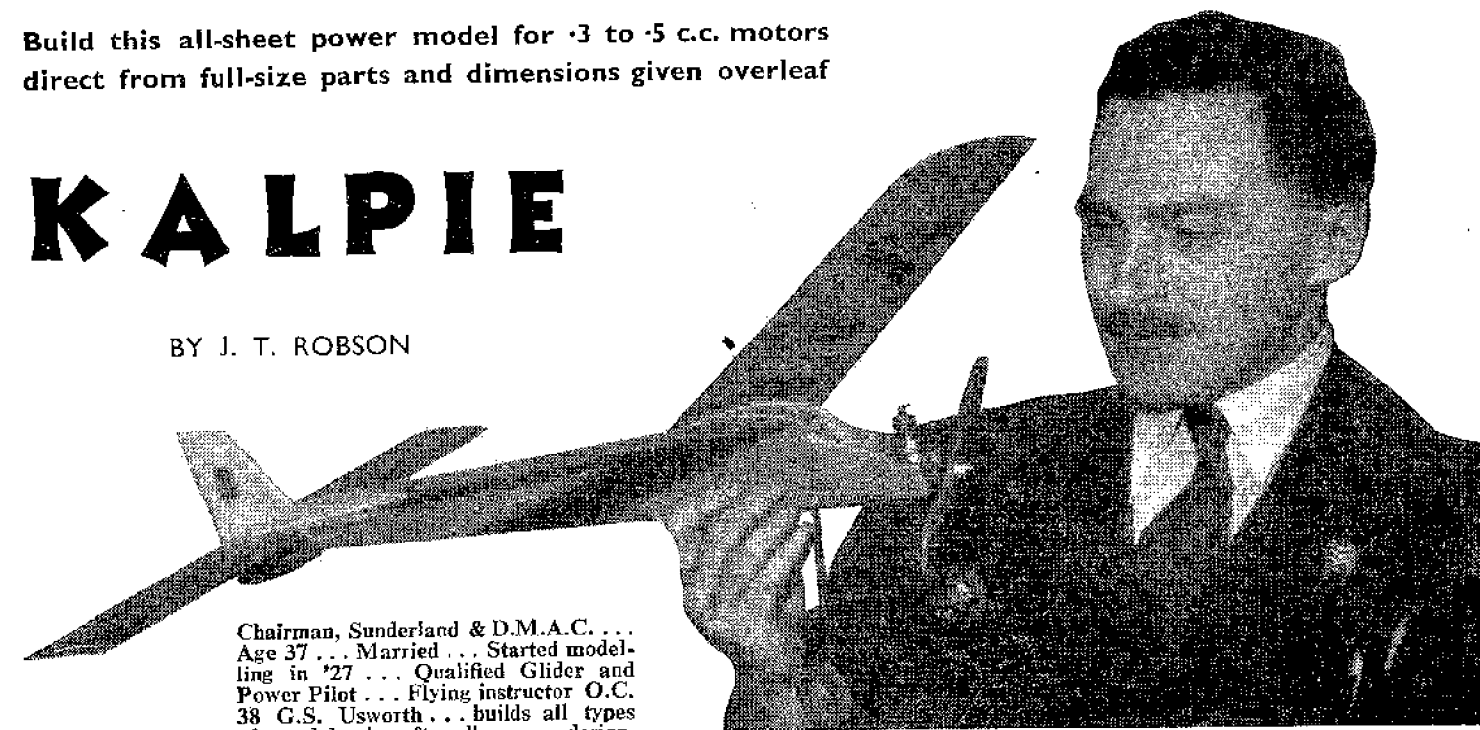


Build this all-sheet power model for .3 to .5 c.c. motors direct from full-size parts and dimensions given overleaf

# KALPIE

BY J. T. ROBSON



Chairman, Sunderland & D.M.A.C. . . .  
Age 37 . . . Married . . . Started model-  
ling in '27 . . . Qualified Glider and  
Power Pilot . . . Flying instructor O.C.  
38 G.S. Usworth . . . builds all types  
of model aircraft, all own design.

**S**IMPLICITY is a keynote in aeromodelling today, and when we are able to present plans for a power model that can be built by the rawest beginner in a few evenings, at a cost of not much more than five shillings for materials, then we can really say we have the simplest of models. Moreover, this little all-sheet "boxcar" has no trimming vices, for the elementary reason that it needs no trimming! Just start up the motor and let the model go!

Ugly? Well, we concede that point, for though it's no good-looker, Kalpie is a tough, practical model that any Kalper owner will find as docile as he could wish. Not that this model is limited to the one type of power plant, for any fortunate owner of the tiny American half-A motors could make it into a Torpie, or perhaps a Cubbie—whilst .2 c.c. Kemp operators might even create a Kempie. We know, from the number of requests for Messrs. Seymour Hylda's Southwick, Sussex address, after publishing Ray Booth's Kalper powered S.E.5a, that supplies of the hand-made Kalper are struggling to keep up with demand.

