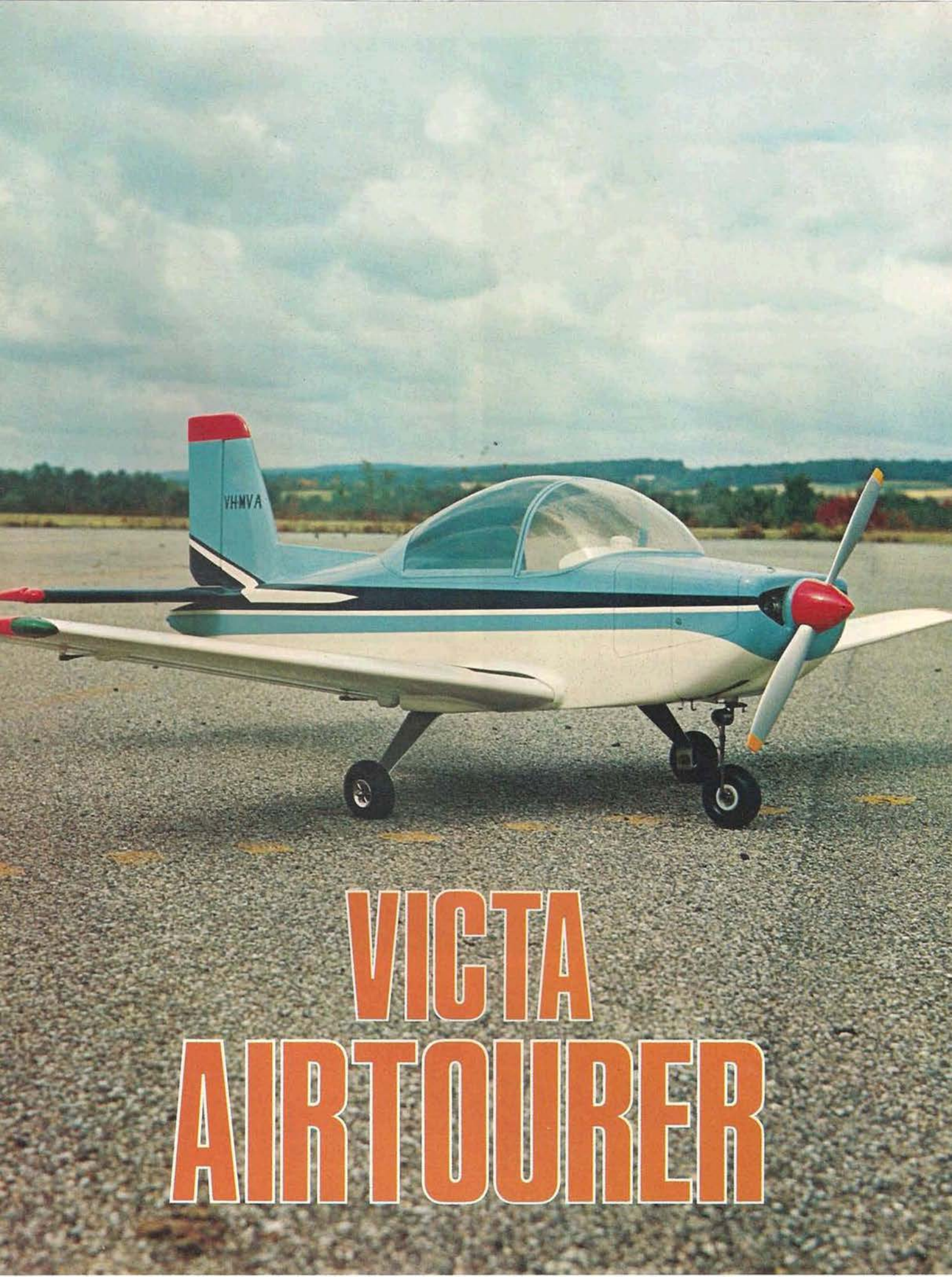


VICTA AIRTOURER

A Magnificent Scale Model Of The Australian Victa Airtourer 115. For .60 Engines, This Is One Scale Model That Flies The Way You Wished All RC Models Flew! By George Hahn.

