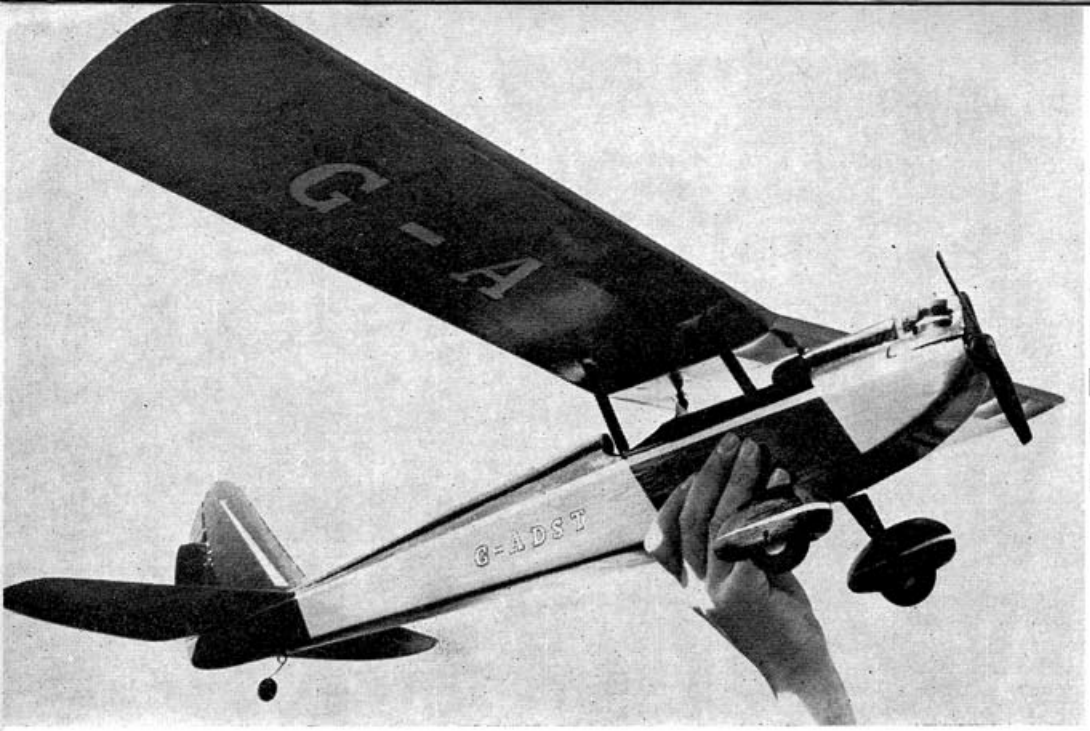


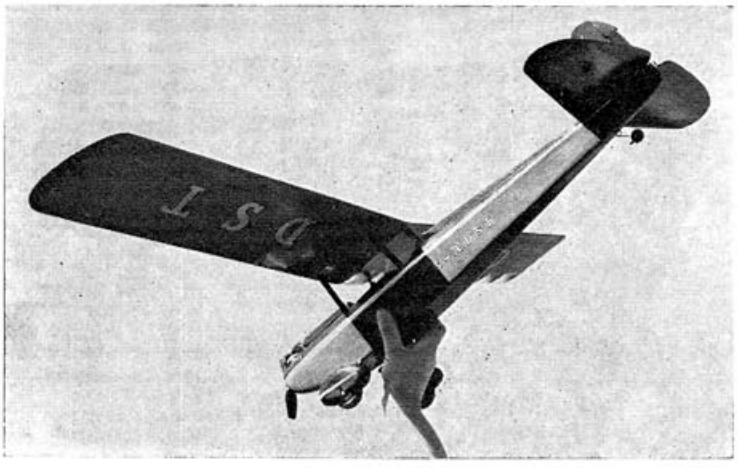
A reduced size version of David Boddington's delightful Barnstormer

Barnstormer Baby

WHEN I particularly like the appearance and flying characteristics of a specific model design I frequently build a number of different size versions of it. This happened with the 'Super 60', (Sub Mini, Mini Super and Mighty Super), 'Tyro' (Mini Tyro and Super Tyro), 'Warrior' (Mannock) and a number of other designs. The latest family I have been working on is the 'Barnstormer' which started with the 52″ version, proceeded to a giant 96″ 'Big Barnstormer' version followed by the small one presented here. In addition to a 72″ version flying at the moment there is also a biplane design nearing completion.

