

Build the Curtiss A-18

Developing a total of 2,000 h.p. in her Wright Cyclone engines, Curtiss' new, deadly Army attack ship, the A-18, is rated among the fastest twin-motored military machines in the world. Actual details as to her performance and armament are still a military secret, but you can bet she's no slouch when it comes to speeding her gun-bristling form through the air. Nor is Herb Weiss' model of the A-18 any slouch, either —as you'll quickly discover when you line up his plans and construct it.

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By Herb Weiss JUNE, 1938

KNIFING through the air at over 300 m.p.h., the Curtiss A-18 attack plane is one of the world's fastest twin-engined military jobs. It might even be possible to class it as the fastest, were it not for the secrecy surrounding modern war planes which prevents us from making any accurate comparisons.

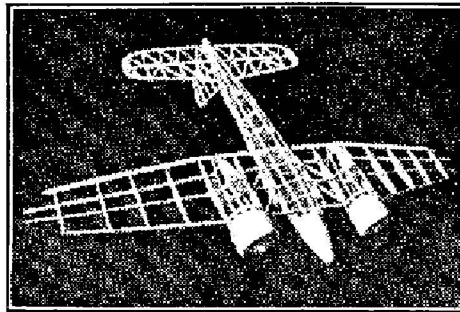
The A-18 started out in life as the XA-14 experimental model, featuring an all-metal fuselage of monocoque design and a monospar wing of fabric and wood. It was powered with a pair of 825 h.p. Wright engines. (Three-view plans for the XA-14 were printed in the May issue of F.A. for our solid model fans.—Editor.)

Service ships developed from the basic XA-14 design were built to fill an Army order amounting to \$1,259,000 and were designated the Y1A-18's. They were powered with 1,000 h.p. Wright G Cyclones. By the time this appears in print, the ships will have "come into their birthright" and will be known as full-fledged A-18's.

A multi-place ship, the A-18 shelters its pilot and gunner in cockpits with transparent hoods. The landing gear is retractable, of course. The craft has an extremely long range and is well able to raid enemy lines at very low altitudes. Wing-span of the new plane is 59' 6", and the length is 40' 6".

Our model of the A-18 is unconventional, in that motor sticks have been dispensed with. At first glance

this might seem to be a foolish omission, especially when it is considered that the stabilizer must withstand the full tension and torque of two motors. However, the original model, braced as shown in the plans, proved quite strong enough for these imposed stresses. The chief precaution to be taken in building is to make sure that members meet cleanly at each joint, and that all cementing is done thoroughly and carefully.



Herb snapped this upside down "shot" to give you a good idea of what the A-18 model looks like "in the raw." The wingtips—virtually invisible here—are made from 1/16" square bamboo.

WINGS AND FUSELAGE

BEGIN construction of the model with the wing (Plates 3 and 4). Either make a universal plan for the left half of the wing—which is to be built as one piece with the right half—or simply transfer the dimensions with a ruler. For a flying model omit the even numbered ribs. (Rib No. 1 is on Plate 2. The others are shown on Plates 1 and 3).

When the wing is assembled and the cement has dried, cut across the rear spar with a razor at ribs No. 1, and give each side of the wing two inches of dihedral at the tip.

