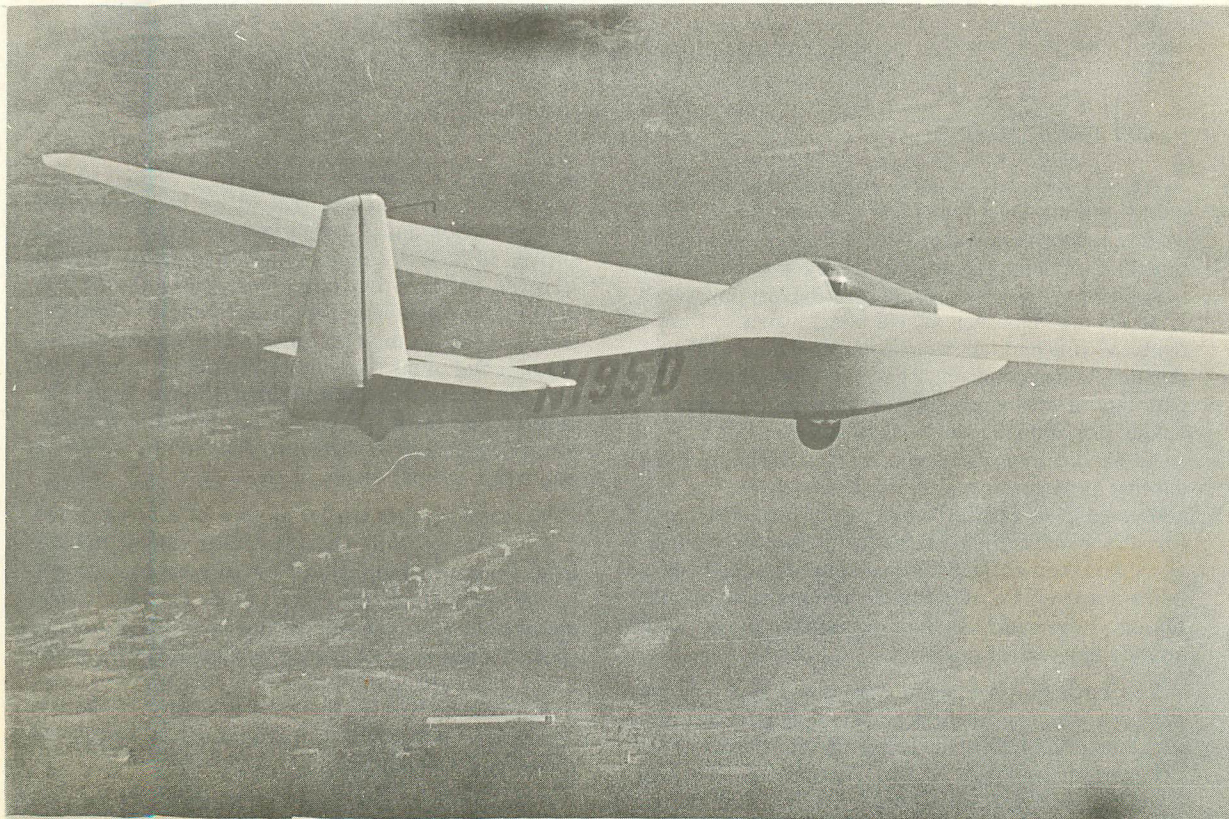
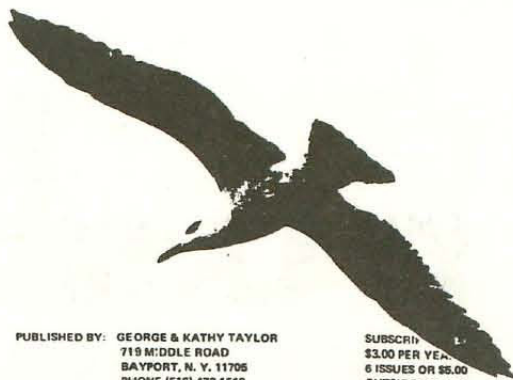


THE DUST RAG



THE OFFICIAL JOURNAL OF THE DUSTER SAILPLANE ASSOCIATION

OCTOBER 1976



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OUTSIDE THE U. S. . . .

FROM THE EDITORS

We're back after a long unintentional delay in publishing the *Dust* rag. Took the summer off from writing it to give my ship that last good push in the direction of completion and finally arrived in the realm of that "last 5%". Except for the last few weeks or so the mail has been almost non-existent so I hope many of you builders were doing the same. All that remains to be done on N12GT is the rubbing and painting of the wings plus a handful of assorted details like applying the N-numbers, etc.

