

# MODEL MIRMMASTER

by HERB WEISS

Try out the tail propeller principle yourself with this fine model

HERE'S a ship that caught our eye as a likely subject for a flying model the moment we saw the first pictures of it—the Douglas XB-42 high speed bomber, popularly known as the *Mirmaster*. Unusual in layout, its proportions are nevertheless as favorable for good flying qualities in our model as they were in the original. One of the fastest of propellered planes, it crossed the continent in a little over five hours.

The XB-42 weighs 36,000 pounds and is powered by two Allison V-1710 liquid cooled engines, both mounted inside the fuselage and driving counter-rotating coaxial propellers located at the tail. But although a pusher, the *Mirmaster* is not a "canard" or tail-first type, since its wing is mounted about at the midpoint of the fuselage and its tail carries conventional control surfaces—conventional, that is, except that the vertical surface extends below as well as above the fuselage.

Each propeller is independent of the other, and can be feathered independently of the other. The XB-42 is able to cruise efficiently with only one engine and one propeller operating.

Sharp-eyed airplane recognition fans will have noted in photographs released on the *Mirmaster* that at least two models exist, and there are two major differences apparent in them. The size and shape of the vertical fin differs in the two models; and in one model the pilot and co-pilot sit side by side under a fuselage-wide canopy, while in the other each man has his own cockpit and streamlined hood. For our model we chose the less conventional type of "bug-eye" dual cockpits.

**WINGS AND TAIL**—First part of the model to build is the wing. Cut the ribs from 1/32" sheet. We have found it helpful to make the ribs a little oversize, and then sand off the excess after the wing frame has been assembled. The whole wing is made in one piece. Pin a piece of waxed paper over the plan, then pin the leading edge, trailing edge, and main spar

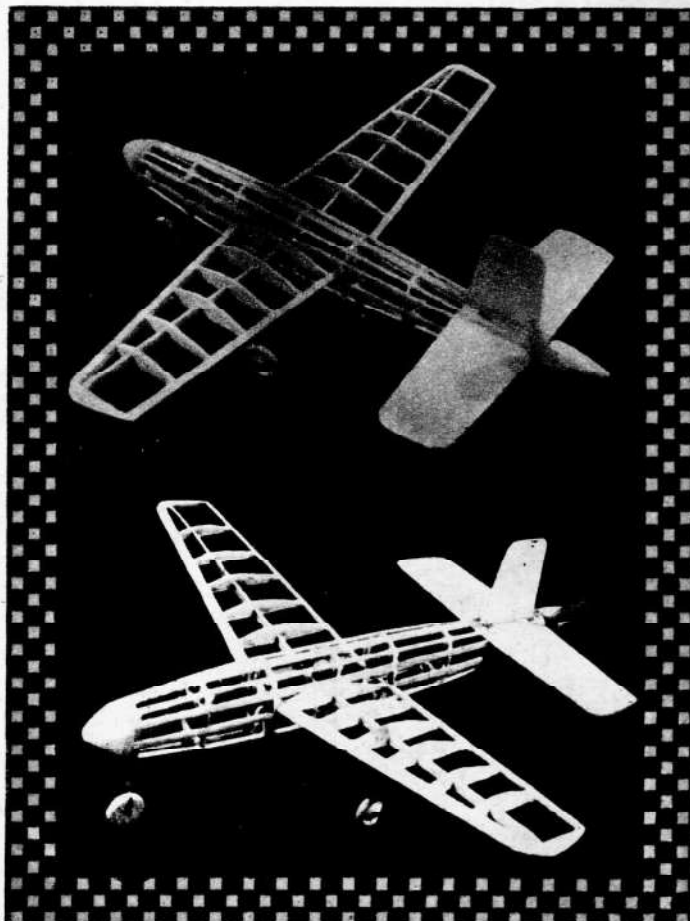
in place. Leading and trailing edges need not be shaped at this time, but the main spar should be tapered to fit the notches in the ribs. Fasten the ribs in place, using plenty of cement. Add the wing tips, cut from 1/16" sheet. When the cement is thoroughly dry, unpin the wing frame and, treating it as a unit, go over it with sandpaper rounding off the leading edge, bringing the trailing edge to a point, and generally removing irregularities so that

