

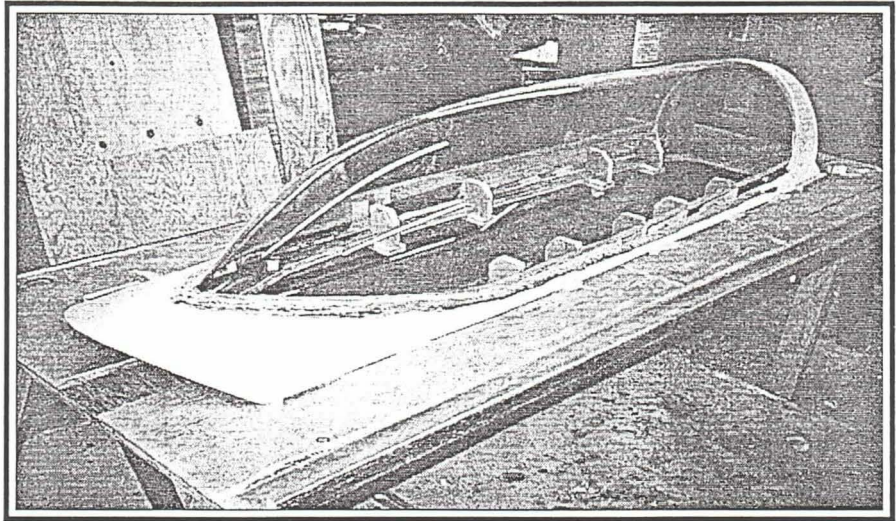
Canopy Replacement

Bill Oertel - (CA) While preparing for a Puerto Vallarta trip, in 1995, my hangar partner called and told he had accidentally broken my Vari-Eze's canopy. I thought it was a joke, but seeing the 4" hole right in front of the windscreen just above the canopy frame convinced me otherwise.

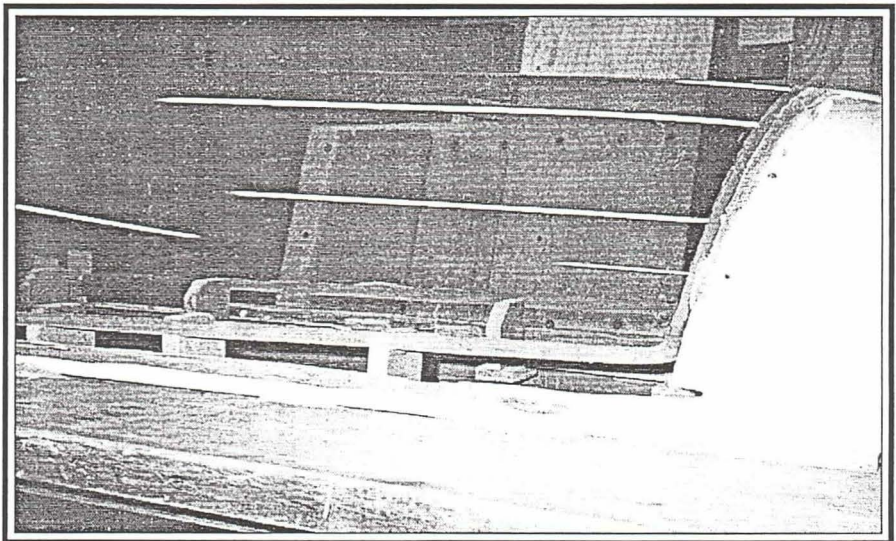
Canopies are now selling for between \$400 and \$500, but if you shop around you can find one at a reasonable price still in the box. A friend found mine on the Internet for \$150. This one is green while the original was smoke gray, but the basic shape was the same. The new one was not as tall over the passenger's seat as the original but, as seen in the photos, we compensated for that.

While getting up the nerve to start, Jim Emonds, retired Rockwell skunk works engineer stopped by and volunteered his work shop, abundant experience and artistry at finding the easiest way to accomplish a task. I couldn't refuse.

