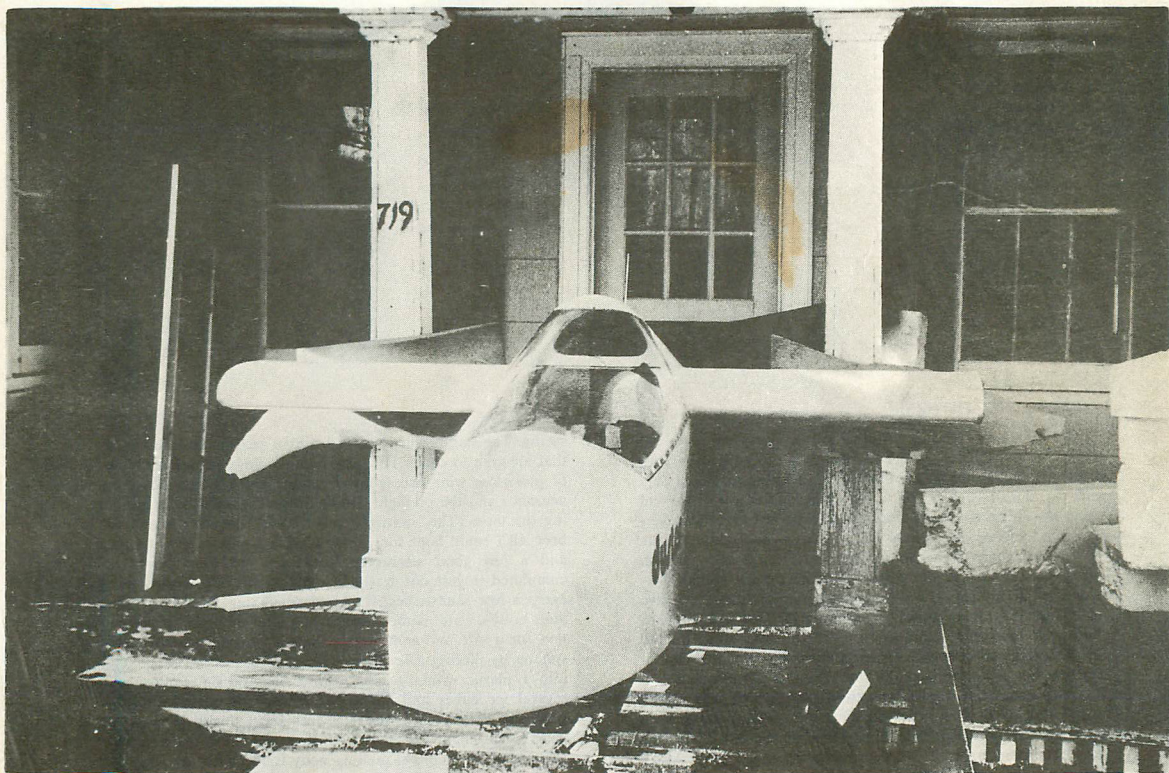


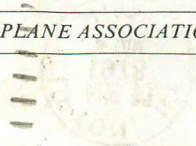
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# THE DUST RAG



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#### FROM THE EDITORS

The mandatory change on the tail is complete now and N12GT is flying again. I can't say that I can feel any difference in the way the Duster flies but I guess it's a little safer now. I only wish that I had changed back to the spring version of the tail wheel shown on the plans from the streamlined embedded version that looks so nice. There was a perfect opportunity to take care of that chore while the fuselage was opened up for the fin spar extension task. If the ground is rough the tail section does take a few severe shocks on the take-off and landing roll. I have alleviated some of the shocks by holding the stick well forward during the take-off roll and again on the landing. Keep the tail off the ground as long as you can. Some pictures of the work in progress are shown on page 5. Our Duster is left assembled on Brookhaven airport poised for action since Kathy and I both work nearby and often get to do some soaring on impulse since tows are readily available from Sky Sailors, the new FBO. The only deterioration that I can detect from leaving it outdoors all the time is some slight length-wise splitting in the fabric along the leading edge of the wings. A tube of model airplane glue spread along the crack after a dry day has smoothed over and closed the cracks. The Duster seems to be quite nearly maintenance-free. So far I have only had to replace the aileron and wing connection tapes because they were becoming oxidized. The other small item was the tail wheel. The axle locked from losing the nut and filed a flat spot on the tread as I finished a rollout on a taxi strip. As for new accessories, I made some wing stands to take the constant static load off the wing spars and pins. Hopefully I will also cash in on some winter soaring. There were more CU's last winter on Long Island than there were during the following

