Flying-Scale Scoop—

The Curtiss XP-40!

By Jesse Davidson and Harry Appel

When our Air Corps gets "het up" over a sensational new military machine—then it's time for ol' F.A. to step in and give you model fans a corking copy of 'er. Well, fellows, Curtiss HAS turned out such a ship—the striking XP-40, rumored to be the fastest fighter in the world. And now here, in double-quick style, we have Jesse Davidson presenting you with a keen flying replica of this remarkable low-wing combat job. Go to it, modelers—

A FAST-DASHING flying model of a new Army pursuit! That's the kind of job which we know goes over the biggest with all you modelers—and that's the kind of miniature skyster we have for you here in this Curtiss XP-40 pencil-streamlined winged hurricane!

Granted, this striking craft—we mean the *real* XP-40—is on the secret list. So we don't know the full inside details of how this cloud hurtler ticks. And we wouldn't be allowed to give you such *sub rosa* dope if we did.

But "hush-hush" policy to the contrary, you can still have a staunch and speedy rubber-powered replica of this fighter on *your* model tarmac. And in this article we give you full instructions on how to go about it.

First off, readers who are familiar with the Curtiss XP-37 will notice that the lines of the XP-40 bear a great similarity to the earlier craft. Upon closer study, however, new details are revealed. The pilot's compartment has been moved farther forward and is completely enclosed by the usual sliding hatch. What's more, a new and more powerful engine—namely, the Allison 12-cylinder liquid-cooled plant which develops something like 1,620 h.p.—is said to drive the XP-40 at a cruising speed of better than 350 m.p.h. And top speed? Well, rumor has it that the ultimate velocity is in the neighborhood of 400 m.p.h.!

Wow! No wonder they're hush-hushing her!

Machine guns within easy reach of the pilot are the latest Browning .50 caliber type. Another appetizing bit we'll pass on to you is the stirring gossip that recently reached the ears of Walter Winchell. This story has it that our Air Corps master-minders are somewhat worried that the XP-40 may fly so fast that it'll be darned hard for our flyers to aim 'er straight!

The XP-40 is the latest modification of the original Curtiss Hawk 75 low-winger which made the last of the old Hawk biplanes look like a wartime Jenny by comparison. The fuselage of the XP-40 has been effectively thinned out behind the cockpit, resulting in the attainment of increased speeds through streamlining. The wing is of all-metal structure, internally braced, and completely housing the retracting landing gear.

Ailerons, rudder, and flippers are of metal construction, fabric covered. The three-bladed Curtiss constant-speed prop is encased in a spinner cap, giving the ship's external appearance extremely clean lines. And it also gives the model more of the real-shipish streamlined looks.

The Model's Fuselage

THE HOLLOWED type of fuselage used in our model has been chosen because this is the best way to simulate the metal skin used on the actual ship. The fuselage, which is carved in halves, necessitates the use of stiff paper templates for its top and side views, as well as for the cross-sectional contours.

Fuselage blocks should be of the softer balsa variety and knot-free throughout. The first step is to cement both fuselage blocks together very lightly since they must later be separated. Trace the side views of the fuselage on both sides of the block and remove all the excess wood with a sharp knife. Use sandpaper to smooth the surface and then trace out the top view of the body.

