

VICKERS

# DELTA

By WALT MOONEY

**A simple, low-wing Peanut version of a familiar Northrop Delta design that saw much service in Canada in the 30s and 40s**

In the search for a design to enter in the World War II class at the 1989 Nagoya Nuts Postal Proxy Peanut contest, a Three-View for this relatively obscure Patrol Bomber was found. The model was third in its class at the contest so the effort of building was rewarded.

The Canadian Vickers Aircraft firm obtained a license to build the Northrop "Delta" design in 1936, and several of this type on wheels, skis, or floats were used as Patrol Bombers during 1940. The aircraft were later relegated to training duties.

The model was built to be disassembled for shipping and was fitted into a fairly standard balsa 4 x 9-1/2 x 2-1/4-inch box.

See the previous article on the ITOH 62-160, describing a box which cost only \$4.32 to mail by Airmail to Japan. It came back from Japan in the same box, completely undamaged.

The plan published here is Peanut Scale and the larger plan was simply reproduced at twice size. As a consequence, all the sizes called out are half size for the large airplane. This should not present a problem, as any model builder can multiply by two. Actually, parts cut out of sheet balsa, for instance wing ribs and formers, could be cut out of the same thickness balsa without any trouble.

The Peanut flew fine on a single loop of

one-eighth rubber and the twice-size could do well with two loops of three-sixteenths.

The skeleton photos show the structure, and how it has to be made for disassembly for shipping, and as only fairly experienced model builders are likely to want to try this, those details will be ignored in this article. Besides, experienced model builders probably only use the plans as a basic guide inserting their techniques and improvements into any project.

So, building description will be for a model that is expected to be permanently assembled when completed.

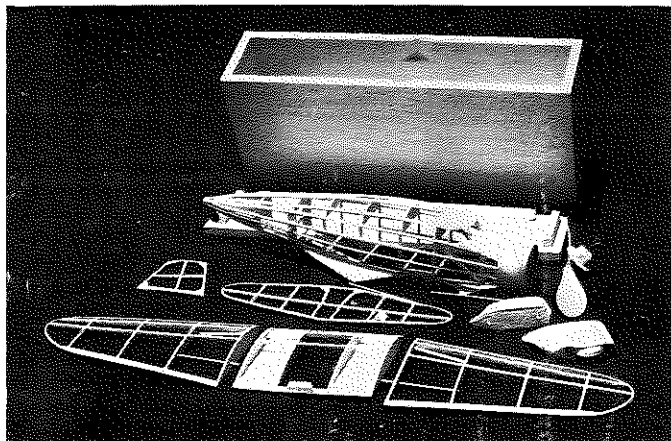
Start by putting a piece of waxed paper over your plans to keep the parts from sticking to the plans as the structure is assembled.

The fuselage side frames are constructed directly over the plan. The frame is shown hatched for emphasis. Pin the top and bottom longerons in place on the plan with straight pins, not through, but on each side of the balsa. Note that the frames go clear forward to the forward cowl pieces. Now carefully cut the uprights and cement them in place between the longerons. Two side frames are required so either build them directly on top of each other, or, at least cut out two of each upright at the same time, to be sure the two frames will turn out to be identical. When the glue used in assembly is dry remove the frames from the plan. If they were made simultaneously, separate them with a thin, sharp blade.

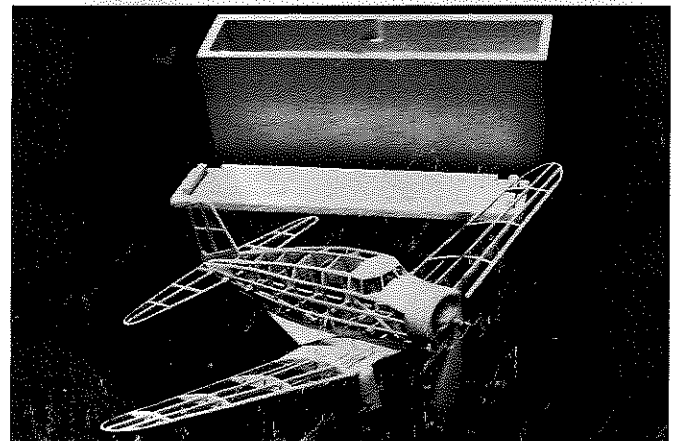
Now, assemble the two side frames into a conventional fuselage box. Because this box does not come together in a knife edge at the back end, there is a solid pointed fairing at the very end, getting proper alignment of the two sides is difficult without a kind of assembly jig.

