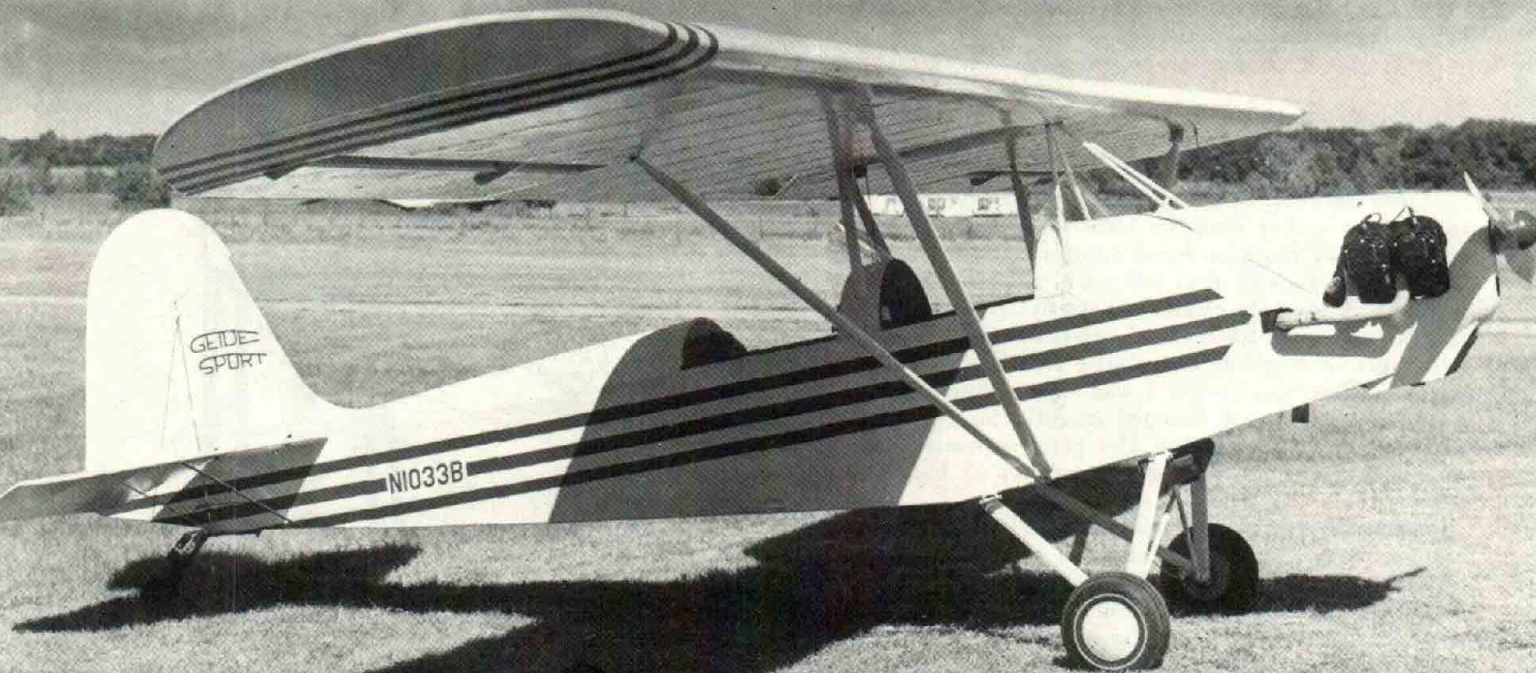


# Low Cost

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# Coverage

(Photo Courtesy the Author)

The Geide Sport, an original design by Richard F. Geide. Powered by a Continental C-85-12F, the Sport cruises at 92 mph at 2450 rpm with a low pitch metal propeller. The wing utilizes some Aeronca hardware and the Champ's 4412 airfoil. The configuration owes a lot of inspiration to the Pietenpol Air Camper, the designer/builder acknowledges, but the construction is quite different. "It makes a great adult toy for smashing bugs," according to Geide.

