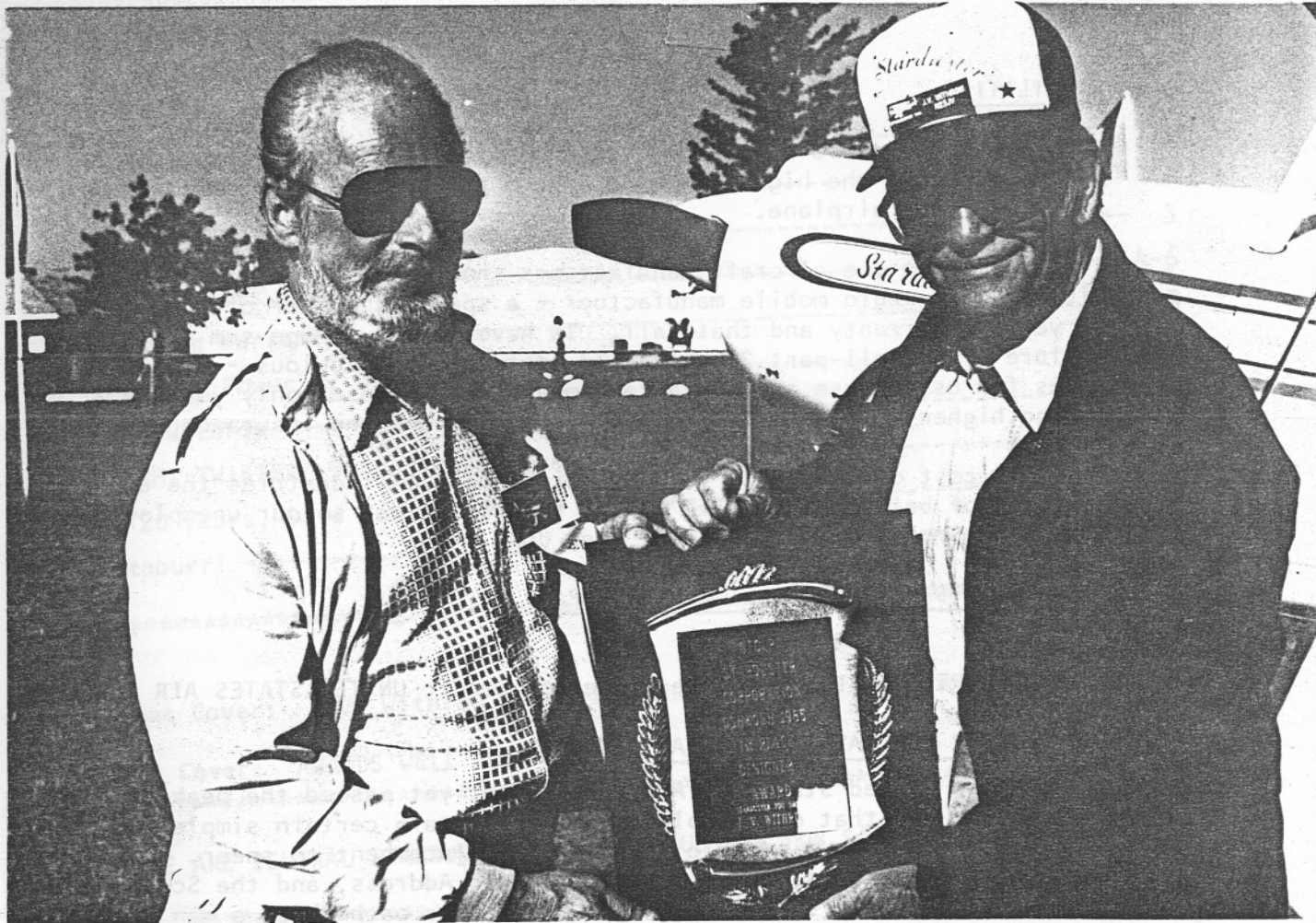


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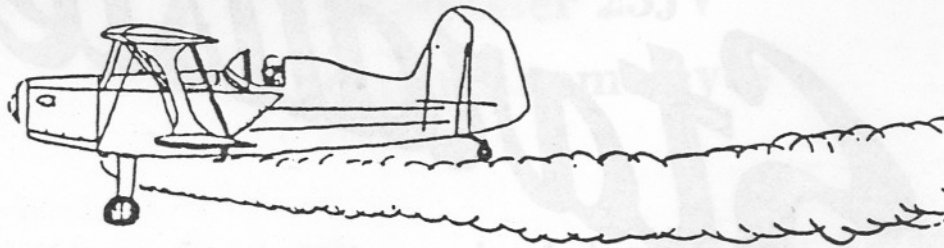
Starduster

MAGAZINE



Dedicated to the
ACTIVE Homebuilders

† OCTOBER 1985 †



PRESIDENTS COMMENTS

LIABILITIES

We are all too aware of the high cost of liability Insurance. I do not want to discuss the high risk kind like our annual convention - but Low Risk like your airplane.

I believe that the aircraft manufacturers should not be any more responsible than an auto mobile manufacturer - a specific number of hours and or years - warranty and thats all. To have to pay a huge sum for the failure of a small part 28 years old is totally rediculous - and disastrous for us because an insurance company never loses only you and I, by paying higher prices for any consumer goods - and the insurance we need.

The high cost of insurance is preventing American Industries the capabilities of being competitive on the foreign market so our unemployment goes up - Gross National Product goes down -

AMERICA LETS WAKE UP - LET'S STAND UP !

B. C.

GENERAL CURTIS E. LeMAY, former Chief of Staff, UNITED STATES AIR FORCE.
QUOTE:

THOUGHT FOR THE DAY - OR FOR ANY DAY.

"I hope the United States of America has not yet passed the peak of honor and beauty, and that our people can still sustain certain simple philosophies at which some miserable souls feel it incumbent to sneer. I refer to some of the Psalms, and to the Gettysburg Address, and the Scout Oath. I refer to the Lord's Prayer, and to that other oath which a man must take when he stands with hand uplifted and swears he will defend his country."

OCTOBER

STARDUSTER MAGAZINE

1985

Starduster Magazine acts as an open forum for Homebuilders. The ideas expressed are often those of our Readers, and Starduster assumes no liability or responsibility, either expressed or implied, as to the suitability or accuracy thereof. Anyone using these suggestions or ideas does so at his own risk.

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Front Cover: J.V. Withrow receiving the 1st place Designer Award. "1985"

Back Cover: AWARDS WELL DESERVED

THERE ARE SEVERAL STARDUSTERS AND ACRODUSTERS FOR SALE: CALL FOR DETAILS

Bill Long

2

Prop Shop

Good maintenance practices are a must for the professional maintenance department. And in maintenance, nothing is more important than propeller inspection.

