Starduster

Dedicated to the
ACTIVE Homebuilders

JULY 1983

JULY 1983

THIS MAGAZINE USES MATERIAL SUBMITTED BY IT'S READERS.
SOME ARTICLES OR STATEMENTS MAY NOT BE IN AGREEMENT
WITH STOLP STARDUSTER CORPORATION OR IT'S EDITOR.

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WE WOULD LIKE TO THANK ALLOF THIS ISSUES CONTRIBUTORS AND RESPOND TO ONE AND ALL FOR SOME INTERESTING INFORMATION AND PHOTOS.

FRONT COVER - THE PROUD OWNER OF THIS BEAUTIFUL RADIAL ENGINE STARDUSTER TOO IS RICHARD PEARSALL OF PONTIAC, MICHIGAN. N79DC HAS A BASE COLOR OF WHITE ACCENTED WITH A METALIC BROWN STRIPE AND BLACK PIN STRIPING. MORE INFO ABOUT THIS LITTLE BEAUTY ON PAGE 17.

BACK COVER - IT'S STILL A STARDUSTER! OWNER RON CLIFFORD OF ONTARIO, CANADA ONLY "WACO-IZED" IT A BIT. C-GCUG HAS A BASE COLOR OF RED WITH SILVER ACCENTS. MORE ON THIS EYE CATCHING BEAUTY ON PAGE 17.

SUBSCRIBE TO THE STARDUSTER MAGAZINE. PUBLISHED FOR PEOPLE BUILDING OUR AIRPLANES. TECHNICAL INFORMATION, NEWS AND PICTURES. PUBLISHED FOUR TIMES A YEAR. SUBSCRIPTION RATE IS $8.00 PER YEAR. $14.00 PER YEAR FOR OVERSEAS MAILING (EXCLUDING CANADA).

THE EDITOR IS ALWAYS LOOKING FOR TECHNICAL AND EDITORIAL CONTRIBUTIONS TO THIS MAGAZINE, WHICH IS DEDICATED TO THE HOME BUILDER AND SPORT AIRCRAFT ENTHUSIAST.

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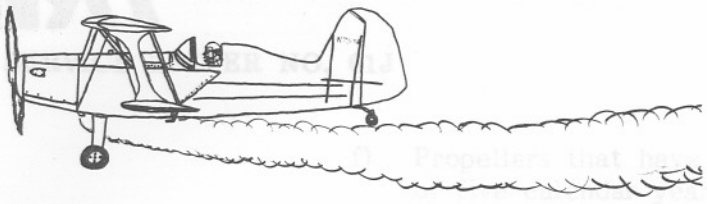
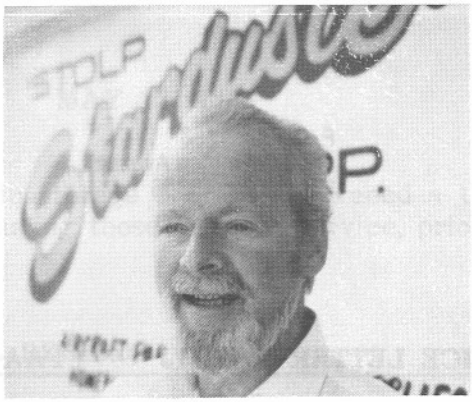


Drawing by David Farzley V.P.



COMPETENCY

The definition of competence is the state of being competent, adequate. Answering all requirements;suitalbe. We could go in.

As pilots it is the intent of instructors and the FAA that we demonstrate a level of competency before our first solo, more as we attain additional ratings. CFI's are usually more "proficient" than the average pilot because of continued exposure and number of hours. Proficiency and competency should go hand in glove, but in many cases are not.

Question? Would you trust a local CFI to test your new Starduster or Acroduster? The logical answer is no, unless he has time in your type of airplane. Your airplane (Starduster/Acroduster) is considered by many to be a conventional aircraft with two wings. They couldn't be more wrong. Your airplane is as individual as you are.

The same principal applies to being taught aerobatics in your aircraft. For a pilot to teach aerobatics he/she must be very intimate with the machine and the background of the student.

A personal experience of mine, while demonstrating an Acroduster Too to a foreign CAP 10 pilot with aerobatic experience. First manuever - Loop - result; inside snap half way up. Second manuever - Hammer Head - result; inverted spin.

Recovery was fast in both cases. The cause? Over controll because Acro stick loads are very light, CAP 10, heavy.

What I am saying is a competent instructor would not agree to teach you without knowing your airplane.

Bill Clouse
President

P.S. The S.S.101 Super Starduster will not make it to Oshkosh this year due to a ground taxiing accident.

Hope to see you at Oshkosh.

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SERVICE LETTER NO. 61J FAA APPROVED MAY 13, 1983

SUBJECT: **Recommended Overhaul Periods for Hartzell Propellers and Governors.**

DISCUSSION: The recommended overhaul period for a propeller is based on a number of limiting factors.

a) The engine to which the propeller is applied determines the pattern of vibration or stress the propeller must absorb.

b) The practices employed maintaining a propeller while in service are also limiting factors if they are not carried out per recommended procedures.

c) The calendar time which affects the life of seals directly or indirectly exposed to the elements, and other parts subject to corrosion, are also limiting factors.

d) Propeller blades are constantly subjected to natural corrosion and erosion from use. They must be maintained as recommended in the propeller owner's manual.

RECOMMENDATION: Using the limiting factors as a base, the following recommended overhaul periods have been established using propeller-engine combinations as the determining factor, with the following exceptions.

a) If engine time or calendar years time in service are unknown, the propeller should be overhauled prior to its return to service.

b) All propellers are to be maintained as per Hartzell Propeller Products applicable publications.

c) All propeller governors manufactured or remanufactured by Hartzell Propeller Products are to be overhauled at the recommended time intervals that have been established using propeller-engine combinations stated in this service letter. Compliance with AD 77-12-06 does not mandate compliance for governors.

d) Propellers exposed to impact damage, lightning strikes or overspeed of greater than 10% of the maximum rating of the propeller must be overhauled prior to return to service.

e) Propellers must comply with all applicable FAA Airworthiness Directives that may effect these recommended overhaul periods.

f) Propellers that have been in storage are not to exceed a total of five calendar years, including those years in service, prior to installation.

RECOMMENDED OVERHAUL PERIODS

CATEGORY I
RECIPROCATING ENGINES*

Propeller Model	Engine Model	Recommended TBO Hours	Recommended TBO Calendar Year
	Franklin		
All Models	6A8-215	1000	5
All Models	6( )-335	1500	5
All Models	6( )-350	1500	5
	Bristol Siddeley Gypsy Queen		
All Models	30MK-2	1000	5
	Jacobs		
All Models	R-755	1000	5
	Ranger		
All Models	6-440-( )	1000	5
All Models	All Other Engines	1500	5

CATEGORY II
TURBINE ENGINES*

All Models	All Models	3000	5

NOTE: See Category III for limitations.

*Propeller TBO may be extended, resulting from a program of approved sampling, to coincide with engine published TBO or be coincident with those engines in a sampling program for engine TBO escalation. However, TBO may not exceed those presented in an approved maintenance publication if different.

