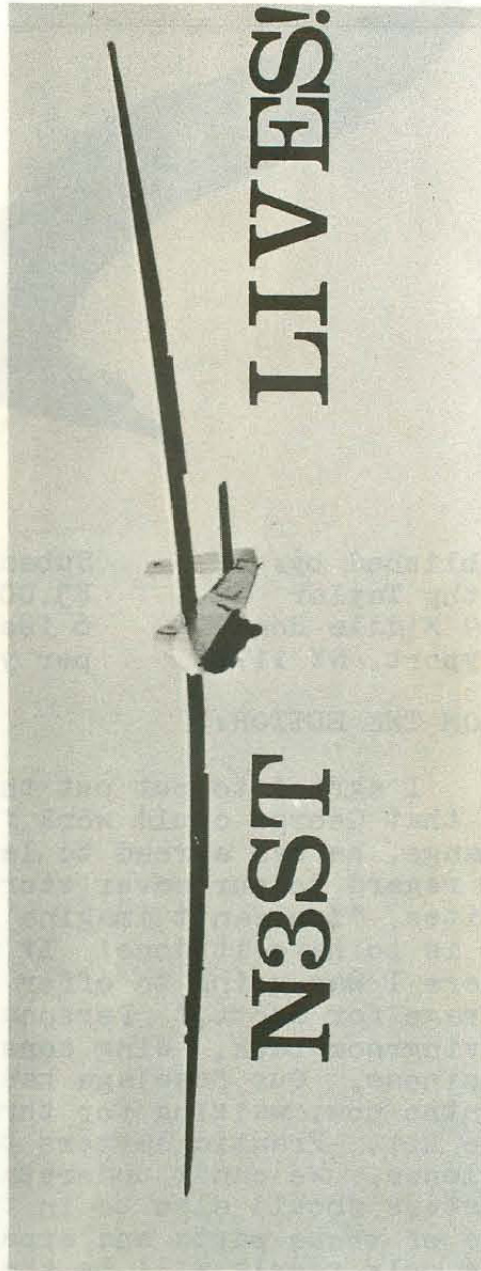


DUST RAG


THE OFFICIAL JOURNAL OF THE DUSTER SAILPLANE ASSOCIATION

AUGUST 1975



N3ST

LIVES!



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FROM THE EDITOR:

I agreed to put out the DUST RAG by myself this month so that George could work full speed on his Duster. In exchange, he has agreed to let me drag him away for a vacation. In regard to our cover story, Mimi Thomas (Scott's wife) writes, "You can't imagine (or maybe you can) what a relief it is to have it done! It was rapidly getting to the point where I was going to offer to put a sleeping bag in the garage for Scott." Personally, I'd be happy just to have my livingroom back. Wing construction is a very expansive business. Our fuselage has remained unclosed for several months now, waiting for three pieces of hardware missing from the kit. Frantic letters to DSK have met with a resounding silence. We can't understand this attitude, since completed Dusters should also be in their interest. We've now bought two of these parts and expect that when we send the bill, the only result will be the same stony silence. We wonder how long this approach will carry DSK, even with a captive audience. We'd like to hear your opinions.

~~~~~ DUSTER ASSOCIATION NEWS ~~~~~

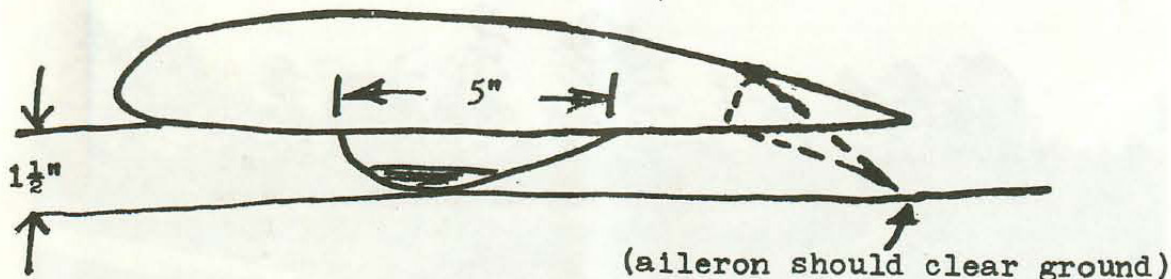
by John Sinclair

We are considering a Duster contest to be held in mid-winter at Tulare, California. The Central Cal. Soaring Club holds a fun contest and the Dusters could have a sub-contest within their Sportsman Class. Last year Tom Protheroe got second place. Let me know your desires.

