# Free Plans!

# LITTLE DEER

## 29½" span T-tailed, free flight power model for .5 c.c. engines . . . designed by Jack Allen

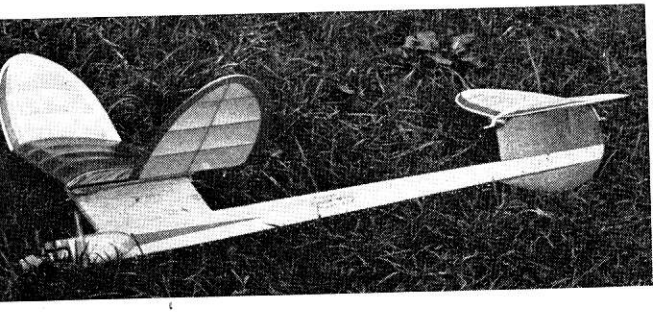
WHEN ATTENDING THE 1969 World Champs the author was very impressed by Karl H. Rieke's unusual Power design, using a high mounted tailplane. The climb and performance of this particular model was really good, and Jack at once decided that this was the type of F.A.I. design that he should build, so on returning home he set about drawing a small model to test the handling qualities.

This is how *Little Deer* came into being. No trimming difficulties whatsoever were encountered and many an afternoon has been spent on the local common – flying for fun! He is now flying a similar F.A.I. model, and, it too is really a success.

Building *Little Deer* will be seen to be very simple – it was kept this way as something quick and expendable was required, Jack also being rather impatient to see the results! At things turned out he was very pleased with both the performance and handling.

Build all the flying surfaces first as this gives them time to 'cure'. Commence with the wing, building it flat on the plan in four sections, leaving out dihedral ribs. Select some hard spars for the centre section and medium L.E. and T.E. Pin these on to the plan and place ribs in position. When the panels are complete, join tips to centre panels and set tip dihedral, then place tip dihedral ribs in position. When both panels are set, join in the centre and set main panel dihedral. Place rib in centre section, and add all the gussets from scrap sheet. Now fit top main spar and sand leading edge to shape.

The tailplane is built in the same way. To save material the T.E. can be made from ¼ in. x 3/32 in. T.E. stock, by slicing into three equal strips approx.



1½ in. from centre line on both sides. Cement before pinning down.

Pin L.E. and T.E. flat on plan placing scrap 3/32 in. sheet inside tips, before placing ribs in position. Make a cut at the centre line and set dihedral. Fit the top spar last and leave to set – then fit gussets at centre and trailing edge. Use P.V.A. glue throughout to minimise warps.

Start fuselage construction by shaping the engine bearers. Cut the lower one at an acute angle to make a really long joint to the main ¼ in. x ¼ in. longeron. Pin main framework to the plan, not forgetting to taper off the longerons from L.E. of fin to zero. It is important to set the engine bearers to a width that suits the motor you intend to use. When the frame is complete, cover both sides with 1/16 in. medium sheet and when completely set, remove from plan. Cut cheeks for the engine pod from ¼ in. sheet, and cement on either side of the fuselage. Carve and sand to shape. The wing mount can be fitted, this is from 3/32 in. hard sheet with grain running across the pylon. Use hard balsa or Obeche 3/32 in. x 3/32 in. for the runners.

Cut out both sides of the fin – these must be cut very accurately as this governs tailplane incidence which is very critical. Now cement in position bottom fin, rib and fin centre spar, making sure that this is square with the pylon. Fit the top rib and when set, cement both sides in position using P.V.A. glue. When completely dry, cement front and rear tailplane mount in position – dowels can be fitted when building is complete. Remember the snuffer tube under rear mount and D/T limit line on opposite side.

Cover entire model with lightweight tissue and apply three coats of dope, diluted with 50 per cent thinners. If using a glow engine, take care to carefully fuelproof the fuselage. Pin the structure down when doping so as to avoid warps creeping in.

Before flying, check that the wing warp is as stated and that the C.G. is in the correct position. Hand launch the model over long grass to test glide, which should be long and shallow, gently turning to the right. Turn is best adjusted by tailplane tilt. Pack up T.E. or L.E. of tailplane until the glide is correct.

Initial power flights should not be of more than four seconds power run – this will give you some idea of what the model is going to do – it should climb with a gentle right turn. The recommended prop for a .5 c.c. diesel is a nylon 6 in. x 4 in.