ACRO SPORT Newsletter

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by Paul Poberezny

There has been quite a bit of interest in the Junior Ace. At the present time, (October '93), it has 25 hours on it, and has been flown by ten different pilots — all stated to me that they really like it. We have been flying it at Pioneer Airport, and this week again it should be seen in the traffic pattern.

I have received a number of calls and letters relative to the airplane. It has kind of amazed me since it seems that so many people have been wanting sleek and fast airplanes. During the Convention, a number of people sat in the airplane, and it was appreciated in particular by some of our friends who have found that getting into a cockpit of a Cub or some of the smaller homebuilts just doesn't work! The cockpit is 40" wide on the Junior Ace, and we have had two large fellows in it who found it reasonably comfortable.

The Continental 85 is a fine little engine for the airplane. The 125 HP Lycoming or O-200 Continental would be good choices as well. Stall appears to be around 40 MPH and

. . . continued on page 6

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Letters To The Editor

Dick Maulsby and Acro Sport I, Serial #3!

Dear Bill,

Man, you are asking me to reach way way back!

We got back from a 100-day RV trip to Alaska and back to find a huge mountain of mail, including your letter of the 16th of August. Don't know if I can be of much help, principally as I have no idea what the current drawings look like. My Acro Sport is serial number 3! When it was started in 1972, serial number 1 had not even been completed, and I started with sketches on two 8½ x 11" sheets of paper that Paul Poberezny gave me. Serial #2 was never built.

One procedure that helped me a lot had to do with laying out the fuselage plan on a piece of plywood, preparatory to welding. After I had laid out all of the tubing centerlines, prior to nailing blocks onto the plywood to make the jig to hold the tubing, I cut 5-6" long strips of ½" thick plexiglass, making the width of the strips about .001 to .002 narrower than the size of the 4130 steel tubing to be used. I then carefully scribed a centerline down what would be the bottom of each size strip. Normally, you'd nail your blocks to the plywood in order to hold the tubing for welding. By holding the plexiglass strip with it's scribed centerline directly over the centerline drawn on the plywood, then holding a wooden block on each side of the plexiglass guide, I could nail the blocks into place without having to run the risk of measurement errors. It saved a heck of a lot of time and was very accurate. By slightly undersizing the width of the plexiglass strips, the tubing could be forced between the nailed wooden blocks and really held securely. If this narration is unclear, let me know and I'll make a sample or send a sketch.

I told Paul Poberezny about this process, and he said the only trouble with it was that he hadn't thought of it!

As I said before, there must be many many changes that have been made to the original plans, therefore some of my remarks may not be valid. There was one bad feature on the original plans that had to do with the sheet aluminum on top of the fuselage between the windshield and the firewall. That should be made of two or three pieces so that you could remove a section to work on the backsides of the instruments, and so that you could remove that sheet without having to dismantle the flying wires holding the cabane struts and the upper wing center section in position. When N611Dm was being built, (1972-1977), I could slither into the cockpit on my back to work on the back of the instrument panel, and what's more, I could slither back out again. Now at age 74 that is not only difficult, it its IMPOSSIBLE!

"Numbers"? What "numbers"? When you fly your dream for the first time, you find the numbers. You write the book. I didn't skimp on weight. Did omit the smoke tank, but 611DM has a full electrical system and with the battery behind the seat, the weight distribution was right on the money the first time. Also have an inverted oil system and the power plant is an IO-320 Lycoming out of a Twin Comanche. With a 70x46 prop, cruise is about 115 MPH @ 2350. Stalls at 55.

There have been literally no changes to the airplane since it was finished. I have always done my annuals, but this last May, it was done by a qualified A&P. I felt that it was time a pair of more critical eyes did the job. Three things were pointed out — the control rod between the upper and lower ailerons showed a little rust; the rubber in the lord mounts of the engine was getting a little hard and checked; a brake line and a fuel line had to be tie-wrapped to prevent chafing. Not bad after all these years!

The Acro Sport is a wonderful airplane, and the experience of building it was marvelous. What more can I say?