~~~~~  
John adds the following:

In the last RAG, Hank said I had won the Sportsman Class at Minden. I wish it was true, Hank, but it's not! I did win one day, a speed task down to Mammoth Lake and back--- 213 miles at 52 mph. It was the only good soaring day of the contest and 9 out of 16 pilots completed the task.

On your wing tip skids, I recommend that you use a good strong skid, as those wing tips take quite a beating. I glued on a tear drop piece of spruce and then wood screwed an aluminum skid to it. The depth must be enough to allow full aileron movement without allowing the aileron to hit the runway. When the left wing is down, you need left aileron down to get the wing up. My depth is $1\frac{1}{2}$ inches.

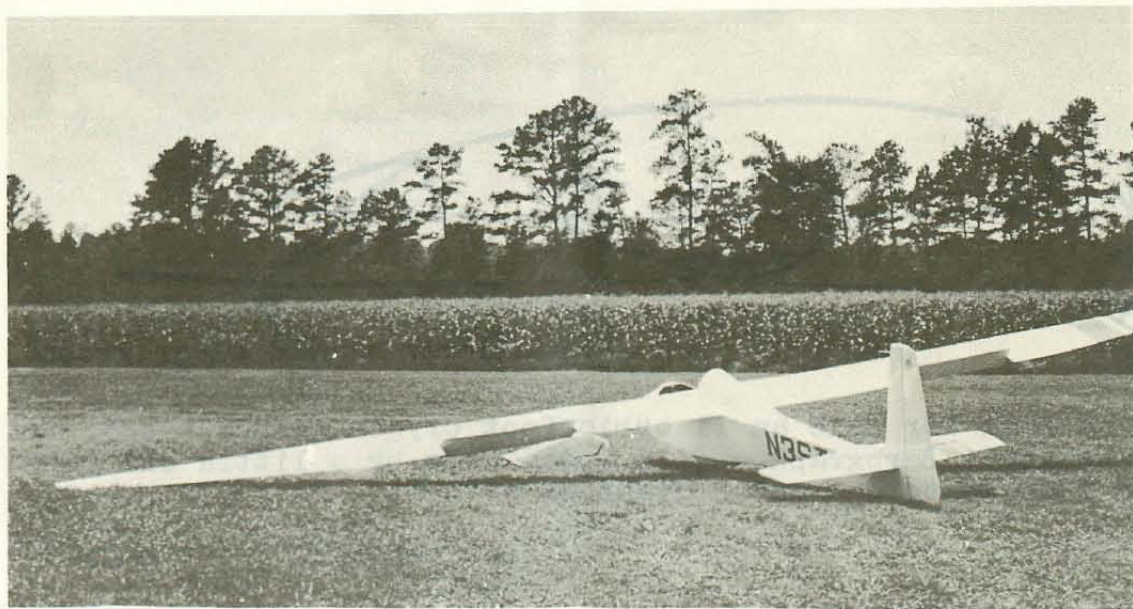


I have for sale an 11 cubic foot oxygen bottle---\$25, and a Replogle Barograph---\$125 (used only by a little old lady from Sacramento who got 3 diamonds with it).

Best Regards,
John.



When the left wing is down, you need left aileron down
to get the wing up. My aileron is 1/2 inches.



THE DUSTER FLEET INCREASES

by Scott Thomas (#17)

What is there to say?! What a great toy! The final FAA inspection went easily with most of the time spent on going over the weight and balance figures, which was OK as I had a bad time getting the numbers I wanted the first time I weighed the plane (I had it leveled incorrectly). I have a heavy plane (666# with me and a 24# chute), but the CG is good at 11.8 inches. The FAA fellow said he would be happier with the CG at 11 inches, so the addition of a radio will help.

The inspection took place on Tues, July 15th, and I had planned to test fly on Sat. the 19th. However, on Thursday night I was informed by my squadron I was flying a plane to Yuma (Arizona) on Friday and would be gone for "a week or so..." Late Friday PM I was informed the departure would be delayed until at least Sunday, so I started a bunch of frantic calls to get ready for the test flying Saturday.

My "helpers," Jack Fulghum and Tom Kelly, arrived at the airport at 9 AM, and we put the plane together. After I did a preflight and was satisfied, I stood back and both of them went over the WHOLE airplane looking for uninstalled/misinstalled/overinstalled anythings.

