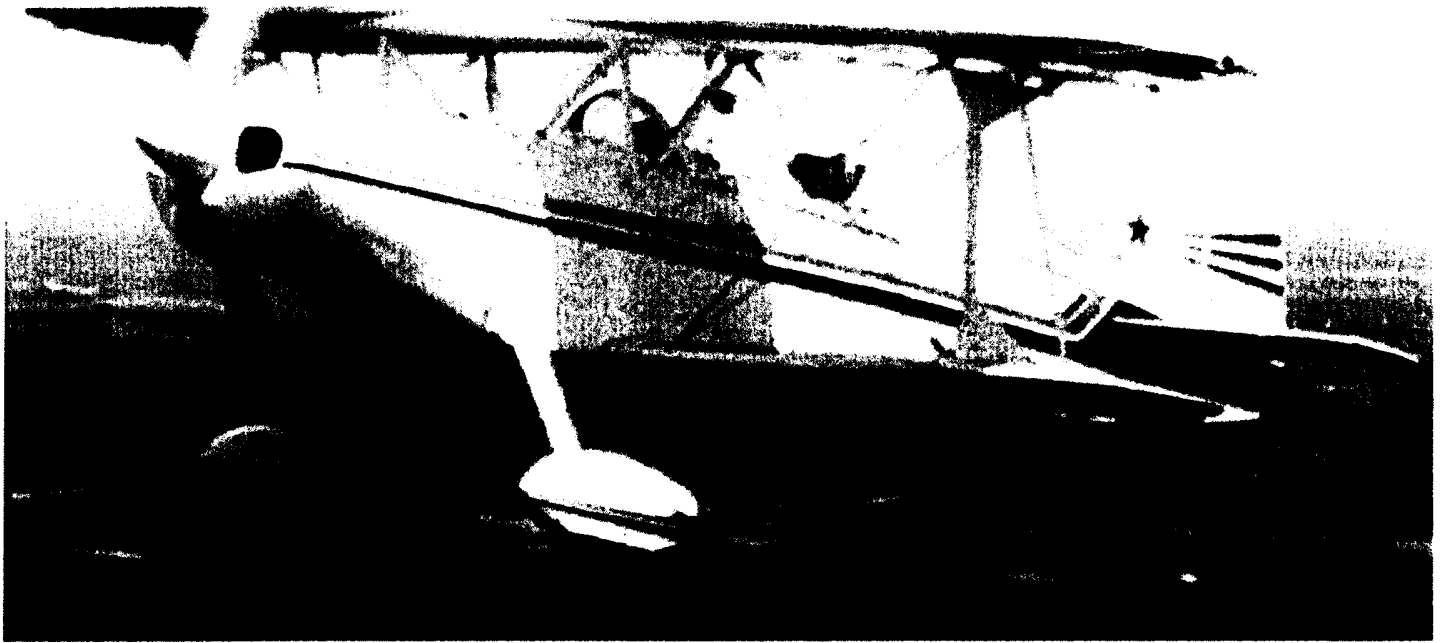


Acroduster Too SA750



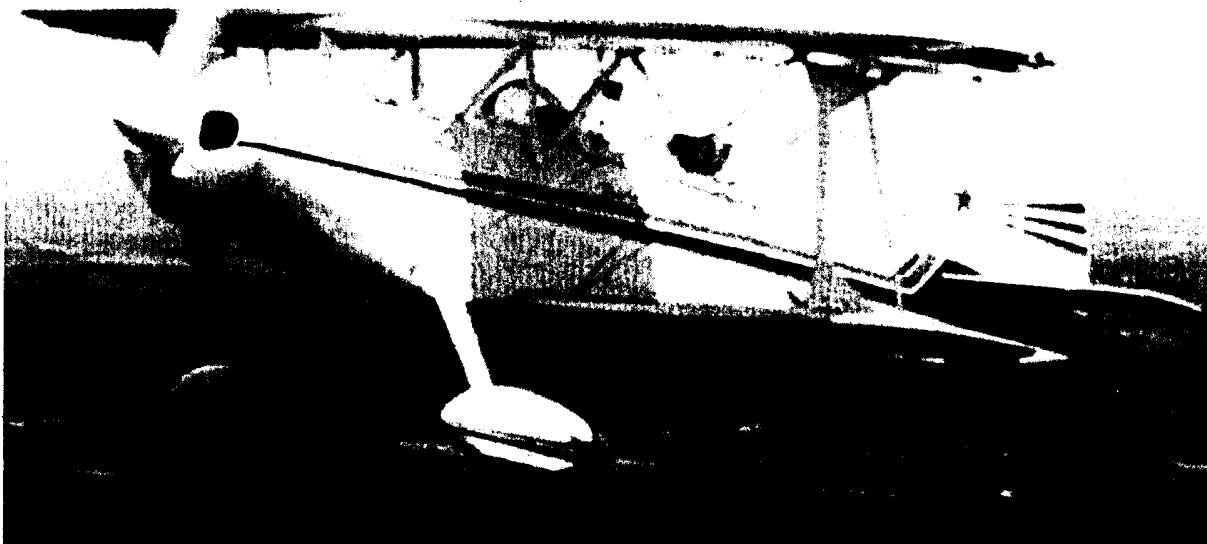
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Acroduster Too SA750

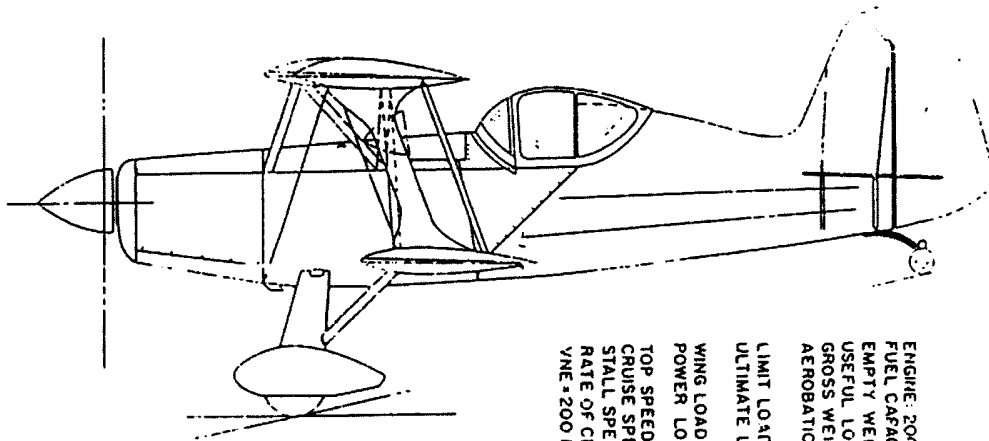
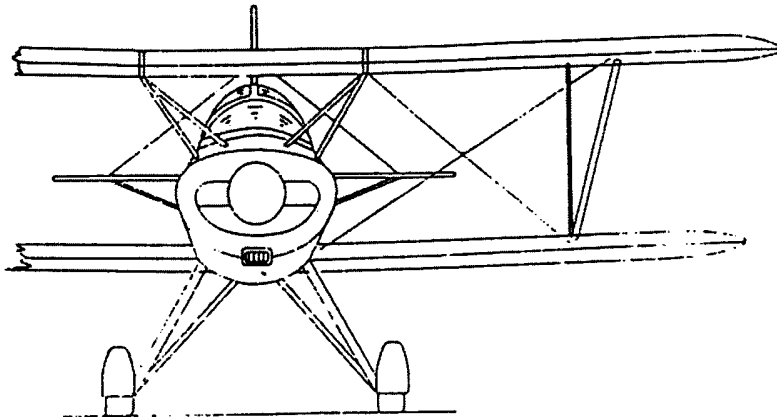


The ACRODUSTER TOO SA750 is a fully aerobatic, two-place machine stressed to plus & minus 9 G's. It has modified symmetrical wings and is capable of matching aerobatic performance with any two-seat airplane now flying.

The optimum engine is the fuel-injected 200 HP Lycoming, with constant speed propeller. The prototype cruises about 160 mph, climbs 2300 fpm, and stalls at 55 mph. Although it has a comparatively sharp stall and sensitive control response, wings can be maintained in the level attitude with rudder alone or with aileron. This with stick full back by reducing power to idle and zero climb until stall is obtained.

An experienced taildragger pilot would have no trouble flying the Acroduster Too, but should get both cockpit and taxi time to acquaint oneself with the airplane before take-off. I recommend that a pilot without taildragger time obtain some dual instruction in something like a Cessna 140 or Starduster Too. Construction follows traditional biplane practices with steel tube structure and spruce wing spars.

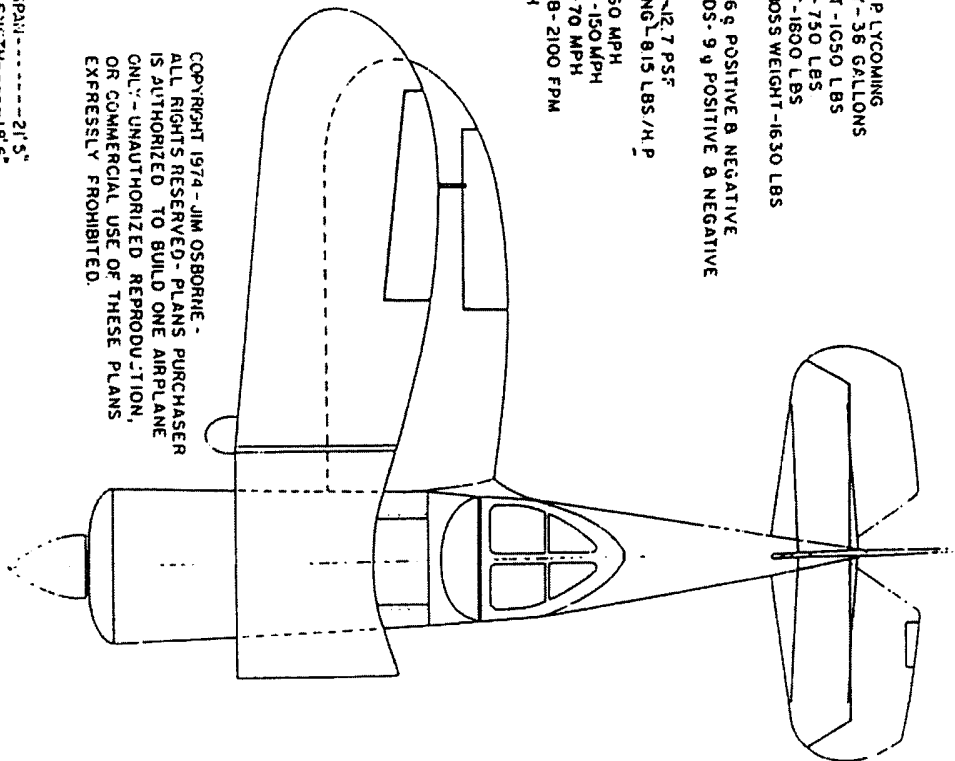
Materials are available through Aircraft Spruce, please call us for a complete free kit list and free catalog 877-4-SPRUCE (777823)



ENGINE: 200 H.P. LYCOMING
 FUEL CAPACITY - 36 GALLONS
 EMPTY WEIGHT - 1050 LBS
 USEFUL LOAD - 750 LBS
 GROSS WEIGHT - 1800 LBS
 AEROBATIC GROSS WEIGHT - 1630 LBS
 LIMIT LOADS - 6 g POSITIVE & NEGATIVE
 ULTIMATE LOADS - 9 g POSITIVE & NEGATIVE
 WING LOADING - 12.7 PSF
 POWER LOADING - 8.15 LBS/H.P.
 TOP SPEED - 160 MPH
 CRUISE SPEED - 150 MPH
 STALL SPEED - 70 MPH
 RATE OF CLIMB - 2100 FPM
 VNE - 200 MPH

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 IS AUTHORIZED TO BUILD ONE AIRPLANE
 ONLY - UNAUTHORIZED REPRODUCTION,
 OR COMMERCIAL USE OF THESE PLANS
 EXPRESSLY PROHIBITED.

