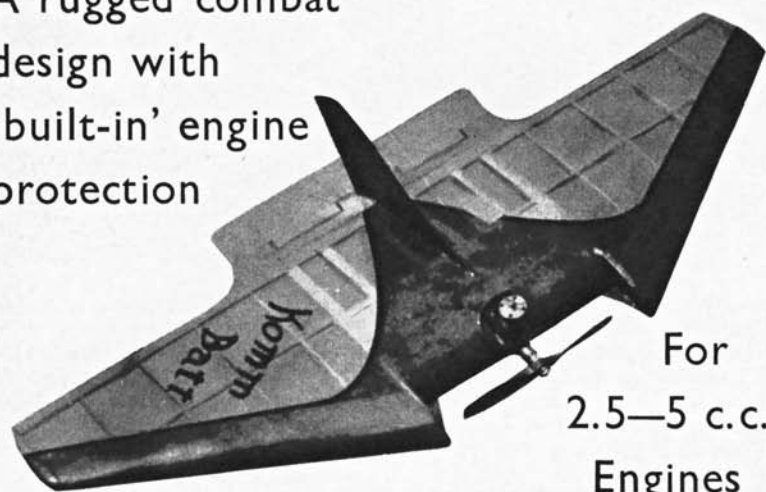


A rugged combat design with 'built-in' engine protection



For
2.5—5 c.c.
Engines

At most combat meetings it is appalling to see the chop rate on engines. Engines are certainly plentiful nowadays but they still cost money and there are those fellows who like their fun, but a smashed engine can be a near financial disaster. At one meeting, we witnessed no less than five engines reduce themselves to bits and pieces against a tarmac surface in a two-hour period.

This prompted thoughts toward a design which might spare the engine in the event of a vertical plunge into a hard surface. Thus *Komm-Batt* emerged from the drawing board. For initial test flights we thought of using an older, expendable, engine but the machine was designed with engine safety in mind so we threw caution to the wind and installed our favourite Oliver Tiger. To date, the model and engine have survived two sudden stops against very hard ground.

Komm-Batt is by no means a final answer to engine safety in a combat design, but it may serve as a basis for further research for those who are interested along these lines. Performance is typical of a C/L flying wing. It is ultra-sensitive on the controls and an inexperienced flyer will tend to over-control on first attempts. However, once one masters the sensitive control it will be found to be very easy to manage. A word of caution—one must ensure that the take-off is made down wind to allow the model to reach full flying speed before coming into wind, otherwise it will rear up into a wing over and some pretty fast foot work is necessary to regain control and tight lines.

An optional undercarriage is shown and may be used if one has a smooth take-off area; this is the easiest way to get it airborne but hand launching is

reasonably easy as long as line tension is maintained and one is quick to gain control. We have always used 2.5 c.c. power having first had an Oliver Tiger installed, then an A.M.25. With 3.5 c.c. power the model would be much hotter. We shall eventually install a hot 29 glo-plug engine in order to keep up with the present-day flying missiles.

We should add that one should not expect the model to remain in one piece after a power dive into a tarmac surface. The idea behind the design is in the event of a power dive into tarmac; the impact is taken by the centre section leading edge outboard panels. Disintegration will most likely result but the major shock will have been absorbed, thus reducing the impact velocity of the engine. A smashed machine is better than a smashed engine and a smashed model.

Construction

The model is quite easy to build but it is built in a slightly different manner than usual, so follow the step-by-step detail and no difficulty will be experienced. First study the plan to get an idea where all parts fit. Make stiff paper templates of all full sized parts, trace on to balsa sheet of correct dimensions, also make all plywood parts, bellcrank and push rod assembly and have stunt tank on hand.

1. Make trailing edge complete with elevators attached. Note that there is a splice in the $\frac{1}{4} \times \frac{1}{8}$ in. trailing edge piece.

2. Cement the ribs W1 to W2 for the outer centre section. Both these ribs are from $\frac{1}{8}$ in. sheet. Note that W1 is $\frac{1}{16}$ in. smaller in depth on top and bottom to allow for centre section sheeting.

3. Cement and tack hardwood engine bearers to $\frac{1}{16}$ in. plywood rib W1.

Cement this assembly to the $\frac{1}{8}$ in. ribs W1 and W1A.

4. Next pin in place the front centre section $\frac{1}{4}$ in. sq. spar behind firewall. Locate and cement in position all centre section ribs. Install the $\frac{1}{8}$ in. plywood bellcrank plate with the 3 in. bellcrank in position. You are working on the top side of the wing so make sure that the bellcrank is on the BOTTOM of the plate when you install it at this stage.

5. Cement trailing edge in position, supporting it with scraps of balsa. Also cement in the $\frac{1}{4} \times \frac{1}{8}$ in. centre section leading edge pieces.

6. Cement ribs W7 in position at wing tips. Support with balsa scrap and cement on the $\frac{1}{4}$ in. sq. leading edge pieces on both sides. Make sure assembly so far is lined up correctly.

7. Locate and cement in all other ribs and install upper $\frac{1}{4}$ in. spars parallel with l.c. Then locate and cement in the rear centre section $\frac{1}{4}$ in. spar.

8. Install and cement in the $\frac{1}{4}$ in. sheet gussets at outer centre section leading edge and cement in the 2 oz. lead weight on left side of centre section.

9. Cover leading edge with $\frac{1}{16}$ in. sheet. Install stunt tank in centre section and sheet over with $\frac{1}{16}$ in. sheet shown on plan. Cement on capstrips on centre section to rear of spar.

10. Remove wing from plan and prepare to complete other side.

11. Drill holes and insert tubing for leadout wires in left panel. Install leadout wires on bellcrank and lead out thru' holes in ribs and tubes in leading edge. Install push rod to elevator horn.

12. Install spars, sheet over leading edge and centre section and cement on lower capstrips on centre section.

13. Cement on soft balsa wing tips and sand to shape.

14. Cover elevator with light-weight Modelspan. It is recommended that the wing be covered with silk or nylon. However, if one cannot afford or does not want to go to the additional expense, then use heavy-weight Modelspan.

15. Cover fin with light-weight paper. Cut slot where indicated on upper centre section and cement fin in position. Form a silk fillet from the centre section covering to the surface of the fin. This ensures that the fin will not be knocked off easily.

16. Give model sufficient dope coverings to obtain a smooth finish and colour dope to suit. The original was coloured with red and yellow Aerolac with a black separating strip.

17. Install engine and undercarriage if it is to be used and you are ready to fly.

All that remains is to—have fun!