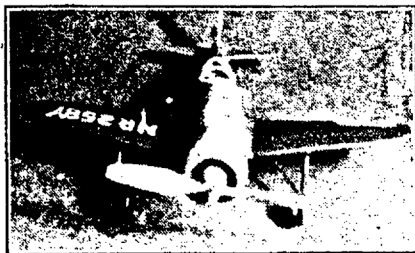


Fly the Howard Hughes Racer



A front view from above which shows how the barrel-like cowling shapes into the fuselage.

DO you remember *Hell's Angels*, the first real aerial movie? Well, Howard Hughes, the pappy of that thriller, also fathered the new ultra-fast racing airplane which we draw upon for this month's feature model.

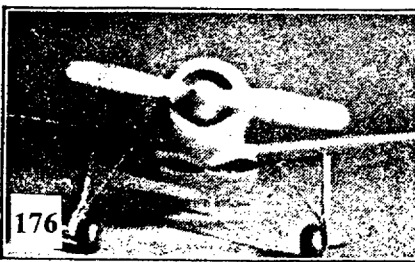
The Hughes Racer is the cleanest speedster ever built, in our opinion. Its cost approached the \$100,000 mark. Powered with a Twin Wasp souped up to 1000 h.p., the ship's top speed is approximately 355 m.p.h. In the eyes of the Army, it's a potential pursuit ship.

The span is 25', length 27', and the tread 10'. The landing gear, of unique design, retracts fully, as does the tail skid, likewise. (Next thing you know, they'll be retracting the wings!)

Our flying model has been designed simply, yet like its big brother it also boasts plenty of speed. Your finished model should weigh about six ounces, including a .4 oz. weight in the cowl to hold the nose down on the race course.

WING PANELS

CEMENT the blocks for the fuselage together and while they are drying, start the all-balsa wing panels. The drawing in Plan 4 is arranged to show the bottom of the left wing panel and the top of the right wing panel. In this manner, the parts and lettering for both panels utilize one pattern. The workable aileron is on the left wing, so the parts demanded by the workable aileron may be omitted from the right wing construction, the "flaps" on both wing panels are cut out after the panels are covered and hinged back on with tissue. Cut the main ribs out of rectangular pieces of 1/16" sheet balsa barely large enough, and use the remaining pieces to cradle the covering to the shape of the ribs while building the wings. Work on a soft board and use plenty of pins to hold the work. After



Here's full instructions for building a model of the latest blue streak of the sky—the record-smashing Hughes speedster. And what's more, it's a FLYING model! One glance at the four swell "shots" of the job on this page, and we'll wager you'll start work on it right away. Finish it, wind 'er up, and—Z-z-z-z-z-i-p!

There she goes!



By Alan D. Booton and Ralph Pickard

completing the panels, cut the aileron out of the left one, attach the aileron as shown on the drawing, and let the wire connection extend out 2", so it may be inserted in a 1/16" hole drilled in the center section when ready to assemble.

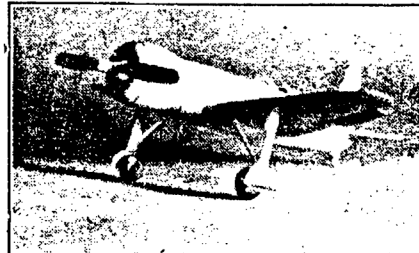
Note: The wing panels may be shaped from soft balsa blocks, if preferred, and still maintain the balance of the model.

FUSELAGE

TRACE the outlines of top and side views on the joined fuselage blocks (See Plans 2 and 3 which fit together) with the joint centering the top outline. Cut these outlines on a band saw, if possible. In carving, the sections at A, B, C, C', and D are round, and at E and F the templates are used. Note that the head rest at E fairs out near the center line, has no usual indentation, and gradually disappears at F. Sand the fuselage to your satisfaction, dope it all over, and then resand with very fine sandpaper. Separate the halves and hollow them out, 3/16" thick starting at C', and gradually taper to 1/16" thick at the extreme rear. Tapering the thickness adds balance to the model. Cut out the formers, E and F, from 1/16" sheet balsa and sand them to fit in position when the fuselage sides are placed together. Cement a 1/8" sq. piece to the back of former F and attach the anchor with plenty of cement. Next make the 1/4" balsa disc to fit in the cowl, and make the nose plug to fit snugly in the disc. The nose plug must be removable in order that you may insert and wind the motor. Now cement all parts and put the fuselage back together. When dry, cut away the fuselage, where the center section goes, to the shape shown on the side view, to receive the center section. Rig the control shaft wire and leave it until the center section is ready.

