ACRO SPORT Newsletter

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After arriving home from the 1994 EAA Oshkosh, Mike poses proudly holding the Lindy award.

Mike Finney's 1994 Oshkosh "Lindy" Winner

by Mike Finney
7600N C.R. 650E
Albany, IN 47320

Acro Sport II, N165M came into my life starting on 8-15-87, my birthday, when my wife Sherry bought the plans. We go to Oshkosh every year, and I had always wanted to build a biplane, but I just didn't know if I could do it.

I really wanted to build a Pitts S-2, but as most of you know, there are no plans available, and the kit at the time was over $50,000. Sorry, but if I can't get one cheaper than that, I won't ever have one. The Acro Sport was my second choice, but it was a close second; (I have never been sorry)!

I wanted to start with the wood. That was my first choice, but the spruce shortage was on, so B&F Aircraft suggested start with the sheet steel and get all the small fittings done. They take lots of time, but not a lot of money.

On 10-29-87 I cut the first piece of steel on my new band saw. It was an upper wing fitting. Hey, this is fun, satisfying, and I feel like I just might have the ability to build an airplane. I soon had a box full of steel airplane parts, bent, shaped, and drilled to the best of my ability. I had also been practicing my welding, as I didn't know how to weld. I welded up all the 4130 I could scrounge from a friend/fellow builder. I think I used up about two refills of ox/acet, and I felt pretty good about what I was doing; (the articles in the EXPERIMENTER by Budd Davison helped a lot).

I welded up some of the small items, like the aileron bellcranks and small brackets, and took them to my Chapter 226 meeting Show and Tell. The elders, (prior builders), told me they would "fly that part", so get on with it!

I ordered the tubing and almost every-

thing else through B&F Aircraft, put it on Mastercard, then paid it off each month. I put about $600 per month in a special checking account, and when I needed something, I usually had the money.

The welding turned out to be my favorite part, and also the thing I felt to be the best at. Steel fabrication is the way to go for me!

About six months after I started, I walked out into my shop, a small one-car garage, (12X28), where the entire airplane was built and stored. There sat the fuselage for a Biplane! Amazing! I think that was the first time I felt like I could really build an airplane.

For me, the wood was the most difficult. I just didn't enjoy doing it. You have to cut, fit, glue, then wait for the glue to dry, whereas, with the steel, you cut, fit, weld, and you are done.

The painting was also a challenge, even though I used to be a painter in an auto body shop. With a car, you just paint the top and sides. With an airplane you build, you must paint on all the sides of all parts, inside and out. That's a lot of parts and a lot of painting!

After 5 1/2 years and 2447 hours of steady part-time work, it was completed. I paid careful attention to the weight, and it tipped the scales at 915 lbs. empty. Then came final inspection from the FAA; no problem. A little tinkering here and there and it was ready for the first flight.

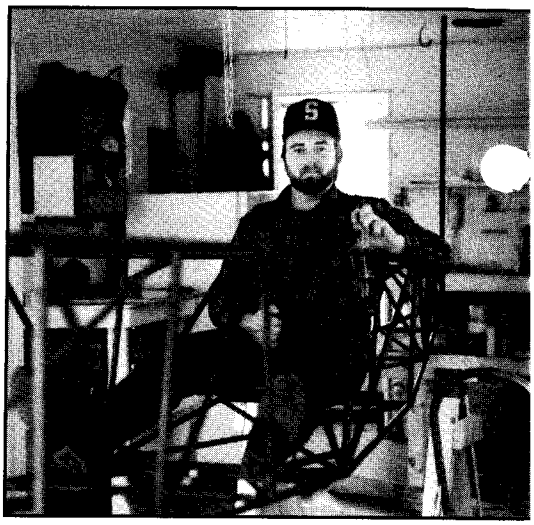
I hadn't been flying a whole lot during the building process, but thanks to a friend who owns a Sonerai, Chuck Stottlemyer, I was able to keep current. My airplane conquests to date include the Pitts, Luscombe, Piper Pacer, and of course the Sonerai. If I may say so, the Sonerai is a nice little airplane, but it is to this day at the top of my list as the most difficult airplane to master, (much more difficult than the Pitts S1-S). So with this background and a little over 1000 hours in the air, I felt qualified to make the first test flight of my Acro II.

First test flight day brought light winds and only a few small puffy clouds way up there. I taxi out in the beautiful airplane that I have lived with in my garage for the past five years, and come to love, (even though it has yet to fly). The feeling is incredible. Joyful anticipation, mixed with anxiety and dread, should anything go wrong. What are my true feelings? I secretly wish I could just go home and forget the whole thing! What made me think I could build an airplane in the first place? I really don't know.