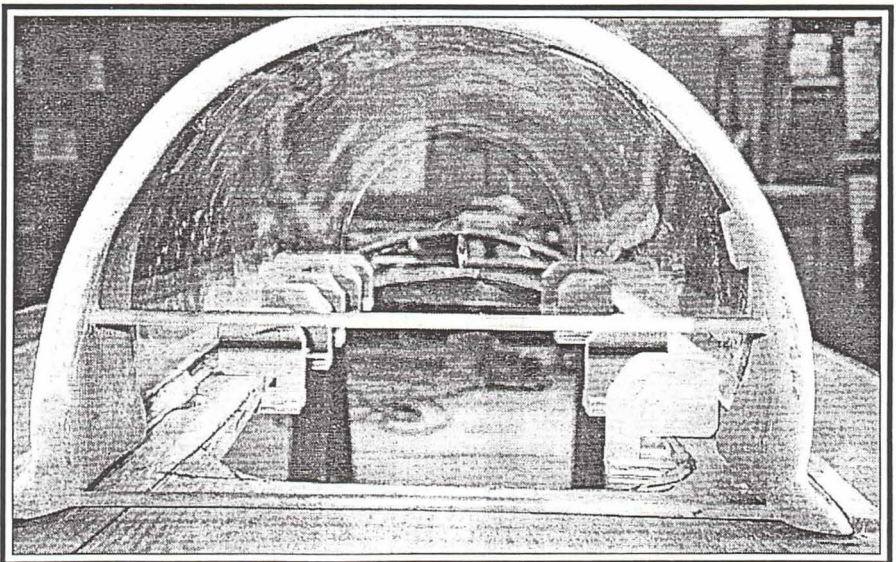
When I removed the canopy, I took measurements across the longerons at 6" intervals. The old canopy glass was removed through the inside of the frame by cutting through the fiberglass with a body grinder. This took about 15 minutes. We got a piece of ½" plywood and trued it up with straight wood runners screwed in place with drywall screws. The measurements taken from the longerons were then transferred to the plywood and the canopy frame was placed on the plywood between the marks and banded in place. Jim turned the assembly over on saw horses and cut out the plywood with circular saw inside the canopy frame. Wooden support blocks were then made and a new glass was supported in the frame in an upright attitude. At the rear of the frame the flange was removed from the glass on the lower sides and the rest was trimmed to fit the frame. This was quickly done with a body grinder sporting a coarse sandpaper disc. Small wood blocks were screwed through the frame with dry-wall screws to hold the glass firmly in



Frame banded to plywood with spacers holding new glass



New canopy is not as tall as the original. Gap must be filled.



View from aft shows cut out in plywood and spacer blocks used to position the new canopy

place front and rear.

The large voids between the frame and new glass were sealed with bending chip board (note pad backing material). Canned foam proved too hard to control and set up too slowly. All this was done in one evening.

On the second night, preparation of the frame and glass were accomplished to assure a good mechanical bond. Deformities were smoothed out inside and outside of the frame. Some dry micro was used to fill and level as necessary.

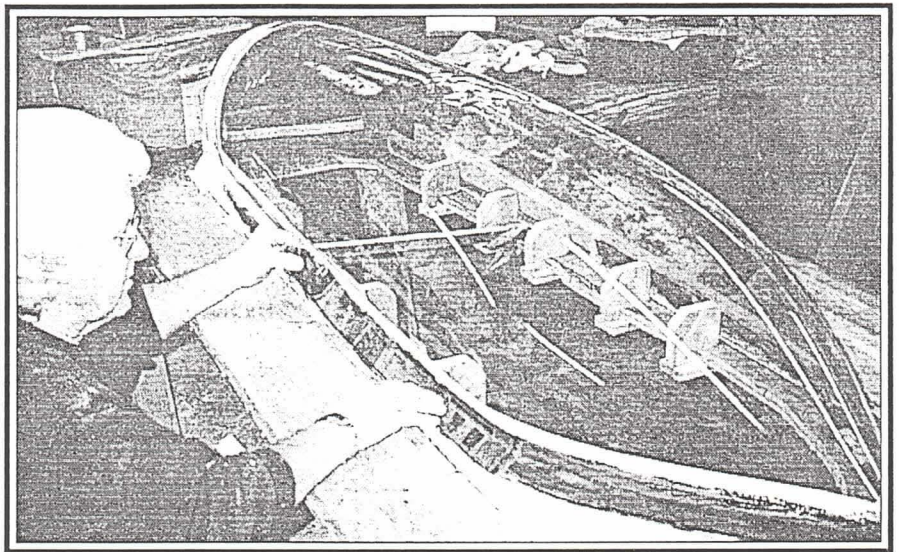
On the third night, we did the outside wet lay up by first painting the surfaces to be bonded and then we wet out BID on newspaper on a hard surface. The BID and paper were cut with shears. The BID was then transferred to the frame/glass structure and newspaper removed.

