

APRIL 1981

THE

Starduster

APRIL 1981

MAGAZINE

DEDICATED TO THE ACTIVE HOMEBUILDER



PAGE 1



Nine years to the day after my wife and I bought STOLP STARDUSTER CORPORATION from Lou Stolp, we sold it to our good friend and general Foreman, Bill Clouse.

This is my last editorial I shall write for STARDUSTER MAGAZINE. Bill Clouse will be managing editor from now on. I may contribute from time to time, but that is all. I will be a part time contributor.

Bill is very well qualified to run STOLP STARDUSTER CORPORATION. He has been with the company 7 years. He has been general foreman for 5 years. He knows all the problems involved in building our airplanes, and, most important, he knows the solutions. He has many ideas for improving service to our customers. I am confident that STARDUSTER will grow and prosper and go on to better things.

The past nine years have, in many ways, been the high point of my life. I have gotten to know more people than I have ever known before, and I believe a sizeable percentage are my friends. I feel honored when I think of the fine qualities of the airplane people I know and realize that I have been fortunate enough to have been befriended by these people. More than anything else, I will now miss the day to day contact with airplane people.

My wife, Hanako will continue with STARDUSTER as bookkeeper for a period of one year. I will remain a member of the board of directors for two years. If you want to get in touch with me, call her at Stolp Starduster Corp., or write me at 5755 Rio Road, Rubidoux, Ca., 92509. I will be delighted to hear from you.

I intend to use my time now in designing improvements to the STARDUSTER product line, and possibly, in designing a new airplane. Any thing I come up with in the homebuilder field will be available thru STARDUSTER. Keep current on the latest states of the art by continuing to subscribe to STARDUSTER MAGAZINE. All design improvements and changes will be announced first here.

In addition, I plan on building two Fokker D-V11's, which, in my opinion, were the greatest airplanes to come out of WW1. One will be for sale. If you are interested, keep in touch.

Goodbye, for now. And Happy Landings.

Jim Osborne

APRIL 1981

THE STARDUSTER MAGAZINE IS DEDICATED TO THE PROPOSITION THAT THE ULTIMATE IN SPORT AIRCRAFT WAS REACHED WITH THE DESIGN AND DEVELOPMENT OF THE OPEN COCKPIT, TAIL DRAGGING BIPLANE----AND THAT EVERYTHING ELSE HAS BEEN DOWN HILL-----EVER SINCE.

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ON OUR COVER IS THE LATEST ACRODUSTER ONE TO BE COMPLETED. OWNED BY JIM HAYES (AN EXPERIENCED STARDUSTER TOO BUILDER), AL GREFFENIUS, AND D. GREEN, OF URBANDALE, IOWA. A FINE LOOKING NEW AIRPLANE.

ON OUR BACK COVER IS A PICTURE OF THE COMPLETELY RESTORED JENNY, BASED AT FLABOB AIRPORT. THIS AIRPLANE WAS BASED AT MARCH FIELD, RIVERSIDE, CALIFORNIA, IN 1917, AND IS 90 PER CENT ORIGINAL. NOT A REPLICA. PICTURE WAS TAKEN BY CLOUD NINE PHOTOGRAPHY, AND IS USED WITH THE PERMISSION OF THE PHOTOGRAPHER, PETER MANCUS. A MIGHTY FINE AIRPLANE AND A MIGHTY FINE PICTURE.

Don't forget our inflation fighting policies-- 10 % off on tubing short lengths to walkin customers who wait on themselves, and small amounts of scrap tubing for welding practice given free with each substantial order. ask for it.

ANALYSIS OF A NEAR MISS

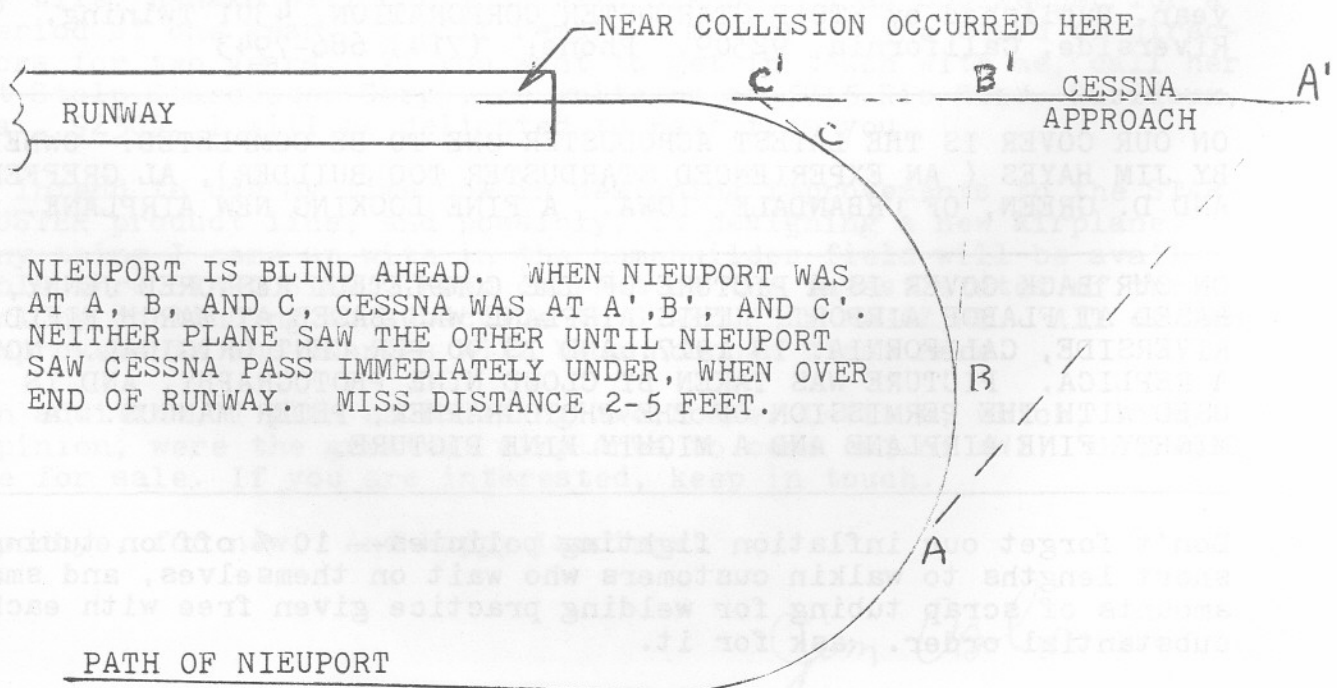
by jim osborne

Most of us have had the chilling experience of suddenly finding our selves much nearer a plane in flight than we would like to be. This experience is usually completely unexpected, and rather nerve shaking.

These incidents usually happen in a crowded traffic area, mostly around an airport. In such areas it behooves us to fly in such a manner that a near miss (or mid air collision) cannot happen.

A few weeks ago, a rather dumb pilot who shall be nameless, (but who flies a Nieuport 28), entered the downwind leg of the Flabob traffic pattern behind a Cessna 170. The 170 made the standard 90 degree turn to base and then another 90 degree turn to final. The D.P. in the Nieuport liked to make 180 degree fighter type approaches, so he tilted the wings up in a 30 degree bank and held it until he had completed 180 degrees of turn and was flared out over the end of the runway. Because the D.P.'s hangar was at the far end of the field he was landing long, and was therefore high. About 30 feet high over the end of the runway D.P. was looking over the side of the Nieuport at the edge of the runway, when a white cessna flew under him, clearing his wheels by 3-6 feet. D.P., full of shock and outrage, opened the throttle and flew down the runway beside the Cessna, which was painted a chalky white. As the cessna turned off the runway, the Nieuport pulled up, made a carefull circuit and landed.

In talking to the cessna pilot, D.P. learned that the cessna driver had never seen the Nieuport, either during landing, rollout (when the Nieuport was off the wingtip, or during taxiing. The cessna pilot was an old man, retired military, with over 30,000 hours. He had been making a long straight in approach behind the cessna that D.P. had been following in a tight landing pattern. The 180 degree turn of the Nieuport had apparently exactly tracked the motion of the cessna so that it was constantly dead ahead and in the Nieuports blind spot. See sketch below.



Last summer a jovial and friendly biplane pilot called Ed Carrol was killed in a mid air collision with a Cessna at Rialto, California. Ed jokingly claimed to be the "WORLD'S GREATEST FIGHTER PILOT", and his favorite landing pattern was the overhead 360 degree approach. He claimed it was the safest approach, since you could see where you were going all the way down. He was flying a skybolt in a 180 degree variation of his favorite landing pattern, and he almost exactly duplicated the setup with the Nieuport and Cessna. Except that Ed was involved in a collision instead of a near miss, and two people died.

In a near miss or collision there is usually enough blame to go around. I do not mean to imply that it is all one sided. The cessna pilot involved with the Nieuport was an old man who was following his landing path and was looking nowhere but straight ahead. He had on a cap with a bill that shaded his eyes and he didn't bother to tilt his head and look up. He didn't look out the side at any time, either. But it takes too to tango, so we should fly so that we can pick up any errant pilot, regardless of whether or not the other pilot sees us. Its called defensive driving, and applies to driving airplanes as well as driving cars.

I think the moral of the above two stories is that steady turns or steady straight and level flight both are dangerous when flying an airplane that is blind ahead. In order to be safe we need to S turn in flight and landing pattern turns should be restricted to no more than 90 degrees. If the D.P. in the Nieuport had made two 90's in place of the one 180, the Cessna would have run out from behind the nose blind spot.

In another incident, which happened to a friend of mine, pilot one fell in the landing pattern behind pilot two. Pilot two announced his presence and position and called his turns to Flabob Traffic over Flabob Unicom. Pilot one did likewise. Pilot one followed pilot two at a safe interval and was all set to land when a third airplane flew out from under his wheels, perhaps twenty feet lower. Pilot one had never seen the third airplane and has no idea where it came from. He assumed that he was next to land behind pilot two, and received extra comfort from the fact that they were both using radio to call out their positions. But the third pilot was not using radio, was not hearing them, and was on his own final approach and was pretty careless about looking around. Pilot one not only had a near miss but greatly upset his wife, who was riding right seat. I don't know yet whether or not he has convinced her that flying really is safe.

Some of the biggest offenders in this matter of dangerous flying are high time pilots with instrument ratings. They are too concerned

with what is going on in the cockpit. They are used to relying on ATC and tower controllers, and somehow it doesn't seem to occur to them to take a good look around when they are landing or taking off. For people like that us VFR biplane types have to be extra vigilant and extra careful.