I test the mags, hoping to have some excuse to go back and check something out, just to look everything over one more time, but the Acro Sport checks out perfectly, and seems ready to go. Go where? Go FLY!!

The pressure of flying an airplane that has never before flown is more than I expected. I did make an addition to the passenger warning in the front cockpit that reads, "This aircraft is amateur-built and does not comply with the federal safety regulations for "standard aircraft", "But I did the best I could". And I really did . . . . . So lets go FLY!!!

I shove the throttle forward, (great acceleration), concentrate on keeping it



Mike's "first sitting" in the welded basic tube framework, the result of five months of work.

straight. When it feels like it is more than ready to fly, I rotate then settle into a climb of about 80 MPH, and in a very short time we are at 3000 ft.

My brother Bill has agreed to fly "chase" for me in his L-19 Bird Dog, and pulls along side to assure me all looks well from where he sits!

I check to be sure all the instruments work, and they do. It's not running hot or anything, although the elevator trim needs to be tightened up a little — won't stay where I put it. It seems to turn slightly to the left. But other than that, I have a Biplane!

It takes about 15 min. for my heart rate to come back to normal, then I look

EDITORIAL/by Bill Berrick, Editor

I was using the tried and true aircraft glues on some of the wing ribs for my Acro Sport I early on when my "workshop" was on a card table in military quarters. These were resorcinol and urea resin glues; I faithfully made test blocks with each batch of glue, and was occasionally disappointed. Some of the resin glue powder was a more granular form than powder, and didn't go into suspension in water to make effective glue.

When winter came, the temperatures in our quarters just didn't ever make it up to 70 degrees F., and I switched to T-88 epoxy glue because it still works well at lower room temperature. I've "stuck" with it ever since for various reasons. The one-to-one mixture is handy to make up in small quantities — I use plastic one-ounce medicine cups, or equal strips of glue squeezed out on a mixing board for really small amounts. The epoxy glue stays the same dimension when it dries, and still makes a strong joint in case it might ever happen that I would make a less than perfect fit. (Yes, that does happen)! The thick consistency of the mixture is especially good for use on the ends of the small spruce pieces in the rib structure. I still occasionally make test blocks, but I have never had even one that didn't rip off the wood fibers rather than breaking at the glue line.

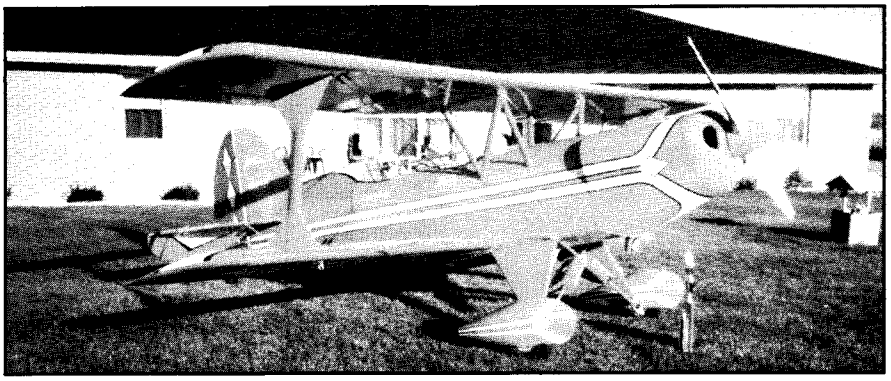
I also like Hughes FPL 16A epoxy glue, mainly for use on large surface areas that have perfect fit such as the plywood to spruce joints on compression and plated ribs. This is a ten to one mix, but is still easy to measure using a plastic calibrated syringe, (also available at medical supply houses), for the one part hardener. The mixture is about like thick cream and can be applied very quickly to both joining surfaces with a brush, without rushing. I had to hurry to get the T-88 on a plated rib before it was starting to thicken, and you need to toss it out when it gets stiff. I've used a lot of the FPL 16 A on the all-wood GP4 now well along in my shop, and the ability to be brushed on rapidly was essential in laying up the laminated wing spars, and in gluing on the plywood skin.

