

The Nieuport Delage 580

One of the crack fighting planes of France, the Nieuport Delage 580 has won wide popularity among the French pilots—and justly so! Train your eyes on the top-flight model pictured at the bottom of this page, and you'll agree with the French! This is a model you builders will want to turn out with true craftsmanship. Below, Mr. Limber tells you how.

★ ★ ★

By Nick Limber

AMONG the models that made their debut at the Thirteenth Annual Paris Air Show, the Nieuport Delage 580 is the particular model that has become dear to the French pilot's heart. The flying characteristics of the ship are a closely guarded secret of the French Air Ministry, therefore it is impossible for us to give you performance data on this remarkable craft—but we can show you how to build an excellent flying model of it, such as the one pictured on this page.

FUSELAGE AND MOTOR HOODS

AFTER you have carefully studied the plans and are sure you understand them, you are ready to start construction of the model. Since all-balsa fuselages are in style and are very easy to build, we will construct our fuselage of balsa blocks. A 14" by $\frac{3}{4}$ " by $2\frac{3}{8}$ " block will be needed for the side of the body. Two of these blocks glued together will give you the right size for the fuselage. First, trace the side view of the body from the drawings to the balsa block. This done, cut around the outline just made and sandpaper the newly cut surface. When this operation has been completed with both blocks, glue the two blocks together. Care must be taken that the glue is just on the edges of the blocks or else you will have a hard time splitting the blocks when the time comes to hollow out the body.

Plate C shows templates AA, BB, and CC from which you make other cardboard templates. Each one is used to set up flush against the side of the fuselage at the positions marked on the drawings. A sharp knife is used to shape the sides of the fuselage, and sandpaper is employed to finish the surfaces. By holding the template flush against the side of the body, you are able to tell if you are shaping the sides correctly or not. If you hold the body up to the light and no light passes through between the template and the outside wall of the fuselage, you have shaped the body correctly. This method helps you get both sides of the fuselage correctly shaped. When the sides of the body have been finished you may split the blocks along the glued line and proceed to hollow the inside of the fuselage. Hollow until the walls of the body are about $\frac{1}{16}$ " thick. When the inner walls of the body have been sandpapered, reglue the two blocks together again. Notice that the diagram calls for a small groove in the front end of the body for scale purposes. Three $\frac{1}{4}$ " holes are also drilled on both sides of the body. The next step is to dope the fuselage and put away to dry before sanding surfaces again with the fine sandpaper.

While the dope is drying, make the motor hoods as shown in Plate

A. A soft grade of balsa is used for the hoods and they are hollowed out after the desired shape has been obtained. A piece of $\frac{1}{16}$ " dowl is used for exhaust stacks. When the exhausts have been glued into place, cement the hoods to the body at a 45° angle, as shown on Plate D.

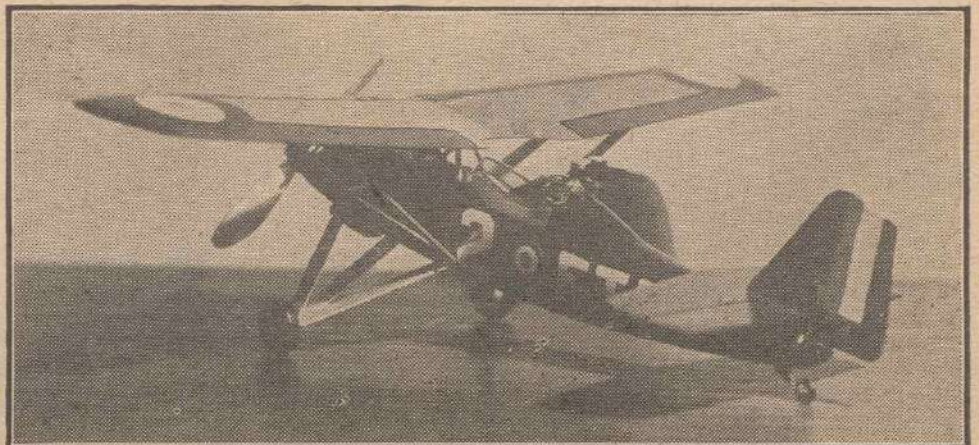
Our next step is to get a block of soft balsa 4" by $1\frac{1}{4}$ " by $\frac{7}{8}$ ". Out of this block, carve the cockpit form, as shown on Plate E. Care must be taken that the form does not split when you are hollowing out the inner side of the form. When the cockpit form is complete, cement it to the fuselage and make piece Z, as shown on Plate A. This piece is glued to the nose of the body and acts as a socket for the nose plug. A similar socket is used to support the rear plug and is shown on Plate C. It is wise to see that the sockets are made of the hardest balsa obtainable. Now make the radiator, employing cardboard or thin metal. (I would suggest cardboard, as it is very easy to work with compared to metal and is much lighter.) The radiator is nothing but a series of plates glued side by side. The side view of the plates is given in Plate A. When you have glued the radiator plates into place, start work on the tail surfaces.

