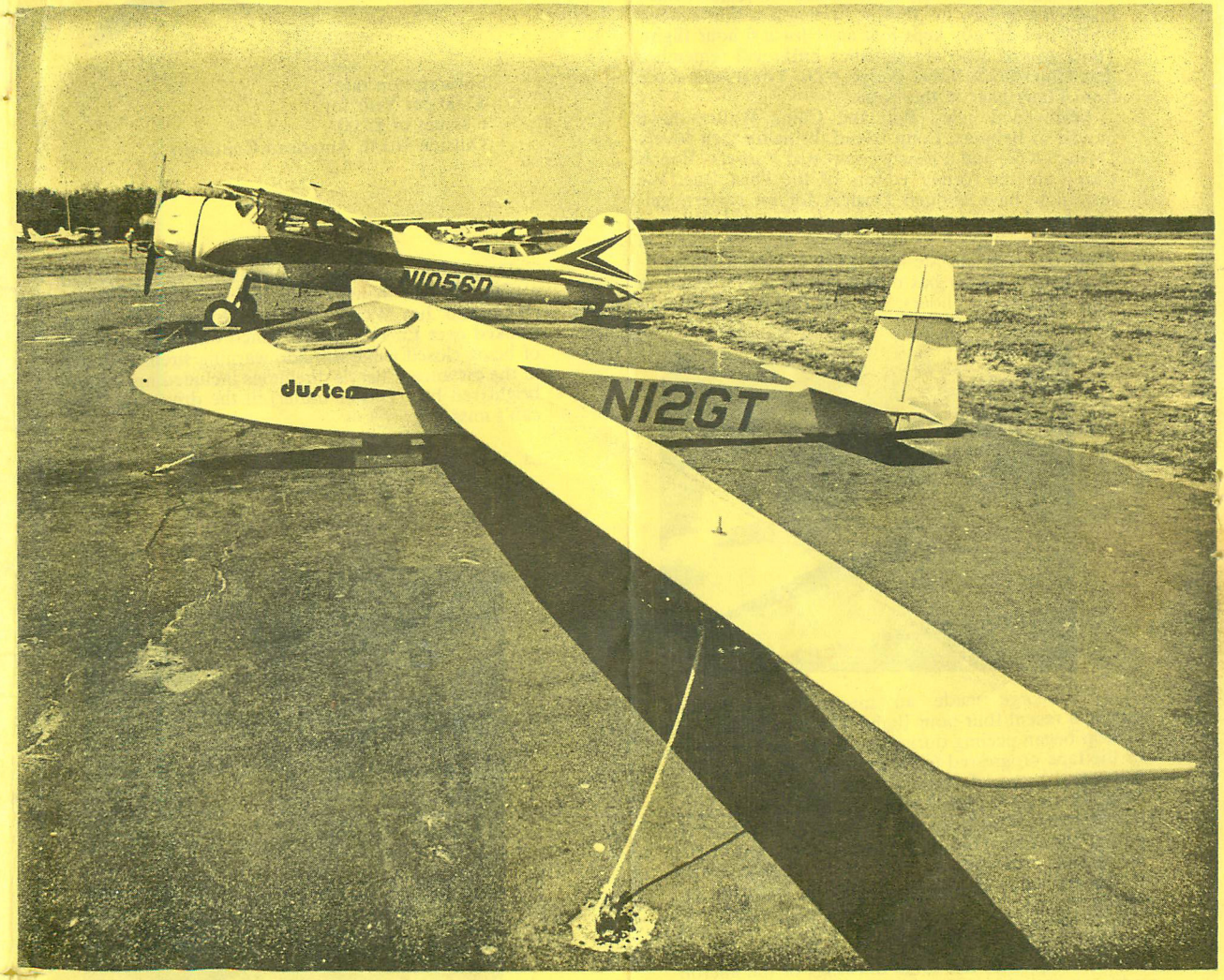
THE DUST RAG



THE OFFICIAL JOURNAL OF THE DUSTER SAILPLANE ASSOCIATION

AUGUST 1977

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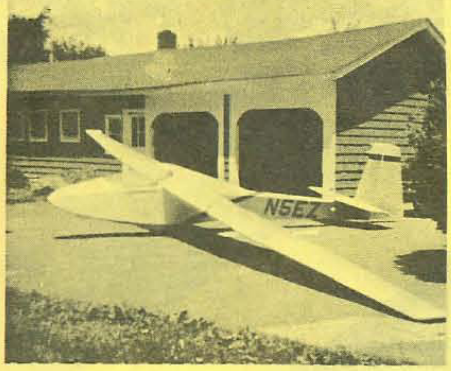
FROM THE EDITORS

We have various bits of good news to relate. Elmer Zook (#194) flew his ship in June and within a week N5EZ had already kept him aloft for a 6 hour flight. Those of you who are statistics buffs will remember that Elmer holds Silver Badge #20. You'll hear more from Elmer later in this issue.