The June/July 1963 issue of Air Progress featured two photographs of the Victa Airtourer which immediately caught my eye as its proportions seemed ideal for Radio Control flying. Correspondence was initiated with Victa Ltd., Aviation Div., Horsley Rd., Milperra, N.S.W. Australia, and a factory print was gracing the drawing board in a matter of weeks. Since that time, I have had a great deal of correspondence with Victa who has been most cordial in cooperating with me as far as sending additional information. I have recently been informed, though, that the company no longer is manufacturing the Airtourer.

The drawings and basic balsa structure were all but completed by December of 1963, but that was all I could accomplish for a full year, finally finishing the model by the late Spring of 1965. The one and only problem was to be forming the large (8" x 17" x 4½") canopy. A commercial contract for the canopy was prohibitive from a cost standpoint (minimum $50.00) and a homemade process was finally hit upon at minimum cost and with excellent results.

Two models of the Airtourer (110 and 115) are shown on the factory print, and my choice of the 115 model, due to the longer and cleaner nose moment, was toward a plane that might balance more easily. The choice appeared right, as the model balanced on the spar line and flew "off the board." Although the plane weighed 8½ pounds and a small wing area of then 586 square inches gave it a loading of over 34 ounces, the model had a tendency to climb on full throttle; going to 1/2 to 3/4 power on the ST .56, without changing the trim setting, gave the plane a most realistic air speed. Handling was very smooth, with ailerons being no problem if one prefers them sensitive.

If you've noticed, I have been mostly using the past tense the last few sentences. The reason being a disaster at the 1965 Nationals when a poor aileron linkage and a balky servo combined to distract me enough from observing an upcoming stall at about 20 feet. The results of this crash prompted me to rebuild the front end, completely enclosing the engine, plus a new wing was to be built – full scale. The original wing was balsa using the V-spar construction found in most models; landing gear was formed wire. The new wing is a foam core, box spar type, and scaled down to a dural aluminum gear, bolted to basswood spars. Flaps have also been added as the model is "hot" due to the high wing loading. In addition, a decreased landing speed may be desired by some modelers who will build the Airtourer.

The flaps, in fact, are practically a must for take-off's from a short field. I presently use only about 1/3 flaps for take-off's, although our field is quite large. If you've never used full flaps before, I heartily recommend them as they make your touch downs not only more realistic, but less nerve-racking from high speed approaches, as the wing loading is now up to 40 oz./sq. ft.!

The plans show interior fittings which have been included on the rebuilt model. These call for servo installation at the cockpit rear and may present a problem to some, when balancing, due to differences in servo weight or individual construction choices. This problem may be compensated for by placing the battery pack to the left of the engine or installing servos on the larger servo rail and not including a full-scale cockpit. In either case it is recommended that the 3/8" x 1/2" servo rail be installed for the strength factor alone. The receiver is mounted at the location of the right seat if a cockpit is included.

The rebuilt plane, using a ST .60, now weighs in at 9½ lbs., plus any weight needed for balancing. It balances between the spar and rear C.G. with approximately 3 ozs. of lead in a compartment right behind the front of the cowl.

The instrument panel was fabricated from 1/8" aluminum sheet in two pieces. Tatone paper dials are glued to the back of the instrument section which is then bolted to the main panel; the main panel, in turn, is bolted to the front of the cockpit where blind nuts have been inserted.

A feature not common to aircraft is the position of the joystick, which is on the center console for use from either seat. The cockpit seats and console are a box affair which is attached via blind mounting nuts on the main servo rail.

If you want a full scale model that flies just the way you wished all your planes would fly, this is it! The plane grooves so nicely I have been putting off a temptation to build a duplicate or two for my everyday flying. Try one and see if you agree.