**T**HE LAST BIG operation in finishing a fabric covered airplane can often be expensive just at the time when you're running low on cash. A low cost finish procedure was used over ten years ago by homebuilders in Pennsylvania but to my knowledge the details of this process have never been published. The purpose of this finish process is to reduce the number of coats and the cost by utilizing some readily available non-aircraft materials to obtain a light weight, glossy finish. I have taken the liberty of calling this procedure "The Geide Process", since using it on the "Geide Sport" and experimenting with test panels have added some details to the original concept.

One of the most important steps in obtaining a good finish is selecting the correct weight of dacron. For covering open structure the heavy 3.7 oz dacron is often used when the medium weight would provide a better finish. The 2.7 oz dacron is used in this process since

this closer weave material fills easily and requires less enamel to obtain a glossy finish. This weight dacron is stronger than Grade A cotton at about 70 percent of the weight and twice the life. The 3.7 oz dacron is a coarse weave fabric with almost the same weight as cotton and 1.6 times the strength. It is more difficult to fill and will usually show the weave after many coats of enamel.

For most homebuilt aircraft with a wing chord of five feet or less, the 2.7 oz dacron, 66 inches wide is recommended. With this width the wing cover can be cemented to the wing spanwise without any sewing or envelope required.

If you are new at this game or have never covered with dacron before, a small wood frame can be made to cover and test your skill with heat shrinking and finishing.

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## LOW COST COVERAGE . . .

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To apply the cover to the structure, use Stits "Poly-Tak" or any other seam cement. The Stits cement is recommended since it is approved for a 2 inch overlap (with 2 inch tape) on all seams. One size tape can be used for the whole aircraft. Shrink down the edges to obtain a smooth lap joint. After the structure is covered pre-shrink the dacron with an iron on the "wool" setting. Do the shrinking in several stages so the material doesn't get too hot and continue to shrink after you've removed the iron. It's better to leave some loose areas to work out later than to warp the structure. Attaching the cover should take less than a gallon of "Poly-Tak", and the tapes should take about one gallon of Stits "Poly Brush."

Next comes the fill coat of polyurethane varnish you can buy in any paint or hardware store. One to two gallons should cover most aircraft if it is brushed on lightly. This means don't use a full brush and push the varnish through the dacron.

Some builders prefer to use a roller to spread the varnish evenly. Be sure to use the one part polyurethane varnish such as Sherman Williams "Marvethane" since this varnish is catalysed by the moisture in the air and cures more flexible than the two part polyurethane. Satin finish varnish was used since it provides a better surface for adhesion of the enamel finish.

After one coat of varnish, let it dry overnight before applying the second and final fill coat. Additional coats of varnish will not improve the finish since the enamel to follow does a better job of building up the surface.

