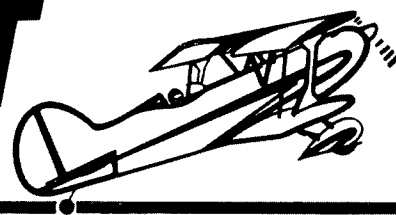


ACRO SPORT Newsletter



NO.59

Printed by:TIMES PRINTING CO., INC.

FALL 1997

A Twelve Year Journey To A First Flight Thanks For The Help!

by J.R. Wing, 2745 CO RT 2, Richland, NY 13144

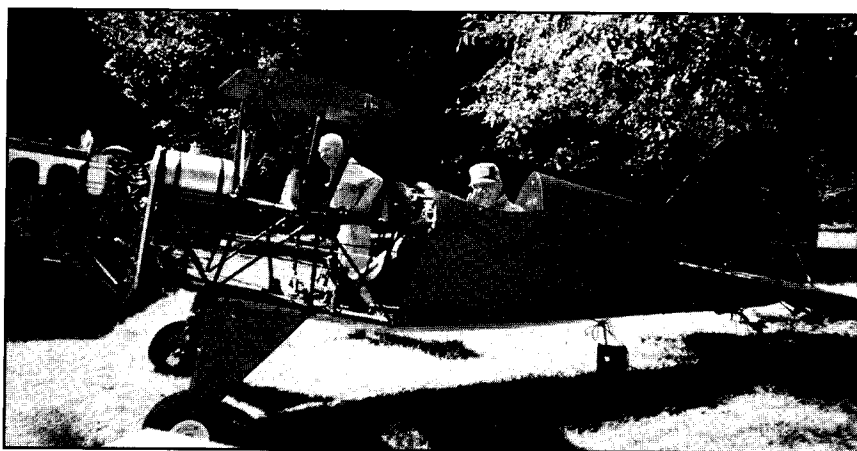
Dear Ben,

Here I am, back on the ground and wearing a Don Baker grin cause I just flew my Acro II for the first time!! I'm sure my emotions were no different from those who have done it before me.

Twelve years—where did they go so fast? My kids were teen-agers when I started construction! They are now past college and marriage and divorce and that sort of thing. That's what really slows a project down.

Just to give you a little insight into why someone like me would do something like this, I offer an inspiration. It's true that my father is a home builder, but this happened even before his first project, (Jungster II), flew. We were at Oshkosh 1974 and while we were visiting the welding workshop a home builder named Glen Beets had moved a badly gear damaged single place high wing monoplane into the shop to attempt a repair. I was very impressed that he could be broken down hundreds of miles from home, (California), but was not unnerved, and determined to fix it. He was heating and bending and welding and straightening and visiting with us at the same time! He knew everything about his airplane and a few days later we saw him in the fly-by circuit. Maybe I could acquire those skills and that spirit.

Back in Oshkosh again, 1978, that an Acro II on the line caught my eye. That's what I'll build! I'll learn and work as long as it takes; I started six years later. Almost from the start I was able to get help with any problems and details



After you've been in this airplane at anything above idle, you won't ask why the anvil!

that were not clear to me. One year at Oshkosh I spent an afternoon talking to Tony Hohenwald when he was manning the display in the Acro II tent. I talked to Maynard Engel a few times and he was helpful. He had a complete and flying Acro II and he showed me how to get into one after he had seen me struggling. Put your foot here, take hold with your hand there.

I had talked to other helpful builders too. I ran into a gentleman named Doggett at Oshkosh who had warned, "Make sure you use a 180 HP". I had almost bought an anemic 150 HP. Al Smith from Georgia was helpful with some of my firewall forward questions. While waiting to talk to Benny Davis, he let me talk to one Paul Felkner who was also an Acro builder and from the looks turned out a nice project.

But the Acro Newsletters were

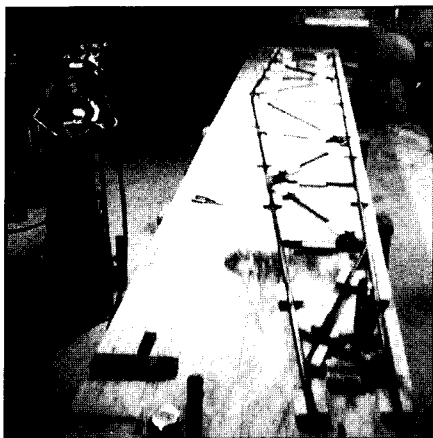
indeed a big help. Whenever one showed up in the mail, I had it read between mailbox and house and then could be found with magnifying glass in hand, how did this builder do this and how did he handle that detail? The flyer reports are helpful. Approach speeds, landing wheel or 3-point, etc.

Local chapter members, 362 and 486 members Chuck Burtch and Hugh McKenna were always there. Quick to loan tools or suggest how something should be done, and sometimes how it shouldn't! "Don't pipe fuel back into the cockpit". I felt that the builder from Louisiana, (Neil Sidders), had some good ideas, but I was past the point of no return to implement them.

But how could I do all of this and not mention my wife Sandra! She helped me with endless moving of parts and holding of parts to be tack welded that

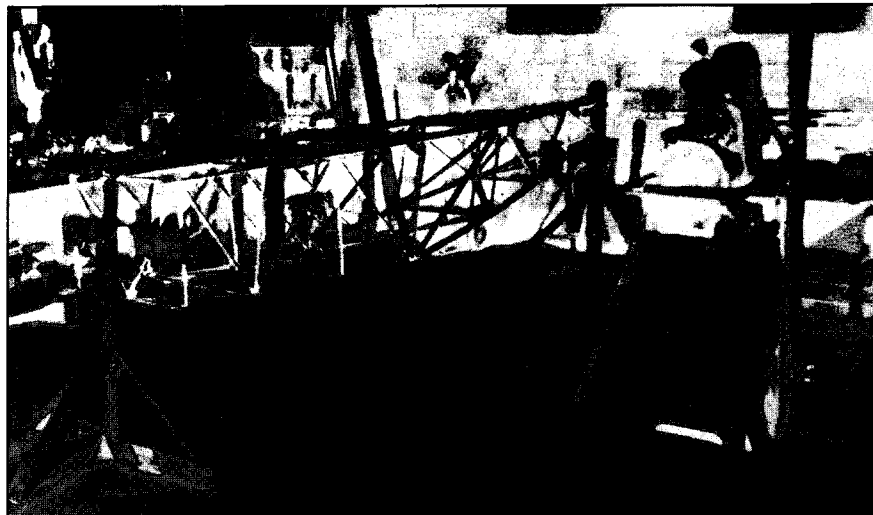
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Above - Getting started.

Right - John's fuselage nearly ready to try on for size



couldn't be clamped, while being cursed for "not holding it right". Aarg!—Red hair—she curses back! She did not reveal feelings until it was complete and outside in the sunshine. "I kind of picture you as Robert Redford and me as Meryl Streep, and us holding hands in the clouds and chasing gazelles! Give me a break—this is not even close to a Tiger Moth. Do you think anyone

has ever joined the mile high club in an Acro II?