The propeller is subject to vibration and metal fatigue, stresses which could cause premature failure. Damage can also result from nicks caused by ground debris and airborne objects. It is important to know the signs that could indicate potential problems, so that corrections can be made immediately.

Know the type and operating characteristics of the propellers on the particular aircraft being flown, in order to insure optimum aircraft performance and safety.

Always read the identifying decals and other inscribed pertinent information on the propeller. They identify the propeller type, and are the keys to identification of all parts of the propeller.

Vibration can limit the life of metal blades. For this reason, it is very important that the aircraft tachometers are checked against a known calibrated instrument. TRW Hartzell has a Vu Thru tachometer test set to assure accurate tachometer calibration.

All propellers will wear and become unairworthy at some point. But there are some care and maintenance tips that will prolong the life of any propeller:

- Never move an aircraft by pushing or pulling on the propeller blades; they are not designed to be used as handles or towbars.
- Limit operation of aircraft in areas with loose stones or gravel which could be pulled into the propeller blades, causing damage to the blades on faces.
- Be cautious when taxiing from the runway. Runway lights, snowdrifts, and tie down chains can severely damage blades.
- Clean the blades with solvents and wax them regularly to avoid the build-up of dirt, oil, or other foreign matter which could hide defects.
- Whenever nicks, gouges and scratches are found, remove them promptly and properly.

Pre-flight checks of the propeller should include the following points:

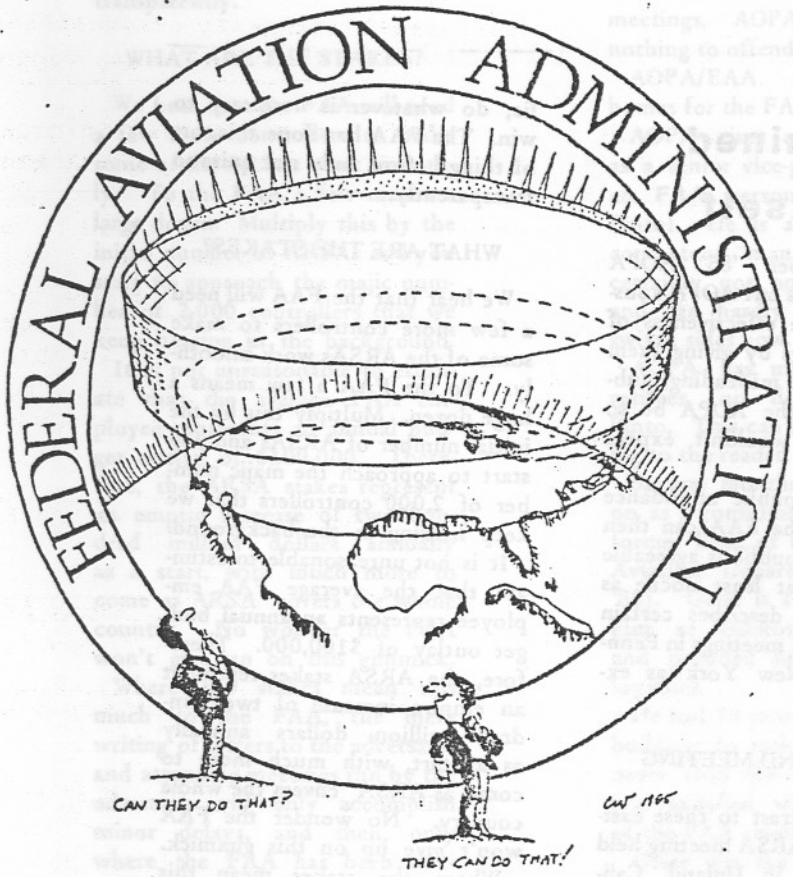
- Inspection of not only the leading edge of the propeller, but the entire blade for erosion, nicks, cracks, and scratches.
- Check blades for evidence of lightning strikes. In most cases, the blade tips will be eroded and dark in color. Extensive damage can occur to many areas, including hub parts. In all cases, a complete propeller overhaul is required.
- Check the spinner and visible hub parts for any damage or cracks. Look for grease or oil leaks in and around the hub areas.
- Be aware of unusual vibrations that might indicate other problems, such as loose engine mounts. Corrective action must be taken prior to operation.

The Product Support Department at TRW Hartzell Propeller Products Division is available 24 hours a day. If you have any questions regarding the care and maintenance of our propellers, please give us a call at 513.778.4377.

Write for the booklet - "Propeller Operation and Care". Office of Product Support, TRW Hartzell Propeller, 1800 Covington Ave., Piqua, Ohio 45356.



The cost of launching a legal
barrage at the FAA is no more
than the normal expense for a
lawyer. This legal barrage is
not a problem.



PROXY +++ PROXY +++ PROXY

I appoint Charles Webber, 4130
Mennes Avenue, Riverside, Cal.,
92509, as my agent and proxy to
vote in my place at any meeting
or business of AOPA and/or EAA.
This proxy supersedes any prior
proxy. It will be valid during
my present terms of membership
and all future renewals unless
revoked by my choice.

(Signature) (Date)

(AOPA Membership No. - Expires)

(EAA Membership No. - Expires)

(Please print your name)

(Street)

(City) (State) (Zip)

TO OUR READERS

The following story should be very interesting to most of our readers -
Most of whom are EAA'ers but all that are interested in general aviation.
After reading this story you won't need an introduction to know him. He
is only trying a little harder, than most, to do a job anyone of us would
like to see done. Though I do not go along with all of Charlies comments
there is a message, are we going to do something about it?

Bill Clouse
Bill Clouse

FAA PROBLEMS? ASK CHARLIE

By Charles Webber

The FAA is Still Determined to Make an ARSA of Itself

The future FAA logo was revealed in the August '85 issue of AVIATION JOURNAL. It showed how the continental USA will eventually be overcast by a huge inverted wedding cake region of positive FAA control.

Two citizens are shown studying this sickening possibility. One asks the other, "Can they do that?" The other replies, "They can do that!"

The point being made is that this concept of total FAA control is not contrary to the aviation law as long as the FAA can show that the end result conceivably contributes to increased safety in air commerce.

The present disputed ARSA areas threatening to ruin aviation are just the beginning. Many of them overlap. Given more and

more of them, they will finally erode the freedom of the whole country, just like it shows in the FAA logo.

The FAA has shown its intent quite clearly. Most of the ARSAs are so totally foolish, i.e. March AFB (Riverside, California) that the FAA effectively confesses that it has no sincere interest in the actual safety of air commerce.