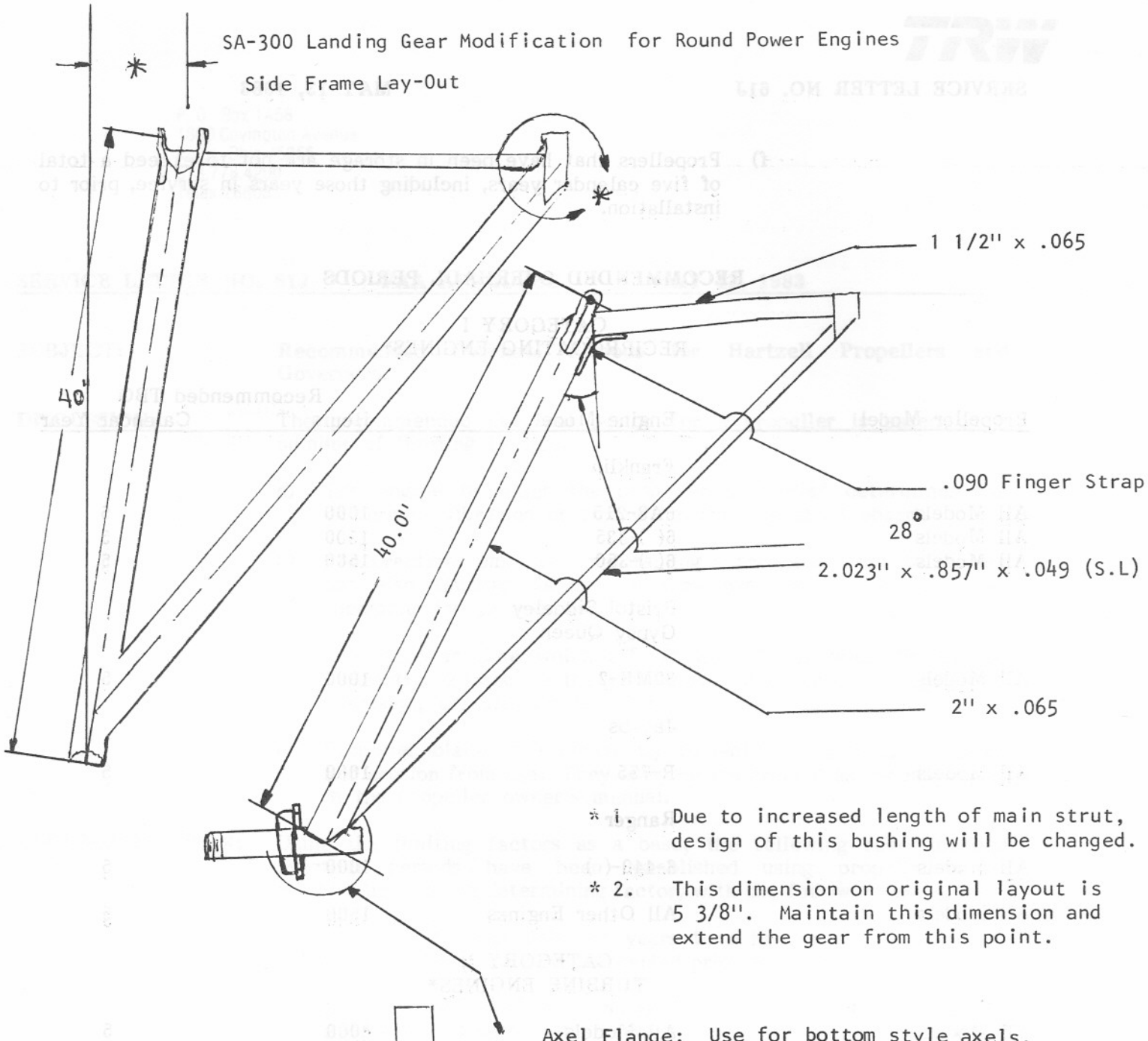
CATEGORY III

All propellers installed on reciprocating engines used for aerobatics are limited to a maximum of 500 hours or per calendar time whichever occurs first. However, TBO may not exceed those presented in approved aircraft maintenance publication if different.

PUBLICATIONS AFFECTED: Service Letter No. 61H is now considered inactive.

SA-300 Landing Gear Modification for Round Power Engines

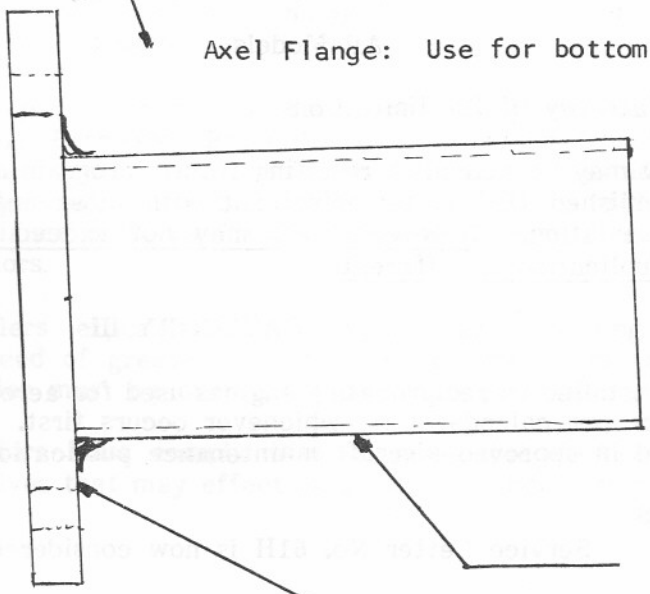
Side Frame Lay-Out



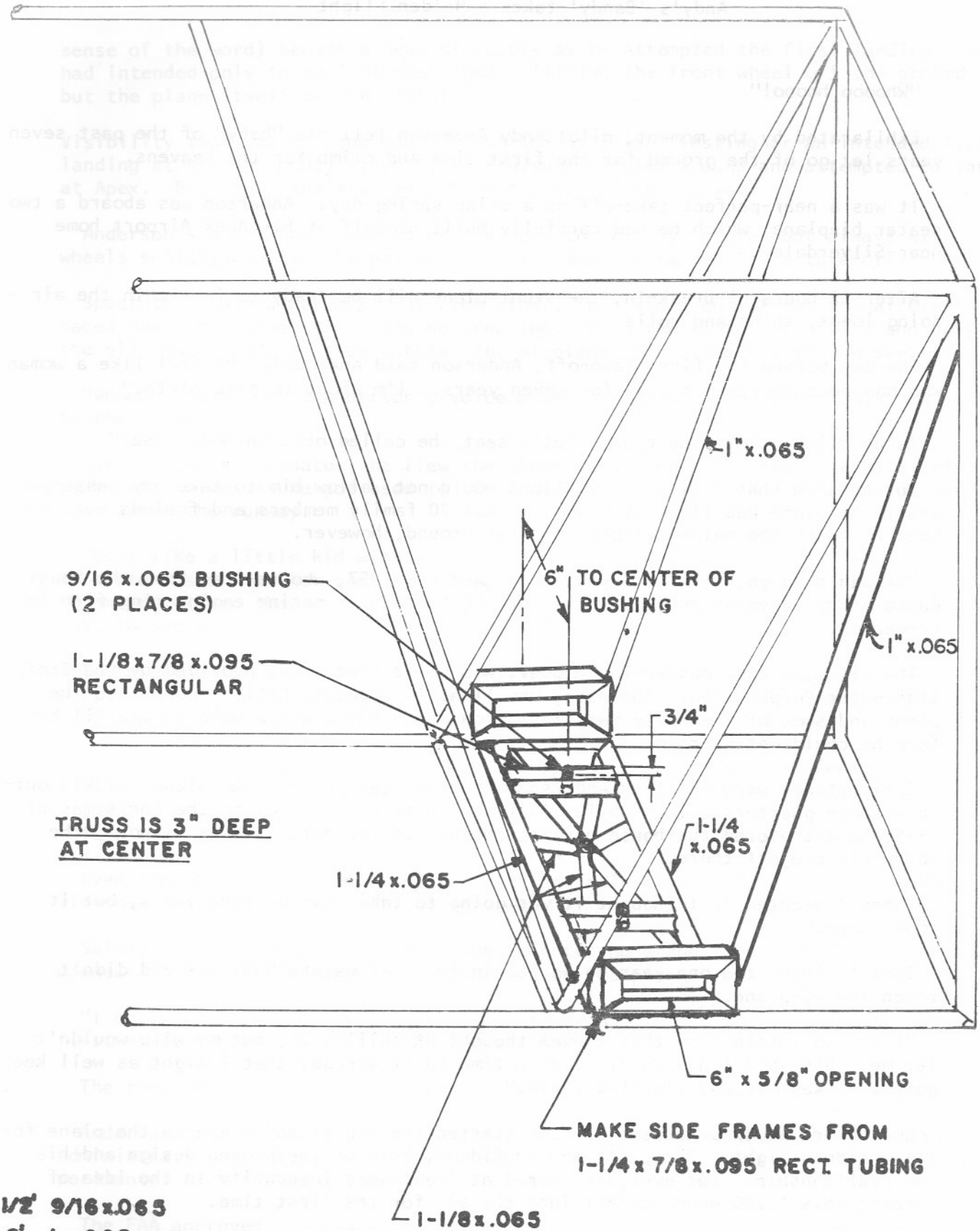
* 1. Due to increased length of main strut, design of this bushing will be changed.

