

GADFLY

By SHERMAN GILLESPIE

• All planes, big or little, suffer performance penalty from excess weight. Beginners hoping to build contest free flight will learn much here.

Charming little rubber powered, semi-scale model of historic light plane rewards neat builders with wonderful flights.

▶ The Gadfly is a semi-scale model of the Glenny & Henderson plane that was flying in England in 1929. Powered by a 2 cyl., 40 hp engine, the little single-seater cruised at 72 mph. Top speed was 91 mph and it landed at 45 mph. Its ceiling was 13,000 ft. In its day it was quite an efficient machine.

The model is a very realistic flier with a phenomenal glide. It can do up to 30 seconds, hand-wound, in cool evening air. Warm air tests gave many flights of from 40 to 57 seconds. The ship shown was lost after a spectacular flight of 2 minutes 34 seconds! This, of course, was the result of a thermal but, when last seen high over a cherry orchard, the little job was soaring beautifully.

Construction is conventional but use care to keep the weight down. Complete flying weight should be approximately .8 oz. Build the fuselage sides from medium hard 1/16 square

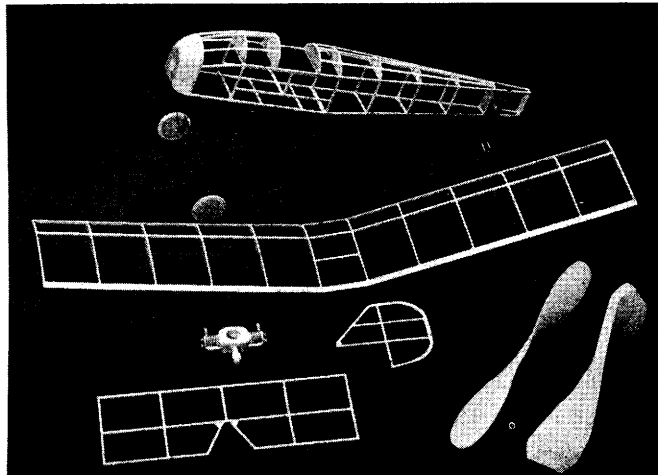
balsa. Set the sides up over the top view and put in the 1/16 square cross-pieces. Cement the formers directly to these cross-pieces. Formers No.'s 1, 3 and 4 are cut from 1/16 sheet and are notched to receive the ends of the stringers. Formers No.'s 2, 5, 6, 7, 8 and 9 are cut from 1/32 sheet. The stringers are spaced and cemented on without notching these 1/32 formers.

Cut the nose block from fairly soft 1/2 in. stock and drill it to receive the 3/8 in. shaft of the thrust button. Although a hardwood button was used, a laminated balsa or plastic type may be fitted satisfactorily.

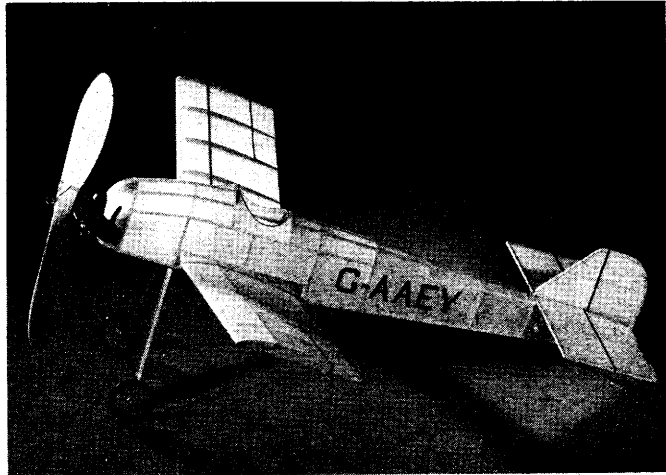
The dummy engine is not necessary for a strictly flying model. If it is left off, however, heavier wheels may be needed to balance the model properly. *(Continued on page 36)*

SEE PLANS ON FOLLOWING TWO PAGES

Veteran builders do not underestimate any model—they know good feeling that comes from neatly building, successfully flying simplest job.



Today's arm-and-a-leg prices shouldn't stop you junior balsa hackers from building this. If you hoard scraps, you can still go Saturday movie.



Gadfly

(Continued from page 15)

Form the landing gear legs from 1/32 in. diameter wire. The front brace is notched into the nose block and the lower ends are, for the last 5/16 in., bent parallel to the main legs. Bind with thread at points of contact and cement securely. A 1/52 sheet fairing is cemented to the legs as indicated in the plans. A spreader bar may be added if desired.

Wheels are made from cross-grained laminations of medium hard 1/16 sheet. Use 1/16 in. diameter aluminum tubing for bushings with 1/4 in. copper washers as collars. The wheels are held on by drops of cement on the axle ends.