The FAA is interested only in its own expansion as represented by these blobs of screwed up airspace. These ARSAs are not needed. None of them. This use of a rubber-stamp technique for expanding FAA power is a fraud. It must be stopped.

HOW IS THE FAA STOPPED?

Our AOPA/EAA tell us we must

write letters to the FAA, to congressmen, to everybody. They tell us to attend public meetings set up by the FAA on the ARSA topic.

The September '85 AOPA Newsletter points out AOPA's suspicions that the effectiveness of its own meetings by giving them minimum, if not misleading, publicity. Could the AOPA be so naive that it wouldn't expect this?

Naturally, if public attendance is indifferent, the FAA can then claim that the public is agreeable to ARSA, or at least docile as usual. AOPA describes certain poorly attended meetings in Pennsylvania and New York as examples.

THE UPLAND MEETING

In sharp contrast to these eastern flops, the ARSA meeting held September 11 in Upland, California, was attended by a large and ravenous crowd.

Try as they might, the FAA could not keep this roasting a secret. However, they did try. At a previous meeting (AJ, August '85) that included the ARSA issue, I signed everything in sight hoping to get on a mailing list for future ARSA programs. Nothing was sent to me.

In Upland, the FAA team presented the FAA's plans as if the crowd was obliged to love it. The crowd's hostility really arose and the questions and speeches were remarkably pointed and intelligent. Someone from the crowd even took a voice vote which was totally against the FAA, who even forgot to support its own party line.

Considering all these facts, there cannot possibly be any doubt anymore that the FAA is not on our side. The FAA is our adversary determined to get its full self-serving ARSA program no matter what!

An FAA in such a bloody mood will push, shove, cheat, delay,

lie, do whatever is necessary to win. The FAA has done this sort of thing before, only not quite so transparently.

WHAT ARE THE STAKES?

We hear that the FAA will need a few more controllers to make some of the ARSAs work smoothly. To the FAA a few means a large dozen. Multiply this by the initial number of ARSAs and you start to approach the magic number of 2,000 controllers that we keep hearing in the background.

It is not unreasonable to estimate that the average FAA employee represents an annual budget outlay of \$100,000. Therefore, the ARSA stakes represent an empire increase of two hundred million dollars annually as a start, with much more to come as ARSA covers the whole country. No wonder the FAA won't give up on this gimmick.

Where the stakes mean this much to the FAA, the mere writing of letters to the adversary, and attending meetings run by the adversary will only accomplish minor delays, and then, only where the FAA has been unusually clumsy and overbearing.

Regardless, the end will be the same. The proposed ARSAs will be implemented eventually if not sooner, and many additional ARSAs will follow as public apathy takes over.

SILENT SMIRK

Many pilots will rebel and break the law. They will turn off their transponders and ignore the ARSA requirements. What will the FAA do about it? Nothing!

First of all, the FAA will have its hands more than full simply trying to handle the sheople who will try to cooperate. You will hear a lot of complaints from these sheople. The rebels will express a degree of satisfaction by means of silent smirks.

These rebels are safe from FAA enforcement attack because

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the FAA will never admit that there are any rebels. The FAA will claim that the public has fully adapted itself to ARSA. Does any rebel want to be a witness to the contrary?

AOPA/EAA TO THE RESCUE

Other than the usual pious articles, prayers, and suggestions to write letters and go to FAA meetings, AOPA/EAA will do nothing to offend the FAA.

AOPA/EAA are retirement homes for the FAA.

AOPA just announced hiring as a senior vice-president no less an FAA person than Edmund Pinto! He is a very slick and competent man, but he was certainly not on our side then, and can hardly be expected to switch sides now.

AOPA has many other FAA retirees, no doubt friends of Pinto. This can hardly be reassuring to the reader.

Several months ago EAA took on as a consultant Bernard Geier, former head of the FAA General Aviation Department (AJ, Oct. '85). Geier is a big fish. I met him at Oshkosh this summer and prodded him to reveal his loyalties.

He had 18 years of FAA empire-building to rationalize. He had never read the aviation law and was satisfied with the blessings of the FAA attorneys.

Geier was the other side then. He is not on our side now, and never can be. The same applies to Dr. Mohlar, Charlie Schuck, and many others I am not aware of, and many more still to come if the present EAA establishment continues to have its way. What is going on? Who needs it?

WHAT DOESN'T AOPA/EAA DO?

One thing FAA cannot tolerate is to be dragged into a federal court, and the issue to be the valuelessness of one of their silly regulations. The Department of Justice defends them; and the judge who owes them for his job helps get the case thrown out as fast as possible. As it is, very few court battles are won in court.

The government rarely loses unless a public, whipped up to a fury by national publications, is breathing hotly on the back of the judge's neck. A bureaucracy such as the FAA normally retreats if it sees a federal case coming, particularly when substantial media exposure is likely.

The cost of launching a legal barrage at the FAA is no more than the normal expenses for a dedicated legal staff. While the present AOPA/EAA establishment has a combined legal staff in Washington, that staff is not suitable to handle an aggressive approach against the FAA.

These people have, as deeply ingrained principles: You don't do it that way. You can't do it that way. You must cooperate with the FAA; and the FAA will come around in a few years with a little persuasion. To them it is a matter of tilting against windmills (AJ, Oct. '85). It is thinking like that which explains the sad state of private aviation.

PROXIES --- PROXIES

If nothing else, AOPA/EAA are two magnificent aviation associations, all set up, lubricated, ready to knock down some windmills. AOPA/EAA have thousands of irate, disillusioned members willing to try a new approach. There is lots of office space, office furniture, secretaries, elegant publications, and legal offices in Washington. What does it take to throw the switch, to turn these inert mechanisms on? The answer is simple: proxies --- the votes of the members.

A surprisingly small number of these proxies could completely redirect all this potential energy against the bad guys --- that other side.

AOPA/EAA does not have to be an old folks home for the other side. Let's try again.

Therefore, if you belong to either or both AOPA and EAA, send me your proxies! It is vital that everybody who sympathizes with my objectives not only send their own proxies, but that they search out the proxies of their friends. You do not need the form printed below. Any sort of letter will suffice as long as your identification and purpose is clear. It costs only 22 cents to do this. Less, if you share the envelope with friends.

If you don't want ARSA; if you don't want Oshkosh to be so crowded and mercenary; if you don't want the FAA intimidating you and depriving you of your right to fly, take the small amount of time needed to prepare a proxy.

AVCO LYCOMING WILLIAMSPORT DIVISION

WARRANTY

REPLACEMENT PART - RECIPROCATING AIRCRAFT ENGINE

WHAT AVCO LYCOMING PROMISES YOU

BASIC WARRANTY:

Avco Lycoming Williamsport Division, Avco Corporation (Avco Lycoming) warrants each new reciprocating aircraft engine replacement part sold by it to be free from defects in material and workmanship appearing within 6 calendar months from its date of first operation.