Sincerely,
R.E. Maulsby
770 Spruce Brook Road
Southbury, CT 06488

Dear Bill,

I would definitely power my Acro II with something more than the 150 H.P. I put in mine — the performance just isn't there with a 150 H.P. I also would make all of the metal on the fuselage removable; some of mine is, but it would have been easy to make it all removable.

I would enlarge the access panels for the flying and landing wires to make ad-

justments easier; mine were not all in just the right locations. I'm not sure how clear the plans are on this. I also built two hand grabs into the top wing center section to make getting into the front cockpit easier.

The bungee cord shock system is not the best. The heaviest cords I could buy seem to weaken too soon, and I think I would use a different system. The sight gauge for gas is worthless and a better gauge could be utilized without all that tubing running around the cockpit area.

My aircraft would not stall clean, but would mush through the stall; and stall strips should be placed on the wings. I think EAA did this on their prototype. This also would make landings in three-point attitude easier. I had some difficulty in first adjusting to the extreme sensitivity of the controls. I think movement of any degree causes a violent reaction in pitch, up or down, and control should definitely be thought of as PRESSURE rather than movement. It is a docile airplane that is fun to fly, but it does take a little getting used to as far as control pressure is concerned.

Maybe this will help you guys still building!

Best of luck,
Bud Gore
333 So. Oakland Ave.
Burlington, WI 53105

The 1993 Oshkosh Reserve Grand Champion Acro Sport II and its builders, Paul and Sandy Muhle, Jessica, and Angela! Route 5, Box 236, Richland, NE 68601-8958.

TIPS FROM THE VOICE OF EXPERIENCE!

Dear Ben,

For your interest I have enclosed a recent photo of my aircraft.

Acro Sport II #937, (all new materials) 1992
Construction time: 2.5 years
Empty Weight: 1204 lbs.
Max Weight: 1918 lbs.
Total Time To Date: 165 hours
Fuel: 36 gal.
Engine: IO360A1A
Prop: Hartzell Aerostatic
Speed: 124 knots at 24/24
Comm, Xpndr, Enc, GPS, Intercomm

Paul Brooks
98 Monsarrat Crs.
London, Ontario
(519) 452-5474

Paul Brooks' beautiful Acro Sport II, C-FLSE.

Dear Bill,

Thank you very much for your letter of August 16, 1993. I wish that I could report to you that I am still flying my Acro Sport, but such is not the case. I retired seven years ago this summer, and one year after I sold the plane. So it has been six years since I last flew it, and all I can do is dream of flying that beautiful aircraft. We lived in Saskatchewan when I owned the plane, and we moved to B.C. two weeks after I sold it. The new owner flies it very little, and I doubt very much if he could add any information to what I have written in my previous articles in the Acro Sport Newsletter.

I accumulated 450 hours of flying time in my Acro Sport and had only two problems I considered of a serious nature. First let me tell you that a good many of those 450 hours were doing aerobatics, and I suspect this was part of the cause of these two problems. A motor mount bolt broke in one of the pad mounts for the Lycoming O-320 A2B. During a pre-flight ground run-up of the engine, I detected an unusual knock coming from the engine compartment. I immediately shut down the engine and pulled the prop through by hand. There was nothing to indicate that I had an engine problem. I grasped the prop on each side of the spinner and gave it a heave upward and sure enough, there was excessive movement to the whole engine. I soon found the broken bolt and installed four new ones. I had no bolt problem after that, and I strongly recommend that an engine with a dynafocal mount be used if you are going to be doing aerobatics. I was pulling a maximum of 5.5 G's.

The second problem was a leaking gas tank. The original tank supplied by Wag Aero seemed to be made of too thin material for the size of it. It developed some cracks in the back side of the tank, and it was a constant headache trying to patch it up from the inside of the plane. The tank was removed and aluminum patches were welded over the cracks. More cracks developed so the tank was removed and a new one made up by a different source was installed. This ended my gas tank problem.

You asked me to give some tips on flying the Acro Sport for the first time. Make sure that you have done a proper weight and balance calculation, and make any needed adjustment. Do a fuel flow test on the fuel system and see that the tank is properly vented. A friend of mine who built a Mustang II had a

forced landing because his tank did not have the hole drilled out where the vent fitting was welded to the tank. This of course resulted in fuel starvation in flight. Fortunately, he landed on a road OK, and no damage was done to his plane.

