

HEATH LNB-4 PARASOL

By ROBERT KITSON . . . This is the kind of Quarter-Scale that is large, but not monstrous, the kind we promoted in our "Mammoth Scale" articles a few years ago. One of the prettiest of the pre-WW-II kit or homebuilts. Any .60 engine will do the job, but it's a natural for the O.S. 4-cycle.

• This one-quarter scale Heath Parasol is for the model builder interested in a large model that is easy to build, easy to fly, and, with a little attention to detail, can be entered in "RC scale" competition. It was selected to provide this builder the relaxation therapy necessary to recover from a P-51 project. Criteria were as follows: fixed gear, no flaps, simple color scheme, accessible engine, and large enough in size to be flown easily by an inept pilot.

Construction is about as challenging as the 1938 Ace Whitman 10-cent kits. Merely use 1/4-inch instead of 1/16 balsa strips, and bigger pins. For scale details, these drawings should be supplemented by the Paul Matt plans available through the Aviation Historical Society, P.O. Box 33, Temple City, CA 91780. These are excellent three-views of the full size aircraft with plenty of detail, and are exactly one-fourth the size of a quarter-scale plan. Two modifications have been made from true scale. The thrust line was lowered three-eighths of an inch so the airplane would cowl the Ogawa FS 60 four-stroke engine and the wingspan was lessened by six inches at each tip so it would fit the Toyota automobile. These alterations will slip easily past the scale judges at most contests. *(In case Bob gets the opportunity to judge your Heath, we have shown the wing with the proper scale span. wcn)*

The first Heath "Parasol" was designed and built in 1926 by Ed Heath, instigator of today's well-known "Heath-kits". The LNB-4 modeled here was certified by the U.S. Chamber of Commerce and manufactured in 1932. It was also available in kit form for homebuilders. Twenty-five horsepower gave it a 62 mile per hour cruising speed. This model floats along at a very realistic

speed of about 15 miles per hour.

Begin construction by drawing the fuselage centerline and bulkhead positions on a strip of shelf lining paper over a wooden working surface. Build the lower portion of the fuselage first by pinning the bulkheads, bottom up, into position over the centerline. The bulkhead width will determine the position of the two main longerons forming the basic fuselage crutch. The landing gear is bent from 5/32 wire at this time and sandwiched between the double plywood bulkheads (#2) with a generous amount of epoxy glue and plywood fillers. The remaining longerons, engine mounts, and stringers are now pinned and glued into position. Carefully chosen hard straight balsa strips should be used here. By pawing through the supply at your local hobby shop, quality wood should be selected for the entire project.

Continue by placing diagonal braces in every rectangular space of the top, bottom, and sides, keeping in mind that they were omitted from the plans for the sake of clarity. The exact position of these braces is not critical, but they firm up the structure tremendously and their weight is not a factor. Be sure that formers One through Four are of 1/8 aircraft plywood.

Remove the lower fuselage section from the work surface (did you remember the waxed paper?) and add the top formers and turtle deck stringers. Sheet the nose with 3/32 soft balsa after deciding whether to leave a rectangular cave or a hatch on top (as we did) for access to the fuel tank.

The adhesives used on the entire model were quick-setting epoxy and cyanoacrylate. Baking soda was added to the cyanoacrylate for bulk and increased setting speed (we're impatient).

After the fuselage frame is completed, lightly tack-glue pieces of polyurethane foam to the firewall. Carve and sand this material to blend into the fuselage, while following the correct profile, then remove. Cover with two or three layers of two-ounce glass cloth and resin, sand smooth and dig out the foam. Cut out the necessary engine and cooling openings with a carborundum disc on the Dremel. This method is fast, easy, and produces a strong cowling.

Pieces of aluminum strip which are the attachment points for all struts are now cut to length, drilled, and bolted to the plywood formers. Use 1/16 material to support the main struts which are attached with quick links, and 1/8 material to support the cabanes which are attached with 4-40 x 3/8 bolts. Servo mountings can now be installed and pushrods fitted. Our pushrods were 3/8 square balsa strips.

There is just not much more that can be done with the fuselage at this point except sit back and admire the classic lines. It is ready to cover.

