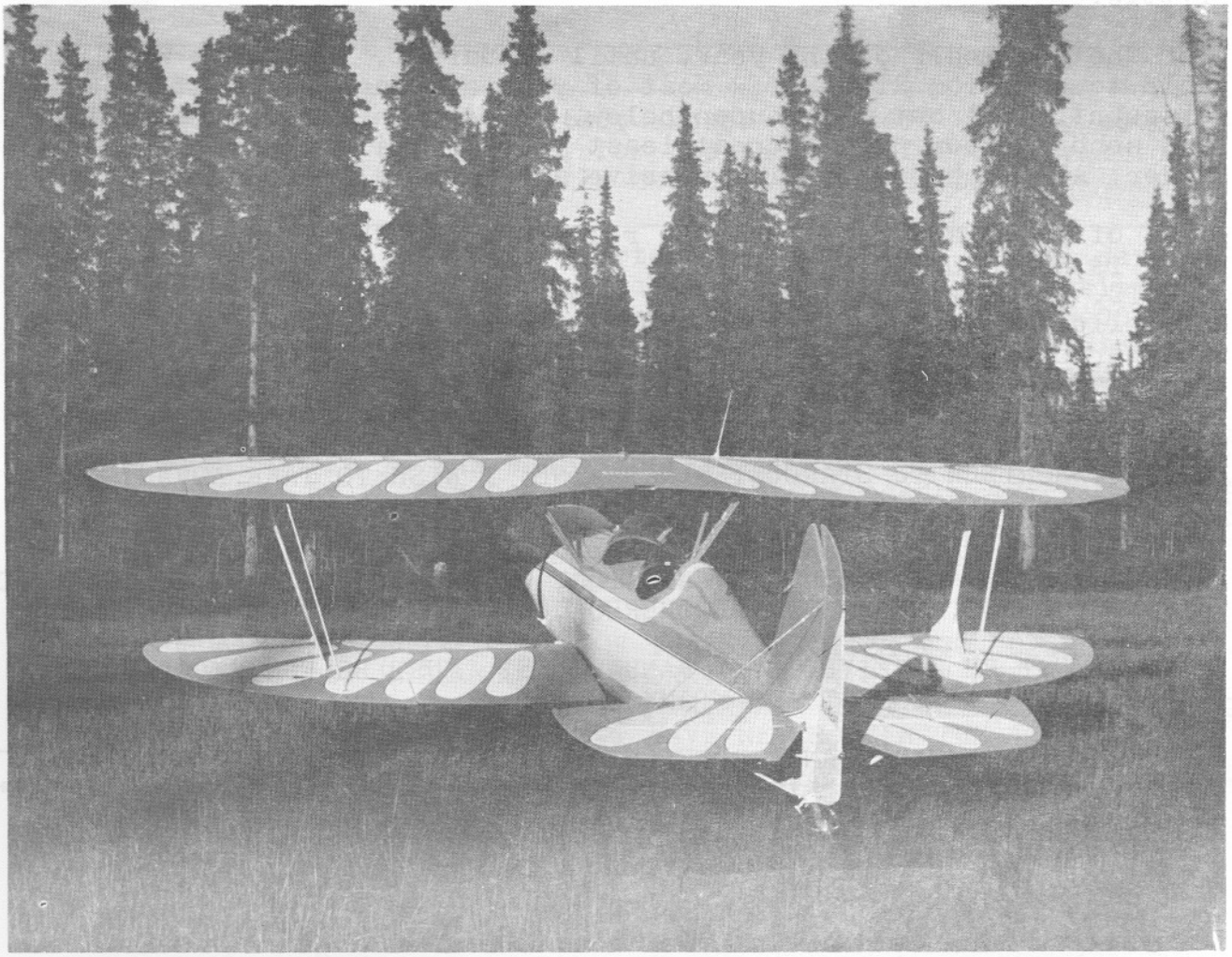
THE

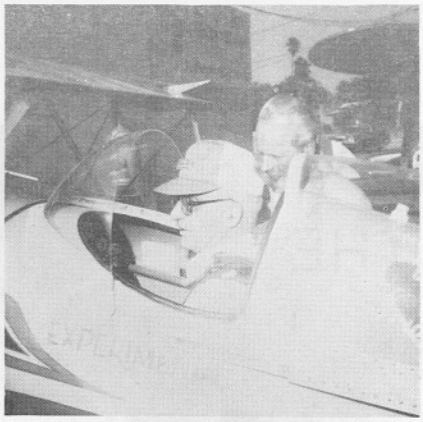
Stardust er

OCTOBER 1980

MAGAZINE

DEDICATED TO THE ACTIVE HOMEBUILDER





PAGE 1

MERRY CHRISTMAS---AND A HAPPY NEW YEAR

Thank you for being a STARDUSTER customer. This last year has been a rough one, financially, for many people. (And quite a few businesses.) Therefore, your patronage has been doubly appreciated.

Many items have taken multiple price jumps during the year. At almost any given time, our latest catalog would be out of date regarding the price of one or more items.

The outlook for the coming year is more inflation, and more price increases. How to beat it? I don't know.

But one expression of appreciation, from us to you, may help a little.

For the remainder of the year, until January 1, 1981, you will be able to buy from STARDUSTER most of your airplane needs at a 10% discount. Fill out the coupon below, or send in a zerox facsimile, and send in your order for at least $500.00, with check or money order. All such orders will receive a 10% overall discount.

This offer is available only to readers of STARDUSTER MAGAZINE. THIS IS AN UNADVERTISED SPECIAL, NOT AVAILABLE TO THE GENERAL PUBLIC. Of necessity, this offer does not include engines or propellers. It does include everything else, including batteries and parachutes. So let me hear from you.

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AS A SUBSCRIBER TO STARDUSTER MAGAZINE, I WISH TO TAKE ADVANTAGE OF YOUR 10% DISCOUNT OFFFER, GOOD UNTIL JANUARY1, 1981.

I UNDERSTAND THIS IS AN UNADVERTISED SPECIAL, AVAILABLE ONLY TO STARDUSTER MAGAZINE READERS, AND THAT EACH ORDER MUST BE ACCOMPANIED BY THIS COUPON, OR FACSIMILE THEREOF.

ORDERS MUST BE RECEIVED BY 1 JANUARY, 81, MUST BE FOR $500.00, or MORE, AND PAYMENT MUST ACCOMPANY ORDER.

NOT GOOD FOR ENGINES AND PROPELLERS. _____ SIGNATURE

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Cordially,

Jim

OCTOBER 1980

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

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The STARDUSTER MAGAZINE is a quarterly publication. Target dates are January, April, July, and October of each year. Subscription rate is $6.00 per year. Back issues are $1.50 each, or $6.00 per year. Published by STOLP STARDUSTER CORPORATION, 4301 Twining, Riverside, California, 92509. Phone: (714) 686-7943

ON OUR FRONT COVER IS THE BEAUTIFUL STARDUSTER TOO BUILT AND OWNED BY ROGER RUPP, RT 2, BOX 908, SOLDOTNA, ALSAKA99669. THIS APPEARS TO BE AN OUTSTANDING TOO, AND WAS BUILT IN THREE YEARS, IN A REMOTE AREA, AND UNDER SOME HANDICAPS. CONGRATULATIONS TO ROGER.

ON OUR BACK COVER IS A PICTURE OF THE STARDUSTER TOO BUILT BY THE LATE DEL BLISS, OF REDLANDS, CALIFORNIA. IT IS NOW OWNED BY JOHN KRUEGAR, OF REDLANDS. JOHN DOES AN AIRSHOW ROUTINE WITH IT, FLYING WITH TWO PITTS SINGLE SEATERS. I HAVE NEVER SEEN THE ACT, BUT I UNDERSTAND IT IS VERY GOOD, AND THAT THE STARDUSTER ACQUITS ITSELF WELL WHILE FLYING WITH THE SMALLER AND LIGHTER SINGLE SEATERS.

95% FINISHED - 95% TO GO
OR
THE PERILS OF COVERING AN AIRPLANE

by JOE FERRARO, INDIANAPOLIS, IND.

Jim, I promised this article to you sometime ago and I bet you thought I had forgotten it - surprise!!

As I told you when I promised this information, I didn't know of any article on the pitfalls of the first timer finishing an airplane.

First of all let me say that there are certain basic fundementals I have used in building my "bird" and when I've strayed from the "straight and narrow" I've always regretted it. I'll state a couple to begin with and the rest will be sprinkled throughout this article.

1. Murphy's Laws always prevail, especially in building an airplane.

2. There ain't no such thing as a "short cut". Everytime I've tried one it always ended up costing more in time and money.

3. There is no substitute for quality material (that's why I deal only with reputable suppliers such as Stolp Starduster Corp). It may cost a little more at the outset but you'll have a better project and most <u>important</u>, peace of mind when you fly your baby. We all have a value on our "lives" and the last place I'll shortcut is the material I put in (or on) my airplane. (nuff said, that's a soap box of mine all it's own)

As you know, I've been at my project for a considerable time. Some three years ago I started gathering information on finishes and finish material.

There is a dirth of information to be had, the best I've found was the EAA Finishing Manual, Randolph's Manual and the articles in the Starduster Magazine. Talk to guys in your chapter who have finished an airplane. (I assume everyone realizes the value of the EAA chapter and the expertise available there).

In talking to many people I got much conflicting information but much of it came together, especially when you put it together with the above manuals and articles. What came out to me was that if you want a good finish it requires lots of effort, elbow grease and sweat(so what else is new!).

Also a first time cover job you do, do not mix finishes or products - professionals know what and how different products will perform, but they usually will not mix products because even they, can and do, get into trouble mixing (right Jim!)

Jim and Nathan Davis of Kokomo, Indiana, who have been of immense help on my project, believed that the Randolph Finish process was best for them - so I followed their lead and that's what I used.

First I debated using cotton covering, but through it all came the opinion that a first time better stick with Dacron and it's ease to handle. This is what I used, ordering Homebuilt 2.7 oz. from Jim Osborne.

Now my airframe and/or wings were signed off for cover.

I faced the covering process with a certain amount of trepidation(as I faced all "new processes" on my airplane).

If you've done your reading and talked to your other EAA members plus been to the covering tent at Oshkosh, have no fear, dive in - the water ain't bad once you're in.

Most of the articles I've mentioned tell more than I can about the entire finish process by professionals so I won't get into it here except to emphasise certain points.

Before you cover your structure look it over very, very carefully for any protrusions or funny angles that will show through the fabric - or be directly under the fabric surface - try to eliminate them, round them, cover them with tape - something, because when you get to the sanding stage if you haven't done your homework - they'll show up.

Also, I used the glue method shown in the Starduster magazine. Whatever method you use make sure your seams, lines, etc are straight, even and neat.

A little extra effort here will pay off.

It was a total shock to me, all the faults that showed up when I put the silver on - it was like putting a magnified spotlight on each individual fault. - And let me assure you, they don't disappear. You can camouglage them but you can't make them go away.

Again, be careful in putting your material on the structure. Get the seams straight and as few wrinkles as possible on corners and curves. The shrinking process with Dacron is a great help, and with a little care you'll have a nice neat tight job. Now you have the material on and you're ready to put the base coat on - all the articles tell you to be careful and not let the base coat liquid drip through the material and cause tear drops, believe them! They won't show on base coats, they won't show too much on silver, but oh boy do they show on the finish.