To try to wrap this up before it gets so long you won't read it, I've included some photos that may be helpful to some other builders. I realize that many planes were started after mine and have been flying for years. I don't think I could add a new or different spin, no matter how I try.

A couple of helpful points might be: weld the square stock stick mounts to fuselage, and then use the aluminum, (or delrin), stick supports to align the bushing holes, and then weld them in. I tried welding the bushings into the square stock at a bench and vice. Wrong sequence. For sheet metal work I roughed out parts on "flashing" aluminum and then transferred all cutouts

EDITORIAL/ by Ben Owen

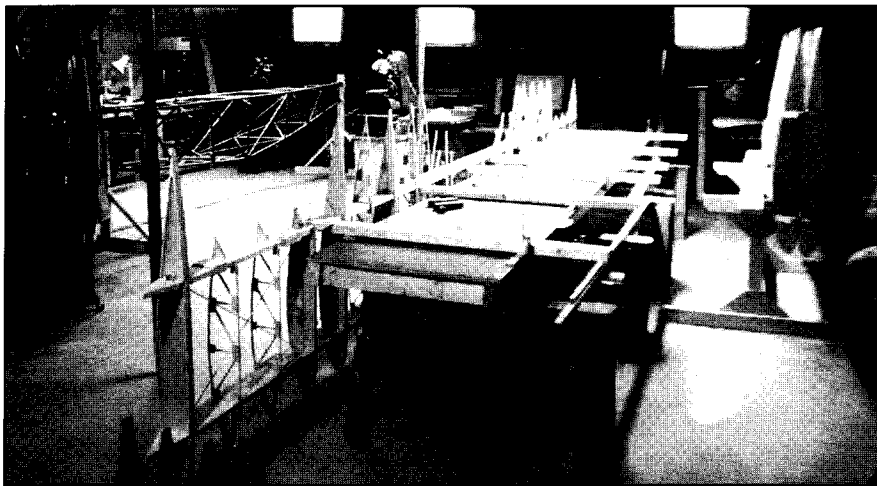
I have been privileged to know the Acro Sport designer for 25 years and been able to see the growth as the airplanes progressed, as the plans were completed, and as airplanes were started and finished. Paul started out with the Acro Sport. I think he was looking for a replacement for the EAA biplane with an airplane that could be flown by the average person with safety. With its long fuselage, good span, and large tail it met these goals quite well. The airplane also is a fine aerobatic mount and has among its attributes being easy to land. Being "easy to land" is a hard thing to design into most small biplanes. When the airplane was designed, it was designed without electrical systems and it balanced out well. The first thing everyone wanted to do with the Acro Sport I is to put an electrical system on it. It ended up a stable airplane with the gross weight usually forward on the envelope. Paul, himself, competed at Fond du Lac with the Acro Sport I. I have seen the Acro Sport I fly with the Pitts Red Devils in the old days and the airplane would go vertical with any Pitts of equal horsepower. Paul modified the first Acro Sport I, which had a Munk M-6 airfoil, 180 horsepower, and called it the Super Acro Sport with the 23012 airfoil and 200 horsepower. When he built this second prototype, he found that it would do outside loops better, and in particular, in the last quarter of the loop, handled the negative G's a little better. The next airplane was the Pober Pixie, which caught on with a lot of people who wanted the inexpensive VW power and a light and fun observation airplane. Very few airplanes can cruise as slowly as a

Pixie and a lot of people have been very happy with the airplane.

The Acro Sport II entered the two-place arena, because many wanted to take their family members and friends along. The Acro II is probably the most popular of all the Acro Sport series of airplanes. The Cougar, Pober Super Ace, and Junior Ace were added to the line. They all have one outstanding feature, and that is a very reasonable safety record. We are proud of our Acro Sport series and proud to have been involved with the program of helping get the "little guy" off the ground. All of the volunteers who have helped in the Acro Sport area with the forums, bring the airplanes in, work at the workshops, created a camaraderie among the Acro Sport builders that is second to none.

We will be having an Acro Sport fly-in here at the grass strip along side the Museum, June 6th and 7th of 1998. We would like to hear from those who are interested in flying any of the Acro Sport I, Acro Sport II, Pober Pixie, Pober Junior Ace, Pober Super Ace, or Cougar into the Pioneer Airport at the EAA Air Museum at Oshkosh. We will be taking reservations through myself and through your editor, Bill Berrick. I know that we will all have a good time at this two day, Saturday - Sunday event. If you are interested in helping out, putting on a forum, etc. we would also be happy to hear that.

My sincere congratulations and thanks to Bill Berrick for serving as Editor of the Acro Sport News. I was fortunate to have been the Editor of the Acro Sport News in the early days and I am happy to report that Bill Berrick has done a far better job with the newsletter than I was able to do. Congratulations, Bill!



Above - well organized shop - excellent workmanship. John thoroughly enjoyed working on the wings and observed that however big the wings appeared in the shop, later, while flying at pattern altitude they seemed rather small. Completed center section shown right.

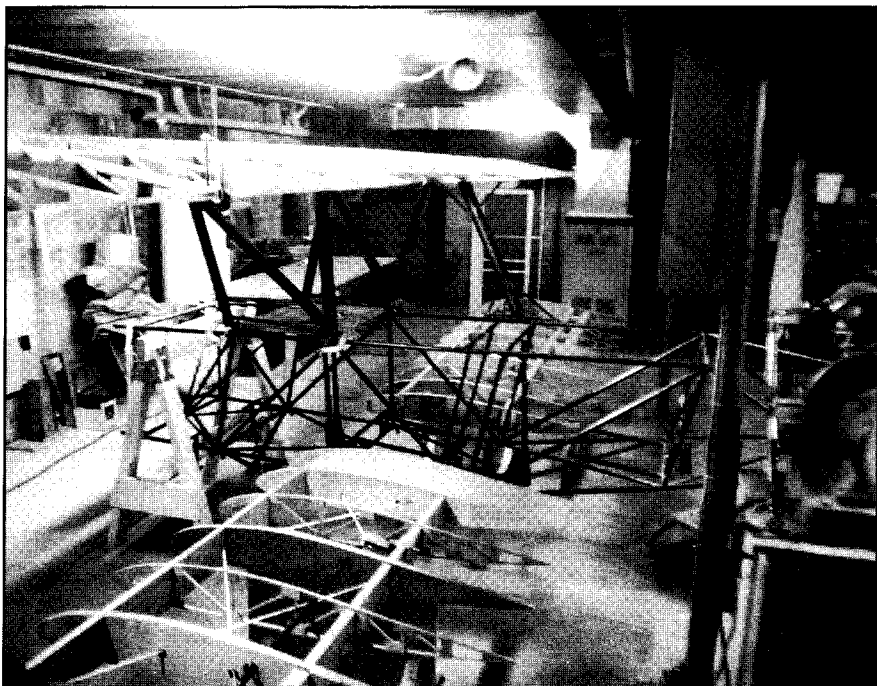
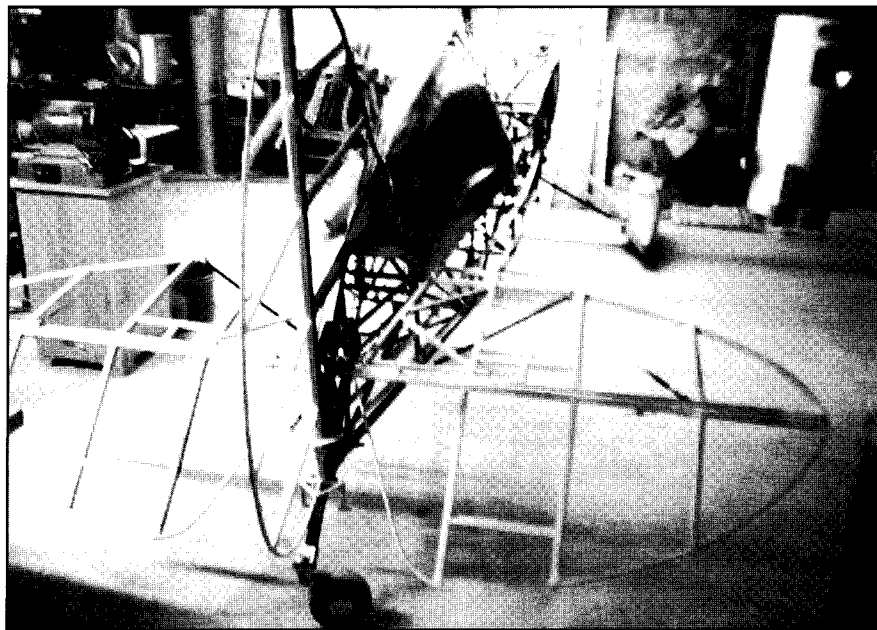
Right - John made all of the tail surface ribs with tin shears, hard wood blocks, vise, clamps and hammer - he has a four foot Tennsmith now.