Avco Lycoming's obligation under this warranty shall be limited to its choice of repair or replacement, on an exchange basis, of the replacement part, when Avco Lycoming has determined that the part is defective in material or workmanship. You will be reimbursed for the charge for the part or parts repaired or replaced. Avco Lycoming will also reimburse you for the costs for labor in connection with the repair or replacement as provided in Avco Lycoming's then current Removal and Installation Labor Allowance Guidebook.

Any part so repaired or replaced will be warranted for the remainder of the basic warranty period.

PRORATION POLICY:

In addition, for a period until the expiration of Avco Lycoming's recommended Time Between Overhaul (TBO), or 3 years, whichever occurs first, on the Avco Lycoming engine in which the replacement part is installed, Avco Lycoming will reimburse you for a pro rata portion (TBO minus hours of engine operation divided by TBO) of the charge for the repair or replacement with an Avco Lycoming part, of parts required to be repaired or replaced, if Avco Lycoming determines that the replacement part is defective in material or workmanship during the proration period. Avco Lycoming's obligation during the proration period does not extend to accessories, including but not limited to magnetos, carburetors or fuel injectors, fuel pumps, starters, alternators and turbochargers and their controllers.

Any part so repaired or replaced will be entitled to proration for the remainder of the original engine proration period.

YOUR OBLIGATIONS

The engine in which the replacement part is installed must have received normal use and service. You must make a warranty claim with an authorized Avco Lycoming distributor within 30 days of the appearance of the defect in material or workmanship.

Avco Lycoming's warranty does not cover normal maintenance expenses or consumable items. The obligations on the part of Avco Lycoming set forth above are your exclusive remedy and the exclusive liability of Avco Lycoming. This warranty allocates the risk of product failure between you and Avco Lycoming, as permitted by applicable law.

Avco Lycoming reserves the right to deny any warranty claim if it reasonably determines that the engine or part has been subjected to accident or used, adjusted, altered, handled, maintained or stored other than as

directed in your operator's manual.

Avco Lycoming may change the construction of its engines at any time without incurring any obligation to incorporate such alterations in engines or parts previously sold.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESS OR IMPLIED OR STATUTORY, WHETHER WRITTEN OR ORAL, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTY ARISING FROM ANY COURSE OF PERFORMANCE OR DEALING OR TRADE USAGE. THIS WARRANTY IS ALSO IN LIEU OF ANY OTHER OBLIGATION, LIABILITY, RIGHT OR CLAIM, WHETHER IN CONTRACT OR IN TORT, INCLUDING ANY RIGHT IN STRICT LIABILITY IN TORT OR ANY RIGHT ARISING FROM NEGLIGENCE ON THE PART OF AVCO LYCOMING, AND AVCO LYCOMING'S LIABILITY ON SUCH CLAIM SHALL IN NO CASE EXCEED THE PRICE ALLOCABLE TO THE ENGINE OR PART WHICH GIVES RISE TO THE CLAIM.

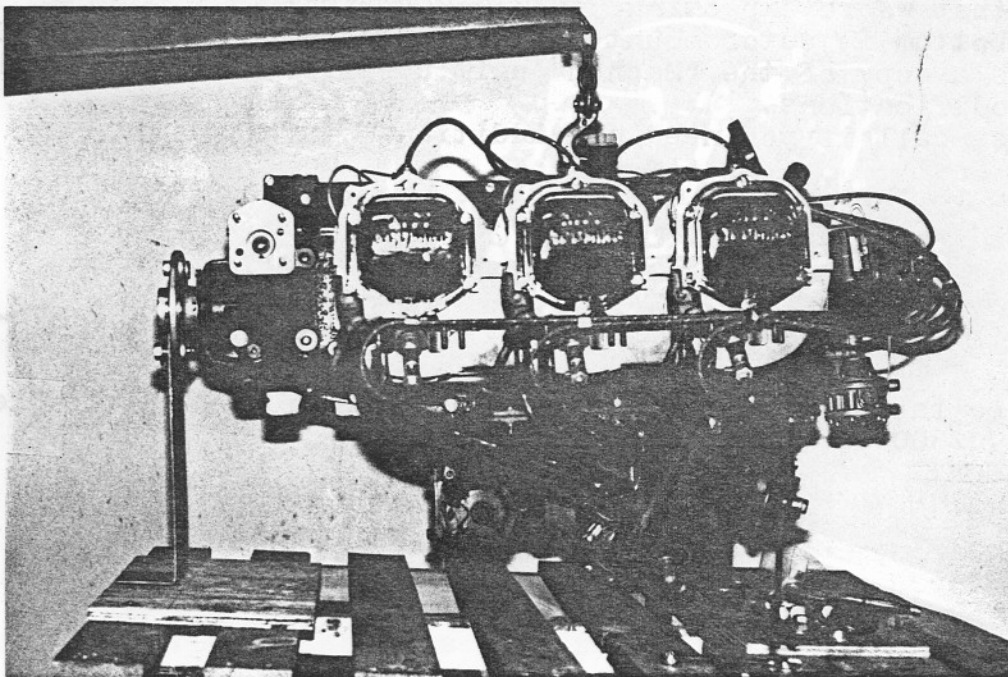
LIMITATION OF LIABILITY

IN NO EVENT, WHETHER AS A RESULT OF A BREACH OF WARRANTY, CONTRACT OR ALLEGED NEGLIGENCE, SHALL AVCO LYCOMING BE LIABLE FOR SPECIAL OR CONSEQUENTIAL OR ANY OTHER DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE ENGINE OR AIRCRAFT OR COST OF A REPLACEMENT.

No agreement varying this warranty or Avco Lycoming's obligations under it will be binding upon Avco Lycoming unless in writing signed by a duly authorized representative of Avco Lycoming.

Effective June 14, 1985 Revision "D"

*Avco Lycoming Williamsport Division
Williamsport, Pennsylvania*



DICK DEMARS AERO

136A N. Racquette Dr.
Fort Collins, CO 80524

May 13, 1985

Stolp Starduster Corp.
4301 Twining
Riverside, CA. 92509
Mr. Bill Clouse

Dear Bill,

After speaking to Pat Duncan this weekend, he mentioned you might be interested in some information on hi-performance 260 to 290 H.P. Lycomings, and the 290/300 to 330 H.P.

Enclosed are photos of each engine as we custom build for aerobatic installations.

The 260 is upped in power thru a compression ratio change and our own porting and polishing of the cylinders, as well as balancing and higher strength internal engine components. We used the oil sump from a 182 RG to obtain the forward mounting of the injector servo.