Pay attention to what the articles say about dripping through the material - the viscosity of the material is most critical - it's most important on the first base coat and becomes less of a problem for each subsequent coat.

Now you're ready for rib stitching. Two things fell in place for me -

1. I got flat rib stitching cord from Jim Osborne - great stuff.

2. I learned the hidden rib stitch at Oshkosh (not permitted on certified aircraft except with permission of the inspecting A & I).

These two things gave me a nice flat rib stitch area over my ribs and the tapes laid down beautifully - much better than the round cord I think.

When you put your tapes on pay attention to detail again. Put them on straight - be extra careful going around curves and on corners. Be sure to cover all protrusions with tape. Again, whatever boo-boo's you make will show up like flags with the silver coats.

Whatever process you're using you bring it up to silver and here I started my sanding process using Wet-R-Dry (wet) starting with #340 on the first silver coats and working through to #600 on final. I sanded my entire airplane five times.

Here's where you find out whether you have properly rounded corners, etc. I don't care what material you use it will have some give and those projections will sand through so quick it comes as a shock.

Also, try not concentrate sanding effort on tape edges and rib stitching - they'll sand through and won't hold finish paint.

I elected to sand the first silver coats down to eliminate high spots - I then sprayed the final silver on the structure (Iused about 8 coats of silver with the first four sanded down to where the base coats high were eliminated.).

This was my first experience in spraying and I elected to use a pressure pot. It was a little hard to get used to but once I did it sure put's out a nice job. The cost to me was the refinishing of one side of my fuselage and a great deal of extra sanding.

If I had carefully followed the instructions in the Randolph Finishing Manual I would not have had half the difficulty I had. "Murphy's Law" - 'When all else fails, read the directions'.

I might mention that I covered my entire project and then painted it all at one time. So a pressure pot was almost a necessity.

All of my various components, fairing, etc are now painted and I'm ready to assemble. I have had my airplane assembled and rigged twice before covering. (The metal work has been on and off at least 6 times)

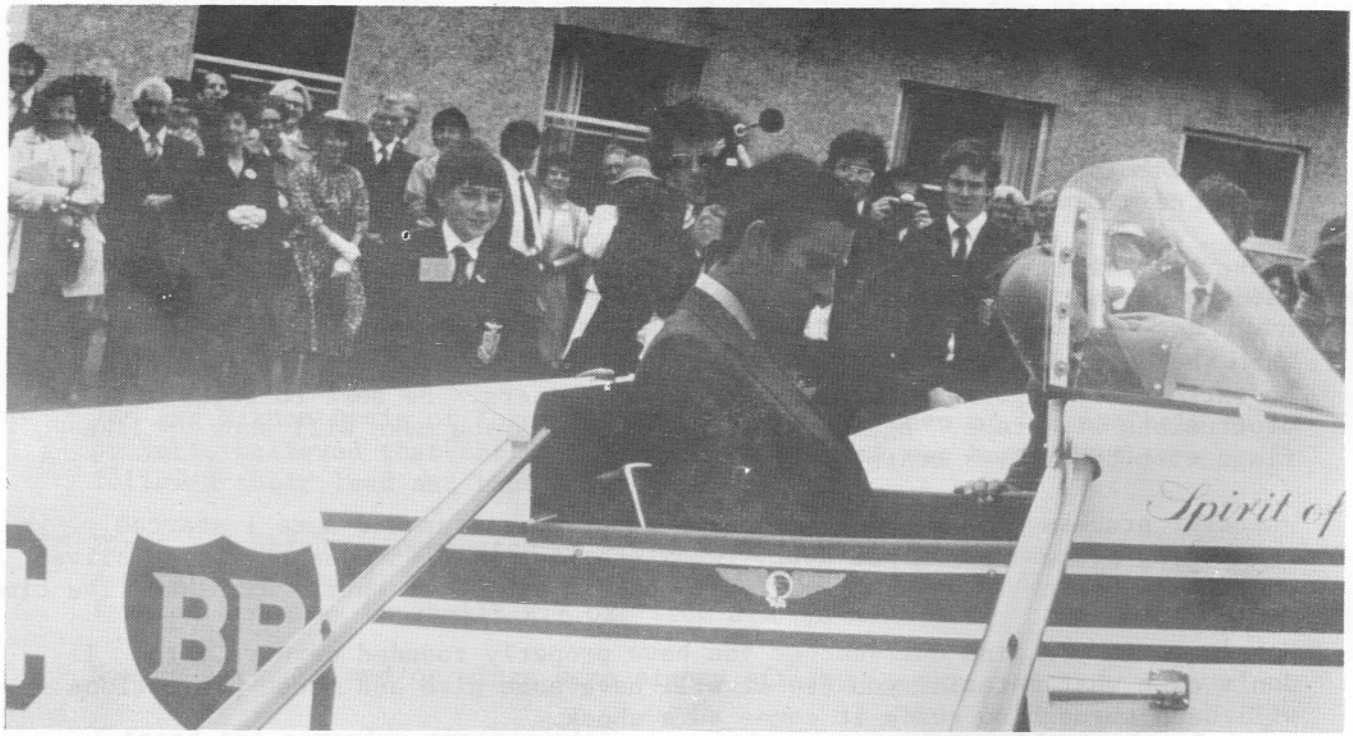
What I've tried to do is make and fit all the fairings I could and assemble to be sure all goes together.

But do you want to bet that I missed a couple? I'll give you odds!

Jim has written an excellent article on rigging so follow it.

I hope this article helps someone - there are pitfalls in covering an airplane - but if you read the directions in the manuals carefully and pay close attention to the don'ts and the "watch-outs" you will have little trouble.

Hopefully I can send you a short article soon on first flight, that is if you're not too tired of my ramblings.



PRINCE CHARLES, OF GREAT BRITAIN, CHECKING OUT A VP2, IN TRURO, CORNWALL, ENGLAND. THIS SHIP THEN SPENT A WEEK ON DISPLAY AT THE FARNBOROUGH AIR SHOW.

GASAHOL - PROMISE and PERFORMANCE

It is a mixture of 10% grain alcohol and 90% gasoline. And politicians became intoxicated with it when the current administration curtailed a grain sale to Russia. Gasahol was the solution to mollify the so-called "Farm Block" by creating a demand for the grain that could not be sold. A tax break of four cents a gallon is given a producer--at ten percent alcohol in the solution this figures out to 40 cents a gallon subsidy on the alcohol alone.

Gasahol is attractive from several standpoints. The alcohol does originate in the U.S.A. It does burn in internal combustion engines and could extend our fuel resources. Also, if it became acceptable to the public, it would take care of a grain surplus during an election year.

On the surface, it is a great product, but perhaps we should pause and examine the program in detail before we join public approval. Unfortunately, there are a bunch of negative aspects to this political panacea.

First of all, alcohol does not have as much energy as gasoline. This is a simple matter of the chemistry involved. There is no argument that there is less energy--the debate is only how much. The EPA claims about a one and one half percent loss based on tests of eleven vehicles. GM figures about 3%. TVA has released the results of a 2-million mile test in their fleet of 176 vehicles--they found a 3% loss in mileage, 10 cents a gallon more expensive, and difficult cold weather starting.

Gasahol has a higher vapor pressure than gasoline. Emissions would probably be a problem and California tests show a 100% increase. We could say "Okay, so what?"--but increased vapor pressure in aircraft engines could cause real problems on hot days or at higher altitude. The least of the problem is that the internal combustion engines all tend to run leaner and would have to be re-adjusted or at least carefully monitored if using gasahol.

Alcohol burns and releases energy that can do work. The joker is that it makes far less energy than it takes to produce it. Energy User News (February 25, 1980) reported a survey they made showed that most estimates are that it takes more than twice as much energy to grow the grain and produce as can be obtained from burning alcohol.

That is, the sum of fuel usage in tractors and machinery to produce the corn and move it to the distillery. It also includes the energy to brew the mash and distill it. Heat, and a large amount of fuel is required to drive off the alcohol and condense it. This produces about 95% ethyl alcohol or what is usually referred to as ethanol. There are other alcohols, all of which can be used as fuels with different costs and different efficiencies.

Unfortunately, 95% ethanol is also 5% water. Pure alcohol soaks up water like a sponge--even moisture in the air, and above 95% purity, the water cannot be separated by ordinary distillation. It requires a very expensive chemical process called azeotropic distillation--a carrier fluid extracts the alcohol and it in turn is distilled--expensive and energy costsly. But the purity of the ethanol must approach 100% to be useful in a fuel.

The cost obviously has to be paid. Even with the government tax break, the cost of quantity amounts of alchol in April of 1980 rose to $1.88 a gallon. The first gasahol marketer in Kansas, a corn state, backed out of the gasahol business. Still companies like Texaco, Sohio, and Amoco have announced plans to expand gasahol marketing.

But, for aircraft fuel, the major problem is water. Alcohol has the affinity for water. If any water did get into the system, probably it would be ingested into the combustion system and only slightly reduce the energy. But, if carburetor ice conditions existed, it would undoubtedly aggrevate the situation. And at low temperatures, if the water separated from the fuel mix and entered the carburetor, it would cause an instant engine loss.

Something that has not been considered is that the alcohol would clean out the fuel system. Unfortunately, it takes the scale and rust right down to the filters and another probable engine outage.

Aircraft and automotive systems are designed to run on gasoline. Use gasahol and possibly the plastics, the hoses, and perhaps the sloshing compounds in the fuel tanks would react and be damaged by the alcohol. Possibly not; but have the proponents of gasohol considered the potential hazard?

It is possible the net cost in energy can be lowered to an economic value so ethanol can be produced and sold for a less cost than gasoline. If so there could be a market for it other than in aircraft or automobiles. For example, stand by electrical generators could be powered by alcohol. Fixed station engines, such as pumping and irrigation could use the fuel. But due to the physics and chemistry of ethyl alcohol it is unlikely to survive as a useful aircraft fuel.

The present federal administration wants to expand gasohol production 600% next year. They propose a $3 billion, 10 year plan with loan guarantees and direct loans to encourage small and medium sized producers who would build plants quickly.

As far as I'm concerned, if it were my own money, I wouldn't want to spend it on gasahol. No doubt as a nation we need to invest in alternate fuels. South Africa is producing and has produced gasoline from coal. They first make methanol, alcohol, and reform it into gasoline and other petroleum components. Incidentally, they do it at about the world market price for gasoline.

Biomass and vegetable (trees, garbage, weeds, brush) sources can in some manner be converted to useable sources of fuel--perhaps not for aviation fuels, but could relieve the pressure on petroleum products.

Gasahol is, as near as I can figure it out, only a political payoff for the farm block. Once again, the politicians try to repeal the laws of supply and demand. And they imply "we know what is best for you".

Certainly, at the present, gasahol is no threat to OPEC even if 10% of the fuel, made in American, was ethanol. Not as long as we use twice as much in petroleum products as we get from it in fuel.

Come to think about it, it <u>is</u> my money they are investing. I don't like it at all.