STARDUSTER TOO FLY-IN

DATE: Saturday, July 4, Sunday, July 5, 1981

Place: Bar-G Ranch, 6 miles north of Lawrence, Kansas

Contact: Gene Burnett, 2022 Kasold, Lawrence, Kansas, 66044
phones: (913) Gene-843-6555, Dave-841-5445, Ranch-843-1923

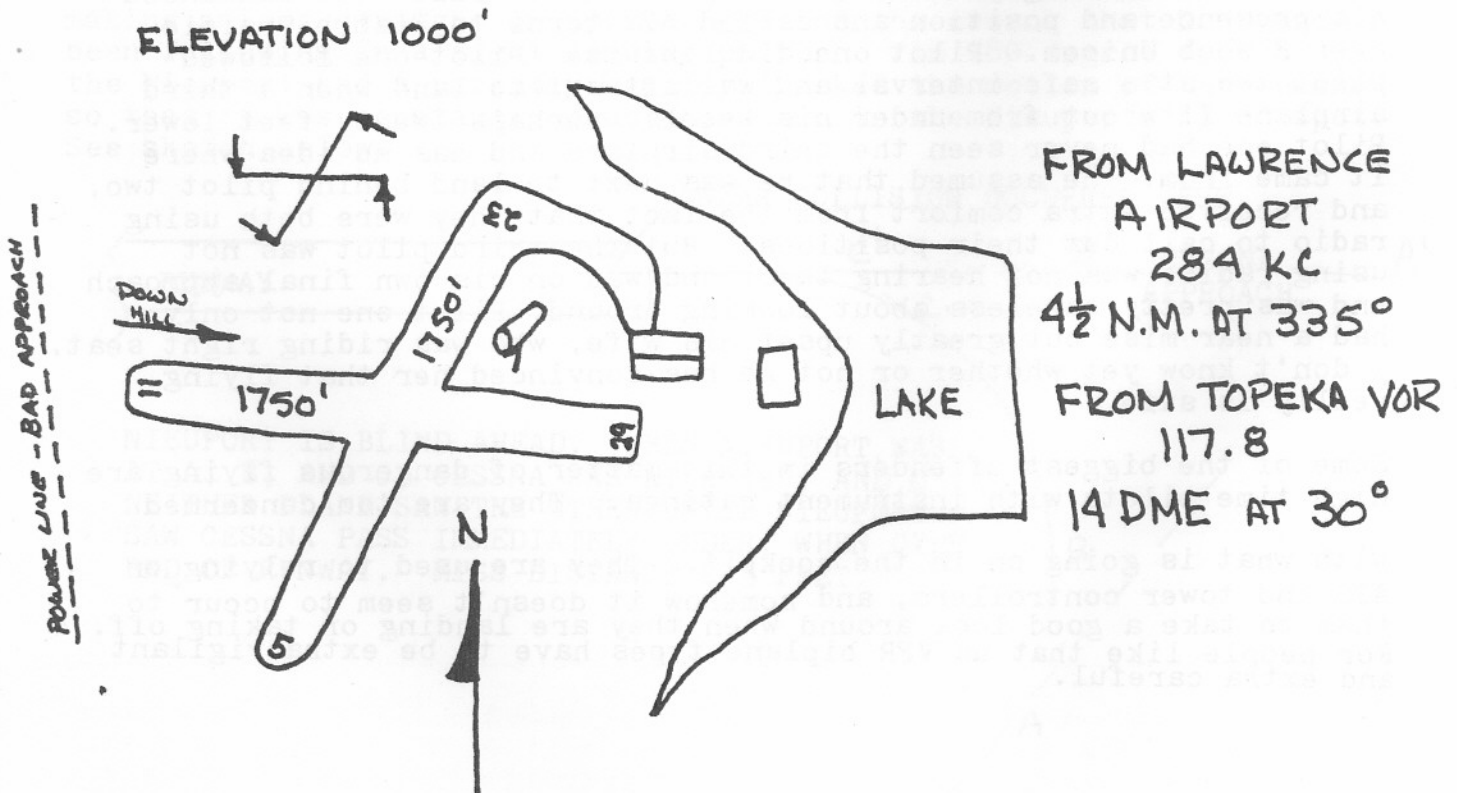
Housing: Camping at ranch (bring your own tiedowns)
Ramada Inn, 2222 W. 6th, 842-7030 S-32.00 D-39.00
Hallmark Inn 730 Iowa 841-6500 S-24.00 D-28.00
Travelodge 801 Iowa 842-5100 S-24.00 D-28.00
(transportation furnished to town)

Fuel: Lawrence Muni - Topeka Billard

Events: Bar-B-Que Buffalo Saturday Nite } With Reservations Only
Ranch Breakfast Sunday Morning }
Formation Fly-over Kansas City Sunday Morning
Volunteer Acrobatics - whenever and whenever

Field Information:

Bar-G has two grass strips with undulating contours.
Approaches are described below. Be careful and suggest
initial low pass to look it over. We land our Bonanza here.
Land at your own risk. Not responsible for accidents.



ATTENTION

HOME BUILDERS! THE FIRST MONTHLY

AVIATION SWAP MEET

JUNE 6TH 1981

AT

STOLP STARDUSTER, ^{CDR.} FLABOB AIRPORT

8:00 Am To 2:00 P.m.

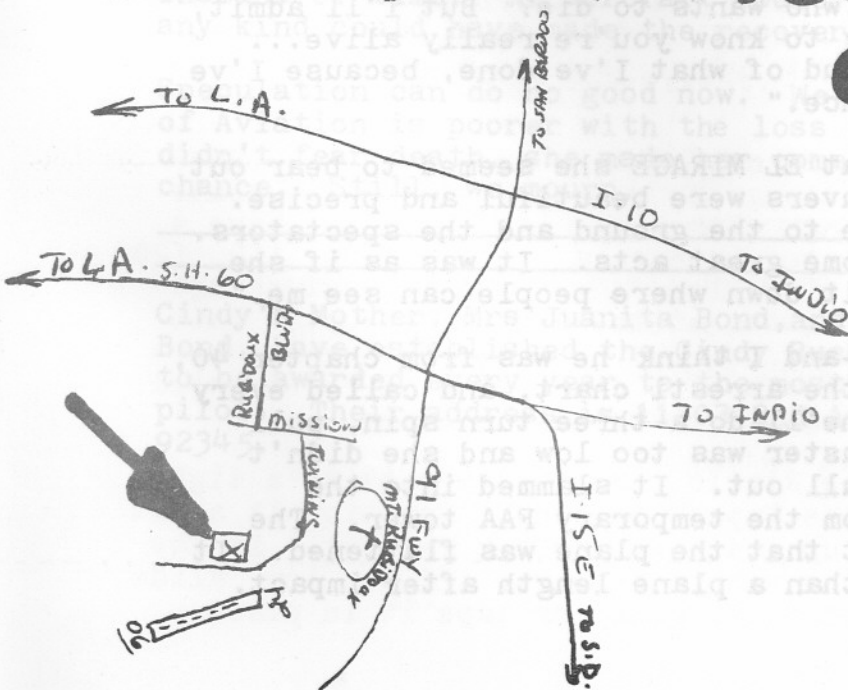
CALL:

686-7943

FOR MORE INFO...

4301 Twining FLABOB AIRPORT RIVERSIDE, CAL.

92509



CINDY RUCKER DIES IN AIRSHOW CRASH

It is with deep personal grief that I report the Death of Cindy Rucker, well known airline pilot, aerobatic competitor, and recent airshow pilot. Below is a description of the accident which appeared in the EAA Chapter 7 Newsletter, written by Ray Gordon.

FINAL CURTAIN, CINDY RUCKER

Dick Van Grundsvan demonstrated his outstanding new all-metal two place RV-4, following performances of great acts such as John Helton, Joanne Nottke, Frank Sanders, Mark Sorrel in the "Hyperbipe", and Bob Nottke in the T-6. They were hard acts to follow... some with massive power and noise. But Dick did a very effective demonstration of his latest design. His final maneuver was an intentional deadstick landing. It looked easy and soft.

Immediately afterward Cindy Rucker took off fast and low in her Acroduster. After she'd picked up speed she did a hammerhead over the end of the strip, showing the spectators lining the runway the distinctive paint design in orange and yellow; an illusory copy of a butterfly. It was the same design she had painted on another Acroduster...the plane Manx Kelly lost his life in at the Corona Fly-n in 1976. Certainly it showed off one of her many talents, that of a commercial artist.

For she worked in the creative graphics department of the L.A. TIMES from 1970 to '73. She had also toured with a folk-rock group as a singer and guitarist after she graduated from UCLA. But when she discovered flying, other interests dulled...she was hooked on flying and aerobatics. In 1977 she was hired by Western Airlines, their sixth woman pilot. She flew second officer in 737's and later in 727's.

Once, in an interview about aerobatics, she said, "Fear doesn't enter into it for any of us....who wants to die? But I'll admit, for me, facing death is the way to know you're really alive... If I die next week, I'll be proud of what I've done, because I've made a commitment, taken a chance."

Certainly in her act April 26 at EL MIRAGE she seemed to bear out her statement above. Her maneuvers were beautiful and precise. She was, at times, rather close to the ground and the spectators. After all, she was following some great acts. It was as if she was thinking, "I've gotta get it down where people can see me."

The announcer, whoever he was--and I think he was from chapter 40, did a great job. He followed the arresti chart, and called every maneuver Cindy did..."and now she'll do a three turn spin, pull out..." at that time the Acroduster was too low and she didn't have enough forward speed to pull out. It slammed into the ground less than fifty feet from the temporary FAA tower. The vertical component was so great that the plane was flattened. It didn't move forward much more than a plane length after impact.

"Stay back people...roll the fire trucks...any medical people report to the announcers stand." I turned around to see a lady with tears in her eyes cross herself...she was standing with a man who wore an EAA cap.

Finally the announcement, "Cindy is alive and she is still in the plane." We could see that there was no fire. And we hoped for the best and prayed. We could just see the top wing of the Acroduster, but were completely unable to see what was going on. At this time the medical or fire department personnel were doing CPR on the unconscious Cindy. There was still hope.

A chopper came for the evacuation. She was carefully removed from the Duster and placed aboard the litter for the ride to the Hospital. But, enroute, Cindy died. The airshow terminated.

Pathetically, Cindy's Mother and Stepfather were present and witnessed the tragic events. Friends trooped sadly by them to offer what help and comfort they could.

Why did it happen? The evident cause was entering a spin at too low an altitude. Probably the official records will read "Pilot error." But that is almost too pat. And it doesn't explain "why"? Could it be related to Cindy's wanting to put on the best show possible?...probably. Density altitude?...perhaps. It's 2500' higher than Flabob. We were watching planes take off about a half hour after the accident. Bill Turner pointed to a Cessna 180 passing roughly where Cindy went down. "I've watched several planes about there. Each sinks a little from a down draft right at that point."