TAIL SURFACES AND WINGS

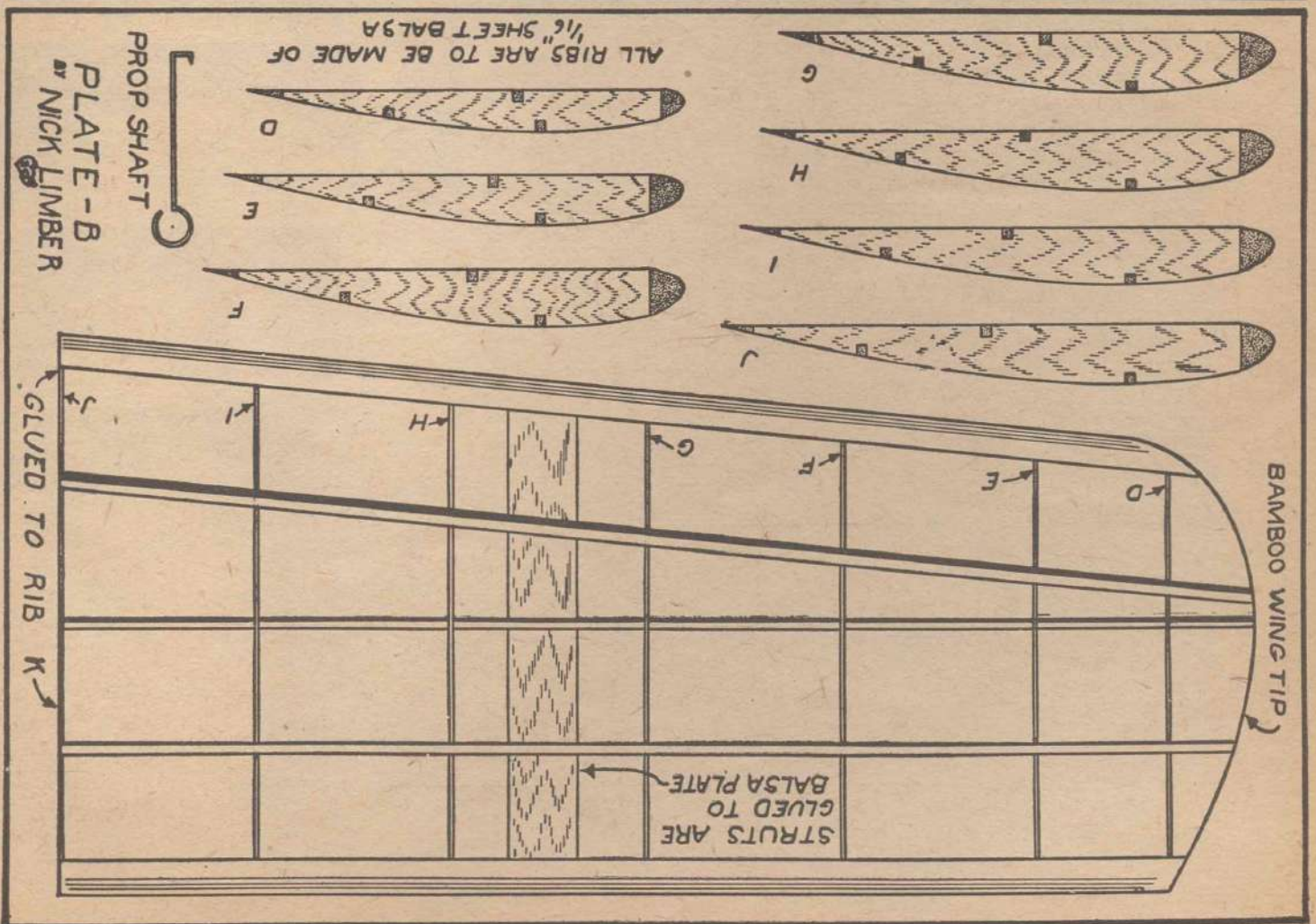
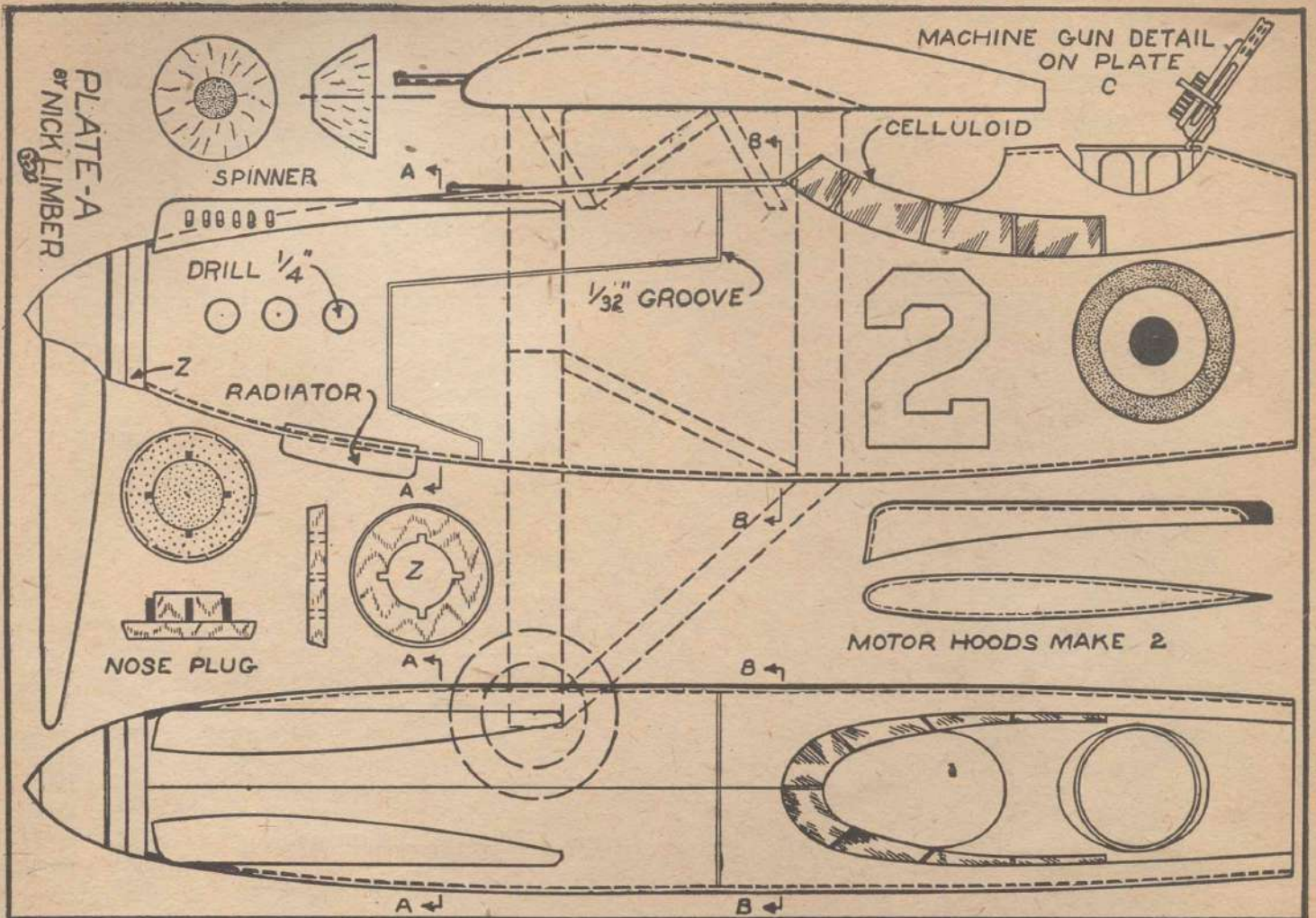
THE rudder and elevators, shown on Plate F, are made of strip balsa with bamboo used as tips. The leading and trailing edges of the elevators are made of $\frac{1}{16}$ " by $\frac{1}{8}$ " strip while the rudder and cross pieces on the elevators are made of $\frac{1}{16}$ " by $\frac{3}{32}$ " strips.