More good news. Bob and Ching Walters have moved to Bellport, Long Island, bringing their lovely Duster (#63) and a nearly completed Vari-eze. Bob & Ching are the former editors of the Dust Rag. We may now have enough Dusters for an eastern get-together. Let us know if you are interested. What is your preference of location? This might be held in Connecticut or upstate New York in early October.

Our own Duster has now flown 82 hours including four flights over 5 hours. The first flight was 6 months ago.



George made an interesting observation during a recent four-hour flight. The tape on the right aileron began peeling during the flight. As the peeling of the tape progressed towards the tip, he had to hold more and more left stick to counteract the induced drag. The wing trembled when the aileron was held in the extreme down position. Eventually, the tape departed the wing entirely, leaving a badly out of trim ship. This unintentional experiment clearly demonstrates the value of tape in maintaing the airfoil profile.

Also in this issue are some drawings of the aileron modification that some of you have already heard about. It is my understanding that this change has the blessings of Hank Thor. This change is one that permits streamlining of the aileron controls so that the push-rod does not protrude into the slip-stream. Basically, it is a shortening of the belcrank so that the linkage goes through the drag spar instead of through the bottom skin. I don't believe there is any loss of strength since the rod hole is cut through the drag spar instead of the bottom skin of the wing which is also a structual member. Slightly higher stick pressure should be required to move the controls. This I don't take to be a significant disadvantage.

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During her spare time in a pleasure trip, Kathy had a pleasant visit in May with builders Ellery Roberts (#14) and Jim Wood (#304) in Minneapolis. They I ooked over Ellery's Duster which was in the process of being closed while tornado warning sirens sounded in the distance. Ellery's directions included his famous bright red bus (Duster trailer) in the driveway. "You can't miss it."

Jim Wood (l) & Ellery Roberts (r)

COVER PHOTO.
by Mike Tchinnis

Letters to the Editor

I have applied for an N-number but have not been issued one as yet. Will send it along as soon as I get it. Happy to hear that you are flying your ship. I should finish this fall but what with the trailer and getting my license, I probably won't fly mine this year.

A tip for your readers- If they order a blown canopy from Aircraft Windshields in Los Alamitos, be sure to order well in advance. Mine is on order now and they wanted eight weeks lead time.

I am curious as to why all the pictures I see show an all white plane. There are so many gliders flying around here now that visibility is becoming inportant. Of course, because of heat build up the wings should be white, but a lot of fuselages are being done in colors. Mine will be a lime green as an example.

Cliff Espensen
Santa Monica, CA

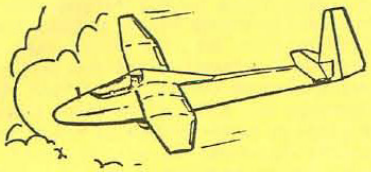
I've been silent so long because of all-out effort to finish my Duster. Survived FAA inspection on June 20- borrowed 1-23 trailer and made maiden flight on June 25th.

First flight was a tow to 2700 ft in overcast and slight precipitation. Mild stalls were straight with no tendency to drop a wing. Elevator trim needed adjustment. (Full back gave zero stick pressure at 55 kts tow). All controls had excellent response. Dive brake response- less than sensational but slips were quite effective. Subsequent flights of 30 minutes to 6 hours have shown excellent handling, good stall characteristics and performance better than I had dared to expect. I haven't yet timed the spiral, radius is small and in narrow small New England thermals I've been able to climb with some of the better ships.

Had my final FAA check on July 20th after $10\frac{1}{2}$ hours so that the 25 mile from airport restriction is now removed. My trailer is usable but far from finished. Things are still tied down with rope but that will change gradually.

The enclosed photo is the best I have available at present. Hope we can get together sometime . Til then, best wishes and good flying.

Elmer Zook
Cheshire, CT



Duster #229 is progressing slowly. The wing is completed and ready for final inspection and cover. The horizontal tail likewise. Most of the metal work is completed and primed. The fuselage formers are in the jig and the construction will progress when the weather cools a bit.

For the information of the builders in the middle of the country, the Wick's Organ Co. in Highland, IL is an excellent source of spruce and ply.

Lost Hill Aviation at Painton, MO, southwest of Cape Giradeau has a growing glider instruction school using a Schweizer 2-22 and a Blanik. It is also the home base of EAA Chapter 453 so the place really jumps weekends.

I expect to finish my Duster next summer and fly with another homebuilt BG12 operating from our strip. Also we have a war-surplus TG-2 to finish re-building during the winter. Curently EAA'ers are flying a "Breezy" homebuilt for relaxation. Any sailplaners passing through here on I-55 are invited to stop and gab. 334-7940 nights and weekends. Enjoy our flying in the Missouri Flatlands.

Ernest Miner
Cape Girardeau, MO

Please renew my subscription to the Dust Rag. I enjoy the magazine very much and also appreciate the ideas and suggestions of other builders published.