Before your first flight I strongly recommend that you get a check-out in a tail dragger if you have not done so. Choose a day that has a forecast for light winds, and make that first flight early in the morning. You don't want to be fighting turbulence at this time in your life! Wind gusts could also play tricks on your first landing. A slight breeze blowing straight down the runway is desirable; this reduces your ground speed and shortens your landing roll. I would assume that you have done a thorough preflight check and an engine run up. Make sure that your engine will have the rated maximum static RPM at full throttle. This will tell you that you have the right propeller installed.

Once you have decided all is in readiness, line up with the centre of the runway, and GO! Don't forget to set the trim control to the neutral position, as unnecessary stick forces are not wanted at this time. I believe that in a previous article of mine in the Acro Sport Newsletter, I went into considerable detail on how I made my first flight. Refer to that article if you have access to it, (N.L. #4).

On my first test flight I eased the stick slightly forward on the take-off roll to get the tail wheel off the ground. By that time I had plenty of rudder control, and at about 62 MPH I eased the stick back slightly and I was airborne. I set up a full throttle climb speed of about 80 MPH and the rate of climb was near 2000 FPM. Climb to about 3000 feet and stay within gliding distance of your strip. It's nice to know that if you have an engine problem, you can return to the downwind end of the strip and glide in if necessary.

Once aloft and leveled off, monitor all your gauges to see that all temperatures and pressures are within range. Be aware of any change in the normal vibration of the airplane. Now you can go ahead and try some shallow turns so that you get a true sense of the control input pressures. Next try some stalls both power-off and power-on to establish the stall speed for your airplane. A half hour or so is long enough for your first flight, so return to land.

About 25-30 MPH above stall would be a good approach speed. Remember, you will lose sight of the horizon over the nose when you round out for a three point landing. Use your peripheral vision, left and right, to keep the plane going straight down the runway. Side slipping on approach is another option. Pull the stick back smoothly and progressively until you touch down in a three point attitude. Congratulations! You made it! Now open the cowls and check for any oil leaks and anything that may have shaken loose. Do a very intensive pre-flight check before your next flight.

Here are a couple more problems that I neglected to mention. On that first flight the aileron interconnect struts had some flutter, and this became a bit scary. I found that taping about an eight inch piece of small welding rod to one side of the strut stopped the flutter. The fiberglass wheel pants I purchased were made of very thin material, and it wasn't long before cracks developed from the attach points downward. I tried relining them on the inside with fiberglass, but still the cracking persisted. The answer to this problem was to pop rivet aluminum patches on the inside at the attach point areas on both sides. The dope on the landing gear legs cracked badly, so I made aluminum covers for them. Please refer to photos in one of my previous articles showing how this was done.

Thanks again for your letter Bill, it did me good to reminisce about my Acro Sport. I hope this information will be of some help to you and other Acro Sport builders. Please bear in mind that this is the way that I did it, and everything worked out well for me. You and other builders will be strictly on your own! What I have said is meant to be a guideline only. Best regards and happy landings.

Sincerely,
Archie McDonald
184-32691 Garibaldi Dr.
RR 10
Abbotsford, B.C. Canada
V2S 6W8

EDITORIAL

by Bill Berrick

My Acro Sport I continues to be a joy and a thrill after about 125 hours of flying time. It is a stable airplane and easy to fly, but every flight has its share of adventure! The time between flair and touchdown when forward visibility is non-existent will probably always have a moment of exhilaration for me! A similar non-view at the start of the take-off roll is short enough to be almost non-existent because I get the tail up as soon as the throttle goes forward in order to see the runway. I rotate at about 60 and climb out at 90 to 100 MPH.

I fly formation with a pair of beautiful Swifts and a North American T6 to flight breakfasts during the summer season. The mix of airplanes must be a sight for sore eyes "on the break," but it surely is a fun way to get a "free" stack of pancakes. Otherwise, my flying consists mostly of practicing the Sportsman's sequence of aerobatic maneuvers. Believe me, this is a sport that will continue to challenge the pilot; there will always be room for improvement!

