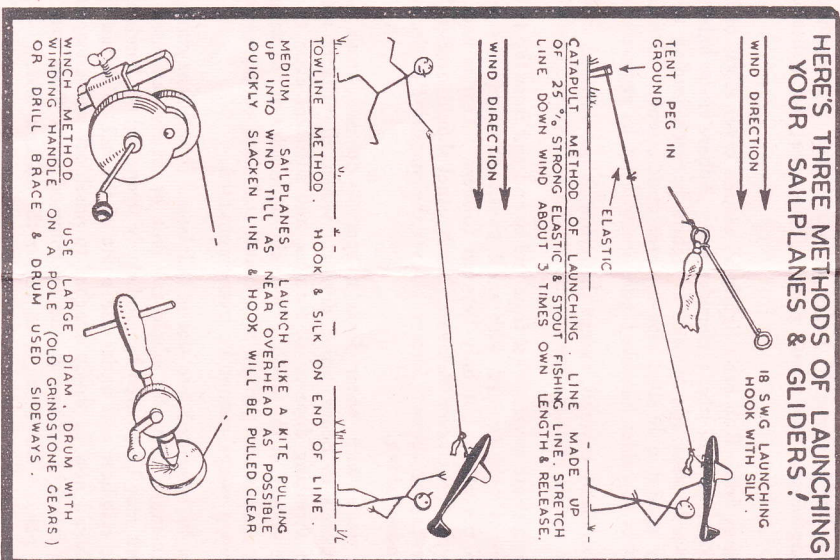


The incidences of the wing remain positive in the design, and the stabilizer should not be elevated or depressed. Correct gliding attitude should be achieved only by addition of ballast as required.

The sketches below give three methods of launching model sailplanes and gliders. The F.A.I. line length is 164 feet, and should be used on towline and winch launches. Always use the towline dead into wind. Trimming may be achieved by a small gummed paper tape tab adhered to the trailing edge of the fin. This would tend to make the glider "swing" slightly to one side on the towline; this may be corrected by towing the model slightly crosswind in the direction desired to counteract the swing.



The "VEROSONIC" Glider can be fitted with auxiliary power by attaching a "JETEX" Unit above the centre section of the wing. The "JETEX 200" will give ample power at 6.2 ozs. fuselage weight, but the "100" Unit is not quite powerful enough except to maintain horizontal flight. This could, of course, be used in conjunction with a towline launch. The "JETEX 200" mounting clip should be mounted parallel to the line of the top stringers (not the longerons). This will give about 3° of up-thrust (jet pointing downwards) to counteract the "nose-down" tendency of the high thrust line of the unit. Check the balance on the glide only with an uncharged motor. Make power setting adjustments by packing up or down the mounting clip.

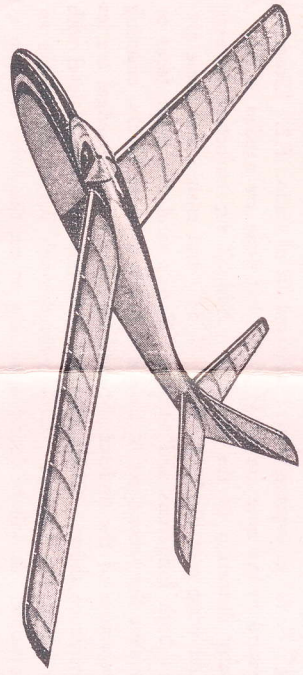
When you have successfully completed and flown this model, perhaps you would like to build something else in our wonderful range of Duratlon, Power and Control-line models. Ask your local "VERON" dealer to show you some of our other famous designs.

VERON

High Performance
Sailplane

VEROSONIC

BUILDING INSTRUCTIONS



First, study the plan and identify all the parts on the printed sheets of balsa. Familiarize yourself with these and all other instructions. This design, if carefully built, is quite capable of consistent contest durations of three to four minutes in still air from a standard F.A.I. line length of 328 feet.

The only tools needed are small pliers, a few pins, either steel-backed razor blade or balsa knife, and fine sandpaper. The fuselage sides, wing and stabilizer panels and the fin are all built directly over the plan.

WINGS.