Ray L. Gordon

RLG/sc

LOW COST COVERAGE

By: Richard F. Geide

The last big operation in finishing a fabric covered airplane can often be expensive, just at the time when you are running low on cash. A low cost finish procedure was used over ten years ago by homebuilders in Pennsylvania, but, to my knowledge, the details of this process have never been published. The purpose of this finish process is to reduce the number of coats and the cost by utilizing some readily available non-aircraft materials to obtain a light weight glossy finish. I have taken the liberty of calling this procedure "The Geide Process" since using it on the "Geide Sport" and experimenting with test panels has added some details to the original concept.

One of the most important steps in obtaining a good finish is selecting the correct weight of Dacron. For covering open structure, the heavy 3.7 oz. dacron is often used when the medium weight would provide a better finish. The 2.7 oz. dacron is used in this process, since the closer weave material fills easily and requires less enamel to obtain a glossy finish. This weight dacron is stronger than grade A cotton at about 70% of the weight, and twice the life. The 3.7 oz. dacron is a coarse weave fabric with almost the same weight as cotton, and 1.6 times the strength. It is more difficult to fill, and will usually show the weave after many coats of enamel.

For most home built aircraft with a wing chord of five feet or less, the 2.7 oz. dacron, 66 inches wide, is recommended. With this width, the wing cover can be cemented to the wing span-wise without any sewing or envelope required.

If you are new at this game, or have never covered with dacron before, a small wood frame can be made to cover and test your skill with heat shrinking and finishing.

To apply the cover to the structure, use STITS "POLYTAC" or any other seam cement. The STITS cement is recommended, since it is approved for a two inch overlap (with 2 inch tape) on all seams. One size tape can be used for the whole aircraft. Shrink down the edges to obtain a smooth lap joint. After the structure iscovered, preshrink the dacron with an iron on the "wool" setting. Do the shrinking in several stages, so the material doesn't get too hot, and continue to shrink after yuo've removed the iron. It is better to leave some loose areas to work out later than to warp the structure. Attaching the cover should take less than a gallon of "POLYTAC", and the tapes should take about a gallon of STITS POLYBRUSH.

Next comes the fill coats of polyurethane varnish that you con buy in any paint or hardware store. One or two gallons should cover most aircraft, if it brushed on lightly. This means don't use a full brush and push the varnish thru the dacron.

Some builders prefer to use a roller to spread the varnish evenly. Be sure to use the one part polyurethane varnish, such as Sherman Williams "Marvathane", since the varnish is catalized by the moisture in the air, and cures more flexable than the two-part polyurethane. Satin finish varnish was used, since it provides a better surface for adhesion of the enamel finish.

After one coat of varnish, let it dry overnight before applying the second, and final coat. Additional coats of varnish will not improve the finish, since the enamel to follow does a better job of building up the surface. This was determined by experimenting with test panels. After the varnish, sand lightly. Any remaining wrinkles can be removed with an iron at this time. Keep the iron moving so it doesn't soften the varnish.

A silver powder may be mixed in with the varnish for those planning to use a dark enamel finish. Since a white enamel was used on the "Geide Sport", the silver was not added. Light finishes will reflect the sunlight, and keep the fabric cooler.

The final two cross coats of enamel are sprayed on with an overnite cure between the first and second cross coats. One cross coat consists of spraying the surface one direction, followed by a repeat 90 degrees to the first application. Light sanding may be necessary befroe the second cross coat under some shop conditions. The enamel used was ACME "FLEET-X" auto enamel, which is an alkyd enamel that remains flexible with age. For those on the East Coast, SHERMAN WILLIAMS TRANSPORT ENAMEL will produce the same results. To spray these enamels, use the reducer and thinning directions on the container.

Those who like to rub down lots of finish coats have probably panicked by now. For those who like their finish to last and last, the least number of enamel coats will provide the most flexible and longest life finish. Two cross coats of enamel should provide a good gloss finish on medium weight dacron at the cost of only one to two gallons of enamel.

Some wrinkles may appear in the dacron cover after the first cold days of winter, but don't panic, since these can be removed by ironing the surface through a light cloth. With the money saved by this process, you can afford to take your sweetheart out to dinner more often.

The above artice was sent to us by RUSS CHANEY, JR. C/O EAA Hangar, Ryan Field Airport, 9400 W. Ajo Way, Tucson, Az, 85735.

All inquiries should be directed to him.

STOLP STARDUSTER CORP. is inexperienced with the above process, and does not endorse it.

One possible source of trouble appears to be the lack of a metal shielding for the fabric, which is normally provided by the aluminum powder in the silver dope. This could lead to rapid deterioation of the dacron cloth.

P R O D U C T I N F O R M A T I O N

ACRODUSTER TOO - Last Spring, after 450 hard hours, we did a complete overhaul on our ACRODUSTER TOO. We found the right hand cabane strut sway brace had broken at the center fuselage attach point. We came out with a design change for this attach point. Recently we had a fatigue failure of the special "I" bolts which hold the cabanes to the wing. This was an inflight failure which was not serious because the sway brace provided an alternate load path.

We believe the earlier broken sway brace had permitted side-to-side flexibility in the top wing which fatigued the "I" bolts. Both front "I" bolts showed signs of fatigue. Both back bolts were O.K. We ask you to examine your cabanes for solidity at all attach points, but giving particular attention to the sway brace fuselage attach points. If you find one broken, we suggest that the front "I" bolts be replaced, as well as the break to be repaired. Do not wait for fatigue to show up in a broken bolt.

SMOKE SYSTEMS - Those of you who are familiar with our smoke systems know we have the lightest as well as the cheapest, and one of the best systems available. A good thing has now been made better with the inclusion of our new solenoid. This removes the last surplus item from our kit. Our new solenoid is brand new and especially made for us by SKINNER, the largest manufacturer of solenoids in the country. It is small and light, works on 12 volts, and the inlet and outlet openings are the right size for 1/4 fittings. We switched pumps some time ago to a new, light weight, 12 volt design. So, our design is good, and our components are now the best available. At $240.00, the system is underpriced.

ZERO AIRSPEED INDICATOR - We now have in stock a little item which bolts on an "I" strut, and tells you when you are plumb out of airspeed. It consists of a spring loaded arm which is blown back into a horizontel position by any airspeed above 10-15 miles per hour. The advantage of this little device is that it enables you to perform perfect hammerhead turnarounds, every time. Just go straight up until you see the arm swing forward to a vertical position. You know that you are then fresh out of airspeed, and it is time to kick rudder. It works beautifully. Just be sure and kick as soon as it swings forward, so as to avoid a tailslide. With this device, you can do the best hammerheads in town. Only $25.00

AEROBATIC REFERENCE FRAME - Those of you who have attended Aerobatic contests have doubtless noticed the wierd looking frames of metal and wire outboard of the pilots seat, which help the pilot get his lines and angles exactly right. We now have a nice one that bolts on the "I" strut, and gives vertical, horizontel, and 45 degree references, both upright and inverted, climbing or diving. It is adjustable, and will fit any of the popular biplanes. Brand new. No picture yet. But available for $50.00.

FRANKLIN ENGINES RETURN TO MARKETPLACE

We have recently been informed that FRANKLIN engines, now made in Poland, under a different name will soon be again available to American homebuilders.

These engines have been improved, according to the Mfg. Representatives, and are available for immediate delivery. They also claim that warranty and backup factory service will be available, just like Lycoming and Continental.

Engines available are three models.

1. 2A-120 model. This is a two cylinder, 6o H.P. engine. It has an 8.5 to 1 compression ratio, and develops 60 H.P. at 3200 R.P.M. The market for this engine, among STARDUSTER customers, will be very limited.

2. 4A-235-B3 Model. This is the old Franklin Sport 4 engine. It develops 125 H.P. at 2800 R.P.M. Compression ratio 8.5:1. Weight is 224 pounds. This engine might give good service in Starlets and V-stars, or other small airplanes.

3. 6A-350-C1 model. A six cylinder engine that appears to be very promising for use in high performance sport planes. It develops 220 H.P. at 2800 R.P.M. Its compression ratio is 10.5/1, and its dry weight is only 333 pounds. This is 2 pounds lighter than the weight of a 200 H.P. Lycoming 4 cylinder engine. Draw backs are that this engine turns a highter RPM, and has a higher compression ratio, which means the engine is working harder, and the reliability and TBO might be less.

Another drawback, at this time, is that all these engines have float type carburetors on them. I have talked to a factorey representative about this, and he says they are working on a fuel injector installation.

Prices will be about two thirds a comparable Lycoming or Continental. At that price it might pay to buy a carburetored engine and then install a pressure carb or fuel injector.

STOLP STARDUSTER CORP. is thinking of becoming a dealer for these engines. We would appreciate reader response and indications of interest. If you are ready to go, give me a call, and I will quote you price and delivery time on any of these engines.

MODEL 6A-350-C1 ENGINE SPECIFICATIONS

RATED HORSEPOWER, MAX. CONTINUOUS----------220 @ 2800 RPM.
NUMBER OF CYLINDERS---------- 6
COMPRESSION RATIO----------10.5/1
DISPLACEMENT----------350 c.i.
WEIGHT, AVERAGE, INCLUDES STD ACCESSORIES---------- 333 #

S T A R D U S T E R F L Y I N ?

Manufacturer, Ranchowner, pilot, and STARDUSTER TOO owner GENE BURNETT, of Lawrence, Kansas, has proposed a STARDUSTER flyin at his Ranch in Kansas. He gives details below.

GENE BURNETT
2022 KASOLD DRIVE
LAWRENCE, KANSAS
66044

Dear Jim,

STARDUSTER N44GB is flying great. About 70 hours now.

I would like to have a STARDUSTER FLY-IN at my ranch, north of Lawrence.

This would be an annual event, and feature a noon Barbecue. This allows for a one day trip, or they can come a day ahead and stay all night, or stay one day after, or both.

We would have a giant Formation Flyover over Kansas City, and other activities.

I have two 1750 foot strips, and parking for all the STARDUSTERS in the U.S. And we can kill as many cows as necessary. (Joke)

What do you think?

1. TIME OF YEAR?
2. HOW TO CONTACT ALL THE OWNERS.
3. ANYTHING ELSE.

GENE BURNETT

It sounds like a good idea to me. My own personal preferences are 1. just before Oshkosh. 2., and 3., You write Gene and tell him your preferences and opinions.

INSTALLING THE ENGINE

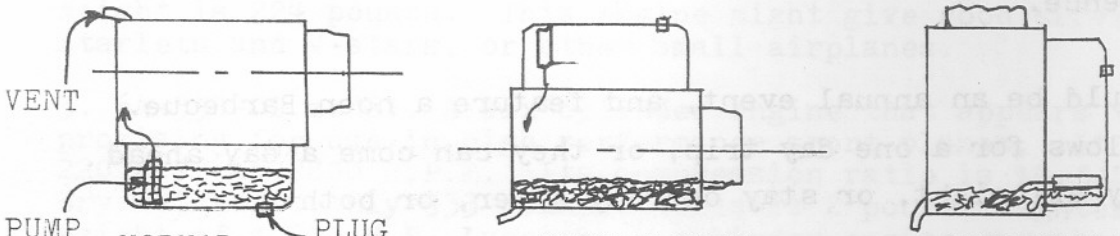
(Part 3)

Before we install the engine controls, forward of the firewall, it is a good idea to install the inverted oil system.