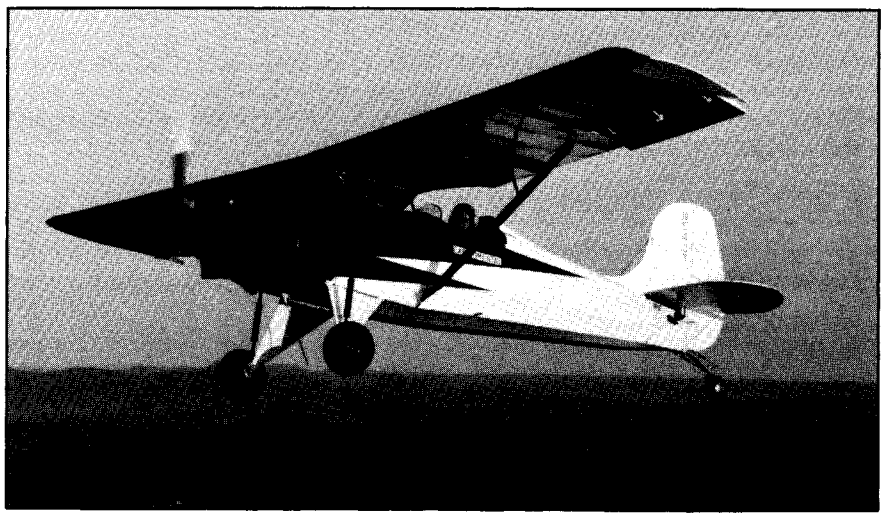
I try to use a three point touchdown for all of my landings. Before my initial flights, I talked to a lot of my friends about their landing techniques for tail draggers. This panel of experts, mostly Pitts drivers, seemed about evenly divided between all wheel landings, all three point, and mostly three point, but wheel landings for cross winds. This division of opinion was not too helpful for this fledgling Acro Sport pilot, but I settled on the advice of Olie Pash. He is the dean of aerobatic pilots in this part of the country where he puts on spectacular shows in his S1 Pitts. He was also my aerobatic instructor in a Citabria, and is a manufacturer of spades for those airplanes.

Olie observes that when the tail dragger slows to a stall on landing there will be an instant of helpless uncontrollability. This can be at the moment of touchdown in a three point landing, or when the tail drops to the runway after a wheel landing. He says it is really nice to have most of the runway still out in front when this happens, to give you plenty of room to get things headed the right direction. Sounds like a good plan to me.

Rand Williams asked about wingtips for the Acro Sports — they are available from Rattray Aero Products Co., 2357 Afton Road, Beloit, WI 53511. Phone 608-362-4611. Rand also asked about pre-formed aileron well covers and leading edges; if any of you know of a source, please let me know.

POBER SUPER ACE

by J.J. Tomlinson
106 W. Mead
Lebanon, TN 37087



Pober Super Ace take-off is so short that it scares you! — J. J. Tomlinson

Just received your latest newsletter and enjoy getting it. Let me thank you for your support of EAA projects. Not many members ever know just how much you and your company contribute. Ray must be a good example for you. Thanks.

Now let me crow a little. Here is a picture of one of my latest projects — a Corben (Pober) Super Ace. Possibly a first in that it is powered by a Lycoming O-235-C1 engine. Take-off is so short that it scares you! Handling is so easy that anyone can fly it, and many chapter members have. Of course, as much as possible came from your company, so thanks to all your people. I feel that each of them is a real friend, ready to help me and just a phone call away.

Besides the Ace and a Tailwind, I try to rebuild two or three classics each year with a Decathlon thrown in now and then.

Our Chapter 863 of Lebanon, TN is only 5½ years old, and has grown to around 60 members. The number of member-owned aircraft has also grown at a rapid pace. Our fourth annual fly-in was a huge success with about 52 aircraft registered; some didn't bother. Trophy winners were: an immaculate T-34, a Staggerwing Beech, and RV-4, a 1939 Aeronca TL, and one of the most beautiful Swifts you've ever seen.

Reprinted from Alexander Aeroplane News

Exhilaration, pride, and sheer joy of the freedom of flight — Doug Hagerman.