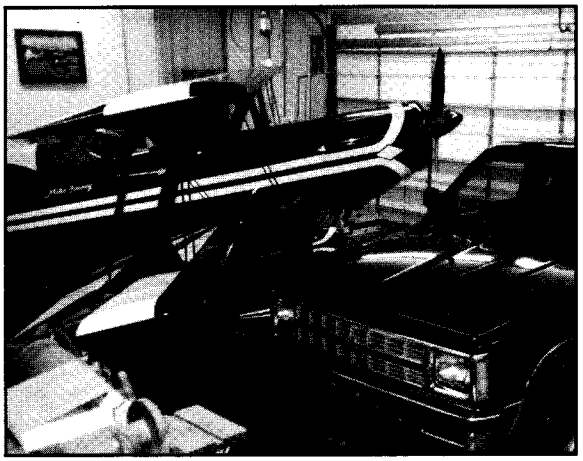
The epoxy glues are well-proven now for aircraft construction, but had not been used that much when I started my Acro almost twenty years ago! There are many good brands around now, but these two are the ones I have personally used.

around and get familiar with my new airplane. I look out through the wires to the garage below where this airplane was built. I think of all the small stepping stones that allowed me to do something like this. The Wright brothers, Lindberg, and Poberezny; HEROS without whom I would not be here. Thanks Gentlemen!

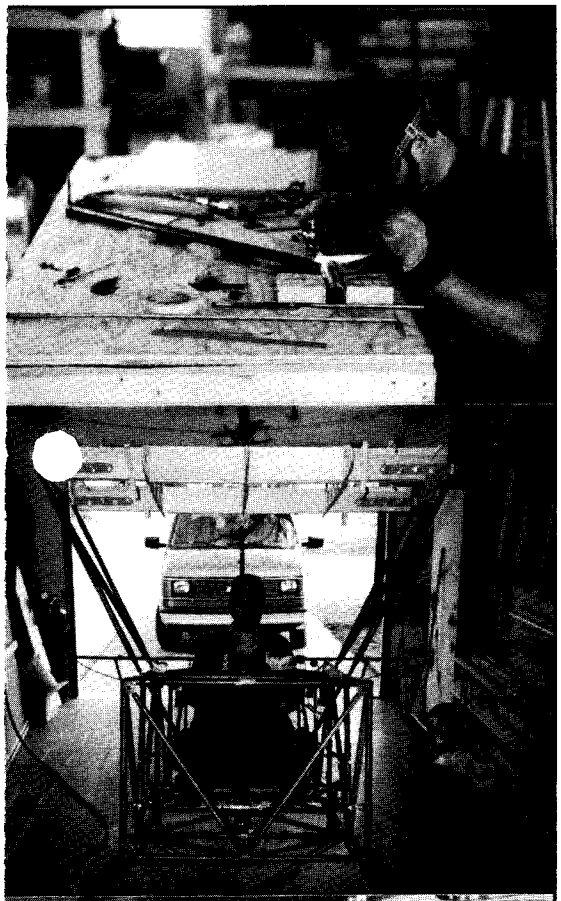
Now can I get her back on the ground? I think I can. After an approach to see what it looks like, I go around once then land with no trouble. I make a few small adjustments and fly again. This time I can get true hands off flight. Life is good!!!

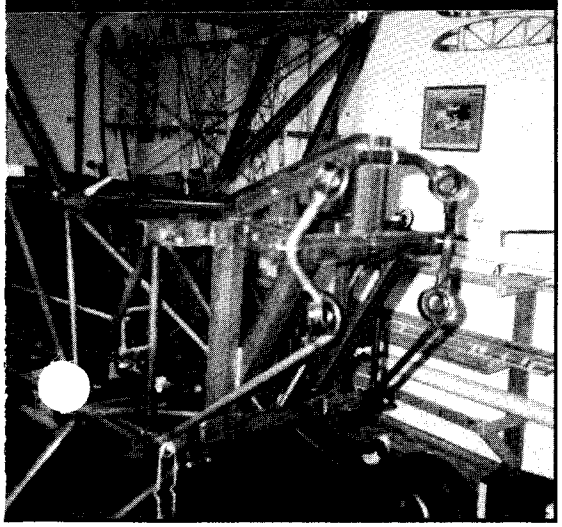
The Acro Sport II is just a joy to fly. I think it has the most appropriate name, as it will do Acro with the best of them, and is not such a hot rod on landing so as to scare the Sport out of it! I feel that anyone who can fly a Super Cub could fly this airplane; the main difference is touch down is faster and you can't see out the front. If you could practice take off and landings from the rear seat of a Super Cub, you would be ready.





Above — Acro II N165 at home after returning from MERFI and recipient of another trophy — on display under the engine cowl. Left — Can't beat this! Both aircraft and car parked side by side at home. Hangar/garage measures 24' x 30'.





On the other hand, the airplane is a real "Dog" when it comes to speed. I have the IO360C1C6 200 HP, and at 2300 RPM it cruises at 120 MPH. But then I didn't build this airplane to travel in, so I don't mind. About the 200 HP; I got a good deal on the engine, and I really like it other than the fact I can't burn auto fuel. I figure it costs me about $17 per hour to put fuel in it. If I had put a 150 HP in, I think I could fly for about $8 per hour. Something to think about if you haven't bought your engine yet. My airplane does climb well at 2000' per min. And it doesn't seem to care if there are two on board like other airplanes I have flown, but it is something to consider.