* 2. This dimension on original layout is 5 3/8". Maintain this dimension and extend the gear from this point.

Axel Flange: Use for bottom style axels.



Dave Allen
Huntington Beach, CA.



1/2' 9/16x.065
6' 1x.065
6' 1-1/8x.065
6' 1-1/4x.065
4' 1-1/4x7/8x.095 RECTANGULAR

LIST OF MATERIAL
4130 TUBING

FUS. MOD. SA300
FOR CESSNA GEAR

Andy's 'Bandy' takes a Maiden Flight

"Whoooo hoooo!"

Exhilarated by the moment, pilot Andy Anderson felt his "baby" of the past seven years let go of the ground for the first time and climb for the heavens.

It was a near-perfect take-off on a crisp spring day. Anderson was aboard a two seater bi-plane, which he had carefully built himself at his Apex Airport home near Silverdale.

After 22 hours of break-in, the stunt plane will be ready to frolic in the air - doing loops, spins and rolls.

The day before the first take-off, Anderson said anxiously, "I feel like a woman who has been carrying a baby for seven years. I'm about to give birth."

As he climbed into the rear pilot's seat, he called out "anybody else?"

But he knew that federal regulations would not allow him to take any passengers until the plane had flown 25 hours. About 20 family members and freinds were on hand to watch the maiden flight from the ground, however.

"It wants to go, I'll tell you," said Anderson, 57, who retired from the Coast Guard after 22 years and now works for QED Systems, a marine engineering firm in Bremerton.

The plane, a "Starduster Too" model, was built from plans provided by the Stolp Starduster Corporation. Anderson, who lived in Anaheim, Calif., purchased the plans and some of the early materials from a man there whose wife became ill before he could get started.

Early stages were built in Anderson's Anaheim garage, but the plane quickly outgrew those guarters. Then while visiting his sister in Poulsbo the Christmas of 1975, he discovered the house-hangar combination for sale at Apex Airport. He moved his project there.

"When I started it I thought it was going to take four or five years, but it took seven."

That includes the one year he worked in the real estate business and didn't touch the airplane.

"I had so little time that I even thought of selling it, but my wife wouldn't let me. She said I had spent so much time on it already that I might as well keep going. I kept it and I'm glad I did."

Spectators paced about as Anderson started the engine and prepared the plane for it's maiden flight. The pilot was confident, both of the proven design and his own craftmanship. But everyone shared at least some insecurity in the idea of forcing this 1,200 pound object into the air for the first time.

One couldn't help but reflect on an accident four months ago at this same Apex Airport where pilot Jeff Fraisure crashed his handbuilt plane, a 6½ year project.

Fraisure was lucky, coming out with only minor injuries. He was on hand to watch the maiden flight of Anderson's plane. But Fraisure's craft,(in more than one

sense of the word) became a heap of rubble as he attempted the first landing. He had intended only to taxi at high speed, lifting the front wheel off the ground, but the plane itself became airborne.

Visibility that day was too low for sufficient flight testing or an intended first landing at Kitsap County Airport, so Fraisure circled around and attempted to land at Apex. But the plane stalled 200 feet short of the runway.

Anderson's plane had traveled up and down the runway before, but always with it's wheels solidly against the pavement. This time, he taxied for a take-off.

Spectators smiled nervously at each other, then stood quietly as the aircraft raced down the runway, it's engine growling. With the squeal of a tire and only the slightest side to side wobble, the bi-plane rose steeply into the sky.

"Whoooo hoooo," came Anderson's voice over the radio, as he banked his new bird to the left.

For the next 20 minutes, he flew the plane around the airfield, making simple banks and dives as he got used to the controls , He also made a couple of passes just above the runway.

"He's like a little kid with a new toy," said his sister, Fay Von Behren, who told stories of how her brother had been a curious tinkerer as long as she could remember. (When they were children, Andy cut away the back of her doll's head just to see how the eyes work, she recalled.)

The plane's first landing - at the wider and longer runway at Kitsap County Airport - went without a hitch. Anderson had gotten chilled in the open cockpit and remained long enough to warm up over a cup of hot coffee.

On his return flight, he took the plane up to 130 mph. He also went through a little rain squall near Bremerton.

"It's like going through a car wash," he joked over the radio.

Even though it is an open cockpit, wind and rain tend to be deflected by the windshield so Anderson didn't get very wet.

Safely on the ground again, Anderson accepted hugs and handshakes. Smiling, he opened a bottle of champagne and poured it on the plane's nose.

"I christen thee, 'Bandy,' " he said. (The name is a combination of his wife's first name, Barbara, plus his name, Andy.)

The remaining champagne was shared with his smiling freinds.

Anderson said he hopes he can get his plane certified by the Federal Aviation Administration for instrument flight so he can fly it in August to the annual Experimental Aircraft Association convention in Oshkosh, Wis.

The FAA approved the plane for it's first flight, but it must always bear the word "experimental" because it is homemade.

Anderson also hopes to get FAA approval for aerubatic flying before long. He

has attented aerobatic flight school, and once the plane has flown 25 hours, it can be put through the paces.

Mrs. Anderson picked the basic color for the plane, a "metallic persimmon" - an orange-brown color that looks much better than the name would indicate. Gold and black stripes are to be added later.

The passenger's seat lies over the bottom wing with the pilot's seat directly behind for better visibility. The plane can be flown from either seat, but only the rear seat will include the instruments for IFR, flying on instruments alone.

The fuselage is a chromemolybdedenum steel frame covered with fabric. The wings are wood framed with a fabric cover. The top wing is 24 feet across. A 180 horsepower Lycoming engine powers the airplane.

Behind the pilot's seat is a "turtleback" of fiberglass. Mrs. Anderson made the vinyl seat cushions.

A 27 gallon aluminum tank, located in the fuselage in front of the passenger seat provides the primary fuel. A 17 gallon reserve tank of fiberglass was built into the middle section of the upper wing.

Anderson said he was surprisedwhen he added up his receipts recently and found the total bill had come to $13,000.

"It takes a lot of money to build a plane, but it goes so slow you don't even notice it," he said.

If he had purchased the plane, it would have cost him more than $25,000, Anderson said.

Anderson has been flying since his retirement from the Coast Guard (after 22 years) in 1965. He says he has been interested in airplanes as long as he can remember, starting with rubber bands, later moving to radio controlled models. He even started a radio control equipment before he moved here.

Divorced when he moved into his Apex Airport hangar, he lived in the "bachelor's pad" downstairs until he was married three years ago. Then he converted the adjacent automobile garage into a large living room.

