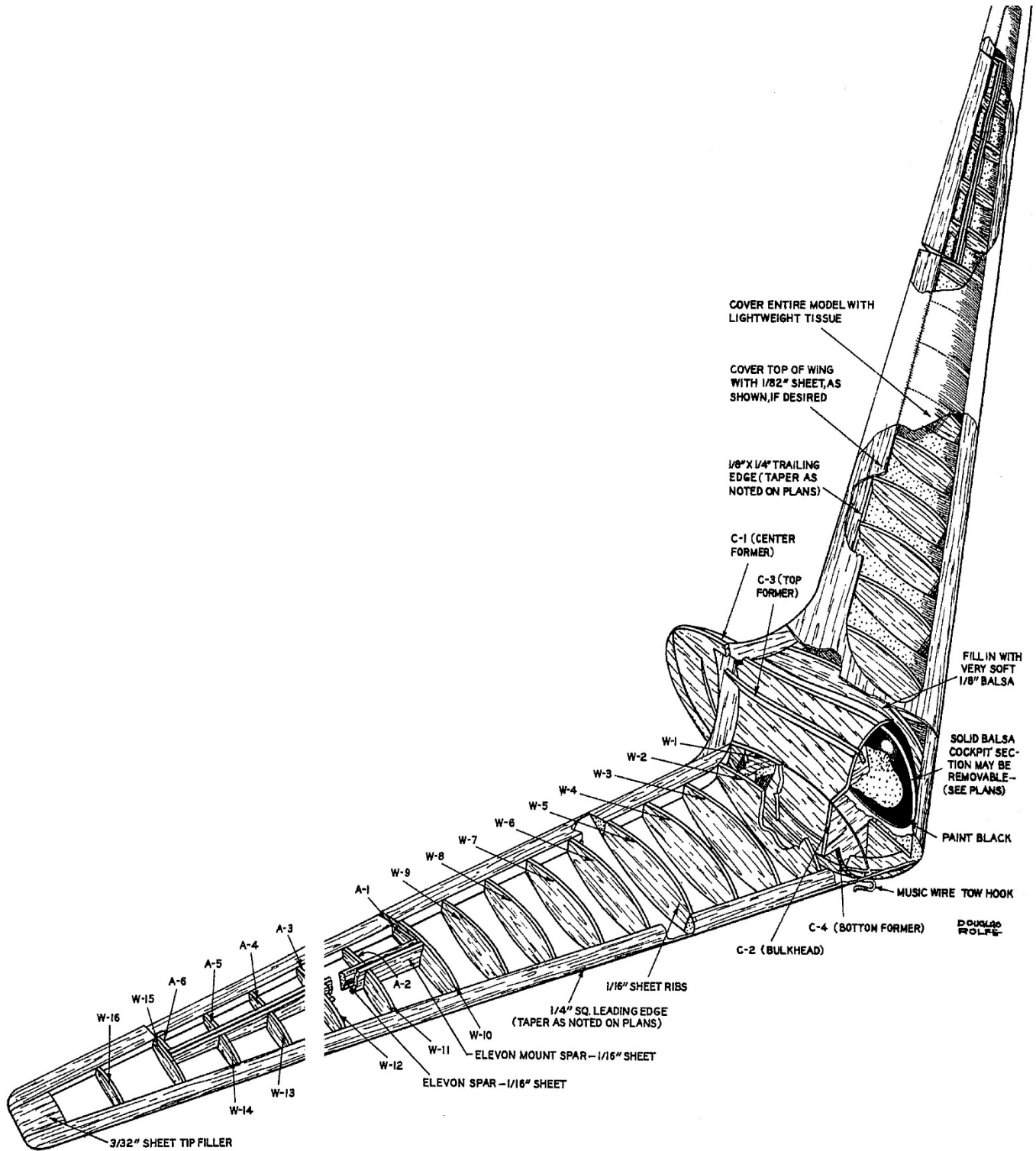


Horten IV



Towline gliding is great fun when you have something like this Horten IV scale model to work with.
By Len Marlow.

We suppose that everyone, sooner or later, gets the urge to try something just a little different. In our case, the Horten designs looked interesting enough to be well worth a try. There were a number of reasons for singling out the IV Model, the efficiency of the full scale design, the lack of balance problems due to power installations in a sailplane, the clean design and attractive appearance of the original, and the simple fact that the very high aspect ratio 21.16 to 1 rather intrigued us.

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That narrow wing, incidentally, does not lead in this case to the weak wing structure you might expect. Surfaces are very flexible toward the tips, of course, but by no means flimsy for a model this size. There is no main spar, a comparatively heavy leading edge providing most of the support. Spars for the control surfaces provide a little extra starch for the tips. The combination aileron elevator drag rudder takes the place of three separate controls which performed these functions on the large craft.

You'll note that airfoil sections shown are not those that would be employed on a sailplane of conventional design, performance is nevertheless amazingly good. This may, in part, be attributed to the fact that this model has lighter wing area than most.

Wing is constructed in two halves, pinning the leading and trailing edges in place over top plan view and cementing 1/16" ribs between the two. Small pieces of scrap wood must be placed under L.E. and T.E., raising them above the surface of plan so that ribs will fit properly. The trailing edges of both wing halves are raised an additional 1/32", so that the washout specified is built in.

The left wing half is shown, but by placing larger blocks under the edges and inverting ribs, the right wing half may be constructed over the same view.

Leading and trailing edges are rough cut and sanded to shape. Control surfaces are built over plan view in a similar manner to wing, and attached by means of soft iron wire hinges.

Center section formers are cut from 1/16" sheet. C2 is notched to fit over C1 and cemented in place. The leading and trailing edges of the two wing halves are cemented to C1, W1 wing ribs cemented to sides of C2. Add the C3 and C4 formers, and fill in center section top and bottom except for removable nose section, which is cut from a small block with dead soft 1/8" sheet balsa. Fillets are made with a mixture of balsa dust and clear dope, which is sanded smooth when dry. Form tow hook from a suitable grade of steel wire and cement in place. Ignore location on plan; place hook 1/2" forward of where your model balances.

Cover all surfaces with a lightweight tissue, including center section, and apply two good coats of clear dope. Color dope trim may be applied if desired. The two cockpit canopy sections are painted on, using black dope with the gloss killed by adding a small amount of talcum powder.

That's all there is to it, no fuselage or tail surfaces to build. Adjust the glide and it's ready to fly. While the removable nose section was built into the original as a means of placing weights inside and out of sight, no such weighting was necessary. A slight adjustment of control surfaces was all that was required. The function of these controls as elevators probably requires no explaining. To adjust direction of the model, raise surface slightly on the side to which model should turn. The balance point is two inches back from the leading edge, at the center.