To do a good job, it is a good idea to understand how and why such a system works.

To begin with, oil normally stays down around the bottom of the engine sump. It is picked up by an engine driven pump and pumped thruout the engine, then returning to the sump by gravity. At the top of the engine is a breather opening, which allows for venting internal engine pressures. Since oil stays in the bottom of the sump, oil does not normally go out the breather opening.

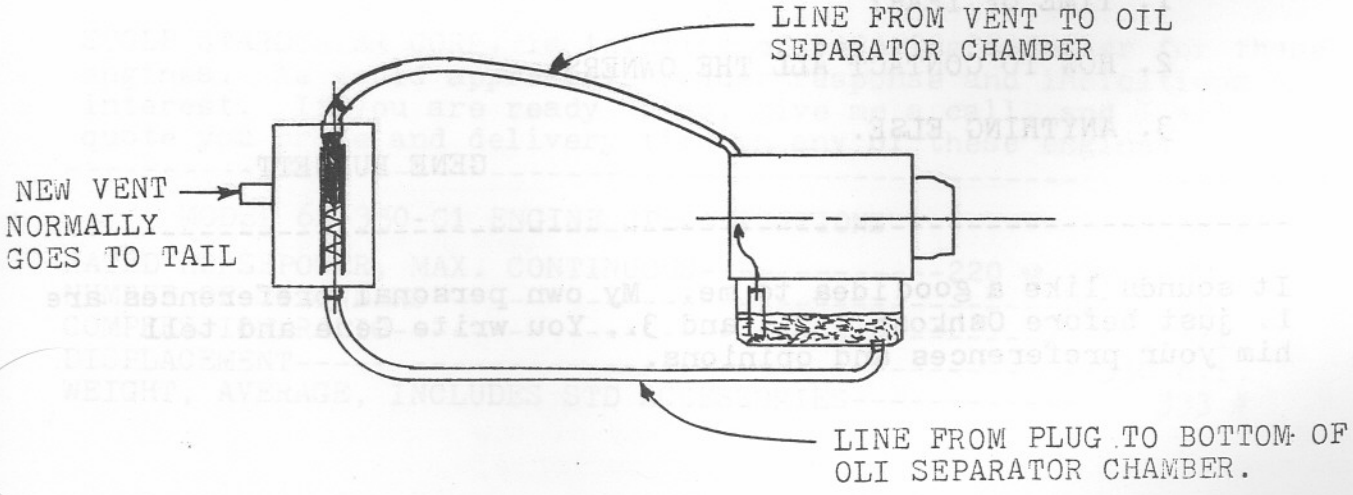
In aerobatics, negative "G" maneuvers are pulled as a matter of course. This means all the oil will go to the top of the crankcase and out the breather tube, unless something is done to stop it. Also, knife edge flight will put the oil over to one side or the other. and vertical flight will put the oil either at the back or front of the engine, depending on whether you are flying straight up or straight down. See sketches below for oil positions.



NORMAL UPSIDE DOWN STRAIGHT UP

An inverted system for oil, then will consist of two interdependent nd intertwined systems, but two separate systems, for all that. System number one will take care of the breather opening, and engine breathing, in either the upright or inverted position. System number two will make sure oil gets to the engine driven pump, regardless of the pickup point.

For system number one, see below.



The oil separator chamber is normally, and rather vulgarly, referred to as a slobber pot. Inside the slobber pot is a sliding weight, This sliding weight will plug up the top opening under negative "G", when the oil is at the top of the engine and trying to flow out the vent hole. The sliding weight never plugs up the bottom opening.

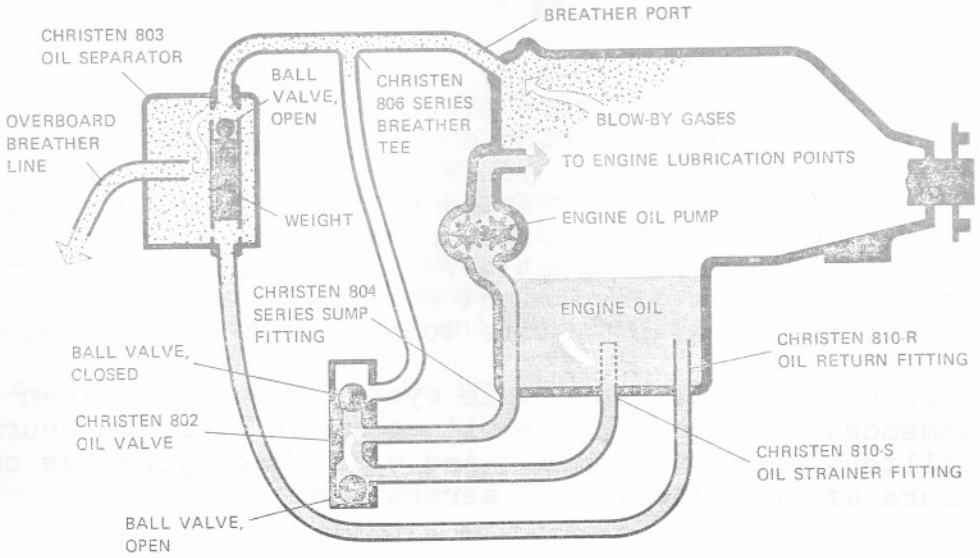
Under positive "G", both top and bottom lines are unplugged at the slobber pot. But since crankcase oil is standing in the bottom line the venting is thru the top line and out the side vent to the tail. Under negative "G" the top hole is plugged by the sliding weight, the oil is at the TOP of the crankcase, and venting is thru the bottom line and out the rear vent.

It is absolutely necesarry to have the slobber pot HIGHER than the oil level in the crankcase. Mount the slobber pot as high as you can get it. Also, mount it as far to the right side, (pilots view) as you can get it. Mounting this way prevents excessive loss of oil during your aerobatic sequence.

Nothing is perfect in this world, and this system also has weak points. It is obvious that going straight up will let the weight float, and oil will pour into the slobber pot from the vent line. When it gets overfull, the oil is dumped overboard. Fortunately, most airplanes do not have the capacity to fly straight up long enough to overload the slobber pot. And 10-15 seconds of straight and level will empty the pot of its overload. Also, going straight down will put the oil in the front of the crakcase, out of reach of the oil pump pickup. No system made will remedy this. And flying prolonged knife edge on the right side will result in loss of oil pressure also. But the system as installed and designed will give you a good useable system which will minimize periods of loss of oil pressure, and also will minimize loss of oil.

Just remember, mount it high, so the sump oil won't easily run out the slobber pot vent. And mount it to the right so the oil system will function on the left knife edge position.

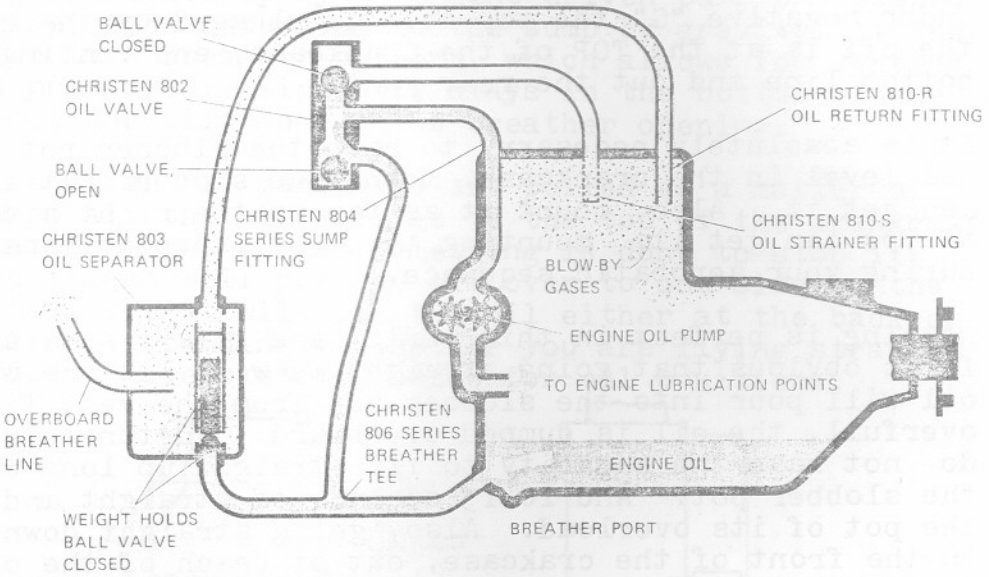
Now that the vent system is taken care of, we have to be concerned about getting the oil from any position back to the oil pump.



A. NORMAL FLIGHT

The drawing at the bottom of the preceeding page is taken from the manual which comes with the CHRISTEN oil system. This is the system we use, sell and recommend, and is the system the Lycoming factory uses on their aerobatic engines.

In this system, oil is supplied to the oil pump by a three way check valve. It is gravity operated by ball weights. To see how it operates inverted, see below.



B. INVERTED FLIGHT

So now we have a pretty good system..not perfect, but the best that is currently available.

One weak point is the gravity operated weights. Any sludge or debris in the oil may get under the ball check valves and prevent one or both of them from seating. A friend of mine had that happen to him once in the very first Acroduster One. After aerobatic practice he was on the way home from the practice area when he saw his oil pressure slowly bleed to zero. He was within gliding distance of the field, so he calmly shut the engine down and glided in for a deadstick landing.

The above is a drastic remedy and really is not necessary. If you ever have your oil pressure bleed away on you after or during aerobatics, just turn upside down and see if the pressure does not come back up. If it does you know it is the ball valve not seating properly. After flying inverted a short time and getting your oil pressure back roll right side up and check pressure again. If it still won't hold, try some abrupt dives and climbs to loosen the F.O.D. If it still bleeds off upright roll back over and fly home inverted, rolling right side up in time to make a good landing.

Because of the dependence this system places on clean oil, it is recommended that you change oil at least every 25 hours. And change oil filters every 50 hours. And still keep your eye on the oil pressure after negative "G" aerobatics.

Because,even with the best system available(this one), there are brief periods when your oil pressure will approach zero, you have to be very careful about what kind of constant speed propeller you use. The ordinary kind will go to low pitch and high RPM with loss of oil pressure. This could overspeed your engine enough to ruin both your engine and propeller. HARTZELL makes an aerobatic model which goes to high pitch and low RPM when loss of oil pressure occurs. THIS IS THE ONLY TYPE OF CONSTANT SPEED PROPELLER YOU SHOULD USE. DO NOT use the standard prop.

Because the RPM's start dropping when you lose oil pressure, you have an excellent low oil pressure indicator. When flying knife edge for instance, you know you can hold it as long as the engine keeps turning up. But, you know without looking, that as soon as the engine starts slowing down, you have lost your oil pressure and it is time to get in some other attitude.

When you buy a CHRISTEN INVERTED OIL SYSTEM from us, an excellent installation manual is included. It tells you step by step what to do and in what order to do it. Just read the manual, and follow directions, and you will wind up with a successful installation.