The sides, top, and bottom of the fuselage box are parallel from F1 to F3. Using any old sheet balsa you have available, make an exactly square cornered, rectangular box; the height of the fuselage box and to its inside width. This becomes the assembly jig. Temporarily attach the side frames to this box, masking tape will work OK, making sure they are precisely located for the same fore and aft location and are exactly in line.

Now, cut out all the cross pieces and cement them in place, pulling the frames



The Vickers Delta framework all broken down to fit in the 2-1/4 x 4 x 9-1/2-inch shipping box.

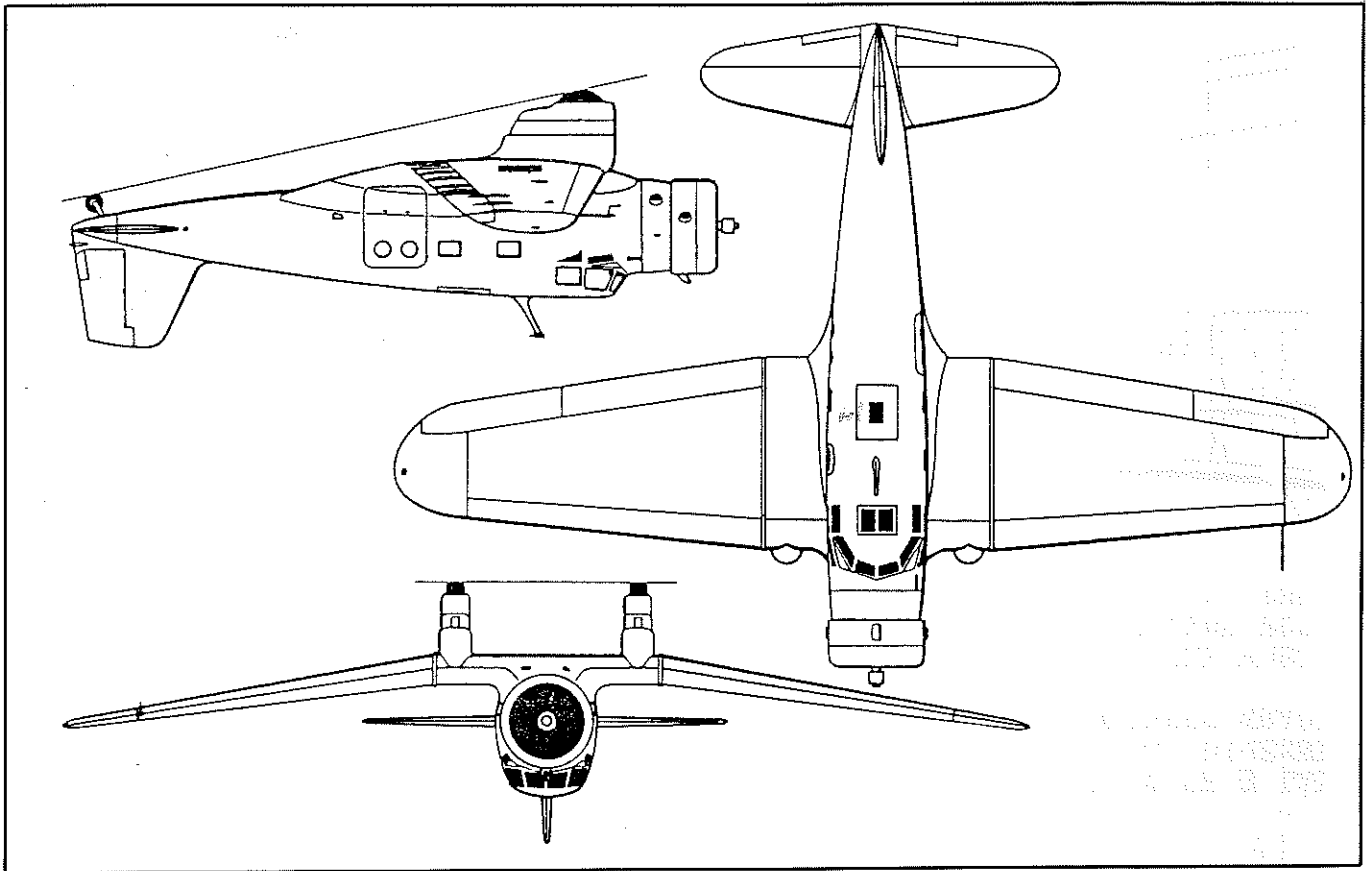


And here's the Vickers/Northrop Delta minus its yellow tissue covering and military marking. Placed third in class at Japanese contest.