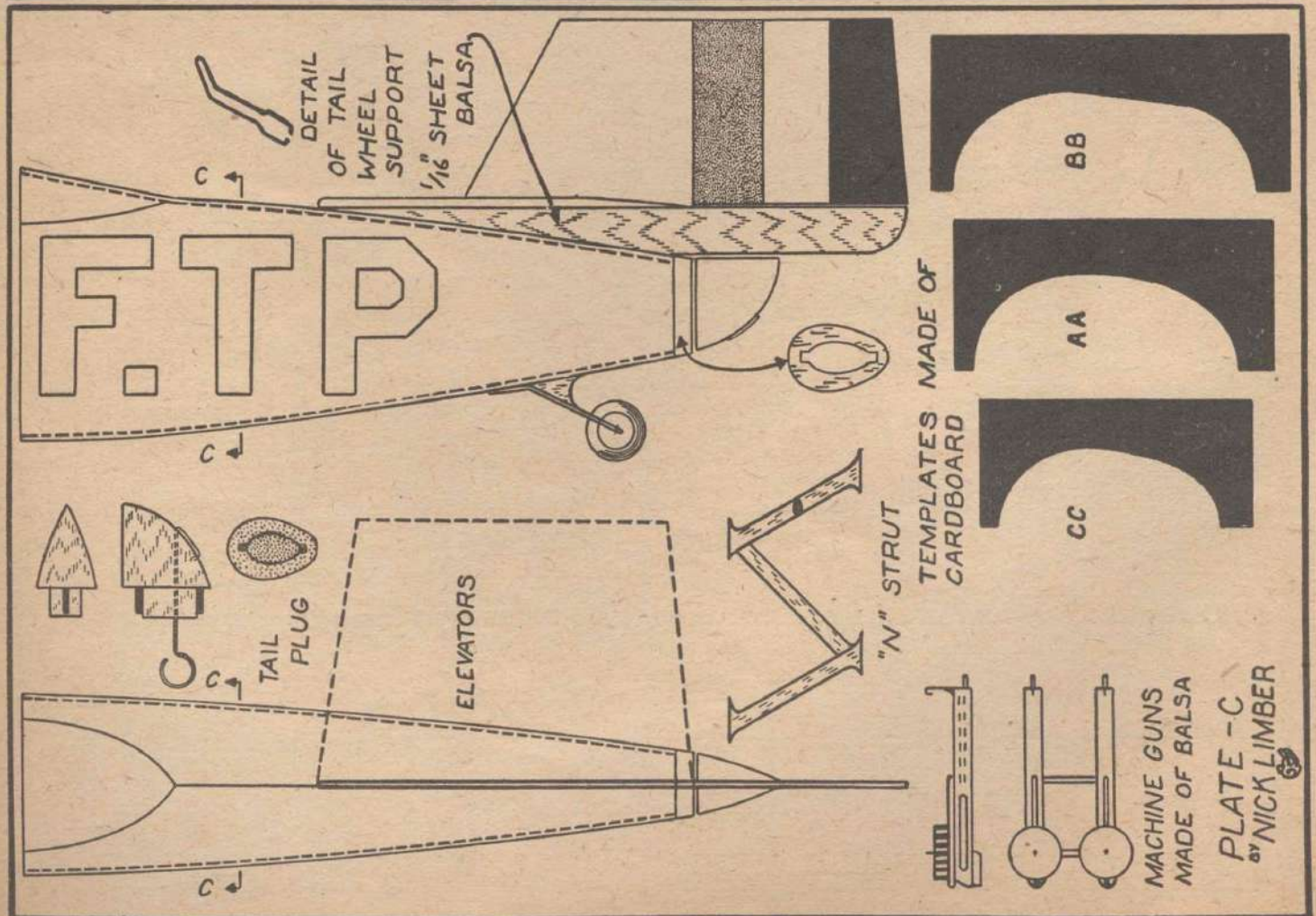
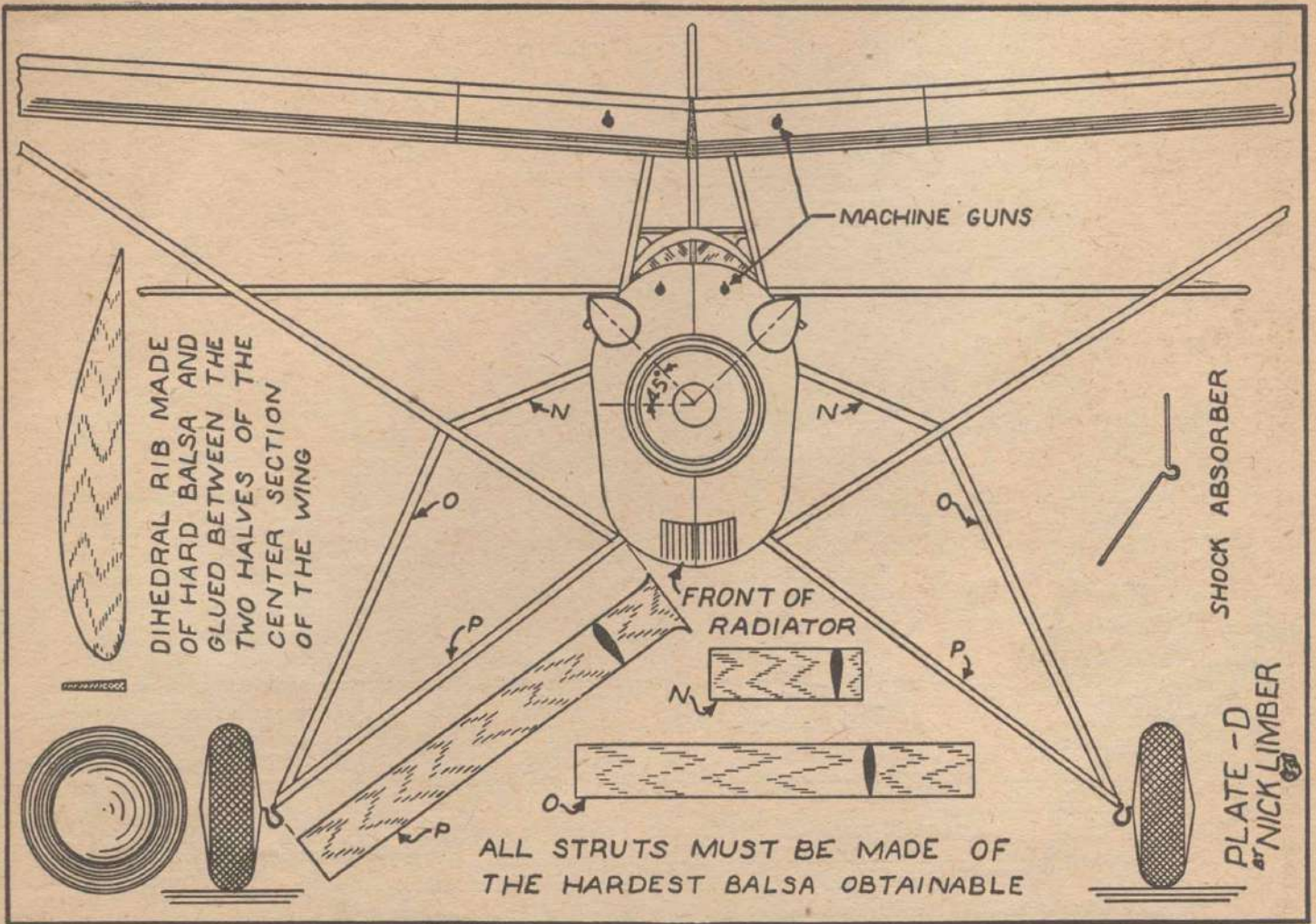
Great care must be taken that the tail surfaces do not warp when the glue is drying. If a flat heavy object is placed over the frame work of the tail surfaces while they are drying, it will insure against warping. When the framework is dry, cover the surfaces on both sides with Jap tissue or Jap silk. I would recommend silk for the builders who wish to have the model for