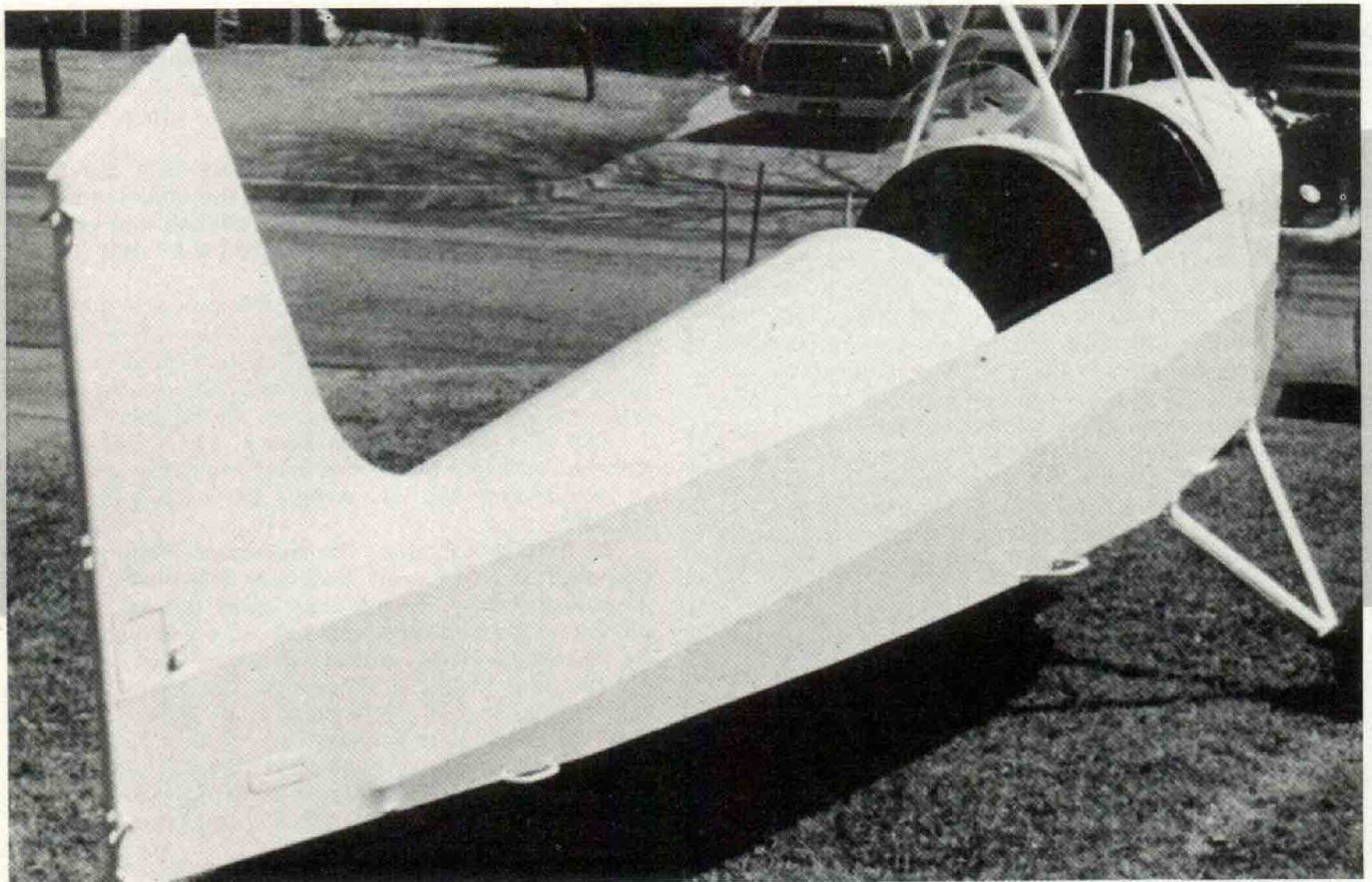
This was determined by experimenting with test panels. After the varnish, sand lightly, and any remaining wrinkles can be removed with an iron at this time. Keep the iron moving so it doesn't soften the varnish.

A silver powder may be mixed in with the varnish for those planning to use a dark enamel finish. Since a white enamel was used on the "Geide Sport", the silver was not added. Light finishes will reflect the sunlight and keep the fabric cooler.

The final two cross coats of enamel are sprayed on with an overnight cure between the first and second cross coats. One cross coat consists of spraying the surface one direction followed by a repeat 90 degrees to the first application. Light sanding may be necessary before the second cross coat under some shop conditions. The enamel used was Acme "Fleet-X" auto enamel which is an alkyd enamel that remains flexible with age. For those on the east coast, Sherman Williams Transport enamel will produce the same results. To spray these enamels use the reducer and thinning directions on the container.

Those who like to rub down lots of finish coats have probably panicked by now. For those who like their finish to last and last, the least number of enamel coats will provide the most flexible and longest life finish. Two cross coats of enamel should provide a good gloss finish on medium weight dacron at the cost of only one to two gallons of enamel.

Some wrinkles may appear in the dacron cover after the first cold days of winter but don't panic since these can be removed by ironing the surface through a light cloth. With the money saved by this process you can afford to take your sweetheart out to dinner more often.



(Photo Courtesy the Author)  
Fuselage of the Geide Sport during the covering phase of construction. The process described in the article was utilized.