SPAN - 21.5"
 LENGTH - 18'6"
 HEIGHT - 6'10"
 WING AREA - 190 SQ. FT.
 WING TIP BACK - 6°
 INCIDENCE - 0° BOTH WINGS
 DIFFERENTIAL - 0° BOTTOM WING



SCALE 1/12	GENERAL ARRAN-
DATE 7-18-72	GEMENT - 3 VIEW -
DESIGNER J. OSBORNE	MODEL SA 750
DESIGNER'S COMPANY	
DATE 7-18-72	
SCALE 1/12	
DATE 7-18-72	
DESIGNER J. OSBORNE	
DESIGNER'S COMPANY	
DATE 7-18-72	
SCALE 1/12	
DATE 7-18-72	
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DESIGNER'S COMPANY	
DATE 7-18-72	



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SA750 Weight and Balance

HORIZONTAL DATUM: TOP LONGERON SHOULD BE LEVEL
VERTICAL DATUM: FIRE WALL WEB
FORWARD C.G. LIMIT: 20.5
AFT C.G. LIMIT: 26.5

EMPTY WEIGHT C.G.

WEIGHING POINT	WEIGHT.
RIGHT (R1)	_____
LEFT (R2)	_____
REAR (R3)	_____
TOTAL	_____

$$D = \frac{D1(R1+R2) + D2(R3)}{R1+R2+R3}$$

MAX FORWARD C.G.

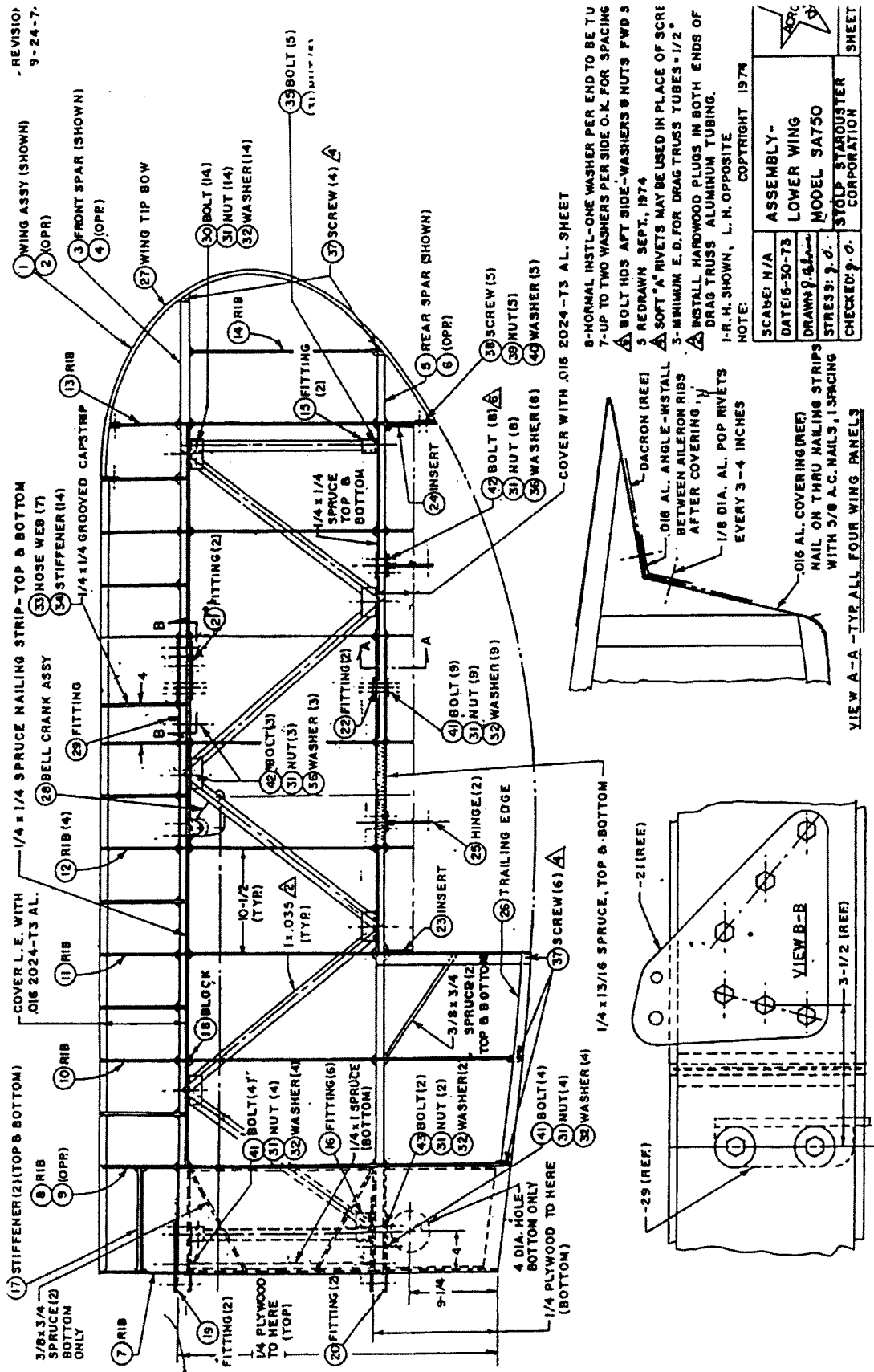
	WEIGHT	ARM	MOMENT
AIRCRAFT EMPTY WEIGHT	_____	_____	_____
PILOT	_____	_____	_____
FUEL	_____	_____	_____
FUEL	_____	_____	_____

TOTAL MOMENT=
TOTAL WEIGHT=

MAX AFT C.G.

	WEIGHT	ARM	MOMENT
AIRCRAFT EMPTY WEIGHT	_____	_____	_____
PILOT	_____	_____	_____
PASSENGER	_____	_____	_____
BAGGAGE	_____	_____	_____

T/M _____
T/W _____



SCABE: N/A	ASSEMBLY-
DATE: 5-30-73	LOWER WING
DRAWN: 9-1-65	MODEL SAT50
STRESS: 9-0	STOP STANDBY
CHECKED: 9-0	CORPORATION
SHEET	

SAMPLE PAGE FROM PLANS



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ACRODUSTER TOO
SA750

-Q & A-

FREQUENTLY ASKED
QUESTIONS



FREQUENTLY ASKED QUESTIONS:

Acroduster Too, SA750

Why is the Acroduster Too also identified as a SA750?

Jim Osborne changed the SA to mean sport Aerobatics.

Landing gear types?

There are two types of landing gear available for the Acroduster Too including the spring aluminum and the bungee type. The spring aluminum gear is available with gun drilled brake lines.

What engines can I use for my Acroduster Too?

Engines installed in the Acroduster include the 180 and 200 horsepower Lycoming up to the 6 cylinder IO-540s of 300 plus horsepower.

I am thinking about buying an Acroduster Too. What are the most important items to be concerned about?

There are several things to be concerned about. These lists will include several but not necessarily all. Check the aircraft over very well. Enlist the aid of an Acroduster Too Builder or A&P if possible. Things to check at this point include craftsmanship for safe work. Check weld, woodwork, fabric work, attachments, bolt and safety pins, electrical, fuel, oil systems, landing gear and brakes. Check the controls for looseness. Have someone hold the stick stationary and move the elevator up and down. There should not be any movement. Move ailerons up and down with stick held stationary. There will properly be little play here, find out where it is coming from, worn aileron hinges, loose rod ends, loose bell crank bearings. Hold the lower aileron stationary and move the upper aileron. Is there Play? Where is it coming from, rod end bearings, rod ends?

Check the flying wire tension by striking them with the side of a finger. The sound should be the same from all wires. Look for any scratches, marks or damage to the flying wires. Check the javelin for rubbing, same thing with fairings or covers at wing coverings. Any damage here and the wires should be replaced. This is what is holding the aircraft wings in place and damage leading to fractures and failure will ruin you whole day.

Check the ailerons. Is it possible to push down on the upper aileron and lock it over center. Many Toos are build without stops on ailerons and are rigged in such a way to allow ailerons to over center. Not very likely to happen unless in a tail slide but could ruin you day. Stops can be installed and if the condition exists must be installed.

Travel of all control surfaces needs to be checked. Make sure ailerons move the same distances up and down on each side. Check out trim tab operations. Some elevator



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trim tabs are set up only as trim tabs while others are set up as servo tabs to lighten stick loads. Either is ok.

Check the logbooks and talk to anybody who has flown the aircraft. Don't forget to find out how many times a year the previous owner flew and what their flying experience is. Experience and practice makes a difference. This is not to say some stories are not justified.

One of the most important things to check out is weight and balance. Do not believe the posted or log book data. Have a weight and balance performed before you do any aerobatics or spins. The reference is the firewall.

During flight tests the aircraft should not show any tendencies to drop off on a wing during a stall. During 90 Degree bank stalls it should not drop off. Entering a power off stall slowly, you should feel one wing and then the other as they stall. Spins should not be any more eventful than something should like a Citabria or Dethalon. Just a tad bit faster rotation. You should get a notice on the stick just prior to stall. It can be slight so if you are excited you may not notice it at first.

Fuel management valving and plumbing should be something that makes sense to you. There is a main tank in the fuselage and in most Toos there is a wing tank. The main tank may or may not have an inverted system. The main tank may have only a shut off or it may have a method of changing from main tank section to inverted sump section. The top tank may drain into the main tank or be routed directly to the engine.

All engine oil and fuel screens must be checked at some point before you fly very much. Check out the gascolator and make sure it is clean and gaskets are in good shapes. Check fuel and oil hoses. Place rear of the aircraft in a ditch and drain out all the fuel. Determine how much is left and then fill it up to determine how well the fuel level system works and how much fuel is actually held in each tank.

Check the landing gear mains to make sure there are not toeing in or toeing out, wheels must point straight ahead and must be parallel when viewed from above. Check out the safety cables on landing gear. They are intended to prevent a wing from dropping to the ground in event of bungee break. If they are too tight and you make a HARD landing it is possible to take out the bungee truss.

When you get a change check the rigging with an accurate level or transit.

What type of windshield is best?

All types are in service. The most popular are the straight formed and the bubble type, both have their supporters and either works fine. If you cover up the front cockpit during cold weather when you are alone it sure makes a difference. The Acroduster Too is a fast biplane and you may really enjoy a canopy.

Where do I put baggage?

The main baggage area in the Too is the turtle back behind pilots head. If you have a long mount or heavy engine many people have added baggage areas behind the pilots seat. It is also possible to place a bag below passengers legs, in front of stick. If you are serious about baggage room Starduster has a baggage pod, which gets installed



under the belly like a drop tank or bomb. Depending upon landing gear type and exhaust piping you may be able to install two pods.

Can I do aerobatics?

The Acroduster Too is rated for plus/minus 9 G. Most fun aerobatics are a piece of cake. It will match performance with a Pitts or Eagle and is considerable easier to ground handle. The airfoil is symmetrical and is equally at home upright and wheels pointed to the blue. For a good aerobatic mount the airplane should be built light and have, inverted oil and fuel system and some altitude. Make sure you have been checked out and are qualified.

Aerobatic maneuvers that can be performed in an Acroduster too include any maneuver you are capable of.

What is the difference between the Starduster Too and Acroduster Too?

The Acroduster Too is approximately 10% smaller than the Starduster Too. Airfoil on the Starduster Too is an M-6 and the Acroduster Too is a Modified 2412 Symmetrical airfoil. The Acroduster Too is made for Aerobatics and is a high performance machine. Roll Rates are in the 360 degrees per second range with a G rating of +/- 9 while the Starduster To has a roll rate of approximately 120 degrees and a G rating of +/- 6. People and baggage room is greater in the Starduster Too. If you want a high performance biplane primarily for aerobatics the Acroduster is for you. If lots of fun, easy flying, room and cross-country flying with fun aerobatics once in the while are what you want the Starduster Too is best.