The FAA said during the show that winds were gusting between 10 and 20 knots. During Cindy's performance the winds diminished just a little. At the time of the accident they were 18 knots at 270 degrees. Perhaps winds and downdrafts contributed...some, but probably not very much. The plane performed beautifully. It just couldn't possibly do what it was asked to do at the last instant of time. No aircraft could, not a P-51, not a Pitts, not any kind could have made the recovery.

Speculation can do no good now. We can only say that the world of Aviation is poorer with the loss of a beautiful person. She didn't fear death, she made her commitment, and she took her chance. Still, we mourn.

Cindy's Mother, Mrs Juanita Bond, and her stepfather, Mr. Robert Bond, have established the Cindy Rucker perpetual Memorial Trophy, to be awarded every year to the most promising female aerobatic pilot. Their address is 11303 2nd Ave, Hesperia, California, 92345.

After the black wrinkle enamel is sprayed on your two panels, lay them out in a flat position, and apply heat. Heat lamps are a good source, or you can use an electric heat gun, and spend a half an hour or so waving waving it around in close proximity to the drying panels. You should wind up with an attractive wrinkle finish.

Installing the panels and instruments is a straightforward matter of screws and nuts, and twisting a screwdriver. Then comes the hookups.

Make the largest and most inelastic hookups first. Probably number one is the Recording tachometer, on the extreme right hand side. Run your drive cable to it and install. Support the cable as required with small tyraps. Then your air driven instruments should be hooked up. If you have air driven gyros, hook these up. The large tubing and filter will take up quite a bit of room. If they are to be quickly removeable, extra line will have to be provided and allowed for when installed. Next the airspeed, altimeter, and rate-of-climb instruments, both cockpits. I recommend plastic line of 1/4" diameter, and nyloseal tube fittings. Don't forget to install the 259-N insert in the ends of the plastic tubing to keep it airtight when installing tubing in fittings.

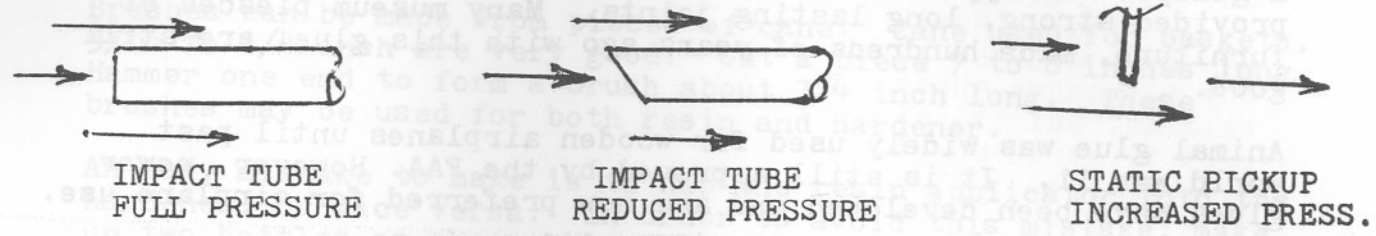
For a static air pickup, the lightest, cheapest, and easiest to use is the static air pickup available from stolp starduster corporation. It rivets to metal skin, and provides a good source of static pressure when properly installed. If installed on the sides of the fuselage where the sides are straight, you will likely get too little static pressure, with the results of having a high reading airspeed indicator and altimeter. It should be placed where the fuselage is getting bigger, or providing a positive slope. Behind the gas tank and in front of the front windshield is a good place.

Electrical connections should be made last. Don't forget that your airplane has a negative ground. Make your electrical hookups accordingly. Use plenty of tyraps to route and restrain your wiring. Also use color coded wire, so that future trouble shooting will be comparatively easy.

After you start flying, you should calibrate your airspeeds. The easiest way is probably to fly alongside a friends IFR rated plane and compare your airspeed readings with his. If you do not have a radio, take readings at prearranged intervals, such as 100, 110, 120, etc. If your airspeeds are reading high, there are several things you can do. One is alter the position of the static pickup so that it will give a higher static pressure. Or, put an obstruction such as a rivet head immediately in front of the air opening. This will cause air to pile up and give a greater static pressure.

If you don't want to work on the static pickup, try putting a tight fitting rubber grommet around the Impact opening. Position it about 1/4" behind the opening and go up and take another reading. If the second reading is high, slide the washer forward, If too low, slide it back. Once the reading is correct, glue, or tape it in place.

Another approach with the impact tube is to trim the opening so it makes an angle with the slipstream. A 90 degree opening will give you true impact pressure. A parallel opening will give you approximate static pressure. So, to reduce impact pressure, have the opening something less than 90 degrees. See below.



One problem with both the rubber grommet, and the biased cut impact opening is that, while they will enable you to correct any airspeed error, they don't do a thing for any altimeter error that may be caused by a low pressure static pickup. A low static pressure will make your altimeter read higher than it should. This is generally not a serious error for VFR pilots and airplanes, but is something to consider. It can also create a small error in your rate of climb. To get all your air pressure instruments reading correctly would require you to get proper impact pressure and then experiment with the static pressure pickup until the airspeed reads correctly. If you have good instruments, then the altimeter and rate-of-climb should also read correctly.

But for a quick and easy airspeed correction, the grommet around the impact tube or cutting the tube on a bias work fine.

SAFETY FIRST

Recently I climbed into my Acroduster, went thru the prestart procedure, hollered "CLEAR", and hit the starter. I was fortunate in having a highly qualified observer who pointed out my error after the flight.

The reason for hollering "CLEAR" before turning the blades is to give anyone underneath or close by time to get a safe distance away. By immediately punching the startswitch after the warning shout, I negated the warning. Anyone in danger would not have had time to get clear. This gentlemen, with over 30,000 hours, says he always counts to five after shouting clear and before starting the engine. Makes a lot of sense, when you think about it.

Jim Osborne

USING AEROLITE GLUE by jim osborne

In ages past, the preferred wood glue was animal glue, obtained by boiling the bones and hides of animals. Properly heated in a gluepot and applied with a brush this glue, when kept dry provided strong, long lasting joints. Many museum pieces of furniture, made hundreds of years ago with this glue, are still good.

Animal glue was widely used for wooden airplanes until past world war 11. It is still approved by the FAA. However, newer glues have been developed and are now preferred for airplane use.

One of these glues is Aerolite. It was developed in England about 40 years ago, and was used to make the famous Mosquito bomber. It has some advantages in that it is a two part glue, and no mixing takes place until the final bonding. The two parts, kept separately have a long shelf life, and are easy to clean up. It is able to make good joints under light pressure. Clamps and other high pressure devices are usually not required.

Aerolite comes in two parts, a powder and a bottle of hardener. To prepare the resin for use, merely mix it with water. Apply the viscous liquid so formed to one side of the joint, and the liquid hardener to the other side. Join the two halves. The glue will begin to set immediately, and the setting process continues until the glue joint is completely cured. The speed of the cure depends on the temperature. At room temperature of 68 degrees it will set hard enough to allow handling in 2 hours and 15 minutes. At 86 degrees F, the same amount of cure will take 1 hour and 15 minutes. The minimum temperature for use should be 59 degrees F. To attain full strength and water resistance requires several days

Any sort of alkaline impurity will weaken the glue. Therefore, do not use any plaster based fillers, or any chalky substance.

The hardener is a liquid acid. It is not a strong acid, but it is harmful to the skin, and skin contact is not advisable. If hardener inadvertently gets on the skin, wipe it off and rinse or flush well with water. Do not leave the hardener container open, except when actually using. If left open for a day or two the hardener will lose its effectiveness.

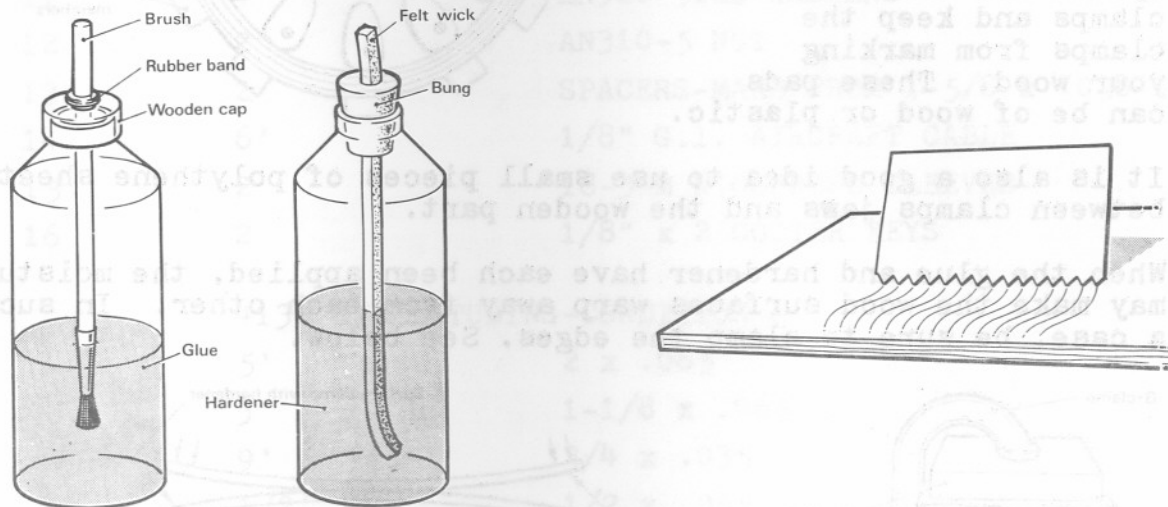
In applying glue, use enough to completely fill the joint. As mentioned earlier, light pressure only is sufficient. Heavy pressure may lock up internal stresses in the structure, and this is not desirable. Any glue in excess of that required will be squeezed out of the joint. This excess glue should be wiped off with a cloth dipped in warm water.

The wood to be glued should be clean, and free from dirt, dust, varnish and oil. Do not sand wood to be glued. The wood dust gets in the pores of the wood and makes for a weaker joint. Use a wood plane or scraper, in case it is necessary to remove wood.

When using aerolite, avoid all contact with metal. Do not put the hardener into a metal container, and do not use a brush that has any metal parts. Glass or polythene plastic containers should be used.

Brushes can be made from pieces of cane. Cane used for baskets, $\frac{3}{16}$ to $\frac{1}{4}$ inch are very good. Cut a piece 7 to 8 inches long. Hammer one end to form a brush about $\frac{3}{4}$ inch long. These brushes may be used for both resin and hardener.

An easy mistake to make is to dip the resin applicator into the hardener, or vice versa. In order to avoid this mistake, make up two bottles as shown below. Obtain the bottles from empty bleach, detergent, or toilet containers. Make a wooden cap for one of the containers, and fit it with a brush, as shown. Make a bung stopper for the other bottle, with a felt wick going thru the bung. This container will hold the hardener. The felt wick protrudes from the bung and makes a very convenient applicator.



