

recommend this tape to cut drag, but I am going to put some on the gear legs since I have it made up but haven't flown yet.

The real problem we faced was coming out of Tri-City TN and just shortly after lift-off it happened.

At about 200 ft. the nose retract mechanism let out a loud bang which was reminiscent of the previous big bang 2 years ago coming out of Sun 'n Fun and mostly resembling the big bang that started the universe. It was loud! The electric motor was turning but nothing was happening. The nose gear just hung there, not up, or down. Just swinging in the 130 kt breeze. We decided instead of going back and clogging up the runway causing numerous jets big time heartburn, we would continue on our one hour trip down to George and Lucy Walters (who have a very nice Long EZ) airstrip in the Carolinas. Conveniently, they were expecting us.

As luck would have it there were no aircraft in the pattern and we made a nice smooth landing, until the gear collapsed. We had a very short stop with a lot of smoke and noise. If you ever have to stop the plane from going off the end of the runway, or you are going to hit something, retract the gear! **YOU WILL STOP!**

We had plenty of help getting the plane to the hangar, which was 50 yards away. Damage consisted of a 6-inch diameter flat spot where the snubber used to be, and no damage to the gear leg, wheel or casting. George had all the epoxy, cloth and foam on hand so the repair took all of 4 hours. The culprit was a broken weld on a small one-half inch square piece of metal that keeps the spring compressed. This happened to us 2 years ago and I relayed a fix to Steve Wright, who now makes these units. Mine is a prototype that Steve did not make and I thought my fix was sufficient. After the first incident two years ago, it was decided to make the piece in question slightly different and it was offered to me but I thought my fix would be OK.....Wrong. No other units have had this failure. I love the test mode.

I called Steve Wright (poor Steve) and asked him to bring a spare part with him to Sun 'n Fun. I carry a spare spring substitute with me (read, "solid bar stock") and bolted it in place and changed the wiring around slightly (the down-lock switches were toast) and after 4 hours of work, we were back in business. Try that with a Spam can retract. When Steve arrived in Florida, he had a slightly better spring unit and asked if I would try it instead of the old unit. This new unit uses the same spring but the internal slider unit uses round tubing instead of square, the material is about 30 % thicker, and it has less parts. Since my unit never did have the nifty up-down lock switch system that Steve sells with his, I sent mine in for the upgrade. I have just finished installing the new retract unit and will report on its performance next newsletter.

By the way, if you ever have to fly with the nose gear down, you only lose 10 kts. Our nose strut cover is fairly wide so we get a lot of drag. No, the engine didn't overheat, but there was a noticeable rumbling and buffeting with that stick hanging down in the breeze.

Vance Atkinson

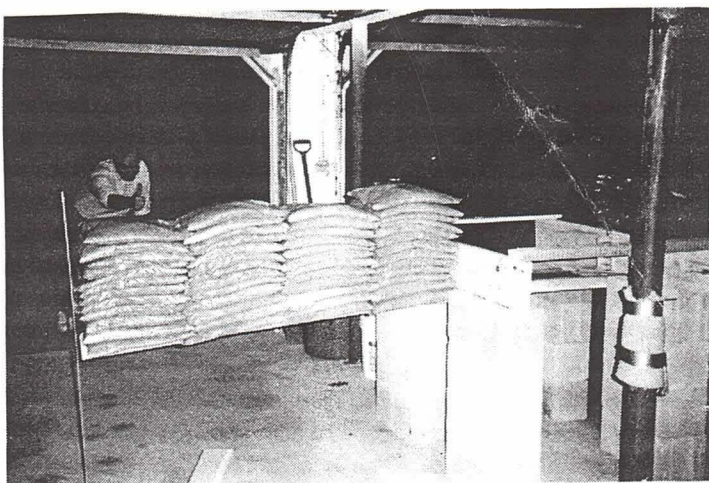
STATIC LOAD TESTING A CANARD

David Barthelmes used Epolite 2427 Epoxy in building the GU canard for his Cozy III. It was built strictly according to plans (no "hard shelling"). Even though Dave had not experienced any poor peel strength with this epoxy, others had

reported it, so he decided to conduct a static load test. His primary concern was with the secondary bonds (wet layup over cured) between the shear web, spar caps, top skin, and bottom skin (where they wrap around).



He built a test rig to support the canard upside down from the 1/8 inch thick lift tabs, similar to the way the canard supports the fuselage in flight. He made a conservative estimate that the fuselage provides the same amount of lift as it does on a Long EZ (15%), and calculated that at a gross weight of 1,500 lbs. and 4.7G's, he would have to load the canard with 1,060 lbs.



total weight. He did this by loading 106 Ziploc bags with 10 lbs. of sand each and stacking them in 4 rows on each side of the canard. He found that the canard deflection at the tips was linear with loading, and at 4.7G's (it was actually higher than that, because the fuselage of the Cozy provides more lift), the total deflection was 4.06 inches. He reported that the canard showed no signs of distress, nor were any sounds noted from within the structure, and after removal of weight, deflection returned to zero.

If my memory serves me correctly, when Burt Rutan loaded a reject Long EZ canard to destruction, he got up to 14 G's and a deflection of 12 inches at the tips before the canard failed. This would indicate that Dave loaded his canard to only about 1/3rd of the ultimate strength. Both Dave and Burt's load tests were with lift tabs 1/8 inches thick, and the lift tabs didn't fail, for those of you wondering if 1/8 inch thick lift tabs are thick enough.

It appears that you can judge the number of G's by the deflection of the canard tips, a little more than 1 G per inch deflection.