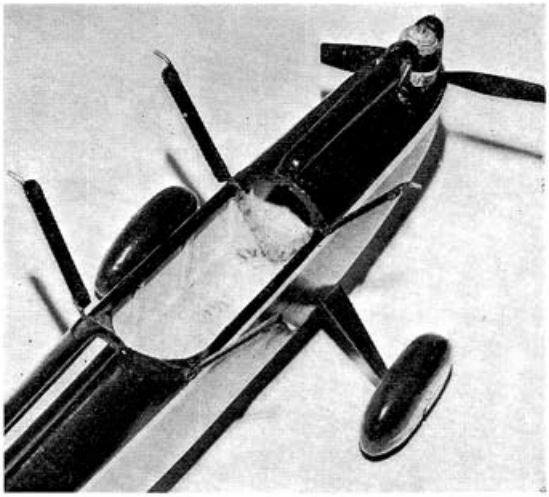
This sytem works fine providing the original design is sufficiently stable to be flown well with rudder only S/C equipment. It would certainly be disastrous to take the average multi stunt model, scale it down, and hope to fly it with S/C equipment. The prototype 'Barnstormer Baby' was built, as was the 52″ and 96″ versions, by David Toyer; indeed he will not now allow me to build any of these types until he has finished each prototype. In keeping with the other two models this one is covered in nylon and painted in red and black with white trim.

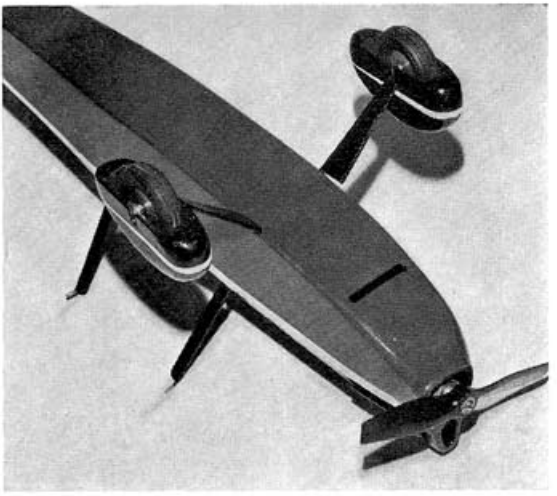
This model has a lot of in-build strength so a medium density balsa will be sufficient for most areas. The main departure from the larger versions of the 'Barnstormer' is the use of piano wire for the cabane struts and undercarriage in place of dural. For beam mounted engines either use a Micro Mold N32 nylon mount (reducing the thickness of the nose doublers to $\frac{1}{8}$″) or install $\frac{3}{8}$″ sq. beech engine bearers. There is ample room to fit a metal or commercial fuel tank between formers F1 and F2.



Cut out the 1/16″ sheet fuselage side and glue into position longerons, uprights and doublers. Note the difference in length of the left and right hand side nose doublers to allow for engine side thrust. Form piano wire cabane struts and undercarriage and bend and epoxy to plywood formers F2 and F3. Sand the $\frac{1}{8}$″ sheet stem blocks to a tapered section to allow the rear end of the fuselage to mate properly. At this stage the type of radio installation must be decided upon to allow for the introduction of torque rods, push rods and escapement rubber hooks, etc. Small notches must be cut in the top fuselage longerons to allow for housing the cabane struts. Glue formers F1, F2, F3 and F4 in position, checking that the whole assembly is square, and temporarily pin the stern blocks together. Add the $\frac{1}{8}$″ sq. cross pieces to the rear of the fuselage, F5, underside sheeting and front and rear top deck sheeting. For rubber driven escapement it is advisable to make the tailplane, fin and rudder removable and the tailplane seating area should be increased by adding some 3/16″ balsa strips to the outside of fuselage sides under the tailplane. Sandpaper the fuselage to a smooth finish, rounding off the nose section and bottom fuselage corners, glue on the engine and dorsal fairings, carve the removable soft block decking for access to the radio equipment.