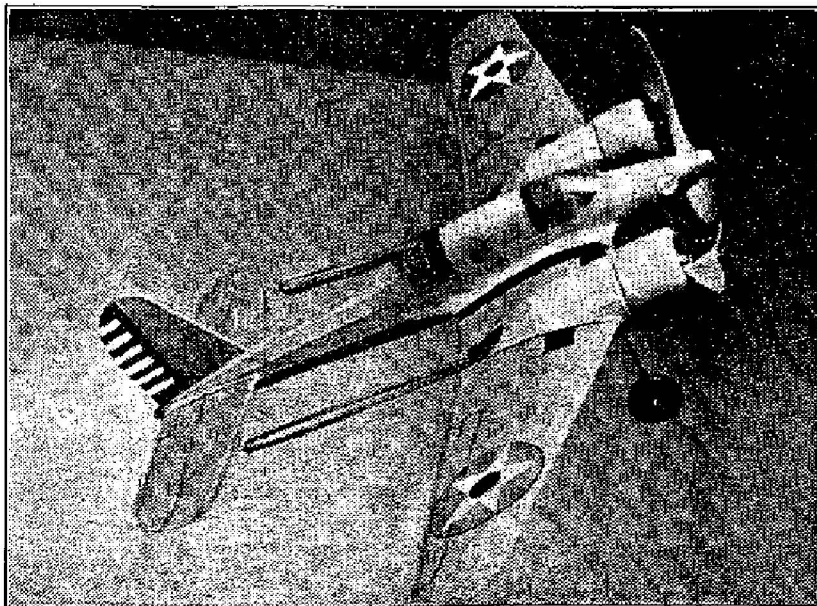
Cut out the fuselage and nacelle bulkheads (Plates 2, 3, and 5) from 1/16" sheet balsa, making two of each half and cementing the halves together. Cement fuselage bulkheads DF, EF, FF, and GF, and nacelle bulkheads FN and GN to the wing as shown on the wing plans. Add the stringers shown in black on Plates 2 and 5.

Cut the fuselage "keel" from 1/16" sheet balsa and cement in place. Add the remaining bulkheads and stringers. Assemble the nacelles similarly. Cut the sharply curved stringers to fit from 1/16" sheet balsa. Use only the best grade of balsa for the fuselage stringers to withstand "bowing" when only one rubber motor is wound. Note that details are given for both a flying and a scale nacelle. Note also the nacelle details on Plate 1.

Construction of the cowling and "engines" for our model A-18 is clearly shown on Plate 2. The hook is shaped from .028 wire.

The landing gear is made as shown on Plate 1 and is formed from .034 wire. The lower portion is wrapped tightly with paper or covered with a length of aluminum tubing. The end of the wire is bent over for the axle. Be careful that the bends are not made so abruptly as to cause crystallization and consequent weakness of the metal.

The upper end is shaped as shown in



Sure, fellows, when we first saw this "shot" the same question came to our minds, too—"Where are the motor sticks?" But as a matter of fact, additional motor support is not needed in this multi-powered model, for Herb Weiss allowed for the extra stress in constructing its sturdy frame. Two right-turning props may be used, as shown above, or one right and one left turning air screw if you so desire. Either system is good, since the torque element on this job was found to be negligible.

WHY WE'RE OFFERING THIS TWIN-MOTORED MODEL

Fellows, it's a long time since FLYING ACES Magazine presented plans for a twin-motored flying scale model. Multi-engined jobs require more prudent handling than do the single-motored ships, and the extra care required in adjusting, launching, and flying them doesn't always result in a perfect flight. And after all, no modeler wants to construct a complicated craft and then be reluctant to fly it because he isn't quite sure what might happen to it. So frankly, we've hesitated to offer such plans because we've believed that only a small percentage of our readers

would want to build double-motored jobs of this type.

However, when this story and its accompanying plans and pictures were dropped onto our desk, they seemed so practical as regards both building and flying a double-engined plane that we just couldn't bear to turn them down. So here they are. And maybe we're establishing a precedent in printing them for you. But if that's so, we'd like you to drop us a line stating whether you want us to give you more plans on models like this. How about it? Let's hear your comments regarding multi-engine models.

the detail drawing and inserted into the motor nacelles. It is passed through nacelle bulkhead FN into EN and cemented securely. Wheels of 1¼" diam. are fitted onto the axle and held with a drop of cement.

TAIL SURFACES

THE model performs well with a scale-size rudder (Plate 3). The stabilizer (Plate 5) is enlarged for flying because it is "beefed up" to withstand rubber tension. Cement the stabilizer to the fuselage before covering, and be sure that all joints are firmly cemented.

The rudder is covered separately. Sand it smooth first. Fit the tail hooks into the leading edge of the stab as shown.