Note the masking tape on the glass to both protect and provide a trim line. Newspaper controls the wet fabric until it is applied. Some folks use aluminum foil or "Saran" for this purpose.

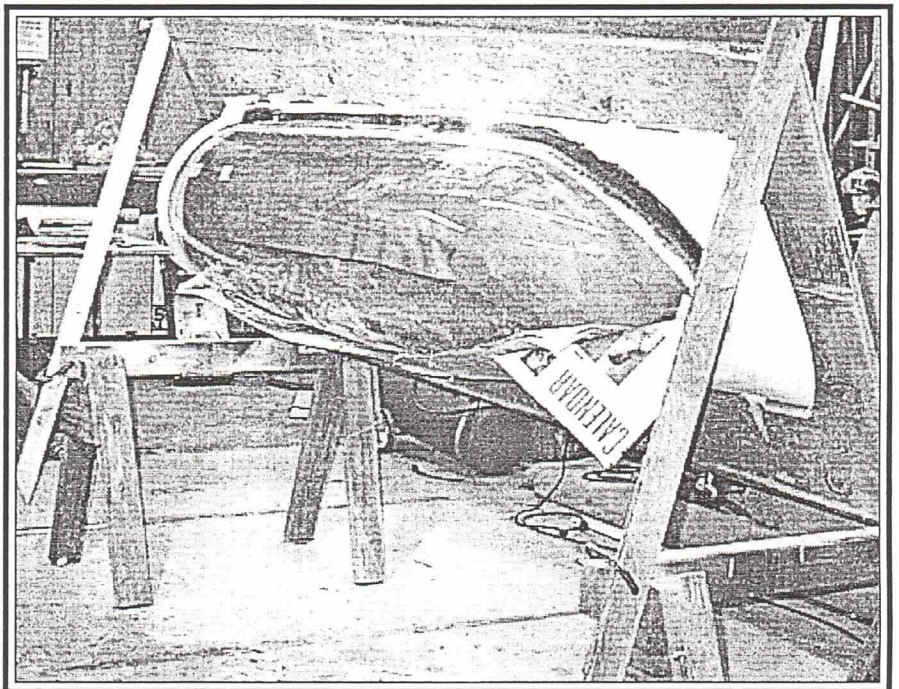
On the fourth night, the whole mass was supported on edge on the saw horses with supports screwed and clamped in place. The inside support blocks were then removed and the interior of the frame prepared for the glassing operation. The lay ups were done, one side at a time (the down side), and the assembly was reversed on the saw horses and the opposite side was done.

On the fifth night we trimmed the glass lay-ups and removed the frame from the plywood. I took it to the airport and checked the fit to the fuselage. It was PERFECT!!!

On the sixth and seventh days I applied primer and painted the final color. In one week the canopy was replaced and the aircraft ready for flight. It really was a piece of cake, especially with Jim's help!! In two years of flying there has been no problem with this canopy and I would not hesitate to use these methods again.



Wet out BID is supported by carrier paper before installation



Interior tapes are more easily layed up in this tilted frame