What is the difference between the Acroduster Too and the Skybolt?

First off you should be comparing with a 2 place Pitts or Eagle. Major differences include shape of wings, straight versus elliptical and pylon upper wing mounting versus cabane. The Acroduster is a smaller, faster more aerobatic machine.

Are there more than one type of cabane on the Acroduster Too:

Yes. There are two, the bolt on and weld on type. One is not better than the other and both are acceptable.

What is the best tail wheel to use?

The Scott 3200 tail wheel is one of the most popular however you will find many other tail wheels including the Scott 2000, Maule's, both large and small and about all other units made. To prevent shimmy it is essential to have tail wheel post over center to proper angle, even when loaded. Tail wheel success is having the proper main landing gear, new style, and not excessive weight on tail wheel. Main gear alignment is also critical for proper tail wheel operation.

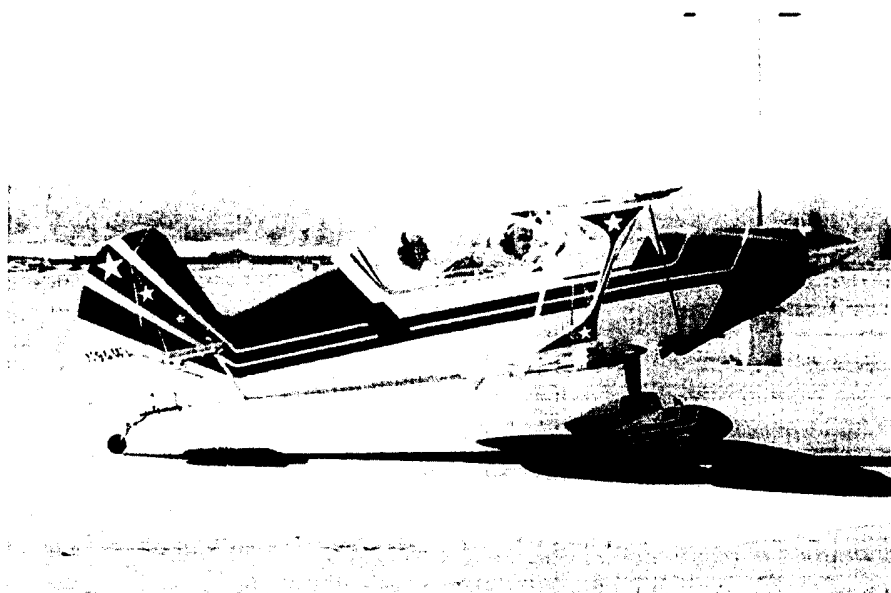
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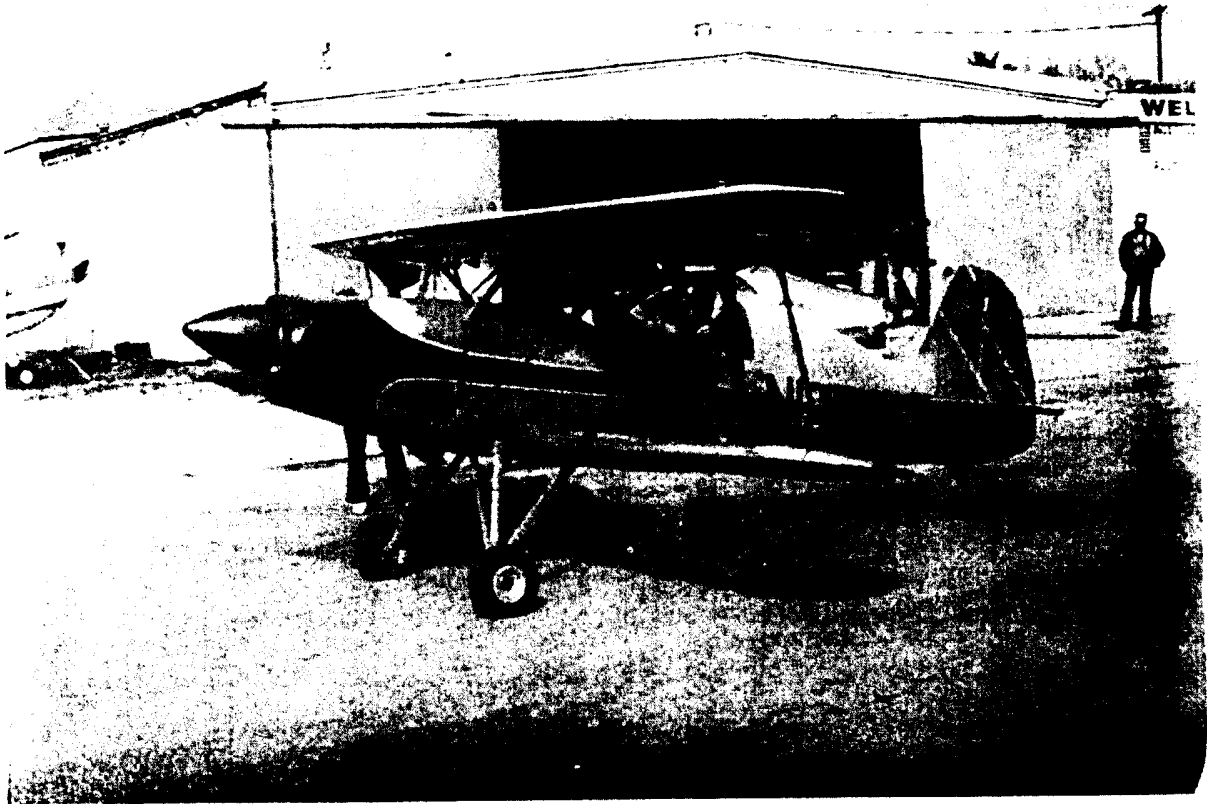
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ACRODUSTER TOO SA750



ARCHIVED MAGAZINE ARTICLES



FIRST PLANS BUILT ACRODUSTER TOO FLIES - by Jim Osborne

On Friday, Jan. 10, 1975, I had the privilege of making the first flight in Acroduster Too number N121RM, at Flabob Airport, Riverside, California.

The takeoff revealed a very responsive and sensitive rudder. It would be easy to overcontrol on takeoffs and landings with this rudder. On climbout an airspeed of 120 mph was indicated. This gave a rate of climb of 1000 FPM. Climb was sustained to 3000 ft. At 3000' power was reduced to 75% and the plane was trimmed for cruise. Level flight cruise speed was 135 MPH indicated. This trues out to about 150 MPH at 7500 feet. This speed was achieved without wheel pants or fairings, with the front cockpit opened, and without the hatch cover over the rear cockpit. A speed increase of 10-12 MPH is expected when these details are attended to.

A series of stalls was initiated at 3000 ft. With power off, stall occurred at an angle of attack estimated to be 3-5° in excess of the flare angle. The break was clean and slightly to the right. No warning buffet or vibration was encountered prior to stall. With cruise power on, the stall angle was so steep that it would be difficult to imagine such a stall accidentally occurring. Immediate forward stick, full throttle, and "walking" the rudder, and it flew right out of the stall.



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Steep turns in excess of 60°, and Lazy 8's showed the control response around all axis to be light, responsive, and well balanced.

A dive to 180 mph showed solid, responsive controls, with no trace of shake, flutter, or vibration. A low altitude flyby was then made, for the benefit of picture takers, at a speed of 170 mph. A gradual climb back to 1500' and the landing pattern was initiated. Wide gradual turns under partial power of 15" M.P. were made, and the runway was approached at a speed of 120 MPH. This was bled off to 110 over the fence and flare at 90-95. (By this time I wasn't watching the Air Speed.) She touched down lightly and prematurely, lifted back off, floated another 50-100 ft and was then on in solid 3-pointer. Rollout was uneventful.

In addition to the owners, Mr. & Mrs. Randy McCoy, of Bishop, California, the spectators included Lou Stolp, from Redlands, who was nice enough to drop by for the first flight. His moral support was appreciated.

Since the first flight, 5 hours has been put on the airplane. Further testing has established a maximum climb rate of 1800 feet per minute. This is still in the original configuration, and should improve when fairings and canopy are installed. Improvements are also expected as the engine wears in and loosens up a bit. Best rate of climb speed appears to be 95 MPH. Best angle of climb speed is 85.

Glenn Beets and the Starduster Mechanics who assembled and aligned this airplane are due to be congratulated. The alignment was perfect. No trim tabs were needed on rudder or ailerons, and no trim adjustment was needed on the horizontal tail. It flew hands off in level flight on the first try. When trimmed for level flight with only the pilot aboard, the trim tab is in the streamline position. This is with both wings and the horizontal tail set at 0° angle of incidence. What this means is that no forward stick will be required in inverted flight, and no trim adjustment is needed. It should be as perfect a plane for inverted flight as it is possible to get.

The owners of this beautiful new airplane, Mr. & Mrs. Randy McCoy, of Bishop, California, did the basic framework construction. Alignment, covering, engine installation, and painting was done in our Starduster shop, with Randy working with our mechanics, under the direction of Foreman Glenn Beets.

The FAA Inspector was Mr. Bob Detwiller, from the Long Beach GADO office. We wish to thank him for his pleasant & friendly cooperation during the required inspections. We are lucky indeed to have a man of his calibre available to our local homebuilders.

Randy and his lovely young wife, Debbie, will be removing their airplane, as soon as the finishing details are attended to, and the time is flown off. They will keep it at the Bishop, California, airport. Randy is at present a 300 hour Cessna pilot. He has several hours of dual instruction in a 2-place Pitts, but wants a few more hours of dual before he solos his new bird. This is a wise decision, and foreshadows many years of accident free flying.

For the benefit of you Oshkosh fans, Randy has promised that he will have the plane at Oshkosh. We all hope to see you there.



ACROBATICS IN THE ACRODUSTER TOO

By Eric Shilling

Several Acroduster Too builders have asked about entry speeds for various acrobatic maneuvers. I have flown Gaff Muellers Acroduster Too, which is one of the original prototypes. I might point out that, first of all, Gaff's airplane has wings with a slightly different airfoil than those built from the plans. It is more of a high speed laminar flow airfoil than the airfoils used on subsequent ones. This, and weight, will probably account for whatever differences you may find between my numbers and yours. Here they are.

I have found that 140 MPH was the lowest entry speed at which a decent loop could be accomplished. At 140 MPH, and using a 3 g pullup, a nice round loop could be accomplished. More or less g's results in a sloppy or incomplete loop. At higher entry speeds 4 g's appeared to give the best results. 6 g's caused a speed bleedoff more rapidly than when using the 4 g pull. I therefore think that the 4 g pull is optimum up to 180 MPH.

Induced drag is a function of angle of attack. For speeds higher than 180 MPH, a higher g loading may be used to attain a higher speed in a vertical roll, or increased speed at the top of a loop. One must always keep in mind, however, the envelope in which the plane was designed to operate, and NOT EXCEED IT.

In regard to buffet, the wires on this airplane were slightly loose, and would vibrate when pulling high g's. Check for this, and tighten, if necessary. It would buffet when pulling too much g's, such as one may do at the top of a loop and when descending in the vertical position. You must relax back pressure approaching the top of a loop, and also not pull it in too much at the start of the down vertical.

If you do pull to tight you will get buffet, and it goes without saying that your loop would not be round.