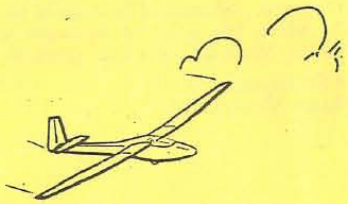
Congratulations to the successful completion and first flight of your little beauty. She looks good.

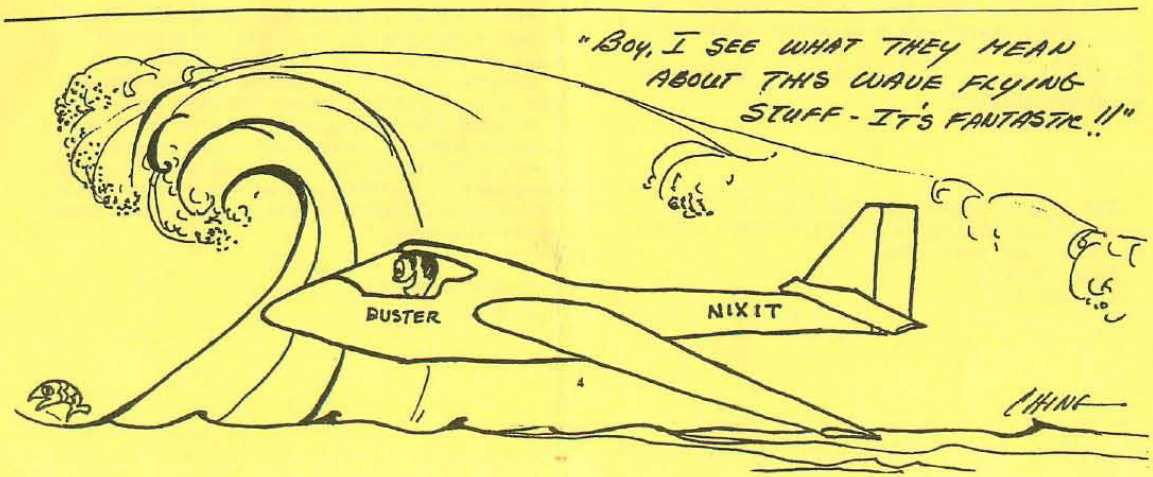
Number 273 is going slow due to a heavy work schedule. Stabilizer, elevator and rudder are ready for covering. Bulkheads, ribs etc. are all done. The very complete kit from DSK really saves time when there is time. I am really happy to have gone that route. Keep up the good work.

Rudolf Steinhauser
Seattle, WA

Just a note to let you know that my Duster (KP) is performing well. I have only 20 hours to date as the test flight papers took a while to sort out. That left very little summer. The hold up with papers was only because mine was the first to fly in New Zealand. I am on my second canopy, my head hit just where the fiberglass joins the plexiglass at the front of the smallest radius. When I fitted the plexiglass I may have not heated it enough leaving it under tension. It split lengthwise from the front to the rear screws. I have moved the doughnuts on the rear seat cover to allow more head room. On the 14th of June, Noel Mair, my flying mate in a K6E and me in my Duster, set off up the island in strong Northwest winds for a go at our diamond distances. We were launched by winch at Five Rivers in northern Southland into hill lift which we worked to 10,000 feet then set off towards Queenstown some 70 kilos on track. When we reached Kingston only 30 klm out we realized things were going to be tough as we were holding 70 knots to maintain position over Kingston. The wind at Lake Wakatipu had turned northerly which meant we had to fly the next 30 klm dead into the wind with no place to land, steep hills or the lake. Cloud base was about 6,000 feet with tops about 9,000 feet. The wave was broken and we couldn't get above 12,000 feet to take the short cut so we decided to go under the clouds. Because of the high mountains and the low cloud base Noel stayed close to the hills and punched forward but arrived low. I waited until he was on safe going before I followed. But rather than run the risk of landing short in the lake I followed the line of rotor clouds at 8,000 feet but took a real thrashing in the process. '75 and '76 must have been good years for glue. I arrived at Queenstown where we climbed in wave at 1,000 ft. per minute to 15,000 ft. I didn't have oxygen and couldn't see how I could continue on my way because of complete cloud cover for the next 30 miles. Noel climbed to 22,000 ft. and flew another 80 miles before complete cloud cover forced him to land. I descended to 7,000 ft. with the intention of flying under the cloud but air sickness from the violent conditions at lower levels meant I was going to fill that plastic bag for the first time in seven years of gliding. The worst part was that I was sick while trying to do the circuit. To be standing on firm ground with my crew and trailer was heaven after that lot. Tomorrow is another day.

Alex Taylor No. 224
Mossburn, New Zealand.





Congratulations on the completion and flights of N12GT. Sounds as though all the work was worth it.

Duster #145, N12DQ (for Don Quixote) is completed, painted and awaiting final inspection. My battle with the lungs, kidneys, etc. has achieved victory or at least a stalemate.