CONSTRUCTION

FUSELAGE:

The fuselage construction begins by cutting out the 3/32" side sheets following the corners marked S. Add 1/4" square balsa members as shown by shading, **except** those three pieces between F1 and F2. Cut the 1/32" ply doubler and glue to the side sheets. Now add the three members between F1 and F2 to the ply doubler.

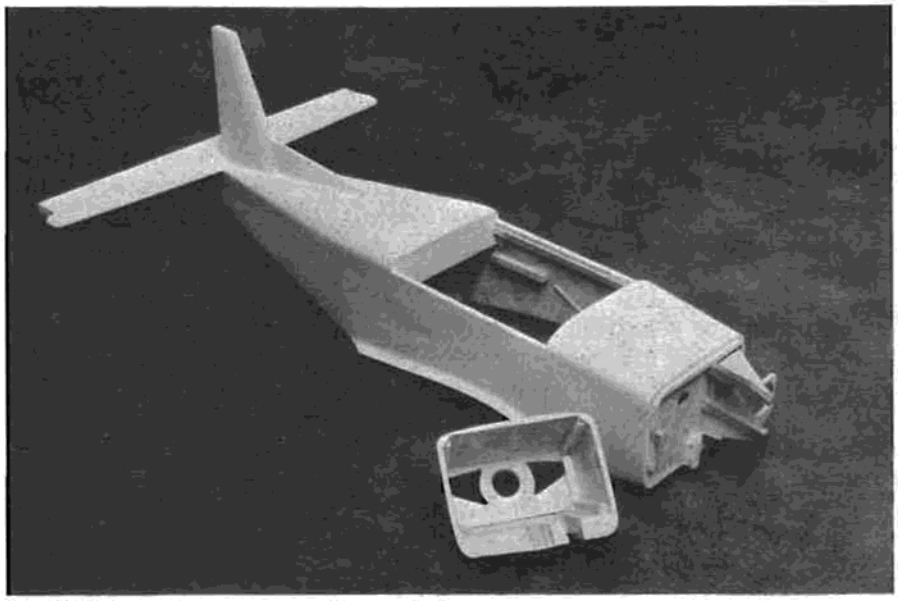
Cross framing is now added to the fuselage rear as are formers F3, F1 through F8, and F6. Add 1/2" bracing at the point shown on the top view of the plan. For clarification, the plans do not show 3/32" x 1/4" stringers which are now added, as is the 3/32" sheeting to the top and bottom. Foam addicts can make these body contours by shaping the desired form and sheeting, then adding the whole assembly to the wood structure.

Now support the body squarely and add the 1/4" ply F2 to begin nose construction. **Epoxy** all ply and hardwood in this phase of the construction. After F2 is set-up, add F1, the 3/8" square hardwood braces, and the 3/8" x 1/2" hardwood motor mounts. Be sure your **alignment** is true prior to the hardening of the epoxy, especially where the aluminum motor mount sets.

