Building the Fairchild Ranger

by
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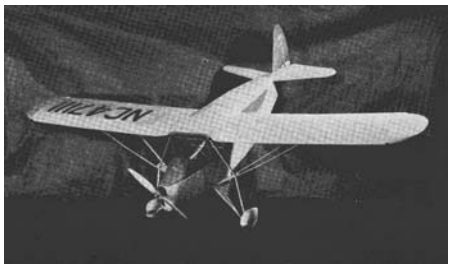
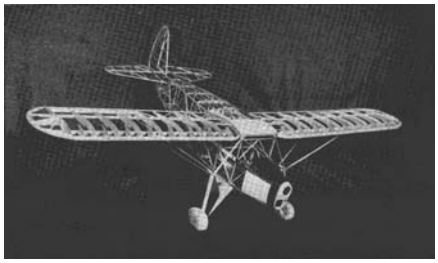
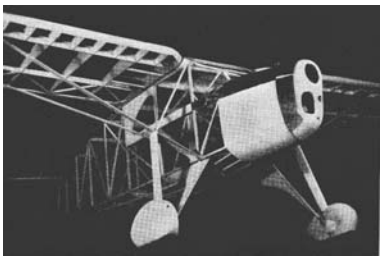
for POPULAR AVIATION



The completely assembled Fairchild Ranger.



Skeleton of the Ranger ready for covering.



A closeup showing the nose and wing connections.

THIS model with its sleek, racy design and proven flyability will be the pride of every model builder upon its completion. .

The design of the ship as a whole makes it very simple to construct. The model is equipped with an extremely simple type of shockk absorbing landing gear, the design of which is very efficient under all conditions. All controls are adjustable as well as the wing struts so that the wings may be adjusted to dihedral. The false struts which fasten from the pants up to the wing struts as well as the struts that run up to the cabin are used for display purposes only.

Construction of the Fuselage

The main longerons are of basswood; all other pieces are of balsa. When the two slides have been constructed, the cross members are cemented into position. One-half inch No. 18 wire nails are driven through longerons into the upright and cross members of the fuselage.

From 1/2-inch sheet balsa cut the formers and cement them in their proper locations. Five 1/8 x 3/16 inch stringers are attached to the bottom of the formers. These are spaced evenly, as shown on the front view of plan. The top of the fuselage is finished off with five stringers which are attached to former F-9 and continue to rear of the fuselage.

The cabin and hatch in the top of cabin may be installed if so desired. One or the other will have to be installed so that the batteries may be moved back and forth to balance the model. The top of the cabin from windshield to hatch is covered with one piece of thin cardboard.

The photo of the framework clearly shows the piece of body which is covered with cardboard and aluminum. One-eighth inch balsa ribs are attached to top of sides of cabin (see side view of plan). After all cross pieces have been inserted in top of cabin, 5/16 inch drilled dowels are cemented in and bound with heavy thread.

A 1/8 inch three-ply veneer firewall is attached to front of fuselage. Drive nails through the veneer and into longerons and upright pieces so that it will hold fast. The motor mount is made from 3/63 inch half hard aluminum or 1/32 inch soft steel.

Construction of Landing Gear

The type landing gear used on this model is simple to construct. It consists of two pieces of 1/8 inch spring tempered steel wire. The front piece forms the axles for the wheels and continues up into the fuselage.

The rear wire is bound to the front wire and continues up and across the bottom of fuselage. When these have been tied in place the balsa fairing is applied to form the struts. Fill in landing gear strut to fuselage with strip of bamboo paper. This gives a finished effect and will not hinder the shock absorbing qualities.

Construction of Elevator and Rudder

The construction of the elevator and rudder is very simple as both are built to the front section, 3/16 of an inch in thickness. Construct upon a flat surface so that they will not have a tendency to warp. The elevator is adjustable by means of an adjustment screw located at the center of the leading edge. Lock nuts may be applied here after the proper setting is had. The rudder adjustment is very simple and is clearly explained in details found on the plans.

Construction of Wing Panels

All ribs are cut from 3/32 inch sheet balsa. Spars, leading and trailing edge then are cemented into place. Do not omit any of the bracing between the ribs, as this is necessary to strengthen them. Five-sixteenth inch dowels are cemented to spars at the root of wings. Bind these with thread or string. The wings carry moveable ailerons, which are a great help when flying the model, as a small amount of wash-in is necessary to counteract propeller torque.

The entire model is covered with a good grade of bamboo paper. In applying the paper to the framework, ordinary model airplane dope will not do.

Ordinary cement, thinned out slightly, makes excellent paper cement. In order to obtain a nice covering job, see that practically all wrinkles are removed.