TOW#1: Auto. It took what I thought was an excessively long time for the tail to come up even with full forward trim and stick. Airborne at 35mph indicated with very sensitive controls and release at 10', the car broke left, I went straight ahead. After touchdown the controls were effective until I stopped. Very hot with almost no noticeable air through the nose vent.

TOW#2: Auto. Same as first, but with much more rapid acceleration by the tow car. The tail came up sooner, but the controls still seemed "wrong" to me. Confirmed that the wheel brake does absolutely nothing for deceleration on the roll out.

TOW#3: Auto. Made by Jack Fulghum, to get his opinion of the controls. He did a zoom to 50', then used the dive brakes for landing. He thought they were fine.

TOW#4: Aero. We used a 150 Super Cub that belongs to Tom Kelly. Nice control response, very easy to nose over and get slack in the rope. Airspeed and altimeter are

(DUSTER FLEET Continued)

sticking and the airspeed is sort of unbelievable due to what turned out to be paint in the static system. Release at 900'.

TOW#5: Aero. Towed to 2000' AGL and flew from the test field (Suffolk, Va.) to over top the gliderport our club uses. (Garner, Va.) After release, soared a little and experimented with the controls to get the feel of different speeds and attitudes. The cockpit was unbearably hot with the only noticeable airflow around my feet in front of the panel. Landing on a grass field with a touchdown of about 45 or 50 mph gave a roll of less than 1000' with no brake, but using full back stick to drag the tailskid as much as possible.

TOW#6: Aero to 3000'. Soared and generally had a ball for about 30 minutes. Full boards and in for the final landing after so short a flight only because of the oppressive heat (had stopped using sunglasses as the sweat dripping off my eyebrows obscured my vision). Made the final landing about 5 mph slower using full boards during the approach with about half on touchdown.

After pouring a half glass of champagne over the nose of the plane, all those present finished the bottle and helped me put it back on the trailer for the trip home. The day created a list of little things to do to the plane:

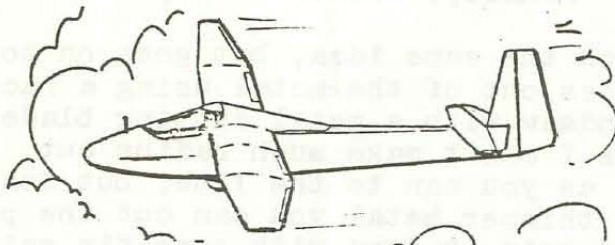
1. Add a fourth set of seat back retaining "doughnuts" to allow maximum reclining into the wing recess. Hope this will allow the use of a chute larger than 24'.
2. Install canopy vents similar to the ones used on Piper Tripacers (when closed they are flush) and possibly reroute the nose vent airflow to aft of the panel. Possibly a new panel with Eyeball vents similar to those in Maj. Sinclair's plane.
3. Some fiberglass skids on the low points of the wingtip trailing edges to allow full down aileron with the wingtip down. I scraped one on the paved runway after the second tow.

I would recommend that anyone over 5'10" do the seat lowering mentioned in the DUST RAG about 3 issues back. The extra 1 or 2 inches gained would be great for the headroom! Also, after reading that John Sinclair smacked his nosecone on an off field landing, and after my wife commented on the minute distortions with the rudder return springs in action, I glassed 2 3/8x3/8 spruce strips into the bottom of the nosecone. It stopped the distortions and also withstood a mighty impact when my plane went up on the nose. (While using the paved strip for

(DUSTER FLEET Continued)

the initial tows we were putting the wing down into the grass to avoid scraping it, on the last auto tow the tip hit some high grass causing an immediate and abrupt departure into a rainsoaked bean field. When the main wheel hit the mud it stopped and the plane nosed up and then fell back--quite a smack, but the nose cone held.)

So here I sit in Yuma, wishing I was back in Virginia so I could fly the Duster--done after four years!



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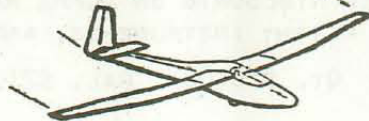
MAKING METAL PARTS

(This idea must be a good one, since we received it from two builders independently: Bill Hallisey of Deposit, NY, and Doug Dorton of West Jordan, Utah.)

Bill says: "Being a lousy tracer, I go to the local Post Office and use a Xerox copier that is available for a small fee. I stick the part of the plan that I want to make onto the machine and run off as many copies as there are pieces. Then I cut around the copy, leaving some excess material around the edges. Next step is to glue it onto stiffer paper with rubber cement. Number 50 construction paper is ideal. Finally, cut out the pattern and use it."