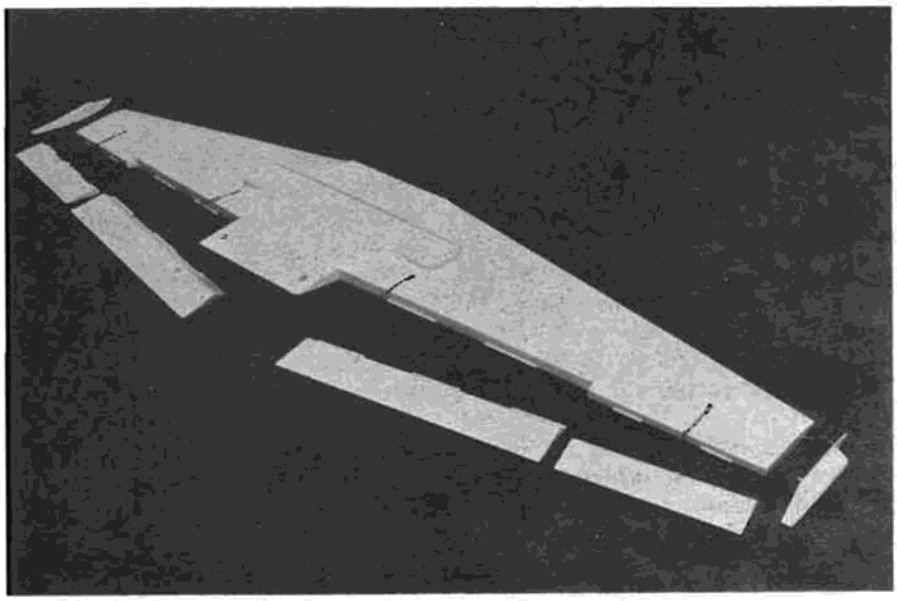
Before further exterior construction is done, the nose gear mounting should be made, and boxes are to be constructed as per the plan if using the listed battery and gas tank. It is **also imperative** that the throttle and nose gear linkage tubing be inserted at this point, unless individual preferences are toward straight linkages and unfinished cockpits, which will allow easier placement of the servos.

NOSE & BLOCKAGE DETAIL:

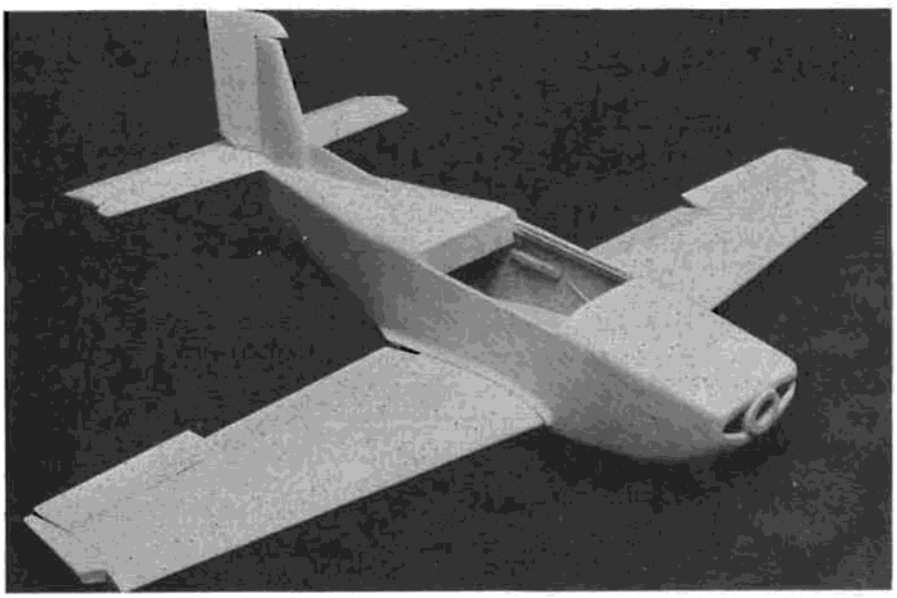
Balsa blockage is now glued to the top of the dash backing (F2 area) and against the ply doublers, as indicated by No. 1 and No. 2. Add the 1/4" side sheets SS then more blockage as indicated by No. 3. The blockage acts as . . . . . .



ABOVE: The fuselage structure. BELOW: Basic wing components.



BELOW: The complete Airtourer structure, less canopy.



bracing and is needed as fill when sanding the top to the required contour, (use the top of the dash panel as a contour guide). *When gluing side sheets SS, the sides are to be tacked only at points C. Determine the method of attaching the cowling before continuing and add the balsa blocks to the interior of the cowling for strength and shaping needs. My model has hardwood inserts on F1 which rest against the inside of SS and have blind mounting nuts in them. If all linkages are made, the bottom blocks can now be attached. The nose piece N is outlined on 1/4" sheet as per detail, and using the center lines as guides, glued to the front.