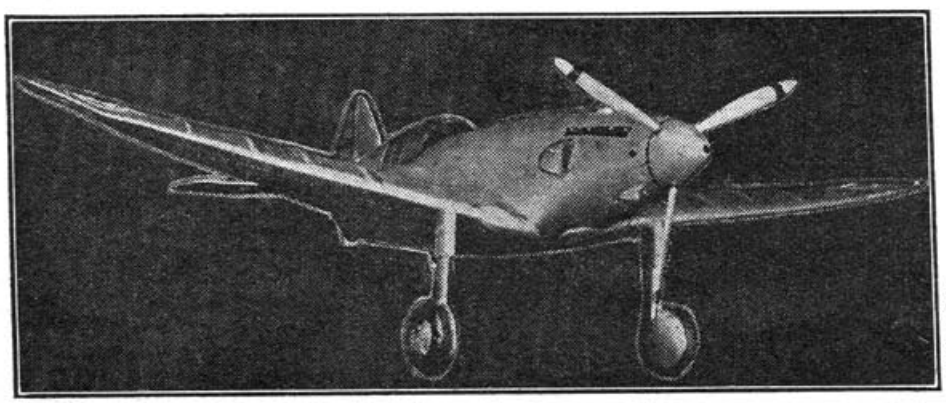
Reverting to the fuselage plans for a moment, notice the section starting just aft of the sliding hatch, marked "C-C". At this portion the upper part of the fuselage is channeled. To get the proper dimensions and contours, make a stiff paper template of the portion to be channeled, trace the template in its proper position, and carefully carve out the channel. A fuselage cross-section template at "C-C" will provide the depth at the extreme width.

The next step is to carefully eliminate the wood portion of the fuselage which forms the cockpit housing. The section is identified on Plate 1 between "B-1" and "C". The slanted broken line at "C" indicates the angle at which the rear portion is cut.

Later—after the fuselage has been hollowed—this portion is completely covered with celluloid to form the cockpit enclosure.

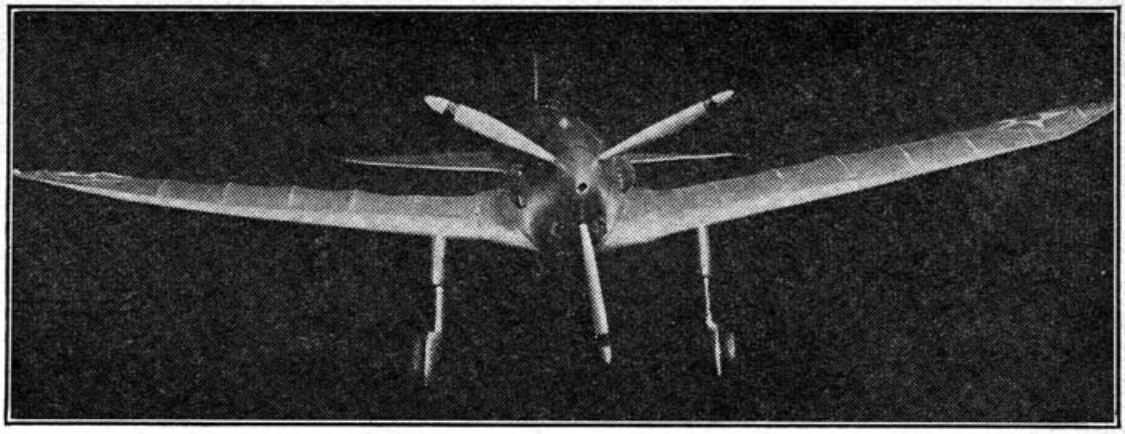
The fuselage blocks are carefully pried apart with the aid of a long, thin bladed knife. Another inside template must be made and cut to shape by following the series of dotted lines which indicate the wall thickness throughout the fuselage design.

This template is then traced onto the inner side of each fuselage half. All of the wood inside of the new outline is to be removed. You'll find that the walls are about 1/16" thick all around the fuselage except the portions near the nose and the extreme tail. Use a sharp knife and work slowly and carefully. When nearing the bottom of the shells, use coarse sandpaper to smooth out the rough spots near the 1/16" wall



Left: This is how your peppy XP-40 will look coming in for a dead-stick landing. Yes, we know that's a scale-prop on her instead of the flying-prop. But when your own job is off the workbench you'll be ready to bet your last safety belt that this nifty ship will fly even with a display airscrew!

Right: Here she comes right at you—showing the fine lines that make her a blue-streak in the air. And don't mind her being a low-winger. She'll stack up with the best of 'em regardless. Construction is easy, too. Just flip this page and you'll find four fine plates showing you how to go about it.



and then finish the sanding job with very fine paper.