As we did some time ago, we would like to make another progress check of the Duster fleet. The self addressed post card attached to the inside cover is for all you subscribers except for the known completions and non-builders. Please use it to give us a quick note to list or describe the present state of your Duster. Please include your N-number if you have already applied for one.

The Little Guy's Meet at Blairstown, N.J. was the occasion which brought together 3 Duster builders, and one flying Duster. Elmer Zook arrived from Connecticut and Kathy and I arrived from Long Island to watch Scott Thomas fly his ship in the Sportsman Class. Unfortunate circumstances (reported in this issue) prevented him from finishing the contest. But we were all interested to see a Duster "in the flesh"- and I was surprised to see how small it

seemed on the airport when it always looked so big in my yard. And then in August we had a pleasant visit from Bob and Rosemarie Schaefer of Downers Grove, Illinois. By chance they had come to visit relatives not far from our home. Bob's Duster has been under construction for 5 years and he estimates that it is 90% complete. I'm grateful to him for his gift of a bag of micro-balloons. Before he came I had no idea what they looked like. I have since discovered that there is a slightly coarser variety available at fiberglass boat factories. The mixture is poured into small compartments to make them sink-proof.

We have another Duster in need of a home. I had a call recently from Donald Heath who is moving from Illinois to Florida and doesn't feel that he will be able to continue the project in his new home. The merchandice up for sale is the completed and inspected drag spar kit, center-section kit, dive brake and aileron kits and all the tail feathers. All of these items can be had for the purchase price of the kits which is \$985 plus shipping costs. If interested please call 312-223-5853.

Volumes three and four of the *Dust Rag* are still available to new subscribers. They are 50c each. Please make your checks payable to George or Kathy Taylor instead of to the *Dust Rag*. It saves a lot of explaining at the bank. □

COVER PHOTO

Our cover this month is once more enhanced with the fine workmanship of N195D by Bruce Dyson. He said that he took his first tow to 8000' and on the way down tried a series of stalls, slips, slow flight and slips with combinations of dive brake settings. The spin was saved for the third flight. The interior shot of his ship is on page xx. His ship stalls at 42 MPH and was taken up to a top speed of 125 MPH. He described a 70 mile out and return flight against a 30 MPH wind. Average speed was 35MPH. What it all boils down to is that he is just as happy with his ship as everybody else. So persevere.

LETTERS to the Editor.....

My own project is presently stalled for want of wing spars and skins, and an assortment of hardware. The fuselage is essentially complete, most tail and control surfaces have been closed, wing center section is ready for covering, and all wing ribs have been ready for six months. DSK, meanwhile, won't even tell me where I stand on their waiting list. However, I've seen a lot more of my wife lately, so all is not gloom.

My sincere good wishes to you, to all other "Duster" builders, and most especially to the good health of DSK.

Ted Leshner
Atwater, CA.

There is not much soaring going on in Indonesia, unfortunately. The Jakarta Flying Club has a few Schweizer 1-26's and 2-22 sailplanes with which they do little more than grinding the circuit. There is certainly no cross country flying taking place on a regular basis and also their thermal soaring activities are rather limited. They seem to concentrate on basic training. You can imagine that this is not very attractive for an experienced soaring pilot and I have therefore never joined that club. I used to do quite a bit of soaring in Singapore and Malasia in the 60's when I owned a Standard Austria SH. I hope that in my new surroundings I shall be able to resume my soaring activities.

K P Grehl
Singapore.

BETTER LIVING THROUGH CHEMISTRY

Serious purpose for this letter-- dealing with health and well-being. I think another warning to all *amateur* amateur Duster builders (like me) is due, warning of the toxicity of most of the paints and mastics and glues that are being used.

I speak from experience having developed some alarming symptoms: Nausea, weakness, sharp and constant chest pains, and shortness of breath at very minor exertion. This happened after several months of breathing the fumes of polyester resin, sanded glass fibers, Sears Epoxy paint, urethane varnish, microputty and Dupont's Gun & Equipment Cleaner (Lacquer thinner).

Obviously, I should have worn a fresh air mask or stood in a gale while using the stuff.

Anyway, with symptoms pointing to a coronary, cancer or liver rot, I went for a comprehensive physical. Blood pressure excellent, EKG good, blood and liver good, and no lung cancer. Bad. Incipient emphysema brought on by all this toxic crud I've been breathing in my basement as I attack the last 5 %. Now, I can live with the prospect on heavy pollution days, of possible chest twinges, heavy breathing, and eventually worse.

So my finishing is somewhat curtailed until I find a sucker to breathe my fumes for me, or until I get a compressor and mask for the aromatic phases of Duster-finishing.