Make the stabilizer and rudder from 1/16 square. Curved parts for the rudder are cut from 1/16 sheet.

Build the wing in right and left panels. No separate center section is made. Shape and sand the leading and trailing edges before joining the wing halves. Block the wing panels up over the wing plan to give the 1-5/8 in. dihedral. Put in the small leading and trailing edge pieces and the spar pieces to form the center section and complete the wing structure.

The propeller shown on the model was finished from a 7 in. machine-cut balsa blank. Carve and sand the blades to an airfoil shape and drill the hub to receive a bushing of 1/16 aluminum tubing. Use 1/4 copper washers as collars over the ends of the tubing to strengthen the hub and act as a bearing surface. Give the prop a coat of sanding sealer and sand lightly. Balance the prop carefully before and after doping.

A Paulowina prop may also be used. It is easier to install and is almost unbreakable.

Some type of small free-wheeling device will improve the glide. The aluminum tube-bent pin unit works very well.

Cut a piece of 1/16 tubing and insert a piece of straight pin. Make bends at the ends at right angles to each other. The top part points left against the prop when the lower part engages with the arm on the winding hook.

Bind the tube unit in place and cement securely. Recheck the prop for balance. Bend the winding hook end of the prop shaft and slide on the prop, two 1/8 brass washers and the thrust button. Form the motor hook last. A piece of rubber tubing on the hook will protect the motor against cuts.

Before beginning to cover the various surfaces, sand them lightly and give the structure a coat of clear dope to seal the wood. If possible, cover the model with Japanese tissue, using dope as adhesive.

Trace the cockpit cowling on bond paper. Trim for proper fit and cement in place. Cut strips of tissue to cover the fuselage between the stringers for a wrinkle free job. Water spray to shrink the tissue and brush on one coat of thinned clear dope.

Cover the tail surfaces on both sides. These light surfaces may be sprayed and doped if they are pinned down to a drawing board during the process. Be careful the dope does not touch the board.

The wing is covered in sections: first the panels, top and bottom, and then the center section. Dope the tissue to the wing outlines only. Pin and block the wing during the shrinking and doping to minimize warps.

Cement the tail surfaces on the fuselage and check the alignment carefully. Add the 1/16 sheet tail skid. The wing is held in place with a rubber band.

Details may be added as desired. Identification letters and control surface outlines are cut from Trimfilm or black tissue.

The dummy engine parts are cut from medium soft balsa. Wrap the cylinders with spaced loops of No. 8 black thread. Give the completed engine a coat of sealer and finish with black dope. Although it is by no means

a scale engine, it gives a realistic impression of the ABC Scorpion engine with which the Gadfly was fitted.

Instruments are small circles of white paper cemented on the black panel. Cut the conical windscreen from light celluloid and outline in black tissue.

Add silver doped paper discs to the wheels for a final touch of realism.

Make up a four strand motor of 1/8 flat T-56 rubber and lubricate thoroughly before installing. Test for a long flat glide. If the model is slightly nose heavy, increase the angle of incidence slightly. With a satisfactory glide established, give it a bit of right rudder for a slight turn.

For a right climb under power put in a little right thrust by cementing a small sliver of balsa under the left side of nose button. The proper climb-right glide adjustment makes for a very smooth power-to-glide transition.

With its simple construction and easy adjustment the Gadfly will give many hours of flying pleasure. It is slow and stable and will take off and land beautifully just like the original Glenny & Henderson light plane.

Bill of Materials

(All measurements in inches)

Five pieces 1/16 x 1/16 x 36 medium hard balsa: fuselage, tail surfaces, wing spar.

One piece 3/32 x 3/32 x 18 medium hard balsa: wing leading edge.

One piece 1/16 x 3/16 x 18 medium hard balsa: wing trailing.

One piece 1/32 flat balsa: wing ribs, fuselage formers.

One piece 1/16 flat balsa: wing tip ribs, wing root ribs, fuselage formers, wheels, motor pin receivers.

One piece 1/2 x 1-1/2 x 1-3/4 medium soft balsa: nose block.

Scrap balsa, medium soft: dummy engine.

One 7 in. propeller, balsa or Paulowina.

One nose button, hardwood, balsa, or plastic.

One piece 1/32 in. diameter wire: landing gear, prop hook.

One piece 1/16 in. diameter aluminum tubing: wheel bushings, free-wheeling unit, balsa prop bushing.

One piece 3/32 in. diameter dowel: motor pin.

Six 1/4 in. copper washers: wheels, balsa prop hub.

Two 1/8 in. brass washers: prop bearing.

One sheet Japanese tissue or light-weight Silkspan.

One tube cement.

One bottle clear dope.

One piece 1/8 flat T-56 rubber 42 in. long.

One bottle rubber lubricant. END