Anderson has flown the plane several times since it's maiden flight, he said, and has found nearly everything in perfect working order - just as he dreamed it would.

Dear Bill and Stardusters,

Now that you have read Crash's Bi-plane Dictionary and determined that none of those old crates but one or two fill the bill, (you would pick the extinct one or two!) we will now get down to the business of building our own! Radial Engine Starduster that is, not crate!

Obviously, we are not going anywhere without power so first we decide what our options of radial power are!

#1 220 hp Continental R-670 (cubic inches) that is, a good choice and available too. Dry weight is 450 pounds less hub and starter. Fuel burns about 13 g.p.h. and lots of spare "0" time cylinders available from R9-A tank engines.

#2 225 hp Lycoming R-680, (9 cylinders) Smooth radial power and still available. About 25 pounds heavier than a Continental.

#3 165 & 185 hp Warners. Good light engines, about 375 to 390 pounds dry weight. Burns around 10 gph cruise.

#4 165 hp Kinner R-540 5 cylinder. Weight same as Warner. Slow turning radial cruises at 1650 R.P.M.s R-56 version has overhead rocker automatic oiling. Very rugged engine will take a lot of abuse. Weight about the same as Warner. It's really the best engine you could pick!

#5 235 Wright R-760, good smooth front exhaust job - BUT!! It has a #30 spline shaft and takes a 100 pound long bladed prop plus it's like a 300 hp Lycoming! Too dam heavy! I really wish you wouldn't use either. Thanks!

There are a few other engine options, but believe me, none are practical for our purpose, ease of const., etc. The airplane we build is stressed for any of the aforementioned engines, but I would recommend the Continental or Kinner installations because of availabilty if nothing else. Plus their light!

The Starduster is light enough to give sparkling performance on either engine.

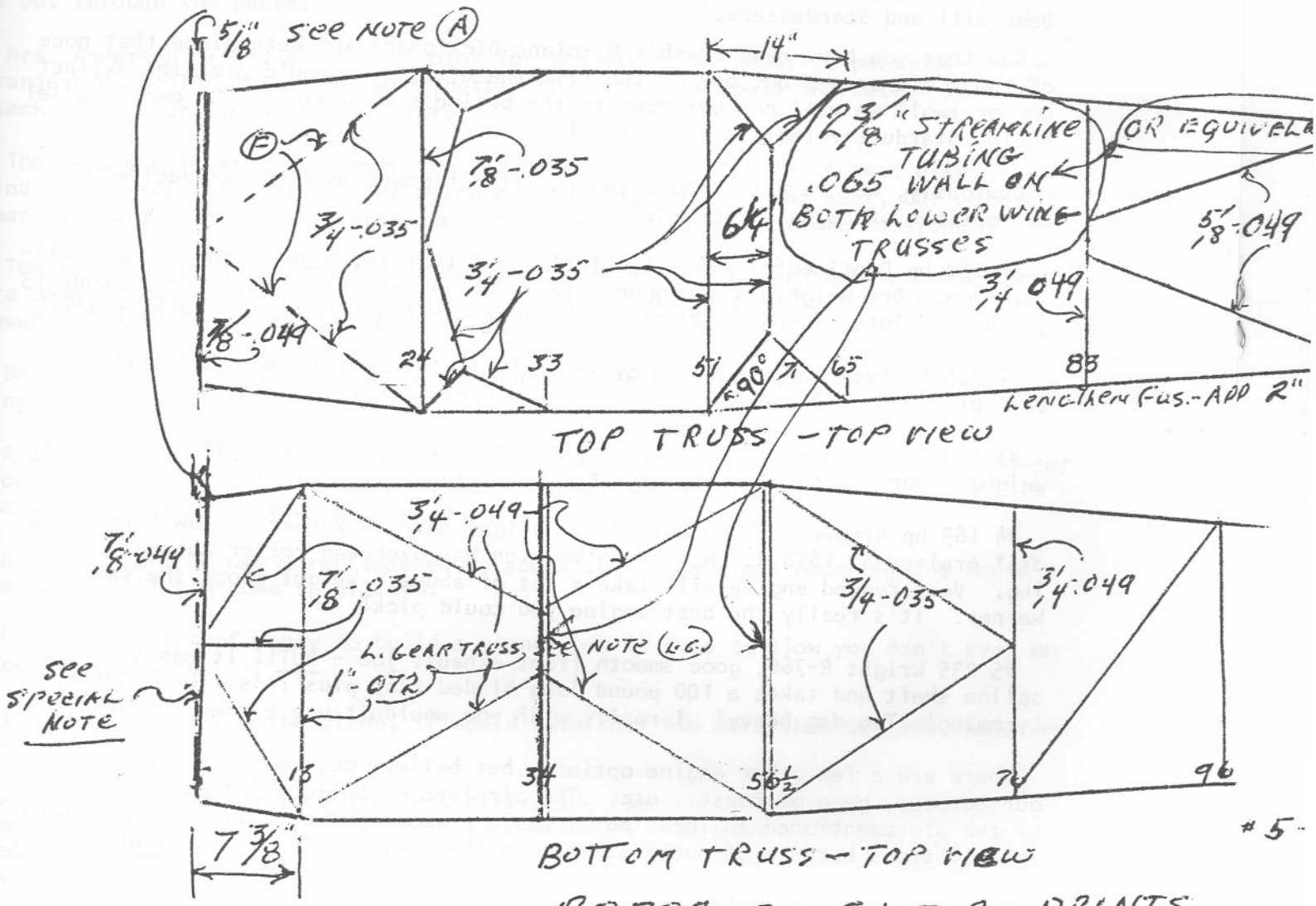
Remember, we are now in a whole new ball game with the radial engines and are dealing with horsepower, not pony power!

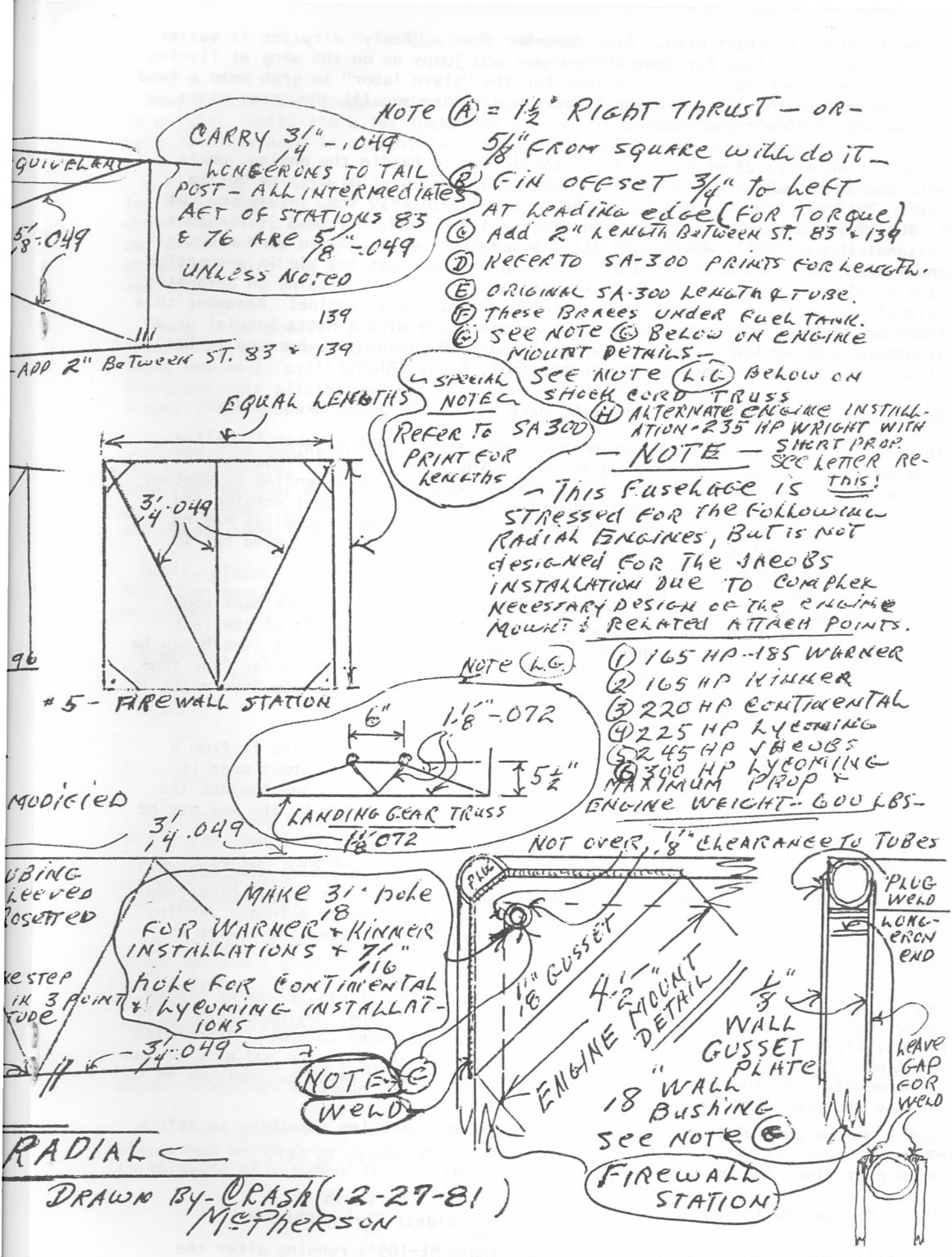
However, as we gain climb performance, we may loose on the speed end a bit because of the frontal area drag of the radials.