Please pass the word that breathing these "goodies" has a *cumulative* effect, so while a few little sniffs early in the game actually smell GOOD, the lung remembers every one, and manages to keep a little. A week ago, I was pretty sure I'd never finish the Duster owing to the health thing. Now I'm pretty sure I will-- in the next 6 months-- but only if I take it easy on the toxics. I'm lucky. I know of one Cherokee builder who never finished ' lung cancer from epoxy. Actually, the liver damage is supposed to be the most dangerous effect. Believe me, the least-- mine-- is most unpleasant, so take heed and cool those compulsions before they kill you.

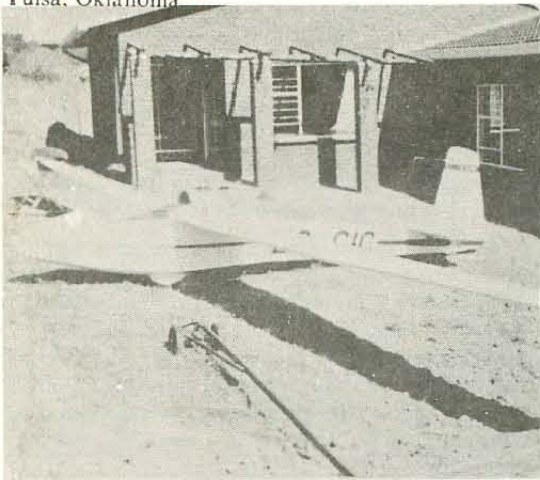
I would also like to warn against operating sabresaws or electric drills without wearing safety goggles. It would be revolting to get a snapped drill bit or blade through your eye. No job is too small for the goggles. *Ed.)*

David Mattis
Wheeling, W. VA.

LETTERS continued...

Have most systems installed and working. Put in my own brake system. The wheel stops when I pull the handle....its starting to look like a sailplane.

Bob Warren
Tulsa, Oklahoma



My Duster No. 164 FLIES! Enclosed are some negatives showing my ship just after weighing and Pat Beatty giving me advice prior to my first flight. Also enclosed is a shot of Adrian Gray in his ill-fated No. 143 just prior to his first launch.

Pat was quite happy with my Duster. He was very careful to check airspeed which although I have not done very precise checks seems O.K. Since Adrian's statics were pressuring slightly to give an under reading on the airspeed, I moved mine back to just in front of frame 15.75, halfway down the fuselage side. Stall comes in exactly at 60 Km/hr.

Pat has placed a smooth air limit on the Dusters here (there are 2 more being built) at 170 Km/hr. Since one hardly ever has "smooth air" anyway its quite adequate. During the test flight he took it up to 180 Km/hr (density altitude about 9000 ft.) and gave it some quick jabs on the rudder but could not induce any flutter. He finished with a couple of loops.

My flight was pretty uneventful except for the bounces on landing. This plane really grows on you; to fly it one just thinks it into the direction you want to go.

Rudder control on the ground was much less positive than the K13 I trained on. Bumpy strips tend to aggravate the situation as if you are deflected from your intended course at low speeds its hard to straighten up. The tail bumps quite hard as well on rough strips.

Since the dive brakes don't reduce lift all that much one must plan a careful circuit and properly hold off on touchdown or you are in for a few bounces. One reason of course is that the wheel is forward of the CG. and a hard touch down deflects the nose up again.

One thing I had trouble with was getting comfortable in the cockpit. I'm 5 ft. 10 inches so its not that I'm too tall. The main problem seems to be the seat shape after the control stick. There is not enough support under the legs above the knees. I solved the problem to some extent by using a small parachute which sets on top of the equipment shelf. The back rest fabric has a lot of slack in it to allow this. I think it would be worthwhile for DSK looking into this problem and re-designing the seat support frames and producing a nicely moulded glass fibre seat.

Whilst talking about small modifications it might be worthwhile to relocate the tow release knob. Another improvement would be a small arm rest over the dive-brake push rod. It is easy to open the dive brakes on a rough strip just by bumping one's fore arm downwards.

The Duster's performance still surprises me after flying it for a month. It picks up speed very easily and is much better than the K13 I was previously flying. This ship has given me a lot of confidence and has enticed me away from the field for short cross-country flights.

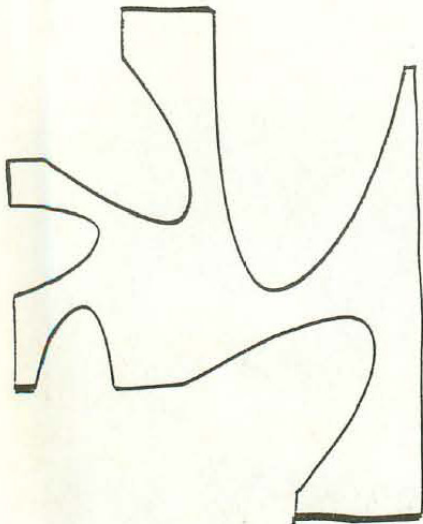
Peter How
P. O. Box 292
Bergvlei 2012
Transvaal, South Africa.