To apply resin over a large surface area, a piece of plastic sheet with a toothed edge, as shown above on the right, is very handy. It is worth the trouble to make such a "comb" with teeth the proper depth to give a good glue spread.

In warm weather, aerolite glue sets up rapidly. After assembling a joint, therefore, it should be immobilized by light clamping, as soon as possible. At 68 degrees F., assembly time is only about 15 minutes. Therefore, know in advance how your joint is to be held together, and have all the necessary equipment ready.

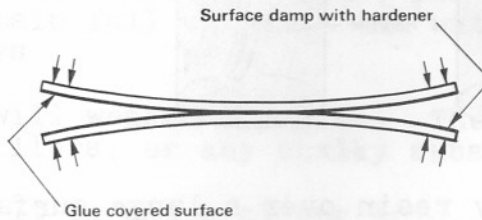
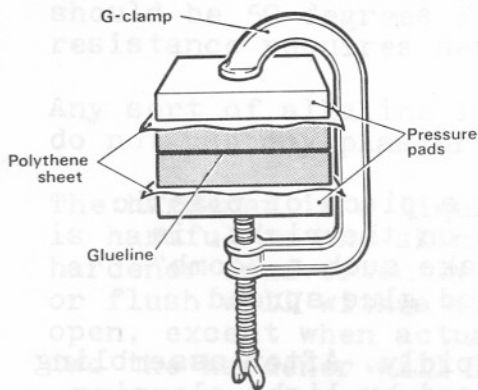
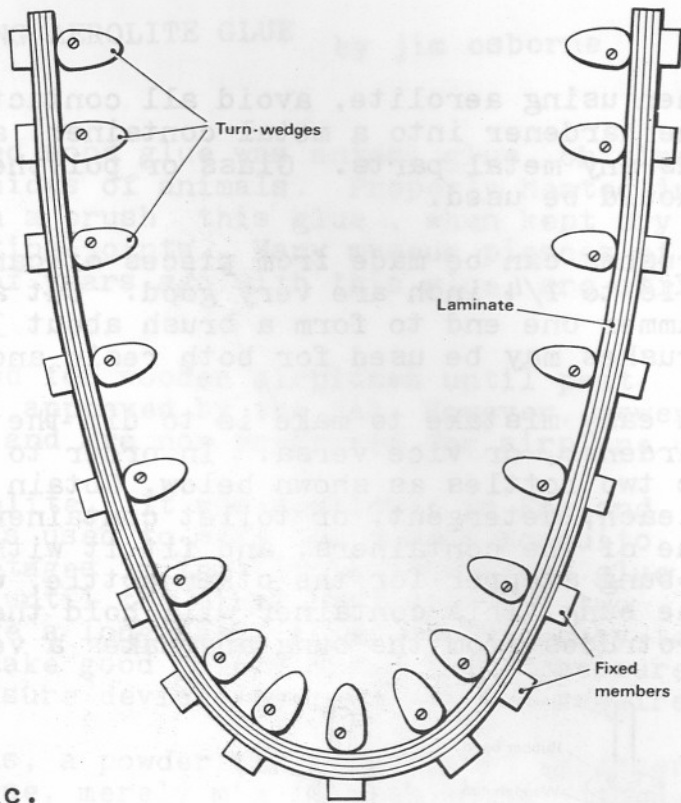
Clamping time should be doubled if the joint will be under a stress after removal of the clamps. Allow 4-1/2 hours at 68 degrees F. An example of joints under stress is the curved laminated structure shown on the next page, in the jig.

In order to keep the glue from sticking your part to the jig it is a good idea to use a polythene sheet of plastic between the part and the jig. any polythene sheet will do, but it is best to avoid sheet with printed matter on it. The printed matter is likely to come off and discolor your wood.

Always be sure and use pressure pads to spread the load of clamps and keep the clamps from marking your wood. These pads can be of wood or plastic.

It is also a good idea to use small pieces of polythene sheet between clamps jaws and the wooden part.

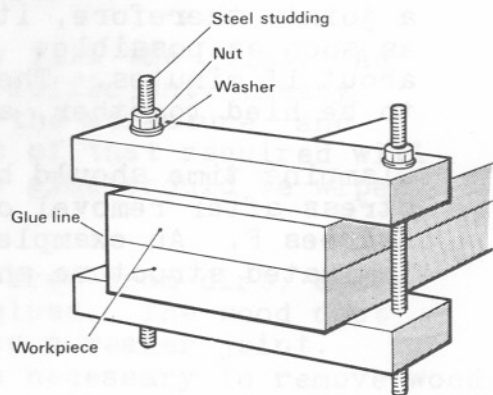
When the glue and hardener have each been applied, the moisture may make the wood surfaces warp away from each other. In such a case, be sure to clamp the edges. See below.



Moisture warped wood above

Clamp with pressure pad and polythene sheet

Easily made homemade clamp shown at right.



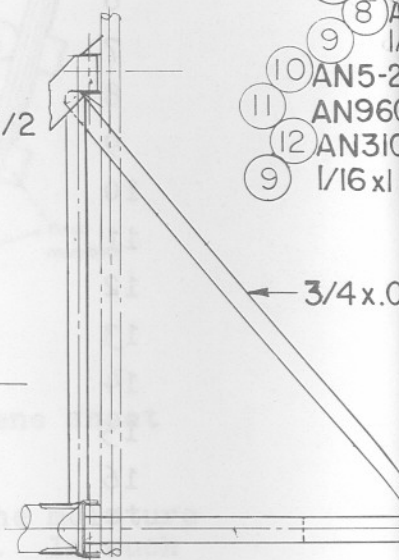
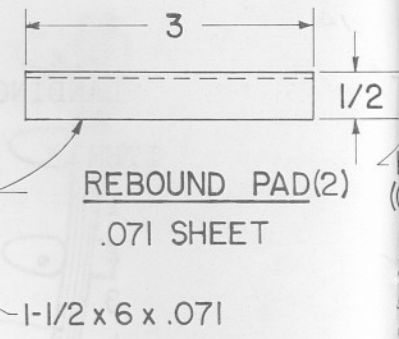
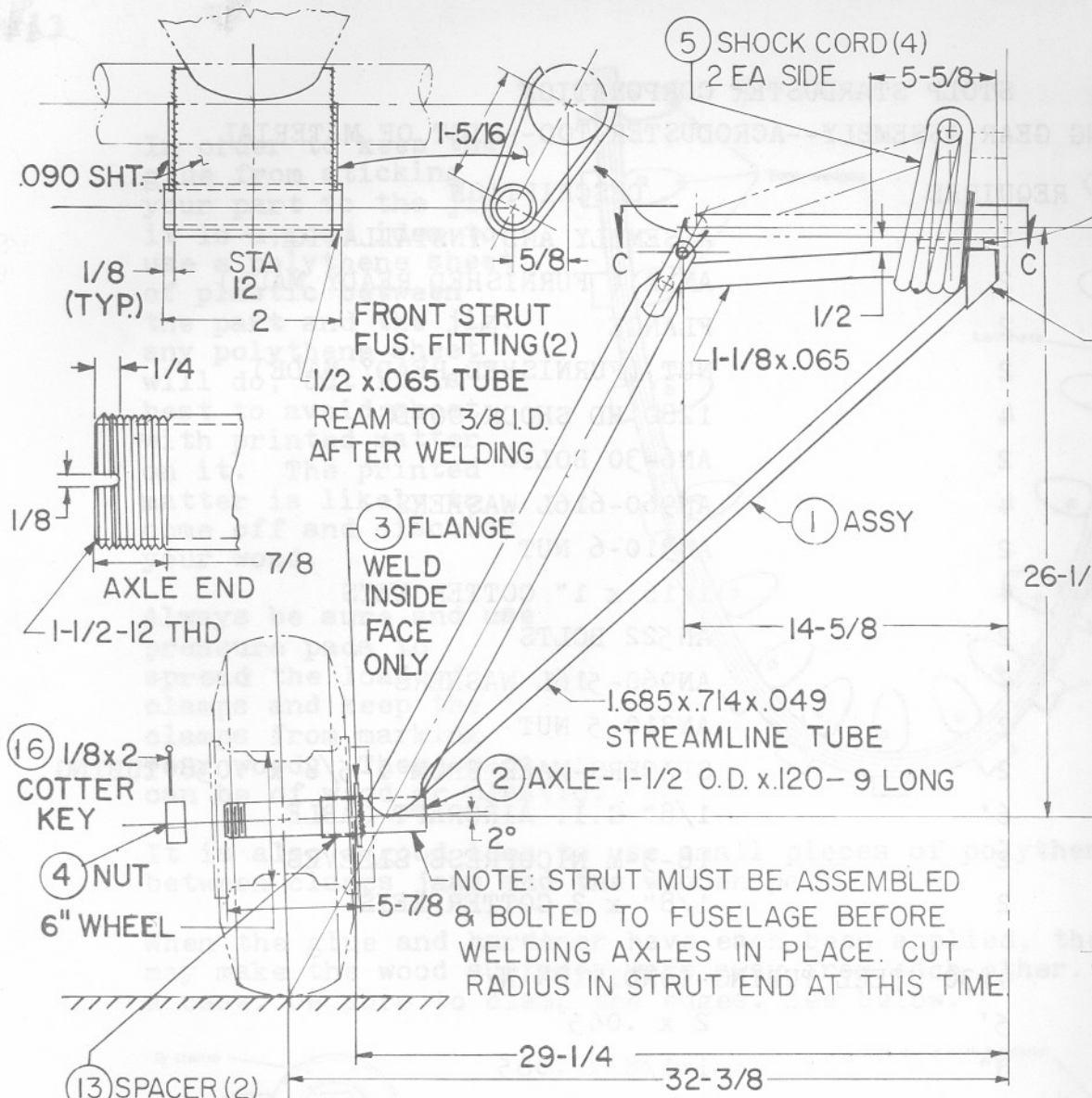
STOLP STARDUSTER CORPORATION
 LANDING GEAR ASSEMBLY--ACRODUSTER TOO--LIST OF MATERIAL

ITEM	REQUIRED	DESCRIPTION
1	1	ASSEMBLY AND INSTALLATION
2	2	AXLE (FURNISHED READY MADE)
3	2	FLANGE
4	2	NUT (FURNISHED READY MADE)
5	4	1280 HD SHOCK CORDS
6	2	AN6-30 BOLTS
7	4	AN960-616L WASHERS
8	2	AN310-6 NUT
9	4	1/16 x 1" COTTER KEYS
10	2	AN522 BOLTS
11	4	AN960-516L WASHERS
12	2	AN310-5 NUT
13	2	SPACERS-MAKE FROM 1-5/8 x .058 TUBING
14	6'	1/8" G.I. AIRCRAFT CABLE
15	2	18-3-M NICOPRESS SLEEVES
16	2	1/8" x 2 COTTER KEYS
		4130 STEEL TUBING-CONDITION N
	5'	2 x .065
	3"	1-1/8 x .065
	9"	3/4 x .035
	1/2'	1/2 x .065
	1/2'	7/16 x .065
	6-1/2'	2.360 x 1 x .125 STREAMLINE
	6-1/2'	1.685 x .714 .049 STREAMLINE
	1/2'	1-5/8 x ,058
		4130 SHEET STEEL-CONDITION N
	1	9 x 9 x .125
	1	3 x 36 x .090
	1	9 x 9 x .071

CAUTION : DO NOT HAVE THE SAFETY CABLES TOO TIGHT-ALLOW 4" OF MOVEMENT-RESTRICTED MOVEMENT WILL RESULT IN GEAR DAMAGE ON THE FIRST HARD LANDING.