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## CANADIAN VICKERS (NORTHROP) DELTA II



closer together at the nose and tail as indicated in the top view. When this is completely dry, the jig can be removed, and the cross pieces from F1 to F3 can be installed.

Cut out the fuselage formers. The formers at the cowl are arcs of a circle as shown by the dotted lines in the front view. Cement them in place on the fuselage. Use thin sheet balsa to fill in the last bay of the fuselage sides leaving a slot for the horizontal tail. Now add the stringers to fill out the body contours. There are three stringers on the top, two on each side, and a single stringer on the bottom.

Make the front part of the cowl, and cut an opening to fit the thrust bearing. Wrap the sheet balsa around the front formers. Now cement the front of the cowl and carve and sand it to the contours shown in the top and side views. Carve the tail cone from block balsa and cement it in place. Cut a slot through it to allow for the horizontal tail.

The horizontal and vertical tail are built directly over the plan. When dry, they are removed from the plan and the leading edges and tips rounded with sandpaper and the trailing edges tapered to a near knife edge.

The wing is built next. It too, is assembled directly over the plan. Cut out the wing ribs. Fin the leading and trailing edges down on the plan. Make the wing tips and cement them in place. Cement the ribs in place. Wait until the cement is completely dry and then separate the outer panels from the plan surface while keeping the

center section in place. Block up the tips to the dihedral angle shown in the front view and cement the joints in the leading and trailing edges, and then install the wing spars. When this assembly is dry, remove it from the plan and, using sandpaper, round the leading edge and tips, and taper the trailing edge to obtain the airfoil section shown in the rib layouts.

The landing gear fairings are the last major structures to be made. Their surface on the real airplane appeared layered because they telescoped with the shock absorber deflection of the landing gear. On the model they are simulated by wrapping three layers of sheet balsa, of proper height each, around the fairing former. Use some soft "A" grain 1/32nd sheet balsa for this job. The grain should run up and down the fairing, not lengthwise. Sand the balsa sheet smooth and a bit thinner before cutting out the pieces. Cover each layer with masking tape while bending it around the former. This will prevent the balsa from splitting when it is bent around the front of the former. When each layer is dry, remove the masking tape and cement the next layer in place. When the total assembly is correct at the front ends, (a little smoother than the rest of the fairing), fill in the bottom wing surface between the R4 ribs Using 1/32nd sheet balsa, fill in the temporary support for the landing gear fairings.

Before covering the model, make a temporary assembly of all the components to check for proper alignment. In the case of the tail, the horizontal can be simply slid

in place, and the vertical merely placed on top of the center stringer to check for fit of the bottom of the fin and stringer. In the case of the wing, however, the job is a little more complicated. There is a rectangular balsa support piece, the width of the fuselage box, that must be made to support the trailing edge so the wing has the proper angle of incidence and another that must be made to support the leading edge. Then bond paper or sheet balsa wing fillets must be made and fitted temporarily. Also, the top and front ends of the wheel fairings must be fitted to the wing.

Once this temporary assembly is satisfactory, disassemble the parts and using fine sandpaper and a gentle touch, sand all the parts smooth and as fuzz-free as possible. Now cover the model using lightweight tissue. The model in the photos was yellow all over with British roundels and black numbers on the bottom of both outboard wing panels. All windows except the six windshield panels were simulated with black tissue.

Make balsa wheels and paint them flat black. Details such as the carburetor intake, exhausts, etc., are made from scrap balsa. Control surface outlines were drawn in with a fine-point felt pen.

The model should balance in a horizontal attitude supported at the tips of the wing at a point half way between the spars. Both wings should have about 1/8-inch of washout in each outer panel. The center section should be straight, without any twist.

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