BUILDING TIPS

Mounting the instrument panel is a difficult job to do because of the lack of sufficient space to handle a drill. Do not wait until final assembly to make the upper bracket holes. The leaning bulkhead at the front of the cockpit and the upper skin get in your way not to mention the mess you will make from the falling saw dust. If you haven't cut your bulkheads from the $\frac{3}{4}$ " plywood yet, it would be a good idea to mark the location of these holes. Take out sheet 6 which shows all the bulkheads and mark the locations of the holes as they are shown in section A-A on the top left hand side of sheet 10. They do not appear on my plan set No. 57. □

I made a leading edge template from a thick sheet of aluminum for carving the proper airfoil in the wing leading edge. Having the proper contour will affect the performance of your ship. All five sections are cut into the tool as shown on sheet No. 1 of the plan set. Anyone who would like to have the use of it, please write to me. It is free for the asking. Please pass it on to someone else when you are finished with it. The appearance of the template is described in the diagram below. It measures about eleven inches by fourteen inches. (Ed.) □



If you bought your nose cone ready-made from DSK and are planning on keeping your ship a while, it would be a good idea to make your own mold before doing too much competition flying. The point is that for the investment of a few hours, a 50lb bag of plaster and some storage space you can have a quick solution to the problem of a rough landing. Build a box around the nose of your completed ship and pour the plaster in one shot. Agitate the mix to free the surface bubbles. Knock the casting free shortly after the plaster becomes firm and hope that you are never rewarded for your foresight.

Save that template for your canopy. Make yourself a nice one and save it. It's a rare sailplane that gets through life with its original canopy. Some ships are on their second canopy before making even the first flight. If you have found plexiglass a little too brittle to tolerate, try a windshield product called LEXAN. It tolerates drilling and bending but watch the summer heat.

After lofting and cutting out your $\frac{3}{4}$ " fuselage bulkheads from the plywood, make tracings of each one on the backs of the plan sheets. It is a great time saver should your ship ever need extensive repair. If you cut your bulkheads concentrically from the plywood there should be almost enough wood left for another complete set of bulkheads. Don't be tempted to use up that scrap for non-related odd jobs.



MORE BUILDING TIPS

1. Hughes glue requires the accurate measurement of small quantities of glue and catalyst- for most sessions 10 or 20 cc's is adequate, and even big jobs rarely take more than 40 cc. I use a 50 cc graduate for the glue ; it is easily cleaned with liquid soap and a test tube brush. For the catalyst, I calibrated a length of $\frac{3}{16}$ " glass tubing into 1 and 2 cc divisions, and attached a short length of hose to one end. Insert tube into catalyst, hose in mouth and draw up the appropriate amount. All apparatus is available in the chemistry department of your local hobby shop.

2. A number of large, irregularly shaped, and otherwise unwieldy pieces of wood have to be clamped together in various gluing operations- particularly in fuselage assembly. An assortment of heavy elastic cords, with and without hooks on the end, is very useful for this purpose.

3. One approach to the horizontal stab attachment problem was described in the June *Dust Rag*. Here's another: with bulkhead 174 glued in position and the rear attach hardware in place, remove the stab and drill accurately downward through the center of the bulkhead. Then brace the stab in position, and with a right angle attachment line-drill upward through the bulkhead into the stab.

4. As mentioned in the *Dust Rag*, the FAA will probably insist on drain holes in all wing bays. Instead of riddling your airfoil with drain holes, simply cut a $\frac{1}{4}$ " diagonal notch in the lower aft end of each rib before gluing it in place. This will permit water to flow laterally to the tip or root, where strategically placed holes will let it out. The same principle may be applied to tail and control surfaces. (The big hazard associated with collected water is dry rot, which is *bad news*- proper drainage isn't just bureaucratic trivia.)

5. A few minor problems I have encountered:

a. The button head screw on the dive brake handle may not clear station 30.5 bulkhead- try making the support block a little thicker than called for, or perhaps cant it a bit.

b. The proper place for the rudder cables to exit the fuselage turned out to be just at the top of the aft inspection hole. This might be moved straight down about $\frac{3}{4}$ ".

c. Spanwise cracks at ends of wing leading edge sections have been seen on several completed ships. The lightning rout should probably stop short of the ends of these pieces, leaving them solid at their extremities.