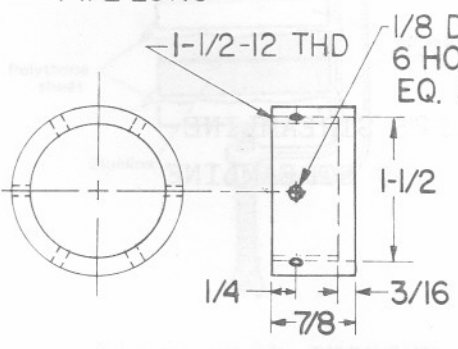
VIEW A
 REAR STRUT WELDMENT
 ALL PLATES ARE .090

SCALE 1/4"	ASSEMBLY-	
DATE 3-22-52	LANDING GEAR	
DRAWN J. G. G.	MODEL SA 750	
CHECKED J. G. G.	STOLP STARDUSTER CORPORATION	
	1201 TOWING, THUNDERBOLT ROAD	SHEET NO. 3

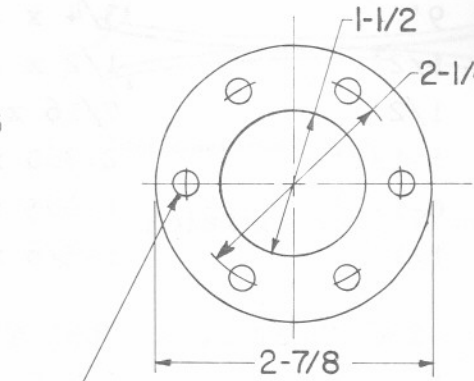


VIEW C-C

- 1- WELD THIS ON
- 2- FLATTEN WITH TORCH & HAM
- 3- WELD THESE

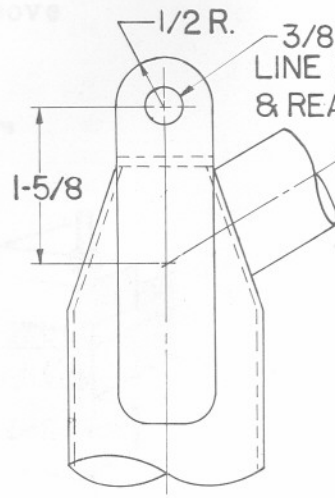


AXLE NUT (4)
- 3/4 O.D. x 3/16 W.T.



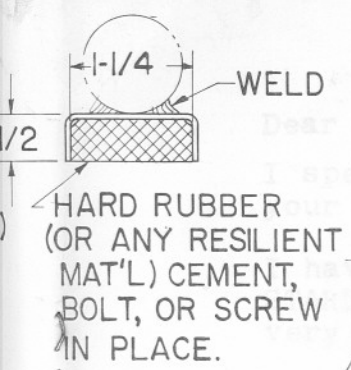
FLANGE-BRAKE BACKPLATE (3)
1/8 SHEET

1/4 DIA. - 6 HOLES EQUAL SPACING

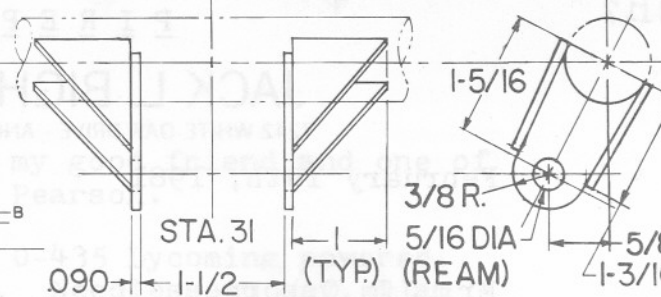
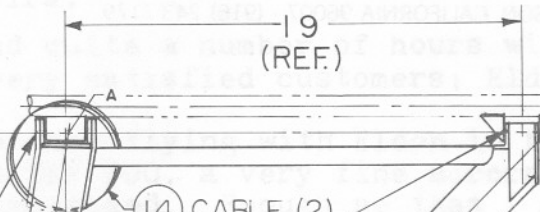


VIEW B
FRONT STRUT
ALL PLATES A

- (6) AN5-22
- (7) AN5-22
- (8) AN5-22
- (9) 1/16 x 1
- (10) AN5-22
- (11) AN960
- (12) AN310
- (9) 1/16 x 1



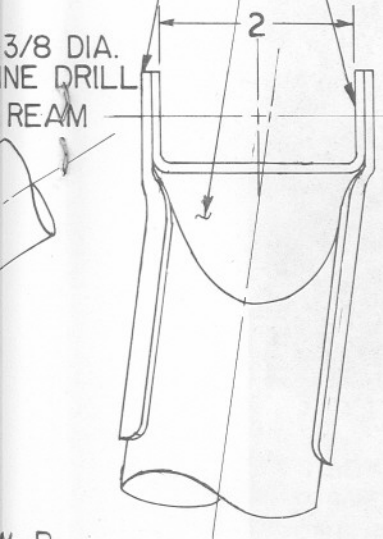
- 6 AN6-30 BOLT (2)
- 7 AN960-616L WASHER (4)
- 8 AN310-6 NUT (2)
- 9 1/16x1 COTTER KEY (2)
- 10 N5-22 BOLT (2)
- 11 AN960-516L WASHERS (4)
- 12 AN310-5 NUT (2)
- 13 1/16x1 COTTER KEY (2)



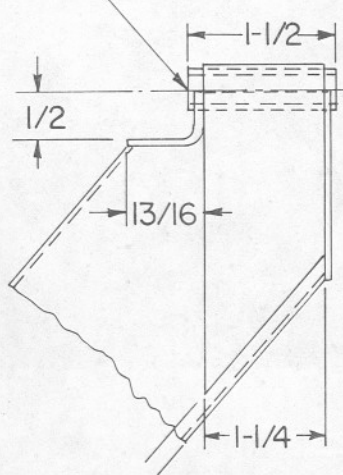
REAR STRUT FUS. FITTING
MAKE FROM .090 SHT.

4x.035

DRILL FIRST
WITH
HAMMER
EASE LAST.

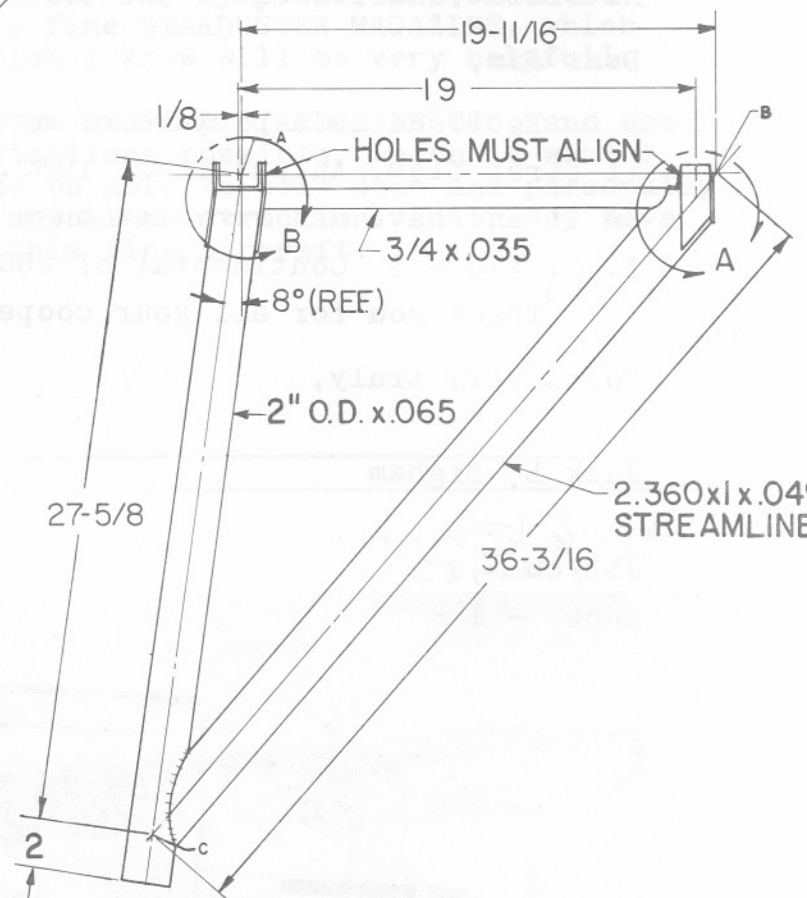


7/16-.065 TUBE
REAM TO 5/16 DIA.
MAKE 1-3/4 LONG.
FILE TO 1-1/2
AFTER WELDING



VIEW A

REAR STRUT WELDMENT
ALL PLATES ARE .090



FLAT LAYOUT-
LDG GEAR SIDE MEMBERS



3-SAFETY CABLE-3 LOOPS PER SIDE
2-SAFETY CABLE MUST BE LONG
ENOUGH TO ALLOW APPROX. 4"
MOVEMENT OF LDG GEAR.

1-ALL STEEL IS 4130, COND. N.
NOTE:

VIEW B
REAR STRUT WELDMENT
ALL PLATES ARE .090

SCALE: 1/4
DATE: 9-20-72
DRAWN: J. Cabana
STRESS: J. O.
CHECKED: J. O.

ASSEMBLY-
LANDING GEAR
MODEL SA 750
STOLP STARDUSTER CORPORATION
4301 TWINING, RIVERSIDE, CA, 92509



JACK L. BIGHAM CONSTRUCTION

7242 WHITE OAK DRIVE - ANDERSON, CALIFORNIA 96007 - (916) 243-7179

February 19th, 1981

Mr. Jim Osborne
Stolp Starduster Corporation
4301 Twining, Flabob Airport
Riverside, California 92509

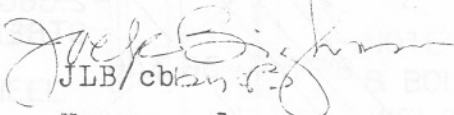
Dear Jim,

Enclosed is a picture of my Starduster II taken the day it first flew, August 12th, 1980. I have since put 50 hours on it and have had very few bugs to wrok out. I installed an I. O. 470 - L Continental of 260 h.p.