I now have about 85 hours in the airplane, and have taken about 75 different people for rides. The tallest and heaviest I have had in the front is 6'8" and 255#. The only limiting factor is you have to make sure you have room for your feet on the rudder pedals. I have the Hooker harnesses front and rear and they are quite bulky in of themselves.

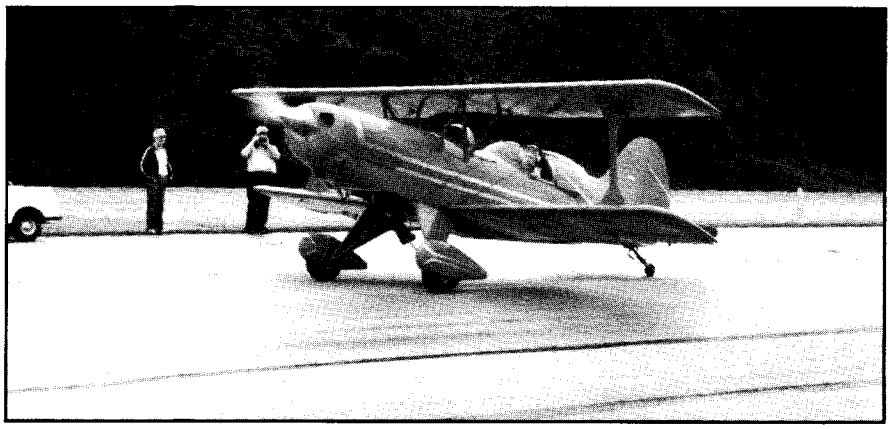
I have read of a couple of Acro II's that have had trouble with the rear windshield putting wind directly in your face. Mine did this at first and I installed a new one making sure the center of the windshield was as tall as I could get it. I can now fly for 2-1/2 hours at a time without discomfort.

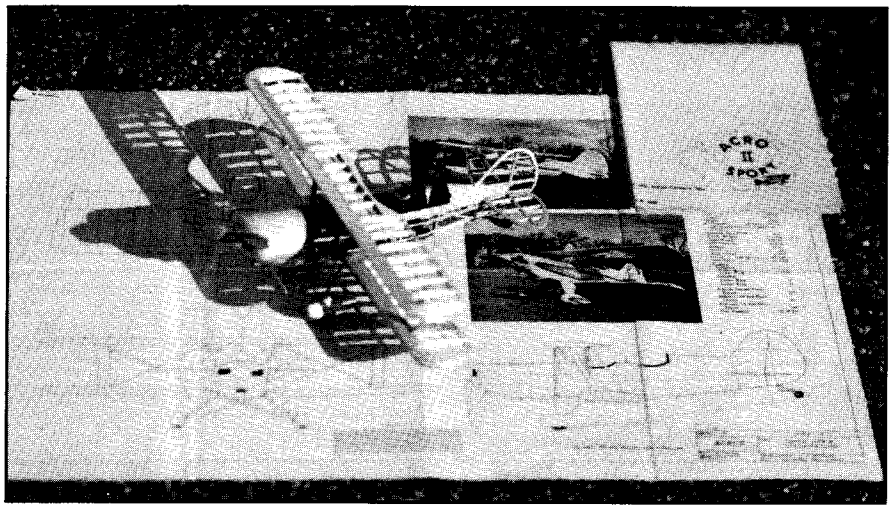
Prior to this year, I had never won a trophy for anything in my life. At Oshkosh this year, I won the "Champion Plans Built" Bronze Lindy trophy. I also won the outstanding Acro Sport 1st place award from Acro Sport Inc. Then in September, I flew to MERFI in Marion, Ohio and took top honors there, being voted the "Best of Show". I did not build this airplane to win trophies. I just built it for me, but it is nice to get some recognition for all the time and trouble of building ones' own! Thanks All!

How do you follow up something as great as building and flying your own Biplane? Well my wife, Sherry, drew up some plans for an Acro Sport II house, complete with an attached hangar. We had the house built on some farm ground we purchased, and the Acro Sport is back at home in the garage (Hangar) where it belongs! We have a 2600 x 100 grass E-W runway; Finney's Airpark on the Chicago sectional is seven miles east of Muncie Airport. All Acro II's or people that like Acro II's are welcome. A Fly-In is being planned for August 19-20, 1995.

Left top — Lindy winner-to-be at work welding one of the gear legs. Middle — Mike with co-pilot assistance pushing throttle to "go". Note ribs and spars on wall ready for wing panel assembly. Bottom — Engine mount jig for Dynafocal mount on which a Lycoming I0-360-C1C6 engine was later attached.

