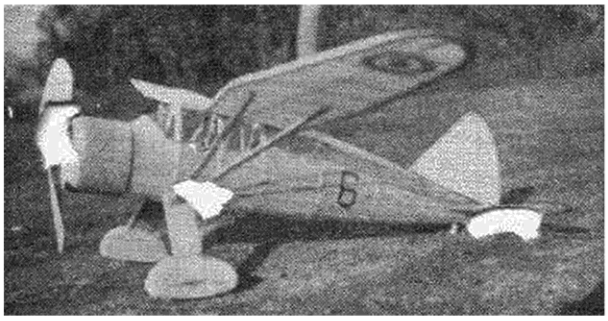
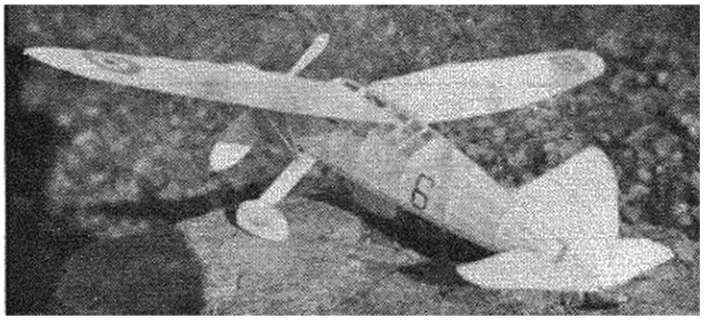


The finished model is just like its big brother



Realistic yet stable because of the high wing

Build and Fly the Westland Cooperation Plane

By ... BERT HARRISON

How You Can Create a Real Miniature of a New British Fighter With Unusual Flying Qualities

THIS Westland A39/34 is probably the fastest and the most useful Army Cooperation machine that the British R.A.F. has ever possessed. It is equipped with Handley Page slots and flaps to enable it to get into and out ... small fi... ch as the type of small front line land... ound en... untered during wartime conditions. It car...es two-way radio communication; is equipped for picking up messages from the ground while flying and has photography apparatus in addition to carrying a fuel supply great enough for a six hour fl... t.

The Westland A39/34 as it is temporarily designated, has a span of 50 feet and a length of 30 feet. It is powered at present with a poppet-valve Bristol Mercury engine of 600 hp. This engine is being changed in the production A39/34 to a new sleeve-valve Bristol Perseus 825 hp. engine. It has an automatic controllable pitch 3-bladed prop. The plane itself is constructed entirely of metal with fabric-covered wings and fuselage. The tail units are covered with light metal alloy sheeting. The cockpits are situated so that the pilot and his gunner have the maximum amount of vision at all times and at the same time are in direct communication with one another. The pilot is seated exceptionally high up in front of the observer. Both cockpits are heated for high altitude flying. The landing gear is of the single strut type and the wheels are covered with a peculiarly-shaped pant.

The flyability of the model is quite good due to the gull-shaped wings and the lightness of the construction. The model as described here has flown for a half a minute but when the "extras" such as the insignia heavy dope, etc., are left off the model and the construction is lightened, then the plane is good for flights of over a minute and is recommended for flying scale model contests. Now let us get to work (or pleasure I should say) building one of England's premier fighting planes.

Fuselage

The fuselage formers are all cut fr... a sheet of 1/16" x 2¼" balsa. The ke... pieces are cut from a sheet of 1/16" she... balsa likewise. The keel pieces are show... on the plan in heavy print. The stringers are 1/16" sq. balsa. The first thing to do is to cut out the keel pieces and the formers from the sheet balsa and then cement the formers in their proper places on the bottom and the two side keel pieces. In this manner the fuselage cannot twist out of shape very readily while the rest of the stringers, 1/16" sq. are being applied. The windows of the plane are covered with non-waterproof cellophane. When the rest of the model has been finished and papered and the water is applied to shrink the paper, the cellophane will also tighten up and give a much neater appearance than if the waterproof variety had been used. The cowl is made in a manner similar to the fuselage and the dummy engine front on the plans can be cut out as can the instrument board and glued into place. The nose block is made from a piece of hard wood (pine) or hard balsa, and is made removable. The tail plug is also removable and is carved from a balsa block 1⅝" x 1" x 1". The landing gear struts are constructed of ⅛" thick sheet balsa and slipped into the slot provided for them in former number 2. The pants are built up in the usual manner from ⅛" sheet balsa. It is best to set the fuselage aside now and leave it to be covered with the rest of the p...s.

The model in actual free flight

el getting under way just after the take-off

Tail Surfaces

The tail surfaces are made by first covering the plans with a sheet of waxed paper and then outlining the drawing with small pins. The outlined pieces are cut from 1/16" sheet wood and are ⅛" wide. The center reenforcing pieces are 1/16" sq. balsa. When making the elevators it will be necessary to redraw the elevator in order to make the right half.

Wings

Before commencing construction of the wings, it will also be necessary to redraw the right half of the wing as space did not permit it to be given in the plans. The leading edge piece ⅛" x ½" balsa is pinned in place after the plans have been covered with waxed paper and then the trailing edge is likewise pinned in place. The center spar is a piece of balsa 1/16" sq. The wing ribs are all drawn full-size and are made from a piece of 1/16" sheet balsa. Make two of each rib size. Cement the ribs into position and allow the wing to dry thoroughly. While the ribs are drying the wing tip pieces can be carved from a piece of 1/16" sheet balsa and are ⅛" thick or wide. These can be set into position without disturbing the wing. When the wing has dried, proceed to cover the plane.