ASSEMBLY AND COVERING

FILL in the fuselage nose with 1/16" scrap balsa to resist the shocks of tail-high landings. Fillets are covered with 1/32" sheet balsa from DF to HF and carved from scrap balsa from CF to DF. A good fillet can also be made by careful covering with tissue.

Using 1/32" sheet, cover the fuselage between the upper black stringer and the lowest white stringer from GF to JF on each side, and if you have the time and want a really classy model, it will pay you either to fill in or cover with sheet balsa all of the fuselage and nacelles, thus imitating the smooth metal skin covering of the real ship.

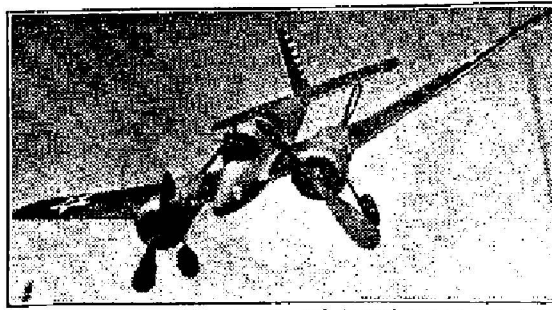
The A-18 model shown in the pictures was made up with fuselage, rudder, and nacelles colored in blue, and wings and stab in yellow. The service ships, however, are all silver, with regulation stripes on the rudder, stars on the wings, and U. S. ARMY painted in black beneath the wing.

The props have the Curtiss insignia striped across them, as shown on Plate 1. Minor differences between the experimental model and the service model have been noted on the plans. Many details besides those shown on our plans can be obtained from newspaper photographs of the real ship.

Cover the frame very carefully with tissue of the desired color. Spray the model lightly with water, and, when the water has dried, apply two coats of very thin dope of the same color as the tissue. Carefully sand off the "fuzz" which will appear after the first coat has dried. A good dope mixture is two parts colored dope to one part thinner. Finally add the insignia of your choice.

PROPS AND FLYING

BECAUSE of the small size of the propellers on our model A-18, there is little torque difficulty in flying it. Two right turning props may be used as in our original A-18 model (see photos); or you may, if you wish, mount one left and one right turning air screw. Carve your propellers from medium hard balsa, and use four strands of 1/8" lubricated brown rubber for each prop.



Presenting a knife-like edge toward frontal attack, the original A-18 is well-adapted for ground-scrapping at very low altitudes. And now here's our model looking very much the same as the big ship would and heading straight down toward your trench or dugout.

The original model behaved very well, consistently turning in flights of 25 to 30 seconds. It's a good idea, however, to remember that because of its twin motors the "bugs" that appear will be somewhat different from those usually peculiar to scale models. So if you run into trouble and all the usual corrections don't work, don't give up hope.

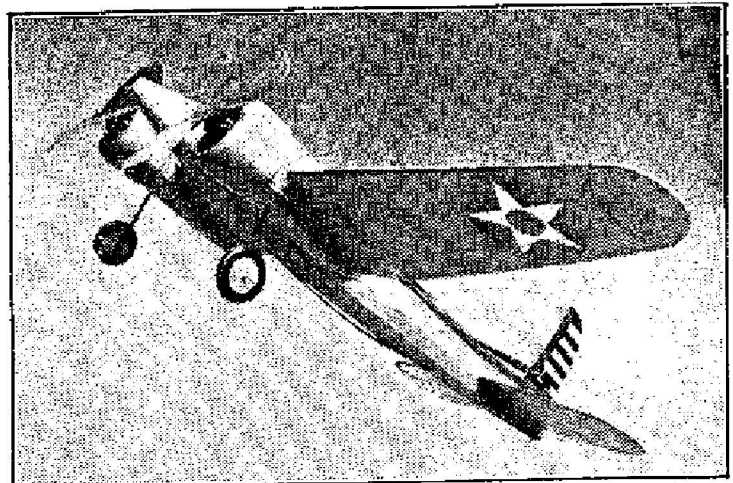
First of all, balance the ship for a good glide, adding a small amount of clay to the nose if necessary. Then give the props about forty turns, using a winder in the usual way. To launch,

hold the fuselage lightly just behind the wing with your right hand, keeping the props from turning with your left. Release the props, and launch the ship slightly downward. If she pulls the roller-coaster act, carefully warp the trailing edge of the stab downward slightly, and remove some of the clay from the nose to preserve the glide. If the model dives, warp the stab upward.