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"That's a model as is a model!" we can hear you say. And we of FLYING ACES chime in with a resounding, "You said it!" Nick Limber, author of this article, brought his snappy Nieuport Delage 580 into the F. A. Offices, and, we can tell you it has what it takes—with plenty to spare!





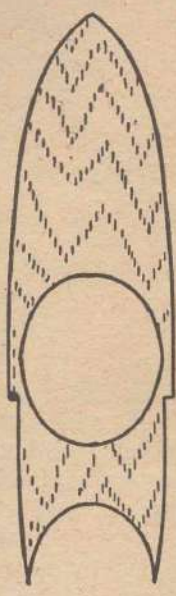
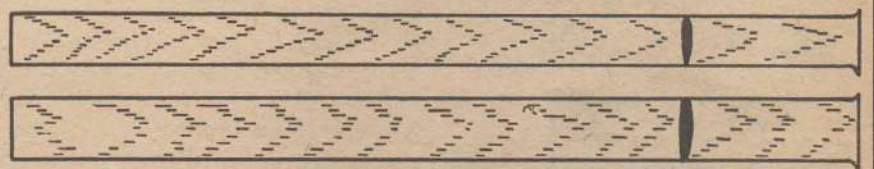
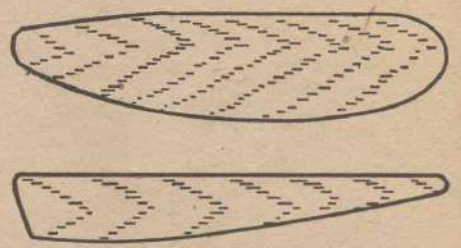
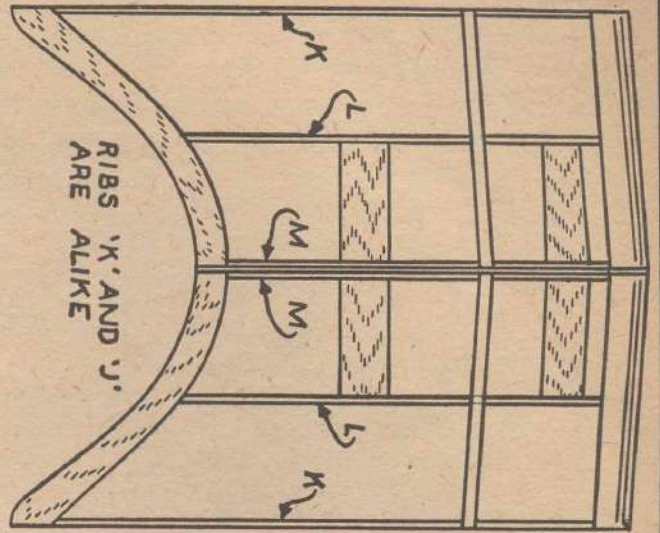


PLATE - E
NICK LIMBER

'S' HOOK



RED
WHITE
BLUE

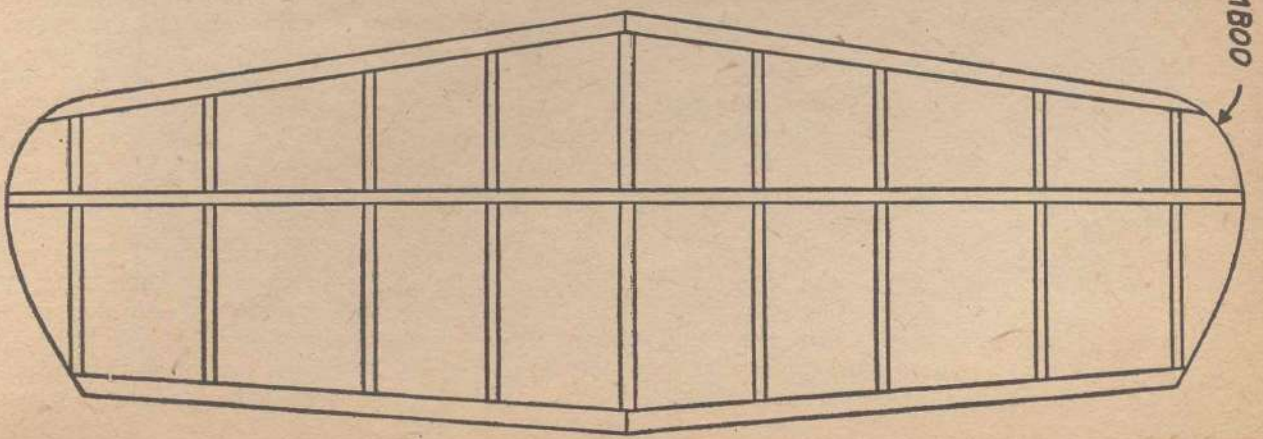
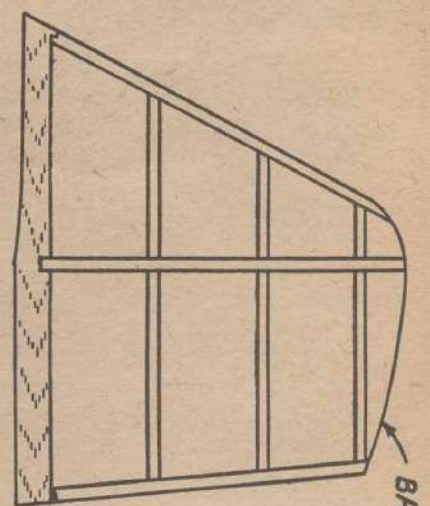


PLATE - F
NICK LIMBER

FLYING PROP

MACHINE GUN
MAKE 4

ping into his chair like a limp rag, "He captured Kapitan Poison and his U-boat. Went fishin' in the North Sea in a Limey seaplane. Hooked the sub. Said to tell us he did it with a picture book. Anybody here want a drink?"