I have a bone to pick with all the builders who have reported their completions in the Dust Rag. Why hasn't some mention been made of C.G.'s and gross weights. I noticed you referred to your 475-lb. bird as a "lead sled". Not until I went through final Wt. & Bal. did I realize what raised your gross so high--LEAD. I would be interested to know how much lead has been used to get that damned aft C.G. acceptable. I will start the ball rolling.

Not having the time, the lungs of the experience, I decided to forego the application of ANY fabric. Instead, I brushed on four coats of good epoxy paint, with back breaking and finger-skinning sanding between coats. I ended up with #400 (all wet-sanded) and a lovely smooth surface. Then the first weighing. Beautiful. 342 pounds on the main wheel, 40 pounds on the tail skid for a gross of 382 and a lovely C.G. I calculated another 12 pounds of finish paint would bring me right to the design empty weight.

So four week ends later, I had additional coat of Dupont Epoxy Primer, and a coat of Dupont Imron (modified polyurethane). It looks gorgeous complete with a golden yellow nose, side stripe and numbers. THEN, the final weighing. I had applied EIGHTEEN pounds of protection with about $\frac{2}{3}$ of it behind the C.G. So, the wheel weight was up to 353 pounds and the tail skid was an apparently horrendous 47 lbs. Empty weight C.G. 23.24 inches.

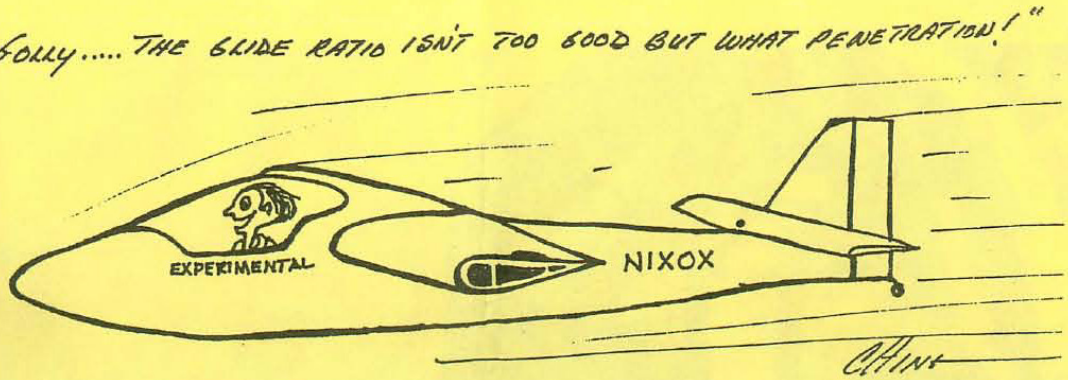
Out with the computer, and lots of figures later, I find that I (157 lbs. plus chute) can fly my bird with a comfortable (?) aft C.G. of 11.5 inches only with the addition of 20 pounds of lead at station 03.00 (Plans, not datum- behind front bulkhead) That keeps me well under O.S.T.I.V. gross 320.

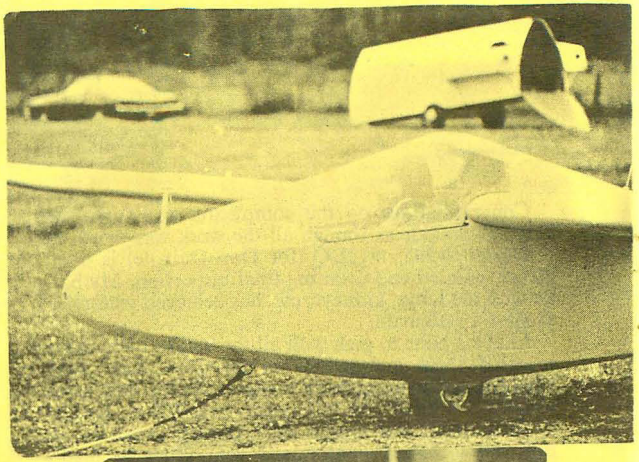
Now, how about everyone who has completed a Duster coming forth and confessing HOW MUCH LEAD he had to use for C.G. adjustment. I think this is one subject that should be brought forth from the darkness as a service to other builders. Hank Thor was right! The Duster "TENDS TO BE TAIL-HEAVY." I BUILT EXACTLY TO PLANS, AND OTHER THAN THE ADDITION OF 4 OUNCES OF $\frac{1}{4}$" plywood to reinforce the rear fuselage at the rudder cable and inspection plate cut-outs, 8 oz. each wing tip for skids, and 1 lb. 7 oz. for a nose skid plus a top and bottom $\frac{3}{4}$ reinforcement (top and bottom) at the wing tie-down holes, there was nothing to push the C.G. back other than the paint. So builders, be ready for a shock, and start finding a source of lead sheet.

