



SORRELL Hiperlight

By CLIVE WIENKER . . .

Seeing the Hiperlight at Sorrell Aircraft Co., Ltd.'s field was not only love at first sight, the universally common reaction to this sleek ultralight, but also the spark that jolted me out of a one-third century hibernation from model design. Voted the "Outstanding New Ultralight Design" at the 1983 Oshkosh Fly-In, the Hiperlight has accumulated so many additional awards that the Sorrell office is beginning to look like Sal Taibi's trophy room.

In the Sorrells' own words, the model flies well and realistically, so let's get on with this authorized semi-scale version intended for the pure fun of sport flying.

Fuselage construction is, as Walt Mooney might say, strictly conventional except for all the unconventional places. Built two sides of firm 1/16 square and 1/16 sheet inlays, one over the other, to insure an accurate match, as the correct wing incidence depends upon fuselage preciseness. Glue together at the tailpost and then add the indicated top and bottom crossmembers. Upper and lower fuselage sides must be flat and parallel between crossmembers that relate to the leading and trailing edges of the respective wings. Due to the negative wing stagger, these areas do not coincide vertically and their location is shown on the plan.

At fuselage section Z-Z, be sure to add the 1/16 square internal doublers, the 1/16 sheet former that will be the fixed rear face of the landing gear "sandwich" and the temporary internal crosspiece between points X-X that will take the compression forces when you are installing the windshield.

Finish the basic structure with nose former #3 glued between the 1/16 square uprights and adding the two windshield stringers run from the notches in #3 to the upper corners of the cabin. Then the fixed portion of the built-up nose is made by adding, in order, horizontal formers 4 and 5, the two cowl sides (which start at the bottom fuselage line), nose former #2, and the curved cowl top which runs from #3 to the front edge of #2. Immersion in very hot water will make the 1/16 sheet cowl top pliable. Obviously there will have to be some preparatory inclined beveling of the round top nose formers to

effect the proper cowling line. The removable nose former #1 carries the thrust button and has a 3/16 thick plug affixed on the rear that keys to and retains it in the matching rectangular cutout in fixed nose former #2.

It should be explained that the propeller drive arrangement in the real Hiperlight dictated the perhaps slightly unusual built-up structure of the model nose. The Rotax 277 engine is inverted and its drive shaft, by means of a belted reduction system, turns a propshaft mounted above it, tucked up closely in the high curved top of the nose cowling. Therefore the model's nose had to be an unobstructed shell at the top in order to maintain the realistic high thrust line. You skilled wood carvers can make the nose from a solid block, suitably hollowed, if you wish. Celluloid should be cemented to the perimeter structures for the cabin side windows in the areas of the pilot's head and feet. Overlaid covering tissue later will define the actual window outlines.

Horizontal and vertical tail surfaces are of conventional 1/16 square and sheet construction. Keep them light.

Wing structures are standard; all outboard ribs are 1/32 sheet, the root ribs are 1/16. Trim and sand leading and trailing edges lightly. To allow for dihedral in the lower wings, slightly tilt the top of the root ribs toward the wingtips. Dihedral for both upper and lower wings is 5/8 at each tip.

The landing gear may be formed from .025 wire at this point, but note that it will not be glued on, sandwich style, until the lower wings have been attached. Wings, tail surfaces and fuselage are tissue covered, watersprayed and shrunk, and given two coats of well-thinned plasticized dope...less if you have an indoor lightweight in mind. Do not cover the bottom of the fuselage from the landing gear to the nose at this time, as it will facilitate mounting the landing gear and plucking out that temporary fuselage crossmember at point X-X.

Assembly is now begun by placing the fuselage upright on a flat, wax paper protected surface. Hold it in place by weighing it down with something like a box of jello (any flavor) on the cabin top. Scrape the tissue from the areas the root ribs will

cover. Glue on the lower wings with the tips blocked up 5/8 for dihedral. The incidence setting is of utmost importance. The trailing edge should rest right on the deck at the bottom of the fuselage and the bottom of the wing at the leading edge should coincide with the top edge of the fuselage longeron at that point. As the longeron in your precisely built structure is slanting upward toward the nose, this leading edge incidence represents a mite more than 1/16 above the base surface, right?

After the upper wing is attached, cut the 1/16 x 1/8 stock wing struts to the proper length by trimming down overlengths until your ruler indicates that the distance between the upper and lower trailing edges is the same from fuselage to tip rib. Make a slight incision in the tissue in order to cement the struts firmly. Add the tail surfaces and your version tailwheel, lining them up carefully; affix the landing gear, pluck out piece X-X, and cover the open section.

Bring the balance point to near where indicated by at first adding temporary clay ballast well forward in the nose. Suggested power is four strands of 1/16 square rubber, twelve inches long, braided and lubricated. Competitive flyers will undoubtedly add a few inches as they (Mooney-like pun coming) will go to any lengths for more duration. Test over grass with an initial fifty turns, hand-launching slowly in a very slight climb. Rebalance and trim, based on what you see ("I think it made that hole!") and continue increasing the winds. It has been a laterally stable little plane, with the realistic flight characteristics of the real Hiperlight, and should give you enjoyment in sport flying. Your comments and suggestions sent in care of **Model Builder** will be most welcomed by this long-time-away old timer.

I wish to thank the model builders I met in California for making my "return" full of warm companionship. Special thanks to Sal Taibi, Dick Howard, Cliff Silva, and Bill Hannan.

And not to forget publisher Bill Northrop who really *FLAME* broils steaks, and his lovely Anita who efficiently puts out the associated conflagration!

Hope to see all of you... and more... in the future.