spring. The stands will come in handy in bearing the snow loads that are sure to come. The other thing I did was to make a pair of plexiglass wing access cover plates. They have a novel appearance and the preflight can be accomplished without removing the tapes. The soaring weather so far on Long Island has been all I could hope for. Plenty of cold fronts in from Canada and a few good sea-breeze fronts too. 25 more hours accumulated in just one week. In anticipation of a long flight, I carry a few sandwiches, fruit and something to drink. Pacing your body's water content seems to be an important consideration for a safe and comfortable flight. I avoid the problem of spilling by placing a few large spoonfuls of frozen orange juice into a plastic drinking glass with a snap-on lid. Follow with several ice cubes and fill to the brim with water. Wrap the container with a small towel to insulate. I avoid drinking too early in the flight for obvious reasons and finish the juice near the end of the flight so that my body fluid and blood sugar are near a proper level. This, I think, assures proper judgment for the landing and a not-too-worn out feeling when you get out of the cockpit. I also carry something to consume on each flight in order to acquire some facility in eating and flying at the same time. There are details to be worked out that only show up under actual conditions. The drinking glass cannot be too long or you will not be able to tip it up high enough because the bottom will hit the inside of the canopy. Jeff N. Johnson has moved and desires to sell his DSK Woodworkers tail section kit- complete- all fabricated hardware and materials including T-88 epoxy. His new address is P.O. Box 86, Malta Bend, MO 65339 or call 816-595-2436.



George & Kathy Taylor

## WIN A FEW, LOSE A FEW

With all the present talk about tail flutter, I thought that you would like to know how my Duster No. 164 is shaping. As you remember this bird was *absolutely* identical to Adrian Gray's No. 143 which was destroyed (we actually tossed a coin to decide who had which fuselage, wings, etc.)

I have over 160 hours on my Duster now and the only thing which makes me nervous sometimes is the creaking from the centre section with strong gusts- I think it is my foam fillets complaining and movement of the underside of the centre section on the fuselage ply deck. Pat Beatty, my test pilot/inspector from the local authority, specified my red line for smooth air at 170 Km/hr. With our strong conditions here I regularly fly at 145 Km/hr.

As far as rough ground handling is concerned I really think you have to ground loop or something equally rough to get the tail damage recounted by Hank Thor. I removed the tail skid some time ago and replaced it with a narrow steel tipped rubber skid as I expect one ground loop would take the skid off the keel if it caught on a grass tuft or rock. To get the rubber skid soft enough I drilled holes right through it. The rubber is just epoxy glued to the keel (after acid etching the rubber), the steel tip likewise but also held with c/s self-tapping screws.

My polyurethane paint finish (no glass cloth) is standing up well after 18 months of flying (always hangared). The only problem is if the plywood is flexed during ground handling the paint cracks as it is now very hard. I have been told to use only 50% catalyst next time to get a more flexible finish. Flying-wise the Duster is excellent for such a small ship. Its only the modern glass ships with reasonable pilots that give any real competition. If you don't mind thermalling real tight and overtaking on the inside you can outclimb most other ships. I think the canopy seal is important to keep the low speed buffet down as low a speed as possible for tight thermalling.