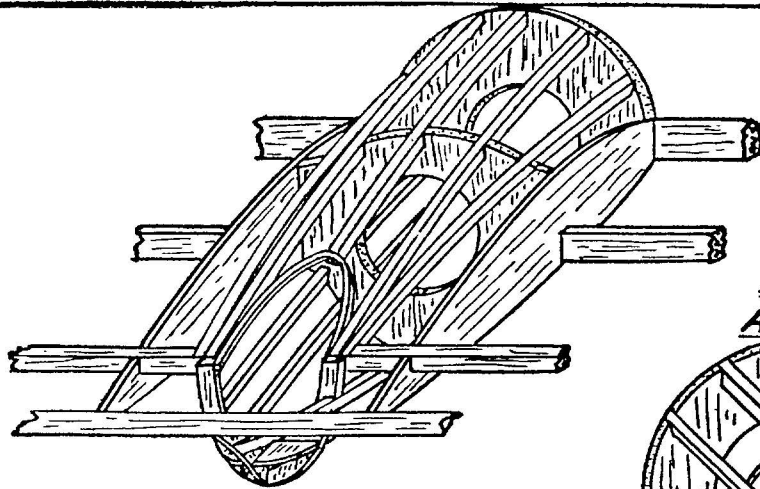
Correct spiral diving by applying opposite rudder. Spiralling can also be corrected by winding one prop a little more than the other, but this will result in that prop having a longer run, and the ship will bank sharply at the end of the flight.

If you find it necessary to use more than four strands of rubber on each prop, always wind both sides simultaneously to avoid subjecting the fuselage to the stresses imposed by the off-center pull of one wound motor.

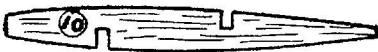
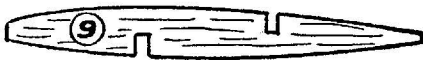
And of course, remember Rule Number One of scale model flying: Handle your ship gently on the first dozen flights or until you have learned its peculiarities. Then when you know what to expect, you can wind 'er to the limit and let 'er rip. Happy landings!



You'll find that your finished A-18 will prove an excellent climber—and here's a posed picture of our model to show you what kind of "going-upping" you can expect. The undercarriage of the ship is shown to good advantage in this photo, and while on the model the landing gear is of the fixed type, on the real Curtiss it's retractable. Now, fans, a flip of this page will bring you the plans for making this sleek skuster.