Wing and tail surface construction is about as simple as a peanut scale model. The left wing panel can easily be built over the right wing plan by most builders. Those who tend to daydream and take off with a collapsed antenna will have to pay close attention in order to avoid ending up with two right wing panels! Beef up the stress areas and strut attach areas, as shown on the plans, with hardwood blocks and plywood. We made an aluminum template to expedite cutting of the 44 ribs and half-ribs from 1/8 soft sheet balsa. Soft balsa may not be as strong, but it is a lot easier to cut. (We are lazy also.) Hit the aluminum template with a nail in 2 or 3 places and the sharp projections on the reverse side will keep it from slipping on the balsa



What else can you say? Ed Heath "done good" when he created the Parasol, and this LNB-4 version was about the prettiest. The model certainly does it justice, and has Precision Scale capabilities.

while in use. The center ribs are of 1/8 plywood and sufficient hardwood and plywood reinforcement is added as shown on the plans to support the four wing mounting bolts. Tiny holes were drilled in the ends of these bolts for little safety pins which gave us "piece of mind" during initial flights. We have not, however, seen any tendency for these nuts to loosen in flight. The "strip ailerons" are built up from 1/16 sheet balsa.

It is absolutely essential to locate perfectly straight balsa sheets and strips for the wing leading edge, spars and ailerons. This will require some searching, even though standard sizes are used. Pre-carved leading edges were purchased and modified as shown, to form the Clark Y airfoil. Once this effort is made, sit back and relax. The wing will practically build itself.

The completed tail section is attached as one unit with four 4-40 bolts into blind nuts as shown. The tail bracing wire is one piece of coated cable fishing leader held in place with the swaged lead sleeves made for this purpose and attached to the fuselage bottom with quick links. This allows the tail section to be easily removed for storage or transport.

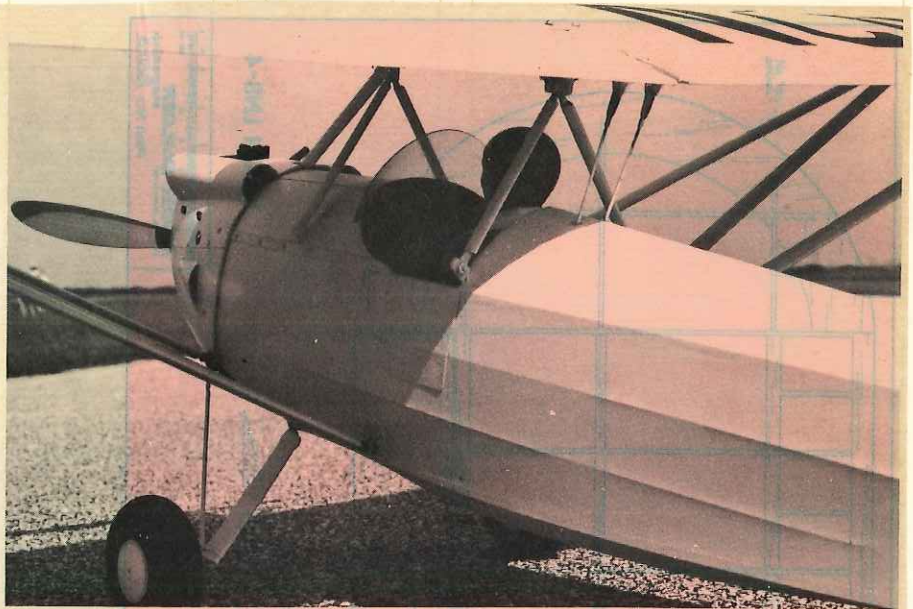
The main wing struts were made by sliding 1/4 inch aluminum tubing through K&S 3/4 inch streamlined tubing. Wooden dowel is then fitted and glued into the 1/4 inch tubing to support the attachments as shown on the plan. Eyelets screwed into hardwood blocks in the wing allow the struts to be bolted to the wing but folded flush against the bottom surface for transportation. Quick links, with soft copper wire "keepers", attach the struts to the fuselage.

The cabane struts are made from 5/32 brass tubing with the ends flattened and drilled to accept 4-40 bolts. These brass tubes are then slid into 7/16 K&S streamlined aluminum tubing for added strength and scale appearance. Only the streamlined tubing was used on our model for the forward cabane, but a length of music wire was contained in it for added security.