Dear Paul,

Well, yesterday was another red letter day for me when I flew my Pixie N7035M for the first time! Many thoughts passed through my mind as she lifted off. I would like to share them with you.

As we gained altitude, I reminisced back to the 70's when I first flew my first airplane project, a GN-1 Pietenpol. The same exhilaration, pride, and sheer joy of the freedom of flight swept through me once again! There's nothing like it in the world! Once again, I owe all of this to you and the EAA for making it all possible.

The Pixie flew like an eagle, so easy, and felt very solid. She has an 1835 cc VW engine, and I think it will be great. I'm going to send Ben some pictures and a complete write up of the construction and performance data a little later. The more I fly it, the more I'm impressed with how easy it handles. I don't think people appreciate the design; seems like there should be hundreds of them flying! If anyone wants to know how great it flies, tell them to write to me.

Thanks Paul for the many years of fulfilling experiences building and flying my three homebuilts! (GN Pietenpol, Sonerai 2L, and Pober Pixie).

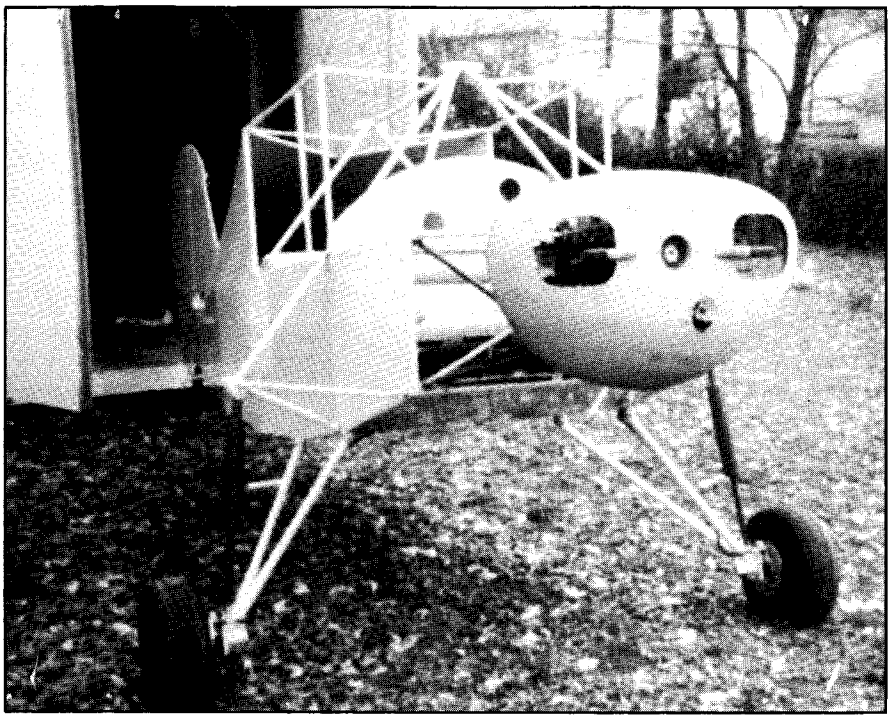
Most Sincerely,
Doug Hagerman
6 St. Helen's Lane
Chico, CA 95926

Dear Bill,

Enclosed is a photo of my (Pober) Corben Jr. Ace with Corvair engine and full electrical system including Subaru starter. Wing ribs are done; plan to assemble wings this winter.

Also another experience with automotive distributors: there are three bushings in most auto distributors; the main shaft, the mechanical advance portion on top with the breaker point lobes, and the vacuum advance plate the points are attached to. All three bushings were worn enough to add up to sufficient clearance to allow the points to remain closed! The three clearances added up to more than the point gap! RESULT = TOTAL IGNITION FAILURE in spite of dual selection ignition coils. Don't chance junkyard units! Only use new and/or racing quality units. Note: this was discovered during static ground runs.

