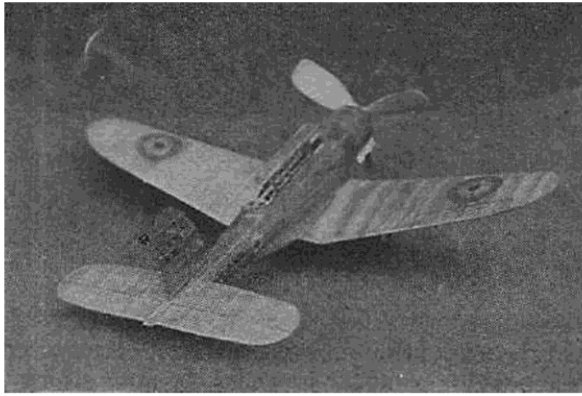


# DIVE BOMBER

Exaggerated dihedral in low-wing models is an indication of good design. Enlarged tail areas and propeller blades are a requisite of all flying scale models.



*Detailed plans of a fast-flying scale model of a formidable plane—the British Blackburn dive bomber.*

By Alan D. Booton

THE first glance at the Blackburn fleet-fighter reveals nothing unusual, but further study brings out several features that are distinctive in military aircraft. For instance: the folding wings and the retractable landing gear. Considering the mechanical difficulties overcome in a restricted space, the combination of these features is quite an achievement.

The gunner's rotating hatch is unique because it can be raised like a roll-top desk, permitting the gunner to break his guns up through the turtle-back panels and bring them into instant action. It is not understood just why the vertical tail is placed so far forward, unless it is to prevent its being blanketed by the stabilizer when in steep climbing conditions.

The model has been designed to faithfully reproduce the prototype simply as possible. The ailerons and tail surface controls are movable, but the folding wing and retractable landing gear were omitted for simplicity.

With the large flying propeller design provided, graceful flights of almost one minute were obtained when the rubber motor was lubricated, stretched and wound in with a winder. The 3" of slack rubber added seconds to the endurance.

Before assembling work on the drawings, place waxed paper on them.

## FUSELAGE

The fuselage is of simple model construction and eliminates the guesswork of attaching the wings and tail surfaces.

First, cement  $\frac{3}{32}$ " sheets together, cross-grained, to form a 6x8" plywood sheet  $\frac{1}{8}$ " thick. Place heavy books on

this and let dry for several hours, then cut two each of the former patterns very carefully. The appearance of the finished model depends on this.

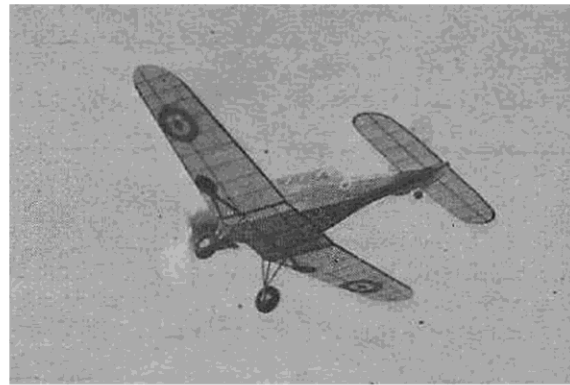
Pin the  $\frac{1}{8}$ x $\frac{1}{8}$ " longerons to the drawing. If difficulty is met in bending the lower longeron to lay unsprung without holding it, cut the curved portion from  $\frac{1}{16}$ " sheet.

It is important that all parts be laid on without tension, otherwise the fuselage will be warped.