This model was covered with Silkspun Coverite and finished with K&B primer and Super-poxy. We have strayed and finally returned to using these fine products. We followed the method outlined by Dave Platt in his excellent article on the subject of finishing model aircraft and which is available from "Dave Platt Models", 6940 NW 15th St., Plantation, FL 33313.

A pinked edge tape about a 1/2 inch wide with adhesive backing is available in most drug stores. Ladies apparently use it for sticking hair to their heads, but it does equally well dressing up the seams on large scale model aircraft.

Our model was designed to house the very quiet OS Four-Cycle engine, which has plenty of power to fly the model realistically. A Zinger 14-4 prop worked best for us and it just happens to be scale size. Coordinated rubber and ailerons are needed in the turns as in the full size



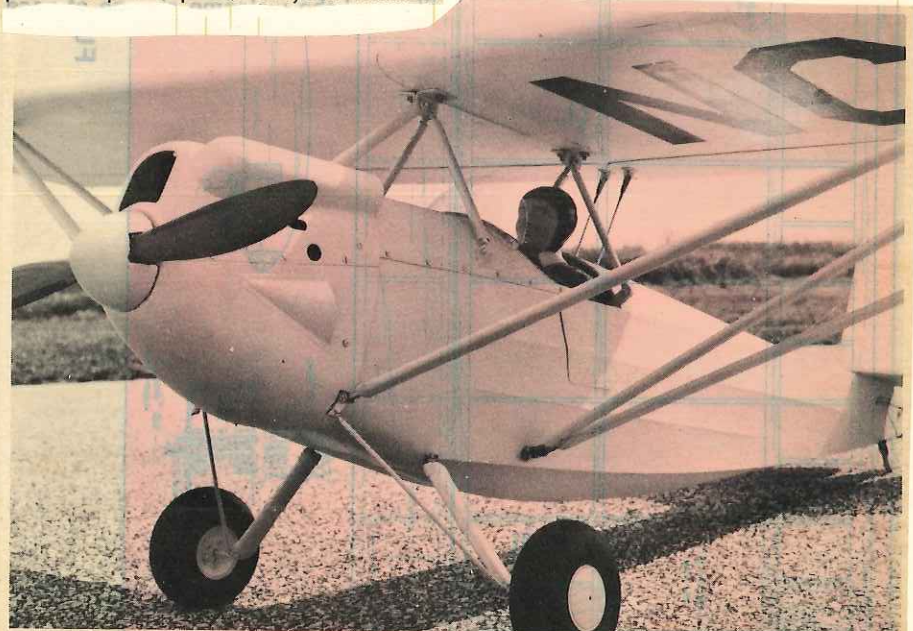
Close examination reveals the pinking tape which actually came from a drug store! Note sturdy aluminum brackets for mounting struts on fuselage, aileron pushrods behind pilot.

counterpart. It will roll, loop, and spin, but with the obvious effort of the full scale 1932 airplane. This model will literally land and take off by itself. We found no additional weight for balancing was necessary and the model weighed in at 10 pounds, giving it a wing loading of 21.3 ounces per square foot.

After several flights, it became obvious that a sizable payload was being wasted. Why not some aerial photography! A Vivitar "autowind" camera was placed in the cockpit and attempts to photograph other models in the air have been entertaining and challenging. The camera was activated by a Kraft mini servo glued directly to the camera. The servo arm depresses the shutter button each time it is keyed and the camera, which weighs a mere eight ounces, automatically winds itself for the next exposure. While attempting a good plane-to-plane photo of your friend's

scale model on a 24 exposure C110 cartridge, be prepared for 23 exposures of highways, golf courses, and cloud formations. One good shot, however, of the Red Baron waving from his own cockpit and with his white scarf clearly flapping in the wind, will make it all worthwhile. We are still striving for this. Be warned that one of the hazards here is becoming too attentive to the aircraft being photographed. The best of pilots can suddenly find themselves trying to fly the wrong plane! The Heath will usually allow one to come to his sensors before disaster strikes as it circles lazily overhead with thumbs off the sticks.

To sum it up, if you want a plane that is easy to build and fly and perform well with that smooth quiet OS four-stroke engine, try the Heath. And with a little searching for documentation an average pilot might win a scale trophy.



This view should help you with cowling shape as interpreted by Bob Kitson. Accurate sections on this are not readily available. Good idea to obtain Paul Matt 3-views.