and drill holes directly onto the finish stock. No—there is no roofing aluminum flying around; I was not even tempted!

Beware that the FAA inspectors have no sense of humor when it comes to markings on instrument faces. They want the proper colors and zones marked with the numbers coming from some kind of manual. I even needed a propeller log book for a wooden fixed pitch prop. I was sweating when those fellas were around and it was a cool April day. Two visits.

Finally, I am proud to be one of the band of builders and flyers. I feel there is a certain brotherhood. You may shake this hand that holds this pen, that held the torch, that held the stick! If I can help someone I'll be more than glad to.

Regards to all—J.R. Wing
2745 CO RT 2
Richland, NY 13144
continued next page



Leaving the caps long was good advice

Leveling, jiggling, shimmiing, checking, measuring, rigging, dreaming.

UPDATE...

Dear Ben,

Now that I've had a chance to make a few more flights in the Acro II, I can provide better "data". I'm surely not a Jimmy Doolittle or Chuck Yeager, (but then I don't think you have to be to fly this airplane). You do have to be flexible and eager to learn and ready for anything. I've lost some of my iron grip on the stick and throttle.

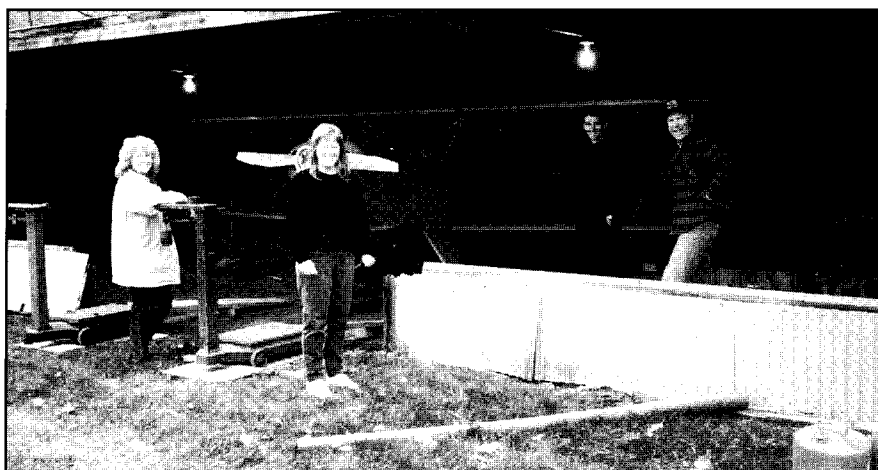
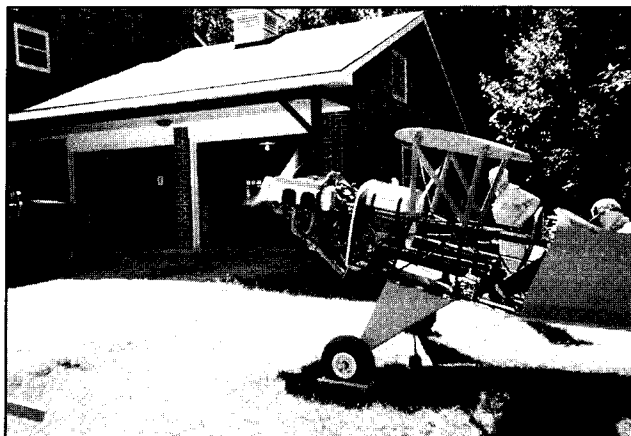
The fabled sensitive elevator is just that. On take-off roll it's not "biting" at all, and then it's "biting" a lot, but I'm getting used to the airspeeds at which it does both. Get the nose down right after leaving the ground or I'm afraid you'll drill a big hole in the runway in the shape of an airplane, and I doubt Wiley Coyote will pry himself out and stagger off into the sunset!

Carrier approaches and wheel landings don't seem to work for me at this point but may later. I've only made the runway lights nervous so far! Like Steve Manweiler has written, 80 MPH to 3-point may be best.

Claustrophobic wife insists on open cockpits so it's leather jacket, leather helmet, leather flying goggles—leather gloves and leather fetish are optional. I'll keep on a test'n and a grinnin'.