Lay the plan on the building board and cover with waxed tissue or greaseproof paper to protect from the cement. Select two even grade lengths of $\frac{5}{8}$ " x $\frac{5}{8}$ " for spars. Lay over plan and mark in pencil the positions of all ribs. Taper spars on top edge to $\frac{1}{4}$ " x $\frac{3}{8}$ " at R.11, and to $\frac{3}{8}$ " x $\frac{5}{8}$ " at tips. Erect spars in place over plan, secure with pins either side, using small packing pieces as described on plan. Taper two trailing-edge spars from $\frac{1}{2}$ " x $\frac{1}{8}$ " x $\frac{3}{8}$ " at their tips. Mark and cut out the $\frac{1}{8}$ " deep notches in the trailing-edge for all ribs and locate in place over plan. Erect all ribs in their respective positions, slotting over the spar and into the trailing edges. Ensure that all ribs have their lower front edges touching the board. Ribs R.2 are laminated for strength, and have the $\frac{1}{8}$ " round holes for the dowels cut before they are positioned. End ribs R.1 are added similarly with the holes accurately cut for the dowels. The $\frac{1}{8}$ " x $\frac{1}{8}$ " leading edge spar is now added, this being set diagonally into the leading edges of all ribs. Trim ends of both leading and trailing edges at R.1 to permit flush lamination of R.1A. Check the $\frac{1}{8}$ " holes for alignment. Add small corner gussets of scrap $\frac{3}{8}$ " sheet at R.1 and R.2, also tip pieces W.T.1 and 2. Allow all joints to set hard before removing from the board. Put small quantities of cement into the dowel holes and slide length of dowel gently back and forth till the cement evaporates. This will create a hard film of cement in each dowel hole, and ensure a better fit when in use. Gently sand the whole of both structures, slimming W.T.1 and the trailing edge to a "knife" edge.

FUSELAGE.

Select four even quality longerons from $\frac{1}{8}$ " x $\frac{1}{8}$ " strips. Nose end of two top longerons must first be steamed to approximate curve of the side elevation. Pin one top longeron in place, extending slightly at front and placing pins either side of wood, not through it. Position lower longeron, making a perfectly-fitting scarf joint at the rear.

Insert the four $\frac{1}{8}$ " \times $\frac{1}{8}$ " verticals at the front and then add the $\frac{1}{8}$ " \times $\frac{1}{8}$ " diagonals, working from front to rear. All joints to longerons at intersections of diagonals must be uniform and closely butted.

The second side is built directly above the first. This will ensure that all verticals and diagonal bracing is identically matched. Trim surplus ends of top longerons at front.

Join two sides with former F.1, drawing rear ends together and cementing with a scarf joint. Insert crosspiece where F.8 will eventually be stationed, and now add remaining $\frac{1}{8}$ " \times $\frac{1}{8}$ " crosspieces where indicated aft of station F.2. Crosspieces at station F.2 and forward to the nose are all $\frac{1}{8}$ " \times $\frac{1}{8}$ ", but none are needed at F.1. At all times check for any distortion of the structure. Add all superstructure formers F.1.A, F.2 to F.8. Add wing root blocks $\frac{3}{4}$ " \times $\frac{1}{4}$ " \times $5\frac{1}{2}$ ", and ensure that these are very firmly cemented to both longerons and formers. Gently sand the outer faces to the angles shown. Cement the second set of base ribs R.1.A to these blocks, ensuring that lower points of curvature of the undercamber and tips of the trailing edges are level with the angles of incidence shown. Check also that both ribs are stationed level with each other transversely across the fuselage. Drill holes through R.1.A and blocks as neatly and cleanly as possible. It will be found quite easy to cut the holes out with a balsa knife, and ream the holes out with a length of slightly tapered dowel. Ensure that dowels are a tight sliding fit for replacement.

Check location of wings and sand face of base rib R.1.A so that it fits perfectly with root rib of wing. Add seven $\frac{1}{8}$ " \times $\frac{1}{8}$ " stringers from F.1 to F.8. Lower stringers run only from rear of blocks to F.8.

Erect nose formers C.1 and C.2, then cockpit rim C.3. Seven $\frac{1}{8}$ " \times $\frac{1}{8}$ " stringers are then cemented in place from outer edge of C.1 to butt closely against edge of C.3. Add nose block. It may be found best to drill ballast hole in block prior to cementing in place, and so obviate damage to the fuselage. When the nose block is firmly set, carve and sand to streamline.

The skid, which is added AFTER covering and doping, is made of laminated $\frac{1}{8}$ " \times $\frac{1}{4}$ " hard balsa. It will be found best to roll the strips along their length with a hard object (dope bottle) which will tend to incur the desired curve to fit the fuselage contour. After laminating, fit small 20 s.w.g. wire tow hooks as shown, and bind with cotton.