We don't care about that though, or we would build a jet, not a bi-plane! Right?

Now we are using the basic Starduster Too structure, but we will make a few changes right from the star and not try to modify an existing airplane unless in the primary stages.

It's a fine idea to keep one eye on the weight reduction program, as on one extreme of putting 4000 holes in the stringers to save a pound or two, but on the other hand we are going to have to live with a heavier engine (if the 220 is used) and an engine with harder power impulses; five big cylinders working at 1600 + rpm's not 2400 rpm's like an opposed engine. (This would be the Kinner installation) these engines are smooth, yet the airframe must absorb vibrations and power impulses that we cannot detect, and I believe in building an airplane to last 30 to 40 years not 8 or 10 as some do. That extra "Beef" shows up when a "skimpy" is worn out or comes apart. That is why WW-2 airplanes are still diving at 400 + mph and carrying 2000 + horsepower! (At 40 years of age!) They


5/8" see NOTE (A)
14"
(E)
7/8-.035
3/4-.035
3/4-.035
7/8-.044
24
33
54
90°
65
64
2 3/8" STREAMLINE TUBING .065 WALL ON BOTH LOWER WING TRUSSES
OR EQUIVALE
5/8-.049
3/4 049
88
Lengthen Fus.-ADD 2"
TOP TRUSS - TOP VIEW
3/4-.049
7/8-044
7/8-.035
3/4-.035
3/4-.049
L. GEAR TRUSS SEE NOTE (L.G.)
1"-072
See SPECIAL NOTE
18
34
56 1/2
76
96
7 3/8"
BOTTOM TRUSS - TOP VIEW
- REFER TO FACTORY PRINTS
FOR MEASUREMENTS & ANGLES ON UNMODIFI
STATION "0"
5"
1"-049
MEMBERS- 7/8-049
14"
7/8-.049
3/4-049
5/8-.049
TUBING Sleeved & Rosette
(E)
(F)
(D)
SHOCK CORD TRUSS
1"-.049
7/8-049
MAKE STEP Level in 3 Po ATTITUDE
8"
(D)
SIDE TRUSS
- FUSELAGE - SA-300 RAD
NOT TO SCALE


NOTE (A) = 1½° RIGHT THRUST — OR — 5/8" FROM SQUARE will do it —
(B) FIN OFFSET 3/4" to left AT leading edge (FOR TORQUE)
(C) Add 2" LENGTH BETWEEN ST. 83 & 139
(D) REFER TO SA-300 PRINTS FOR LENGTH.
(E) ORIGINAL SA-300 LENGTH & TUBE.
(F) These BRACES UNDER FUEL TANK.
(G) SEE NOTE (G) BELOW ON ENGINE MOUNT DETAILS —
SEE NOTE (L.G.) BELOW ON SHOCK CORD TRUSS
(H) ALTERNATE ENGINE INSTALLATION - 235 HP WRIGHT WITH SHORT PROP. SEE LETTER RE-THIS!
CARRY 3/4" - .049 LONGERONS TO TAIL POST - ALL INTERMEDIATES AFT OF STATIONS 83 & 76 ARE 5/8" - .049 UNLESS NOTED
5/8 - .049
139
ADD 2" BETWEEN ST. 83 & 139
EQUAL LENGTHS
SPECIAL NOTE — Refer to SA300 PRINT FOR LENGTHS
3/4 - .049
96
#5 - FIREWALL STATION
— NOTE — This Fuselage IS STRESSED FOR THE FOLLOWING RADIAL ENGINES, BUT IS NOT designed FOR THE JACOBS INSTALLATION DUE TO COMPLEX NECESSARY DESIGN OF THE ENGINE MOUNT & RELATED ATTACH POINTS.
(1) 165 HP - 185 WARNER
(2) 165 HP KINNER
(3) 220 HP CONTINENTAL
(4) 225 HP LYCOMING
(5) 245 HP JACOBS
(6) 300 HP LYCOMING
MAXIMUM PROP & ENGINE WEIGHT - 600 LBS -
NOTE (L.G.)
6"
1 1/8" - .072
5 1/2"
LANDING GEAR TRUSS
1 1/8" - .072
MODIFIED
3/4 - .049
NOT OVER 1/8" CLEARANCE TO TUBES
TUBING sleeved & gusseted
step in 3 point TUBE
MAKE 31/32" hole FOR WARNER & KINNER INSTALLATIONS + 7/16" hole FOR CONTINENTAL & LYCOMING INSTALLATIONS
3/4 - .049
NOTE (C) WELD
PLUG
1" GUSSET 16
4 1/2" ENGINE MOUNT DETAIL
1/8" WALL GUSSET PLATE
PLUG WELD
LONGERON END
LEAVE GAP FOR WELD
.18 WALL BUSHING see NOTE (G)
FIREWALL STATION
RADIAL
DRAWN BY - CRASH McPHERSON (12-27-81)

were built right to start with. Also remember that a "Beefy" airplane is easier to live with. It allows for that 240 pounder who jumps up on the wing at fly-ins when you aren't looking. It also allows for the "slave labor" to grab onto a hand hold to help push the ship into the hanger in a sudden squall! How many times have you yelled "Don't push there!" ?

So we put an extra 25 or 40 pounds in the design to handle the engine, whats a couple pounds to make steps or hand-holds? We are not dealing with an "Ultra Light"! This airplane will empty weight in at 1350 to 1550 lbs. anyway you cut it! But if you are smart and keep your "G" landings down to 4+ and 3- for that occasional loop. (Rolls won't hurt it!) Snaps are a no no if you want the airplane to last 30 years with a radial! These props are just too big in proportion to the airplane to "gyrate" around! We are not, repeat NOT building an aerobatic airplane! We are restressing a Sport airplane for a radial engine! Remember this after your next fly-in regardless of what you see done with a Pitts Special or a Starduster! You wouldn't loop or snap-roll your 210 Cessna just because it has performance. Why do it to your Starduster Too? Right? Right!