The 290/300 is also upped in power thru a compression ratio change, porting and polishing, balance, and higher strength internal components.

We are presently building a 300 H.P. Lycoming for Gordon Price in Canada, with cylinders by Terry Capehart of "Hi-Performance Engines" that we're expecting 340/350 H.P. from.

The bottom injector mount on the tuned sump of the 290/300 engines is a copy of the "Machen" unit used for the Lycoming into Bonanza modifications.

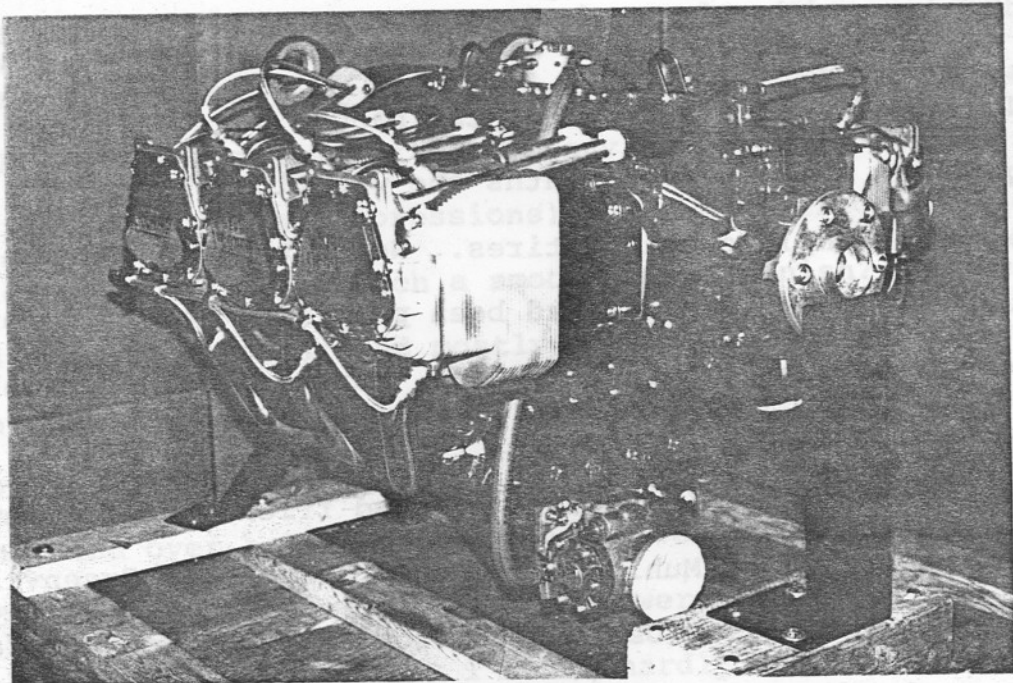
Please call if you need any additional information.

Sincerely,

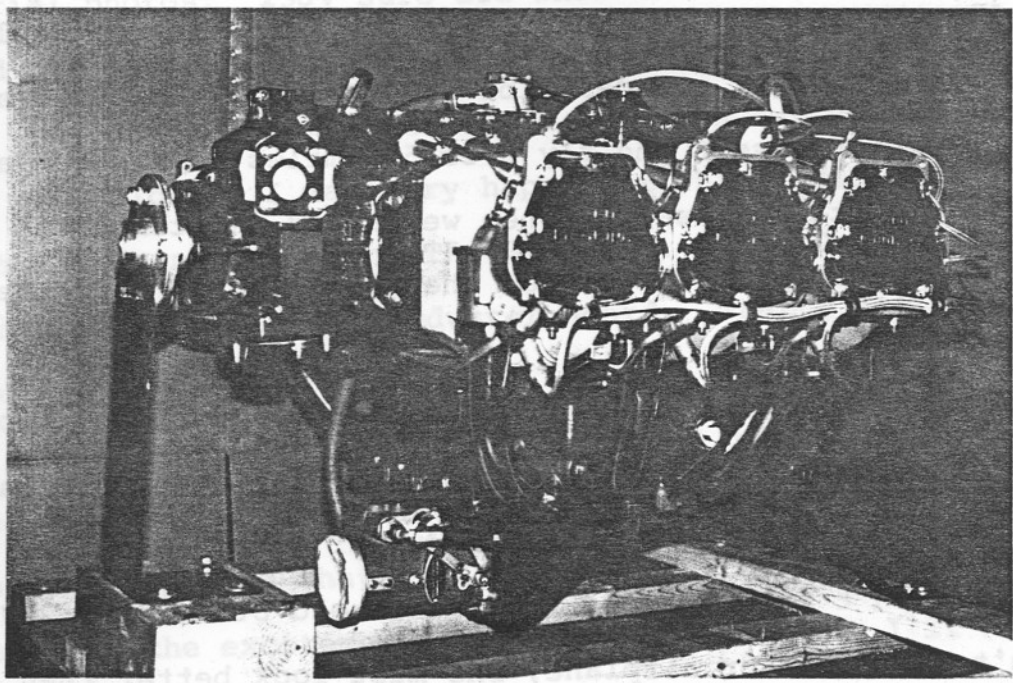
Dick DeMars
Dick DeMars

P.S. There is a lower profile forward injector mount available for the 290/300 as used on the Piper Saratoga.

That week was the most exciting week of my life. I had to wait in 1984, I missed Oshkosh by one month. I had to wait for several months for the great event. I missed Oshkosh by one month. I had to wait for several months for the great event.



ated us the first leg, but from then on we zigzagged from westward as far as we could, and zigzagged back to airport to airport checking the weather. We were in lots of rain, but no wind. The trip was smooth and exciting, and old Starbuck 33V didn't let us down.



thought, by the way people accepted her.

In 1984, I missed Oshkosh by one month. I had to wait eleven more months for the great event.

Starduster N23JV wasn't quite as sharp as she was in 1984, when I rolled her out of the hangar for the first flight. In those eleven months she was flown hard and wore out a complete set of tires. Never the less, I was taking her to Oshkosh. I had been promising her this for 14 years. It was sad that my wife, Martha, could not make this trip, she loves Oshkosh.

On Thursday morning 06:00, my good friend Buford Trew and I took off from Muhlenberg County Airport in Greenville, Kentucky, heading for Oshkosh, Wisconsin. The weather favored us the first leg, but from then on we zig-zagged from airport to airport checking the weather. We were in lots of rain, but no wind. The trip was smooth and exciting, and old Starduster 23JV didn't let us down.

When we got in the line of traffic for Whittman Field, there is no way I can describe the feeling. To build an airplane by yourself and fly over 500 miles is a great accomplishment with in itself. When we landed and taxied to the flight line to park the plane, the thrill bumps still hadn't gone away.