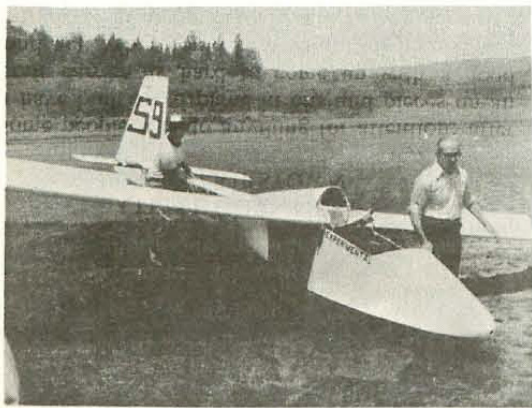
6. A VHF dipole antenna will fit nicely in the vertical stabilizer. (See *Soaring*, Feb. 1975; also the *American Soaring Handbook*, chap. 8, available from the SSA.) I made mine from $\frac{3}{8}$ " OD aluminum tubing joined by a fiberglass wrap. RG-58/U cable feeds through the tubing to the central insulator. Connect the shield to the lower element, center conductor to upper. The length shown peaks the antenna for 123.3 MHZ. It is mounted to the lowest stabilizer ribs, and a removable tip was devised to provide access if it is ever needed.

Ted Leshner

Another labor saving hind-sight is the following. Naturally while the fuselage is still in the jig you will build the main gear wheel well and bracket assembly but don't stop there! Do yourself a big favor and build whatever tail wheel configuration you have in mind at this time. You will be glad you did in the end when you see how many times you have to roll the fuselage and center section in and out of your garage to work outside during final assembly. Building the tail wheel first at eye level is much easier than building one later under a nearly completed ship. You don't want to keep dragging the fuselage tail around alligator style or keep calling a helper until you finally get around to building one. □



GT, Bob and Rosemarie Schaefer.



LITTLE GUY'S MEET
AT BLAIRSTOWN

Some people will do anything for attention; after you have built an airplane in bits and pieces on an aircraft carrier its hard to come up with a good second act. What could be more fitting than being the first person to rebuild a Duster. I now have the opportunity as I managed to severely beat up N3ST while flying in the sportsman class at Blairstown, N.J.

Due to the usual collection of schedule foul-ups at the squadron, I was unable to leave before 5 PM. Later, with both children and a bag of Hardee's finest hamburgers in the Winnebago, we were off on the trek, feeling very late and rushed. The next step was to pick up Jim Atherton a long time friend and crew-to-be. After a night of Washington traffic, hidden gas stations, lost gas caps, closed bridges and dead ends we finally parked the whole mess at Blairstown a little after 6 AM. My total sleep for the night was less than 4 hours. Just about the same as I had averaged the previous nights.

NOW THE CONTEST

Saturday- The pilot's meeting got off to a super start when the taskmaster asked with a straight face and intimidating tone if we wanted to fly a gold distance triangle. My immediate response was to unfold my 3 year old sectional in a noisy frenzy and throw it over my head so no one would know I was in the room. The task actually assigned was a good deal less than gold distance but it still represented 184% of any distance I had flown. From the first tow I had the aggravation of watching the airspeed

pulsate between 30 and 102 knots in a random manner. Back on the ground I pondered the possible causes and was baffled by its perfectly good indications on tow. Jim and I spent the better part of an hour chasing moisture out of the lines. From the second tow I thermalled a while with good airspeed indications. At 3000' I dumped the nose to head for the ridge and my first leg. Presto, the airspeed went to 50 knots and stayed. I used my left hand to apply a local 7 G's to the indicator and abused its heritage in unbridled rage. The airspeed started functioning again and my hand hurt. The reward for my naughty language was a noticeable lack of lift. While limping back to the airport and anticipating the first four beers, I watched a power plane turning onto final ahead of me. I had instant recall of the briefing that morning about the use of a great field next to the airport used to avoid crossing the power pattern in case of conflict. All those who watched my landing were entertained and slightly confused as no one else saw the power plane. With a minimal amount of work on the static lines I departed for a beer and a frisbee contest with Jim and my children. Later that afternoon George and Kathy Taylor drove in from Bayport, N Y, and we had a good time poking around the Duster and talking shop.

Sunday the pilot's meeting was a little better but I kept wondering why I was paying money to develop an ulcer and the world's largest migraine headache. Back on the flight line Jim discovered the batteries for the vario were dead and we had fun trying to connect my new ones. By now Elmer Zook had also



Scott, me and Elmer



arrived and we talked Dusters a while. The audio committed suicide. No matter what the vario was doing the audio was convinced it ought to indicate 10 knots up. Jim was hard pressed to continue his pep talks and red hot coaching at this point but he kept right on whipping me into a keen competitive mood. During the tow I was relieved to see the vario and the VSI showing approximately the same thing. But the first thermal after release showed the vario was indicating relative strength of an arbitrary airmass in Kansas. Back in for a landing. Another hour spent chasing gremlins in the system. Elmer, George and Kathy were helpful in cheering right along for the Duster "team."

