



A real Airistocrat—three-quarter view

# An AIRISTOCRAT Flying Model

By  
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**B**Y building a model of the Airistocrat, you can make an exceedingly attractive type that heretofore has not been seen in model airplane tournaments. Also, you can construct a model that, unlike most scale models, will fly a great distance.

The model of the Airistocrat monoplane which was designed exclusively for MODEL AIRPLANE NEWS readers will fly consistently from four hundred to six hundred feet. The longer flights were made downwind, hand launched, but it also takes off under its own power after a run from three to five feet.

To make the task somewhat easier for you, drawings have been prepared which show all the essential details full size.

This can be classed as the most advanced type of flying scale model and yet any careful model builder can construct it. If the builder uses painstaking workmanship he will have a handsome model and a good flyer.

## FUSELAGE

The fuselage is constructed of 1/16" x 1/16" white holly. White holly was chosen because of its extreme strength and flexibility. We have eleven bulkheads and four intermediate stations; namely a, b, c and d.

To assemble sides, lay the full size plan of the fuselage on a flat board. Then to make the jig for the fuselage, insert brads in such positions around the longerons on the drawing as to make a very effective jig to hold the 1/16" x 1/16" longerons in place.

Cement the nose strut No. 1 in place, and proceed by cementing struts 2, 3, 4, etc., until you have reached the tail post. Let the cement dry for one hour until it is clear and hard. To make the other side, proceed in the same manner. Care should be taken to make all joints flush.

The next step is to assemble the fuselage, which means you have to connect the two sides with cross members. The sizes of all the cross members are ob-

tained from the drawing showing the top view of the fuselage. The cross members are also made from 1/16" x 1/16" white holly. The members are then cut and inserted, starting from bulkhead 10 and working forward towards the nose.

While the cement is still setting, it is a good idea to check your fuselage over with draftman's triangles. When the assembly has thoroughly dried, bind your tail posts together with silk thread.

**T**HE next step is to make the metal fittings for the motor stick. The front motor stick clip fits at bulkhead No. 1 and the rear clip at bulkhead No. 7. The clips are made of No. 8 piano wire. The clips should be 1/8" wide and should be long enough to reach the depth of the bulkhead plus the depth of the motor stick. Below the motor stick bend a slight inset to keep the stick from slipping out; then bring the ends of the clips up across the bulkhead, which is made of 1/16" flat balsa and cemented into place.

The next clip is stationed at bulkhead No. 7, only this one is larger, because the cross section is larger. Make the bulkhead and the clip in the same manner as in the first clip.

Now install your upper and lower window sills which are made from 1/16" x 1/16" white holly. These now form windows through which you will be able to insert your fingers and disengage the motor stick.

The next and most important step, is to build up your spar beds, from 1/16" x 1/16" white holly as shown in the side view of the fuselage. Great care should be taken to see that the spar beds have no angle of incidence. Cement your landing gear bearings in place at their designated stations. Your fuselage is completed now and should not weigh more than .65 of an ounce.

**A Scale Model  
With  
First-Rate  
Performance**

## LANDING GEAR

The under- (Continued on page 45)

# The Aristocrat Model

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carriage is of an extraordinary type, incorporating the truss system of construction used on the large Aristocrats by the General Aircraft Corporation. The landing gear on our model contains a neat, compact, and effective shock absorbing system. The advantage in using this shock absorber on your model is that it saves the members around the vicinity of the undercarriage from the usual severe stresses encountered in landings.

The landing gears are made from 1/16" x 1/16" white holly, and 1/16" flat balsa for formers to streamline the landing gear. Cut your strips to the correct size as shown on drawing No. 1. Start with the front triangle A. Lay the pieces required for the front triangle in a jig, making sure that each member rests flush against the other.

Cement them in place and proceed to make your wire bearings, shock thimbles, pins, and axle, all of which are given in the drawings. Now that the wire fittings are made, the front triangle should be dry. Cement the intermediate members, and the landing gear is ready for covering. Cover it with Japanese tissue and give it three coats of dope.

To attach to fuselage, align the bearings of the landing to those of the fuselage and slip the pins through the bearings. Make the pins secure so that they may not be withdrawn from the bearings, by bending the protruding ends. Set up landing and thimbles as shown in drawing 4 and wind three turns of 1/8" flat rubber around the shock thimbles.