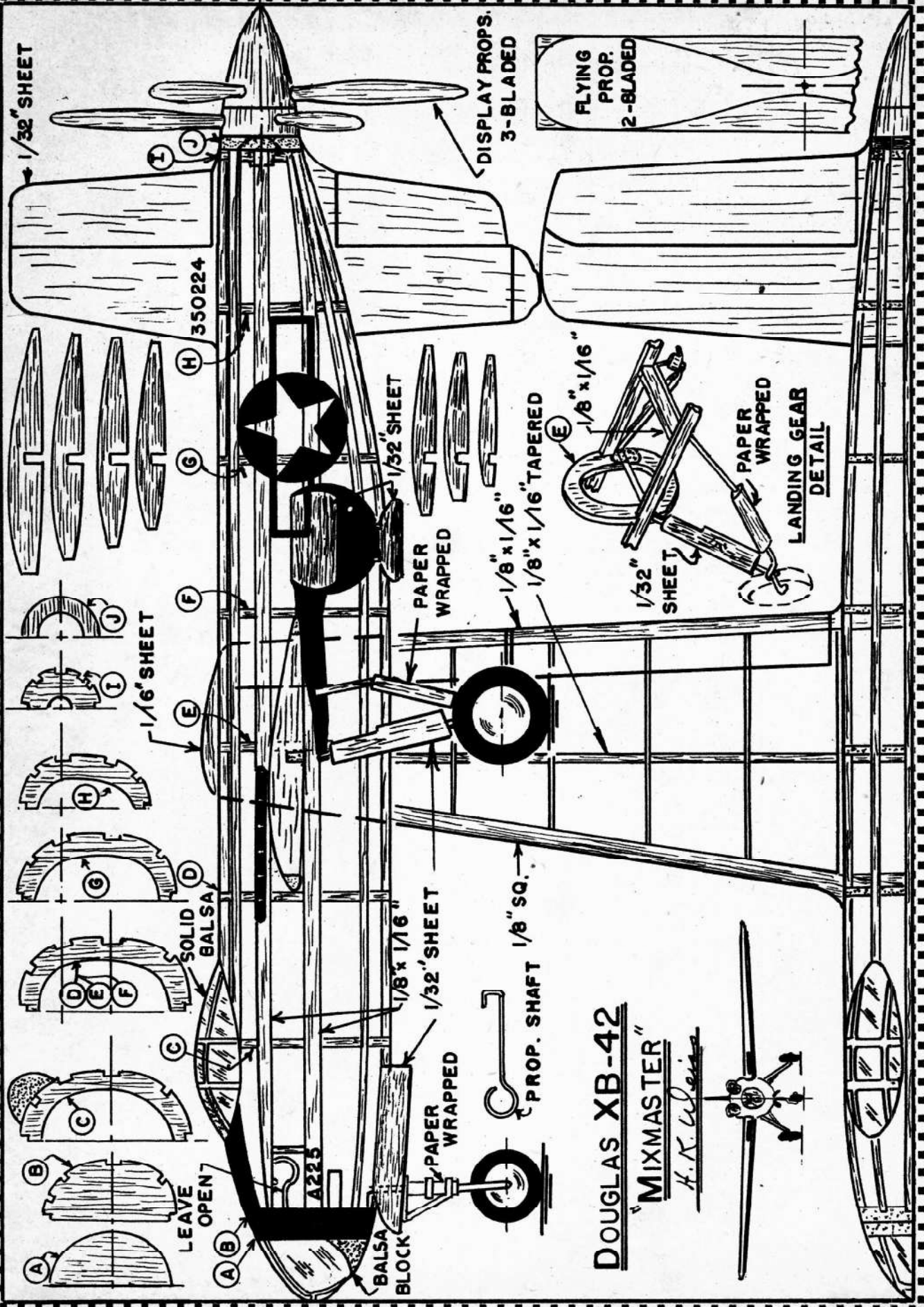
a good covering job will be easy.

Crack the spars at the midpoint of the wing and re-cement them so the wing has about 3/8" dihedral at each tip. Cut out the tail surfaces from 1/32" sheet balsa and sand them smooth. The stabilizer is made in one piece.

**FUSELAGE**—Cut two halves of each fuselage bulkhead from 1/16" sheet and cement the halves together. Strengthen (Turn to page 82)

PLANE ON THE COVER MODEL





1/32" SHEET

350224

DISPLAY PROPS.  
3-BLADED

FLYING  
PROP.  
2-BLADED

1/16" SHEET

1/32" SHEET

1/8" x 1/16"

1/8" x 1/16" TAPERED

1/8" x 1/16"

1/32" SHEET

PAPER WRAPPED  
LANDING GEAR  
DETAIL

SOLID BALSAY

1/8" x 1/16"

1/32" SHEET

1/8" SQ.