Two thermals and five towns later I spent some time in the exact center of a big blue hole at 2000'. Another twenty minutes of sweaty flying convinced me I ought to do at least one thing smart: land while I had the option of a good field- plowed, level, and furrows running into the wind. Touch down was fine and the deceleration at about what had been expected in the dirt. After 80' of tire track all sorts of bad things happened that later turned out to be roughly this:

1. The wheel dropped into a woodchuck hole and departed the aircraft, taking selected pieces of the $\frac{1}{2}$ " plywood keel with it.

2. The plane rotated smartly onto the fiberglass nose, shattering that and the first $\frac{3}{4}$ " fuselage bulkhead, and filling both my trouser legs up with dirt right up to my BVD's. Then in this one-point nose low attitude, it commenced to rotate counter clockwise.

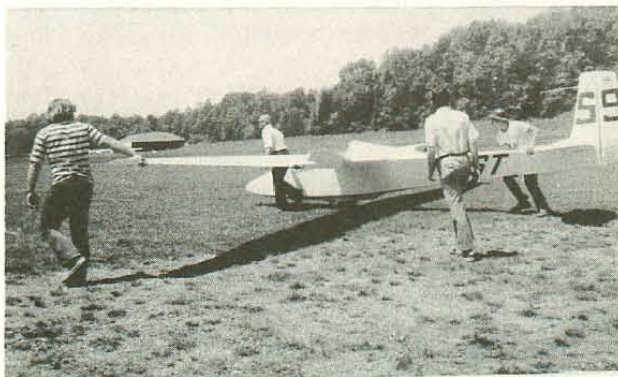
3. After just over 90° of rotation the plane returned to "level", the tail skid and rudder burrowed into the dirt and the bottom $\frac{1}{3}$ of the rudder lost all resemblance to the plans.

4. The canopy and turtleback ceased resisting the side loads and departed the sailplane, the latter coming to rest directly in the path of the oncoming plane.

5. The integrity of the rudder/vertical stabilizer hinges transmitted the side loads on the rudder to the stabilizer and broke it free from the fuselage in a very random fashion.

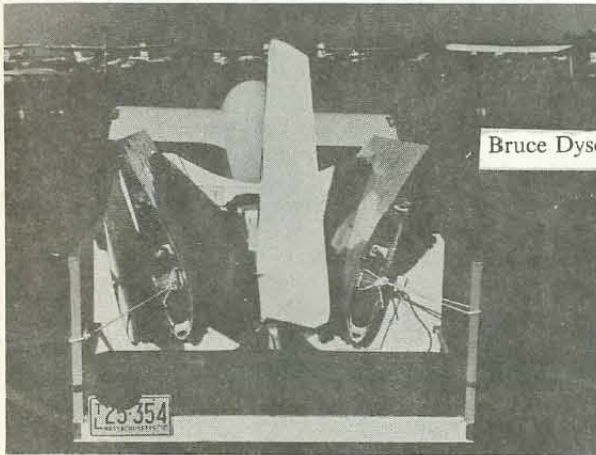
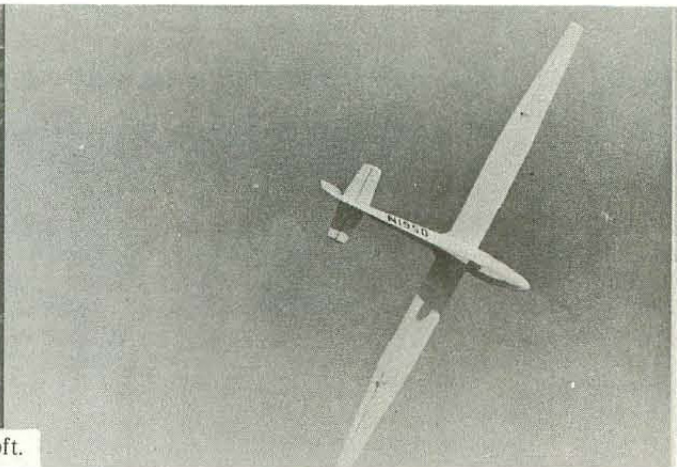
N3ST presently graces my front yard, where I sporadically work (frantically) so I can fly again in the Labor Day contest in New Castle. By the way, shoulder harnesses are fun-- and worthwhile.

Scott Thomas
Virginia Beach, VA.