Again regards, J.R.Wing

Right - John's engine run - he built the house too!
Below - John's wife is on the left, he's on the right with friends to help get it on the scales



Downwash

by Ben Owen

An aeronautical engineer would tell you that the downwash for the aircraft is much like the wash of a boat, but it operates in reverse. If you have seen the bow wave at the hull of most displacement boats, you will see that it rises at the front, goes down in the middle of the hull, and comes up at the stern. Downwash on the wing of an airplane is exactly the opposite, but it operates much the same. The air comes in at the propeller and turns up to go slightly over the wing and then it comes down aft of the wing, so that the tail is almost always in a negative lifting position. On some aircraft, such as the McDonnell Phantom II and Chris Heinze's STOL C8-701, you will see that the tail is actually designed to lift downward in normal flight. On conventional tailed airplanes, the tail commonly lifts downward. In some aerobatic air-

craft, the center of gravity is moved aft on the wing and the tail is actually not lifting either way, up or down, this is rather an unusual occurrence. Most tails on conventional aircraft are lifting downward. This means that the wing has to lift the weight of the airplane plus the added weight of the download of the tail. Aeronautically speaking, this also provides some stability and (within reason) the further forward you move the center of gravity on the aircraft the more stable it should be up to the point where you have inadequate elevator to flare to land. Most aircraft have a download on the tail which occurs automatically due to the downwash from the wing hitting the tail from above and pushing it down. This force is not large, but is sufficient to ensure stability on most aircraft with conventional tails on the back. On the Acro Sport I and Acro Sport II, most of the aircraft had a horizontal stabilizer that were excessively leading edge down. With these aircraft and with most of our small biplanes the most common trimming feature to cor-

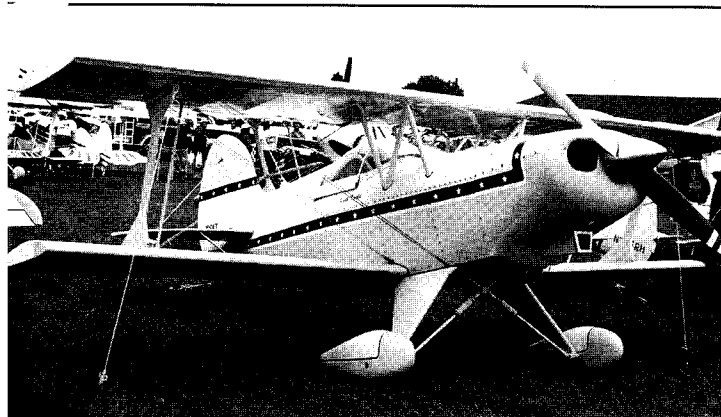
rect after the first or second flight is the horizontal stabilizer angle of incidence. Rudi Bertocchi recently flew his Acro Sport II for the first time in Israel. Congratulations, Rudi! Rudi has very carefully measured his airplane and found that the wings both upper and lower are set on the fuselage at 1.7 degrees and the horizontal stabilizer is set at 0 degrees with the upper longerons in the cockpit area. This information may be helpful to other builders. We would encourage any of the builders to measure the angle of incidence of their wing and their horizontal stabilizer compared to level flight and send us the information and we will try and compile it for another newsletter. Please send your information to Ben Owen, EAA Information Services, P.O. Box 3086, Oshkosh, WI 4903-3086. Telephone: (920) 426-6530. Write or call because this information is vital to our Acro Sport I and II builders. Builders of the Pober Pixie, Pober Super Ace, Pober Junior Ace, and Cougar are likewise encouraged to send the same type of information for others. In addition, we are looking for weight and balance calculations of the Pober Super Ace, Pober Junior Ace, and the Cougar aircraft. Thank you for your assistance on this.

Sunday, April 19
11:00 a.m.
Tent No. 1

SUN N' FUN '98 FORUM

Seen at EAA Oshkosh '97

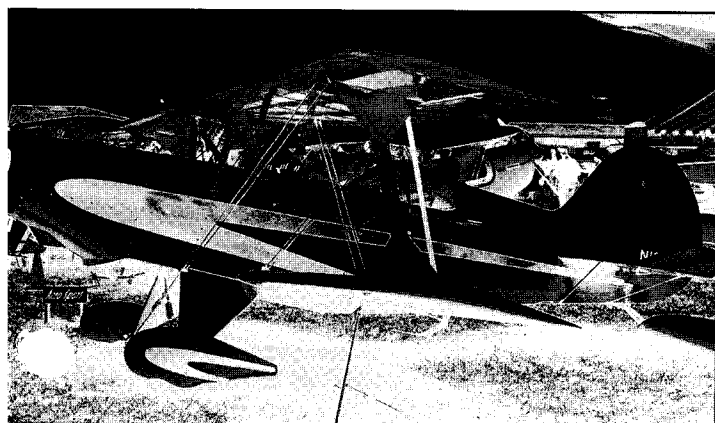
Photos taken by Chris Kinnaman



Keith Tridle, Kansasville, WI - Acro Sport I - N96KT



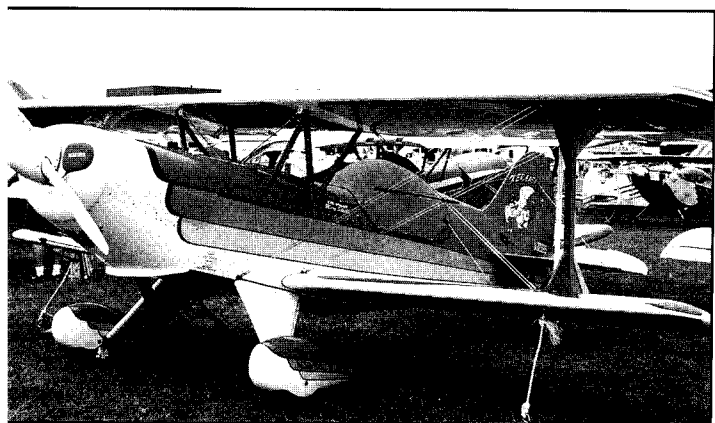
Tom Plodzien, Chicago, IL - Acro Sport II - N89CJ



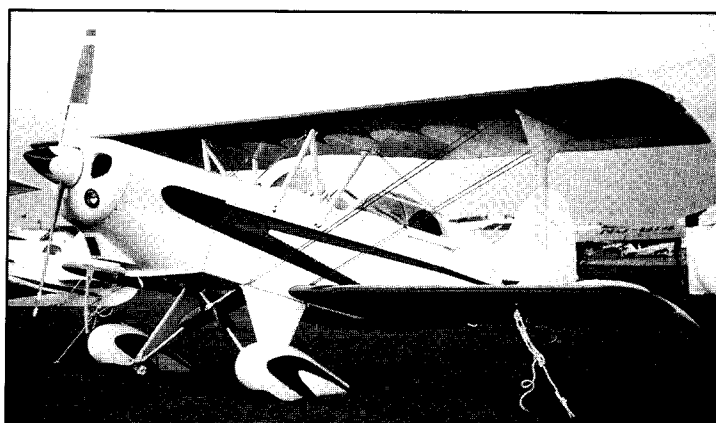
Don Baker, Rockford, IL - N122DB



Joe Spencer - Acro II - N7133Z



Bryan Scheible, East Aurora, NY - N323BS -
Outstanding Acro Sport II recipient



Richard Henry, Evansville, IN - Acro Sport II - N235RH

Acro Sport Fly-in At Oshkosh June 6,7 1998

Ben Owen has responded to many suggestions for an Acro Sport fly-in by scheduling Saturday and Sunday, June 6th and 7th, 1998 as dates for a fly-in at Pioneer Airport. Attendees will be able to camp out or stay at the adjacent Super 8 Motel, (920) 426-2885. This could be a great time for Acro Sport builders, (and the builders of the other Acro Sport, Inc. designs), to get together in a more relaxed and focused setting than during the Convention week.