The only real disappointment with the Duster is its air brakes. Its O.K. if you always set your circuit up properly or the field is big. The other day I decided not to notice a tail wind and had to slip as well to get in- this doubles the sink rate at approach speeds. Its interesting to note that my Duster stalls at about 60 Km/hr. brakes out or in! It just wallows a bit with the brakes out. However its nice to be able to pop the brakes at say 140 Km/hr. just underneath cloud base to avoid getting into the mist.

I've flown my Duster in only one contest so far (my first ever). I came 6th on scratch and 5th on handicap out of about 15 others. The Duster beat a few K6's and a Zugvogel. The sharp K6 pilots had an edge on me though. I'll be more practiced next year! I tried one 300 Km this Christmas. It turned out rather a weak day and only made 280 Km after 6 hours. When the crops are lower early next summer I am trying again.

I have just come back from an exciting club outing to the Drakensburg Mountains. We flew from a strip about 1200 M. high and used adiabatic lift to get to the top of the escarpment which rises to about 3000 M. over about 1 Km or so. We were aero towed right up against the sunny cliff faces and were told to fly within a couple of wingspans from the rocks. It was very exciting to say the least! On aero tow I kept asking the tug pilot if it was time to release yet. We just seemed to be flying up to the face as if we intended to go through it. The air was very rough-sometimes I had 5 M/s up and then 5 M/s down all in a few seconds. One needed 100 Km/hr to provide for enough speed to swing in and out of the undulating cliff face. The relative movement vertically against the face was fascinating. Most of the ships went hopping for wave but I have not got oxygen so it did not bother me.

I have sent you some negatives showing my trailer arrangement. (See pictures on page 10.) The trailer has really given me headaches. The present arrangement has evolved rather than being designed first time off. Today I discovered that merely pop riveting aluminum sheat underneath does not work- it works loose even with 60 mm rivet centers. I might take it off and epoxy and rivet it. The unloaded weight of the trailer is about 350 Kg. It is a bit flexible' but the glider is mounted to accommodate this- a very important point I think. My wife and I can de-rig the glider, load and be on our way within 20 minutes. I have taken more detailed pictures of this trailer and can give an outline drawing. One very bad mistake I made earlier was to tie the wings flat on the trailer. This resulted in paint cracks on the wing bottom at every place it rested. I don't know whether I shall eventually enclose my trailer- at this stage I am concerned about the extra expense and windage resulting.

Another thing you might be interested in is my electric variometer design. It's a dual range dual damping unit with audio. The threshold is adjustable and can be muted below threshold. The most expensive part is the meter. If you like I can send you a circuit diagram and a brief discription. I think the circuit is quite reproducable and seems reliable after one year's use.

I am now going to attack my Duster's tail. I am considering building a streamlined rudder joint. I am not going to remove as much fuselage plywood as Hank suggested as it might be difficult to do properly & get as strong a joint as before. I am also investigating leaving the hatch more or less where mine is now and splicing the fin leading edge extension spar almost vertically (only if I can get enough glue strength at the leading edge of course) Since the streamlined rudder joint needs hinge points further back, I also have to cut small holes in the fin to get at the hinges.

Finally, if you get to know of any other people interested in Dusters in South Africa please get them to contact me as well. The Duster in Rustenburg is progressing well. His wings are half way now & the rest is almost complete.

Peter How  
Transvaal  
South Africa

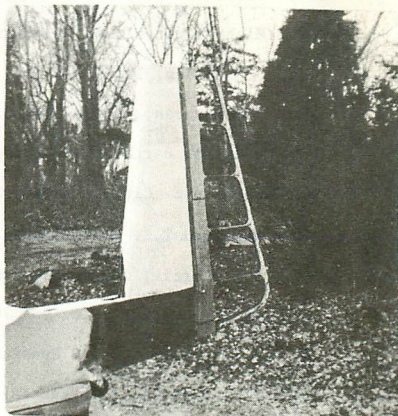
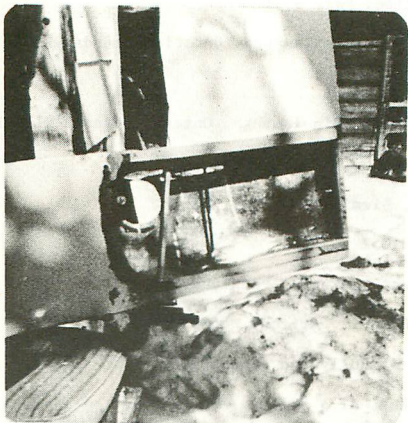
## SAVE YOUR OLD RUDDERS