For the .5 c.c. fan, and now that there are several manufacturers working on this capacity, we can expect large numbers of .5 motors to be available shortly, the designer has a few simple recommendations to take care of the increased power.

"Increase all sizes by  $\times \frac{6}{5}$  and do not drill the engine bearers until the engine is placed in the approximate position and slid along the mounts, so that the centre of gravity comes out between one-third and two-fifths of the chord behind the leading edge."

Dimensions for the six-fifth's version are bracketed on the general arrangement drawing, making no extra work at all for the .5 c.c. owner, who merely has to transfer the measurements

shown, on to sheet balsa. The same instructions go for Kalper/Kalpie builders; just study the dimensions indicated on the general arrangement, measure out the same figures directly on the sheet balsa, and you'll need no more of a plan than that. Lack of curves and the fact that everyone of Kalpie's lines are straight, will make light work of this elementary drawing job.

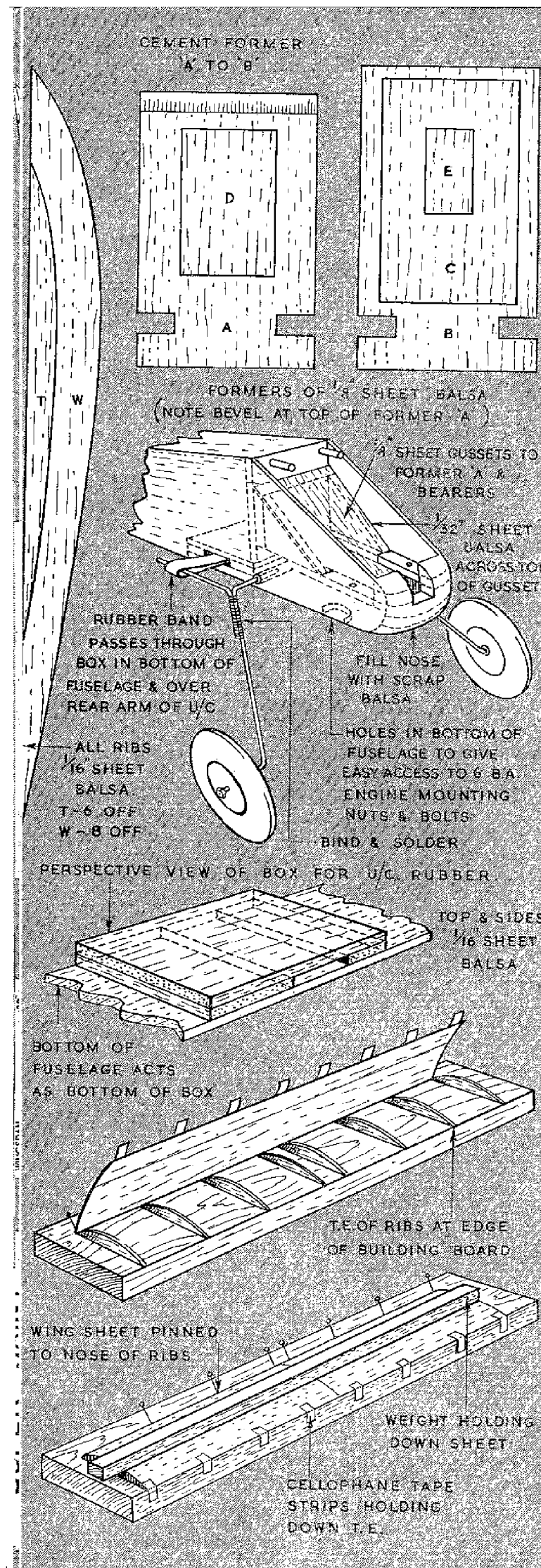
Full-size ribs and bulkheads are given on the drawing overleaf.

## PERFORMANCE

Many an incredulous eyebrow will be raised when we claim that this all-sheet model has made several fly-aways and was only just beaten to first place in the Sunderland & District power contest last June by an Elfin 1.8 powered "Sugar Foot". For despite the single surface wing, this little model can still maintain a performance to match orthodox and more complicated designs. Under full power, Kalpie climbs in steep right-hand circles; but never spins in.

One reason given by the designer for this exceptional spiral stability, is his theory that the underhanging ribs beneath the wing act as "fences", rather in the manner of latest jet aircraft design. They give a little extra side area, and do most certainly straighten the airflow, so there is much to support this idea for the single surface wing.

The glide is of the "hanging/floating" type. For example, test hand launches made alongside a standard Sunnavind, flown by a fellow club member, showed that the Kalpie was well able to hold its own against the specialised well-known Scandinavian sailplane. Further points in favour of Kalpie are the very short building time and the virtually "crash-proof" structure which guarantees a long flying life.