Please indicate your interest in flying into Pioneer Airport on those dates by writing to your editor, or to Ben Owen, Executive Director, Information Services, EAA Aviation Center, P.O. Box 3086, Oshkosh, WI 54903-3086.

Acro Sport II - Hints & Tips

by Ben Owen

I know some of you come to me for advice and I hope that I am able to help you a little bit. One of the people I occasionally go to for advice is Neil Sidders, Acro Sport II builder of Monroe, Louisiana. Neil is a machinist and has had some very good suggestions for the Acro Sport II. We were trying to decide on a simple way to check out wing incidence. The usual way is to block the tail up so that the upper longeron in the fuselage is level with the ground and then use a wing incidence meter that you build (write Information Services for details) and set the wings at 1 1/2 degrees both top and bottom. (Neil Sidders phone after 5 p.m. 318/343-3885.)

Neil's way is to set the aircraft up so that the longeron is 1 1/2 degrees tail up and check the bottom surface of the wing for level. The way you set the longeron up to be 1 1/2 degrees tail up, use a small level and put the one tip of the level aft on the longeron. 9 1/2 inches forward from that point, put in 1/4 inch bolt under the level and when it reads level, you have got the fuselage set tail-up 1 1/2 degrees. Another way would be to use the same level and put one tip at the aft point on the longeron and 19 inches forward of that put a 1/2 inch object under that point of the longeron and then level the fuselage up. You now have the fuselage at 1 1/2 degrees and you can take the level out and go underneath the wing and put the level on the bottom surface of the top and bottom wings and since they are essentially flat, it should read dead level from root to tip, both top and bottom. Just a little different method, making sure that the incidence is correct.

Both the Acro Sport I and the Acro Sport II verticals where the longerons

bend are not straight. This means that the back part of the fuselage aft of the bends rises up a little bit due to the geometry of the off-vertical tube. If you put the horizontal stabilizer on parallel to the longerons on either aircraft, you will probably have an excessive nose-down condition in flight. In fact, one of the main changes that has been made to most Acro Sport I and Acro Sport II's after the first flight has been to raise the leading edge of the horizontal stabilizer up. There have been at least 20 Acro Sport builders that have called me on this and have done this successfully. They have called back and indicated that it has worked and was a needed change. How you can tell if your aircraft needs this change is by looking back in flight to see if the elevator is in trail to the horizontal stabilizer. If the leading edge is too far down, your elevator will fly trailing edge down slightly. It is best to move this up in small increments and test flight after moving up each 1/8 to 1/4 inch. We had a nice letter from Kurt Schwabauer regarding his airplane in the last newsletter and Neil Sidders in a recent conversation with Kurt has found that his aircraft is now flying correctly after he developed and used an incidence meter on the wings and tail.

I received a recent call from Tom Plodzien, who purchased a Acro Sport II, N89CJ, built by Frank Rosner of Illinois. This is the all-red with cream trim airplane that was at Oshkosh '97. He noticed that the elevator was trailing down in flight and raised the horizontal stabilizer leading edge up about 7/8 of an inch. He still has the elevator trailing down at about a 5 degree angle and the trim is almost all the way forward with the heavy passenger. He has gone as far as he could without bending the

bolt. The airplane is flying much better now and as he said it has a tremendous improvement over the way the aircraft was flying. With 180 horsepower and a fixed-pitch prop at 2400 rpm, he is cruising at about 115 with a closed canopy. Although he has had no problems so far, he is going to develop a locking tail wheel for the airplane on his own.

The problem of longitudinal trim is that sometimes it is a difficult one to solve with the two-place tandem seating small biplane with the Acro Sport II. If you are in the process of building one now, you should make provisions for raising the horizontal stabilizer leading edge.

In a completely aerobatic aircraft used strictly for aerobatic practice and competition, you might find that the aircraft will fly the same upright as well as inverted with a full symmetrical wing set at zero degrees. The tail would obviously have to be set also at zero degrees and the airplane carefully balanced to fly without excess trimming upright and inverted. This type of aircraft would then fly upside down and right side up. However, in the real world even aerobatic aircraft spend but a small portion of their time in the inverted position. I do not want to see a 3 or 4 degree incidence in the wing, because at upside down the nose would have to be quite high in order to fly properly. A good compromise has been the 1 1/2 degrees used on the Pitts aircraft and we copied that same incidence on the Acro Sport series. What this means, of course, is that the upper longeron is always up a little bit in level flight and this is particularly true at altitude and with heavy loads. However, in the inverted position there is less of a difference in the upright and the inverted that makes aerobatics a little simpler. I would imagine that if you were to design an aircraft for strictly upright flight, you would use an angle of incidence of about 3 degrees or so that would enable the aircraft fuselage to fly level in level flight in the upright position. Something to think about when building your aircraft. An incidence meter is a good tool to build before you attach the wings to the fuselage to be sure you get the right incidence on both the upper and lower wings on biplanes and, of course, on the single wing on monoplane aircraft. Stop before you attach the wings to the fuselage and build an incidence meter to make sure that your fittings and your welded attachments are set-up properly.



John Leitis flew his Pixie to Oshkosh for the ninth time - Outstanding Dedication and Service Award

Acro Sports Down Under



24th. August. 1997.

Dear Bill,

Thanks for the info on the spring struts you sent to me four months ago. They've been made, fitted, and done a few landings. My initial impressions are that they are slightly "softer" than the bungees, but I'm happy with the results so far.

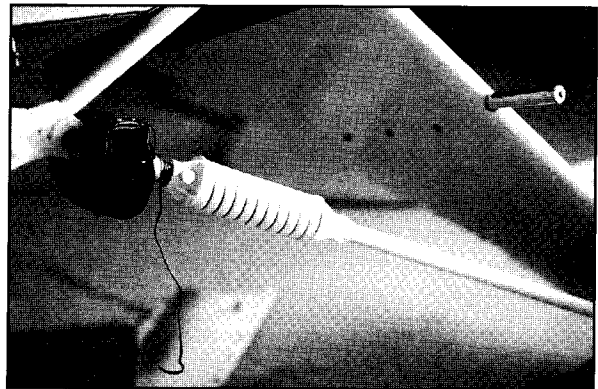
Of course, I couldn't resist making a few changes to the plans:

1. Attach the lower washer to a lower fitting, machined down like the upper fitting to give more welded area.
2. Triangular gussets to support the washers.
3. Leather boots.

With your information, and that from other owners, the process was fairly

Above - Acro Sports at Australian Sport Aircraft Association State Fly-in.

Right - Lloyd Shepherd's spring landing gear shock and boot.



straight forward.

I've enclosed photos for the Newsletter. In June, the State branch of the Sport Aircraft Association had their Fly-in, and the first two aircraft to arrive were the first Acro Sports to fly in Australia—Frank Krassoi's I. (VH-FMK).

and my II, (VH-ZSF) so we got "Pride of Place" next to the windsock!

Regards, Lloyd Shepherd
1 Park River Close,
MULGOA, NSW
Australia, 2745
Ph/fax (02)47738382

Caution On Fast Tail Slides!