I was ready to throw my rudder away and build the new balanced one; but after talking to Rod Gage of DSK Aircraft he was explaining that one can use the existing one, cut out the skin and reinforce and build up a similar box spar. He hopes to have a small kit out soon with all the necessary materials.

Work on my Duster #287 came to a 3-month standstill because of extra activities to generate money to buy goodies. Hopefully work will resume soon. Also for the first time DSK keeps me waiting for the balance of the buy-as-you-build kits.

John Bandorf  
Winnipeg, Canada

Letters continued on Page 9



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## INSPECT YOUR PLYWOOD

Number 341 is progressing nicely and on my planned two year construction schedule.

The last piece of skin just went on the forward belly and the fuselage should be out of the jig within a week or so.

HOWEVER, while trying to inspect the inner aspects of the glue joints with a drop light, at night, I noticed linear areas of the fuselage skin where light is transmitted through. This technique, known as trans-illumination is often used in medicine to see if a small skin lesion or tumor is solid or fluid filled. Obviously, what I have discovered are gaps in the inner ply of the  $\frac{1}{8}$  inch Douglas Fir fuselage skins purchased from D.S.K. The areas discovered, so far, are in a low stress region. The fact remains that these areas which appear to be  $\frac{1}{8}$  inch wide or so run the width of the inner ply strip and could be disastrous if located in an area of high stress around the main frames or in the aft fuselage.

I recommend that other builders inspect all plywood skins using a light source and if gaps appear proper re-reinforcement should be applied over the full length of the defect.

Where the inner ply defect occurs, not only are all of the skin stresses carried by just two thin face sheets, but the sudden change in effective area causes stress concentration factors. Hence, local skin failures could occur at normal low "G" flight loads. It is not inconceivable that these gaps in the inner ply could be associated with some of the tail flutter problems.

I urge all builders to use a simple 75 watt bulb in a dark shop and view all skins for the trans-illumination defects described in this letter. (The author of this letter holds both a B.S. and an M.S. in Aerospace engineering with 12 years of industrial experience.)

John V. Duncan, M.D.  
Spartanburg, SC.

FIGHTING THE WINTER BLUES  
WITH A TAIL MOD

The weather is lousy, business is worse, and I feel like dropping you a line.

I have just about completed the fore fin spar mod on 12DQ. It is not particularly involved, but it took several weeks because of terrible gluing temperatures since I'm working in an unheated hangar, and must use a heat lamp to get a high enough temperature. I have to glue each item singly.

After cutting in, I established that there had been no failure, but that tail area is really flimsy as originally designed. It used to shock me watching it vibrating as the skid bounced across a rough area of the field. It's a good and NECESSARY mod. The addition of the  $1\frac{1}{2}$  X  $\frac{3}{8}$  strut and the doughnuts, and vertical gussets has completely eliminated all "working" of the fore area of the fin-- and that's even before I put the side panel back on. I am NOT going to modify the rudder-- this year anyway. I'll cut the redline to 100 knots and let it go at that.

If you're concerned about additional tail weight for the mod, (as I was) I weighed each component before installing, and the total addition including the one ounce of glue is  $6\frac{1}{2}$  oz. which is something we can all live with.

If you're planning on doing this, be sure to find some  $\frac{1}{8}$  Douglas Fir plywood before you start cutting. It's almost impossible to locate the original  $\frac{1}{8}$ -plus dimension. The closest I could come was 3-ply marine D. F. that was a full  $\frac{3}{16}$  inch in thickness necessitating careful sanding to achieve the thickness of the original skin. DSK didn't have any. What I got was from Aircraft Spruce and Specialty-- that was the oversize. For a while, I thought I was going to have to use the undersize  $\frac{1}{8}$  mahogany.