I was met there by two friends, Bobby Armstrong, from my hometown, who brought our camping equipment up the day before, and Bill Clouse from Starduster Corporation.

It didn't take me long to realize old Starduster 23JV wasn't just another airplane, she must look better than I thought, by the way people accepted her.

That week was the most exciting week of my life. I met so many wonderful people, full of questions and praises for my airplane, she sure made me feel proud. (The most embarrassing question that was asked, was, how long did it take to build? I finally got use to saying 13 years and seeing all kinds of facial expressions). The most frequent question asked was, how I got such a smooth paint finish? My method and procedures consisted mostly of old fashion elbow grease. The most amazing statement I seem to have made was, I was five years into this project before I received my pilot license and over half the instruments were installed and I still didn't really understand what they were for.

I had talked so much, I could hardly talk when Jack Cox, Chief Editor of Sport Aviation magazine, came by for an interview (that was very exciting).

The day before we left, we flew over Lake Winnebago for aerial photos. 23JV sure did show herself off that day like and old pro. We enjoyed every minute of it!

We didn't receive the Grand Champion Award, but I believe we came close. I was very happy for what I did receive, The Reserve Grand Champion, The George W. Myers Craftsmanship, and the First Place Starduster Award. That's not bad for an old country boy!

We left Friday morning, a very sad day for me. I had to leave those happy days behind, and say good-bye to a lot of wonderful people that I'll never see or talk to again. I may get over the excitement one of these days, but I'll never forget this experience as long as I live.

N23JV rocked her wings as we took off saying good-bye;
she enjoyed it as much as I did.

I want to thank my traveling companion Buford Trew and
Bobby Armstrong, my right hand man, for without these two
friends, I could not have made it to Oshkosh '85.



J.V. WITHROW
WEST 7th ST
CENTRAL CITY, KY
42330

JV
You really have a very nice
"Too" was a pleasure meeting you,
Buford & Bobby at "Oshkosh 85"
Congrats again on your accomplishment
13 Bill Clouse Jr.

HISTORY OF THE KNIGHT TWISTER. BIPLANE

In 1928 I was working for an aircraft school in Chicago, nowadays called a Ground School. I was in charge of the wood working and repair shop of this school teaching repair of aircraft in the shop, plus 2 hrs. class room on aircraft general design - and basic aerodynamics.

To help the students pay their tuition, we helped them get paying jobs, and held school at night. Some of the lectures put them to sleep. I thought of a way to get their interest and helped them to stay awake. I owned several copies of "National Advisory Committee for Aeronautics," published in 1928 and before - such as Report 244, 1927. On page 197 - Ref. 511 we found the M-6 Airfoil. It had a high L/D Ratio = 23 and a remarkably stable Center Pressure Travel. We were very attracted to this airfoil because of these characteristics, many designers also were interested, one built a small racer. One designer talked Waco into building the Waco Tapered wing - later he joined the Great Lakes Co and designed their Biplane.

I used many of the N.A.C.A. reports which dealt with wings & shapes, also wing tips, and taper of wings - etc., to interest the students in how an airplane should look and be efficient.

We showed all the many types of airplanes Mono, Biplane, Triplane, also Tandem wings with explanations of the advantages or disadvantage of each, often referring to the N.A.C.A. reports to prove it. We all wondered why the then thought of "modern designers" did not use the suggestions of N.A.C.A.?

The wing tips for instance were square. N.A.C.A. showed: - Square, Elliptical, Negative Rake, Positive Rake, and combinations, such as the Knight Twister uses the Elliptical & Negative rake, for best efficiency, for 1928. In the airplanes of that day (commercial) we saw no evidence that those manufacturers had ever referred to the N.A.C.A. reports, they did study their competitors.

Some designers studied N.A.C.A. airfoils, getting away from USA - 27 RAF. 15 and tried the Clark Y, as was used in Lindburgh's "Spirit of St. Louis."

Cub used the USA 35B for many years.

We chose the M6 with taper and the combination Elliptical & Negative Rake for our wing design, also made it a biplane of an equal spans. The next study was what type of stagger. The English had a negative stagger biplane used in World War I, it got fair top speed but also had fast landing. The positive stagger biplanes were slower landing and better for small fields. The positive stagger - seemed to act like a wide blanket with corresponding drag when near the ground, this was their explanation of slower landing. we chose the positive stagger for this reason, also for its look of speed which we admired.

N33JV rocked her wings as we took off saying good-bye; she enjoyed it as much as I did.

Naturally we went for full cantilever tapered wings but chose to add an "I" strut, leaning forward to help support the allusion of fast flight. In later years the Department of Commerce, Aviation Section, suggested to Arrow Sport to add struts or an "I" strut on their biplane to prevent losing a wing due to wing vibration. The "I" strut helps because the longer top wing has a different vibration period than the shorter bottom wing.

When the Parson's Knight Twister won the first two Biplane Races at Reno, they started to work out some new rules, so more sport biplanes would feel they had a better chance in the races. I made a few suggestions, which tuled out the Parson's kit. First, that the wing loading must not be heavier than 12 lbs/sq. ft. of wing area and there must be a stabilizing strut, such as an "I" strut. The wing area need not be more than 75 sq. ft., but not less.

We redesigned the wings of the Knight Twister, top wing 17 & 1/2 feet span and bottom span of 15 1/2. This gave us approximately 76 sq. ft. We still did very good in the races. We are the only sport biplane - not a strictly racing plane in the Reno Races. Some biplanes are highly modified sport planes, ours is not, and still in winning circle.

One other thing we stayed out with in the original K.T. biplane was a large gap-chord ratio. This was denied by Pete Bowers. The small K.T. had an average chord of 25.9". In 1929 we had a gap of 34 inches, 34/25.9 gives a gap/chord of 1.33 ratio. This is 33% more than what was called the least efficient ratio, which is 1 to 1. We always had a good efficient, or better and more efficient ratio than any biplane of its' crime. In 1946 some pilots asked to raise the top wing to allow the tall pilot to see under that wing more comfortably. We compromised and raised it 2" or total of 36" 36/25.9= ratio of 1.39. This was not done because we thought the original was inefficient, as Pete implies.

Our first K.T. with 45h.p. was efficient enough to get off, even uphill slightly, in a small sod field, and landed safely. It did things well, even with less than 50h.p. and we still claim 45 m.p.h. landing. The total weight of the first K.T. was 550 lbs. With a wing loading of 9.17 lbs and a power loading 12.2 lbs.

Remember all the efficient ideas we included in the design; also that the fact that Positive stagger gave slower landing. Then add the effect of some head wind plus ground effect, and once we landed uphill. We did land at about 45 m.p.h.

