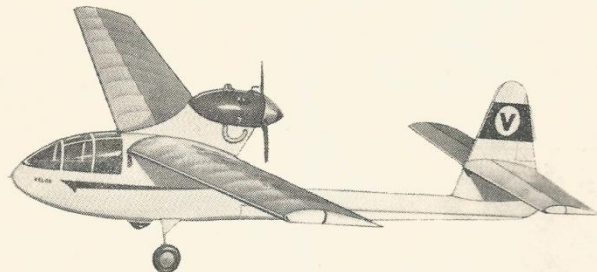


VERON



VELOX

BUILDING INSTRUCTIONS

This graceful 44" Span Auxiliary Powered Pusher with its unique pod-and-boom structure gives an ultra-streamlined model with an "out of the rut" popular appeal all its own!

Designed for diesel and glo-motors of .5 to .9 c.c. (.03 to .054 cu. ins.), standard engines can be used with the specially designed "Velox" pusher propeller (7"×4") available from your dealer or from Model Aircraft (Bournemouth) Ltd., Norwood Place, Bournemouth at 3/3 each plus postage 6d. (Commonwealth Countries 1/-, Foreign Countries 1/6 postage). Allbon "Dart," "Merlin," "Bantam," E.D. "Baby," E.D. "8 c.c. "Pep," A.M. "049," Frog "049, Frog 80, Mills "75 and similar capacity Foreign, Continental and American beam mount motors.

Though not recommended as a model for beginners to powered free-flight, the simple sequence of assembly is pictorially laid out on a separate diagrammatic sheet which, if followed carefully with the corresponding paragraphs in these instructions, will facilitate the building of a comparatively straightforward model.

Simple tools are needed. Use a VERON balsa knife, modelling pins, a good grade of cement, side-cutting pliers, $\frac{1}{16}$ ", $\frac{3}{32}$ " and $\frac{1}{8}$ " drills and brace (for mounting the engine, etc.), use of a soldering iron (for the wheels). Clear shrinking dope with thinners and brushes as necessary. Coloured dope, preferably white, also tissue paste and greaseproof paper. Also garnet paper and red dope for trimming. IT IS NOT RECOMMENDED THAT PLASTIC FUEL TANKS INTEGRAL WITH ENGINES ARE USED AS THIS ENTAILS TOO BIG A CUT-OUT THROUGH THE $\frac{1}{8}$ " PLY MOUNT SO WEAKENING IT. We suggest a small upright "M.S." Graduated Free-Flight Tank usually supplied by all dealers or similar plastic tubular tanks.

Separate all the die cut pieces and identify all the parts in the kit. Above all, READ THROUGH these and other instructions and so familiarize yourself with the sequence of assembly.

1. FUSELAGE BOOM

Join the two halves of the boom together liberally cementing along their edges. Secure with rubber bands whilst setting. Check that no warps are incurred. DO NOT sand smooth until AFTER joining to fuselage.

2. FUSELAGE HALVES AND BOOM

Mark round the circumference of the boom $1\frac{1}{2}$ " from one end—this is to mark the depth of its joint with the fuselage halves. Check that when two main fuselage sides are fitted together trapping the boom, there are no gaps in joints. If satisfied, cement up all jointing surfaces and secure whilst drying.

3. FUSELAGE FORMERS

The two die-cut formers F.1 are laminated accurately together with F.4 cemented also correctly in place as in diagram 3 (a). Measure $6\frac{1}{2}$ " from rear of fuselage to point where rear edge of laminated formers F.1 (not F.4) will be located. Check former for fit and if satisfied cement in place, double coating; the first coat being rubbed well into the wood grain and allowed to dry before applying a second coat and locating F.1s. Check for verticality by TEMPORARY LOCATION ONLY of wing support blocks.

4. UNDERCARRIAGE

Bend the 14 s.w.g. wire provided to shape as in side, top and front views on plan. Pencil in the completed outline of centre loop of wire on the $2\frac{1}{2}$ "×2"× $\frac{3}{8}$ " piece of ply and drill $\frac{1}{16}$ " holes either side of wire as detailed to permit binding with strong thread coated with cement. Use needle to aid threading as in 4 (b).