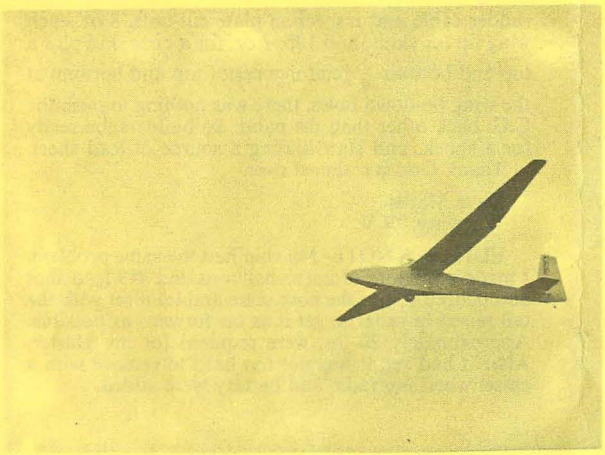
Thank God it's almost over.

Dave Mattis
Wheeling, W V

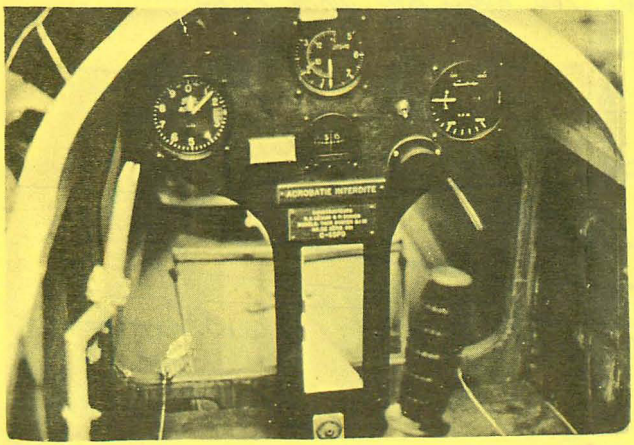
EDITOR'S NOTE- My ship had the same problem. I made a mixture of micro-balloons and #9 lead shot and poured it into the nose cone and let it set with the tail raised in order to get it as far forward as possible. Approximately 20 lbs. were required for my Duster. After it had set, it was not too hard to remove with a chisel when my radio and battery were added.