O.K., now that we have taken the oath, here's what'cha gonna have to do!

The profile of the airplane takes on a deeper, wilder look or what is called "Barreled-out" fuselage. We do this by making the fire-wall and front cock-pit bulkheads perfectly round. 34" to 39" diameter works out ok depending on whether you are using a full cowling or not. Use the 39" on the full cowl version and smaller, if you wish, on the uncowled job the Continental and Lycomings may be cowled but the Kinner can get by bare. The Warner could also be cowled but is somewhat smaller diameter than the rest.

The fuselage also changes in that the firewall station is shrunk back about 5 or 6 inches and the fuselage may be lengthened 1 or 2 inches aft of the rear cockpit. These dimensions are not real critical as the engine mount length can be altered and equiptment, (battery, tail wheel, etc.) can be adjusted for fine tuning W & B. Even the prop can alter the weight by 50 pounds! So you have a lot to play with after the welding is done.

I say 39" on the cowled version because the most available cowling is from a T-50 Bamboo-Bomber Cessna. Or a 195 or 190 Cessna. And that's about what it takes. 40" may be ok too, but remember the engine has to cool, and besides the T-50 accessory cowling is 39" diameter to the fire-wall. Which by the way may be used also.

I will include a dimensional drawing so we can get down to tubing size and wall thickness, etc. In the meanwhile, what do we do about propeller ground clearance? That's right! A radial takes a bigger prop, so we simply go to a longer landing gear. The basics are the same but the wall thickness is greater along with a couple of simple changes.

We will get into a few little handy mods to the cabane struts, elevator hinges, control cables, brakes, windshields, control sticks, rigging, engine mounts, tail springs, flying wires and spar fittings in the next sessions to come! Along with some tips. Meanwhile, find yourself a good radial engine and prop and also get an engine mount. Get the whole mount from a Stearman, Lakes, PT-22 or whatever as we will use the mount legs too!

Let's have a good showing at OSHKOSH this year and give 'em something to talk about.

More next time, Stardusters!

Sincerely to all,

"Save Chicken Fat!"

** Crash **
"Oldest Flying Chicken"

P.S. Bill, how do you think Hitler kept all those ME-109's running after the YANKS bombed his oil storage dumps? Right!.....

Check Out! Who Me?

by Hank Schmel

Naw, I have tail dragger time... I can handle it... Why ... I have over 900 hours in a 150... Hell, I'm a jet jockey on a L1011, I can handle this small thing. I have 20 hours Acro in a Citabria. They go on and on, for what reason I know not.

A bi-plane is not a jet, it is not a Citabria. It cares not about the hours in a log book. Really, what is so bad about a check ride anyway. The point of this whole story is, know the plane you are about to fly, know the numbers, know the peculiarties of it's performance. I know a few pilots who injured their bodies, pride, and airplane and then there were a few who didn't make it, just because ego was master.

There is no greater joy in flying than to be asked by an "ol timer" for a check ride in his new Starduster, Acroduster, Pitts, and so on. This man has sense - thats why he is still around. We all know the saying "There are old pilots and there are bold pilots but there are no old-bold pilots. How well this statement serves this lesson on check outs.

If you just bought or are planning to get a new or another plane, find out how the thing handles if you don't already know. Talk to several people who flew the model you have or want. I've been flying since 1945 and by golly I'm still picking up information on craft that I fly and I'll continue to seek information as we all should about planes we fly.

Don't, please, don't, refuse a check out ride. If you think you can fly better than your check pilot go anyway - you may find you weren't as smart as you thought you were.

Remember, Bill and I are here to help you. If you need information about performance - call us - we will get you an answer. Fly safe.

Hank
Stolp Starduster Corp.

Dear Bill,

Some time ago I asked for some information on a rudder trim system for my SA300. Thanks for your help, but it wasn't quite what I wanted. Also asked around for other ideas but none satisfied me, that is until I worked out this system and it works pretty good. The idea was to keep things simple and inside the skin rather than outside. Well it works good. Finally came up with the right key.

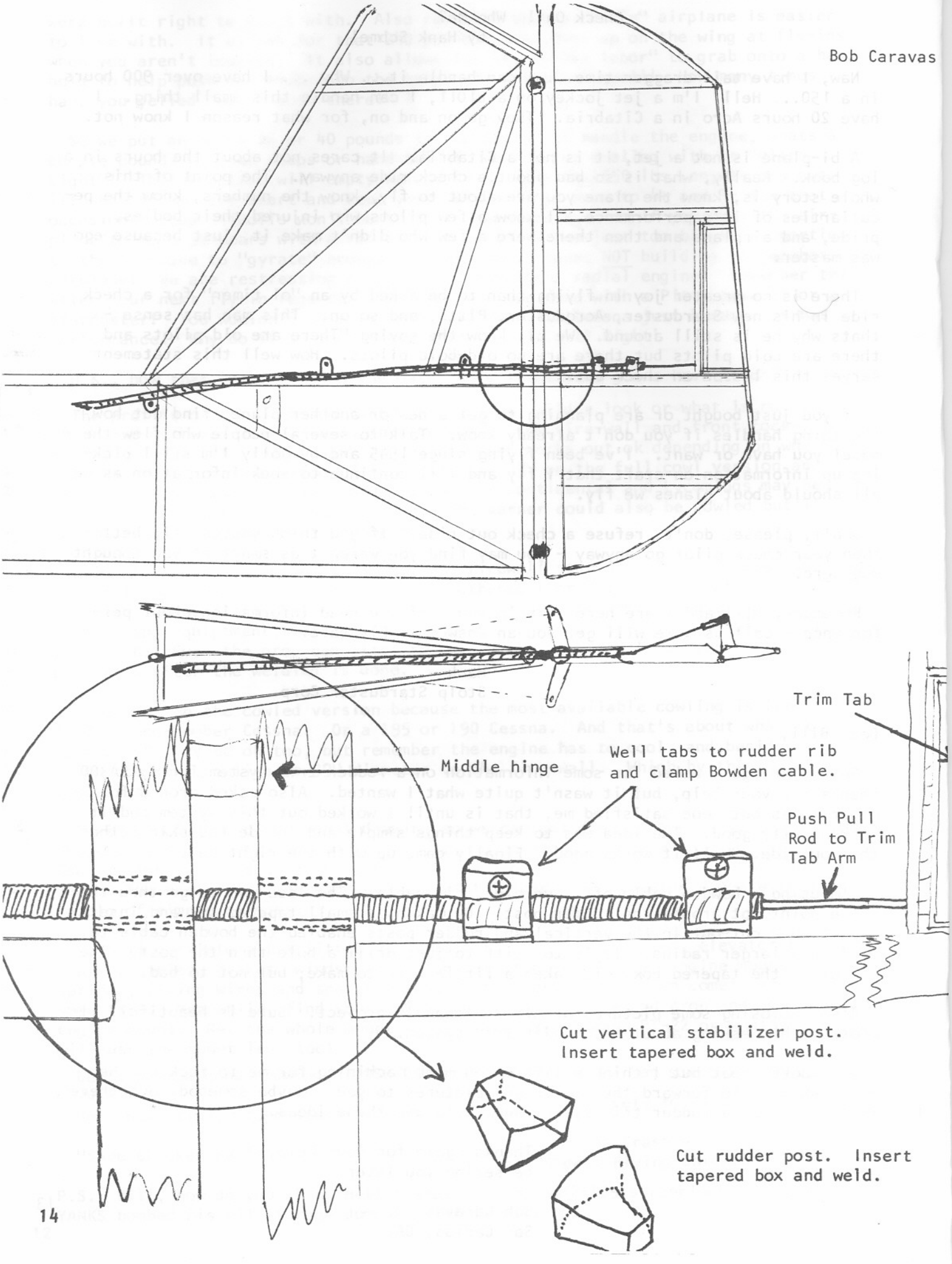
I'm using a bowden cable off a vernier trim cable. The idea was to go thru the hinge point not around the rudder post. By making a small tapered box and inserting it in a cut-out in the vertical and rudder posts enabled the bowden cable to bend in a larger radius. It is to stiff to just drill a hole thru the post. The secret is the tapered box. It takes a little work to make, but not to bad.