Do not stretch the paper so tightly over the frame that it will have a tendency to pull it out of shape. After the various parts have been covered, dope with water. This will cause the paper to tighten over the framework. If the brush is used, extra precautions should be taken so as not to tear paper.

Any small spraying, device is an excellent means of applying the water. After the pieces have become thoroughly dry, clear dope them. To obtain a smooth finish, a light sanding is given between each coat. To, finish off the model, color coats are applied. Color used on this model is light gray trimmed in red with white pin stripes which may be applied with an ordinary draftsman's ruling pen. It is best to keep the lacquer thin enough so that it will flow freely. This will require an extra coat but the results obtained are well worth the extra effort.

Extra precautions are required in assembling the model as proper alignment of pieces must be obtained so that the model will fly properly. Please bear in mind that a little thought and study at this point will save many hours of additional labor in repairing your model.

If the wings are not exactly in alignment and are not square with the fuselage or if the angles of the two panels are not exactly the same, then the model will not fly properly and will be difficult to control. Careful measurements should be made in checking up these points.

Next, make sure that all connections are tight and that the power plant is amply secured upon the engine bed.

This model was successfully flown before the plans were given their final okay. So we advise you to adhere strictly to the directions in the plans.

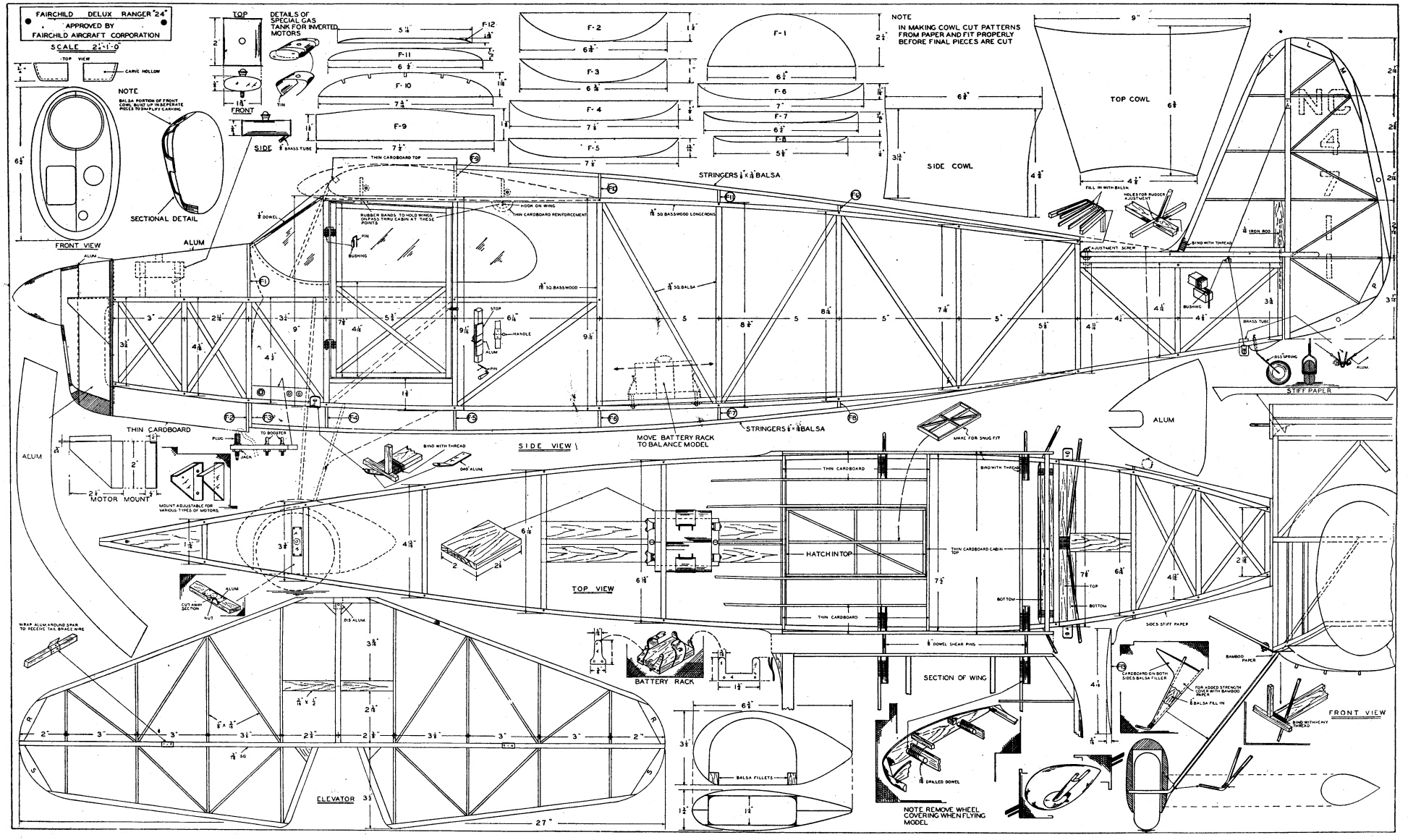
One of the most important points to observe in making a test flight is to avoid obstacles and rough ground.