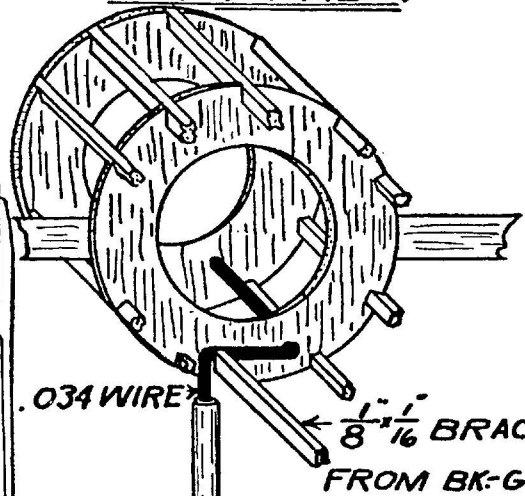


NACELLE DETAIL



FLYING PROP FROM
BLOCK HARD BALSA
 $5\frac{1}{4} \times 1 \times \frac{5}{8}$

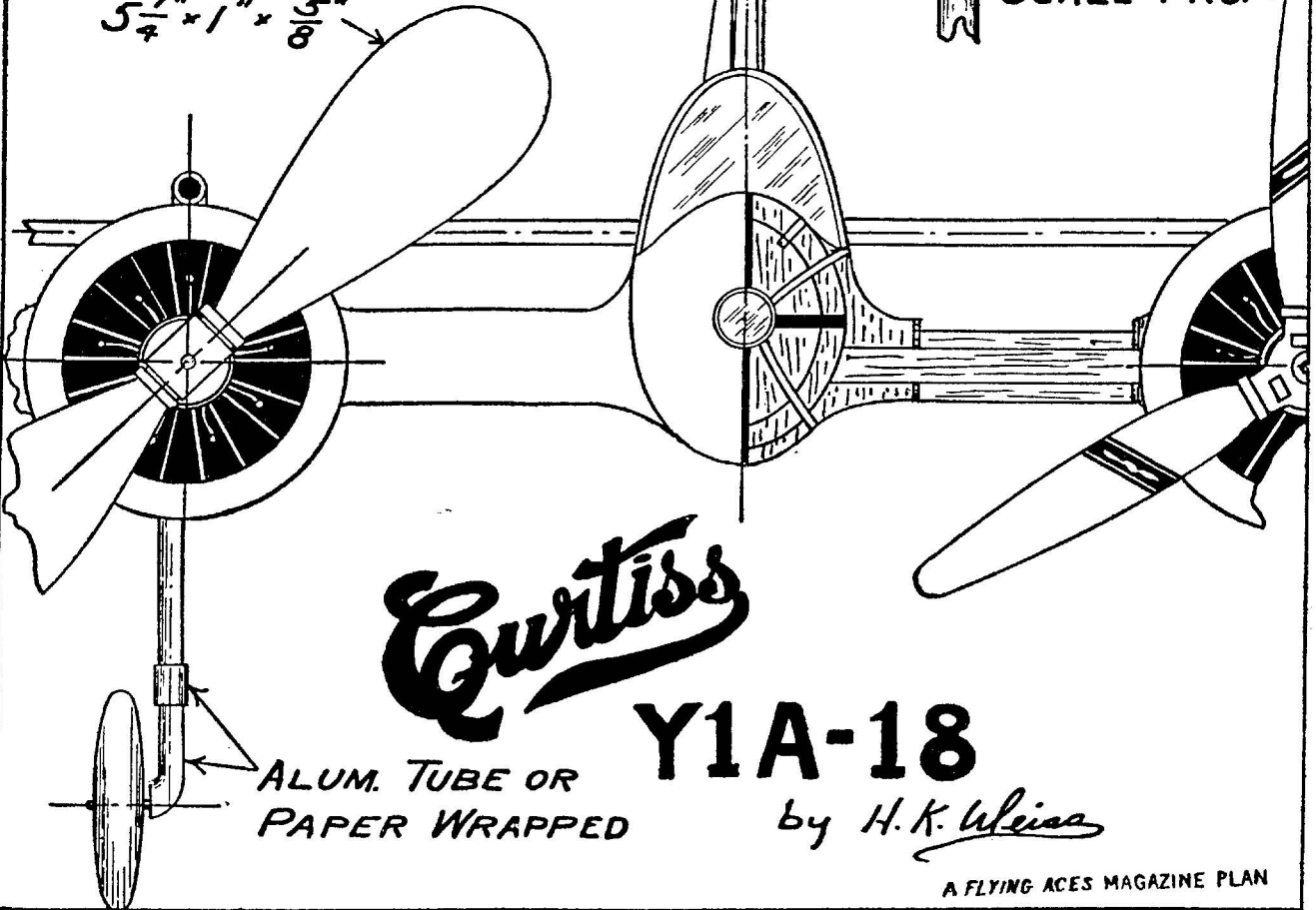
LANDING GEAR
ATTACHMENT



.034 WIRE

$\frac{1}{8} \times \frac{1}{16}$ BRACE
FROM BK-GN

SCALE PROP



Curtiss

Y1A-18

by *H. K. Ulrich*

ALUM. TUBE OR
PAPER WRAPPED

A FLYING ACES MAGAZINE PLAN