With fuselage upside down, check that ply plate is a TIGHT fit in fuselage behind formers F.1, trimming as required. If satisfied, cement plate and wire in place with liberal cementing locating so that straddle legs are touching edges of fuselage. See diagram 4 (c).

5. ADDING FUSELAGE BASE

Cut a $\frac{1}{2}$ " deep by $\frac{1}{8}$ " wide slot in the tail of the $\frac{3}{8}$ " thick fuselage base (this is for the ventral brace of tapered $\frac{1}{8}$ " balsa fitted later). Temporarily locate base checking for fit and cutting slots to take undercarriage wire. Pin whilst setting to ensure a close joint after liberal cementing.

6. WING PLATFORM

Cement wing platform blocks in place, checking that these are the right way round with tapered edge to the top.

7. CARVING FUSELAGE

Firstly cement in place the two $\frac{1}{8}$ " F.5's in place to denote upper cockpit rim, locating $\frac{1}{16}$ " (or the thickness of the plastic canopy) from the edge. Likewise trim carefully with a balsa knife the upper edges of the front part of the laminated former F.1 to permit close fitting of canopy.

Carefully cut off the canopy moulding flash along its bottom and rear edges and trim until it fits in location—BUT DO NOT CEMENT YET. 7 (a and b). This is to permit carving of the fuselage front to edges to a continuity of line with the canopy as can be seen from the plan side view and 7 (c and d). Carve very carefully to an oval section but not touching the wing support blocks. Drill or carve a hole in the nose for a ballast-box as detailed on plan.

8. FUSELAGE DETAIL

With coarse, then fine garnet paper wrapped around a hardwood block, sand the fuselage surface smooth, 8 (b). Cut two lengths of $\frac{1}{8}$ " dowel, one 3" long and the other $1\frac{1}{2}$ " long and locate through hole drilled through wing mount blocks as pegs for securing bands. Groove their ends on under-side as shown on plan. Cement very firmly.

Chamfer the upper surface of the wing mount blocks to permit correct seating of wing with its dihedral. USE PLYWOOD WINDING DIHEDRAL KEEPER AS TEMPLATE FOR ANGLE OF CHAMFER. DO NOT touch outer edge of mount blocks as this determines the wing incidence. Cut a small scrap gusset of $\frac{1}{8}$ " balsa to make fillet between fuselage and boom on its top edge.

Also cut two triangular gussets of $\frac{1}{8}$ " ply cementing into slot cut in fuselage in line with and behind the undercarriage wire. Drill a small hole at the bottom of the gusset to bind securely to wire with thread coated in cement. See side view of fuselage and diagram 8.

9. TAIL BLOCK

Smooth one end of $3\frac{1}{2}$ "×1"×1" balsa tail-block and mark a small circle on its end—use a fine point pencil and a SIXPENCE for template.

Mark off $\frac{1}{4}$ " from the same end all around the block—see diagram 9 (a). Carve very carefully a $\frac{1}{4}$ " round plug, checking for fit in the end of the boom, 9 (b).

Use two rulers or flat pieces of wood, one set across the wing mount and one across a top flat edge of the tail-block whilst cementing it firmly into end of boom, this to check that tail-block has an edge square to the fuselage, 9 (c).

Cement $\frac{1}{8}$ " balsa rib T.1 to top surface of boom and tail-block with its rear tip $\frac{1}{16}$ " from the end. Check it for alignment with the boom DO NOT CARVE THE TAIL-BLOCK UNTIL AFTER APPLYING SHEETING TO THE FIN BASE, 9 (d).

10. FIN STRUCTURE

Cement in place fin leading and trailing edges T.3 and T.4 with upper $\frac{1}{4}$ " rib T.2 in place as in 10 (a) and 10 (b). Check carefully for alignment, pin temporarily to secure whilst setting.

Cut 3" wide $\frac{1}{8}$ " balsa sheeting into $1\frac{1}{2}$ " strips across the grain and join into two's giving two pieces $1\frac{1}{2}$ "×6". Trim by trial and error to fit boom and tail-block and when satisfied, cement in place to she in both sides of fin base, pinning whilst drying.

Only when set should tail block then be carved to taper flush with sheeting and CAREFULLY sanded.

Later, covering the structure with doped tissue will complete strengthen it.

