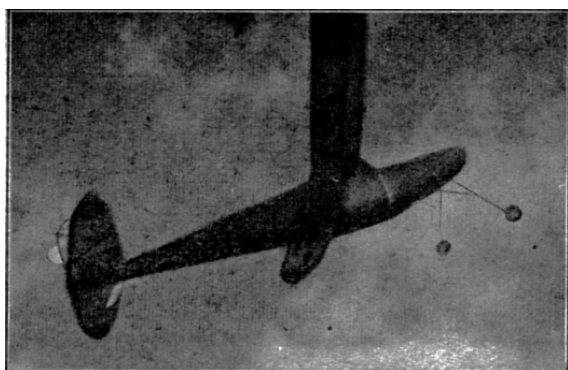


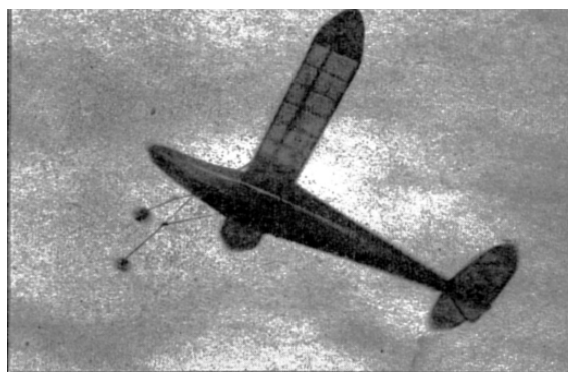
Let's fly with "SNOOKY"

Spring's just around the corner. And that's a natural invite to all outdoor modelers. Take "Snooky" along with you and watch the fun begin.

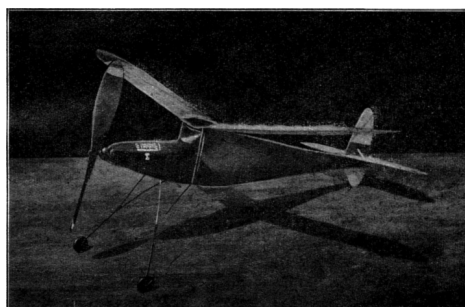
BY LEON FRIEDMAN AND
ARTHUR RUTHLEIN



This enlarged shot shows the model still climbing after reaching an altitude of 400 feet. Rudder is set for wide circling.



Power packed, this outdoor cabin job averages flights of more than five minutes. The glide is increased with an F-W propeller.



The landing gear is set well forward to absorb the shock of head-on crashes.

THIS CABIN JOB was built for two purposes. First, to give its builder all the fun and pleasure that should be expected from a well designed ship, and second, to demonstrate to those interested bystanders that they too can indulge in the sport of model plane flying.

This craft, which is capable of twelve minutes high time, has won several contests held between two New York high school aero clubs. And now, without going into any further description of its virtues, let's

start right in by checking our Bill of Materials and begin fabrication of the powerhouse.

FUSELAGE CONSTRUCTION

OUR BODY, or powerhouse if you choose, is constructed entirely of 1/8" square longerons, cross braces, and diagonals. The first step is to draw a full size working plan with the position of the longerons and compression members drawn in heavier lines.

Pin down the top longeron. Cement the break

required for the cabin roof. The lower longeron is slightly curved and held into position with the aid of ordinary shirt pins. Pin down the short nose horizontal piece. Next, cut all the required compression members necessary and cement each one snugly into position. Apply glue along the joining surfaces, too. Note that the compression members extending from the lower longeron to the cabin roof are single lengths. Add the angle of incidence strip to the top longeron with glue.

After the first side is completed, repeat the construction procedure for the second side. Both sides are then joined together by cross braces cut to correct sizes from 1/8" square hard balsa. Careful, but definite breaks are made in each frame just in front of the cabin and at the rear. Add the cross braces at these points first and cement. The remainder of the braces are added from the rear of the cabin down to the extreme tail end.

NOSE AND COWLING

FULL SIZE formers for the nose section are given in Plate 2. Use soft balsa for each one required and cement in their respective positions designated by the side view stations. The nose piece is then covered on both sides and top with 1/32" sheet balsa. Use cement generously along the sides of the compression members and rounded tops of the formers. Press the sheet wood down firmly and insert small pins part way into the wood temporarily. Later, they are removed. The cabin windows and curved windshields are made with thin sheet celluloid.

The nose plug is shaped as required from a hard block of balsa measuring 1/2" by 1-1/2" by 1-1/2".

After sanding the smooth finish necessary, place the nose piece flush against the nose and with a pencil, mark from behind the outlines of the fuselage frame opening against the rear of the nose piece. Use 1/8" square hard wood cut to the necessary lengths to make the rear ledge. When dry, fit the nose piece into the nose of the body to test for a snug fit.

To make the two front hooks, use a pair of half round nose pliers to shape the fittings out of .024 music wire. Insert firmly as shown in the side view, and dab with a bit of cement. A notch is cut into the upper part of the removable nose plug. This is clearly depicted by both side and top views of the plug on Plate 1. It is made deep enough so that a rubber strand will rest within it undisturbed. The strand is knotted into each wire hook and fits diagonally across and into the plug notch.

LANDING GEAR AND TAIL BOOM

SHAPE THE landing gear legs with the aid of the half round nose pliers. The main gear has a 5" extension on each side of the body. The horizontal part is set flush to the fuselage bottom cross brace and wrapped securely with strong thread and cemented. Be sure the thread is set to measure 9" across. The rear short wire extension is attached to the body in the same manner and bound as illustrated. A half curve of wire is attached between the main extensions and bound as illustrated. Rubber tired or hard wood wheels may be used depending on the choice. The landing gear has been designed to withstand the severest bounce. When the landing gear is completely set to function, cover the underside of the nose section with 1/32" sheet. The entire nose is then given three coats of clear dope with a light sanding after each application is thoroughly absorbed. The cabin roof also is covered with 1/32" sheet. This piece lies flat between the longerons -- not on top of the incidence strips.