This article is written mainly to give you a little background and theory before you actually tackle the job, and to point out a couple of areas where trouble might be expected.

CONTINUED NEXT ISSUE

FOKKER CRASHES AT LAS VEGAS

At SKY HARBOR AIRPORT, Las Vegas, Nevada, the Fokker Triplane built and owned by JIM APPLEBY of Antique crashed during a simulated dogfight with Jim Osborne flying a Nieuport 28, on Saturday, 10-25-80.

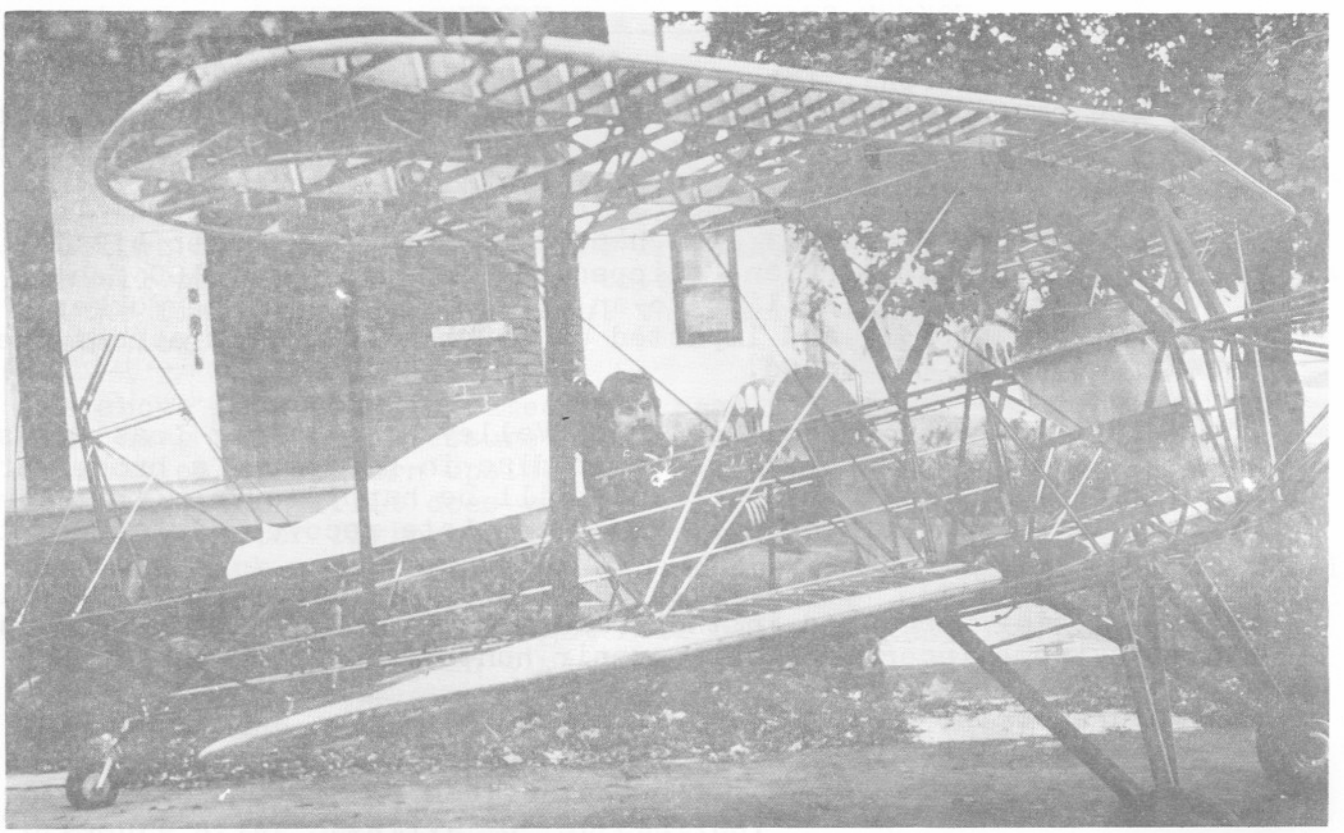
The crash occurred only seconds after the opening maneuvers. The two planes were in a tight left hand turn when the fokker hit the propwash of the Nieuport and flipped upside down about 100 feet above the ground. In rolling to an upright position the Fokker lost altitude rapidly and impacted on rough ground just across the runway away from the crowd.

The pilot was taken by Helicopter to Valley Hospital in Loas Vegas, where he was treated for a fractured disc in his back, a broken arm, and various cuts. His many firends will be happy to know that Jim Appleby is up and working now, and a complete recovery is forecast.

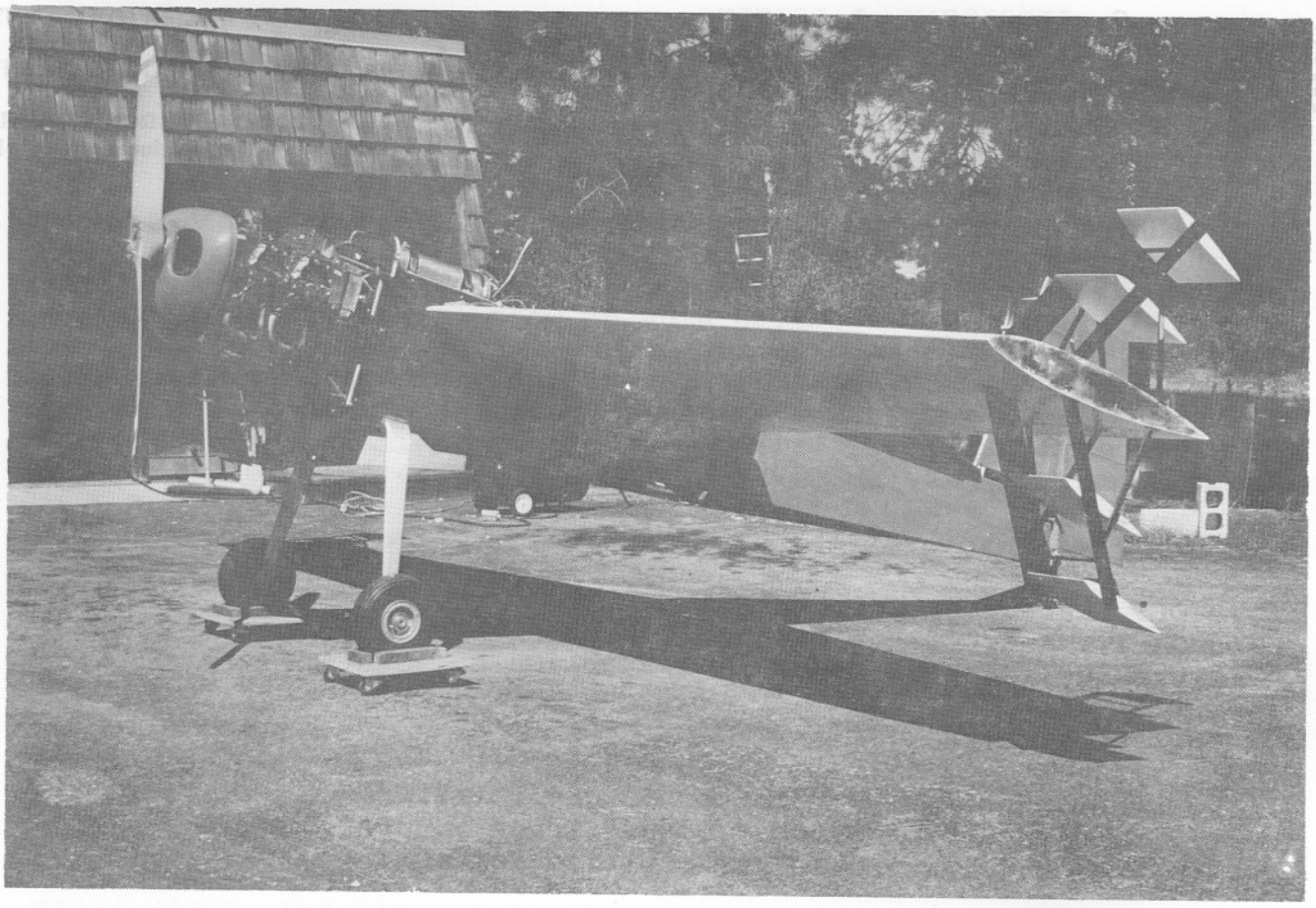
The Fokker suffered very heavy damage, and may or may not be rebuilt. The only thing undamaged in the crash was the rudder, and that was stolen by some inconsiderate souvenir hunter.

The future of the dogfight act is in doubt.

ANOTHER SHOT OF OUR BEAUTIFUL COVER AIRPLANE. STARDUSTER TOO BY OWNER-BUILDER ROGER RUPP, RT 2, BOX 908, SOLDOTNA, ALSAKA, 99669.



J.G. PELLETIER, of MT. ST. GREGOIRE, QUEBEC, CANADA. JOJIKO, SITS IN THE COCKPIT OF HIS NEW STARDUSTER TOO. LOOKS LIKE ABOUT "90% DONE".



PAUL CHARLES
BOX 98
HESPERUS, COLORADO
81326

Hi Jim,

Enclosing a picture of the little monster.

As I told you over the phone, I had changed the arrangement to a T tail 727 looking like the above.

So we will see.

Yours truly,
PAUL CHARLES.

ED. NOTE: Mr Charles is using the above design in place of conventional ailerons on his new homebuilt. At my request he sent a picture of it. I wish to thank him for sharing with us what appears to be a most unusual design feature.

I hope Paul will give us a flight test report as soon as he has had a reasonable opportunity to test his creation.

Crosswinds STOL

8134 Lake Otis Parkway
Anchorage, Alaska 99507
907 - 344 - 4733

CLINTON C. CENTER
CHARLES C. CENTER
GORDON K. MANDELL
Engineering Consultant

November 3, 1980

STOLP Starduster Corporation
4301 Twining, Flabob Airport
Riverside, CA 92509

Dear Mr. Osborne,

We received today your letter of credit reference, per our request of October 13th. Thank you very much for your quick response and positive remarks.

It has been a pleasure to do business with your company, and we look forward to future dealings with you.

Regards,

Clinton C. Center, President
Crosswinds STOL

ED. NOTE: Cal and Charles Center operate a STOL business in Alaska, making conversions similar to those made in the states by other, better known companies, only, Cal says, he makes them better.

Anyone in Alaska needing a supercub, or other bush type airplane, made even better is advised to see CROSSWINDS STOL.

They will also go into the boonies and bring back your crippled bird, and then rebuild it after it gets back.

They have their own private strip near Anchorage, and it is all of 400 feet long. They fly their STOL conversions out of it in a routine fashion.

AMERICO J. MAZZIOTTI
84 Sherwood Street
Portland, Maine
04103

Dear Jim,

Thank you for sending me the STARDUSTER TOO Aircraft Basic Data sheet. I guess I could have looked at sheet one. I never thought of it. Anyway, I've got it stored someplace, and I can't remember where. Oh well, it will show up some day.

I received a letter from our friend BILL BARNETT before I received yours, and he mentioned that you were nice to show him the buildings and the operation, and he appreciated it very much. He was our past president of the EAA Chapter 141, here in Portland, Maine.