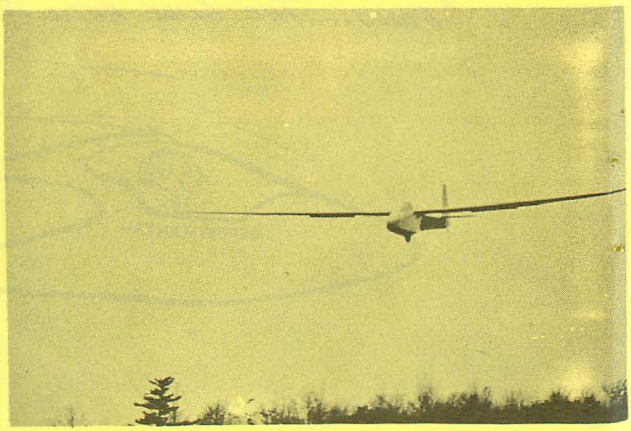






First Flight pictures
Contributed by G. A. Sequin





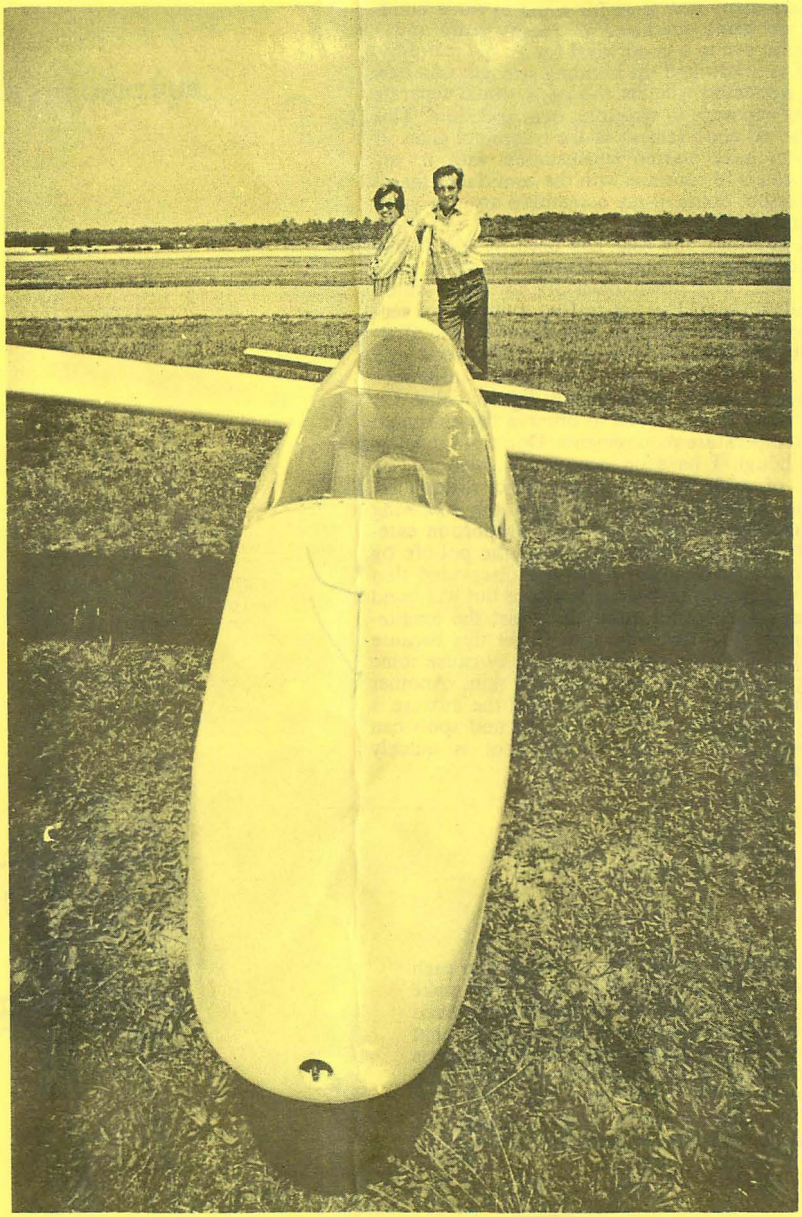
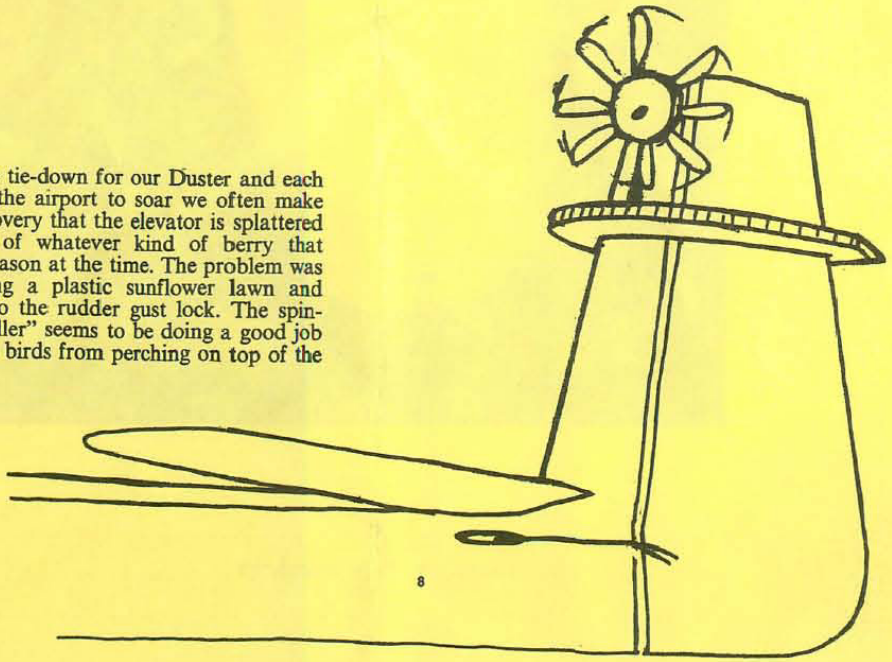