MANEUVER	MIN SPEED	MAX G LOADING	BEST SPEED	BEST G LOADING
Loop	140 MPH	3	160-180	3 and 4
Snap Roll	120 MPH		130	
Slow Roll	120 MPH		160	
Aileron Roll	120 MPH		160	
Immelman	180 MPH	4	180	4
Cuban 8's	140 MPH	3	160	4

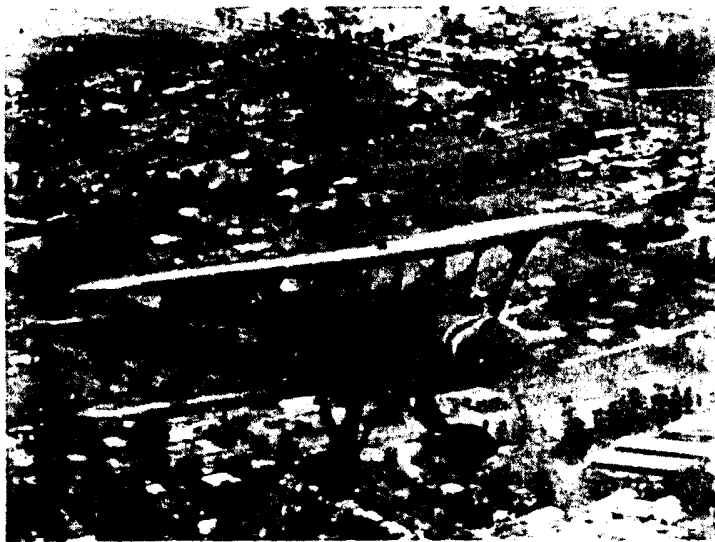
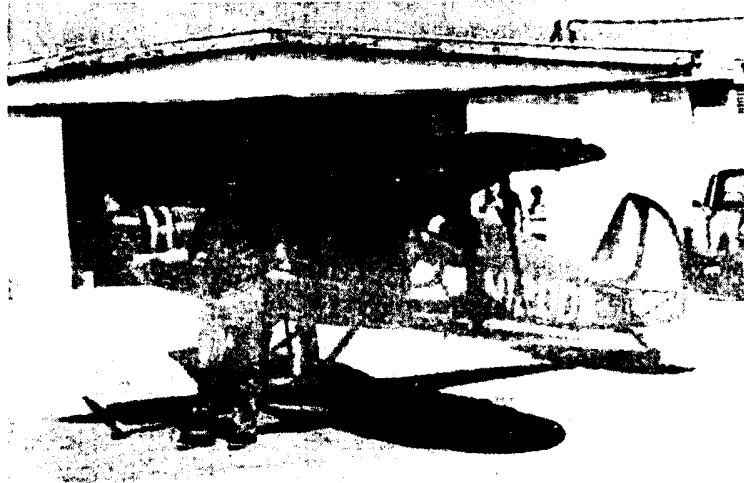
On the min entry speed, it means that it is just barely acceptable, but will give a good idea as to the envelope, or starting point for the maneuvers.

Some pilots have suggested that the buffet may have been due to the large canopy. I am more inclined to think that it is associated with the high speed stall warning on aircraft with this type of airfoil.

As more Acroduster Toos begin flying, I hope to be able to compare figures with other builders, and thus accumulate more accurate data for this model airplane.

NEW ACRODUSTER TOO FLIES

NEW ACRODUSTER AND
SOON TO BE OWNER
DOUGLAS DANIELSON,
OF 3997 WARNER AVE
MUNTINGTON BEACH
CALIFORNIA



IN FLIGHT, WITH ERIC
SHILLING AND DOUG DANIELSON
ENJOYING THE SCENERY OVER
RIVERSIDE, CALIFORNIA

BUILT BY STOLP STARDUSTER CORPORATION GNERAL FOREMAN WILLIAM C. CLOUSE.

N12DD was built in Starduster Corporation Shops, and title will be transferred to Douglas Danielson in the near future. It is painted in accordance with the design and color scheme developed by Mr. Danielson. Power is by a 200 H.P Lycoming 10-360-ALB. The prop is an Aerobatic C/S Hartzell.

First flight was by our own Eric Shilling, on 20 April 1977. Building time was approximately six months. Flight Characteristics are delightful. All controls are light to the touch, and very, very responsive. Roll rate is in the vicinity of 180 degrees per second.

Doug has promised to have this beauty at Osh Kosh this summer. See you there.



STARDUSTER HISTORY N133RP Marmalade

We at Starduster Magazine would like to call special attention to Ron Powers and his Aeroduster Too N133RP. His recent award at Oshkosh this year, where it received the Paul Poberezny Classic Home built Founders Award. Ron's airplane attended Oshkosh for the first time in August 1976 and again this year, making it the 20th anniversary. It is the first plans built Aeroduster Too that attended Oshkosh and Ron has been an FAA member since 1966. Ron recently told me he had seen the original Starduster One N70P in San Diego, California at Stardust Aviation when John Tucker owned it, and that his dad, Ned Powers was able to fly N70P at that time. His dad told him later that it was a good airplane, but not the best for aerobatics. Especially out side maneuvers. Shortly after that Lou Stolp brought out the Starduster Too and Lou not being an aerobatics enthusiast did not promote it as an aerobatics airplane, as it also needed a symmetrical wing. Several more years passed and in the 1972 edition of Sport of Aviation was an article about Morgan "Bud" Schraacks prototype Aeroduster (Super Starduster Too). Seeing this article peaked his interest, however the front cockpit was covered in those pictures, and it took several more months to determine that it really was a two place airplane.

He later had a chance to look at Morgan's airplane N5462, and that finally sold him. He bought the plans in March 1973 and finally began construction. The usual concerns about building, studying the plans, deciding on what paint scheme, many calls on the telephone to Jim Osborne, a lot of help from his friend Burt Sisler in the welding and fixture department, plus several cold winters at his home in Grand Rapids Minnesota. He also discovered contrary to popular belief that the ribs are as easy to build as any wood wing home built airplane as they are all the same back to the rear spar and then only four different ribs per wing panel. All builders including myself, are able to set in bare bones fuselage and make airplane noises during construction and Ron was no exception, 90% to go.

When the airplane was ready to cover, Ron used Stits with Aerothane. The colors used were orange and white with a modified Star burst, thus the name Marmalade.

The airplane was signed off in June of 1976 and was flown by Ron shortly there after. Ron was able to draw on his past experience with Citabrias and aerobatics. He also took some dual time in a Pitts S-2. He had two things in mind during the flight test program, one learn the airplanes performance and two, learn how to fly the airplane proficiently with lots of take off's and landings. He also found that the airplane does beautiful wheel landings. Three and a half years of hard work was finally paying off.

With time being short, he started flying 6 to 7 hours a day, in order to fly off the required 50 hours. On July 31st the restrictions were lifted and he was able to take his first passenger and that was his wife Sharon. That same day he took 12 other people for rides. Sunday, August 2, 1976, Ron and his friend Pat O'Kelly left for Oshkosh. The airplane got a lot of attention and received many admirable comments. The airplane was then flown down to Fond Du Lac Wisconsin for the IAC Aerobatics contest and was flown in the Sportsman category.

Two place airplanes were made to take people flying and as of June 1977, Ron had taken over 44 people, of which many started building their own airplanes and to this date he can't remember how many rides he has given.

Ron would like to thank all the people who made it possible, mostly his wife and family, Burt Sisler, Pat O'Kelly, Paul Howe and his many friends in the FAA Chapter 25. He would also like to give thanks to Jim Osborne and Starduster Corporation along with FAA.

I, your editor, was able to meet Ron Powers at Oshkosh this year 1996. When I talked to him he had just lost the flip of the coin to his son about who would get to fly it home and who would drive because they were getting ready to depart in N133RP for Grand Rapids Minnesota their home base. It is wonderful that his son is now flying the Aeroduster Too. We at Starduster wish Ron many more enjoyable flying hours, and again congratulate him for his outstanding award.

D.C.B. Editor



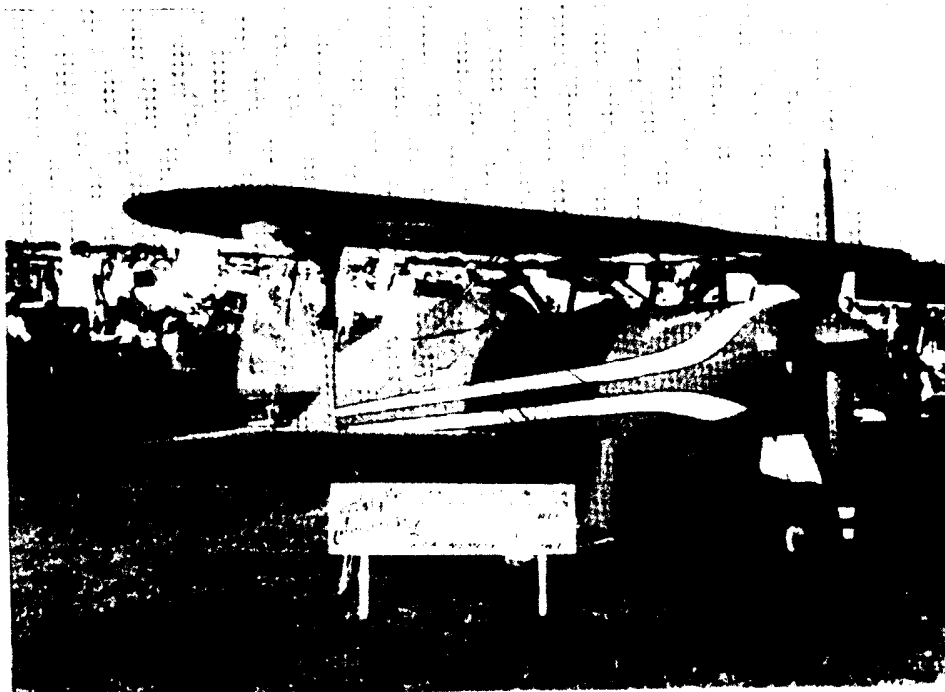
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N133RP Ron Powers, Acroduster Too ready for departure, Oshkosh 1996 (above)

N133RP on display . The Sign says "20th anniversary first flight June 29th 1976. First Acroduster Oshkosh 1996. Builder / Owner Ron Powers EAA # 28195 IAC #2214. 30th anniversary EAA member since 1966."
(below)





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STARDUSTER HISTORY

Starduster Corporations N750X Acroduster Too

When Jim Osborne aquired Stolp Starduster Corporation in the early 1970's, Morgan "Bud" Schrack and Lou Stolp had already been collaborating on an aerobatic version of the Starduster Too. That airplane was N5464. (See Starduster History in the July 1991 issue of Starduster Magazine).

After N5464's completion and many hours of flight testing, Jim redrew the plans, making changes and including all the things he felt would make the airplane more competetive. The successful results of his effort are described in the following text.

N750X was to be all the things that N5464 embodied as well as a lot more. The first thing of course was more horsepower. That being an IO540-N 260 HP Lycoming. The airplane encompasses a wide range of performance and information, with a cruise speed of around 160 MPH, and the stall speed of 60 MPH, plus a 2,500 FPM rate of climb made the Acrodusters performance range very acceptable.

During this time, Jim Osborne went from a low time aerobatic pilot and aircraft designer to a very skilled acro pilot. I rememeber seeing this airplane for the first time at a Starduster Open House in 1984. I also remember it being flown by a very competent pilot whose name escapes me, and that he would do wheel landings followed by power and brakes, bringing the aircraft to a full stop, with the tail still in mid air. Very impressive for an Acroduster Too. I also remember Lowell Slatter's N300AD and N750X, making low high speed passes and pull ups together at Fla-Bob during the Open Hose which was also very impressive. Eric Schilling who was employed by Starduster Corporation, also did much of the aerobatic demonstration rides. He is a story all by himself. A former Flying Tiger (The real ones), and CIA/Air America pilot. His colorful past and proffessional ability was a great asset to the Starduster Corporation and contributed to the popularity of the airplane.

But the real promoter of the airplane was John Helton, a former airforce fighter pilot, a current airline pilot (United) and probably one of the most profficient competition and airshow aerobatic pilots of his day.