Earlier I wrote an article on tail sliding the Acro Sport II and mentioned that it was not necessary to concern yourself with building up too much speed while sliding backwards. It is difficult to do and I believed unlikely that excessive speeds could ever be reached. I stand corrected!!! I have been practicing maneuvering the back slide and found that not only can you master it, you can also achieve excessive speeds. Although the tailslide is a competition maneuver, and it is therefore a popular item, a word of caution is in order. You can get too fast and over stress the airplane, and possibly cause structural failure. I was lucky and want to pass on my "experience".

Immediately after doing a particular-

Update on Tailslides

by Don Baker

ly "good" tailslide, I noticed that the airplane felt different. It seemed to have more "stick snatch" around the neutral aileron position as I approached red line speed for the next maneuver. This different "feel" was an indicator that something had changed, but I did not figure it out right away. One should always be on the lookout for these "something's different" indicators, no matter how small they may seem. They are telling you that there is something wrong. The snatch was due to my

spades and the fact that the aileron linkage had just been bent!

It turned out to be bent metal in the aileron bellcranks. The bell cranks were both bent at the "output" tube. The 3/16 inch i.d. by 1/4 inch o.d. 4130 tube and the AN3 bolt which goes through this tube, (connects to the rod end bearing on the aileron drive link), was bent forward. Also the mounting bracket for the bell crank was bent away from the spar. Both left and right bellcranks were bent equally as were both mounting brackets. The end result was that all four ailerons were drooping about 1.25 inches at the trailing edge when the stick was in the neutral position.

I would estimate, from the stick forces involved, that I was probably

going backwards at a speed of 60 to 70 miles per hour before I flipped over. I have approached this speed many times before, but it must have been just a little faster this time. The flip out of the slide creates an angle of attack beginning at 180 degrees, (backwards), and goes through 90 degrees, and finally reaches zero degrees when forward direction resumes. It is the 90 degree angle of attack, (relative wind perpendicular to the chord of the wing), that creates the excessive forces on the ailerons. It loads all the ailerons in the same direction, similar to lifting up on all four ailerons simultaneously. Flopping the other direction should create a down force on all the ailerons.

I flew the airplane through two maneuvers after the tailslide, (an outside loop and a spin), with no problems. I found the problem on the ground, and a subsequent check-over revealed no structural failures, and it was flown home without incident. At home, I fixed the bent metal and more carefully checked over the airplane and found no other problems.

I want to stress that there is no design weakness in the Acro Sport airplane(s). I checked and it is designed the same as the Pitts S1S and S1T. They also cannot be slid backwards at high speeds. None of the biplanes are designed to fly backwards at high speeds. Competition aerobatics requires a tailslide, but it is not a requirement to stretch the slide and achieve high speeds. Only a tiny amount of slide is necessary for a competition tailslide.

It is very difficult to determine the actual speed you are reaching when sliding. In fact, it is difficult, (impossible), to even determine the instant the direction changes from forward to reverse in a power off tailslide. There is no stick feel or seat of the pants feel for a reliable indication. Therefore, it is very important to have an indicator to help you determine the exact instant when sliding begins. I use a piece of yarn about one foot long attached to the left I strut. It works very well. Keep your eyes on the yarn as you decelerate. Flip soon after it blows backwards.

The perpendicular forces which act on all four ailerons during the flip are not detectable as stick forces. You do feel stick forces, but only the "differential" or roll forces. The "common" forces, (all up or all down), cancel out at the stick and you have no feel or idea how great they really are. That was my problem. I had no indication I was stressing the ailerons as I got better at maneuvering backwards. The G meter never read over plus or minus three Gz. It all seemed OK. Now I know!

Beefing up the bell cranks and mounting bracket is not necessary because if you make them stronger, then something else might break. Probably the aileron hinges, (aluminum rivets), or wing ribs aft of the aft spar could break. Either one would ruin your day.

In summary, it's a good airplane, it didn't let me down, I still love it. I still do tailslides but flip earlier. I appreciate how robust the Acro Sport design really is. And most of all I love to fly it.

Meanwhile, keep flying, keep practicing and keep on grin'in.

Update From Sidder's "Briar Patch Aeroplane Factory"

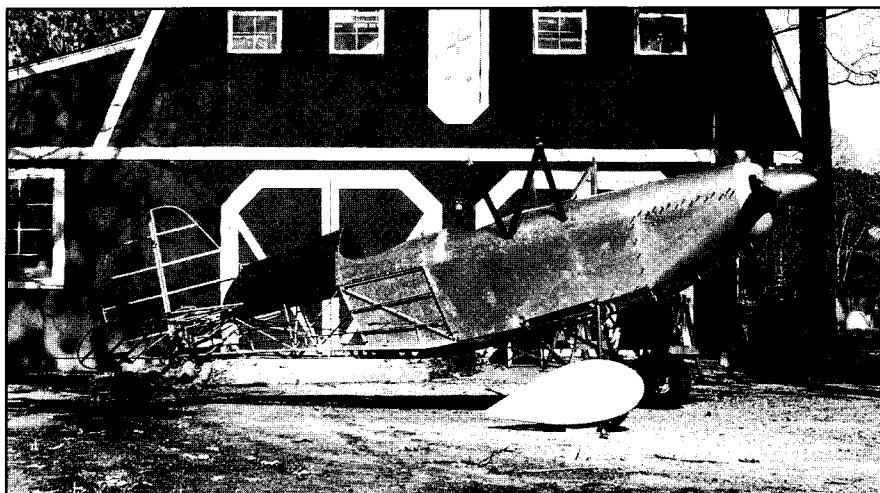
Three of our five Acro Sport IIs see progress from time to time; the other two seem somewhat stagnant. The most progress has been on mine, due mostly to the fact that I have the shop. Bruce Owens and I bought a Skybolt project to get the engine for his Acro. We sold the Skybolt less engine and inverted oil system, (it was still in the box), and actually made a little. The Skybolt was an excellent airplane; I would have liked to have finished and

flown it myself. It was almost as far along as my Acro is now.

I rebuilt my O-320-A2B using new Lycoming cylinder assemblies. The crankcase was sent to AJAX crankcase repair in San Antonio and the crankshaft, rods, gears, cam and tappet bodies were sent to Aircraft Engine and Accessories in Dallas. I don't usually recommend shops for machine work, but I was very pleased with both of these. I got an O-360 rear loader oil

sump from Bud Judy. This let me mount the Ellison injector in back of the engine and give a lot of clearance for the 4-into-1 exhaust system. I also found a set of early Lycoming cast aluminum valve covers. I polished them and the mags and it looks real neat.