Left: This view shows the housings into which the undercarriage retracts when the ship is in flight. (But to be on the safe side, you'd better leave your wheels down when you put 'er into the air!)

Right: We've included this photo to illustrate how the wing roots are faired into the fuselage. A nice bit of fillet work!



The speed lines of the ship are displayed to great advantage in this side quarter "shot."

CENTER SECTION

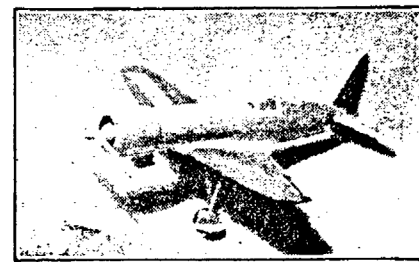
CARVING is easy by this method. Shape the block (See Plans 1 and 3) to fit in the aperture cut in the fuselage for it and when a good fit is made, center the block against the fuselage and then mark around the joint while the block is held firmly in place. Also mark the wing positions on the outer ends of the block with 1 1/2° of incidence angle. With these lines to guide you, carving the correct contours should be simple. Be careful with the trailing edges where they fade out toward the fuselage, and hollow the portion that is covered by the fuselage to 1/4" thick to make room for the rubber and the torque control. Cement the wing panels to the center section with the proper dihedral angle. Bend a 1/4" crank on the wire connection that extends into the center section and cement a bushing or washer at the hole to make a bearing. The crank must be bent several degrees forward of vertical while the aileron is at neutral.

LANDING GEAR

THE landing gear has been drawn to scale in order that you might employ your own pet method of assembly. Put a 1/32" music wire through the strut, including the axle and anchor, which is securely cemented into the retract well, and omit the other struts for flying purposes. The tail skid can be made retractable, but a stationary one is more suitable. The one shown is made of aluminum tube, wire, hard balsa, and bond paper for the flaps.

TAIL SURFACES

THE tail surfaces are of the built-up type to keep the tail light. The ribs are 1/32" sheet balsa and the outlines are of denoted sizes. Streamline the ribs



and sand the leading and trailing edges, and fillets to the proper streamline shape before covering with white tissue.

ASSEMBLY

BEFORE assembling, the center section wing assembly should be given a coat of banana liquid and fine sanded to kill the fuzz. The control wire from the nose should be attached to the crank, a washer cemented on to hold it on the crank, and a .4 oz. lead weight cemented in back of the $\frac{1}{4}$ " disc just before cementing the center section-wing assembly to the fuselage. Mix a creamy paste of flour and banana liquid and rub it on the balsa surfaces with the finger tips to fill the grain and scratches, using acetone or thinner to "grease" a spot if it becomes too sticky before finished. Sand all this with very fine sandpaper when dry and then cement the tail surfaces on. To stretch the tissue, dampen with water spray and let dry.

PROPELLER

THE propeller for flying is only slightly larger than scale, due to the speed demanded. Carve it from a very hard block. Cut out the propeller blank, varying its width as shown. After carving the blades, round up the hub and housing. The shaft is $\frac{1}{32}$ " music wire, attached in the conventional way. The nose block is removable for installation and winding of rubber. The original model is powered with 14 strands of $\frac{1}{8}$ " black lubricated rubber. To insert the power, enclose the strands in the special rear hook and bind the strands together. Drop this end into the fuselage (while holding the other end with one hand and the nose of the model up with the other) and watch through the cockpit while engaging the hook to the anchor. Now enclose the front ends of the strands in the prop shaft lock hook. You will now notice that the end of the control wire looping over the prop shaft is removable and bent in such a way as to snap on and off when desired, and that the spring can be screwed onto the shaft by its coil, between washers.

DECORATING AND FINISH

THE real ship is mainly aluminum finished, except the wings, which are dark blue. The lettering on the tail, wheels, and motor is black. Lettering on wings and propeller is aluminum or white. Flaps on landing gear are brassy. A regular model gloss dope will give the best finish with one coat, if the surfaces have been filled carefully. *Do not paint the model*, if you expect it to fly well.

It is the best to flight-test the model in a field of tall grass, gradually increasing the number of turns from 75, after the first trial, to capacity, after adjusting until the model will fly horizontally for 75 feet before zooming. Adjustment of the torque control on individual models is necessary to prevent under or over control on the take-off. Good luck!