PROP. SHAFT

PAPER WRAPPED

LEAVE OPEN

BALSA BLOCK

DOUGLAS XB-42  
"MIXMASTER"  
H.K. Uehling

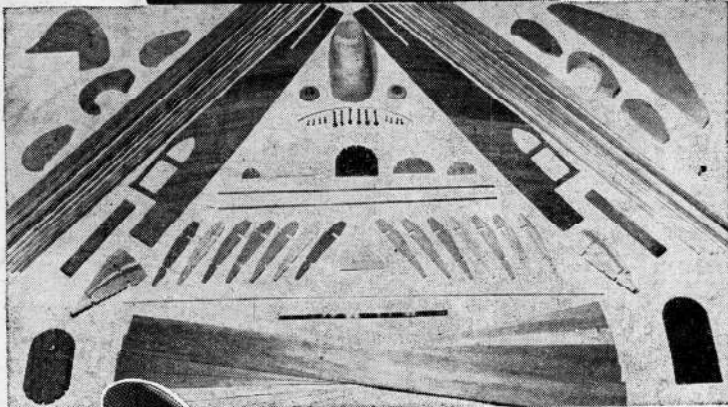




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shell and replace it with live ammunition. This necessitated much hand work, bending down to reach the mechanism, during which time the pilot's attention was distracted from the air about him.

Another objection raised unanimously by all who flew the S-12 related to their fear that a German bullet might hit and explode the cannon ammunition.

Experiments with the S-12 continued well into 1918, but the plane was never produced in other than service test quantities. Bechereau's idea and Birkight's perfection of it just didn't have a place in the air war scene of 1918. They established a precedent, however, that was used successfully in World War II. Their pioneering put the airborne cannon on the "must" list of modern aircraft weapons!

### Model Mixmaster

(Continued from page 17)

the bulkheads cross-grain by cementing strips of 1/32" x 1/16" balsa across the joints. All bulkheads are 1/16" sheet except A, B, I and J which are 1/8" sheet.

Cement bulkheads D, E and F to center-tersection of the wing. Add the two 1/8" x 1/16" stringers on each side. Then add the remaining bulkheads and stringers. The nose is solid balsa, cut roughly to shape, cemented in place against bulkhead A, then sanded to its final proportions. When the cement has dried, go over the fuselage frame carefully with sandpaper. If you detect any poorly cemented joints, re-cement them.

Note that a small hardwood bearing block is used to guide the propeller shaft. ASSEMBLY AND COVERING—Tail surfaces and landing gear are installed before the model is covered. The music wire frame for the landing gear may take a little cutting and trying to get it shaped just right, but once securely cemented in place it's just about undamageable because the wire absorbs landing shocks.

Cover the model carefully with tissue. Use small pieces where the frame is sharply curved, as at the nose and tail of the fuselage. If the tissue wrinkles as you put it on, remove it and try again with smaller pieces. When the frame has been covered, spray it lightly with water to tighten the tissue. A single coat of very thin clear dope will make the model more durable at the expense of weight.

DETAILS—The two "bug-eye" pilot enclosures are carved from solid balsa and cemented in place. The nose and the two "bug-eyes" are given about three coats of white dope with sanding between coats, and the frames shown in the drawing are simulated by drawing with india ink. The blue and white stars are painted in place, or if bought from a model dealer, doped in place. Engine exhausts are simulated by strips of 1/16" square balsa doped black and cemented to the fuselage at positions shown. The wells into which the wheels retract are painted in with black dope; the well-covers are cut from 1/32" sheet balsa and cemented in place.

If you've done a careful job of construction on your *Mixmaster* you'll want to use it as a display model when you're not flying it. In this case, the two three bladed scale props shown on the drawing will be well worth building. For flying, however, a single two bladed prop is used.

FLYING—Try gliding the model. If it stalls, add modelling clay to the nose until it glides smoothly. If the model dives, warp up the trailing edge of the stabilizer. Two strands of 1/8" flat rubber are just about right to power the ship. Use a winder when you've reached the right adjustment and prepare to start running!