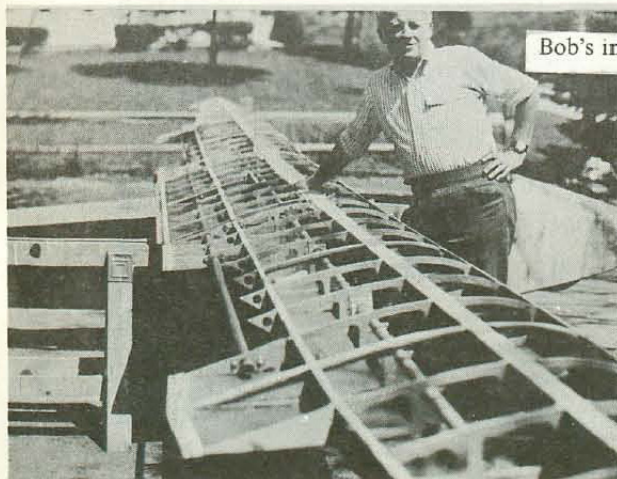




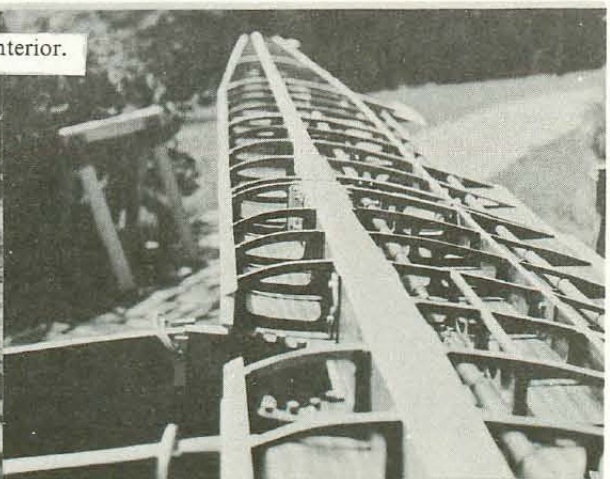
Bruce's ship aloft.

