REBUILDING AN OSPREY II

The remains of my aircraft, after having been returned from Utah by Doug Sisemore and Darry Capps, sat in my garage-shop for a full two months before I could manage more than a cursory look without getting a king-sized lump in my throat.

In October the rebuilding got underway with the first step being the cutting away of all ragged-end wood. It helped to not have such vivid evidence of the off-field landing results in plain sight. Incidentally, the old time aviators drew the distinction between "crash" and "off-field, or forced landing" as to whether or not the aircraft was under control when it returned to mother earth, or came to a stop after a takeoff incident.

The center section main spar appeared to be undamaged, however this could not be verified without cutting and grinding away the birch plywood webbing. The center section rear spar was gone. A new rear spar section was spliced in, and new webbing glued onto both spars. The left landing gear was then reworked and installed, also all ribs, glue and cap strips installed. Next came the plywood skin, top and bottom. New center section wing attach fittings, without being drilled for the attach bolts at this time, were installed. The landing gear spring and cable assist system was revised on both sides to effect a greater boost thru relocation of the cable tabs at the landing gear end.

A very significant advantage to wood construction in aircraft is the ability to splice into the structure at many points using 20 to 1 scarf joints. Since the fuselage had been sheared off cleanly just ahead of the vertical fin, it was necessary to splice onto all four longerons. The fin spar had come thru intact so this was next glued to the extended longerons.

The fuselage was next turned bottom side up and alot of excess fibreglass and paint ground off. The excess, I'm sure, contributed to the total empty overweight (90 lbs) and was the result of inexperience in fibreglassing, wherein heavier than specified cloth and excess resin were used. The entire bottom surface was refinished to prime coat and the aircraft turned right side up. About twelve friends showed up for the operation and with this much brawn it turned out to be a piece of cake. On the previous inversion four of us strained ourselves, partly because of the lack of good gripping spots, however with a dozen it just turns into a minute or two of light effort. Afterward a few six packs of beer turned this outing into a dandy shop-side event.

The top deck of the fuselage was entirely replaced in the interest of possible weight saving. The vertical fin was next covered and a Derrick Industries vertical fin leading edge glassed on. The damaged right end of the horizontal stablizer, the right half of the elevator, the top half of the rudder, and also the fin fairing have all been repaired and are now ready for covering or painting.

The engine has now been remounted. While Ken Snow pondered the redesign of his mounting I succeeded in euchering him out of his standard mount, thus saving the time that would have been required to repair and reweld mine. The engine cowling came thru the calamity in the desert with three large clean-thru holes. Using foam and glass, these have been repaired utilizing inside out first, then outside-in technique and the cowling is now ready for prime.

In the cockpit area, a couple of vertical structural members were found to be broken loose from the bottom longerons. Additional corner blocks, in four locations on either side of the fuselage, were glued in and gusseted with plywood. An effort will be made using wood stains to bring all the fuselage interior to as near the same color as possible before varnishing.

A new cabin shell from Derrick's was glued into place and faired all around with foam and glass. The canopy was barely damaged and is being altered to accomodate larger windows and to lessen the weight.

The next scheduled steps involve rewiring, installation of a 7 lb. ND alternator to replace the 26 lb. generator previously used, and the construction of two new wings.

The importance of attaining, or bettering, the design weight of a light aircraft is a lesson that had to be learned the hard way by me, and I am hoping that the lightening effort in the rebuilding of my bird will pay off. In my opinion, if the final empty operating weight of your Osprey 2 comes out to be about 10% over the design weight, then you can bet your bottom buck that the entire performance envelope of the bird is going to be close to 10% less than shown in the specs. This assumes optimum propeller design.

By the time an Osprey 2 is completed by anyone, there is no way of failing to appreciate the very cooperative nature of the designer of the aircraft. This has been mentioned more than once in the Newsletter. The reconstruction of my all-but-demolished airplane has presented some formidable problems since the orderly sequence of normal building had to be forgotten. Access, alignment and rigging requirements have all brought on some real puzzling situations. At all times, George has shown unlimited interest, patience and cooperation in the project. Some designers are well known for their feisty, combative and "you bought the plans brother, figure out your own answers attitude." Genuine product support, as it's now called, from a most congenial and likeable guy, is what we are all luxuriating in and I'm sure we all are aware of our good luck.

So long for now, I'll keep you informed as to future progress. Next summer should see the bird back in the blue. I can hardly wait, not only for the flying but also for those 55 MPH step turns on the water.

Ernie Hummel
150 Alamo
Vacaville, Ca 95688

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Happy '84, the Year of the Orwell!

I've just come in from the shop where I'm splitting the nose gear door, per a clue from George Burgess of Vermont who has been flying his O2 for some months now. He reports that the aerodynamics of the door prelude its closing at speeds much above 90 (I think he said), and the hydrodynamics make it impossible to turn in one direction in the water with the nose gear door open. SO, why not split it, use two sets of hinges; the aero forces will be way down, and the water loads will be balanced. It is pretty easy, actually, and allows you to do away with the skirt too. It has not been tested by me, y since all of my flight time in it has b strictly imaginary.

Happy New Year, and Safe Flying, and see you in Oshkosh!

M C Winsor, Pond Road, Mont Vernon, NH 03057