The wing section features a flat bottom from the front spar rearwards and the wing can therefore be built flat over the plan. Make the



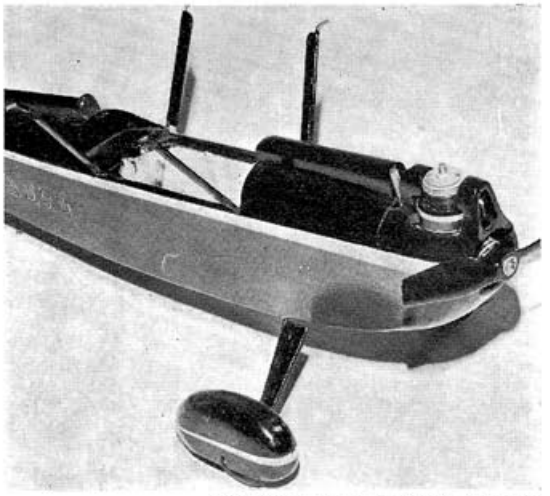


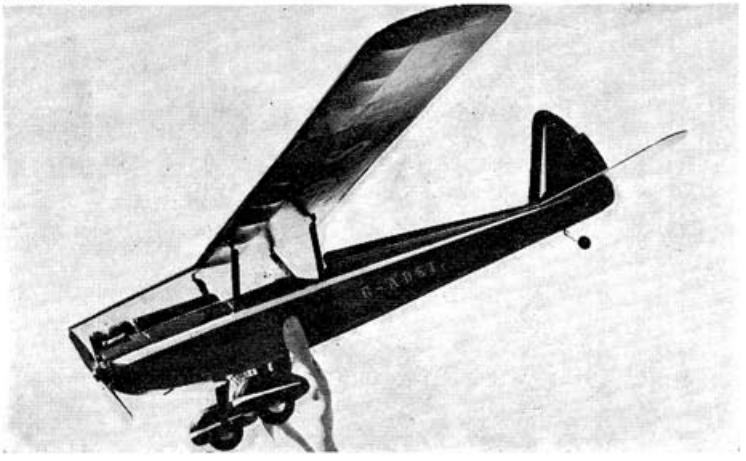
Three detail close-ups, showing cabane struts and undercarriage, plus engine installation. Micro-Mold have suitable wheel spats.

wing ribs by the block method using the 1/16 in. ply ribs as the templates. Drill holes in the ply balsa ribs ready for sewing on the 20g hooks. Pin down the bottom front and rear spars over the plan and the 1/16 in. x 1 in. bottom trailing edge. Glue ribs in position and add the top front spar, top trailing edge and $\frac{1}{2}$ in. x $\frac{1}{4}$ in. leading edge, blockings up to the required height. Note that the root wing rib must be angled for the correct dihedral. Remove the two wing halves from the plan when the glue has dried and sew and epoxy the 20g cabane strut hooks into position. Complete the centre section sheeting and join the two wing halves together with the 1/16 in. dihedral brace.

Tail surfaces are cut from medium soft 3/16 in. sheet except for the $\frac{1}{8}$ in. hard sheet rudder and trim tab. Sand to section. Where a fixed tailplane is to be used, small elevator trim taps should be incorporated.

Cover the model in tissue, nylon, silk or Solarfilm as desired, the latter is recommended to assist in keeping the overall weight of the model as low as possible. Make sure the model is well fuel proofed around the engine bay. Avoid over decorating the rear end of the model with paints or coloured dope, otherwise it will be difficult to achieve the correct balance print without resorting to additional ballast in the nose.





Test gliding can be attempted over long grass or soft ground otherwise low powered test flights should be attempted (with the propeller reversed). The model must, of course, balance at the correct point and the flying surfaces must be free from warps. Aim for a slight natural left hand turn on glide and under power. This will ensure that should you fail to get a radio signal (or forget to switch on) the model will not go downwind in a straight line. The model will have a flat and reasonably fast glide and it should be possible, by putting a little down trim on the elevator, to fly it in reasonably strong winds. Good luck with the 'B.B.' and do not forget to write and let us know how you get on with it – it does the designers ego no end of good, unless they all crash that is!