Letters To The Editor





Top — Rich Hartzell's well-proven Acro Sport II gets admiring looks as it touches down. Bottom — The Acro II in miniature.

Dear Bill,

I want to call out the following areas on my Acro Sport II, N38RH, that I think could exist on other Acro Sport aircraft:

With high-time flying and many landings I have found that the rear tailspring attach bolt broke that holds the spring to the fuselage, (Sheet 3.0). This problem happens a lot with J-3s and Taylorcraft type aircraft. This is an AN5 or 6 bolt. It should be checked every year at inspection time and repaired if flying a lot. Mine broke at Fond du Lac on my way to Oshkosh. Good thing it happened there; the landing at Oshkosh could have been one that I would remember for a long time! The AN4-14 bolts supporting the tailspring bracket should also be checked.

Another problem I found is with my rear flying and landing wires at the cross-over at spreader bar. With my wires I used tie wraps to hold the spreader bar in place. This really isn't the best support. The plans show the correct type spreader bar, and it is spaced to keep wires apart by proper wood cuts to the wire width size. Mine were chaffing pretty good. It might be a good idea to lengthen the upper or lower rear pins and drill the holes closer to the ends of the steel pin. This would give more room at the cross-over point.

Sincerely,
Rich Hartzell
Chapter 82
Canton Ohio

Dear Bill,

Enclosed is a picture of a model of my Acro Sport II, N38RH in not-completed covering. I made it from three-view drawings from Acro Sport plans. If any other Acro Sport owners want info on how to build the model, they can call me or write.

It's something to do between actual building of a plane and with some spare time to build your MODEL!!!

Richard E. Hartzel
144 Briar Ave. N.E.
North Canton, Ohio 44720

Acro Sport II Plans Note

THE TECHNIQUES OF AIRCRAFT BUILDING is a very useful manual on construction of tube/wood/fabric aircraft which is still available from Acro Sport Inc. This manual was updated and expanded from HOW TO BUILD THE ACRO SPORT which was originally included with the plans for the Acro Sport I.

"The Techniques of Aircraft Building" can be purchased from EAA-direct or from Acro Sport, Inc. Still $16.00 plus $2.50 postage.

Most of the contents of these construction manuals are now printed on the reverse sides of the Acro Sport II plans sheets. The photos have been updated to show the Acro Sport II, but many of the drawings are from the original manual for the one-holer. These are appropriate and useful as construction aids for the Acro II, but in the few places where dimensions may be shown, you should stick to the dimensions given on the front of the sheets for the Acro Sport II.

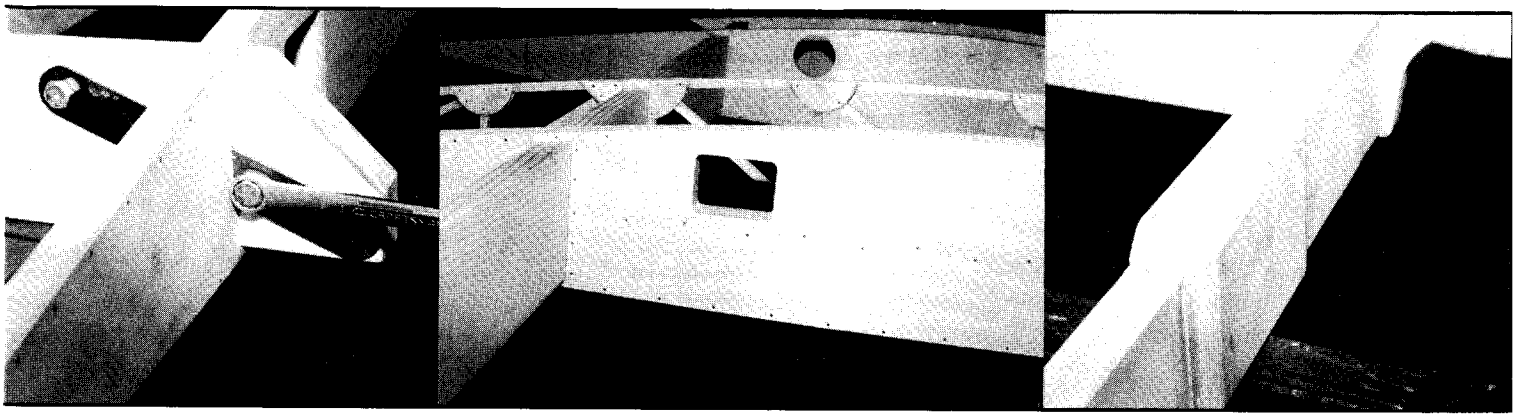
Acro Sport II builder Lewis Miller, 573 Amanda Ct., Vacaville, CA 95687, called this to our attention when he was setting up the vertical sides assembly jig shown on the reverse of Sheet II. The dimensions given on that drawing are for the Acro Sport I and not the same as the frame dimensions on Sheet 2 of the Acro II plans. Lewis would welcome hearing from any builders in his area for exchange of Acro II information.