I'm on my second term as President (4th year), and my term will end this December.

Glad to hear that he bought a set of plans for the SA-750, and, like you siad, I hope he builds it.

In my letter I must have asked you what the landing gear(SA300) weighed, and you siad that you didn't know, and for me to weigh mine, and let you know. Well, Jim, to tell the truth, I do have a few weights that I started to keep, and, for what its worth, I'll tell you a few that I have.

RIGHT UPPER WING WITHOUT COVER	36	pounds
LEFT UPPER WING WITHOUT COVER	35	"
CENTER SECTION WITHOUT COVER AND GAS TANK	32	"
CENTER SECTION GAS TANK, EMPTY	13	"
AILERONS WITHOUT COVER	5	" EACH
FIREWALL, WITHOUT TUNNEL	5	"
ELEVATOR, UNCOVERED	9	"
HORIZONTEL STABILIZER, UNCOVERED	13	"
TAIL WHEEL, MAULE S-P-8	7	"
TAIL WHEEL SPRING	4	"
RUDDER WITHOUT COVER	5	"
TURTLEDECK (STARDUSTER) NO BULKHEAD	4	"
COCKPIT COAMING (STARDUSTER)	9	"
GAS TANK,(MAIN), EMPTY	12	"
RIGHT LANDING GEAR, OFF PLANS, NO WHEEL	13	"
LEFT LANDING GEAR, OFF PLANS, NO WHEEL	13	"
TWO WHEELS, TIRES, BRAKES, AND TUBES	30	"

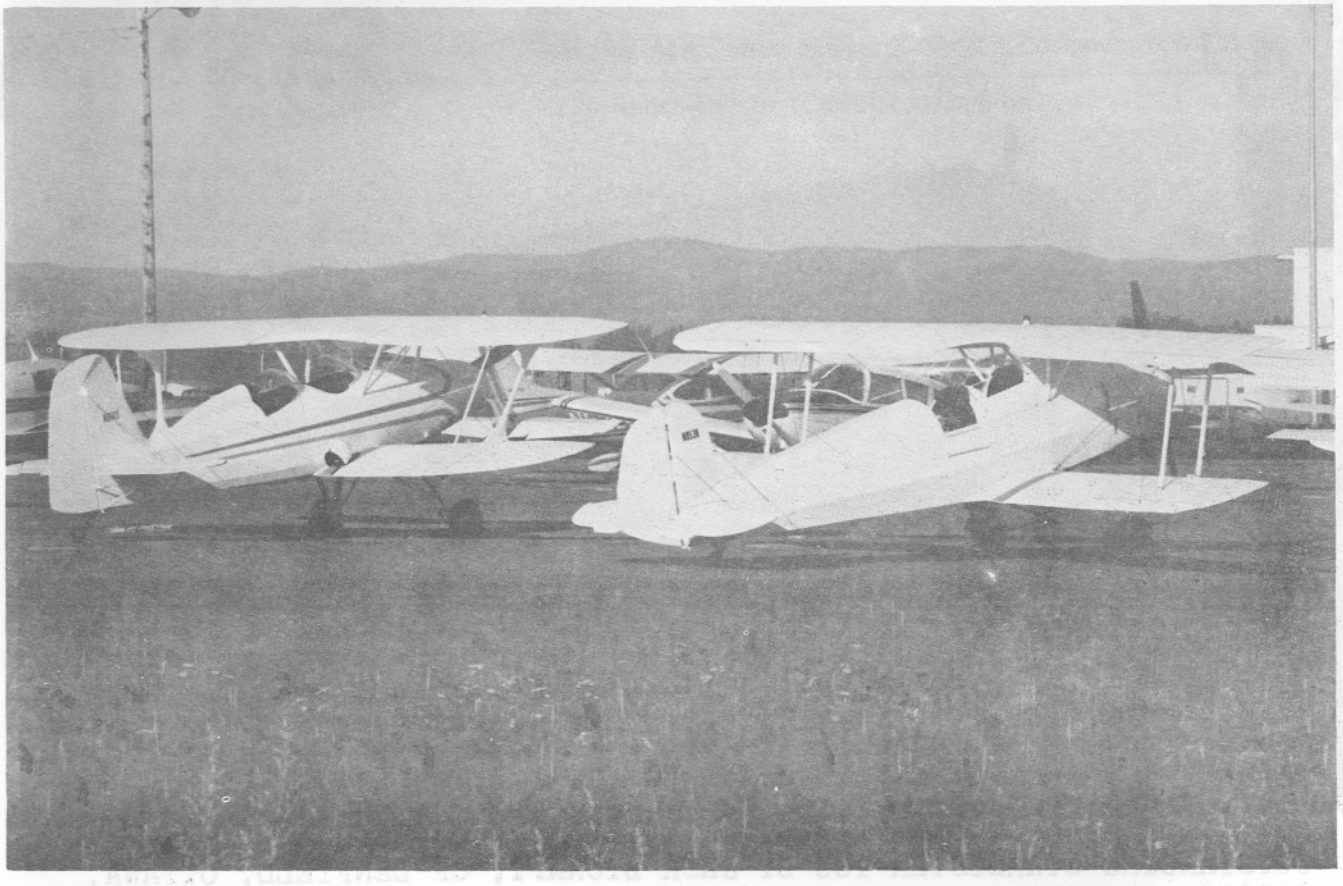
THATS ABOUT ALL THE WEIGHTS THAT I HAVE AT THE PRESENT TIME.

SINCERELY,

MAZ

A PICTURE OF STEVE WITTMANS TAILWIND. THIS MACHINE FLIES ON A CONVERTED OLDSMOBILE V-8 ENGINE, AND HITS A LAP SPEED OF 200 MP.H.

A NICE PICTURE OF ACRODUSTER 121RM, ORIGINALLY BUILT BY RANDY MCCOY, AND NOW HOUSED IN KANSAS CITY. A STRIKING PAINT JOB.



Dear Jim,

Just thought I'd drop you a line to let you know that the old farmer from Montana flew his STARDUSTER TOO-N81RS on July 9, 1980.

The first flight was made from our Bluegrass strip, uneventful, but very rewarding.

Our TOO is powered by a Lycoming IO-360-CiC 200 H.P. engine, has a full electrical system, and inverted fuel. Inverted oil, smoke system, gear fairings, and wheel pants will be added when the farming is done this Fall.

The weight came out at 996 pounds, which was lighter than expected.

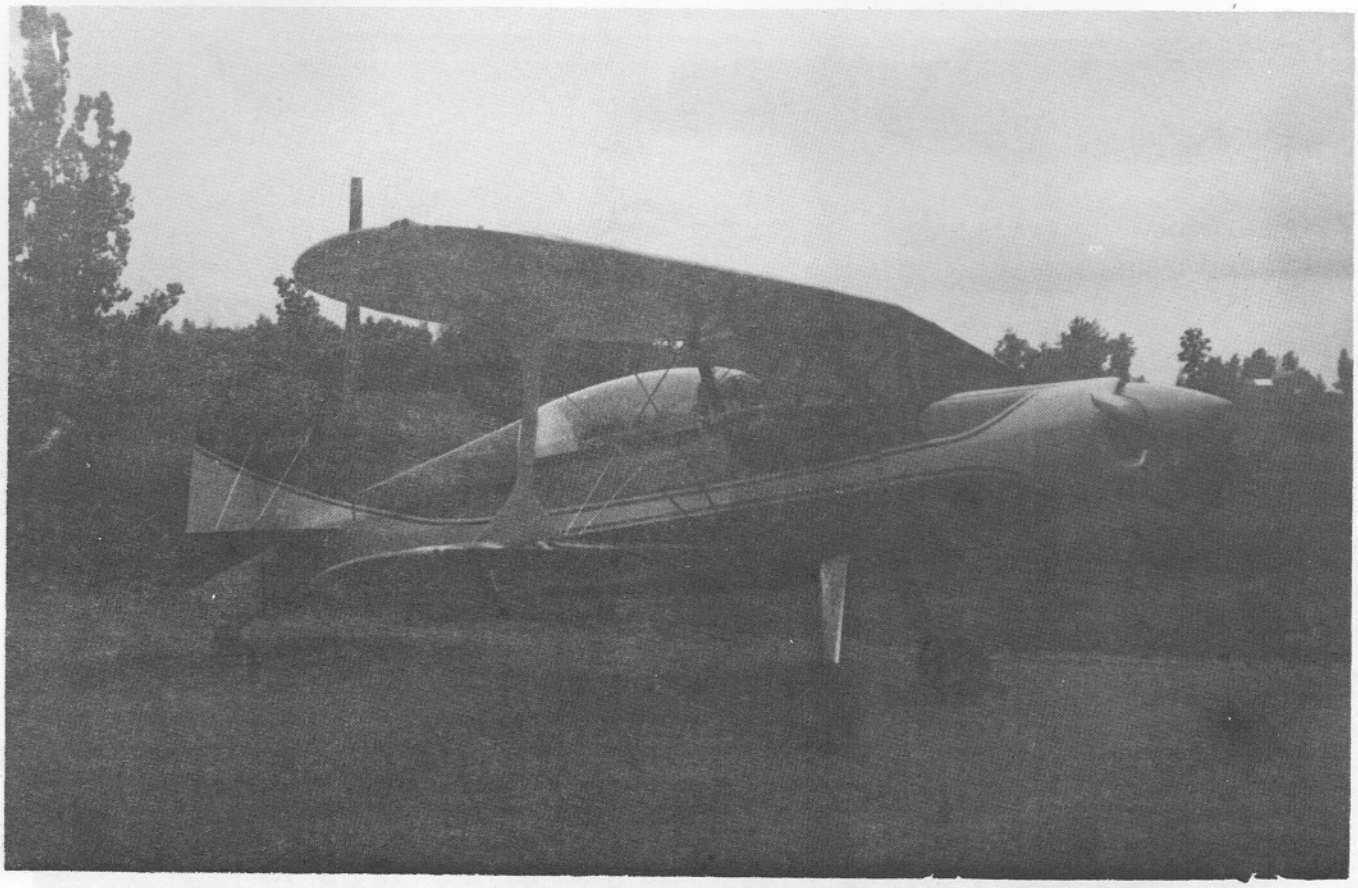
I started the project November 17, 1977, and worked two full winters. Due to St. Helen's Fallout, and lots of rain, I was able to complete it this past July.

We want to thank you and your staff for your information, cooperation, and super service in the past 2-1/2 years.

Enclosed are some shots of the STARDUSTER and a BUCKER JUNGMANN 131 also finished by Hank Galpin in our shop at the same time.

Sincerely,

RAY SANDERS



OUTSTANDING STARDUSTER TOO BY JACK BYCRAFT, OF DENFIELD, OTTAWA, CANADA. FEATURES TWO PLACE SLIDING CANOPY AND ALUMINUM GEAR. BELOW IS RAY BRANSON OF KIMBERLY HEIGHTS, MO, WITH HIS SECOND STARDUSTER TOO. RAY'S WORKMANSHIP IS IMPECCABLE.

QUALITY NASAD SEAL

National Association of Sports Aircraft Designers N.A.S.A.D.