Both shells are afterwards given three coats of dope, both inside and out. Brush over with fine sandpaper between each coating of dope.

Cut out a small door from one side of the fuselage. The piece of wood which is removed cannot be used for the door, so shape another piece to fit. Use small pins for the hinges and the door knob. Join the shells together by applying cement generously along the inner sides of both halves and then press them firmly together. Place a couple of rubber bands at intervals along the fuselage to keep the shells firmly together while drying.

When this operation has been completed, small parts such as the rear wire hook, tail wheel, and parts "F-1" to "F-6" are cut to shape and cemented in the positions indicated.

The next addition to the fuselage is the cockpit enclosure. This is built up from two pieces of celluloid. The first part retaining the shape of the conventional windshield and the rear portion forming the hatch.

Thin sheet celluloid is bent to the required shape, allowing a small edge to overlap the body sides. Apply cement to the wood and glue the celluloid in place.

The frames shown on the windshield on Plate 1 may be duplicated by placing black paper strips in their respective positions.

Fillets and Wings

SHAPE the fillet pieces from the blocks listed in the Bill of Materials. Inasmuch as they form a very important part of the model, they should be made with extreme care. Study the front, side, and top views of these parts as you proceed with your work. Finally apply a generous amount of cement and press the fillets in place. Allow a couple of hours for drying.

A plan view of the left wing is shown complete. By going over its outlines with a hard pencil, applied with sufficient pressure to make its shape visible on the reverse side of the page, you may then use the same plan to build the right wing panel. Twelve ribs, each cut from 1/16" sheet balsa, make up the necessary amount for both wing panels. The wing tips are cut to shape from 1/16" flat balsa and are glued at the joining ends.

Round the leading edge off and taper the trailing edge to an airfoil section. Note that rib "R-1" on both panels slants inward slightly to obtain the necessary dihedral angle.

Upon completion of the skeleton frame work of both panels, cover the wings with fine Japanese tissue. Use banana oil for the adhesive. And before doping the wings, spray the tissue lightly with water.

Tail and Landing Gear

THE TAIL surfaces are made from 1/16" by 1/8" sheet balsa. An exception, however, is made for the inner rib of the stabilizer parts. This rib is marked "S-1" and is cut to shape from a piece 3/16" by 3/16" by 1 7/8". The thicker outer-edge gives more cementing area when the stabilizer halves are joined to the body sides. Apply glue carefully at all joining ends, keeping the parts flat until they are thoroughly dry—this will prevent warping. The tail surfaces are covered on both sides and prepared for doping in the same manner as the wings. But dope only *one* side at a time.

The landing gear legs are made in two parts. The lower parts, "LG-1", are cut to shape from hard balsa. A razor edged blade can be of great help in this operation. Study all three views and get a clear picture in your mind before starting on this work. The upper portions, "LG-1a", are carved to shape from separate pieces and streamlined. It is cemented to "LG-1".

Part "LG-2" is cemented to the landing gear in the position shown on the plans.

To Make the Prop

CARVE three blades to shape from 3/16" sheet balsa. Then join them at the center with glue, and then re-inforce additionally by cementing small triangular blocks between each blade (see drawing on Plate 2). The rear of the spinner nose-block is carved away to accommodate the hub of the prop. Apply cement to both prop-hub and the back of spinner cap, and press 'em flush together. Allow plenty of time to harden.

For motive power use six strands of 1/8" flat Para rubber. Fasten an "S" hook to each end of the strands.