Now if you use just the coefficient of lift from report No. 628 - page 39- N.A.C.A. 1938 - The airfoil can be landed at 20 degrees of angle of attack and get a Cl of 1.4 at Reynolds No. 3,030,000, but we discounted this to Cl -1.25 as the K.T. was not flying at the higher R. No. So with 60 sq. ft. wing area and 54 m.p.h. we get 559.8 lbs of lift. The first K.T. weighed 550 lbs. With out a wind and without an up hill landing in a sod field, it could be done, and we were highly elated, probably forgetting the uphill help. WE did not think someone, about 53 or 54 years later would nit-pick on this subject, when at that time all manufactured airplanes had really bragged

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Bill Clancy

about higher figures. We took it as it came.

The present day Knight Twister flown by Don Fairbanks - claims a stall speed in the air - of 50 m.p.h. This is what we call the Imperial Knight Model. It is heavier than other Knight Twisters, but only 12 lbs. per sq. ft. of wing area in the races. In the Reno Taces 1984 this plane came in 2nd at 185.349 m.p.h. The winner came in at 189.972 m.p.h., a highly modified Mong Sport. Both the K.T. & Mong had 150 h.p.

Everything changes with time. In 1928 we had only 45 h.p. and 60 sq. ft. of wing area. In 1984 we have 150 h.p. and 26 sq. ft. of wing area. Also we only had 550 lbs. of weight now we had 900 lbs., racing weight.

When a good looking airplane gets attention all over the world, it means that something about it has been admired by millions and Pete Bowers helped by selling pictures of it, the one he claims was revised in 1956. The owner and builder of this long nose K.T. is Tony Sablar and it was built in 1946-47. He just visited me 3/8/85. He purchased some new drawings on the 2pl. Knight Twister. His original Knight Twister with 85 h.p. is 38 years old. He is just now reworking and recovering the K.T.

Many times someone of these thousands of people who write to me have asked if I copied or scaled down some production model airplane such as Curtiss Hawk, or the Boeing Job that Hughes used in his movie called "Wings", my answer is definitely "NO". The Knight Twister is an original. I do know the man who designed the Boeing Biplane, Robert Marshall. I met Bob in 1921 when I was in the service, stationed at University of Wash., Seattle as an instructor of R.O.T.C. Bob was finishing up some engineering studies to get his degree, and was in my radio class. We were very close to the same age and both just married. When I left the service he tried to get me to come to Boeing, but I went back to Chicago. I later heard that Bob got the job as Chief Engineer, and after a few more years Bob was President of Boeing.

As to Pete's statement "the K.T. is a classic case of scaling down big-airplane construction to small size. He uses this statement loosely like speaking of some that showed lack of knowledge of what crime is being committed. I have been a design engineer for over 60 years. His imaginations should not be put out as facts, but statements of his opinions. I thank him for condesending to give us a few nice compliments if he did not porceed to tear it all down afterwards.

The power was not scaled down, we used what we had to play with and could afford. We had hoped for 50 h.p., but found a second hand Salmson 45 h.p. at about \$350.00 and used it.

The first landing gear we used was what we called a knee action shock system, as automobiles at that time were using this term. The gear was not too satisfactory. It was a beautiful soft landing when going straight down the runway but if the pilot turned before coming to a slow roll, the gear would lean the wrong way and the plane would bank the wrong way, then scraping the wing tip. We immediately corrected this.

Pete is not original in stating "The Knight Twister was a handful to fly". The problem was we as well as other designers, over controlled the M-6 airfoil.

It is an inherently stable airfoil, so we did not need so large a control surface to balance and fly properly. We needed less control and we finally, come up with controls that allowed more movement of the Control Stick and less movement of the control surfaces.

We are still somewhat more sensitive than the average training airplane. The K.T. does not change ends when taxiing, if the pilot does not fidget and keep working his feet. Better to just line up on a straight line down the runway and do not play with the rudder pedals - let her go straight and gradually put on power, she wants to fly.

Do not horse around with the stick, just easy movements and she answers very well. You will soon relax and enjoy it.

Speaking of safety records, why not think of the many unqualified pilots that got the wrong advice also many who were afraid to admit they were afraid of what they heard, from unqualified advisers, but dared themselves to show their friends they could fly, get into the K.T. and when it acted in answer to his over control - he became excited doing the wrong thing. I know of one owner of a K.T., who later learned how and loved his K.T., and bragged about it later.

He sold it a few years after. The new owner wrote to me, stating it was the most perfectly balanced airplane he ever came across. He was borned too late.

Pete stated that the wings were built with built - up truss ribs. Not so, they were too small for that type of construction. They were built of 1/16" plywood, with spruce reinforcement at the rib caps, so that the plywood skin could be glued to the ribs, also to provide $\frac{1}{4}$ " width so we could nail the skin temporarily until the glue dried, then remove the nails afterward, which was no big deal to accomplish.

The K.T. wings were very strong, well over 9G. capability, in fact one forced landing - due to someone draining the gas tank the night before, the pilot was over a grave yard and had to go through the tops of trees to get to a golf grounds to land. The wing tip - on landing glide, struck a newly planted small tree, and it swung the plane so that the forward side touch down, folded the landing gear under and the L.H. wing tip dug in 16 to 18 inches (soft turf) up ending the plane, which did a complete cart-wheel L.H. wing - to nose - to R.H. wing and came to rest on the tail wheel & belly. Pilot walked away. We lifted it, placed on a small 2 wheel cart and rolled it to the hangar. The L.H. wing tip rib & skin was wiped out with two spar tips sticking out like spears. Later we found the front spar had a longitudinal crack from tip to bolt hole where the "I" strut is attached, which is 24 inches long. We rebuilt it and flew it in a week. We made changes many times just to please the prospective owner. For example - at first no body wanted to listen when I stated that the wings were fully cantilever and did not need wires. The general public preferred biplanes with wires. So I put on one lift wire and one antilift wire on each wing - just for show. Up until the beginning of the second World War. After W.W. II we took the wires off. Before this was done, some Dept. of Commerce Aircraft Inspector saw a K.T. in St. Louis and asked me if I didn't know that there should be

5725 S. W. McEwan Road
Lake Grove, Oregon 97034
October 17, 1985

2 wires not just one? My reply was, suppose I take them off? His surprised question - "are they Cantilever?" My answer was Yes. He had no more questions.

In 1956 I had a phone call from a K.T. owner near Seattle: He stated that while he was flying he had a flying (lift) wire break. My answer was I doubt it, I believe it was the wing fitting, and he agreed. I asked him "what did you do then." Why he just flew back to the airport. Now what does that Prove - I said - that you do not need wires, so just take them off. He did.