Sincerely,
Lee H. Thomas
Technical Counselor/A&P
EAA Chapter 240
29 Stevens Ave.
New Castle, DE 19720
(302) 322-8162

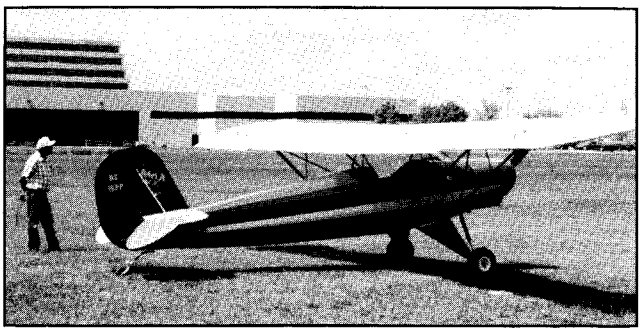


Lee Thomas' Corvair powered Pober Junior Ace.

POBER JUNIOR ACE . . . *from page 1*

cruise speed is averaging about 85 MPH. The wing loading is around six pounds per square foot, and I would say its landing and takeoff rolls are comparable to a Cub, or maybe a little shorter. The wing span is 34 feet.

The spring gear coil springs as shock struts really work out nicely and give it a very soft ride — much like the Fairchild 24. The drawings for the Pober Junior Ace by Bill Blake are now available. I sold the design rights to Acro Sport Inc. as is my custom. I have stayed away from any profit making ventures or businesses while involved with EAA. Though I am retired, it is very difficult for people to separate my activities from EAA.



WEIGHT AND BALANCE REPORT

LICENSE NO. _____ MODEL Pober Junior Ace SERIAL NO. One

PREPARED BY G. Putzer

LICENSE NO. NX16PP

DATE 6-8-93 DATUM LINE Front face of prop (as per Ben Owen)

LOCATION MAIN WHEELS 51" DISTANCE C.L. WHEELS TO NOSE
Leading Edge of Wing 49-3/8" TAIL WHEEL 230"

Aircraft weighted with oil in tank 1 Gal. gallons at 20"

LEVELING MEANS Top cockpit longerons - bar top of seat back

REACTION	GROSS	TARE	NET
Left Wheel	351	0	351
Right Wheel	342	0	342
*~~Nose~~ Tail Wheel	70	8	62
		Total	755

C.G. LOCATION AFT OF DATUM = 65.7 Moment 49603

REMOVAL OF OIL

	WEIGHT	ARM	MOMENT
As weighed			
Oil			
Empty Weight			

EMPTY WEIGHT C.G. = _____

INVESTIGATION OF CRITICAL C.G. MOVEMENT

ITEM	Most Forward C.G. WEIGHT	ARM	MOMENT	Most Rearward C.G. WEIGHT	ARM	MOMENT
Airplane as weighed	755	65.7	49603	755	65.7	49603
Pilot	170	82.5	14025	170	82.5	14025
Passengers		82.5		170	82.5	14025
Oil		20.0			20.0	
Fuel 8 gallons min.	48	79.75	3828	15 gal 90	79.75	7177.5
Baggage		98.5			98.5	
Others - Aux. Fuel Tank						
	973	69.32	67456			

TOTAL APPROVED C.G. LIMITS ARE _____ AND _____

THE USEFUL LOAD = Approved Gross Wt. (1333) - Empty Wt. (755) = Normal Category
( ) = ~~Utility Category~~