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Bill of Materials

(All wood is medium balsa except where otherwise specified)

Two blocks soft balsa 1" by 3½" by 15" for fuselage;
Two strips balsa 1/8" by 1/8" by 8" for leading edges;
Two strips balsa 1/8" by 3/16" by 8" for No. 1 spars;
Two strips balsa 1/16" by 1/8" by 8" for No. 2 spars;
Two strips balsa 1/16" by 1/8" by 8" for trailing edges;
One sheet balsa 1/16" by 3" by 36" for wing ribs, tail surfaces, etc.;
Two pieces soft balsa 1½" by 2¼" by 7½" for wing fillets;
One piece balsa 1¼" square for propeller spinner;
Two pieces hard balsa 3/8" by 1½" by 1½" for landing gear part "LG-1";
Two pieces hard balsa ½" by 5/8" by 1" for landing gear part "LG-1a";
Two pieces hard balsa ¼" by 5/16" by 1½" for landing gear braces "LG-2";
One block balsa 1" by 2" by 6" for parts "F-1" to "F-6" inclusive;
Three pieces hard balsa 3/8" by 1⅛" by 3¼" for prop blades;
One length .020 wire 6" long for wire fittings;
Bottle of clear cement, banana oil, 1 sheet jap tissue, colored insignia, large bottle of aluminum paint celluloid, small bottle black paint, six feet of 1/8" flat rubber, and two copper washers.

The Curtiss XP-40

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Lower one end of the rubber motor into the fuselage and fasten it to the rear hook. The other end is attached to the hook on the prop-shaft. Be sure the opening in the front of the fuselage nose is large enough to allow the rubber strands clear operation.

Assembly and Flying

IN ASSEMBLING the wings and tail members to the fuselage apply plenty of cement at all joinings. It is advisable to use small wood props under the extreme ends of the wing tips and horizontal tail members. These will hold the parts in position while drying as well as to serve in properly aligning the members in relation to the others.

The ship is painted aluminum throughout. To get an exceptionally fine finish, apply three coats of wood filler to all wood parts. After the last coat, sand over the wood surfaces with wet emery paper and then dry thoroughly with a rag. Now apply a single coat of bright aluminum paint to every part of the ship.

Parts such as the radiator, wheels, and hinge-lines are touched up with black paint. The rudder markings in red, white, and blue are painted in position. And regulation stars on both upper and lower surfaces of the wings are also attached. The words "U. S. ARMY" are divided by placing "U. S." on the under surface of the left wing and "ARMY" on the under surface of the right wing. The letters should be black.

Before test hopping, glide the model over clear ground. You'll be able to determine in this manner just which way the model should be balanced for power flights. Give the prop about fifty turns for hedge-hopping flights at first. Tricky characteristics, if any, will manifest themselves during these first flights.

Now, if everything is all set, take your XP-40 out to the nearest field, wind 'er up to capacity, and let 'er go—but have *plenty* of room around you!

Answers

TO QUESTIONS ON PAGE 24

1—Firms are now experimenting with the building of airplane bodies out of plastics (formed in moulds under great pressure). If successful production will be speeded up in this manner.

2—A sirocco is a hot, oppressive dust-laden wind experienced in Northern Africa. Nope, flyers don't like 'em.

3—The Fairey "Flycatcher" was a single-seat fighter biplane formerly used by the British Fleet Air Arm. It was powered with a 385 m.p.h. Jaguar engine.

4—To our knowledge, no German multi-seat plane has yet appeared with any form of automatic turret aboard.

5—The Bergamashi A.P.1. is a single-seat attack-fighter plane designed for the Italian Air Service.

6—*Some Still Live* was written by F. G. Tinker, an American flyer. In it he describes his experiences while flying for the Loyalists in Spain.

7—The new Halford-Napier "Dagger" engine, of 24-cylinder design, is now rated at 1,000-h.p.

8—There is no record anywhere showing that poison gas has been successfully discharged on troops or cities by bombs dropped from airplanes.

9—Aircraft motors can be stopped if ice is allowed to form on the carburetor. When humidity is high, the evaporation of gasoline drops the temperature of the mixture below the freezing point and the moisture contained in the air condenses on the manifold walls and freezes. This ice gradually builds up and chokes off the manifold passage, eventually stopping the motor.

10—The word "aerostation" refers to the art of flying or handling lighter-than-air craft, as opposed to heavier-than-air jobs.

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