The side view of the tail boom as well as the perspective sketch depicts the method in which this removable section is made. The actual frame is made up of 1/8" square material joined with compression and cross members. A solid tail block measure to fit, is cemented snugly into the frame as shown in the rear view perspective on Plate 3. The rear hook is shaped from .040 music wire, inserted bent again and pulled tight. Dab cement all about to insure a permanent fixture.

The tail boom is held to the fuselage by means of hooks shaped from .024 music wire. Eight small hooks are required. Insert each one into the longeron, above and below and apply a bit of cement. Cover the section with sheet balsa as required.

The rudder underslung is shaped from 1/8" sheet and sanded to a streamline. The lower tip is guarded with a strip of 1/32" square bamboo which is cemented in the position shown. The underslung is not attached in place until the detachable boom section is paper covered.

WING AND TAIL

WHEN tracing rib number 1, trace it completely including the leading and trailing edge spar. This insures a true airfoil section. Next, mark off the positions of the aforementioned spars including the center spar and cut out with a razor.

Make the first template out of hard balsa slightly undersized. The pencil line used to obtain its correct curve makes up for the difference. Cut out the

required amount of ribs as well as the last two wing tip ribs. The break for the dihedral angle is made aft of the center rib -- or at the position for rib one -- right and left of the center. Raise the spar tips to 4". Place props at each tip while the cemented spliced center spar dries.

Proceed in the usual manner of wing layout. Note that the spar tapers slightly aft of rib 3. Add the leading and trailing edge spars. Round and taper as required to obtain a true airfoil section. Wing tips are sanded to shape and cemented well. The center section is covered above and below with 1/32" sheet.

The construction of the stabilizer is as simple as it appears. The leading edge which is made of 1/8" by 1/4" balsa is sanded to obtain a round face. The tips are tapered from 1/8" sheet balsa. The cross pieces and diagonals are cut to proper size from 1/8" square stock and cemented well. The trailing edge spar is tapered so that the cross sectional view of the stabilizer appears to be streamlined.

The framework of the rudder is similar to that of the stabilizer. Cement all joining ends well. The rudder tab may be cut to shape from either stiff manila paper or thin sheet aluminum. The latter, however, is more reliable. The tab is inserted into a slit made in the trailing edge of the rudder and cemented.

COVERING AND DOPING

USE THE BEST grade Jap tissue to do the covering job. Apply the paper in the conventional manner. Leave a 1/4" margin on the section pattern.

The dope should be a thick but clear variety. Work slowly and pull the paper tightly so that no wrinkles set in. The balsa covered section of the nose is also covered with tissue. When fuselage, wing, and tail parts have been covered, water spray lightly and allow to dry under normal temperature.

The dope is applied with a soft brush. For shrinking, the dope should be thinned out to a workable consistency. One coat will probably do the job well enough.

FREE WHEELING PROPELLER

A FREE WHEELING propeller decreases the drag set up by a stationary one. The simple arrangement shown on Plate 3 is made by following the sketches illustrated. The prop should be carved from a hard balsa block. Bend the required shoots as shown, insert and cement. A ball bearing washer may be placed on the rear of the prop shaft before the rear loop is closed. This washer gives smoother revs and increases the speed also.

Check the prop for balance. Apply a few coats of thick dope on the prop and sand lightly between each coat. Attach the engaging hook as illustrated and cement where necessary. The prop may be painted with any colored dope chosen. It also acts as a preservative.

ASSEMBLY AND FLYING

RUBBER LUBRICANT may be made by using green soap particles mixed with 10 drops of glycerine. Rub this mixture well into the rubber strands. Afterward, arrange the power strands so that they fit between the prop shaft and the rear hook. Always keep the rubber clean and well "lubed."

The stabilizer is cemented flush to the detachable boom piece. The rudder is cemented upright. Check both surfaces for right angle alignment. When dry, affix the plug in position and bind to the main fuselage with small rubber bands. The wing is held to the cabin with rubber bands. It should be held to the roof snugly but not too tight. There should be a certain amount of "give" in the event the ship hits any object.

Counteract warps that have set in by blowing your warm breath over that portion and twisting it back to its normal shape. Glide test the ship first. If the "bugs" crop up, more glide testing and short power flights will bring out the beast or bird in it. Use the rudder tab for slight turns. Do not increase the twist on the tab more than necessary to make a gentle turn. Too much rudder on a gentle bank causes slipping. For longer lasting flights, use a mechanical, winder.

THE END

BILL OF MATERIALS

Thirty-six feet 1/8" flat brown rubber for power strands
Twenty-five pieces 1/8" sq. by 36" hard balsa for fuselage longerons, etc.
Four pieces 1/8" by 1/4" by 36" medium hard balsa for wing and tail parts
Four sheets Japanese tissue for covering
Three lengths .040 wire for landing gear, etc.
Two pieces 3/16" sq. balsa for wing parts
Two large-faced bushings
One piece 1/16" by 3" by 36" balsa for wing ribs, etc.
One piece 1/8" by 2" by 36" balsa for wing and tail parts
One 1/2" by 1-1/2" by 1-1/2" hard balsa block for nose piece
One 1-1/8" by 1-1/2" by 14" hard balsa block for propeller
One 1/32" by 3" by 36" balsa sheet for covering fuselage parts
One length .024 wire for hooks, etc.
Dope, cement, rubber lubricant, sand paper, knife, razor, wheels (rubber or wood) celluloid, nose pliers, and cutters.

***Scanned From April, 1941
Flying Aces***