During the late 1970's, John campaigned N750X in numerous aerobatics contests. Delano, Mojave, Borrego, Hot Springs and of course Fond Du Lac. He competed in the intermediate class and won first place at most of them. He also flew it in numerous airshows around the country, including Oshkosh.

The original airfoil was a modified 23012 called the Osborne A-1. John called it a Lear Jet airfoil, as it had a very sharp leading edge. This did three things. One, it made it very fast for a biplane, much faster than the numbers mentioned above, and another thing it did was make it able to do unbelievable snap rolls and multiple snap rolls. But it also made the landing speed much higher, and with this airfoil it made it a much more demanding airplane to compete in, as this was the configuration it was in during John's acro time.



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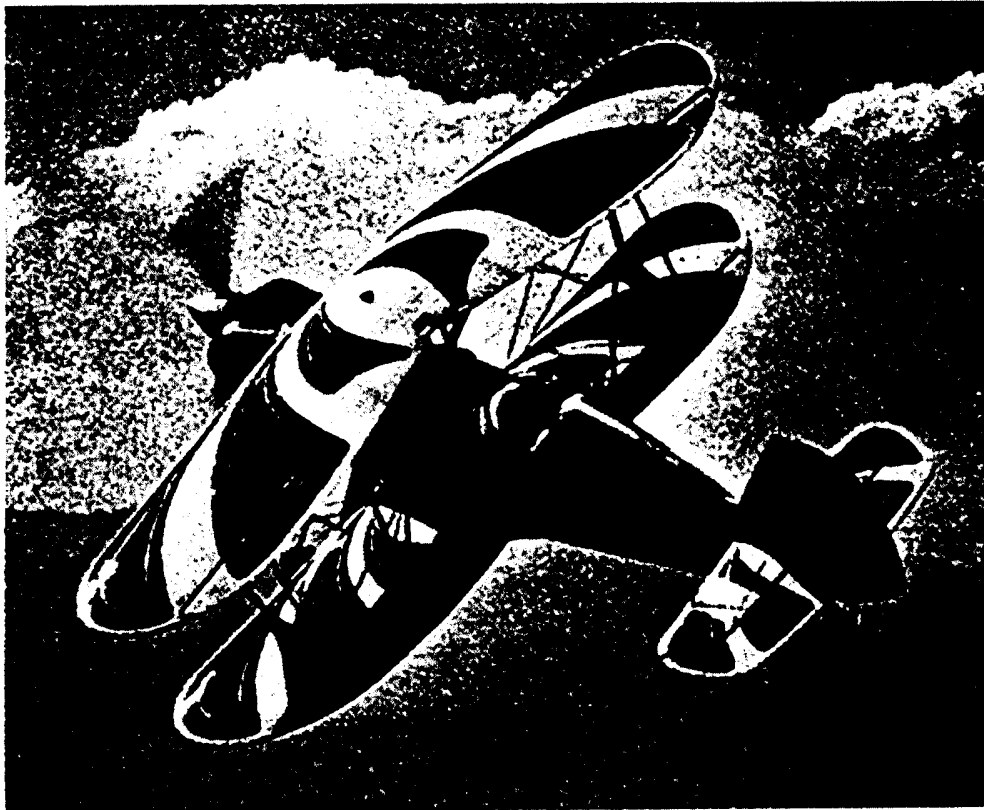
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John had well over 500 hrs in the airplane of which 300 were practicing, competing, or flying airshow aerobatics. I sincerely appreciate the information that he passed on to me regarding the airplane.

I had another friend, Earl Biter, from Florida who is building an Acroduster Too, and our conversation included N750X. He said that when he saw the airplane, that it looked pretty rough and tired. So now I think he would understand why, as the airplane is almost 16 years old.

Jim Osborne owned the airplane up until the mid 1980's. It was sold and then went to Texas, and I think its current owner has it up for sale.

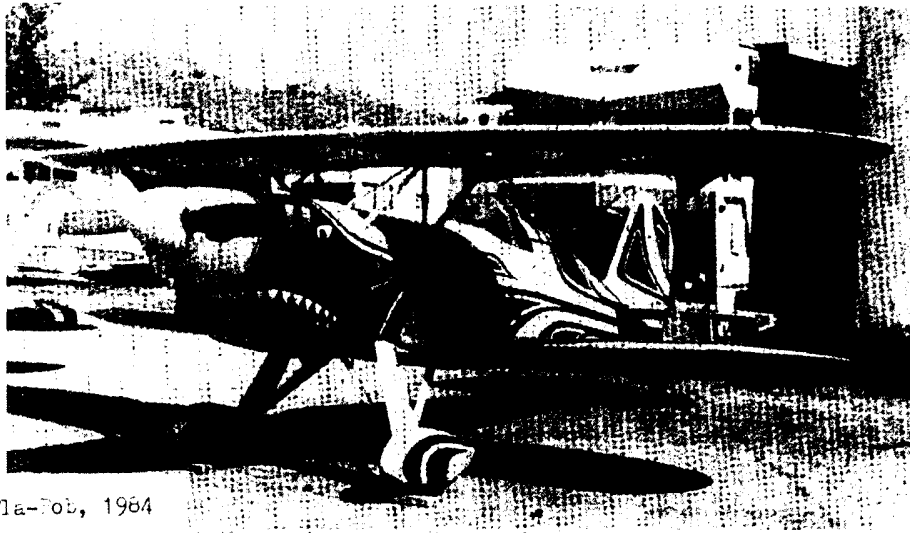
D.C.B. Starduster History



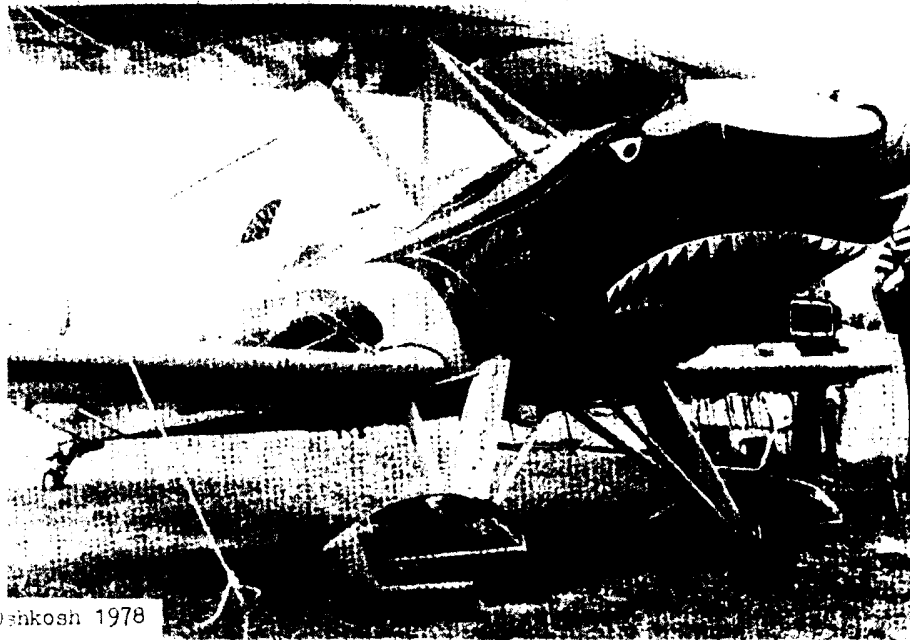


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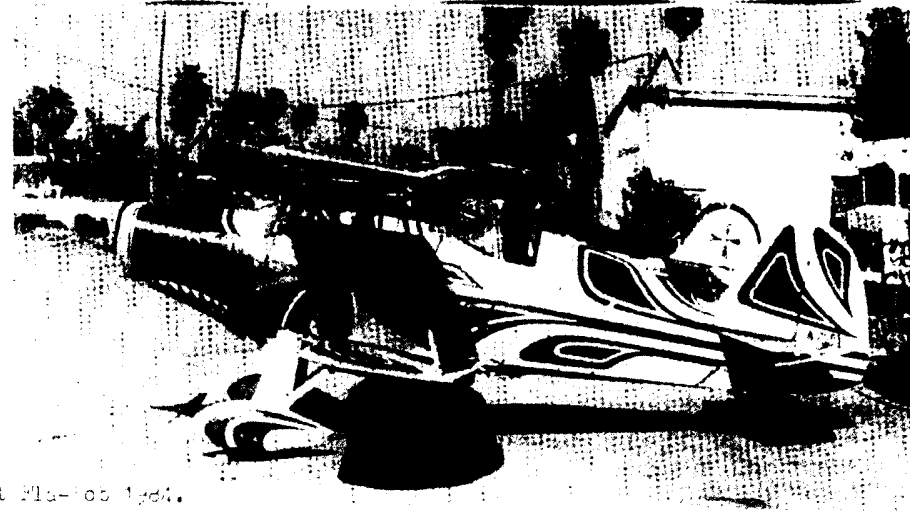
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.750X at Fla-706, 1984



.750X at Oxnosh 1978



.750X at Fla-05 1984.



STARDUSTER HISTORY

N5462

The First Acroduster Too

During the time I worked for Lou Stolp in the late 1960's, Lou mentioned the possibility of an aerobatic design called the Acroduster. Most of us did not take him seriously as he had never been an advocate of aerobatics, and still isn't. However a TWA captain named Morgan "Bud" Schrack convinced Lou to do the basic engineering drawings on a two place version of the Starduster Too that was fully aerobatic; it was to be about 10% smaller and was rated to withstand 10 G's positive or negative. The intent was to retain the Starduster Too's look but with aerobatic capabilities. Lou felt that Morgan was going to do it anyway, so he thought it should be done right.

Most of the fuselage, landing gear, tail surfaces and cabanes were built and finished at Starduster Corporation during the early 1970's; with Morgan building the wings and center section. The aircraft was powered by a IO-360 200hp Lycoming and a C/S prop. Some of the differences between it and the ones that followed were; all of the wing fittings and drag tubes were made from 4130 sheet steel like the Starduster Too, the latter were made out of aluminum, and the prototype also had three aileron hinges., The airfoil was NACA 63A012, and the empty weight was 1127, the aircraft climbed 2100 fpm at 75% power and at 4000" the indicated airspeed was 142 mph. All the aerobatic test flying was done by Bob Herendeen; who was Morgans first officer at TWA during that time, a most capable aerobatic pilot in his own right.

The airplane proved to be very capable, all maneuvers were done easily. Both inside and outside, stalls were sharp but predictable spins were conventional and easily recoverable. Although it had a powerful resemblance to the original design, the Super Starduster was a much different airplane.

During the mid 1970's, after owning the airplane for several years and also being involved with Frank Christen's Eagle (That was soon to be offered to the kit building public), Morgan sold the airplane. The new owner was Allen Campbell of Jacksonville Florida and apparently Allen was very happy with the airplane and its aerobatics ability, as he had it for over ten years. In the mid 1980's the airplane was sold once again; the current owner is listed as Lee Vanoss Nashua NH.

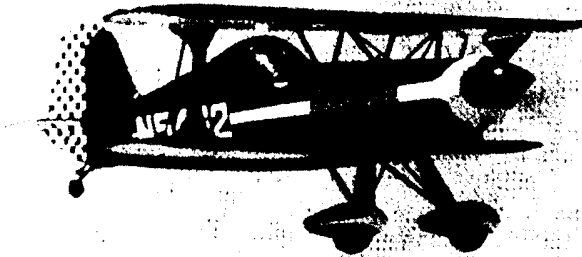
Morgan, after a long career with TWA and a successful retirement passed away from cancer in 1983. He would be pleased to know that the airplane is still in one piece and capable of doing all that he had hoped it would. The airplane was registered as the Stolp & Schrack Super Starduster Too and was the prototype and very first Acroduster Too.

EDITOR - D.C.B.