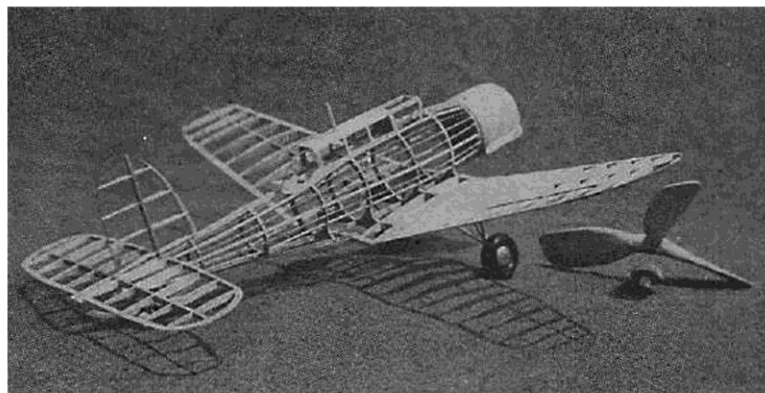
Cement the left halves of the formers to their respective places on the longerons and push pins into the board on the sides of each to hold them vertical. When the formers are set, prebend the  $\frac{1}{16}$ " stringers and cement them in the slots. Cement the  $\frac{1}{8}$ " #1 rib on. When dry, remove the half frame from the board and cement the right former halves to it, then add the  $\frac{1}{16}$ " stringers, the right  $\frac{1}{8}$ " #1 rib, and

all bamboo strips to the formers on both sides. Be sure to use bamboo strips that are as near to  $\frac{1}{32}$ " sq. as possible, because oversize strips are bound to warp the fuselage frame.

Carve the small tail block, split open and hollow and cement to the last former. Now cement the curved  $\frac{1}{16}$ " sheet parts to the rear of the frame.



Low-wing models are spectacular in flight, performing with a zip characteristic to their design. The original model flew for nearly a minute.

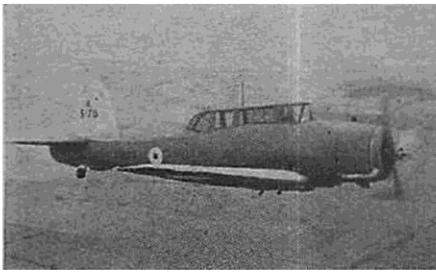


The framework should be adequate for strength and detail, simple enough for light weight and high performance.

# DIVE BOMBER

(Continued from page 50)

The #3 former will aid in assembling the cockpit inclosure parts. It is important to fit all joints carefully or they will show on the finished model.



The Blackburn Dive Bomber.

Fasten 2 blocks ( $1\frac{1}{8} \times 2\frac{1}{4} \times 1\frac{7}{8}$ ") lightly together with several spots of cement and carve the cowl shape. Sand and dope until smooth. Then split the blocks apart and hollow according to the broken lines on the cowl drawing. Then cement them together again. Cut a  $\frac{1}{8}$ " sheet disk with a  $\frac{3}{8}$ " diameter hole in the center. Cement this disk  $\frac{1}{4}$ " deep into the cowl. Carve a conventional nose plug to the shape shown and insert a  $\frac{1}{16}$ " aluminum tube bearing. Carve the exhaust stack and scoop.

## LANDING GEAR

The main strut of the landing gear is composed of a #14 music wire length bent as shown on the drawing and sandwiched between 2 grooved  $\frac{1}{16} \times \frac{1}{8}$ " strips, which are then sanded round. Make a matched pair of these struts and embed the upper exposed portions of wire to the center of the  $\frac{1}{8}$ " #1 ribs and cement heavily. Add the small struts as shown on the drawing. The rear strut should not be cemented at the top, so the main strut will be free for back travel.  $1\frac{1}{4}$ " rubber air wheels were very successful. The tail wheel is typical, being attached with a bent wire fork as shown.