Am looking forward to seeing what The Dust Rag has to say about flimsy fins, and a new crop of white-knuckled Duster pilots who can't afford chutes.

Dave Mattis  
Wheeling, WV.

## MORE ON TRAILERS

I received your letter today and will endeavor to answer right now as I am great at putting things off. I recently sent the only set of plans I had to J. E. Bomball. You have my permission to get copies from him and use them as you see fit as long as no profit is realized from same. Bill is a good fellow and I'm sure he will accommodate you. Tell him it was my idea. I have been trying to get John Sinclair to draw them up for publication but neither of us has time. The plans Bomball has are complete but should be re-drawn for mag.

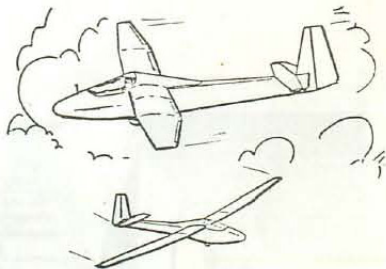
There is a more elaborate trailer out here. The boys that built it are using my dimensions but made a much nicer trailer. Trailer manufacture is their business and it's sharp. But I think it would be a little too much for the average builder. I will take some photos shortly and send them to you. Time is short right now as the Regionals are next week and the Nationals soon after. I crew for Jim Indrebo and we have been swamped for time getting his Libelle ready. I just finished the mod on my bird's

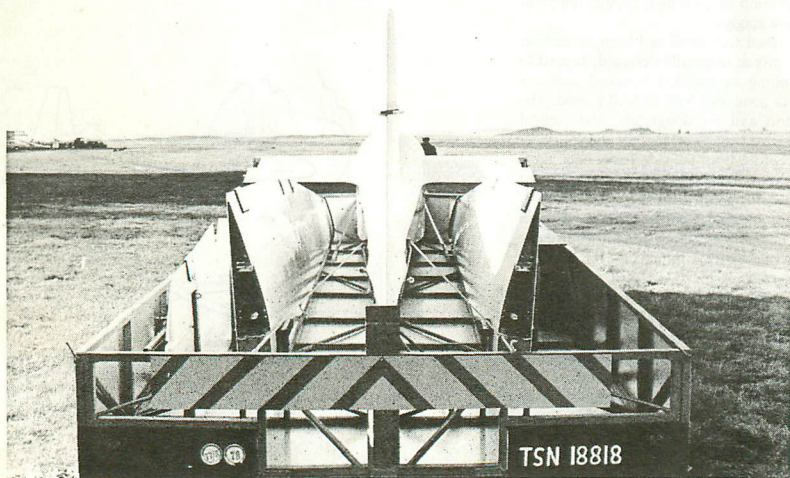
tail end. I have never had flutter or any other adverse flight characteristics with mine. But I'm convinced this modification is necessary. When you get the plans if anything is not clear don't hesitate to write.

Bob Wakerly  
Napa, CA

## COVER PHOTO

The trailer can wait until next year. Right now I've got to get that tail modification done. Here is No. 57 backed in across the porch and into the dining room again. Entry was accomplished by removing the bottom half of a Dutch door and filling in around the fuselage with foam blocks and old blankets.





Peter How  
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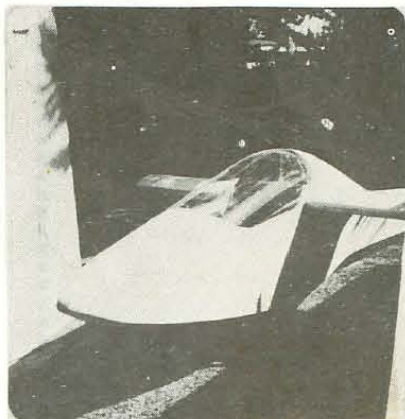
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