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N5462 Over Southern Calif
early 1970s Photos by

Bob Herendeen



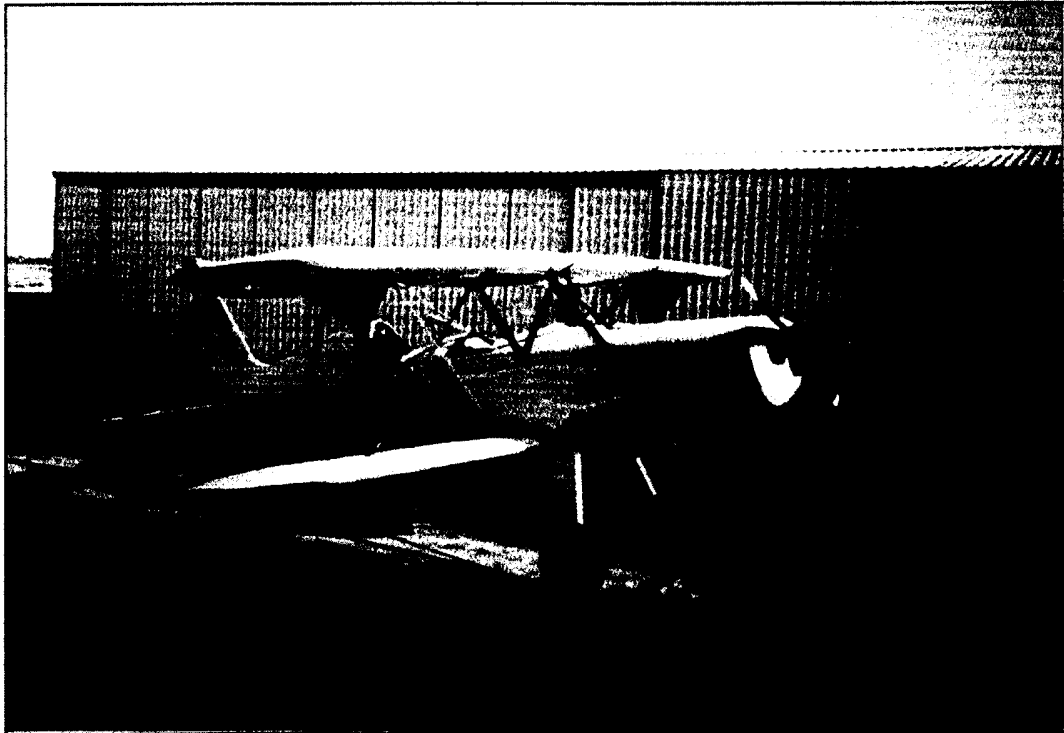
N5462 The first Acro Duster
Too And Morgan (Bud) Schrak
Fla-Bob Airport early 1970s

Hi,

My name is N2396X AND I CAN FLY.

When last I wrote, a hanger at the Madera Airport had become my new home. A lot has happened since then. My builder kept plugging away, even working nights after the family had gone to bed. On November 22, 2000 we were

great. Climb out was normal at 110 indicated and about 2400 rpm. I needed a lot of back pressure but that turned out to be a rigging hick-up in my tail. 1500 AGL and abeam of the numbers he pulled the power and made a decent at 100. Flair and ground roll were not as tough as he had expected [but I still have some surprises in mind



SA750 N2396X Don Williams, Madera CA

ready for the FEDS. They showed up on January 10 and after three hours it was all over with a clean bill of health. Only one cotter key was found not bent over. My builder was relieved but also a little scared because he knew that the point "where the rubber meets the road" was fast upon us. The following week was spent installing fairings and in general just fretting over stuff.

An instructor was found with a Pitts so he spent three hours in that, working the pattern and making life tough on the tower guy. On Super Bowl Sunday it all paid off. Was my builder turned test pilot nervous or scared? God yes, in spades. But we didn't kill each other. In retrospect it went pretty well. Ground roll and rotation went

for this old boy].

That's about all for now. As things develop I'll drop you a line. O, I almost forgot, the misses gave me a new name. MISS DESPITE. She thinks I got built despite her. Not so, it was despite all the problems, fears, and difficulties we all face. To all you airplanes out there waiting to be finished, may you get the wind in your face and the sun on your belly cause that's when the rear fun begins.

Adios,
Miss Despite

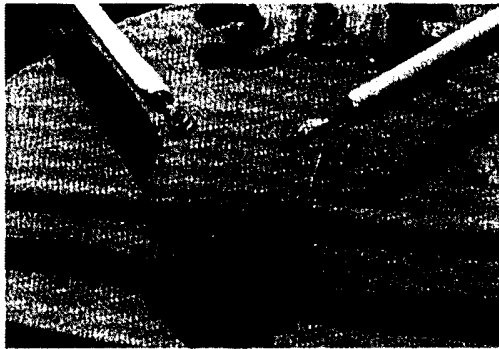
How I Did It: Fred Myers Adds Some Modifications to his Acroduster Too

Dear Dave,

In February 1996, I acquired an Acroduster II project, serial number 302, from a local (Atlanta Chapter 3) I.A.C. member. Currently I am painting using the Poly-fiber process and the Aero-thane finish.

Dave, I would like to contribute some technical assistance and I have enclosed photos pertaining to these subjects.

The fuselage was purchased from the company and was up-to-date except for revision C on drawing sheet #5 addressing the cabane cross (roll) supports where they attach to the fuselage.

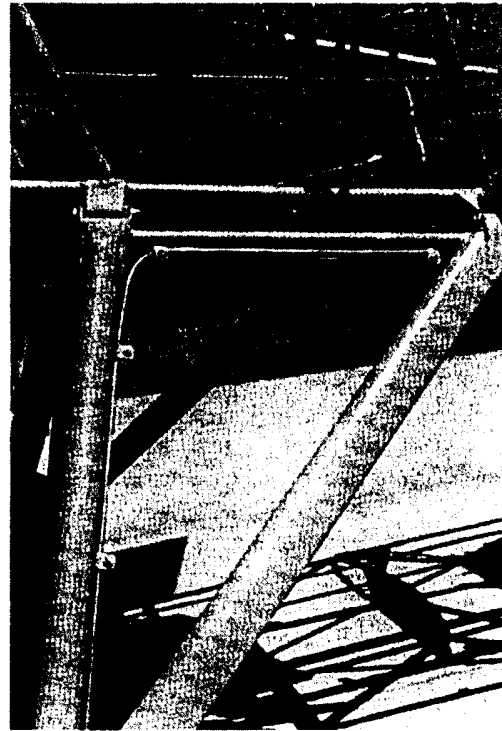


Cabane Support Per Dwg. 5, Rev.C

I purchased .090 and .125 chromemoly 4130 sheet. You can get this in 6"x12" sheets from Aircraft Spruce for \$6.35. Later a decision was made to use the .125 sheet. To remove the existing fittings I used a high speed (die) grinder and cutting disc. Strike a line to follow, cut close to the tubing, not cutting completely through. Using vise grips, break off the old fittings and sand off the remaining rework to a smooth finish. Filing by hand is OK although I changed the mandrill in my high speed and used a sanding disc followed by a 3m scotch bright pad. Total removal and clean-up was approximately 5 minutes. I fabricated a plate per the print, bent the angle on a brake, used an angle protractor to get the 24½ degrees. Note: smooth or polish the edges before bending to prevent cracking at the bends. Next drill a ½ inch hole in the center to weld in a rosette, adding a 4th attachment. I used a uni-bit to drill the ½ inch hole. Starting a hole with a uni-bit is possible with aluminum, but with

steel pre-drill a pilot hole. Load your uni-bit and go slow. This provides a clean hole especially if you do not have a ½ inch drill bit or drill press. Hold the gusset in place with clamps, tack weld, recheck, then final weld t.i.g. method. Perform a post-weld heat treat to stress relieve the rework. Finally, I installed two floating 10-32 nut plates in the gusset to secure the firewall. Prime and paint to match.

For the brake lines, I welded in two additional tabs onto the horizontal brace and installed the brake lines to enter under and forward of the brake cylinders. Use a flex line to connect the hard lines to the cylinders. Clamp and add hardware as required to secure the lines.

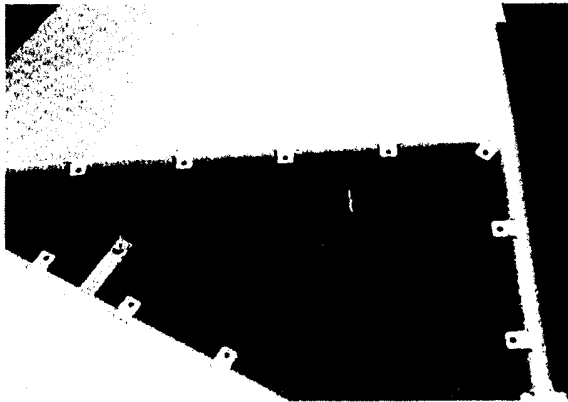


Landing Gear/Brake System

To assist in rigging the horizontal stab during flight tests, tack weld a ¼ inch floating nut plate on top of the structure at the horizontal stab aft attach bolt. Now you can install the bolt from the bottom access opening. This will facilitate adding or removing shims (washers) to trim/rig your hori-

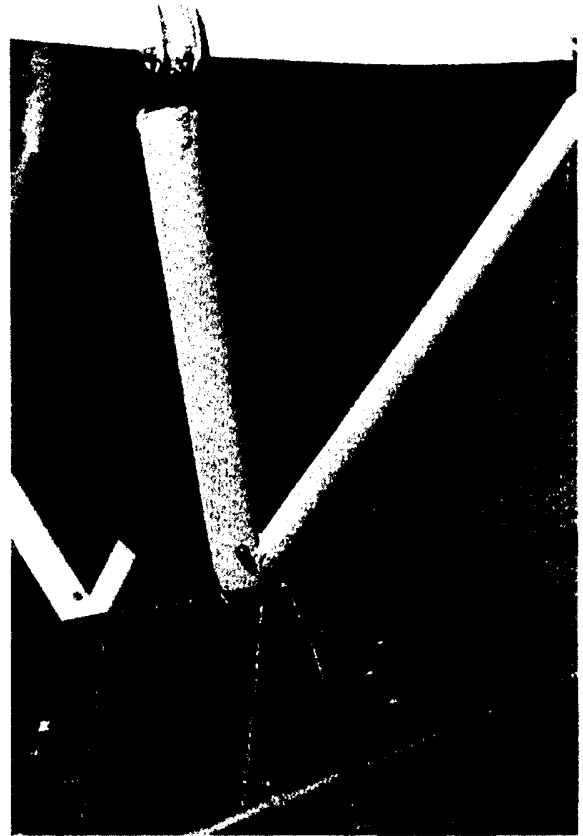
zontal stab.

As for the seats, I welded in additional tabs, four per side and installed a .050 alclad 2024-t3 sheet to the front and a .063 sheet to the rear seat bottom as it is larger in size. The back rest seat pans are .050 alclad sheet to accept the radio rack and especially the high "g" loads.



Aft Attach Bolt for Horizontal Stab (Nut Plate Is Welded Onto Top Of Structure) Note: Elevator Trim Tab Cable And Added Tab Welded To Frame To Support The Cable.

The fuel system will use two valves driven by $\frac{3}{8}$ inch stainless steel torque tubes with the handles in the aft cockpit. An attach angle was welded onto the fuselage on the right side to accept the fuel transfer valve. This two-way valve will allow the fuel to transfer from the upper center section into the main fuselage tank. The emergency fuel shut-off valve will be located on the fire wall downstream of the filter and electric pump.



Fuel System: Upper Center Tank To Lower Main Tank. Shut-off Transfer Valve Driven By A Torque Tube With Handle In Aft Cockpit.

I have enjoyed building this well-designed aircraft and I hope this information will help you with your project.

Sincerely,

Fred R. Myers III
8447 Magnolia Dr.
Jonesboro, GA 30236
770.478-2269
e-mail: GVQG25C@prodigy.com

This Is My Story and I'm Sticking to It!