11. FIN BASE DETAILS

Two pegs of $\frac{3}{8}$ " and $\frac{5}{8}$ " of $\frac{1}{8}$ " dowel at front and rear respectively are cemented through holes drilled under rib T.2 where indicated make tail and fin securing pegs.

Sand $\frac{1}{16}$ " ply tail platform ($1\frac{1}{2}$ "×2 $\frac{1}{2}$ " smooth and round its corner. Cement into shallow groove carefully cut across top of T.2 where indicated. Check that it is level.

Trim 15" tapered length of $\frac{1}{8}$ " balsa to make a ventral brace for the boom. Cement in place, fitting into $\frac{1}{4}$ " slot in base of fuselage. Check its alignment. See diagram 11. Bend small length of 18 s.w.g. to form a skid at detailed on plan, bind to scrap of tapered $\frac{1}{8}$ " balsa (from die cut sheet) and cement in place.

12. WINGS

Cut trailing-edge pieces accurately to length. Taper each from root to $\frac{3}{8}$ " at tips. Lay in place over plan then mark off and cut out $\frac{1}{16}$ " slots for ribs.

Cut the $\frac{1}{8}$ "× $\frac{1}{8}$ " spars accurately to length over the plan. Trim to offset supplied to 8 $\frac{3}{4}$ " and laminate to spar (from ribs R.1 to R.5. Taper the spar from $\frac{1}{8}$ "× $\frac{1}{8}$ " at R.6 to $\frac{1}{16}$ "× $\frac{1}{16}$ " at tip R.11.

Lay waxed or greaseproof paper over the plan wing panels protect whilst building.

Accuracy of building is essential with the high aspect-ratio wing of the VELOX. Build cleanly and neatly, so that no unnatural warps are incurred.

Pin the spars upright in place with smaller lamination to the front, also trailing edge in position. Cement $\frac{1}{16}$ " ply dihedral keeper to front face of starboard wing spar (as on plan).

Locate ribs R.1 and R.2 setting at a leaning angle with template given on plan cut out and mounted on card. It may be found necessary to ease out the spar slot to fit over the ply gusset laminated to the spar. Erect all remaining ribs in their respective locations.

The $\frac{1}{8}$ "× $\frac{1}{8}$ " leading edge is set diagonally into the front of all ribs.

Cement cleanly and pin whilst setting. Add $\frac{1}{8}$ " scrap corner gussets where indicated. Cement the $\frac{1}{8}$ "× $\frac{1}{8}$ " tip blocks in position. Do not add blocks and sheeting at centre section until after jointing and fitting of engine mouth. DO NOT RAISE PANELS FROM BOARD UNTIL SET.

13. WING DETAIL

Sand leading edges round and tips to streamline. Chamfer root ends of spar, leading edge and trailing edge to angle to permit butt-jointing of two wing halves with engine mount. Cut a $\frac{3}{8}$ "× $\frac{1}{16}$ " slot in the two trailing edges to permit fitting of small 1"× $\frac{1}{16}$ " piece of $\frac{1}{16}$ " ply as jointing gusset.

Join the two wing halves together, easing out slots for dihedral gusset in port wing. DO NOT cement engine mount in place yet but use only to check close fit between base ribs R.1. With one wing panel flat to a building board, check that raised tips (supported on a block) is 6" up to give normal dihedral 3" each side.

14. ENGINE MOUNTING AND COWLING

If a spinner is to be fitted to this model, engines with "quickstarts" must have the springs removed.

Mounting diagrams for Allbon "Dart" and "Merlin" are given on the plan. For the "Merlin" the $\frac{3}{8}$ " wide slot must be deepened from $1\frac{1}{2}$ " to 2". It is possible to fit a "Dart" with its integral tank turned 45° but not recommended owing to the extra cutting away of the ply mount. Fit an upright small "M.S." graduated Tank as detailed for all others.

Accurately mark and drill the bolt holes for engine mounting, checking the engine for location and position when fitting the spinner. Now give the ply mount at least four coats of thinned dope to proof. Whilst drying, carve the two side cowls to shape, lightening internally as much as possible. Make cutaway for engine in starboard cowl with ample clearance for exhaust and inlet to venturi. Cut one mounting lug off small "M.S." upright tank and bolt to ply mount as detailed with 8 B.A. Bolt, or it may be secured by trapping between cowl and ply when cemented to mount. See detailed pictorial assembly in diagram 14.