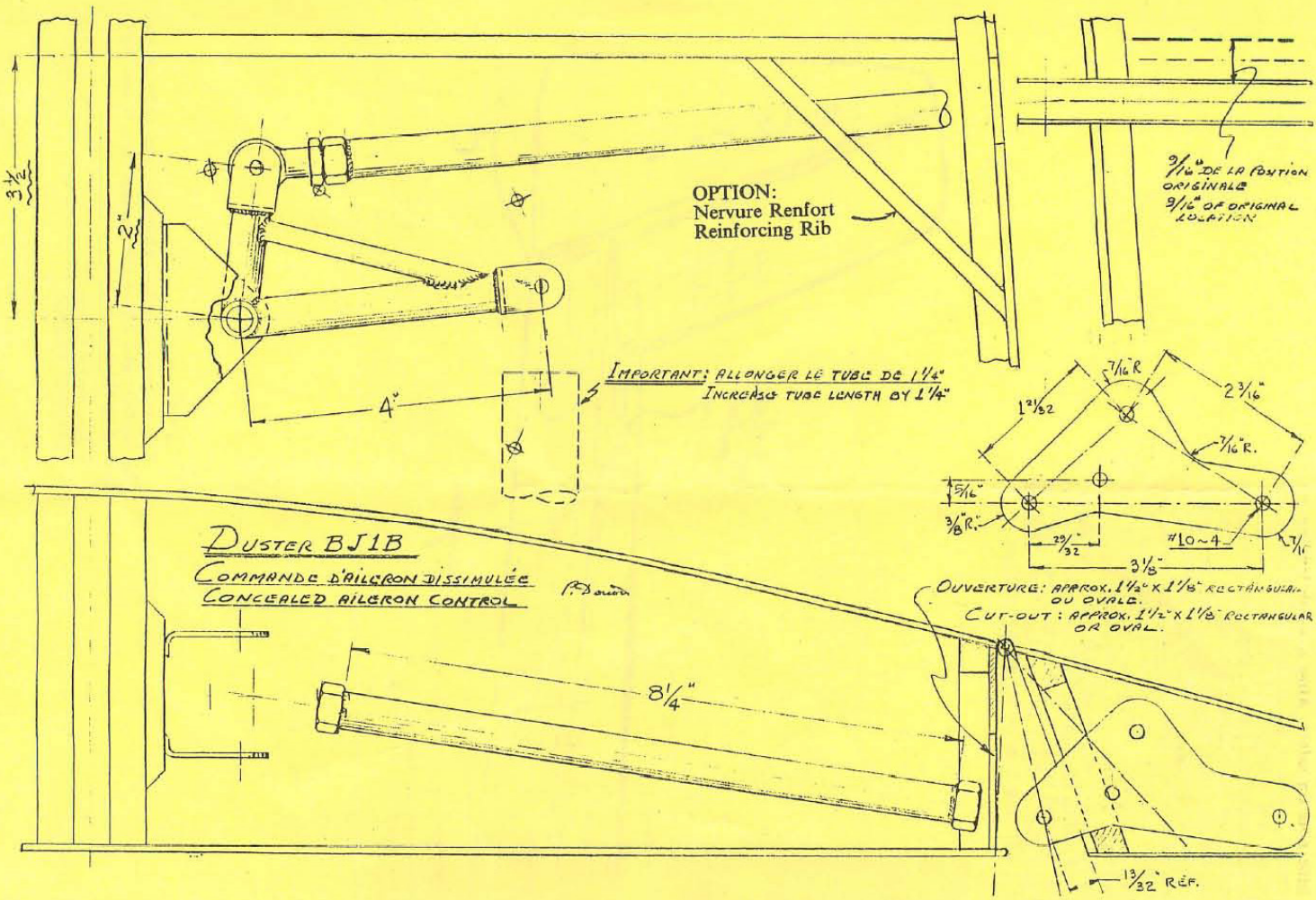
Photo by Doug Humphrey

BUILDING TIPS ETC.

There are many new glues for wood to wood bonding that are being marketed in recent years and I would like to put in a good word for an old stand-by. Have you ever admired the bonding strength of a new glue and wondered whether the parts would separate again after exposure to moisture, heat and time? This is my personal endorsement of the resorcinol glues. If any of you have started construction with it, my advice to you is to continue with the confidence that it will do the job. Some of my assemblies are five years old and still holding. While I can't say that we've had any hard landings, my ship has been (it wasn't me) out-landed twice, has been trailered 500 miles once and has been tied down outdoors through winter, spring and summer. I've yet to find evidence of separation or glue-line checking anywhere. I have alternated between the products of U. S. Plywood and Borden's and I'm not aware of any quality differance except that Borden's has a slightly lighter color. On the other hand I was careful to observe the minimum bonding temperature requirements. Don't use it below 70°F. Although I have on occasion accelerated the bonding of some parts in a hot attic, I don't reccommend handling any joints until the following day. Measure the catalyst and resin proportion carefully and make no attempt to extend the pot-life by refigeration. I made a test joint and discovered that the joint will have a normal appearance but will bond without any appreciable strength. Resist the temptation to catch glue-runs with your finger tips because the mixture is slightly corrosive and may cause some blistering in more delicate areas of the skin. Another quality that I admired was the fact that the mixture is extremely water-soluable before it sets and spots can be removed from clothing if the spot is quickly washed. ★

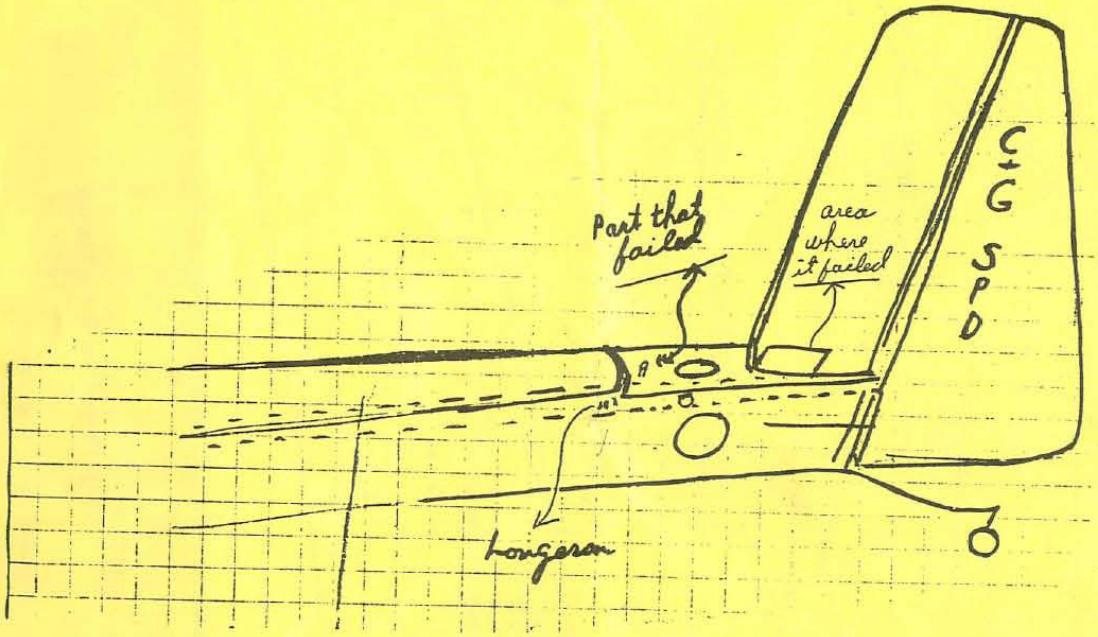
We have outside tie-down for our Duster and each time we return to the airport to soar we often make the disgusting discovery that the elevator is splattered with the remains of whatever kind of berry that happens to be in season at the time. The problem was solved by attaching a plastic sunflower lawn and garden ornament to the rudder gust lock. The spinning of this "propeller" seems to be doing a good job of discouraging the birds from perching on top of the fin.