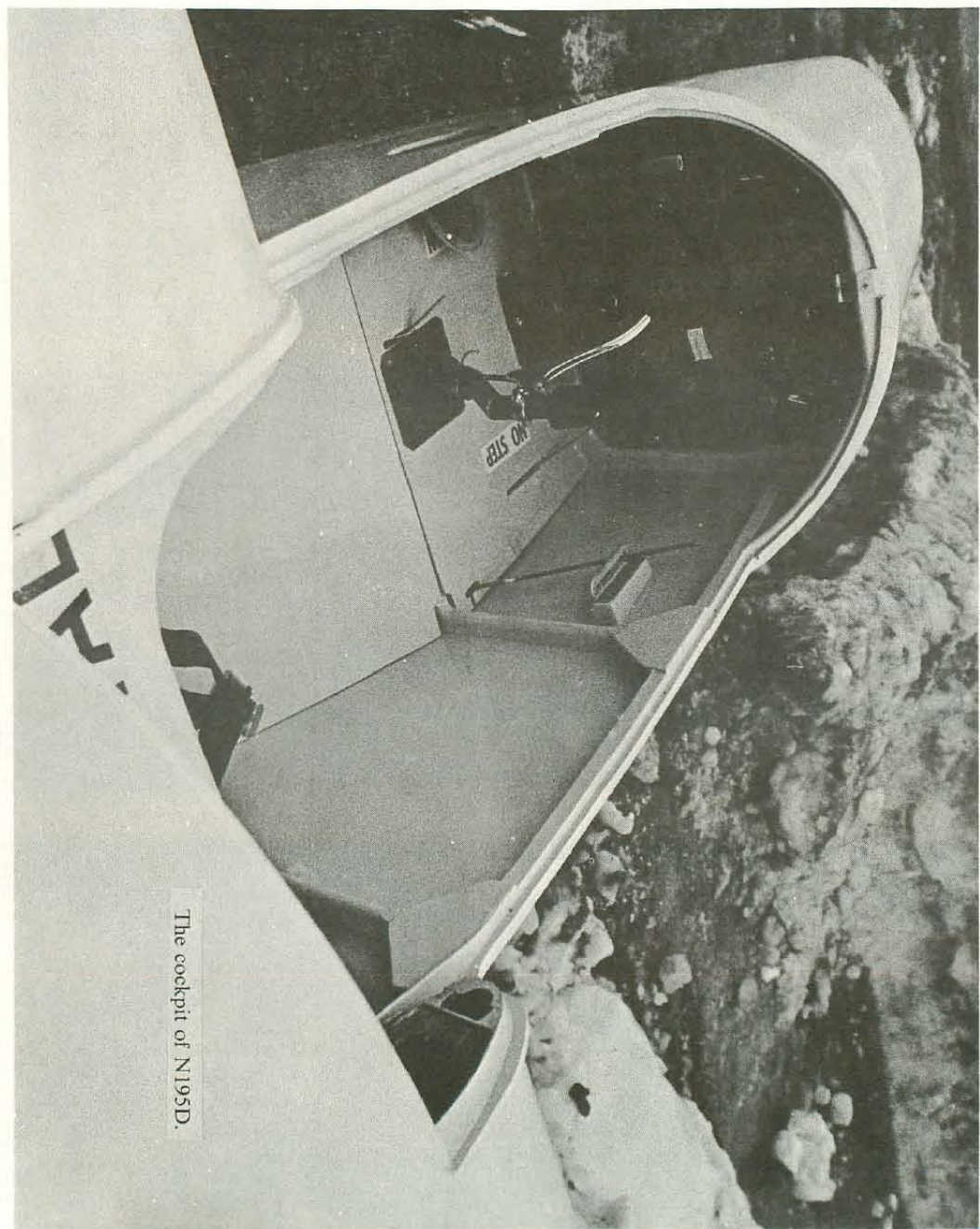


Bruce Dyson's Trailer



Bob's interior.





The cockpit of N195D.

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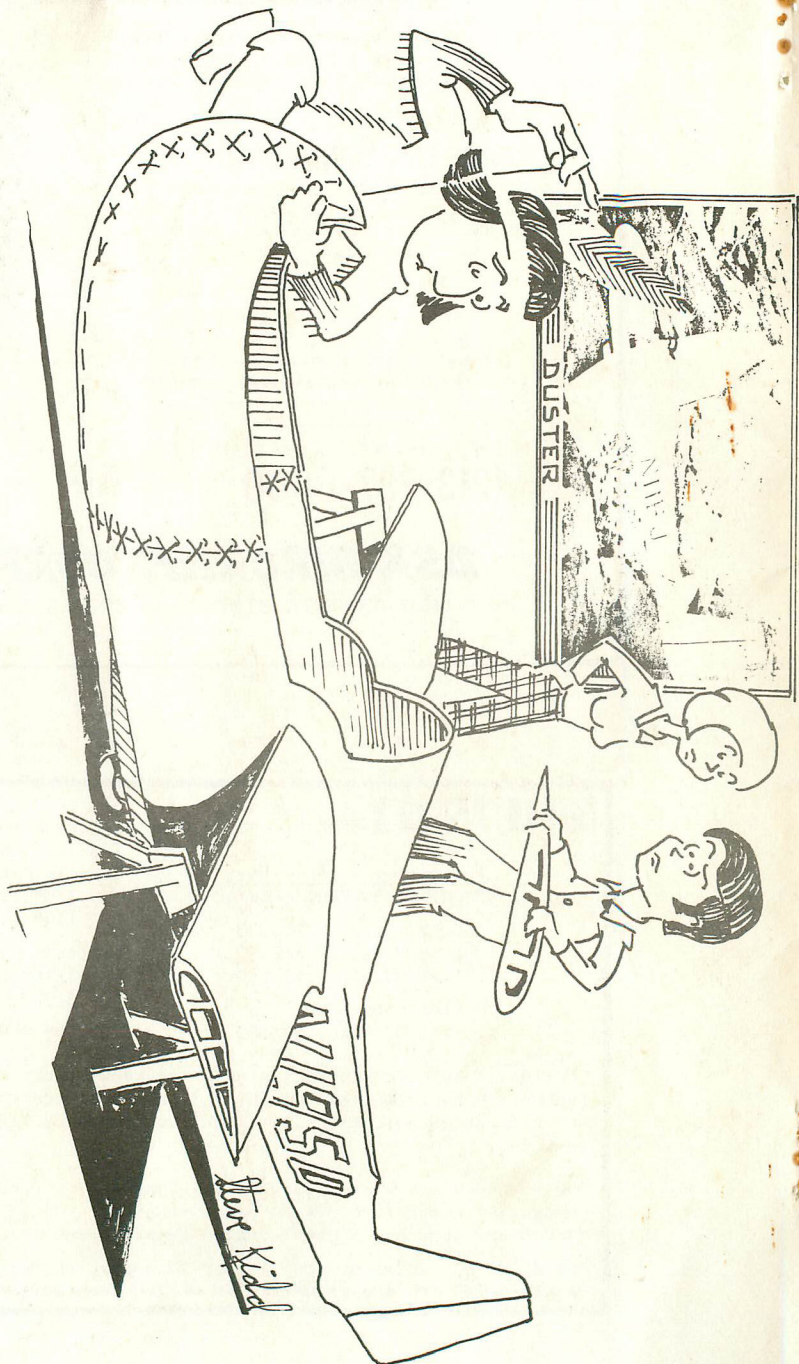
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Volume 4 Number 3 October 1950

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