Thank you for all your cooperation and technical advice.

Yours very truly,

Jack L. Bigham


JLB/cb

Encs. - 1 -



Dear Sirs,

I spend quite a number of hours with my good friend and one of your very satisfied customers; Eldon Pearson.

I have gone flying with Eldon in his O-435 Lycoming powered STARDUSTER TOO, a very fine aircraft. Needless to say, I am very impressed. Enough so that I have decided to build one also.

Please find enclosed a money order for my plans, the brochure, and a subscription to the very fine STARDUSTER MAGAZINE, which I have really enjoyed, and which I know will be very helpfull.

I am planning on building a show quality STARDUSTER TOO, and use all the latest and best modifications possible, which is what I am sure you expect. I hope to be able to come down and personally talk with you before I begin actual construction. I already have an O-435 Lycoming engine for this fine aircraft.

Very sincerely,

Wayne Schipper
Cheney, Washington, 99004



ABOVE IS NICE SHOT OF LESTER ZEHR'S STARDUSTER TOO. THE FIRST 90 % APPEARS TO BE DONE. THIS IS THE AIRPLANE WITH THE ENGINE TURNED STAINLESS STEEL FIREWALL.

3601 Alder Glen Park
Aberdeen, Washington 98520

Dear Jim,

Finally I'm getting around to sending pictures to you of the throttle quadrant mounting procedure I used on my SA-750. I arrived at this method after seeing mounting methods that, to me, looked too "tacky", and not as sanitary as they should be.

The procedure came about also do to the fact that it seemed difficult to obtain the clearance necessary between the fuselage frame and formers. Using this method eliminates only need for space for brackets, etc, on the back of the quadrant.

The procedure is rather easy, and basically as follows:

1. Select 4 pieces of $3/8"$ x $.049$ x $12"$ of 4130 tubing.
2. With a bender, bend 3 pieces at a 90 degree ell, using a 1" radius.
3. Bend one piece at a 60 degree ell with a 1" radius.
4. Determine horizontal level of quadrant placement below upper longeron, and relative position in respect to pilot in each cockpit.
5. Clamp angle iron, or 2 x 4 on fuselage side at horizontal level of alignment from front to rear cockpit.
6. Place, clamp, etc., and determine position of quadrant for each cockpit, and mark position on the angle or 2 x 4.
7. Determine offset of quadrant outside fuselage frame, base this on the center line of the quadrant or quadrant levers.
8. When this has been determined the tubing at the bend can be cut to length (about $3/4"$), aligned on the angle, clamped and tacked in position except for aft piece in rear cockpit.
9. Remove levers, etc, from quadrant body, and using the two holes for attaching the quadrant halves together as a reference, transfer this location end to end, and mark location on the outside and inside at each end of body.
10. Screw halves back together and clamp in drill press in a vertical position. Check vertical alignment by using alignment marks, or the centers of the two screws.
11. Pilot drill, (remove screws first) drill, and ream to $3/8"$ end to end, both quadrants.
12. Now clamp quadrant bodies on tubing tacked to fuselage. Align fore and aft, sideways, etc. Clamp securely in position. Make sure quadrant forks will clear fuselage side frame.

13. Now, with a $3/16$ " tube for a pilot guide-insert tube in screw hole-pilot, drill and ream to $3/16$ " completely through both halves of quadrants-replace screws and bolt halves of quadrant bodies together with AN-525 washer head screws.
14. Mark tubing for length on inside of body.
15. Complete welding, disassemble and cut tubing to length where marked on inside.
16. At this point, quadrants can be put back together, modified as illustrated, and linkage installed.
17. I did fail to note that the tubing on the aft end of the quadrant in the rear cockpit will have to be aligned separately, due to its position.

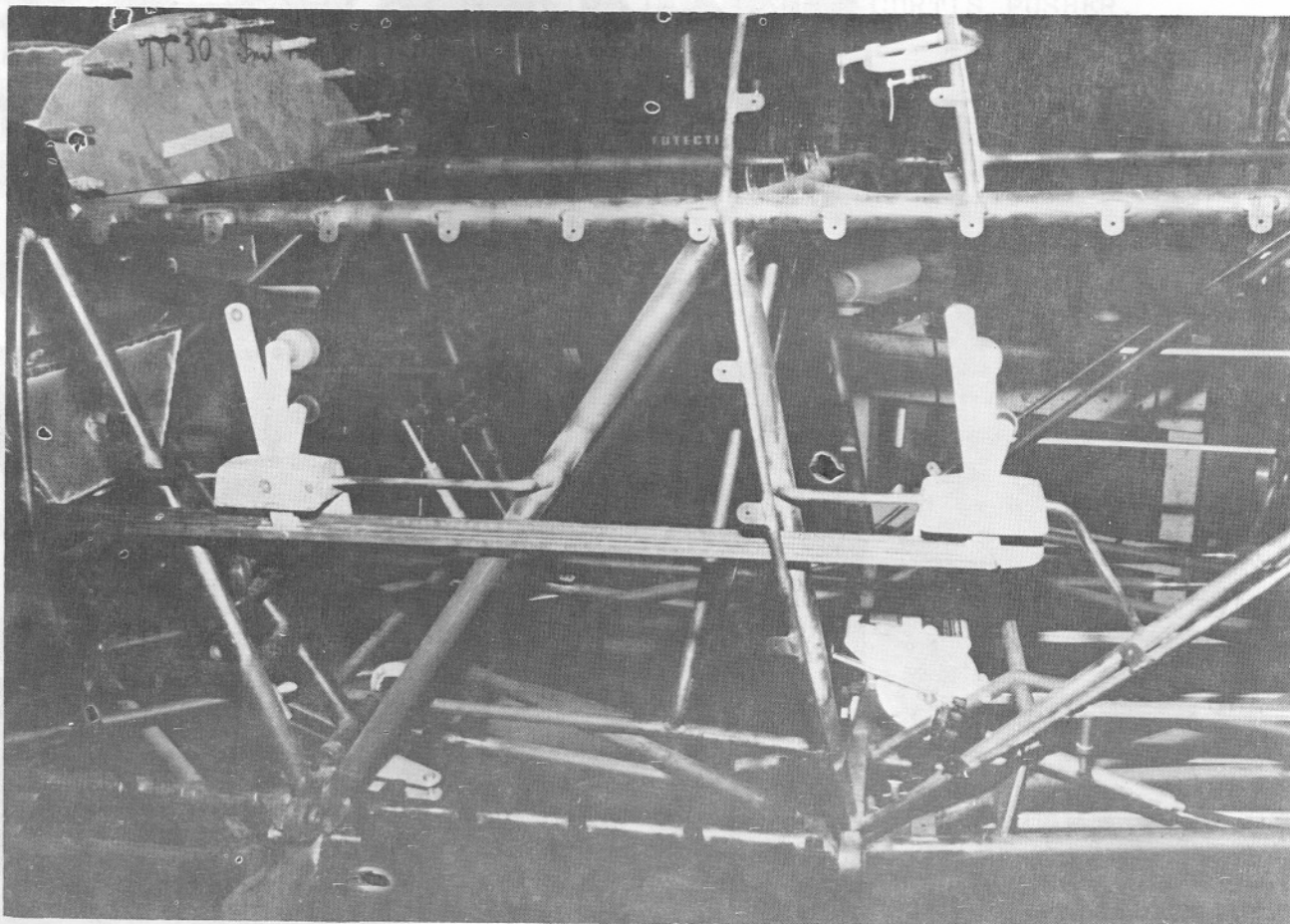
I feel this procedure is strong, a neat and clean installation, and, for the quadrants used, is something that looks like it belongs in an airplane rather than combining straps, tubes, brackets, etc.

I hope this is of value to somebody in the future, and developed even further. I hope you folks at Stolp at least try it.

I'll be calling soon for more information on fuel plumbing.

Best regards,

STEVE LORENZ, 5601 Alder Glen Park, Aberdeen, Washington, 98520



PICTURES

OF

STEVE

LORENZ'S

INTERESTING

THROTTLE

QUADRANTS

INSTALL.