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Build and Fly the Westland Cooperation Plane

(Continued from page 21)

Covering and Doping

It is best to cover each wing section with two separate sheets of white tissue. One sheet will cover from rib A to rib D on both the top and the bottom, while the second sheet will cover from rib D to H and if the paper will go on smooth this sheet can be continued to the tip. Begin to cover the wing at the top of the trailing edge, bringing the paper forward down over the leading edge and back to the lower side of the trailing edge. If the paper is glued only at the trailing edge it will tighten up very well after the water has been applied. The tail sections are covered with a piece of white tissue on each side. It is only necessary to put banana oil on the edges of the tail pieces when covering them. The fuselage is best covered with a number of pieces of tissue rather than one or two because of the elliptical shape of the fuselage cross-section. It is recommended that you cover one or two sections at a time. When we say section when referring to the fuselage we mean the distance between two longerons. The cowling is first covered with a piece of 1/32" sheet balsa and then covered with tissue. The entire plane is covered with white tissue. It may be left this way if a real good flying model is preferred or it may be doped all silver.

Assembly

After the covering job is completed to your satisfaction, start putting the model together. Begin by cementing the tail sections in position. When doing this make sure that they are in the right position and that they are on "straight." The cowling can also be cemented onto the fuselage and then it is best to let the model set for awhile before putting on the wings. The wings are cemented onto the short longeron that runs on each side of the center one on top of the fuselage between formers 2 and 4. See the plans for the exact location. While the plane is drying, the struts can be made. They are cut from a piece of balsa 1/16" x ¼". Sand to a good streamlined shape and cut to the correct length. This length is best determined by continued fitting of the strut until the correct length has been obtained. The wings are given a 5/16" dihedral angle although the angle in the real ship is zero due to the great natural stability obtained through the use of gull wings. The bottom of the struts are cemented on landing gear leg while the top is cemented to rib number D. The plane can now be given a coat of water of room temperature using a spray gun. When the model has thoroughly dried, some builders may wish to further tighten the covering by applying a solution of 50% banana oil and 50% acetone with a brush. If the model is intended for scale purposes only the builder should give it a coat of silver dope. The numbers for the fuselage sides are cut out of the plans and using banana oil are cemented to the fuselage sides just to the rear of former number 5. The wing numerals can be cut from a sheet of black tissue. The wing cockades are of the British type and the size is 1½" diameter while the fuselage cockades are ⅞" diameter.

The Propeller and Flying

The scale propeller is three-bladed and each blade is carved from a separate block of pine 2⅜" x ¼" x ½". These blades are cemented to a ¼" hub which is 5/16" long. The flying prop is carved from a single block of balsa 6½" x 1⅜" x ¾". The flying prop is only a standard two-bladed job. Lay out the block as shown in the plans and carve away the darkened sections. Sand the prop well and make it very carefully. Many builders are disappointed when their models won't fly and usually the cause can be laid to a badly carved propeller. Make the rear and front hooks from .028" piano wire. The rear hook is imbedded in the tail plug and the front hook is attached to the propeller. It is recommended that the builder use three or four loops of ⅛" flat rubber of the best quality procurable. It is always best to pay a little more for the best than to buy some cheap substitute which will continually be breaking and more than likely ruin a model which has taken many patient hours to build.

Fly the model in a field where there is some tall grass to break the fall of the model if it is not adjusted right at first. The model may need a little weight in the nose, in which case some lead shot may be glued inside the cowling. This model is something to be proud of as it flies gracefully in circles until the power gives out and then it noses down slightly into a long flat glide and a three-point landing almost every time. If the builder has any trouble constructing this model or in getting it to fly, please write the author in care of this magazine.

Material List

1—1/16" x 2¼" x 24" sheet balsa bulkheads
1—1/16" x 2" x 24" sheet balsa wing ribs, tail pieces
1—⅛" x 2" x 12" landing gear legs
15—1/16" x 1/16" x 18" strip balsa longerons
1—1/16" x ⅛" x 18" strip balsa tail outlines
2 ⅛" x ¼" x 18" strip balsa leading edge
2—1/16" x ¼" x 18" strip balsa trailing edge
2—1/32" x 1/32" x 12" strip bamboo cockpit details
3—2⅜" x ¼" x ½" pine block scale prop
1—6½" x 1⅜" x ¾" medium balsa flying prop
1—⅞" x ½" x ⅞" hardwood or pine nose block
1—1⅝" x 1" x 1" medium balsa tail plug

Miscellaneous Items

1—1 oz. cement
2—ounces banana oil (paper cement)
1—1 oz. acetone
4—1½" insignia (British)
2—⅞" insignia (British)
1—12" .028" piano wire
1—brush
1—8 feet ⅛" flat rubber
1—1 sheet white tissue
1—½ sheet black tissue (for numerals on wing)
1—1 sheet cellophane 6" x 12"
1—pr. 1¼" balsa wheels
6—washers (brass)
1—ounce silver dope (for scale model only)