



Designer recommends bright color scheme to help keep the plane in sight.

The Alert

BY MICHAEL LATORRE

Here's a real high-performance contest job which uses all Class B engines. What, no balsa? Basswood will work O. K. Just reduce all wood sizes proportionately.

The original ship from which the Alert was developed was a bit smaller than the final model. Powered by a Bantam and having a wingspread of forty-two inches it performed remarkable well. Following several test flights, it was lost on a ten-second motor run with low power, disappearing after a twelve-minute flight. Later, when the author had acquired a Forster 29, the larger ship was built.

Luckily we had retained our original building sketches and from these the larger ship was designed. Due partially to the greater efficiency of a larger wing (with better airfoil characteristics) the Alert is now presented in the improved version, and we can assure all who build it a real championship performance. An unusual feature of the ship is the fact that among the builders it is known as a "prop-saver." In nearly 150 flights with both planes not a single prop has been broken.

For strength and rigidity, the fuselage is built around a "crutch." This piece of 1/4" x 1/2" medium balsa is the basis of firm construction and must be true to keep the finished ship in good trim. You will note that the crutch, at the front, is spliced to the gum wood motor bearers. This step should be taken first, and when the joints are thoroughly dry form the crutch. This is done by building it as it would look if you were atop of it, looking down. The crutch may be pinned to the table top while cross braces are cemented in place. Allow this assembly to dry thoroughly. After this step, and without removing the crutch from the plan, the top formers (marked T) may be cemented in place. It is advisable to line these up well before allowing the cement to harden.

Next remove the crutch (with formers) from the plan and cement the bottom formers (marked B) in their proper

places. The fin, which is in three pieces, is clearly shown on the plans. From your study of the plans you will note the 3/8" gap in the center which accommodates the fin. Cement the firewall in position after applying the landing gear. The landing gear is attached in conventional manner - drill small holes to fit the wire, bend and lash it with linen thread. (Of course, it should be cemented after the threads are tight.)

With the addition of stringers, you now have a fair start on the Alert. Note that these stringers go into the notches on the fire-wall and are cemented on top of the other formers.

The fin construction is extremely strong and at the same time easy to build. It is formed of three-ply balsa with the center 3/16" sheet and the two sides, 3/32" sheet balsa. In forming this be sure the wood is cemented cross-grain, that is, the grain of the outside pieces running opposite to the center sheet. By scaling up the plan the outline of the fin will be apparent. Cement it to proper position first, then sand to smooth leading and trailing edges. The longerons, which have not hitherto been mentioned, are applied at the same time as the stringers although it might be advisable to withhold placing the top longeron until after the fin has been placed, as this longeron begins at the termination of the fin.

A keel of 1/8" sheet is added for greater strength at the center of the fuselage, even with the bottom longeron and directly behind the firewall. The under rudder is conventional in design and construction and is clearly shown in the plans. Motor mounts (which go inside the motor bearers) should be varied to fit the motor used. They

are held in place by side bolts, as indicated, and the motor is affixed to them also by bolts. The wing platform of 3/16" medium sheet balsa should be well cemented to the fin. It is advisable to check this to be sure it is absolutely in line with the elevator platform as well as with the crutch.

In mounting ignition, place all elements as far forward as possible. Of course, wiring should be done before covering. The c. g. should rest at approximately the point shown on the plans.

Form the outline of the elevator over the plan and insert the ribs. When the cement has dried, use the "butcher block" (or sandpaper block) and sand the leading and trailing edges down. Then sand the square ends of the ribs into the leading and trailing edges until you have an airfoil.

The easiest way to build the wing is to build the entire assembly in one piece. Simply scale up a full-size drawing of the wing and build flat (the dihedral comes later) and allow all joints to dry thoroughly. In this manner it is much easier to have all sections uniform and all joints firm. It also eliminates warping to a great extent. First lay down the spars. Then place the ribs in position, next the leading, then the trailing edges. The tips are applied next. The false ribs aid in maintaining the airfoil and eliminate the need for sheeting the leading edge.

After the wing thus built has dried thoroughly (preferably overnight) it might be well to check all joints before proceeding further. Don't forget to apply those gussets, and don't put in the dihedral formers yet.

When you are satisfied that all construction is solid, get out that old sand block and butcher down the trailing and leading edges to streamline shape. Now, here comes the dihedral forming.

Note that there is two inches V dihedral to the first break in the wing. Here's the simplest way to do it. Cut two

pieces of wood two inches high. Two pieces of 2" x 4" will work very nicely. Place the wing on the table, and at the proper distance where the first "break" occurs, lay down those blocks. Cut the wing at the center and apply the dihedral formers. Be sure your joints are firm and the cement dried. When the center section is on the table, and the two panels rest on the two-inch blocks, pin the assembly in place and let all joints dry a while. Two blocks five and a half inches high are used at the ends of the wings. First cut the joint at the break where you have the two-inch blocks, lay the tip on the five-and-a-half-inch block, insert the dihedral formers, cement the assembly and rest back a while and contemplate your good work while the glue dries on the ship (and your fingers). In covering, avoid using heavy paper; use medium bamboo if available; if not, double tissue. If you use Silk-span, it is advisable to put one tea-spoonful of castor oil to one pint of dope used. Don't ask us what the castor oil does to the ship's performance, we wouldn't know. Silk may be used for the body.

We advise painting the ship red or some other color which has a good visibility factor. Don't make the ship all white—it's too easy to lose in the air.

The Alert will probably require no thrust adjustments. In some cases a degree of down-thrust has been used, but a majority of ships will not need this. As the ship is aerodynamically good in design, and incidences are included, very few changes should be made.

First flights should be made with no longer than twelve-second motor runs, using low power. Adjust the ship to fly left under power and left in the glide. A slight amount of wash-in in the left wing will prevent spinning tendency and improve performance.

And there's the Alert. As fine a ship as you'll find on any runway.