"I need a bottle of it," Captain Howell exploded. "How long do you think the Kaiser will be safe from that speckled crackpot?"

"I would hate to be in his shoes," the

Major gulped and sent Glad Tidings Goomer, mess attendant, upstairs for four bottles of brandy.

Messages of congratulations came in from every point of the war compass, but the members of the Ninth got to the point where they could not even answer the 'phone. When the Wing Commander arrived, he was unrecognized. The personnel of the Ninth were boiled right to their scalps.

Photo Models in Movie Settings

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but at this slow shutter speed you will have to place the camera on a tripod or something solid in order that there will be no movement of the camera when you snap the picture. With a box camera, you will have to make a short time exposure.

It is advisable to take several pictures at different angles. The one you think is the best can be enlarged to hang on the wall in your room.

Of course, all sorts of scenes are possible. Why not lay out a tiny lake along-

side a miniature farmer's field, put in a rustic fence made out of matches, and then "spot" one of your land plane models on the field? It would make a snappy "set." And you can build model hangars, too, such as the one beside which Albert Juhn photoed his model of Rick-enbacker's Spad, shown on page 27 of the September FLYING ACES. In short, there's an infinite number of settings possible.

You say, you've now got a "set" in shape? Okay! Camera!

The Nieuport Delage 580

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display only and tissue for the builders wishing to fly the ship. In both cases, be sure you dope the covering until a tight covering without wrinkles has been obtained.

The wing is made next. Notice that the wing is made up of four pieces with a dihedral rib fitted in the middle of the center section. Plates B and E show the wing and center section. Make the ribs of 1/16" sheet balsa. The leading and trailing edge is made of solid balsa. The cross sections are shown with each rib. Before gluing the leading and trailing edge on the ribs, I would suggest first gluing the 1/16" sq. struts into place. When all the struts or spars have been glued and the ribs are held together in place, shape the leading edge and glue in place. The same thing is done with the trailing edge. While you are waiting for the wing to dry, start work on the dihedral rib. This rib is shown on Plate D. The rib must be made of hard balsa only. You will notice that ribs K and J are alike. You will also notice that 1/16" sheet balsa plates are glued in the wing so that the N struts and wing struts may be glued on to the balsa plate instead of the wing covering. The wing tips are made of bamboo and are the last thing that is fitted to the wing before covering it. You cover the wing with the same material as you have covered the tail. After doping, allow to dry before assembling the four separate units of the wing as one. When the wing is being assembled as one unit, fit the dihedral rib in the center section and be sure that you have 3/4" dihedral at each wing tip.

LANDING GEAR AND STRUTS

NOW that you have completed the body, tail surfaces and wings, start work on the struts and landing gear. Plates C, D, and E give all the information needed for making the struts. Notice that the thickness of the struts varies from 3/32" to slightly over 1/8". Be sure that you are using the hardest balsa obtainable—else you may be sorry you didn't after your model comes in for a landing. When the desired lengths have been cut for each strut, streamline each one carefully. The N struts may now be assembled as shown on Plate C. Now that you have completed the struts, it would be wise to dope them. Now turn to Plate D and make the wire shock absorbers. Stick them into strut P, as shown in Plate D. Now that we have the wire handy, it is wise to make all the wire parts for the model. Plate B shows the prop shaft; Plate C, the rear plug hook and the tail wheel assembly; and Plate E, the S-hook.

Our next step is to make the nose and tail plugs. Plates A and C show them. Note that 1/16" sq. strips glued on the plug prevent it from slipping in the socket. Be sure that the plugs are also of very hard balsa. The prop shaft and rear hook is now passed through the plugs.

Details such as machine guns may now be made and glued into place. The observer's guns are glued onto a small metal ring, as shown on Plate A. The ring is supported to the rear cockpit by 1/16" sheet balsa, as shown in the side view on Plate A.