Doug had much the same idea, but goes on to say: "You can cut the pieces out of the metal using a hacksaw. I've been using a bandsaw with a metal cutting blade, but the blade is so wide I can't make much radius cut. Cut the pieces as close as you can to the line, but don't touch the line. With the thinner metal you can cut the pieces apart with the saw and trim it down with some tin snips. Compound action snips are about the only ones that will cut 4130 steel. You could probably do the job with a sabersaw with a metal cutting blade, but I haven't tried this. After the pieces are cut out, shape them down to the line using a belt sander. Next, take one piece and center punch the hole locations (these are already on the patterns), and drill the holes. Clamp the pieces together and line drill them. Bolt the pieces together and sand them again on the belt to the same shape. Separate and wire brush to remove burrs; sand with #400 wet or dry paper used wet to polish edges. These patterns may be off a little, but only about a 64th of an inch, which is close enough, considering that using a pen or pencil you will be off that much."

*****The error involved in this technique arises from the fact that Xerox copies are made from a flat original onto a cylindrical drum. You can measure the error by Xeroxing a piece of good graph paper (e.g., 10x10 lines per sq. cm) and trying to superimpose original and copy at a lighted window. Correspondence should be best at the center.-Editor.



LETTERS
TO
THE
EDITOR



BY AIR MAIL
PER LUGOS
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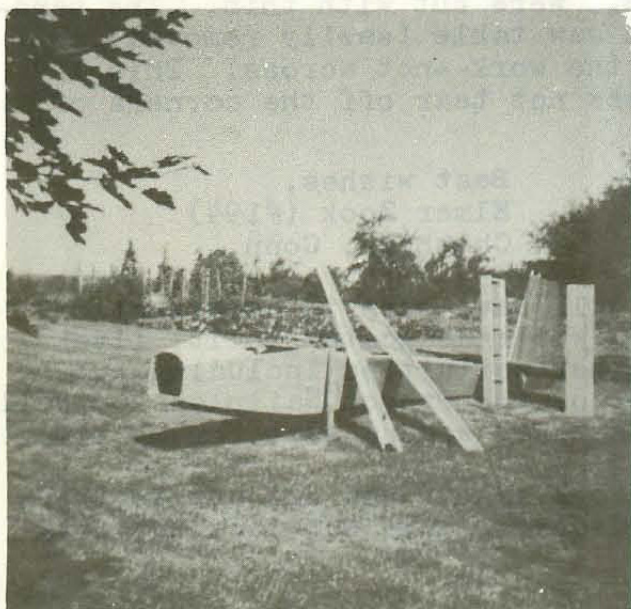
FIRST CLASS

I've been working about 13 months now and the pix show my accomplishments in that time except that I now have the center section at least 50% complete and last weekend I fitted and drilled for the fuselage attach fittings.

I'm using DSK's Deluxe Kit--ordered for delivery July '74. I still do not have all of it although with my phone calls and letters they send enough so that I've not run out of work.

I was involved in building and designing sailplanes prior to 1940 while attending Lawrence Institute in Detroit with Jack Laister (LK-10, Nugget), Art Schultz (ABC, Nucleon) and others. Five of us including Art designed the Midwest sailplane and built and sold several before WWII closed us down.

(In regard to) Sinclair's letter in Soaring, I'm sure most of us would like to participate in gatherings, one-design contests, etc., but are unable to due to family, business, etc. Possibly building a Duster requires a greater dedication than a 1-26--most of which are not homebuilt, and therefore the owners will exert a greater effort to show the result of their labor & to compete with others both in the air and on the ground--e.g. Oshkosh and EAA Fly-ins. The probability of one-design contests (this was my reasoning) was a very



(LETTERS CONTINUED)

sizable factor in choosing the Duster over several other possibilities, and I hope I wasn't entirely wrong.

Thanks for your suggestion on using blankets and lights to glue in cold weather--I gained a lot of time that way.

The info package from DSK advertises that building from the Deluxe Kit requires only a disc sander, 3/8 drill, and a saber saw. So far I have gotten along nicely with 4- $\frac{1}{2}$ and 3/8 power drills picked up at flea markets (\$12 total), a small saw table (same source, \$1.50), a saber saw attachment for a 1/4" drill (gift from my son) and a good belt sander (\$40). One power drill drives the saw which is mounted in the saw table (see photo) so that there is no limit to the sheet size. All the fuselage bulkheads (3/4"), wing ribs, etc., were cut with this. The sander mounts on the back of the saw table (easily removed) so that the belt travels along the work--not across. This I think works very well and does not tear off the corners of the plywood.