The cockpit cover is not added until after covering.

STABILIZER.

The two halves of the tailplane or stabilizer are constructed with exactly the same procedure as the mainplanes; spars tapered and set upright with pins, trailing edges tapered and slotted and ribs added. The top half of ribs, having no undercamber, must be set flush to the building board. The ends of the leading edge, spar and trailing edge must all protrude $\frac{1}{8}$ " in both halves. When set, remove both from the building board, and insert in their respective slots the two dihedral gussets G.1 and G.2. One panel of the stabilizer is secured flat to the building board, whilst the other has its tip supported on a 2" block (giving normal dihedral each side of 1"). Check that ends of spars, leading and trailing edges are all very closely butted. The fin, when slotted in position and cemented, will complete the strength. Add undercamber strips to all ribs, including "staggered" ribs T.1.A at centre-section to fit over stern-bay.

FIN.

This is built flat directly over the plan side elevation. Lay leading edge V.1, cut from printed sheet, over plan and pin in place. Similarly, lay in place a length of $\frac{1}{2}$ " \times $\frac{1}{8}$ " tapered to $\frac{3}{8}$ " \times $\frac{1}{8}$ " for the trailing edge. Add lower base piece V.3 and tip V.4. Insert two $\frac{1}{8}$ " \times $\frac{1}{8}$ " ribs. When quite set, remove and sand to shape, rounding the leading edge and taking the trailing edge to a "knife" edge. Do not join the fin to the stabilizer until after covering.

COVERING.

Cut tissue into strips about $\frac{3}{4}$ " wider all round than the individual panels to be covered, grain lengthwise. Use tissue paste (photo-paste) for adhesion, and use very sparingly.

Cover the wings first. Rub paste lightly all around outer edges of individual panels, centre section to tips, over all ribs, undersides first. Adhere tissue lightly to root rib and stretch evenly towards wing tips as well as tightly between leading and trailing edges. Rub tissue tightly against individual ribs to form undercamber. Obviate any warps by even tension. Cover top sides likewise; adhesive will not be required on individual ribs.

Tailplane is similarly covered, except that tissue is not adhered to the undercamber. Use four separate panels of tissue for covering. Fin is likewise covered both sides.

The fuselage sides are covered first from end to end and from top to bottom longeron. The superstructure is next covered with small panels of tissue stretched from one top longeron over to the other, but only between formers. This is necessary due to the change in curvature of the seven stringers. Each panel should overlap by about $\frac{3}{8}$ of an inch, and each overlap be above a former. Cover the underside of the fuselage, and then the cockpit and nose fairing.

Shrink the tissue with water from a spray—do not brush with water. Pin individual wing panels to board whilst drying. When all surfaces are quite dry, give two coats of thin shrinking dope to all surfaces, and sufficient extra to the noseblock to completely fill the surface of the wood. Dope the undersides of the wings first, and when dry, dope the top sides whilst pinned to a board, and allow to dry again. This constant need to obviate wing warps cannot be over-emphasised.

Fin may now be cemented into slot in tailplane. If sufficient carriage space is available, it is recommended that the whole tail unit be firmly cemented to the sternbay. If not, the tail unit may be secured by moderately strong rubber bands circumventing the fuselage, over the stabilizer and under the point of the tail. Add fin fairing V.5. The skid and hooks should now be firmly attached to noseblock and crosspieces by liberal use of cement. The celluloid cockpit should be trimmed to fit flush over the cockpit bay, and cemented in place. Don't forget to colour the cockpit first.

FLIGHT TESTING.

Firstly, the correct balance should be ascertained. Ballast should be added to the nose ballast compartment till the model supported where shown hangs with a slight nose down attitude. The model should also weigh 6.2 ozs. to conform to F.A.I. wing loading rule of 3.93 ozs. per square foot. Ballast, in the form of plasticine or clay, may have to be added amidships to achieve this. The drawing shows the position of a ballast box which would be incorporated in the construction if the model is desired for F.A.I. standards.

Choose a calm windless day for glide tests in preferably a grassy field. Face into wind and gently launch the model forwards, slightly nose down, and observe the glide. The model should glide evenly and steadily downwards to the ground about 20 to 25 feet in front. Any tendency to stall (nose up, followed by a "see-saw" action) or diving should be corrected by adding or subtracting (respectively) ballast to the nose compartment.