By Chris DeBaun, Lakeview, Minnesota

I met Gary when I was just sixteen. At 22 he was the proverbial "older man" and a sergeant in the Air Force. He was a grease-stained fellow with a worn copy of Ernest K. Gann's "The High and The Mighty" crammed in his hip pocket. He whipped it out to write my phone number inside the back cover. I had been born and raised in the Panama Canal Zone, and dating an older GI was not on my parents list of approved activities for their daughter. My brother, though, saved the day. He knew Gary as a fellow member of the Albrook Aero Club, and vouched for his good character. So, with trepidation, my father allowed us to date. We usually went to the beach, but on pay-days, Gary would rent a Cessna 150 Aerobat, and we would fly up the coast of Panama, or out to Contadora Island for a day in the sun. His logbook annotations show doing T&G's at Gamboa, and K&G's with Chrissy.

We married when I was 19, and we moved to Ellsworth AFB in South Dakota. Those early years were hard, but fun. Gary worked for B&L Aviation at the Rapid City Airport during the day, and for the Air Force from 3 to 11 PM. Money was non-existent, but B&L let us fly their airplanes for the cost of the gas, and for our honeymoon, we went to Oshkosh. Gary forgot the tent poles, so we had to sling the tent over the horizontal stabilizer of our Beech Musketeer, and we would lie inside and watch all the airplanes flying. That week, that wonderful week, we fell in love again—with airplanes. To this day, watching the Ford Tri-motor fly makes me cry because it is so rare and beautiful.

And so the scheming began: how to get our hands on our own airplane. We got a lead on a J-3 Cub in a garage in North Dakota. Complete with engine, it just needed to be put together, and the owner wanted only \$1100. Can you believe the bank said "NO"? Back then, debts were high, and the Air Force didn't pay their Staff Sergeants a whole heck of a lot. So, back to the drawing board. At B&L Aviation, where Gary worked, back in the corner of an old hanger, covered with dirt, rust, and dust, was a "project." Murl, Gary's boss, sold it to Gary for \$400. We ate Hamburger Helper for a year to pay for it. The "project" was a welded

fuselage of a Smith Miniplane, and a set of plans.

I must say, I didn't think it could be done, but I was a newlywed. I did not yet know my husband. It took seven years. In those seven years, I had a baby girl, joined the Air Force myself, spent three years in the Philippines, and watched Gary struggle to finish what eventually became a "wanna-be Acroduster."

You see, around year two of the construction, we discovered FlaBob airport, Stolp Starduster Corporation, Jim Osborn, Eric Schilling, Glen Beetz, Bill Clouse, and the rest of the characters who populated the place. We had been transferred to Norton AFB in San Bernardino, California, and went to check out the local airports. FlaBob was great. It looked like a time warp had descended on a 1930's era airport, and transported it, airplanes and all into the 70's. Walking down the hangar row, you were as likely to see the Red Baron's Tri-plane as a Cessna. And in the midst of it all, were Acrodusters! Big, beautiful Acrodusters!

Poor Gary. He started building a Smith Miniplane, and after discovering FlaBob, tried to turn it into an Acroduster. He hung around Stolp too much. Glen Beetz put up with him, answered his questions and gave sage advice. To this day, Gary swears he saw Glen weld together a piece of paper and a hunk of steel, then watched it fly off, in formation with a kite.

But I digress. Gary's Acroduster was still a Smith Miniplane. And eventually, (seven years, remember?) he finished it. And he flew it. And he had loads of fun in it. He even flew some Sportsman level aerobatics in it, and did very well. But it wasn't an Acroduster.

And where was I while Gary was having all this fun? Me! Gary's Wife! His sweet-tempered, beautiful, loving, devoted, beautiful, supportive and flat-out wonderful example of beautiful American womanhood. Wife??? I was on the ground looking up. That's where. A Miniplane has only one seat-one cockpit, and since I'm pretty much a dedicated passenger, that leaves no room for poor lil' ol' me. But hey! Gary was having fun! For the next 10 years or so, Gary had over 1000 hours of fun. I was looking up.

Now to be fair, I was having my own share of

fun. When I first entered the Air Force, I was a Security Police Narcotic Dog Handler. For six years on active duty, I trained and handled viscous, long-toothed dogs. Then for another three years I was a regular Security Police patrol cop in the Reserves. In 1984, I decided I needed a change, so I cross-trained as a Loadmaster on the giant C-5 cargo airplane, and in doing so, found my niche in life. I got to see some weird cargo, meet some great people, and go to the neatest places on earth. It's like getting paid to go on vacations all the time. I love it! So, I guess I've been having fun, too.

Twelve years ago, Gary retired from the Air Force, and with discharge papers in hand, he got his dream job as a mechanic with Northwest Airlines. We had to move from California to Minnesota, and it didn't take long to realize that because of the harsh winters here, the Miniplane just wasn't as much fun anymore. I think he was also starting to feel a little guilty about leaving me out of the airplane fun all those years. So, with much sadness, Gary sold his beloved Miniplane. It still plies the skies somewhere down in Indiana. Since then, we've bought and sold a Champ, bought a Chief to restore (not done yet!) and fly a Cessna 170-B we've had for 8 years. But still, Gary hankered after his open cockpit Acroduster.

Last year was a hot one at Oshkosh. We've attended almost every year since moving to Lakeville, camping out under the wing of our airplane in Showplane Camping. It's always hot, but '99 was especially miserable. We had already been there 5 days, watching the build-up to Opening day. Early on the morning before opening, the temperature was already approaching 100 degrees, and Gary and I decided to walk up to the Fly Market to look through the fence. Maybe we could spot a bargain.

As we rounded the corner of the warehouse, we spotted a flash of red and white. I heard Gary mutter "Holy S---!", under his breath as he moved closer for a better look. There, sitting in the yard, in many pieces, was a broken Acroduster Too. It's wings were damaged, it's right landing gear was folded up, and it's engine was missing. Faded lettering on it's tail proclaimed it the Prototype Acroduster Too. As we stood there, outside the fence, I could see the little wheels inside Gary's head start to turn: ACRODUSTER! But I knew that we probably wouldn't be able to afford it.

The Fly Market employees were rushing around preparing for opening the next morning, and one of them came over and attached the price tag to an "I" strut. "Can you see this O. K.?", he asked. Not only could I see it just fine, I could also see Gary start to hyperventilate. \$2000! That was all: \$2000. Well, guess what? At that very moment, we had \$2000 in cash in the bottom of Gary's backpack. I had saved six hundred dollars in pocket change in the past year, and Gary had put away some of his overtime pay, and we were going to buy a nice GPS for the Cessna. But, ya know, Gary gets this poor little lost puppy dog look in his eyes that even after 26 years of marriage, I just can't resist.

"Who's the seller?," I asked. "Oh, he's over in the Wentworth booth over there." the clerk replied, nodding his head in the direction of the huge warehouse. Inside, it was cool and dark, giving relief from the bright sun. The Wentworth booth was just inside the door, and I recognized two of the guys behind the counter. I had bought parts for my Cessna at their business in Minneapolis before. Ken said that they hadn't yet signed the consignment agreement with the Fly Market, so if I wanted the Acro, it was mine.

Quickly, the \$2000 went from my pocket to his, and a sales receipt went from Ken's pad to my pocket. After 24 years of yearning, Gary and I were the owners of an Acroduster Too! A little bent, a little broke, a little worse for the wear, but an Acroduster. This time, we stood inside the fence to admire the little airplane. The flying wires were taped together in a bundle, and I decided to take them with me so they wouldn't disappear and I removed the price tag and put a "SOLD" sign in its place.

A group of admirers had gathered outside of the fence. One man asked me if I owned the Acro, and when I said "Yes," he offered me twice what I paid for it. I couldn't believe it. I had owned it for ten whole minutes, and already I was getting offers on it. By the time I loaded it on a trailer and hauled it home to Lakeville two days later, I received at least ten offers to "Make a tidy profit" on it. Trust me: It would have taken enough money to buy a new Acro to make me part with this. This one was special: it was built by Morgan Schrank in 1971 and had serial number 1 engraved on its data plate.



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And so the process began. Gary is an A&P/AI, and having built the Miniplane, he knows what he's doing. He has a cute tush, too, if you care to look. I, on the other hand have no licenses, mechanical or otherwise. But, over the last ten years or so, I've turned into a not-half-bad carpenter. I've built bookcases, beds, tables, chairs, dressers, cabinets and various nik-naks.

I knew I could fix the wings, and I did. With no plans, just copying what was there, I completely rebuilt the upper left and lower right wings. I built new ribs, false noses and wing tip bows, as well as three new spars. And I replaced all the leading edge tin with formed plywood. I figure it took me about three weeks per wing, in between times flying for the Air Force. Gary stripped the fuselage down to bare metal, and I sand-blasted it to clean off all the old paint and surface rust. There were no cracks in the welds and no damage anywhere else. After priming, a coat of Pontiac Red made it look like a brand new fuselage.

I took the gear and engine mount out to the Starduster Factory in Oroville, California to be fixed in their jigs. Those guys are the best. Ken

always has time to answer my dumb questions, and then chat on the phone a while. When I show up in person, he lets me wander the shop, inhaling the smell of the airplanes. Thanks, Ken. You're a prince among men.

Gary has done a phenomenal job getting the Acro back together. Everything he's done on it is beautiful. He completely rewired everything, and it all works perfectly. We bought an IO-360 to put behind the propeller, and we started it up on Halloween morning. Except for a small oil leak, it ran perfectly.

It's sitting in the garage right now. All four wings are on it to test fit before covering them. From where I sit right now, I can see the right wings. We spent all weekend putting them on, testing the fit, adjusting the wires, enlarging the holes here and there, and yes, patting ourselves on the back every now and then. We will be at Oshkosh again this year. We will be camped out behind the wing of our Acroduster Too in the Showplane Camping area. In the morning, Gary will get up early and go fly. And now, I can look down instead of up, because I'll be Co-pilot.



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A STORY OF N750AL

by John Helton

What would you do if your good friend Billy Clouse, President of Starduster called you up and said, "I want you to fly our newest Acroduster II, 750AL. It has about 8 hours on it, and I want 25 hours in the next couple of weeks so I can ship it to the Italian Aerobatic Champ, Aldo Locatelli, in Milano."

Well . . . If you had flown Acroduster II's as much as I have, been through as much high adventure in them as I have, and love them as much as I do, you would put on a big grin and start rounding up your 'chute and helmet. I did fly the machine 9 flights and 14 1/2 hours, so Billy asked me to put down my comments for the enjoyment of his owners and builders. This is being written on board a 747 in the middle of the night, over the Pacific, and while I'm the only guy on board with my own lighted desk, there is no telling how much sense it will make.

This is an unusual SA750. It is sleek and beautiful in silver, awaiting its color scheme in Italy. The 260hp IO540D4B5 temporarily spins a metal fixed pitch McCauley 80x69 prop which is looser, since Aldo will probably install the symmetrical-three blade Hoffman wooden prop in Italy. The ailerons are symmetrical, center hinged with perfect fit, leaving no gap, and increased thickness to enhance airflow when deflected. Therefore, the total wing airfoil is smooth right over the ailerons and gods can tell how happy this makes the lifting airflow when you try to stall this beauty.

The wings are placed forward two inches, which together with the fixed props constant speed hub creates a more aft CG, and that, to an aerobatic pilot is a joy. The three blade wooden prop should not alter this situation much, so Aldo will still enjoy a less stable airplane which will not be too quick to take over from the pilot and point its nose to the center of the earth in recovery from unusual attitudes. This machine will in fact just "lay" there and wait for you to tell it what to do in minimum airspeed situations - terrific!

It has 600 x 6 low profile tires and the Starduster spring aluminum gear which is low drag, amazingly stable for landing and all ground handling, and in my opinion, the only way to go. I flew open cockpit from both holes and I'm sure Starduster readers know how good the visibility is from the entire line of Stardusters.