A VERY

CLEAN AND

NEAT JOB

THANKS TO

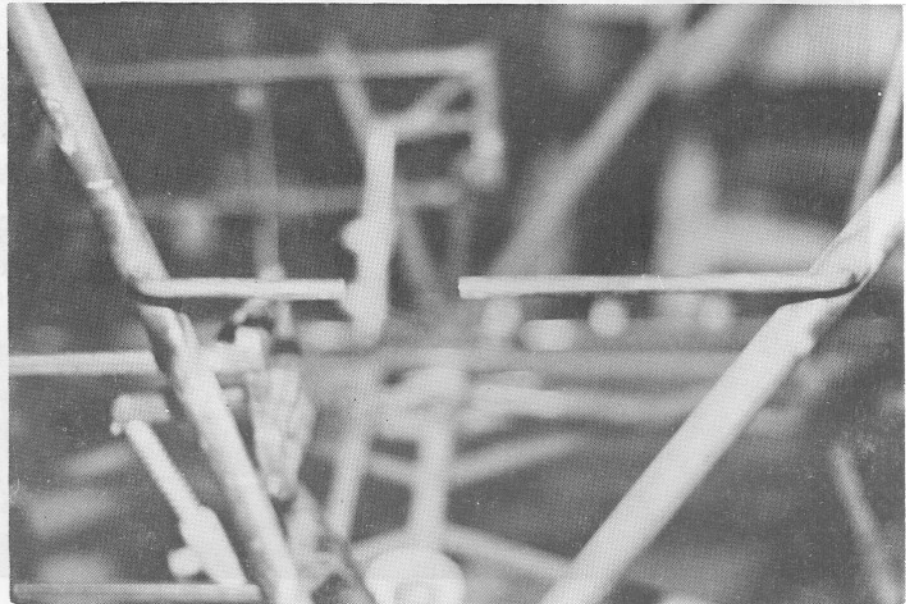
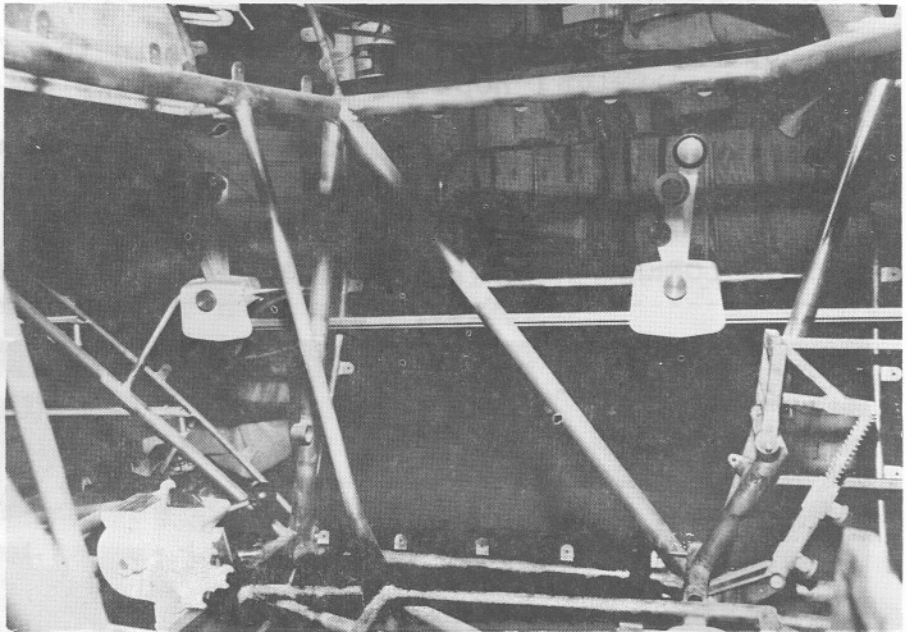
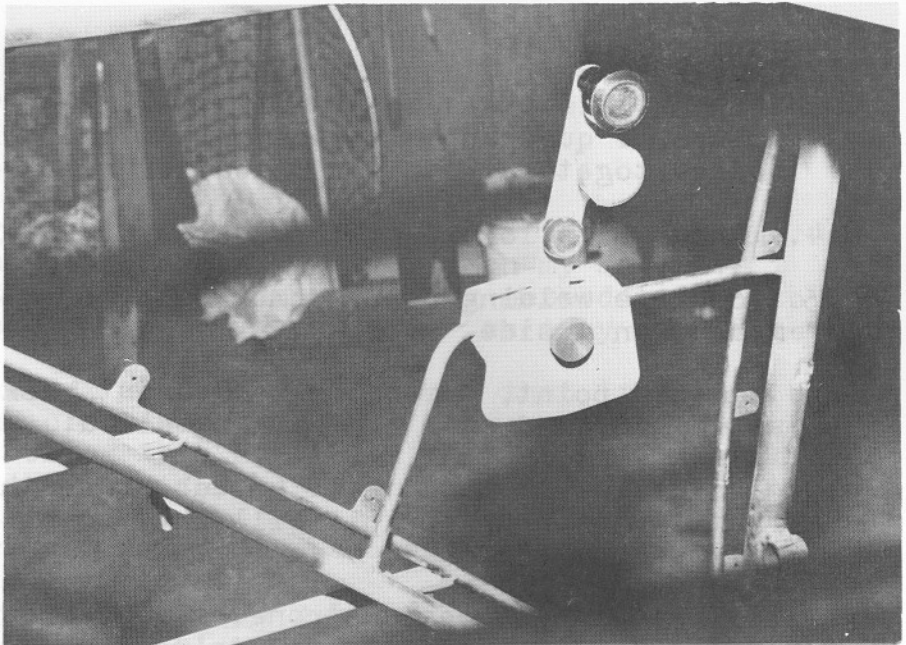
STEVE FOR

THE

PICTURES

AND

INFO.





Lincoln Beachey and his AEROPLANE

FROM A PICTURE COLLECTION OF ANTIQUE AIRPLANES DONATED TO STOLP STARDUSTER CORP. BY JOHN HEMINGWAY, OF SAN MARCOS, CALIFORNIA ABOVE IS LINCOLN BEACHEY AND HIS FMAED CURTIS "LITTLE LOOPER". BELOW IS PIONEER AVIATRIX RUTH LAW AND HER CURTIS PUSHER.



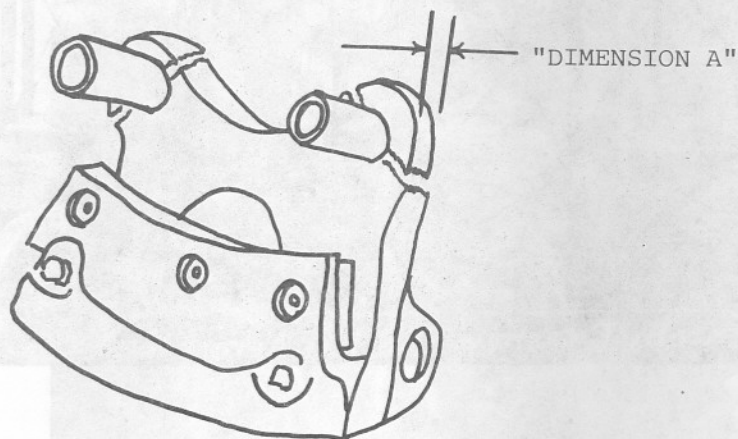
The letter below is reprinted from the Designee Newsletter, put out by the EAA, Chuck Larsen editor.

Dear Chuck,

You may want to run this in the "DESIGNEE NEWSLETTER" since I feel it is a safety item that may save someone else the expense that it cost me.

The sketch shows the Cleveland Brake that was installed on my Pitts.

MODEL 30-9
MFG 12-73
CLEVELAND



The story goes as follows:

After landing, and during the latter part of my rollout, I applied light braking in order to make a turnoff that was still several hundred feet ahead of me. The right brake pedal went to the floor. However, since the left brake was working, the Pitts swerved to the left and put me in the grass. Even though the left wing raised quite a bit, I was lucky that I did not drag the right wing tip, and once I was in the grass I regained directional control and prevented a ground loop.

Examination disclosed that both ears on the right brake had severed as shown on the sketch, and the brake assembly rotated with the disk, and punctured the tire, and broke the brake line.

Since I had another set of wheels and brakes in the shop, I decided to replace both wheels and both brakes. Comparing the broken brake with the new one, I was surprised to find that dimension A on the broken assembly is approximately $3/8$ ". However, on the newer assembly, it is $3/4$ ". Both brakes are still the same model 30-9.... just different manufacturing dates.

I talked this problem over with two representatives from "Cleveland" when I was at Oshkosh this year, but they initially refuted that dimension A was ever less than $3/4$ ", and furthermore were not interested in what I was saying.

I turned in a defect report to the FAA and am going to send a copy of this letter to Cleveland, just to let them know that somebody out here got stung by a design that they apparently knew was inferior since they subsequently doubled the Dimension A thickness.

After my experience, I will advise all members to replace the old "thineared" brake assemblies with the later mfg. dated brakes, with the ears that are approximately 3/4" thick.

THOMAS GRAY Designee #1183, 3680 Oak Lane, N.E. , Marietta, Georgia

FLAVIO MADIARAGO

FLABOB AIRPORT

OWNER AND OPERATOR

WITH A TOMMY

MORSE SCOUT

BUILT BY

RAY COCKING OF

RIVERSIDE, CA.

AIRPLANE IS NOW

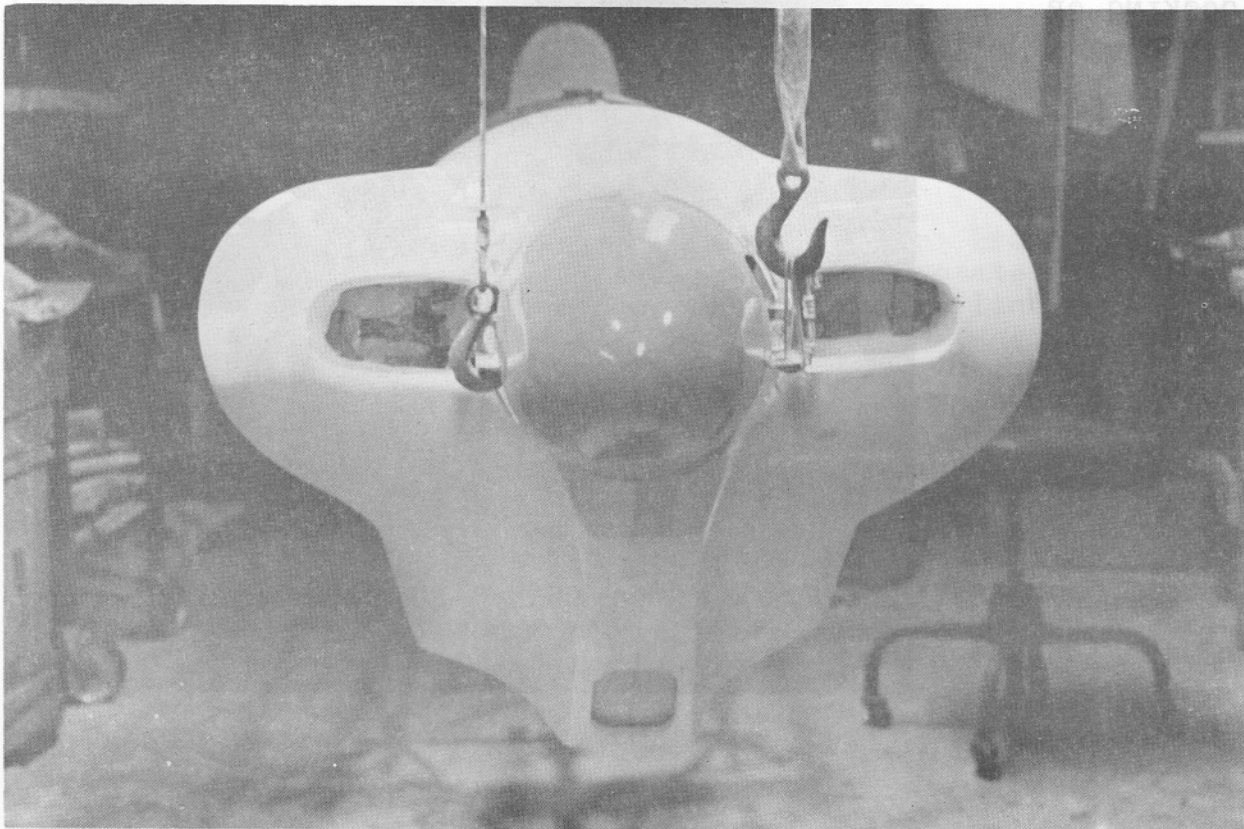
IN MUSEUM IN

PHOENIX, AZ.





ABOVE IS ANOTHER VIEW OF OUR COVER SHIP. AN ACRODUSTER ONE,
 BUILT AND OWNED BY JIM HAYES, AL GREFFENIUS, AND D. GREEN, OF
 URBANDALE, IOWA. 180 H.P. LYCOMING- EMPTY WEIGHT -732 #
 BELOW NEW NOSE BOWL DEVELOPED BY CLAUDE CURRY OF ANCHORAGE,
 KENTUCKY FOR HIS V-STAR. BEAUTIFUL FRONT LINES, CLAUDE.