We did not lengthen the fuselage for more directional stability. We needed to move the pilot back 9" to allow him to see over the wing tip on racing around a Pylon.

We were not designing a new fuselage to (as Pete says) get away from problems from Curtiss Hawk shrink - We wanted more speed - also comfort for the Pilot. We designed the cock-pit with more depth to come up around his shoulders, and the top view of the fuselage outline is a Laminar. Airfoil shape, with a wide portion at the pilots' cockpit. Airfoil 64-021. It seems that Pete Bowers and many others think they can guess or make believe they know what the right answers are, even assume they know more about our original design and later changes, than we do. Pete is even wrong about the Sport Biplane races at Reno in 1984. The K.T. came in second, at 185.349 m.p.h.

The straight wing K.T. built by Walt Redfern was not my idea, but I did a little consultation with Walt. Walt had a small K.T. and asked for more wing area, on the rebuild. Walt is a very good friend.

I was never a very good salesman, and never had the money needed to pay help to assist in experiments, etc. so I did not take care of using my advantage at the time to create a big desire to own K.T. airplanes.

The first K.T. with small radial was minus a N.A.C.A. cowl because we did not have \$10.00 for a 2nd hand one. Being a designer, I was satisfied I built something that got world wide acclaim, and I pointed the way for others.

Thank you Pete Bowers for the few nice things you said, but for the other things this statement of facts about the K.T. are my answer.

Vernon W. Payne

5727 S. W. McEwan Road
Lake Oswego, OR 97034
October 16, 1985

Mr. Bill Clouse, President
Stolp Starduster Corp.
4301 Twining
Riverside, CA 92509

Dear Bill:

Regarding our conversation of October 15, 1985, please place this request for information in the next issue of Starduster magazine.

"ATTENTION Starduster Too owners and builders. I am attempting to compile a history of all Starduster Too's that have been built since 1965. After this list has been compiled, copies will be made available to those who wish by sending self-addressed, stamped envelopes to address below.

"Please send the following information:
N # number, HP and engine make, owner/builder, name and address, and a picture, if possible.

"This is being done with the approval of Starduster Corp., and copies will be forwarded to them.

"Mail to: David C. Baxter
5725 S. W. McEwan Road
Lake Oswego, Oregon 97034
(503) 639-8792 "

Sincerely yours,

David C. Baxter

P.S. Please send N # number or information of any other Starduster Too's known to exist or that have been destroyed.

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5725 S. W. McEwan Road
Lake Grove, Oregon 97034
October 17, 1985

Mr. Bill Clouse, President
Stolp Starduster Corporation
4301 Twinning Street
Riverside, California 92509

Dear Mr. Clouse:

I have wanted to own a Starduster Too for a long time - having grown up, gone to school and taken my first airplane ride in Riverside.

That ride was with Flavio Madariaga at Flabob Airport in a PA-11 about 1955. Being interested in flying since I was a little kid, it was only natural after my first student pilot's license to consider building an airplane. So, in the mid-60s I started building a single-place Marquart biplane. Not too long after that I met Lou Stolp who offered me a job which resulted in my acquiring considerable mechanical knowledge about welding, woodwork, covering and particularly about biplanes. During the time I worked for Lou, N1300S was constructed and, in my opinion, was one of the most beautiful biplanes ever built. Morgan "Bud" Schrack also had a beautiful Starduster Too finished and flying around this time. I made the mistake of telling him that Lou's airplane looked better because it took me over a year to get a ride in it.

I worked for Lou about three years working with such people as Glen Beets, Bill Hill, Harry Wellington, Don Smith, Frank Boyce and George Rice. During the time I worked at Flabob Airport, I had the pleasure of meeting many interesting people; to name a few - Art Scholl, Ray Stits, Ed Marquart, Bill Turner, Don Reece, Clayton Stevens, Margaret Richie, Bill Clark and my old friend Max Clover. As things turned out,

I changed jobs and several years later moved to Oregon. During that time, it was either the new baby or airplane so I sold the airplane and kept the baby!

In Oregon I did little flying the first several years but did use my GI bill during 1976 and 1977 and was a real pilot again. Shortly after that I got involved in boats; yes, they do have water in the rivers here! I built and raced 3-point hydroplanes for about three years then on September 7, 1980, I got out of boat racing in a big hurry resulting in being off work for about seven months; you know, broken bones, hospital, crutches. After my boating accident I thought I would change my recreation to something more conservative so I decided to build another airplane - I sold my boat and with the money the logical choice was a Starduster Too.

After looking around in Oregon and Washington, I found half-a-dozen projects but when I went to buy they either did not want to sell or I didn't have enough money. I had to have a biplane so I ended up buying a Skybolt project from a fella in Everett, Washington. It had most of the material but little work had been done. I worked on this airplane for about two years, still wanting a Starduster Too. Then my friend Hank Bullock, Bill Neilson and I made a three-way trade. Bill ended up with my Skybolt, Hank with a British "T" Craft, and I ended up with an Acroduster Too thinking that this was the closest I was going to get to a Starduster Too. However, my joy was soon dimmed as the closer I looked, the worse it got. Hank had bought it with stars in his eyes, too. I knew better but I just didn't look close enough. After working on it for about a year, I had the fuselage, landing gear and controls pretty well straightened out. I then started on the center section - the only thing I saved on it were the spars. After that I reworked the RH upper wing making it serviceable.

Being more and more discouraged, I placed an ad in Trade-A-Plane and after several calls a fellow from Arizona flew up, bought it, rented a truck, and left for Arizona. With the money I had I wanted to buy into a flyable airplane. About this time a friend of mine said I ought to try to buy a Starduster Too project in Vancouver, Washington. I did and Dan and I have been working on it ever since. The basic fuselage and wings were about 50% done. The nice thing about the wings is they have been routed out of 1/8 plywood with a 1/2 X 3/8 cap strip like the Starlet and Aeroduster. The two changes other than the wing that I have made are: 1) move the landing gear back 5 inches; 2) lengthen the engine mount 5 inches. Both should help ground handling, weight and balance.

Enclosed are some pictures of my airplane taken during rigging and fabrication of Aileron controls. These pictures were taken during Labor Day weekend of 1985. Also enclosed are pictures of five other Starduster Toos flying in the local area as well as a picture of my hydroplane.

I wish I had some helpful building tips for all the people still building Stardusters but I don't. The best thing I can say is just keep at it and try to buy as many parts as you can from Starduster Corporation as we should all try to keep them in business.

Thanks for all your help. Hope to have my airplane flying next summer.

Sincerely yours,

David C. Baxter

David C. Baxter N96576

P.S. Build more biplanes as I can use the help turning back the tide of RV-4s. The place is filthy with them as this is RV Country!

POT POURI

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Sincerely yours,
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