Tips From Neil Sidders

We built three sets of wings, and they all required the root ribs on the lower wings to be located 1/8" farther onto the spar to allow room to install the attach plate bolts and have adequate clearance for a wrench.

Rather than internally varnishing the plated ribs, we boxed the areas where the aileron push-pull tubes pass through the 1/4 x 5/8 spruce, then routed the centers out with a ball bearing piloted router bit.

The plans are not very clear on the I-strut platform areas. They show the top and bottom plates to be only as wide as the spar stock, yet the photos in the plans show the top plate spanning the



spar doublers. We believe this to be more correct.

Another tip concerns the 1/4 x 3/4 spruce filler strips as outlined in sheet 12, zone B5 on the center section and sheet 13, zone C5 on the lower wing. The spruce strips fill in between the ribs so the leading edge sheet can attach. These are done differently on the Pitts and the Acro Sport. On the Pitts drawings, it is very explicit that the ends of those filler blocks not touch the ribs, and that there be space there. The reason for this is that you need room for air to circulate in and out of the leading edge, and 1/8 to 1/4 inch would not hurt. At the ends of all of those intercostals the water that comes in can get out through other holes such as the flying wire holes.

Above left — Proper wrench clearance assured by moving root rib 1/8" from spar end. Center — Boxed areas where aileron push-pull tabs pass through the spruce ribs. Right — Doubler plates at I-strut platform.
Left — Getting some expert help! Becky Sidders carefully shapes the aileron leading edge.

LETTERS

Acro Sport, Inc.

I would be very pleased if you could send me some copies of the Acro Sport Newsletter, as I am a very enthusiastic builder of the Cougar. I started ten years ago after finishing a T18, but due to circumstances, have not yet finished it, but hope to start full time on it next year.

It is the only Cougar building in New Zealand, and like the Tailwind, has never caught on here. I have a friend who has built and is flying a Tailwind here in Blenheim for 13 years, so I am able to compare both aeroplanes.

I am pleased to hear the plans are selling again; I have always wondered why you never featured a photo of a Cougar in your Acro Sport ads for plans.

I have modified my Cougar a little; am putting flaps on it, copied from Tailwind plans, and also made pushrod operated ailerons, etc.

I have enclosed a photo; perhaps it could be used in the Newsletter.

Rodney J. Davis
4 Gaylee Place
Blenheim, South Island
New Zealand

A beautiful Cougar nearing completion in New Zealand.