SPECIAL NOTE

OWING TO OFFSET MOUNTING LUGS ON "MERLIN" ENGINE, REAR PLY RING AND COWLING MUST BE CARVED AND LOCATED CENTRALLY WITH THE OFFSET LINE OF THE CRANK-SHAFT. THIS ALSO APPLIES TO "DART" TO A LESSER DEGREE BUT SEE DETAILS OF ALIGNMENT ON MAIN PLAN. THE OFFSET ENGINE IS NOT DETRIMENTAL TO FLIGHT BUT COUNTERACTS TORQUE OF THE PUSHER PROP.

Both halves of the cowl must be thoroughly doped to oil proof, both inside and out.

15. ENGINE INSTALLATION

Bolt the engine firmly to the ply mount with either 6 or 8 B.A. bolt, washers and double locknuts to suit engine used. Check cowls for fit and make holes necessary for fuel tubing from tank and control needle—not forgetting to proof them.

Cement both cowls in place. Sand edges where jointed to ply. Cement plywood ring in place. Re-proof all surfaces with dope or banana-oil.

16. JOINING MOUNT TO WING

Cement wing mount very liberally into slot between two base ribs R.1 ensuring that lower edge is quite level and flush with underside of ribs. This ensures correct thrust-line of engine in relation to incidence.

Similarly slot F.3 into place between ribs R.1 at front of mount and small scrap $\frac{1}{8}$ " gusset at rear.

17. CENTRE SECTION FAIRING

Chamfer front edges of $\frac{1}{8}$ "× $\frac{1}{8}$ " leading edges flush with faces of R.1's and cement F.2 in place. Pin whilst drying.

18. CENTRE SECTION DETAIL

Two soft balsa blocks 2"×1"× $\frac{3}{8}$ " are carefully sanded to fit tightly behind F.2, between ribs R.1 and R.2 and in front of ply gusset joining wing spars. Liberally cement in place and when dry carve and sand to contour making joint between F.2 and camber of wing as in 18 (b). Cut $\frac{1}{16}$ " sheeting into panels to fit between and flush with top edges of ribs R.1 and R.2 aft of spars and on top surface only.

19. CABIN DETAIL AND WING LOCATION

Paint interior of cabin a dark matt green or grey. Carefully trim the top edge of front lamination only of F.1 to permit flush fitting of plastic canopy level with rear lamination of F.1. Rough edges of canopy with garnet where cementing will take place, carefully apply canopy to fuselage and either secure with light rubber bands whilst drying or pins.

Check wing and engine mount for location principally to permit sanding smooth the joints of cabin and wing. Check that wing centre section sits firmly and squarely upon chamfered upper edge of wing mount blocks. If it doesn't, the wing incidence may be wrong.

Diagram 19 shows the method of securing wing with rubber bands which is best tried AFTER covering and doping of wing.

20. TAIL STRUCTURE

Trim one-piece spar of $\frac{1}{8}$ "× $\frac{1}{8}$ " (set on edge) to length and pin in place over waxed tissue. Scarf-joint leading edge of $\frac{1}{8}$ "× $\frac{1}{8}$ " and $\frac{3}{8}$ " trailing edges as indicated then mark position of $\frac{1}{4}$ " slots on trailing edge and cut out. Pin each in place. Erect all ribs cleanly cementing in place. Laminate the tip ribs. Only when set, remove from board and sand all edges and tips to streamline.

21. FIN STRUCTURE

Leading edge of $\frac{1}{8}$ "× $\frac{1}{8}$ " is trimmed to length, the $\frac{1}{16}$ " slots marked and cut out, then pinned in place over plan. Trailing edge is similarly trimmed, slotted and pinned in place over scraps of trailing edge to wedge it up as in diagram 21. Ensure that it is wedged up evenly. Add tip piece T.5, and base cut from offset of $\frac{3}{8}$ "× $\frac{1}{16}$ ", with slots for dowel pegs and to fit over tailspar. Fin ribs are $\frac{3}{8}$ "× $\frac{1}{16}$ " cut to length and slotted each end.

Only when dry, lift from plan and smooth edges to streamline. DO NOT cement to tail until after covering.

22. COVERING AND FINISHING

Use tissue-paste or photo-mounting paste for adhering tissue only to outline of wing, tail and fin panels, not to individual ribs.