Sand the front to shape and add the air scoop block to the bottom. The air scoop can be 2½" to 3" wide. The cowling can now be cut through at point C (where it should have only been tack glued to the sides) and removed in one piece. Fillets are best made after the wing is assembled and fitted in place, then building material is added to the proper height and contour. The rear block can be hinged for elevator access at point shown.

WING:

As mentioned above, the wing was originally balsa and open spaced between the ribs. As a truer scale and possibly stronger wing can be made with foam, and the full-scale Airtourer is all-metal, solid sheeting should be the rule both for the wing and stab sections. The foam wing is made in three sections. To make easier repairs to the tip and lights, which are usually the first and most often damaged, I have made the wing tips removable.

Foam cores are cut as per the template outlines given on Secion C-C or B-B. To insure the proper incidence, and undercamber, the rib templates should be placed against the foam blocks as per the reference lines shown on the plan. The outer wings are cut to a length of 25-1/8" as per the Foam Cut Reference lines, and bellcrank cutouts are made where shown or preferred. The bellcranks are now attached to the 1/8" ply mounts and inserted; the wire linkage is attached without being of excessive length so that the sheeting can be accomplished. The sheeting is best done by placing the bottom sheet over the plan, starting with the trailing edge, then dropping the wing down by reference to the spar line as a centering guide. The top sheet is then added and, if a solid leading edge is preferred, cut through

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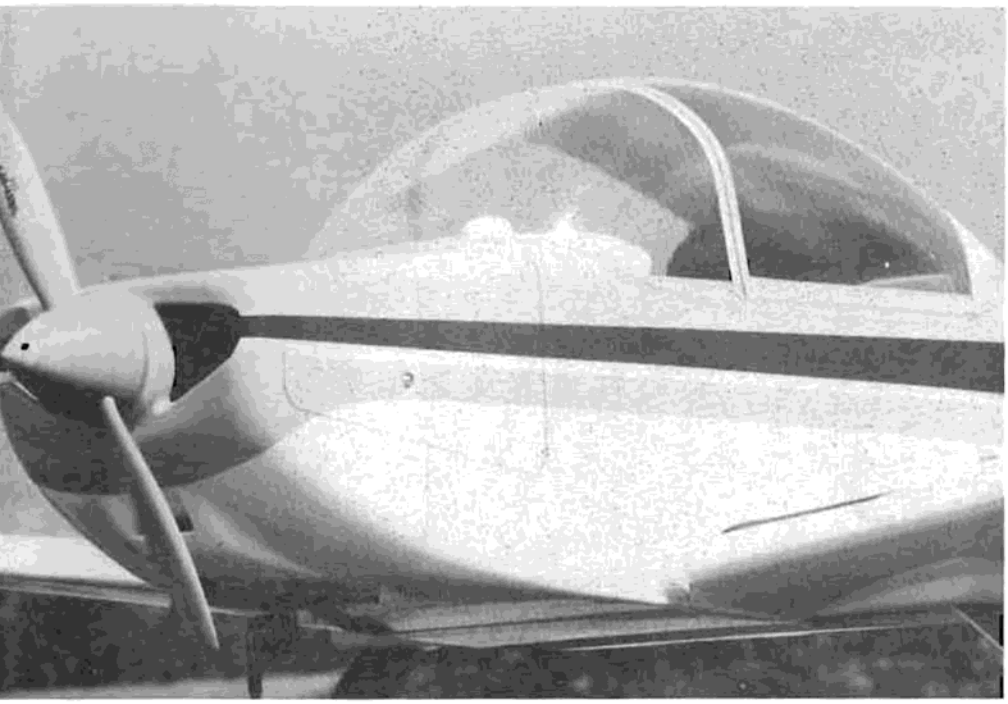