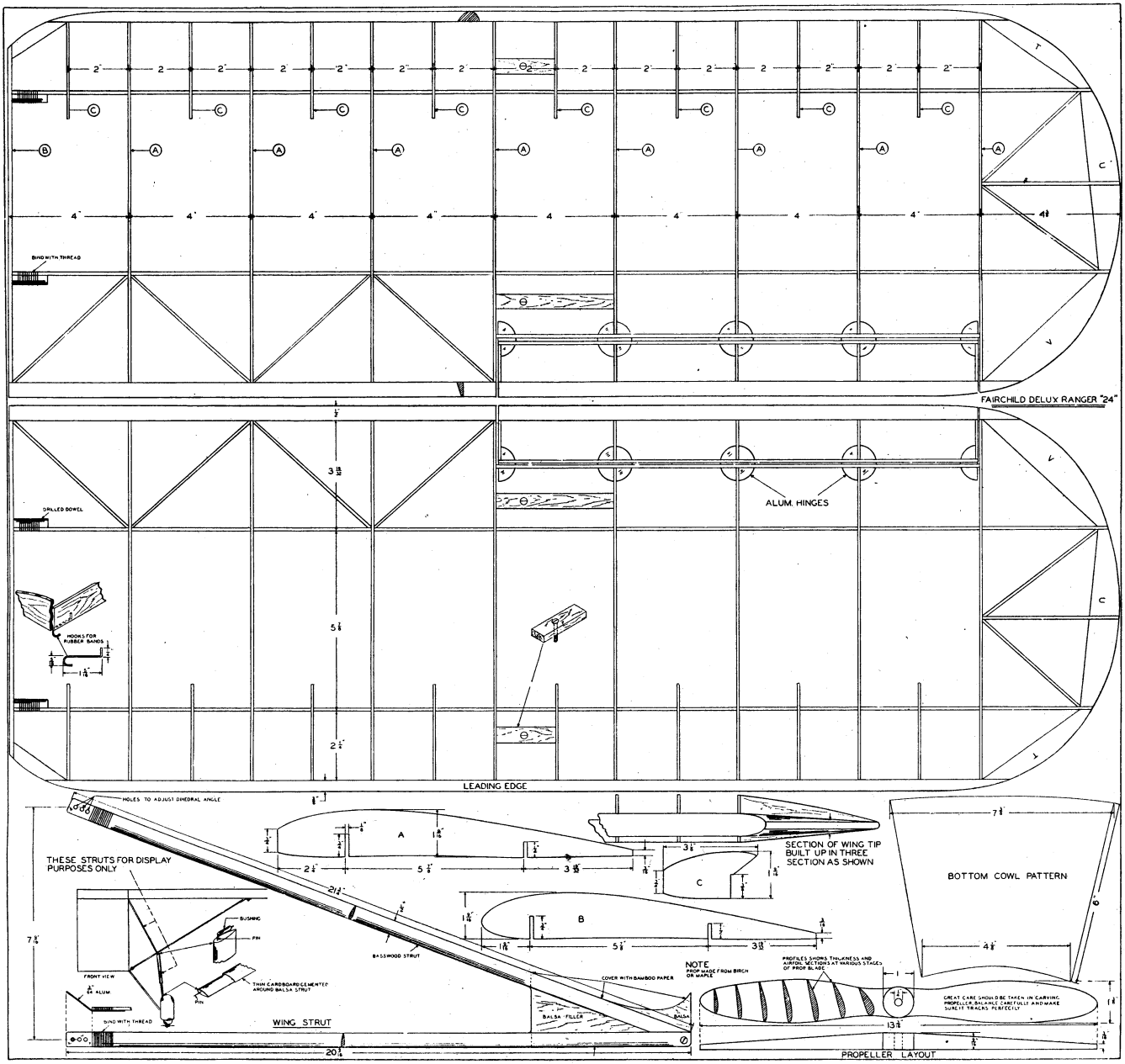
END

General Fuselage and Tail Assembly For Fairchild Ranger

Below are the dimensioned details and assembly of the Fairchild DeLuxe Ranger, a gas motored job that puts up an excellent performance. These drawings are authentic, having been approved by the engineers of the Fairchild Corporation.

See page 52 for wing assembly





Details of Fairchild De Luxe Ranger wing structure and propeller layout. **See page 51 for fuselage details.**