Also enclosing some pictures of Albert Arnaud's project. Sure is beautiful. I wrote to him asking about his rudder trim system.

His looks great but I think a little too much machining for me to tackle. He also asked me to forward the letter and pictures to you. Maybe somebody out there is thinking of a rudder trim system and could use these ideas.

Thanks again for your help,
be seeing you later.

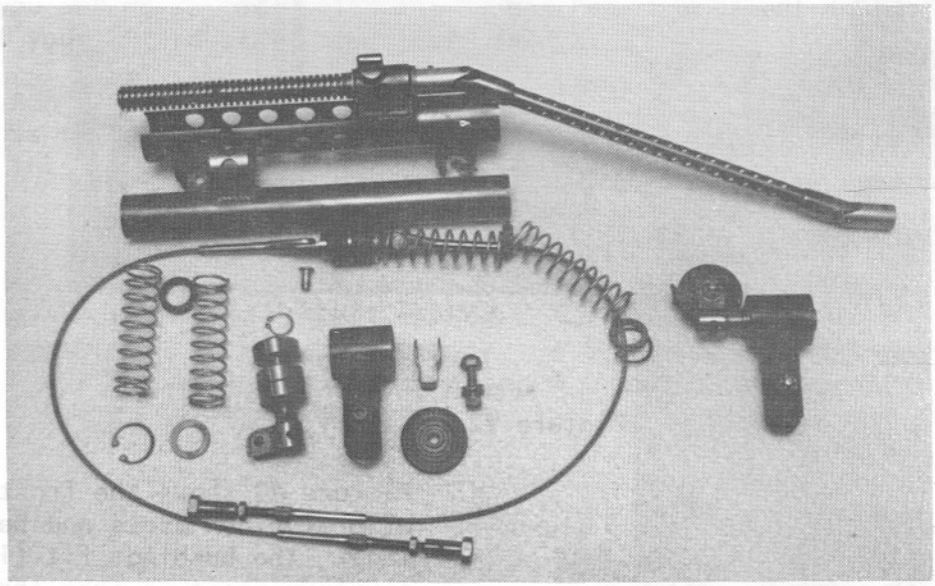
Bob Caravas
San Carlos, CA.


Trim Tab
Well tabs to rudder rib
and clamp Bowden cable.
Middle hinge
Push Pull
Rod to Trim
Tab Arm
Cut vertical stabilizer post.
Insert tapered box and weld.
Cut rudder post. Insert
tapered box and weld.

Dear Bob,

Finally, an answer to your letter. Hope this will help you.

The rudder trim mechanism is a piece of tubing with a piston inside of it and cables connected to the piston with springs on each side retained in the tubing by washers and snap rings. The washers to keep the springs from going past the snap rings. All that is necessary is to put this tubing with the piston in it and the means to move the inside tubing left and right.



Picture #1

The piston is made of stainless steel with rings of Delrin "F" on it to help it slide in the tubing.

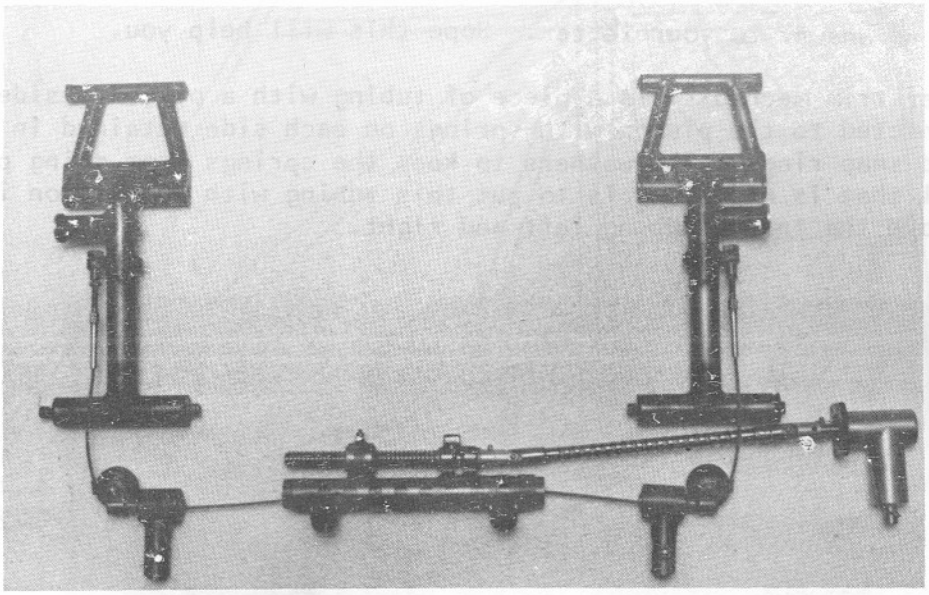
On the right side of the picture the springs are still on the cable. You will notice a stepped ring (made of Delrin "F") between the springs. This is to help the springs to slide in the tubing without touching the wall of the tubing.

The piece on the right side of picture #1 with the cable pulley on it guides the cable at 90% to the pedals (as shown in picture #2). The pulley is moved on a hollow shaft, the cable going through it.

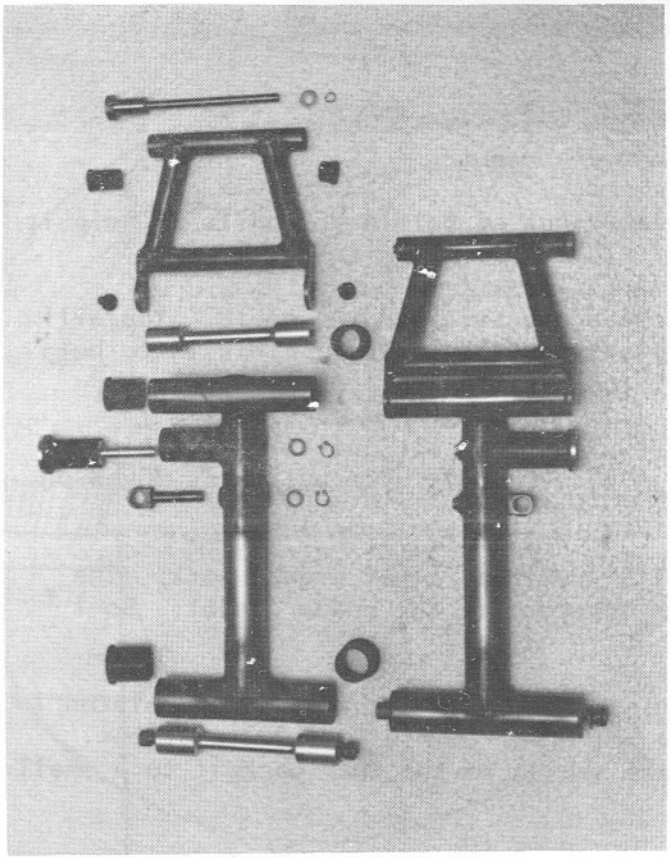
I first made the shaft to ride on oil lite bushings. That didn't work. The cable pulley would not move and follow the movement of the rudder pedal. So I had to go to ball bearings.