The sheet metal has been my main holdup. I don't like to do it. I can, I just don't like it. You can see in the photos that the cabanes fit through holes in the upper fuselage cowl, no patch panels. The gas tank filler is offset and covered with a flush fitting door. The cowl itself is one piece from the firewall to the rear instrument panel, and the front instrument panel and front seat headrest fasten to formed aluminum angle that is flush riveted to the upper cowl. The side panels extend down and take in the landing gear attach points and give the fuselage a slightly deeper appearance, and help smooth out the line from the nose bowl to the rudder post. On most Acro IIs, the wing trailing edge hangs down just below the bottom longeron. I've added a former to allow the wing root fairing to meet the fuselage better. The firewall was widened to allow a straight line from the nose bowl to the turtle deck. The bottom of the firewall is tunneled to reduce cooling drag and the openings at the back of the engine



The "30's era" shape for wheel pants; the famous red barn in the background.

cowl have been eliminated. The engine cowl separation line has been moved up to match the rest of the sheet metal. An oil filler door will be used rather than hinging the sides of the upper cowl.

The brakes are 600-6 Cleveland Drum brakes from a Tri-Pacer. They are compatible with my heel brakes and the only thing that sticks out of the wheel pants is the line. The wheel pants are representative to the classic 30's era airplanes. I'm building a mold.

The rear seat area has aluminum panels to protect the fabric from being damaged by seat belts or knee board, or what have you.

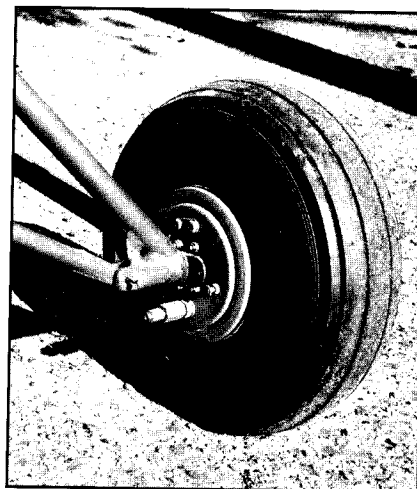
Rather than using a lot of fin offset, ribs in the vertical fin are asymmetric to cause the fin to "lift" to one side, producing less drag. Rudder cables pass

through plywood plates between the stringers and the cables used swaged-on fittings.

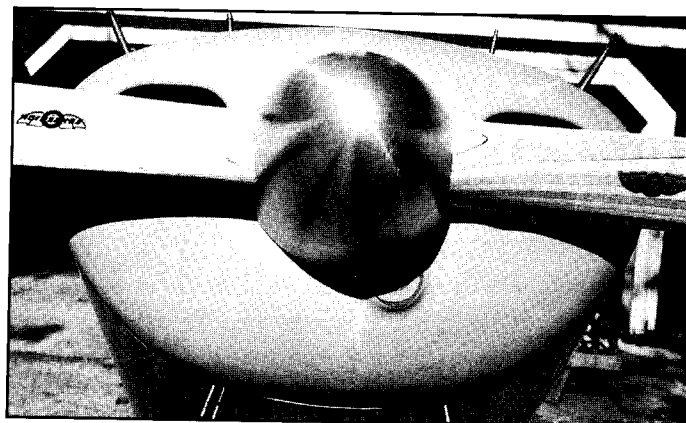
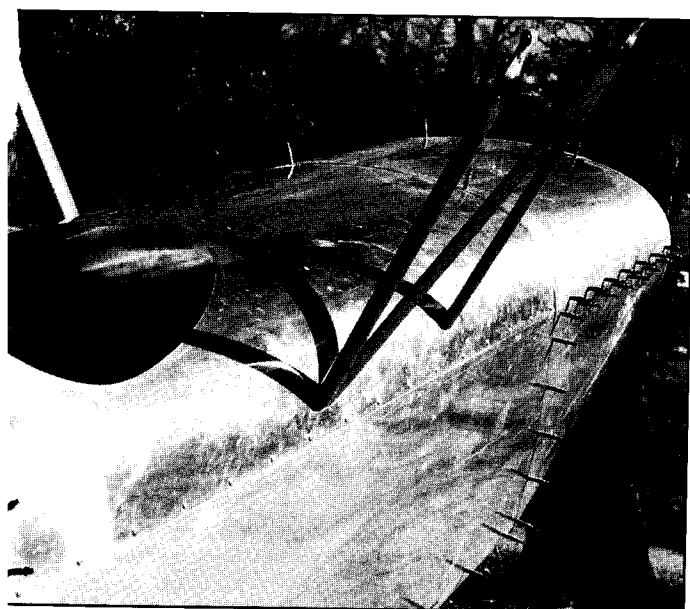
A 12 inch diameter spinner is used. It gets into the starter clearance bump on the nose bowl. The fix for this is to use a starter without the outboard bearing and remove the bump.

About two years ago I checked on a canopy for the Acro II, (same as S-2 Pitts), and they were about \$200.00. I called the other day and now they are \$760! Mine will be open all the way! I just finished molding my wind shields at a total cost of about \$18.00 each. A "how-to" is in the works.

Neil Sidders (318) 343-3885
235 Rowland Road
Monroe, LA 71203



Cleveland drum brakes are another low drag Sidders innovation.



Above - Neil will remove the nose bowl blister and use a starter without an outboard bearing.

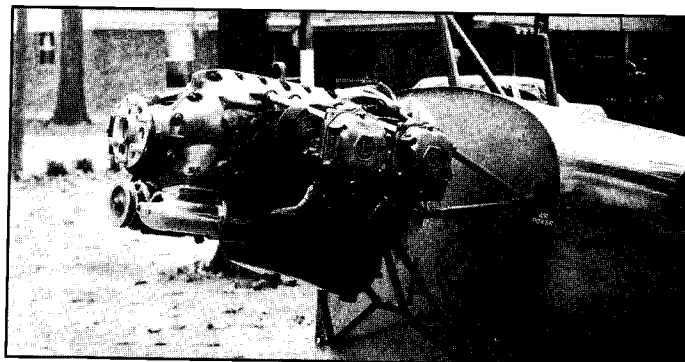
Left - Neil says he doesn't like to do sheet metal — but look what happens anyway! He eliminated the openings at the back of the firewall; bottom of firewall is tunneled to exit the cooling air.