Now place the wheels on the axles, and put a small drop of cement at the ends of the axles to keep the wheels from rolling off. This completes the landing gear. The completed landing gear should not weigh more than .20 ounce.

## WINGS

To make the centersection select your wood and cut to size as shown in drawing 4. This material consists of 1/16" holly for spars and 1/16" flat balsa for ribs. Slip the spars in place according to drawing 4. (Note that the spars run directly through the fuselage.)

At this stage of construction, cover the fuselage. The paper is merely slitted and slipped over the centersection spars. Cut ten ribs accurately and cement them in place, setting them between spars a and b. Proceed by inserting your truss and pin blocks as shown in wing spar drawings.

The next step is to construct the wings in which the spars are built up in the same manner as described in the centersection. There are ten ribs and six false ribs required for the wings. The tips are made from 1/8" x 1/8" balsa and sanded down to a smooth finish. Be sure to place the wings on a flat board. The leading edge is made from 1/8" x 1/16" white holly or spruce, and the trailing edge from 1/16" x 1/16" white holly or spruce.

When the wings are thoroughly dry we are ready for covering. Either superfine or Japanese tissue may be used to cover the wings. A good proportion for dope for the wings is three parts of acetone to one part

of banana. The final coat can be mixed with aniline dye.

The next step in completing the wing structure is to build our struts. There are four required, the front struts being 1/16" longer than the rear. They are made from 1/8" x 3/8" balsa and given a streamlined cross-section. Proceed by inserting your strut fittings. The structure including the centersection and struts should not weigh more than .40 ounce.

## TAIL ASSEMBLY

The horizontal stabilizer is made in two parts, as shown in drawing 3. The spars are made from 1/16" x 1/16" white holly or spruce. The outline is made from 1/16" x 1/32", bent over a candle flame, and the ribs are made from 1/32" square bamboo. The tail is made by bending the ribs around the spars, and later inserting your outline. The tail is then placed one-quarter above the thrust line at 0° incidence. The rudder is made in the same manner as shown in drawing 5A. The proportion for the dope on the tail is five parts acetone and one part banana oil.

The propeller and the tail remain to complete the model. The propeller and its fittings are shown in drawing 9. Great care should be taken in covering the propeller. The blades at the tips need not be thicker than 3/32", and not less than 3/16" at the hub. Balance the propeller carefully, and insert the shaft. Eight strands of 1/8" flat rubber are used. The completed model should not weigh more than 3/5 ounce.

The model flies fast. Glide it first when there is little wind. Wind it up about one hundred turns by hand and launch it with the wind. The model will soar away beautifully. Now for a big flight. Detach the motor stick. Have someone hold the propeller. Hook the "S" hook in the winder and stretch the motor about two and a half times to normal length. It can be wound smoothly about three hundred turns. Hand launch it in level flight with the wind. You will be surprised at its beautiful flight. It can be made to take off under its own power. Just wind it up fully and set it on a smooth surface where it can run from three to five feet.

## NECESSARY MATERIALS

- 2 pieces 1/8" x 1/8" balsa
- 1 piece 1/8" x 1/4" x 18" spruce or white pine
- 10 pieces 1/16" x 1/16" x 36" white holly
- 1 strip 1/8" x 1/8" balsa
- 3 pieces 1/16" x 2" x 36" balsa
- 4 pieces bamboo
- 1 piece 1/16" x 1/8" white holly or spruce
- 1 block 8 1/2" x 1/2" x 1/4" balsa
- 2 feet No. .032 piano wire
- 2 feet No. 8 piano wire
- 1 foot No. .020 piano wire
- 1 cap washer
- 1 flat washer
- 1 large size propeller bearing
- 1 two-ounce can banana oil
- 1 two-ounce can acetone
- 1 two-ounce can ambroid (or 1 large tube of cement)
- 1 pair two-inch celluloid wheels
- 1 sheet transparent cellophane paper
- 3 sheets Japanese super-fine tissue
- 12 feet 1/8" flat rubber
- 1 spool silk thread
- 1 small camel hair brush.