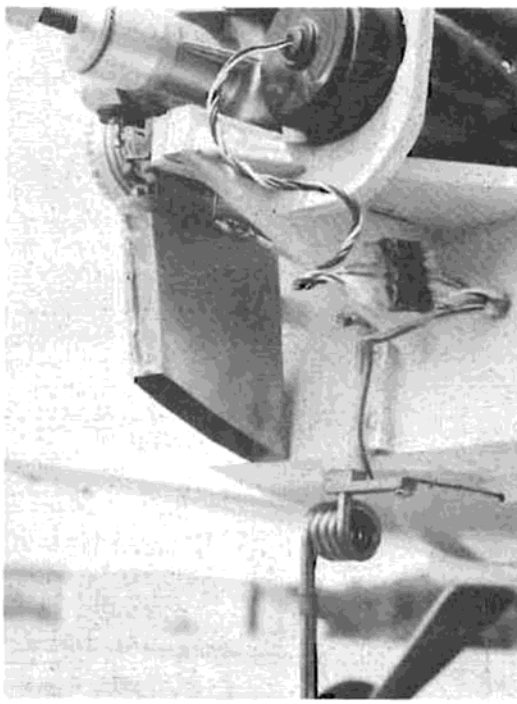

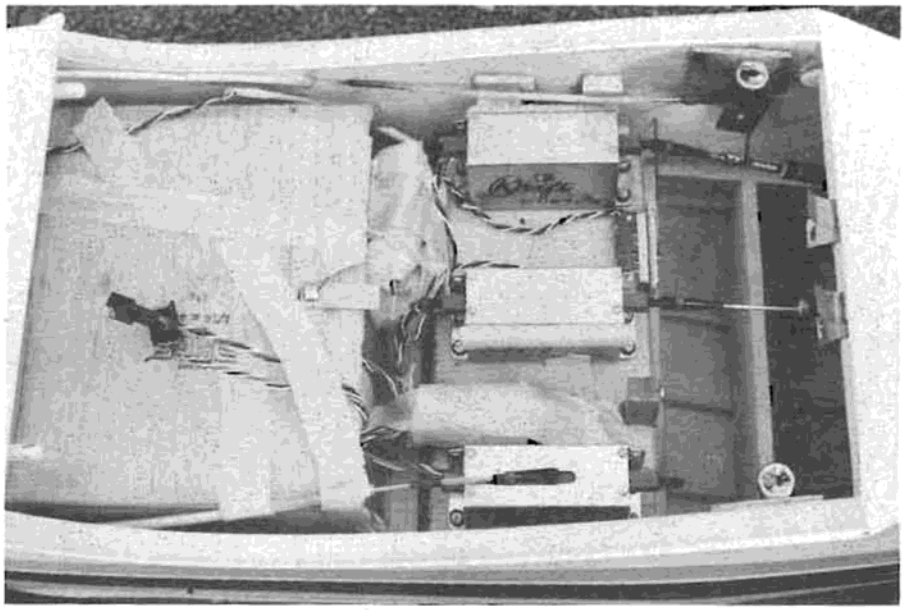

ABOVE, LEFT: Close-up view of Victa Airtourer cowl and canopy. Text details method of forming canopy. ABOVE, RIGHT: Battery pack is carried in cowl, opposite engine, to achieve proper C.G. RIGHT: View of radio equipment from underside of plane. 'Boxed-in' section is floor of cockpit. Radio system is carried aft in order to provide room for full cockpit detailing. BELOW, LEFT: Low angle shot of completed Victa Airtourer. BELOW, RIGHT: The Airtourer, while somewhat sensitive to ailerons, grooves in a way that you would like all of your aircraft to fly - - - and does it at a 40 oz./sq. ft. wing loading!