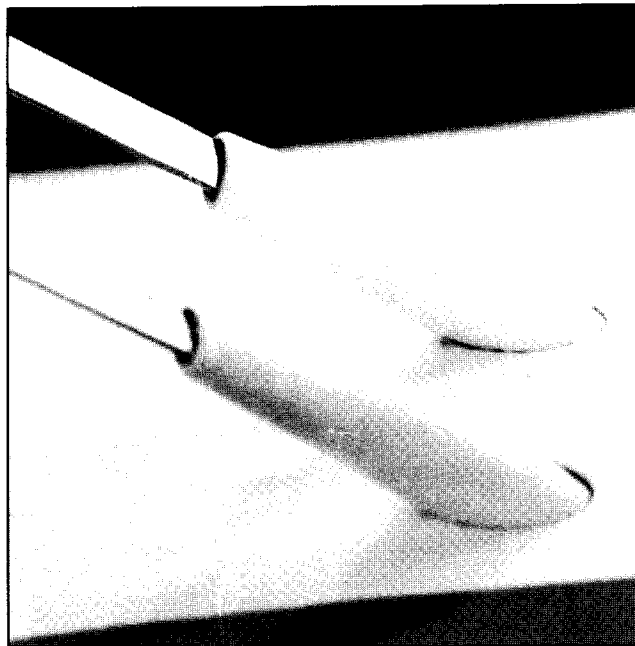
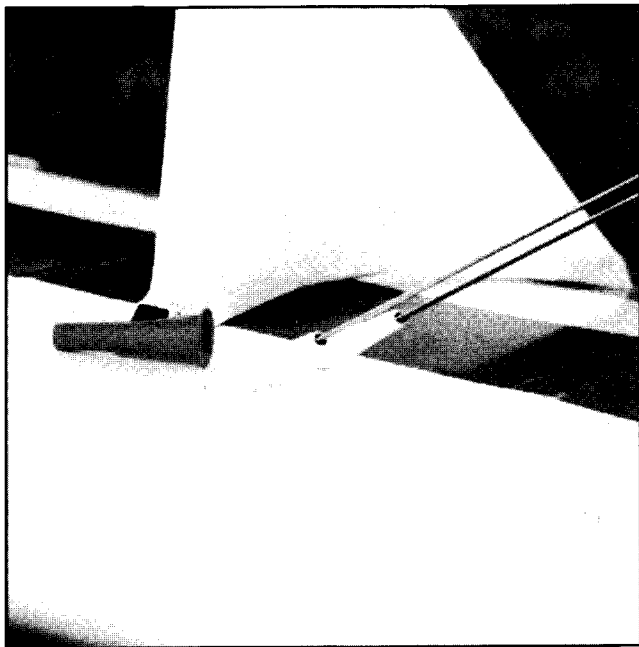
Below - Neil's engine — note cast valve covers.



Above - Polished magnetos for Neil's Acro II! Note beautifully machined fittings.

Right - Plywood exit slots for Neil's rudder cables.





Don Baker's Flying Wire Exit Boots

(Reprinted from EAA Experimenter)

Of all the questions I answer at Oshkosh each year, by far the most often asked one is, "What are those flying wire exit boots you are using?" Everyone seems to like them. When building my Acro Sport II, I never saw

any wire exit treatments which looked nice, were durable, available and relatively inexpensive. Finally, during the course of the project, it dawned on me that an electrical alligator clip insulator boot should fill the bill. It did. I have been flying them for five years now and they work great.

The one shown in the photo is a Mueller number 74 and is available at most electronic parts houses, or can be ordered from same. This size works well on 1/4, 5/16 and 3/8 inch streamlined wires. This particular boot is available in red, black, white, green, blue and yellow. Installation of the boot should be self-explanatory. Friction holds them securely in place without need for glue, tape, etc. Make the exit hole in the airframe slightly smaller than the boot's outside diameter. An elliptical hole is not necessary even though the boot exits on an angle. If conforms well for almost any installation situation. I might point out that a spare can be added to each wire if desired, hidden below the surface. That way, if one should need replacement, it is a simple matter to snip off the old one and slide the fresh one into position without removing or loosening the flying wires. However, after five years of service mine still show no signs of wear. They are indeed durable.



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Award Winners at EAA Oshkosh '97 Dinner

Photos taken by Chris Kinnaman



Don Baker receiving Outstanding Dedication and Service award from our president, LaFonda Jean Kinnaman



Keith Tridle, Outstanding Acro Sport I Award winner.



Richard Henry, DDS, Grand Champion Acro Sport II Award and Designer Award winner.



John Leitis, moderator for Pober Pixie, Jr. Ace, and Super Ace Forum.

Again—Chord Line Versus Centerline

Dear Bill

July 2, 1997

I had an interesting conversation with Mike Finney recently. I think you are aware of his airplane. It is still hard to believe that it is the very lightest of all the Acro Sport II's ever built. Mike is quite well known in the Acro Sport community, and he does visits with Acro Sport builders by phone all over the world. Some of the people he contacts are located in Spain, New York, St. Louis, Florida; and his wife had even given him a special walk-around phone so he can answer questions as the aircraft is parked in a hanger right adjacent to the house. He also has an airport there which is a very nice idea!

Mike called because one of the builders had contacted him regarding the placement of the drag/anti-drag wires. On the lower wing sheet 13 of the Acro Sport II plans in Zone B-1, it shows the inner tab for the drag wire to be on the chord line in Zone D-1. Due to this, many builders have put all of the drag/anti-drags on the chord line. If you look at Zone A-5 on sheet 13, it shows a typical drawing of the drag/anti-drags on the center line which other builders have done as the plans show.

I checked with Paul on the drag/anti-drag lines being on the center line or being on the chord line, and he says that they are so close that it does not make any difference at all if they are on the chord line or the center line. The only thing you have to be careful of is to position the bell cranks properly after the drag/anti-drag wires are in the wing. The last thing anybody wants to do is to decide to move the drag/anti-drag holes by drilling another set of holes in the same spar in the same location.

This is a pretty bad idea. Even when filled with dowels, this reduces the strength of the material and is not a change we want to encourage. The designer says—it does not matter if the drag/anti-drags are on the chord line or on the center line, the airplane will not know the difference and is quite accept-

able either way. With the people that I have been talking to, it has been done about half one way and half the other way. The fact that it makes little difference is obvious in the inboard bay of the lower wing, when the drag/anti-drag lines go from the chord line inboard to the center outboard. Ben Owen.



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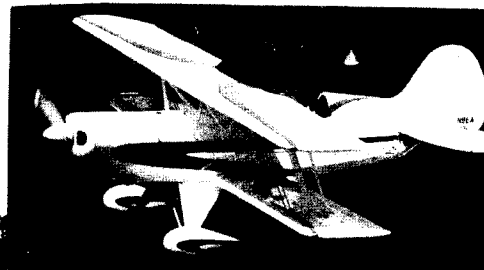
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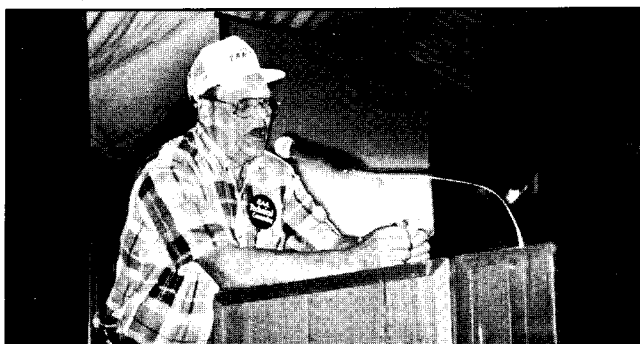
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'97 Oshkosh Forums



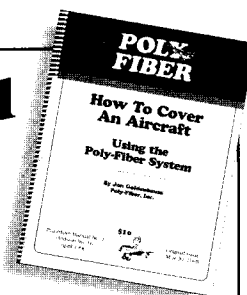
Above – Don Baker, moderator for the Acro Sport Forum at the podium and L. Jean Kinnaman, Acro Sport publisher left. Below – John Leitis moderator of the Pober Pixie, Junior Ace and Super Ace forum.



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