Picture #2. The screw that moves the piece of tubing with cables and piston in it is driven by a piece of tubing and two universal joints to a 90% gear box. From there with another universal joint and tubing to the rear cockpit to a small hand wheel.

The large screw (in picture #1) is drilled internally to make it lighter. the tubing between the universals are drilled cross ways.



Picture #2



Picture #3

Picture #3 shows the front set of pedals with aluminum axels and Delrin"F" bushings. The bushings fit tight on the aluminum shaft so that the pedal tubing roatates on the Delrin "F" bushings.

The rear set of pedals have the same construction but modified to accept the brake cylinders.

The connection between the front and rear pedals is through bands of .030 thick stainless steel:

For rudder.

For brakes.

Narrowing the fusalage by 4" left little room for a cable set up.

I made all the parts except the right angle gear box in picture #1.

Just remember that this has not been tried. Can't see why it should not work. But who knows.

If you have no use for this letter and pictures or when you are finished with them, would you forward them to Bill Clouse.

.P.S. Good luck with your "Bird"

Sincerely

Albert Arnaud
Paramus, N.J.

Dear Bill,

After 5 1/2 years of pretty steady effort, Duster #1919 has rolled out.

As you may guess from these photos my tastes in aircraft are stuck back in the thirties. I am one of those who believe that aircraft design peaked then and has gone downhill since.

Not surprising then that #1919 is a "Waco-ized" Duster. Extra stringers to round her out, "N" struts, square windshields, stubby wheel pants- wide track, red paint and, of course, a round engine.

Can you put me in touch with the "Round Power" movement and let me know the cost of your "Starduster" magazine? Thanks.

Note: Ron Clifford's "Waco-ized" Duster is featured on the back cover of this issue.

Yours Truly,

Ron Clifford
Ontario, Canada

Dear Eldon,

Sorry for the wait, but I had no photo since paint and trim.

First of all, it's only fair to tell you there is no log on the engine. I put $100.00 down on the engine to hold it while away on a three week vacation, after a quick inspection. It had been stored in a A&P's hangar (off a Fairchild 24-W.) The A&P had a bad stroke while I was gone and his daughter and son in law disposed of everything they didn't think was of any value. So I took the owner of the engines word for quite a lot and bought it. It's clean and runs very nice.

Instruments: - Rear Hole - volt, cyl. head, T&B, fuel, Vac., 3 in 1, tac, A.S., Alt., R-C, G meter, comp.

Basic Instruments: - Front Hole - Cleveland brakes with parking brake, brakes both holes. 600 x 6 wheels, 700 x 6 tires.

BT-13 Quadrants both holes.
Lights - Nav, landing, panel, strobe.
Radio - Genave 200-B
Inter Com - Sigtronics - transcom.
Telex head sets and boom mics.
Paint - Stits, metalic brown stripe with black pin stripe on white
Lettering and scarob logo, gold flake with black outline.

Leather crash pads.
Headrest and carpet - black - also cushions
The engine is a late model w/ inter City baffles and larger studs.
(I believe this A model has a hollow crank for controlled prop.)
All material was purchased new form Stolp Starduster Corp. or other.

Note: Richard Pearsall's Beautiful Radial Engine Starduster is featured on the cover of this issue.

Richard Pearsall
Pontiac, Mich.

Dear Bill and Crew,

Well, after so long of procastinating I decided I had better write and show you what my plane finally looks like.

N333CL flew in August of 82, making a beautiful three point bouncing landing, dead stick! Ahhh! Seems that some garbage in the fuel tank decided to dislodge during first flight (in pattern). Carb dismantle, fuel lines cleaned and inspected, flush fuel tank, move one fuel line; let's try again.

This time everything went well. Prop pitch not right, will fix later. Climbs very well. Faster than I thought it would be -- 135 mph. Minor radio problems, (bad antenna).

Rigging was almost perfect. Slightly right wing heavy, a bit nose heavy. Pushed down on right wing, extra washers in stabilizer. Now hands off. Very pitch sensitive. Very nice in loops/

This airplane flies better than the pilot is capable of. I have a couple of minor mods to do in the future but right now I'm just enjoying flying it. I'm going to put a new combing and windshields soon. Don't really like the way the others turned out (mechanic mistake as well as crazed plexiglass I can't rub out).

It's not perfect by any means. I had no help with the project and had to learn from trial and error. Cover is Dacron, nitrate, butyrate. Final was Corlor primer then Imron paint. I can heartily recommend the Corlor as a base over the Dacron and would use much less Butyrate. Corlor will cover better, fill the imperfections better, covers a greater area, and is flexible. Imron speaks for itself.

Thanks to you and your people, all turned out great. I know I must have sounded like a mechanical idiot at times, but please understand -- I am! This was my first airplane project of any kind, never doping, painting, wiring, thin wall welding, rigging, etc., or anything else before. Your patience with me was greatly appreciated.

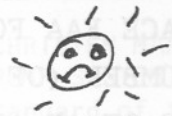
Hope to see you on Dawn Patrol someday.

Charlie Largay
Miami, Florida

To STOLP STARDUSTER Corp. Date 5-23-83

ATTN: RONNA Subject

Dear Ronna

I am sending your  back to you. We have had enough 

We need our, we must have, we want our  . It is unnatural for an Oregonian to tan and how can we maintain our image.....? You californians have stolen our image, our identity..... no longer do we have our great rust-tans..... no longer do we have moss growing on the north side of our noses. The Great Sun Heist of '83 is obviously a crime of passion, of jelousy.....

Consider this: A native secret in Oregon is that the rain falls on the just and the unjust but mostly on the just because their umbrellas were ripped off by the unjust from california.

Now you surely understand why we must have our  back. Ok?

Respectfully

Gary Hamblen

P.S. Thanks for the catologue and enclosed find the $3.00/

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(NATIONAL ASSOCIATION OF SPORT AIRCRAFT DESIGNERS)

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FOR EXPERIMENTAL-AMATEUR BUILT AIRCRAFT. THIS FORM SUPPLEMENTS & DOES NOT REPLACE FAA FORM AC8050-2. N NUMBER (IF ASSIGNED:) N_____

SERIAL NUMBER (OF BUILDER'S CHOICE:) _____ THIS AIRCRAFT IS A FACSIMILE OF AN AIRCRAFT KNOWN AS A: _____

This aircraft is not designed or built to meet any standards of airworthiness as with a certificated aircraft. This aircraft does not have a FAA Form 317 Statement of Conformity on file, since there is no FAA approved data to conform to. This is an experimental aircraft and the registered owner is the experimenter. The aircraft was not built in a permanent jig and parts are not interchangeable with any other aircraft of the same facsimile. FAA records list the registered owner as the manufacturer of an experimental-amateur built aircraft. The registered owner is free to make any modifications or changes he so wishes. The aircraft is an example of the owners creative ability. The new owner of an experimental-amateur built aircraft becomes it's manufacturer, when it is registered to him. He becomes responsible for it's aerodynamic and structural concept. The new owner is responsible for the performance and fit for purpose of every part and piece on the aircraft. Warranty is not expressed or implied for any feature or part of this experimental-amateur built aircraft.

I accept the terms of this Bill of Sale and all responsibility for the aircraft described herein.

PURCHASER

NAME: _____

ADDRESS: _____

_____

SIGNATURE: _____

I this ___ day of _____ 19___, do hereby sell, grant, transfer, and deliver all rights, title, and interest in and to such aircraft.

SELLER

NAME OF SELLER: _____

ADDRESS: _____

_____

SIGNATURE: _____

NOTARY SEAL SPACE

This Bill of Sale must be signed by both parties. The seller keeps the original and gives a copy to the new owner. Send a copy of the original to FAA with the canceled registration (if registered.) Sign before a notary if required by the state where the transaction occurs. FAA dropped the requirement for notarizing in 1972.

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