Water shrink the tissue using a modellers' spray—do not brush the water on. Pin wing panels to flat building board whilst drying, each side individually.

Give each wing one coat of dope ON UNDERSIDE ONLY. When dry, pin each wing to board whilst doping upper surface. Allow to dry for at least half-an-hour before applying successive coats or removing to dope opposite wing panels. In this way, warps will be obviated, warps which will only be aggravated by a high thrust line model in flight.

Dope the fin and tailplane in a similar way to prevent warps. Apply as many coats as are necessary to proof all the tissue against oil soakage.

Cut away the tissue between the two centre ribs of the tailplane and cement fin in place, checking for verticality.

Two small pegs of $\frac{1}{8}$ " dowel are cemented into small slots on underside of tailplane in base of fin. Accurately mark and cut out two corresponding $\frac{1}{8}$ " holes in fin base ribs T.2. This will ensure correct alignment of fin for all flights.

The fin base may be covered with tissue applied with dope or banana-oil. Sand the whole fuselage and boom with 7/0's garnet paper, applying successive coats of dope or banana-oil to fill the grain.

The prototype model is doped white all over the pod, boom and fin, also leading edges of wing and tail. The engine nacelle is red. The fuselage "flash" is red, also the fin band with a red 'V' set in a white circle. Paint in white the bracing to the canopy. Apply the dope as lightly as possible.

THE FINISHED MODEL SHOULD WEIGH 15 OZS. WITH "MERLIN" OR "DART" (INCLUDING PROPELLER AND SPINNER).

23. ASSEMBLY FOR FLYING

There is always a tendency for deterioration due to oil on the wing retaining bands so MAKE SURE BEFORE EVERY FLIGHT that the bands are in good condition and secure enough to prevent movement between wing with engine unit and fuselage.

Similarly, tail bands must be secure enough to prevent any lateral movement of tailplane.

It is recommended that two small aluminium trim tabs be fitted. One to the trailing edge of the fin—not made bigger than shown on plan or it will be over-sensitive. Also a tab on the port wing behind ribs R.5 and R.6—not further out or this will be over-sensitive too. These tabs are not supplied in kit.

The model MUST balance on the C.G. (centre of gravity) location given, in a slightly nose down (gliding attitude) when supported by the finger tips under the wing. Add ballast to nose if required. On no account should the balance point be behind this location.

24. PROPELLERS

As detailed in the introductory paragraph, a 7"×4" wooden propeller is available from your dealer or from "VERON" direct. This is suitable for motors from .7 to .9 c.c. at 7" diameter but may be trimmed to 6" for engines smaller such as "Dart." Balance carefully, proof with dope—use "Butyrate."

25. SPINNER

When fitting a spinner, domed propeller nuts are replaced with hexagon nuts and the strap bent to a 'V' to length required as in diagram. The strap is secured to the outer face of the propeller, not between propeller and backplate.

26. GLIDE TESTING AND FLYING

Glide testing must be carried out in calm, windless conditions over smooth ground. Launch GENTLY forward at normal gliding angle and speed. Do not alter the designed incidences to correct the glide—add or remove ballast from the nose. Make sure the glide is flat and straight without tendency to stall. When satisfied, bend rudder tab to give a very slight right turn. Propeller torque on this model is negligible.

Proceed with first powered flights on low engine speed, correcting the trim as necessary.

Whatever form of flying you do, we wish you pleasant hours of fun in a very instructive hobby. Let us know how you progress with your model. Send us photos of your VELOX and tell us of your successes anywhere in the World.

HAPPY LANDINGS

Henbest, Printers, Bournemouth

VERON
44" Span.

Velox

AUXILIARY POWERED PUSHER FOR .5 c.c. to .9 c.c. (.03 to .054 cu. ins.) SUCH AS
ALLBON 'DART', ALLBON 'MERLIN' & 'SUPER-MERLIN', FRQG '80', MILLS .75 c.c. E.D. 'PEP' .8 c.c. D.C. 'BANTAM'.
MAX. ALL-UP WEIGHT 14 OZS. WING AREA: 230 SQ. INS. SECTION - GOTTINGEN 387 REDUCING TO 75% AT TIP.
A GRACEFUL ULTRA-STREAMLINED POD-AND-BOOM POWERED SOARER.