I'm a pilot, not a builder, so I'll get on to things I know something about. Bill Clouse and Hank Schmel had already flown off 8 hours, so I was confident that the bird would bring me back if I treated it right. The first thing I noticed was heavy aileron pressure. Indeed Bill had said that he is unhappy with this. I'll say what I told him, the geometry of the aileron spades needs tuning to take more of the load off the stick. I think Bill would like to try aileron servos and I'm sure they would do the trick, nothing new there. The aileron travel should be increased because the roll rate is slightly less than it could be and it's obvious that they don't deflect far enough.

On my first flight I did stalls positive and negative, many kinds of rolls, including snaps left and right, inside and outside loops and lights, hammer-heads vertical rolls, inside and outside spins. The one most impressive feature



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is the low stall speed - forty IAS upright and zero inverted. I'll have to explain that. When you do a vertical roll and cap off upright, you can fly away without a bobble if you have forty IAS, and if you lay out inverted following a vertical line up, you can fly away without losing it with zero IAS - astounding! It's due to the aft CG allowing the attitude to remain unchanged with little tail force and those beautiful airfoils top and bottom which I have already commented on.

Inside - outside 8's are so easy . . . I don't exaggerate when I say that you just sit there and move the stick a little fore and aft, keeping the wings level, coming off the power on the down hill to maintain RPM and pushing it up on the up side. No pressure is required on the elevator, again because that aft CG is working to "sling" the tail out. Personally, I would prefer to have no aerodynamic counter balance or overhang on the elevator for any aerobatic aircraft. This machine could actually use a little more elevator pressure on the stick. If there should be too much, then a servo tab will adjust the load to just what the pilot desires on the stick. Most importantly, the absence of the aerodynamic counterbalance will allow more positive recovery from full stall maneuvers, such as snaps positive and negative, and spins.

As for spins, the positive or upright entry is clean and immediate with recovery clean and predictable, although more lead is required for the left spin. Inverted stalls are reluctant requiring that you fly into the spin by kicking rudder to encourage the entry just when you want it, without waiting for the nose to drop. Inverted spin recoveries are right on because the airplane has no desire to remain stalled inverted. I did not explore the flat inverted spin, although it is one of my "funnest" tricks, because of the aft CG characteristics - it's Aldo's airplane and he might not understand IF . . . I'd planted his airplane in an inverted plan view.

This airplane just wants to fly. In 14 1/2 hours of ham-fisted, non-proficient flopping about the skies, it never once burbled or snapped out of a maneuver on me, it turned me into a mere passenger as has happened in other aircraft. The fixed pitch prop does not always extract full power from the engine, so that you do not have as much energy (speed) at any given point in your sequence of aerobatic maneuvers, as you would have with a constant speed, however, it motors through a sequence so well without loss of altitude, that I would sure like to try it with the wooden constant speed.

My daughter Janet was dusting off the cobwebs of many months of ground time when we realized that she had never flown outside loops. Visibility was typically lousy, with no horizon in obscuring phenomena, but after one demonstration, she started trucking around outside like she knew what she was doing. We did a BUNCH of them and found that this bird is happy entering at 120IAS, which is remarkable, when you consider that a similar bird, which I flew in contests, had to have 160IAS to get over the top without snapping out. I mention this so you will appreciate what I am trying to tell you about this new bird. A young friend was trying his first outside loops with a 140IAS limit imposed to protect the airframe in case he should do what he did. We put 5 negative Gs on, the airplane pitched around so fast the ground, lake and sky were blurred, but we did not stall or snap out. It had to be one of the smaller radius outside loops ever flown.

If you are inclined to fly a perfectly good aerobatic plane straight and level under positive G, I'll tell you that I loaded 37 gallons of 100LL and cruised for a total of 2.7 hours. At 2600 RPM and 140IAS at 5000, we were pulling about 20 inches and passing up all kinds of spam cans around the not-so-local

area (would you believe Mohave?). Upon our return to Flabob, the Starduster crowd was treated to flybys at 80IAS with full rudder yaws left and right (fish-tail), dutch rolls (bank 60° left and right), one wheel landings, tail wheel touch at 80IAS and a lot of steep 80IAS Climbouts. Remember, this is 200% of the stall speed, but don't be mislead, a sink rate will develop before stall at 1 G. All this is significant when you know that we flew a previous 260hp Acroduster II at 120IAS on final.

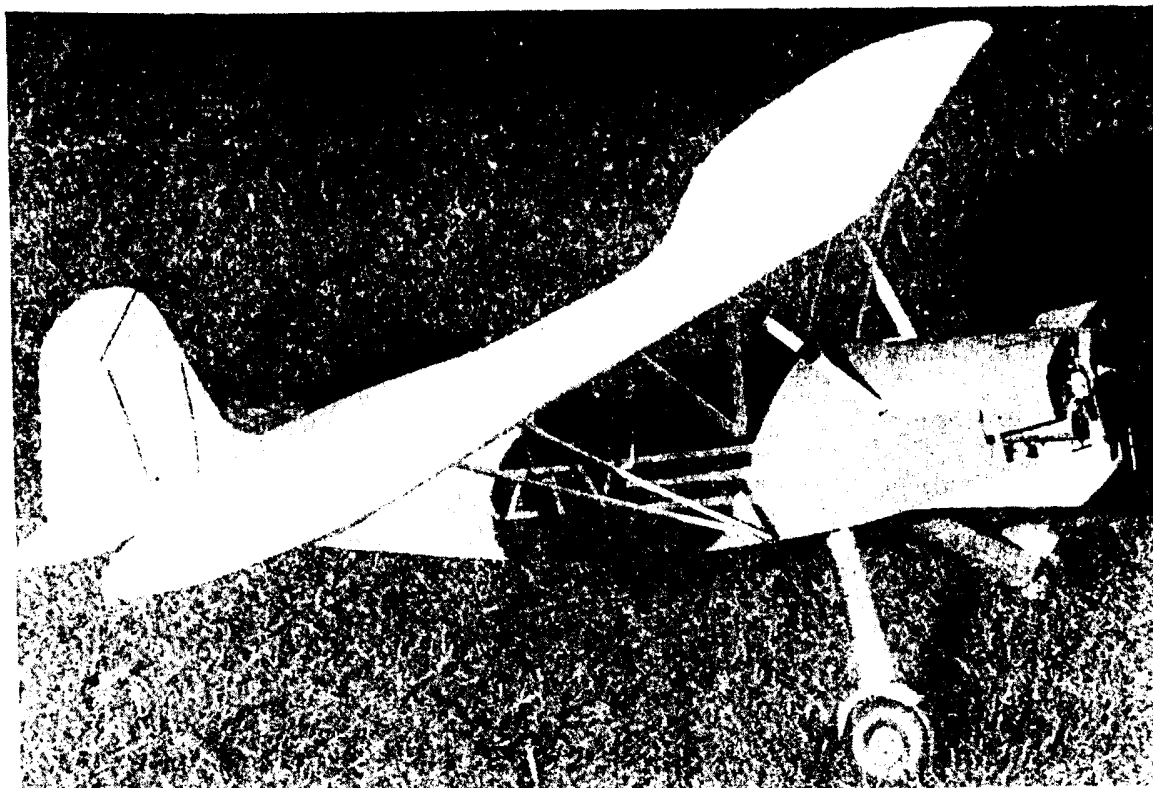
About all that I know about "briefing room" aerodynamics is that the wings fly, everything else goes along for the ride. Consequently I single out those airfoils along with their placement and the good power-to-weight ratio for giving Aldo Locatelli the best acroduster II that I have flown. It is one heck of a good airplane. I want one.

To the readers,

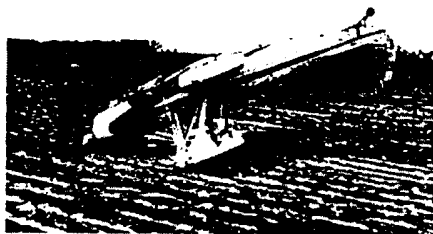
Bill and I would like to thank John very much for this informative article about N750AL. Having flown the aircraft, I must agree with him 100%. Between us we had pulled a +7G's and -5G's. Thanks again John.

Respectfully,

Hank



SAFETY NOTE



Dave Kragnes' Acro Sport II with his son standing at the nose.

This letter is in regard to my accident in N317DK--my Acro II. If I can save somebody else a problem, the following will be worth the effort.

I promised two half-hour rides and November 3 of 1984 seemed like the day to pay them off. We had a 5000' ceiling and 10 mile visibility that dropped to 3000' and 5 mile visibility off and on, but it was warm and I didn't hope for more 45° days this fall. I called my riders and scheduled to meet them at the

airport in 1/2 hour. I dragged out the Acro II and preflighted, including measuring the gas with a notched stick. The gas gauge is useless on the ground, so it's always my habit to dipstick the gas before flight. I remember reading it at 15-plus gallons (more than 15 but less than 17.5). As my O-320 won't even use 10 in serious playing, I knew I had two hours on board. Well, I didn't. One hour and 10 minutes later at 1500' AGL (two miles from the airport), returning with my second rider, the engine quit. I tried to restart, but nothing doing. My first choice was a narrow gravel road with steep ditches--no thanks. Then a tar road that is heavily traveled by semis between two Interstates; again--no thanks. I thought I could make a hayfield, but the rate of descent with the prop--windmilling in an open biplane, no wheel pants and two people on board is something that only being there will make you understand. It soon became apparent that a harvested sugar beet field was my choice. If I went in with the rows, a water-filled ditch would shorten my rollout--so I turned crossway to the rows. At this point, I was up about 60' and I began to notice that the ground was reaching out to greet me at an impressive rate. My forward speed was way too slow. Choice #1: Push the nose down and hit nose down; or #2: Hope there was something for a flare and that the gear would hold. It didn't. When I pulled back, the airplane turned but didn't break its descent, or at least not enough for me to notice. We hit hard enough to tear fittings off the gear and that dug the nose in and we had just enough momentum and bounce to go over. I hung there in the belts thinking how much fun flying was and how proud I was of my piloting skills. At last, I remembered to put my hand up (down) so when I unhooked the belts I didn't fall on my head. I told the 12-year-old girl in the front seat not to unhook her belt until I could hold her up. There were no physical injuries at all and though she was on her first airplane ride, she soon thought of it as quite an adventure. Some day when she is sitting in a big silver bird next to a very nervous first-time flier and the seat belt lights come on in some mild turbulence, she can offer the comforting reassurance that she was in a crash once and it was no big deal.

I got permission to take it apart and move it home the next day. When we drained the entire fuel system, we got out less than two cups and as we found no leaks, I can only assume I mismeasured the gas. The first inspection showed no frame, wing, engine or prop damage.

How did the Acro II perform? Well, virtually 100 percent of the fuel is usable. If I had been on a hotter plane at that speed and at that level of excitement, it might easily have stalled and spun in. But the Acro II is wonderful in that regard. Any open biplane with a windmilling prop will need lots of nose down to maintain speeds--so that wasn't its fault. We hit hard and flipped over with no injuries to the people and really quite minor damage to the plane. If all I wanted was to repair and patch, \$100 would cure all its ills. However, I never did like my bottom cowling or the cover of my bottom wings, so I may just recover the whole thing. As I told the GADO people (who, by the way, have been nice through the whole investigation), when I build, maintain and fly an airplane, everything is my fault. I hope someday to be the pilot that my Acro II deserves. It isn't easy to O.K. the use of my story; after all, that isn't the kind of fame we all seek when we have dreams of our handiwork getting national publication, even if it is a limited audience. However, if you feel it has some merit, I can calm my ego by saying "maybe I can prevent someone else from running out of gas". The nice photograph was by my friend Larry Haugen. He is building one of those silly RV-4s that only have two wing panels, but other than that, he's a nice guy.

David Kragnes



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