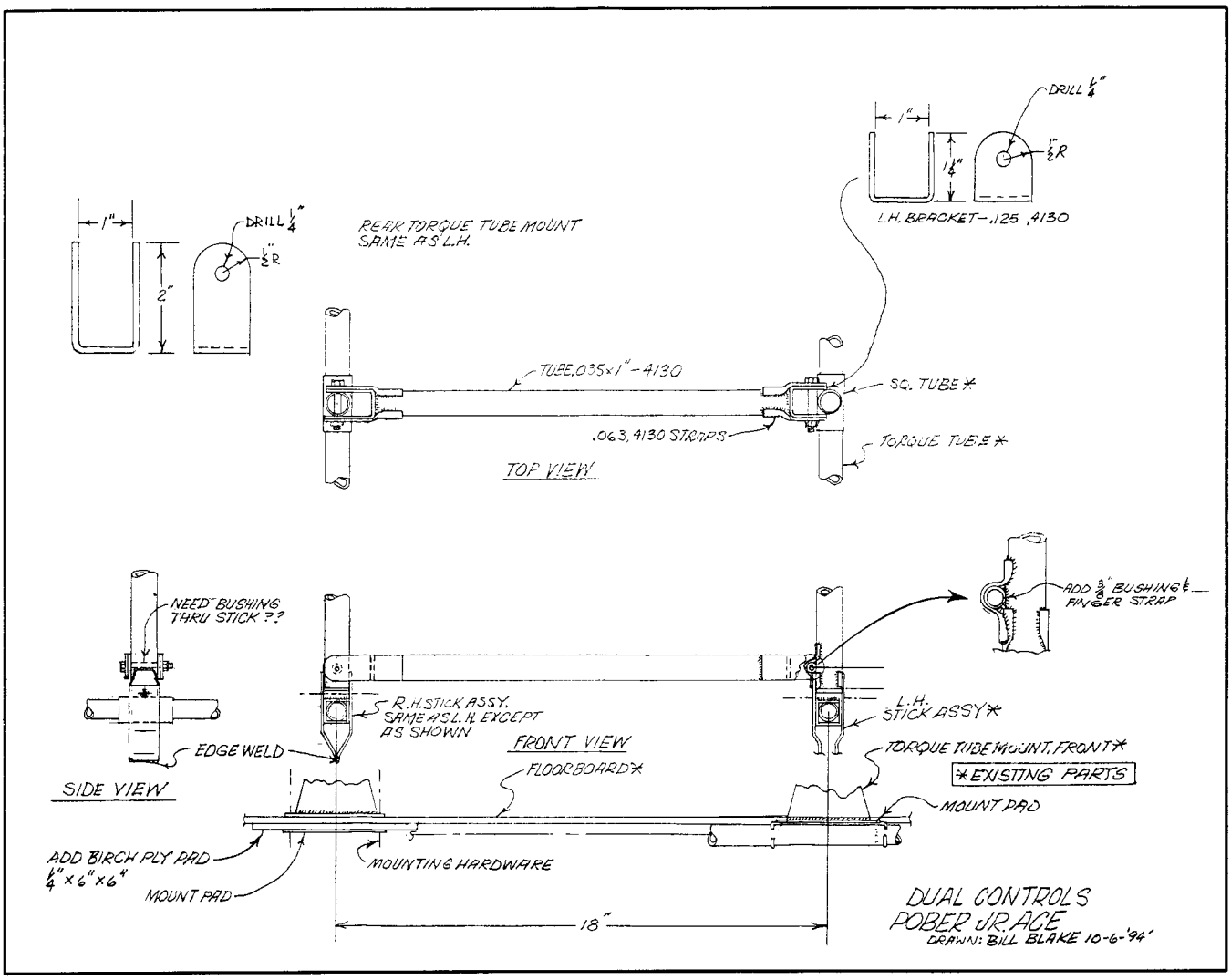
Acro Sport Forums at Sun 'n Fun

Sunday April 9th

11:00 a.m. - Tent #6 (in new forum area near the Museum)
Bob McQuirk, moderator, panel: Bob Callis, Rich Hartzell, Bill Blake and Lee H. Thomas.