February, 1952

## CONSTRUCTION

**Fuselage.** Mark and cut out two fuselage sides of  $\frac{1}{16}$  in. sheet balsa and mark the positions of formers and engine bearers. Cut formers of  $\frac{1}{8}$  in. sheet balsa and cement in position (note the fuselage sides project  $\frac{1}{16}$  in. above and below the formers). Cement engine bearers to inside of fuselage sides and through the slots in former AB. Add  $\frac{1}{8}$  in. sheet gussets to bearers, former A, and fuselage sides. Cement gussets of  $\frac{1}{8}$  in. sheet to sides and formers at dowel positions. Cement scrap  $\frac{1}{8}$  in. sheet behind top of former B to take front dowels and add  $\frac{1}{8}$  in. scrap filling at rear of fuselage for rear peg.

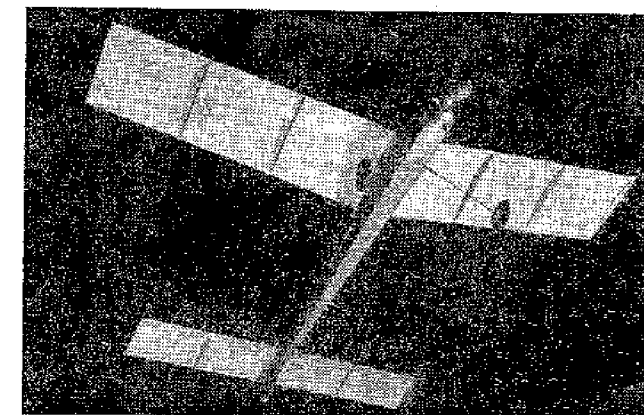
Cement brass tube at bottom of rear side of former B and reinforce with scrap  $\frac{1}{8}$  in. sheet, ends of tube project through the fuselage sides. Make  $\frac{1}{16}$  in. sheet "box" for undercarriage rubber bands and cement across bottom of fuselage behind undercarriage tubing. Cut slots in fuselage sides to allow rubber bands to pass through the box. Cut top and bottom sides of fuselage from  $\frac{1}{16}$  in. sheet and cement to formers and flush with top of fuselage sides. Mount the engine temporarily in place and fill in lower nose around the engine with  $\frac{1}{8}$  in. scrap sheet. Sand the nose to shape. Leave small hole in bottom of fuselage under engine mounting bolts for the maintenance. Cement  $\frac{1}{32}$  in. sloping sheet across top of engine bearer gussets. Insert wing and tail dowels, and rear peg. Make underfin from  $\frac{1}{16}$  in. sheet, add 20 s.w.g. wire skid and cement to the bottom of fuselage.

**Undercarriage.** Legs have independent springing. The legs and rear arms of 18 s.w.g. wire, are bound and soldered. A 10 BA nut is soldered on to the axle to retain wheel.

## Wing and Tailplane

**Stage 1.** Draw plan on building board with T.E. at edge of board. Hold ribs upright in position with spot of cement. Cement and pin the L.E. of wing sheet to nose of ribs.

**Stage 2.** Smear cement over the top of ribs. Bend the wing sheet over ribs. Place weight along top and hold down T.E. to board with strips of cellophane tape.



February, 1952

85

Aeromodeller

**Stage 3.** When cement is dry, dope top of the wing. Sand lightly when dry. Slide a long thin knife blade underneath the ribs to remove the wing from board. Dope under-surface of wing sheet. Sand when dry.

**Stage 4.** Cut through wing sheet at centre line. Support the wing tips at required 3 in. dihedral. Sand centre edges to fit and cement wings together at centre line. When dry, fit  $\frac{1}{16}$  in. sheet between bottom of centre ribs.

**Tailplane.** This is made as above. (No dihedral.)

**Fin.** This is cemented directly on to centre line of the tailplane.

The whole model is given two coats of clear dope. Sand lightly after each coat. Then give a final coat of fuel-proof varnish.

## Building Materials

4 sheets of balsa, $36 \times 3 \times \frac{1}{16}$ in.	18 in. piano wire, 18 s.w.g.
$12 \times 3 \times \frac{1}{8}$ in. balsa.	1 in. piano wire, 20 s.w.g.
$3 \times 3 \times \frac{1}{32}$ in. balsa.	$1 \frac{1}{2}$ in. brass tube, 18 s.w.g. inside diameter.
4 in. of $\frac{1}{8}$ in. dowel.	1 pr. $1 \frac{1}{2}$ in. diameter wheels.
$7 \times \frac{1}{4} \times \frac{1}{8}$ in. hardwood.	
$\frac{1}{2} \times \frac{1}{16}$ in. diameter bamboo.	



2 10 BA nuts, 2 6 BA nuts and bolts, binding wire, solder, rubber bands, pins, cement, dope, fuel-proof varnish, cellophane tape, .32 c.c. Kalper,  $6 \times 4$  in. airscrew.

## Trimming and Flying

No special trimming necessary for stable flight. The model should balance with C.G. line approximately as marked. Check alignment of surfaces and test glide. Correct any tendency to stall with small packing under the L.E. of tailplane. If the glide is too steep, put thin packing under T.E. of the tailplane. If turn is required, swivel the tailplane very slightly on mounting, to allow fin to act as a rudder.