Best wishes,
Elmer Zook (#194)
Cheshire, Conn.

Dear Sir: My Duster (#141) will have been in construction for two years come December. While dedicated to it, I've had to split my time among other activities including publishing the Q-BUS, newsletter of the Oregon Sailplane Council. This year, even the Q-BUS has taken second seat for my time.

I've done all the metal work myself and encourage others to do the same. Like my woodwork, I have not done any metal

(LETTERS CONTINUED)

not even in high school. But it's not at all difficult to learn, and so far, I've not ruined more than about \$1 worth of metal. I've learned to weld, a process which strikes fear into the hearts of the uninitiated, and it's a lot easier than it's made out to be. It just takes some practice. The Duster has no welding in its spar fittings. In fact, there are no fittings which are super critical in terms of weld technique. Most aircraft have at least a couple of joints that the average builder gets nervous about welding. I don't see any of these on the Duster.

My fuselage is ready to close once I bolt all the fittings and controls on. My main spars are finished and wings are under construction. Presently, I have \$400 in the ship and expect to complete it for about \$1100, less trailer, oxygen and radio.

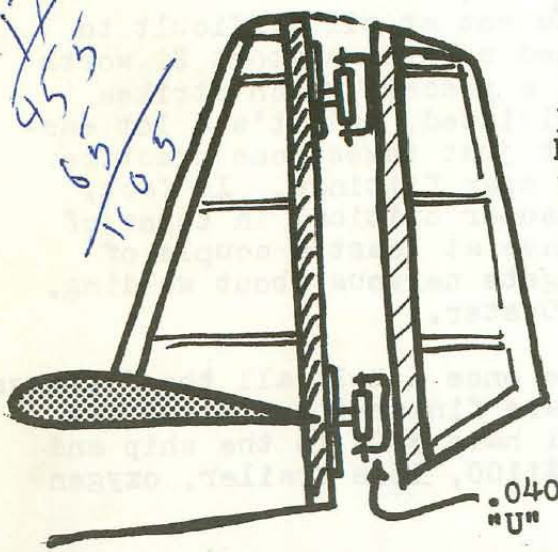
My big change in plans concerns the wing construction. I don't like wood for a wing covering. Look at the scalloping between the ribs of any ship more than two years old. So, I've got this bolt of Dynel in my shop and I'm going to go the foam and fabric process like the Rand KR-1/KR-2. I have reservations over this material, particularly in terms of the temperature-change cracking problems. But we shall see. I'll keep readers informed of my progress.

I'm also trying nylon instead of oilite bearings. I buy a nylon tube, 3/8" od and 1/4" id. I slip it into the bell-crank or what have you and run a reamer through. With a brass washer on each end, I assemble the fitting. It looks good, no play and smooth operation without need for lubricant.

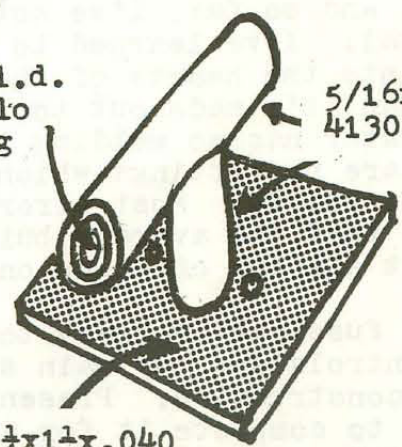
I don't have a lot of confidence in the rudder hinges. Rotate one 90 deg. and see why--locked up control surface. I'm building my hinges from 4130 steel and nylon tubing. An AN3 bolt completes the assembly. See drawing on page 11.

Builders looking for a good supplier should try Columbia Automotive, PO Box 436, Troutdale, OR, 97060. I got my rebuilt helicopter airspeed from operator Hob Sturgis for \$35. He beats many other suppliers of AN hardware by up to 40%.

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tubing



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4130 sheet

.040
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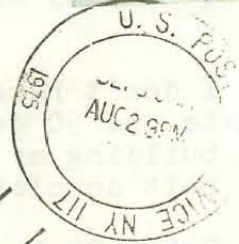
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FIRST CLASS



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