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sheeting and foam as per the Leading Edge Reference line on the top view of the wing. The dihedral angle is now sanded from the butt area of the outer wing sections. NOTE: The 8" wide center section is cut using section D-D as a template and the addition of a solid leading edge is preferable. Cut out the servo compartments and linkage slots and install the compartment sheeting for servos. The slots for hardwood (or basswood) spars are cut at this time, in the **center section only**. The center section shown has a 1/16" ply dowel brace behind the leading edge, solid trailing edge filling, and 1/32" ply covering before the 1/32" balsa sheeting and bottom fill was added. This method greatly increased the overall wing strength and allows a dowel-camlock arrangement for the wing hold-down and the bolting of an aluminum landing gear to the center section. The bottom fill can be added after assembly and while the wing is fitted to the fuselage. The wing sections are now epoxied together **only as far as the flap cutout line**. Be sure the alignment is correct. The spar slots are now cut in the outer wing sections. The front spar and brace, rear spar, and 1/32" ply landing gear floor are now epoxied in as per the exploded detail.

The ailerons and flaps can now be cut out noting that the wing tip should be cut at line W. Solid blocks are then shaped for the tips and made detachable, if desired. The hinging method shown is 3/32" brass tubing with 1/16" nylon tubing inserted through its full length. The hinge is added by inserting the nylon tube into the cut brass pieces, then epoxying alternate pieces to a flap or aileron. After drying, the other pieces are matched and epoxied to the wing. This method of hinging is well worth the effort as it gives a **friction free** action especially suited to proportional equipment. The hinge strength is received when silk is applied over the brass tubing. Epoxy alone will not fully bind the brass to the wood. It is also advisable to reinforce the area where the wing sections join, by either using fiberglass or pinking tape.

STABILIZERS:

Foam stabs can be made using the rib templates as shown, or they can be made from balsa as per the plan. In balsa, cut, shape, and notch the stab spars as shown. Make the ribs and add to the spars with stringers and leading edges, then sheet with 1/16" balsa. The blocks are best added and shaped for the tips after the hinging is attached (brass and nylon tubing may also be used here) and the stabs are mated with their flying areas.

Block R is now shaped and glued to the body; the stationary vertical stab is then aligned on it. Glue the dorsal fin to the stab and body and contour the butt area with the fill of your choice.

Shape area E and insert it with the installation of the stationary horizontal stab. Shape the excess balsa and fillet all the butt areas. The "Cheesecutter" is a knife-type sheet added to the elevator for horizontal stability in turning.

CANOPY:

The canopy was molded using a "ring-and-plug" method. A plaster (or balsa, foam, etc.) mold is shaped as per the outlines (blow up Section A-A 3X and use for front view template). The mold should be about 1/8" undersize as a **good grade of felt** is glued directly to it and does not necessitate a finely finished mold. (The felt also acts as its own release agent.) An extruded Cellulose Acetate Butyrate of about .040 in thickness is then attached to a "ring" (actually two rectangular frames clamped together), leaving about 1/2" clearance around the "plug" (male mold) which is raised above a level surface approximately 4 inches. The "ring" with the cellulose is held in an **electric** oven at about 350 degrees until the cellulose is seen to sag throughout the **whole area**. The assembly is **immediately** drawn from the oven and dropped (and pushed) **directly down** over the canopy form. If heating and dropping is done correctly, the result will be a clear canopy. A poor drop may be lifted and reheated with possibly only a few stress marks showing or, alternately, a thinning out of some areas.

COLOR & TRIM:

A Hobbypoxy finish was used as two shades of blue can be purchased and no extra blending of colors is required. All tips are Day-Glo and the elevator is painted solid in any dark color of your choice, i.e., dark blue with Day-Glo tips. Use Scotch tape for trimming; contrary to many modelers saying that Scotch tape will pull the Hobbypoxy away, I have found that pulling the tape on a 90 degree angle leaves a very sharp line with little tearing of the tape.

The registration letters are typical but different to the same extent that each plane will have a specific letter designation per our NC and numbers. I feel it would be best to write the company requesting a picture or brochure asking the color of the plane if it is in black and white.

Good building and fast flying. □