1174 Ranchland Dr./Cleveland, Ohio 44124

September 30, 1980

Mr. Harvey R. Swack
P.O. Box 5974
Cleveland, OH 44101

N.A.S.A.D.
BOX 18486
WICHITA, KANSAS 67218

Dear Mr. Swack:

In reference to our phone conversation, I have no concern whatsoever in regard to the liability of my own airplane.

I don't think any of us should run N.A.S.A.D. for our own personal problems.

We should be advising our members on how to stop a law suit dead in its tracks, when a summons is first served.

An attorney is never going to tell a sucker how to do this. He would soon die of starvation if he did.

But, N.A.S.A.D. can tell our members how to do this.

This will never be accomplished while holding hands with attorneys. They have a need to make money to live on. Their conduct can never conform to the needs of N.A.S.A.D. members.

Sincerely,

Dave Blanton

David D. Blanton
Vice President N.A.S.A.D.

THE ABOVE INTERESTING LETTER WAS RECEIVED RECENTLY. IT IS PUBLISHED IN THE INTERESTS OF ANYONE WHO MAY BECOME INVOLVED IN A LAWSUIT WITH HIS AIRPLANE. PERHAPS, IF ENOUGH OF US WROTE TO DAVE BLANTON, HE WOULD ELABORATE ON THIS INTERESTING LETTER.

Jim Osborne

September 16, 1980

STOLP STARDUSTER CORP.
4301 Twining
Flabob Airport
Riverside, California
92509

BILL CLOUSE,

Just a short note to thank you for your prompt and professional repair work.

Bill Hargreaves was extremely happy with the delivery of his struts by Friday.

Enclosed please find check for $35.00. I could not remember the exact change,(34.?), so I made the check out for $35.00 even.

Thank you,

DEBBY PALMER
GENERAL MANAGER
ASSOCIATED AIR ACTIVITIES, INC.

ABOVE IS PICTURE OF ROD BOWER'S GREAT STARDUSTER TOO. IN THE BACKGROUND IS HOME OF MASSEY AVIATION OF DELANO, CALIFORNIA.

ROD BOWER
101 S. Divisidero
Visalia, California
93277

Dear Jim,

Enclosed please find a picture of my pride and joy. Many thanks for the three back issues of your newsletter, and please find my check for $12.00 for the past and next years subscription.

The particulars on my airplane: power-IO-470-F-260 H.P. Continental. Empty weight-1470 pounds. Building time-3-1/2 years. First flight-March 22, 1980.

There was little deviation from the plans, with the exception of profile changes on the rudder and horizontel tail. These changes were prompted by the shape of the most beautiful wing in the business.

I am particularly pleased with my bottom cowl NASA duct system, and aluminum I strut fairings. The duct came from the side cowl of a Beech Duke, as did the exhaust headers, and the fairings, both I strut and bottom wing, from DEL-Air in Porterville, Callifornia.

The only problems encountered were with the streamlined aileron slave struts trying to fly, causing flutter, and right or left wing heaviness.

I am seriously considering going to round tubing as a simple fix.

The only other change evident is the aluminum turtle deck, and associated foam/dynel fairing to the vertical fin, and foam/dynel wing tips. I used STITS polyfiber process throughout, including the polypaint, and had great results.

The aircraft seems to be well received, as it won GRAND CHAMPION HOMEBUILT award, and best open cockpit award at Merced. It also won best homebuilt biplane awards at Porterville and Tulane last month.

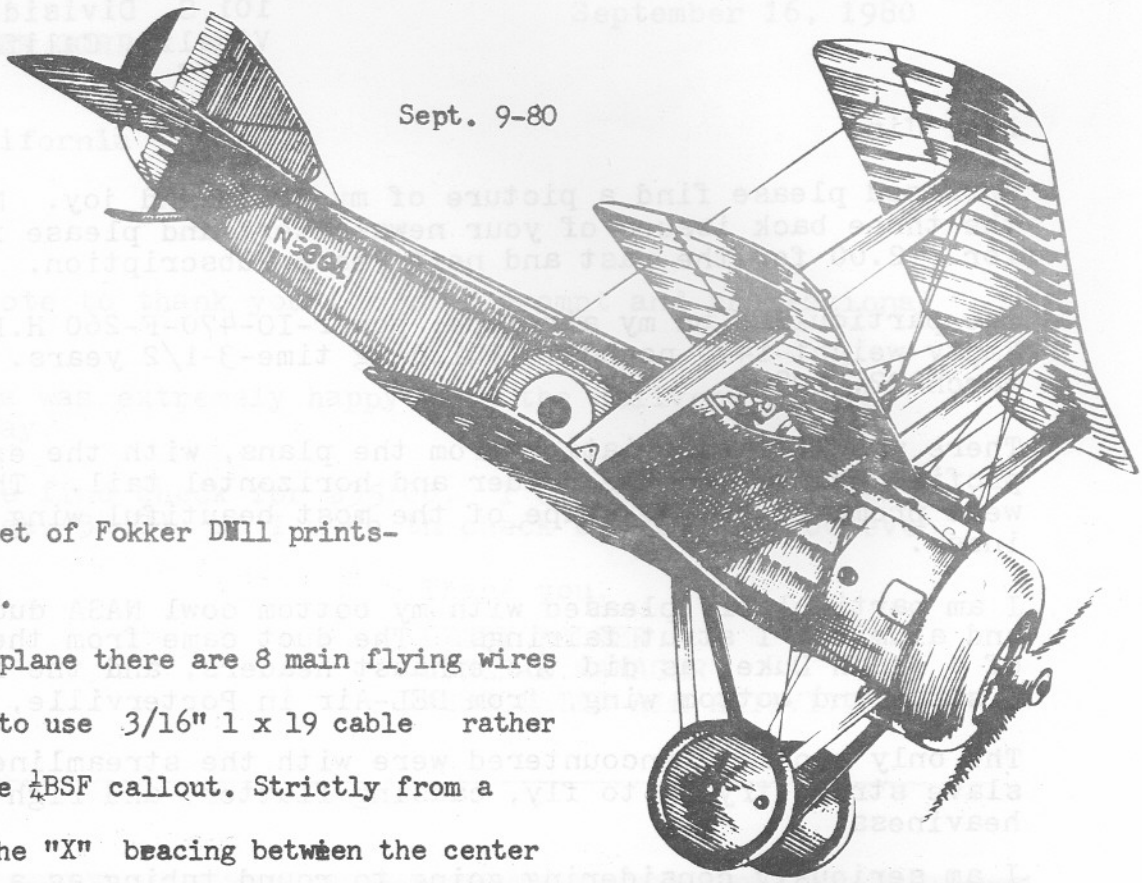
It flies great, with only 24 hours on it so far. My hat is off to the people behind one of the prettiest designs on the market.

Sincerely,

ROD BOWER
(209) 733-1592

ED. NOTE: We wish to thank Rod for the letter and picture of his beautiful creation. It looks like there is another trophy winning airplane in the great tradition of STARDUSTERS.

We hope he manages to correct the flutter of the streamlined slave struts without going to round tubing. Maynard and Patty Engle did it by welding on a spoiler on one side of each strut. The spoiler was nothing more than 1/16 welding rod welded to the surface of the strut, at its widest point.



Sept. 9-80

George W. Clapp
2223 West State Street
Olean, New York 14760
[716] 372-4722

Dear Mr. Osborne,

Please make up a set of Fokker DVII prints-

Encl. $121. Thanks.

In the Sopwith Triplane there are 8 main flying wires for which I plan to use 3/16" 1 x 19 cable rather than the streamline ¼BSF callout. Strictly from a expense reason. The "X" bracing between the center plane struts might better be 3/16 rather than 5/32 thus I wish you to quote a price for 10 turnbuckles that have a rating commensurate with 3/16 wire . Obviously if the WWI turnbuckle failed at a tensile less that the tensile of 3/16 wire, not only would the FAA be unhappy, but the pilot would be too. I'm interested in your components possibly towards the DVII but operate in a totally different environment where money like that isn't available. If I had $6600, I'd buy an engine for one of my two T-6's and would not be assembling myself the R-2600 for my TBM. I can build almost any aircraft in mind for $2200 or $100/month for 22 months. Sometimes that includes the engine as with the Triplane and DVII and GeeBee Model Y, other times it doesnt such as the Gnome Nieuport, Its tough To find Bomb Doors for my TBM for $2000 and not be able to afford to obtain them. A Fuselage costs me $300 from the wholesale tubing house and takes me 4 weeks of evenings to have it on its gear and hard wired with WWI Ferrules (which I make and distribute) and WWI turnbuckles which I have in large supply. I know the Westcoasters are 1 x 19 and nicopressers when wiring a fuselage like your -28, but I'm probably going to make a new run of Ferrules in stainless if the bay wiring for the DVII is other than .090; .105; or .125 for which ferrules are in stock. Should you care to trade for ferrules I'm open. (see how its done)

I also supply Ash tail skids, Ash rudder bars (Nieuport, Sopwith), furrules of course, custom stainless hard wiring to customers dimensions, using customers turnbuckles, ready to install- fuselage and wings- , Sopwith trim wheels (castings) and OX-5 valve springs in complete sets. I'll trade or sell.

We are extremely busy in the fun aircraft hobby, and will someday make it cover the minor expense of building planes.

Sopwith Triplane-#1 project-to fly summer of '81.
Cessna 195- restored to zero, spring '79- is air freighter for parts.
Nieuport 28-(gnome) fuselage erected. Have engine, prop, cowl, parts.
F4U Corsair- 70% size. Very slow. have engine, prop, fuselage, tail.
AT-6G- looking for engine. Have Mark 11 Harvard for parts.
Gruman TBM-3- restoring steady, should taxi '81.
Aeronca Chief-CA-65 1941- Need put on gear again.
Cessna-T-50- parts airplane.

ON THE DRAWING BOARD.
Alexander Eaglerock- have engine-(OX-5) and prop
Fokker D-VII- have engine
Gee Bee Y senior Sportster- have engine and cowling.