Contributed by G.A. Sequin

A little note on safety. After a rough landing, we discovered a failure in the tail area of Duster # 19. My partner had a rough time with the up-draft that caught him unguarded 100 feet above the ground just on landing. So he increased his speed and tried to side-slip but he found himself higher and the runway was becoming shorter. He finally got it close to the ground, ten feet, but much too fast. And would you believe who got him? The old P.I.O. syndrome! After landing, I checked everything over visually and couldn't find anything wrong except when I shook the vertical fin it gave way to one side. After peeling the paint and cutting through the Dacron I found out that the top plywood panel of the fuselage was cut. The paint and Dacron didn't let anything show. After we repair, I will show how we solved the problem.



The plywood is broken where the vertical fin meets the fuselage and where the fuselage skin is not supported by the longeron.

Gilles André Séquin
Valleyfield, Québec

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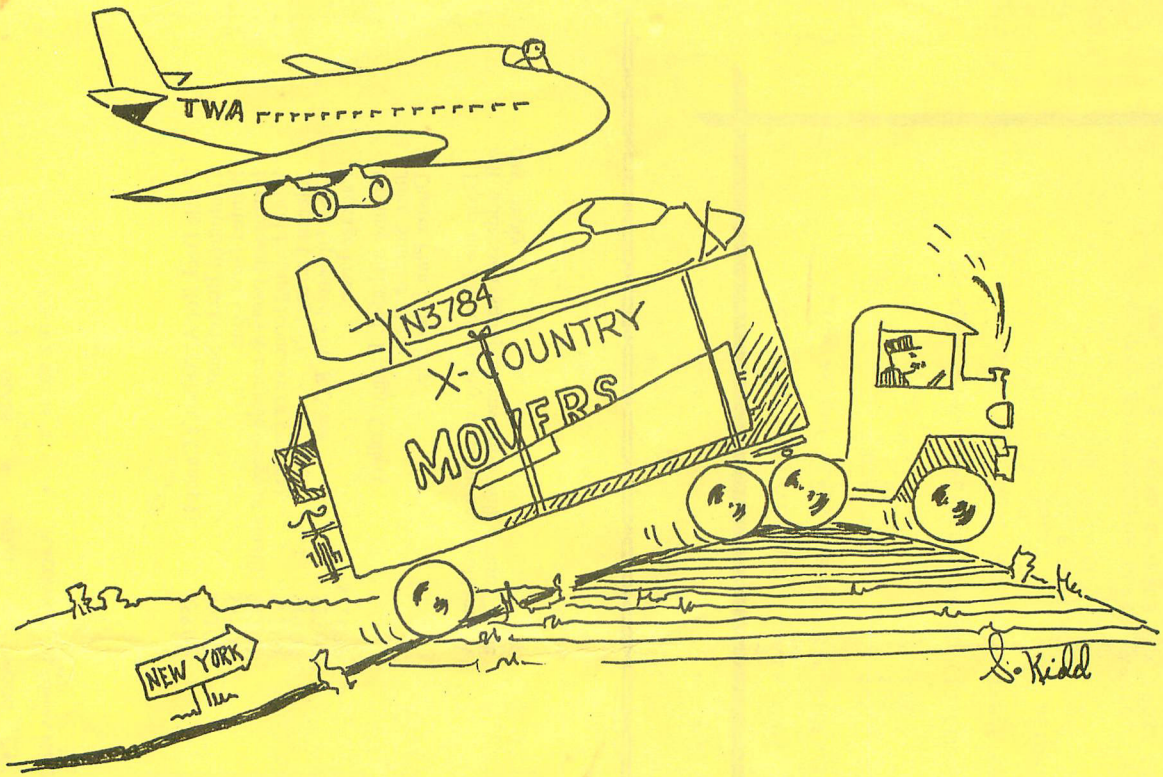

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FIRST CLASS