If you are building the model for dis-

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12 "	35c	35c	55c
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15 "	65c	65c	80c
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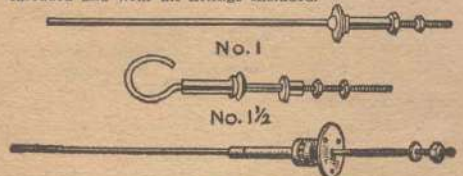
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play, make a scale prop. The diagram for such a prop is shown on Plate E. If you want the model to fly, make the flying model prop. This prop is shown on Plate F, with the top view on Plate E. The flying prop must be doped and finished with fine sandpaper before the prop shaft is passed through it and glued.

You now get a piece of celluloid and make the windshield. Note that the front part of the forward pit is made by the windshield. Next turn to Plate C and work on the support for the elevators. Notice that it is only a piece of 1/16" sheet balsa. When you have cut it out, glue it on the fuselage, as shown on Plate C.

ASSEMBLING THE MODEL

CEMENT the tail surfaces to the body, making sure that the rudder is vertical and the elevators horizontal. Now glue the N struts on the fuselage, as shown. When this is done, glue the wing on the struts and cement the wing struts shown on Plate E into place.

The tail wheel is next in line to be attached to the fuselage. The landing gear is then assembled and glued to the body. Wheels are now attached to the ship, and after the plugs have been slipped into place you have completed your model. Wheels must be of celluloid if the model is to be flown. Standard rubber tired wheels may be used if the model is for display.

COLORING

A GOOD color scheme would be olive drab and yellow, with the regular red, white and blue insignia of France, and white lettering, on the side of the fuselage. Machine guns and all struts should be painted black. Wings and tail must be painted yellow, while the

fuselage is olive drab. The propeller will look good painted silver, with red, white, and blue stripes on the tips.

The lettering may be painted on free hand or with stencils.

For best results when painting, sand the model with fine sandpaper between each coat. A coat of clear lacquer will help you get the desired finish if you wish the model for display purposes.

Builders who wish to fly the model and want to avoid all possible excess weight need not paint the model but only add the insignia and the black trimmings. They will be surprised to see that their model, even when not painted, will look trim and neat.

FLYING THE MODEL

FOR motor power, use only four loops of 1/8" flat rubber. Apply glycerine over the rubber surface. Always stretch the rubber before winding.

It is always safe—and wise—to glide the model a few times before allowing it to fly away under its own power. While gliding the ship, you must try to discover any tricky characteristics in the model. If any such characteristics exist, they must be overcome before it is safe for the model to take the air under power.

When the eccentricities have been abolished by warping the tail surfaces, wind her up and let her take the air. Make sure you always head the nose of the ship into the wind with every take off. I would advise examinations of your ship after each flight. In this way, you will often uncover frailties before they cause a crackup. Your ship will have a longer life and will give you many added hours of flying enjoyment.

Now get out your tools—and good luck!

Make the Boeing Bomber

(Continued from page 40)

until all are finished, after which each piece should be coated with dope, as explained above.

Now cut two slots in the tail end of the fuselage, one for the rudder fin and one for the elevators. The one for the elevators should be cut through from one side to the other, but that for the rudder should extend only to the center and thrust lines of the fuselage. After this is done, place some cement in the cracks and slip the rudder and elevators in place, carefully lining them up at right angles to each other. Stick pins into the sides of each to hold them firmly in place while they dry.

Now go on to the wing and nacelles while these are drying. Trace the shape of each nacelle onto the wing in its proper place, then cut out the portion of the wing into which each one will fit. When through, cement-in all the nacelles and allow to dry. Now cut the wing along the top center line from leading to trailing edge to get dihedral, tilting the tips upward and holding them in place with blocks. When the

cement on the wing and tail has dried thoroughly, cut out a portion of the lower side of the fuselage at the point where the wing will be fastened. The depth of the cut should extend to just below the center line of the fuselage. Next, take the piece out, cement-in the wing, and then slip the fuselage piece back, cementing it in likewise. Stick pins in, to hold both in place and allow to dry. Now mix some balsa dust and aerodope and apply it into the crevices of the engine nacelles and wing, and lower side of fuselage, let dry, then sand it down smooth and to the shape of a fillet on both sides of each nacelle.

To make the motors, you can either build them up, use cast motors sold by supply houses, or cut out four silhouettes of stiff paper, painted black, and paste to the front of the cowls. Cement the cowls in place, then go on to the landing gear. This can be made of bamboo, metal rod, tubing, or birch dowl. Make it as shown in front and side views. Then fit a wheel into each