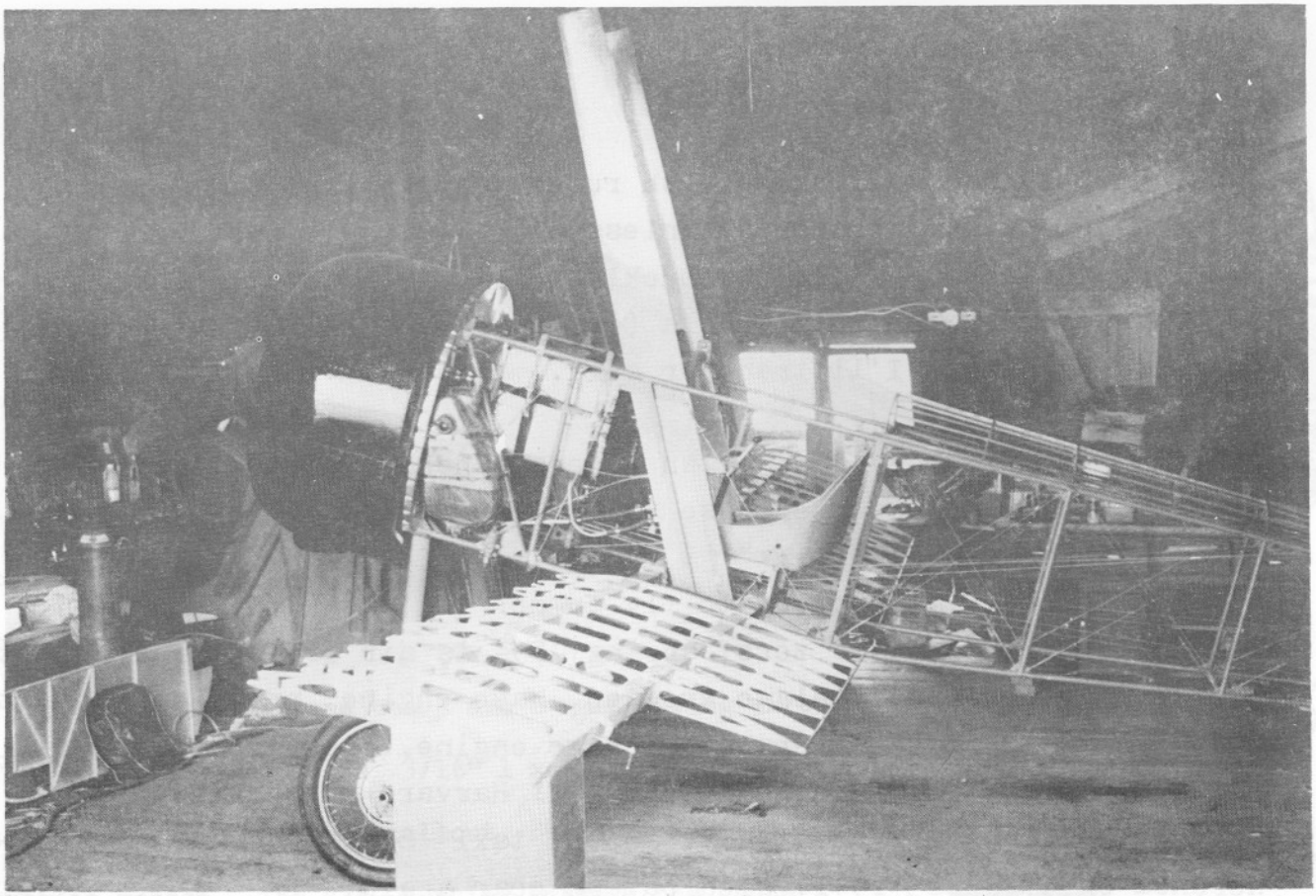
If you run into a need for aviation hard wire and ferrules in Stainless Steel, has passed FAA inspection, my aircrfat and Leo Opdyckes Scout with LeRhone 80, and destruct test, let me know, cause I trade for supplies.

Cheers,

George

The above is published in the interests of any of our readers who may be building old airplanes and need supplies of the type George has to sell.

In addition, Stolp Starduster Corp. has two spun aluminum cowlings suitable for WW1 Rotary engines.



ABOVE IS A PICTURE OF GEORGE CLAPP'S SOPWITH TRIPLANE PROJECT.

BELOW IS A G THERING OF WWI AIRCRAFT AT FLABOB AIRPORT(OLD RHINE-BECK WEST?) RECENTLY. THEY ARE TWO FOKKER TRIPLANES, TWO ALBATROSSES, (HALF THE WORLDS TOTAL SUPPLY), A TOMMY MORSE SCOUT, A NIEUPORT 28, AND A SOPWITH PUP.

Classified Ads

ADVERTISING CLOSING DATE:-JANUARY 1, APRIL 1, JULY 1, OCTOBER 1. CLASSIFIED ADVERTISING RATE: $4.00 PER COLUMN INCH- MINIMUM CAHRGE, $4.00. MAKE CHECKS PAYABLE TO STOLP STARDUSTER CORPORATION.

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FOR SALE: ACRODUSTER TOO. EARLY MODEL---- SIMILAR TO MORGAN SCHRACKS AIRPLANE. ONLY 48 HOURS TOTAL TIME, AF & ENGINE. LOADED WITH INSTRUMENTS AND RADIO. VERY NICE FLYING MACHINE--CONTACT JIM OSBORE AT ~~STOLP~~ STARDUSTER CORP,. AND BE SURPRISED AT THE LOW, LOW PRICE.

FOR SALE; WRECKED STARDUSTER TOO. MANY USEABLE PARTS. FOR DETAILS, CALL HAROLD MILLER, 2942 SILVERWOOD DRIVE, FORT COLLINS, COLORADO 80525- PHONE: (303) 223-6457 Home (303) 482-9154 Off.

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CALL (714) 686-7943

STARDUSTER SMOKE SYS- SYSTEM-REDESIGNED AND IMPROVED. NEW, LIGHT WEIGHT, 12 VOLT PUMP. ONLY $240.00 COMPLETE

SMALL, GEL CEL BATTERY FOR POWERING RADIOS & SMOKE PUMPS. 6AMP HOUR 4.6 POUNDS-5-1/2" x 3-7/8" x 2-3/4". FITS INTO SMALL CORNERS. RECHARGE WITH AUTO TYPE HOME CHARGER. 49.95 FROM STARDUSTER

QUARTZ CHRONEMETER- FROM VDO- HIGHEST QUALITY AUTOMOTIVE INSTRUMENT. ACCURATE TO WITHIN A FEW SECONDS A MONTH. HAS ELAPSED TIME FEATURE. DRAWS VERY SMALL AMOUNT OF CURRENT FROM BATTERY. EXCELLENT FOR PLANES WITH ELECTRICAL SYSTEMS. ONLY $59.50 FROM STARDUSTER

VDO OIL TEMPERATURE-- 2-1/16" DIAMETER-BLACK BEZEL-THE USUAL VDO TOP QUALITY-- ONLY $42.00 FROM STARDUSTER

VDO OIL PRESSURE GAGE 0-100 PSI. 2-1/16" DIA BLACK BEZEL-HANDSOME AND FUNCTIONAL- ONLY $29.50 FROM STARDUSTER

VDO FUEL PRESSURE GAGE- TOP QUALITY-0-30PSI-- MATCHES OTHER ENGINE INSTRUMENTS IN APPEARANCE. ONLY $51.10 FROM STARDUSTER

BUILD AND FLY THE WORLD'S EASIEST-TO-BUILD, AND HOTTEST PERFORMING AEROBATIC BIPLANE--- THE ACRODUSTER ONE

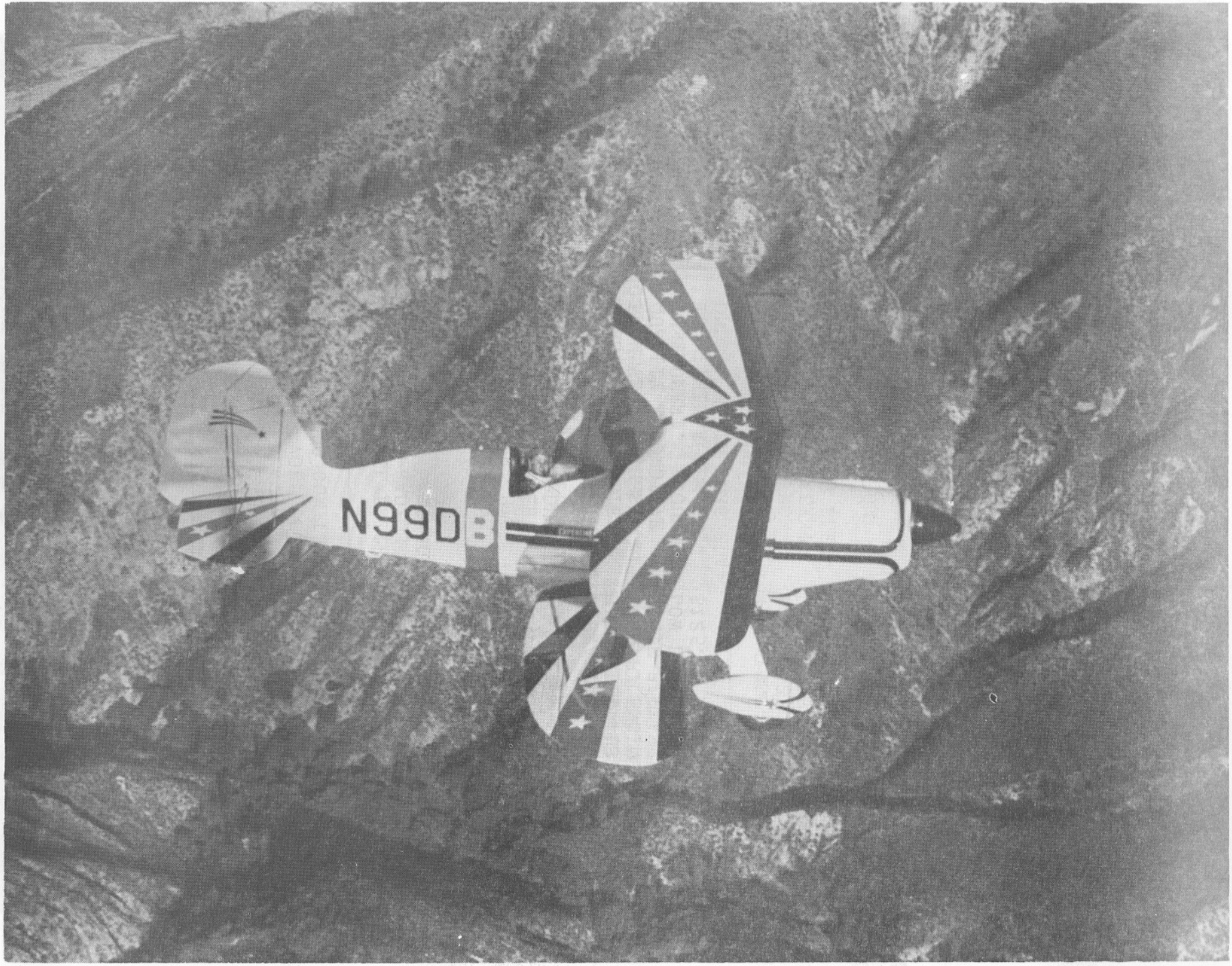
BROCHURE---$5.00
COMPLETE KIT------$7800.00

STEWART WARNER OIL COOLERS CERTIFIED--USE TWO FOR 200H.P. ENGINES IN TWO PLACE BIPLANES. BUY AT OUR LOW DISCOUNT PRICE OF ONLY $125.00 EACH.

NEW WINGS--FOR STARDUSTER TOO'S. 23012 AIRFOIL----- BETTER PERFORMANCE INVERTED. FASTER AND LIGHTER AILERONS. AVAILABLE READY BUILT ONLY-- FROM STOLP STARDUSTER CORP. $5400 READY TO COVER.

FOR A HAPPY ENDING------- NEW "T" FOAM CUSHIONS. MADE FROM TWO DIFFERENT DENSITIES OF NASA DEVELOPED FOAM. USED FOR ASTRONAUTS COUCHES. YOUNEVER FELT IT SO GOOD. $25.00 FOR THAT GOOD FEELING.

FOR FAST DELIVERY SERVICE BUY FROM STOLP STARDUSTER CORPORATION.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