30 March 1981

Stolp Starduster Corporation
4301 Twining
Riverside, California 92509

Attn: Mr. Jim Osborne

Dear Jim,

I read, with interest, the letter written by Mr. John Pafford, Jr. written on 2 December 1980, expressing his views and opinions concerning my Fokker accident, this past October.

In order to completely understand the situation, some background information is in order. First, one must understand thru experience, the flying characteristics of the Fokker Triplane. It was one of the most nimble and maneuverable fighters developed during the first World War. A high rate of speed was never one of its performance capabilities. Its maneuverability is traced directly to its excellent airfoil, more than adequate lifting area, and its excellent low speed performance capabilities. In addition, the all out gross weight of my machine was slightly over 1400 lbs.

During its life of three years I had done extensive flight testing, including all stall situations possible, thru proper or mismanagement of the controls, to try to force the aircraft to perform some type of snap maneuver. In three years and many flight hours, I was only able to induce a snap situation on one occurrence. I was able to perform a partial snap using the following technique. Utilizing full throttle, pull the nose rapidly up thru the horizon, approximately 30 degrees nose high, unload the airframe by violently popping the stick forward; at that point, with two hands, snap the stick full back, and pop right rudder simultaneously. The roll effect was still very sluggish and, if judged, would never qualify as a snap roll.

It is interesting to note that it is virtually impossible to induce, in a Triplane, maneuvers very easily accomplished in machines designed strictly for aerobatics, and a limited few Standard Category machines. Just for the record, a T-6 is an excellent machine to set up an accelerated stall maneuver. Many a heavy handed instructor, as well as students, have been snapped turning final, then either hitting the ground or becoming much wiser, as a result. In my experience, and the experience of others, a P-51 is probably one of the easier aircraft to inadvertently set up all the conditions necessary for an accelerated slow speed or high speed stall situation, generally snapping you instantly over the top, clean; or or tucking under, dirty.

Most aerobatic pilots use all the criteria necessary to generate this type of stall in their routines. Typical examples are snap rolls, vertical reverses, and many other maneuvers where a violent roll situation is required for demonstration purposes. The above maneuvers are generally accomplished during the higher speed

spectrum of aerobatics. During the lower speed, or slow speed spectrum, an accelerated stall is of very little use during an aerobatic routine. Rather than being described as an accelerated stall, it fits more properly as a normal power on stall done either while banking or in level flight, which, if deliberately aggravated, and ignoring all the warning signals, can result in a complete loss of control if the proper recovery techniques are not used when necessary.

Most professional airshow pilots perform their routines, after displaying years of proficiency, on an altitude waiver. I'm sure everyone realizes there are different degrees of waivers issued. The ultimate is the "0" altitude waiver. This reads, "No altitude restrictions in any aircraft in which proficiency has been maintained." Consequently, most air shows are not flown at an altitude which allows any mistakes in judgement, or unusual occurrences, not anticipated by the performer. When an occurrence takes place resulting in loss of control, the result is usually rapid and rather final.

Prop wash, which is a twisting mass of air being generated by a propeller, as well as wake wash, being generated in excessive amounts for their size, by WW1 aircraft, or other dirty aircraft aerodynamically, is always a hazard during any tail chase or trail work done with older aeroplanes. Since normally these aircraft operate with similar type equipment, we won't discuss wing tip vortices and other more serious turbulence developed by the larger jet transport and military aircraft. In many instances it has been necessary, both by myself and other people, to pull out either above or to the side of a prop wash or wake wash situation in order to avoid being pitched out by the effects of the wash, with the resultant partial loss of control. If there are any doubts as to the effects described above, it is quite simple to arrange, with a fellow pilot in another aircraft, to set up the situation and experience it first hand. Generally, this type of wash remains active for longer periods while near the ground, or on calm days, which is understandable.

With the above out of the way, lets get into my bone jarring incident.

The whole occurrence, from the time I hit Osborne's wash, took less than two seconds. During this period of time, I recovered from the inverted position, reverse rolled, put in a stall recovery by popping the stick forward, turned left approximately 45 degrees, realized I would hit the ground, rejected a blacktop runway as the impact point and selected sand and rock as a softer point of touchdown, rotated the nose of the aircraft just prior to impact to slightly nose high attitude, and said, "Oh Shit!!" I never thought about turning off the switch or the fuel. Frankly, I was too busy to attempt it. All this occurred at an altitude of between 100 and 150 feet above the ground.

It is understood, when you are in a steep turn at approximately 70 MPH, that your stall speed is much higher than when in level flight. However, steep turns can be accomplished in a triplane consistently, with no nibble or loss of directional control, as slow as 45 MPH. Mr Pafford is correct in that most of the elements

necessary to produce a stall are present in any steep turn held reasonably tight. I was just unfortunate enough to enter the Nieuports wake wash or prop wash or turbulence at exactly the wrong time. The result was an immediate momentary loss of control at an altitude too near the ground to effect a complete recovery. I was able to verify the above sequence of events by obtaining video tape footage taken by different cameras, from different angles. The film was stop framed to examine closely the attitude of the aircraft during the entire incident. I do agree with Mr. Pafford that I was very fortunate not to receive more serious injuries than I did. Our aircraft, both the Nieuport and the Fokker, are modified extensively in the cockpit areas to provide greater protection for the pilot, in the event an incident does occur. This is not done because we feel the aircraft will fall out of the sky. It is done because our aircraft are show machines and are constantly exposed, thru motion picture and airshow requirements, to other than straight and level situations on a nice sunny Sunday afternoon.

I normally do not indulge in letters of this type. However, in this instance, I felt it was necessary to present the above from the pilots point of view at the time of occurrence.

Thank you,

JAMES S. APPLEBY, COMMERCIAL #308562
 ASMEL, Instrument, Helicopter, Recip and Jet, CFI declined in 1947

 ED NOTE: We wish to thank MR. APPLEBY for taking time from his busy schedule to write the above most interesting letter. J.O.

On page 23 of this issue of STARDUSTER MAGAZINE is a letter concerning Cleveland Brakes, written by THOMAS GRAY. Below is the answer from CELVELAND BRAKES, published in the December 1980 issue of THE DESIGNEE NEWS.

Dear Mr. Gray,

We are sorry to hear of the difficulty you experienced with our products. Our quality control department constantly monitors MDR reports published by the FAA to obtain an indication of our products' field performance. They were aware of your difficulty when we received your letter.

Our designs are constantly reviewed for field performance, ways to standardize and improve performance to the customer. Product improvement and standardization are ongoing processes at Cleveland. Inputs such as yours are helpful and appreciated.

The particular change you note in your letter was the result of a standardization program in 1975. The old style anchor pin used on the early 30-9 brake was replaced with a more common anchor pin used in the majority of our brake assemblies. The standard anchor pin necessitated the increased thickness at the lugs to function properly.

THE FAA MDR history for the last six years was reviewed to obtain an indication of the 30-9 performance. There have been four reports of incidences with this brake, one of which was yours. There was one other difficulty similar to yours, the other two were unrelated. The brake location on a Pitts, six o'clock position on the strut, puts the brake in a very susceptible position. As you know, the brake is an external design in which the brake extends beyond the wheel O.D. Being in this position, many occurrences could cause damage to the brake; flat tire or hard landing (the tire would hit the brake), collision with a rock or other item on the runway, etc. We recommend that the brake be mounted in the three or nine o'clock position.

The gentlemen you spoke with at Oshkosh are relatively new to the company and may not have been aware of the change made several years prior to their joining the organization.

We would be happy to examine your brakes. Return them to the attention of:

Mr. R. Daniel Winne, Manager
Quality Assurance and Product Support

Very truly Yours.

John Bakos, Sales Engineer, Parker Hannifin Corporation



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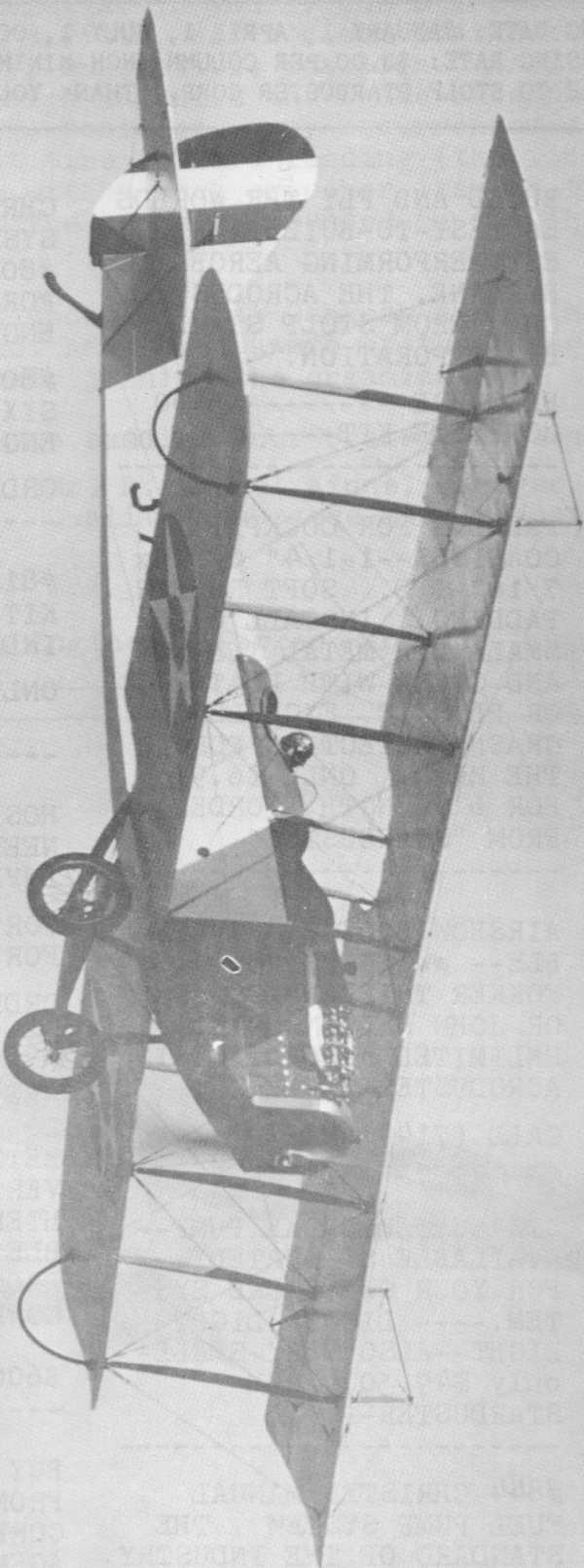
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