## WING PANELS

The spars are  $\frac{1}{16}$ " sheet and are half the depth of the wing in their height,

tapering toward the tips. Use plenty of pins to hold the parts in place and start by assembling the ribs on the spars.  $2\frac{1}{16}$ " sq. strips placed under the rear of the ribs, close to the spars at ribs #1 and more distant at the tips, will help to line up the rib ends to the trailing edges. Additional blocking may be done where deemed necessary, but take care that the incidence is not washed in or out. Cement all rib joints and then add the bamboo tips and fillers. If ailerons are desired, cut  $\frac{3}{32}$ " out of the ribs directly over the spars drawings and cement in  $\frac{1}{32}$ " sheet spare, additional rib parts and soft wire hinges. Now remove the frames from the board.

## TAIL ASSEMBLY

The tail surfaces have been enlarged to insure improved performance to the model.

The easiest method by which the tail-surface frames can be assembled is to pin the spars to the drawing first, blocked up  $\frac{1}{32}$ ", then the leading edges and trailing edges. Insert  $\frac{1}{32} \times \frac{1}{4}$ " strips for the ribs. Block up the leading edges, trailing edges, and the tips to center the rib stock; then cement all joints and hinges. When the frames are dry, remove them from the drawings and trim and sand to the final streamline shapes. Make the stabilizer as a unit.

## PROPELLERS

This month we are confronted with another 3-bladed flying prop. Bevel the three blocks ( $\frac{3}{4} \times 1 \times 3\frac{3}{4}$ ") so they fit perfectly. Rub cement on the beveled edges and let dry, in order to prime the porous wood. Then cement them again, heavily, and pin them together on a smooth surface. Blank and carve in the manner of a 2-bladed prop, but take smaller cuts around the hub, so a more perfect job can be obtained. Sand and dope until smooth and balanced. The final step is to coat the hub heavily with cement for added strength. A scale-prop design is provided if needed.

## FINISHING

Cover the fuselage and vertical tail

with silver or gray tissue, the wings and horizontal tail with white tissue. The cowl may also be tissue-covered. Then mark the exhaust ring and ventilating flaps with ink, and add the air scoop and the exhaust stack. Cement the cowl assembly to the fuselage. Cement the wing and tail surfaces on and use plenty of pins to hold them in position until set.

Spray the tissue with water and let dry thoroughly, then coat the tissue with clear model dope. Cement the celluloid panes on the cockpit inclosure. Add as much detail as desired, such as: antenna, British insignia, lights, and panel marks.

If a balsa-covered fuselage is preferred, leave off the bamboo strips and cover the fuselage and center section with  $\frac{1}{64}$ " sheet.

## FLYING

Test the model over tall grass. Make the adjustments necessary for satisfactory flights and be sure to fly the ship in an area where it will not be possible for it to strike obstacles.

## MATERIAL LIST

### Blocks

- 2  $1\frac{1}{8} \times 2\frac{1}{4} \times 1\frac{7}{8}$ "
- 3  $\frac{3}{4} \times 1 \times 3\frac{3}{4}$ "
- 1  $1\frac{1}{2} \times \frac{3}{4} \times \frac{3}{4}$ "
- 1  $\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$ "

### Sheet

- 6  $\frac{1}{32} \times 2 \times 18$ "
- 1  $\frac{1}{16} \times 2 \times 18$ "
- 1  $\frac{1}{8} \times 2 \times 6$ "

### Strips

- 6  $\frac{1}{16} \times \frac{1}{16} \times 18$ "
- 8  $\frac{1}{16} \times \frac{1}{8} \times 18$ "
- 2  $\frac{1}{16} \times \frac{3}{16} \times 18$ "
- 4  $\frac{1}{8} \times \frac{3}{16} \times 18$ "

### Miscellaneous

- 1 oz. cement
- 1 oz. clear dope
- 1 sheet white tissue
- 1 sheet silver tissue
- 3 spoiled 116 photo film
- 1 pr.  $1\frac{1}{4}$ " air wheels
- 18 pcs.  $\frac{3}{32}$ " bamboo strips
- 2 ft. #14 music wire
- 1  $\frac{1}{16}$ " aluminum tube
- 90"  $\frac{1}{8}$ " flat rubber per motor