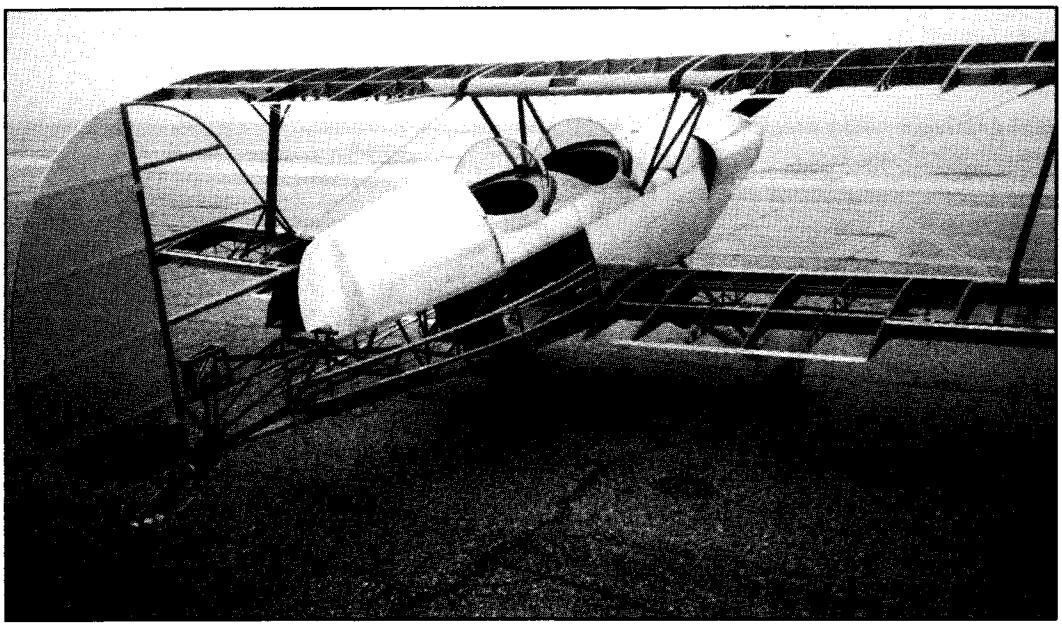
Monday April 10th

11:00 a.m. - in Homebuilders Headquarters on the field
Bob McQuirk, Moderator



Pober Jr. Ace Plans Addition

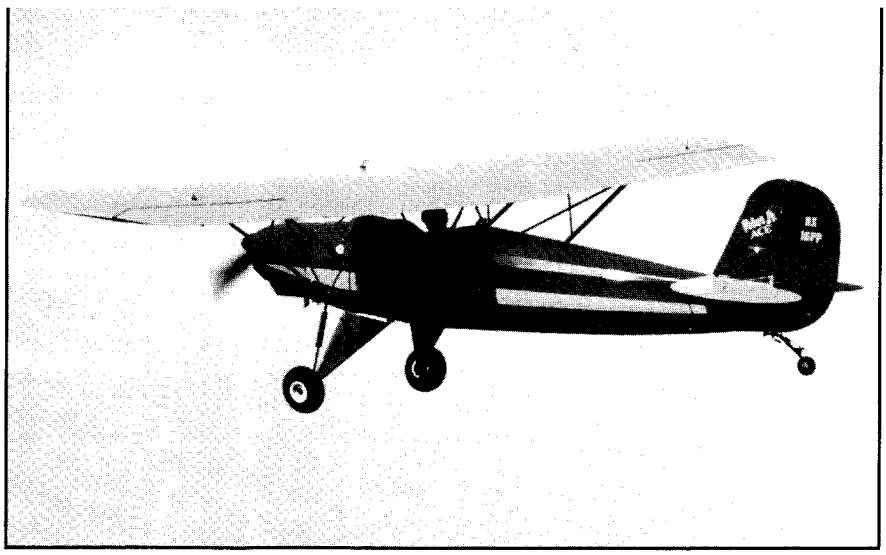
All purchasers of Pober Jr. Ace plans should contact Acro Sport, Inc. if they wish a copy of DUAL CONTROLS addition to plans.



Dan Reed's beautifully built Acro II with wings and flying wires installed to check for final fit prior to covering. Dan's aircraft is powered with a Lycoming 0-320-D3G producing 160 hp at 2700 rpm. Empty weight, uncovered, is 954 lbs.

Update From Paul

Paul H. Poberezny, EAA Chairman of the Board



Pober Junior Ace in its element — THE WILD BLUE YONDER!

Dear Bill

I thought I would take a moment to give you a report on the Super Pober Junior Ace. I call it the "Super" Junior ace only because I have a brand new, zero-time, 118 HP Lycoming engine that we are going to install on the airplane.

I have established a little volunteer workshop over in the EAA campground area where we have done some restoration previously on the Foundation's Curtiss Robin, PT-3, etc. I have found that there has been a lot of interest in building an airplane by some of the volunteers. We bought a bunch of tubing, spruce, etc. from Wicks, who were kind enough to give us a good price. We set up several wing rib jigs so that more than one person could work on ribs at a time. We are going to build ribs for two Junior Ace airplanes, although the second probably won't be started for awhile.

We just pulled the fuselage out of the jig. It is all tack welded, and I will do the final welding along with another volunteer. I had the fellows lay out the complete fuselage side jigs and the jig needed to install the two sides so that we can put in all the cross bracing. They have learned a lot about cutting tubing and how quickly you can waste a few dollars!

We are very pleased with the results thus far. We also have the elevator, rudder, horizontal stabilizer, and vertical fin fixtures. I will be making some improvements in the airplane, one being the installation of a frise-type aileron which will take some of the aileron pressure off the control stick. The prototype has the old style aileron and has the heaviness of the good old days of flying. I will install a trim tab which will work out good, and I think that we will add another fuel tank, ending up with two wing tanks. It will have an electrical system as well.

My PT-23 is coming along very well. I have my engine back, after a complete major overhaul. It sure doesn't come cheap when they send back a whole bunch of parts that were determined to be no good. When I got the airplane it only had 80 hours on the engine since major. As we both know, there is a great difference in standards in aircraft maintenance, overhauls, shops, etc. I hope to have the PT-23 flying by spring.

My Fokker Triplane is coming along slowly. A friend of mine is finishing up the engine cowl and then he is going to make an oil and fuel tank for me out of fiberglass. I have the horizontal stabilizer, rudder, and elevators on the airplane temporarily. They are covered and finished in silver, ready for final coat. All three wings are covered. The lower one is in the paint shop getting it ready for silver. I haven't decided on a paint scheme as yet. The engine is a 145 HP Warner.

I sincerely appreciate all the help that you are giving to the homebuilder and those that are building some of my designs.

The Acro Sport II Can Do It All!

Acro Sport IIs and their pilots Paul Muhle, Jim Piros, and John Willkomm competed successfully in IAC aerobatic contests during 1994 in Basic, Intermediate, and Advanced categories!

ACRO SPORT

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