* Strike out work not applicable

POBER JUNIOR ACE PLANS

Two Place Side-by-Side, Open Cockpit 34 foot Span
Drawings by Bill Blake

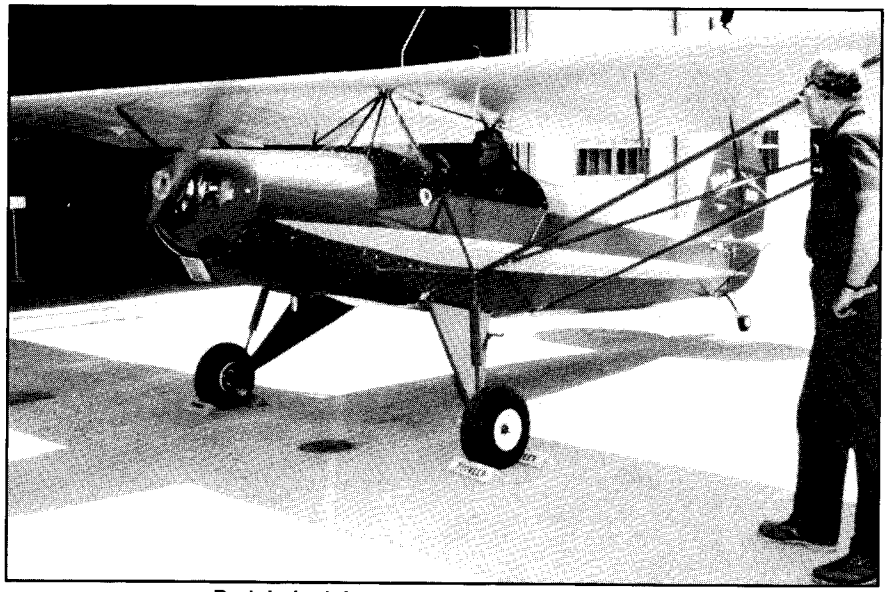
$125.00
$4.50 postage

ACRO SPORT, Inc.
P.O. Box 462 Hales Corners, WI 53130 Phone 414-529-2609

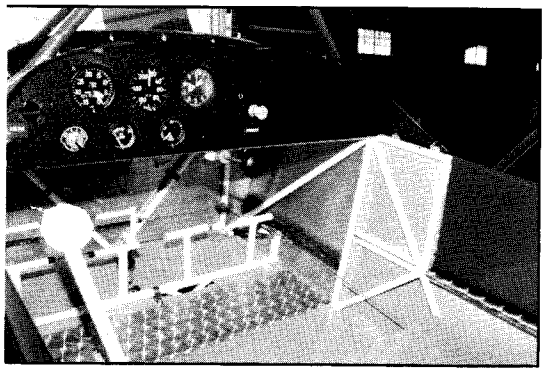
Purchasers of yellow cover Corbin Junior Ace plans received some modifications, but they will get cards from Acro Sport, Inc. entitling them to the new Pober Junior plans. If you haven't received the card, please send your current address to Acro Sport, Inc.

POBER JUNIOR ACE

"N" Number:	Prototype - NX16PP
Span:	33' 11½"
Length:	20' 1½"
Height:	7' 4"
Tread:	86½"
Cord:	60", Clark Y
Empty Weight:	755 lbs.
Gross Weight:	1313 lbs.
Fuel:	12 gals. - 78 lbs.
Oil:	5 qts. - 35 lbs.
Pilot & Pssgr:	425 lbs.
Baggage:	20 lbs.
Engine:	Prototype - Continental C-85-8 Recommend: 65 to 125 hp
Brakes:	Cleveland
Wheels:	6:00 x 6
Tailwheel:	Scott, steerable
Fuselage:	Steel tubing
Tailgroup:	Steel tubing
Wing, Spars & Ribs:	Spruce
Covering:	Stits process
Non-Aerobatic	
Cruise:	85 mph
Stall:	40 mph
Max. Dive:	120 mph



Bud Judy doing run-up on Pober Junior Ace.



Above — Plenty of room in the 40 inch wide cockpit. Below — What could be finer!

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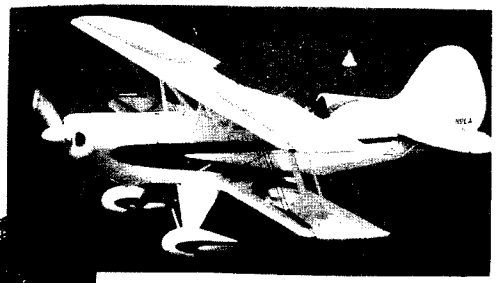
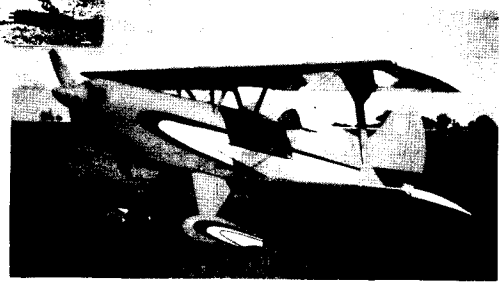
ACRO SPORT II KITS



POBER PIXIE BASIC KITS

ACRO SPORT KITS



FOR MORE DETAILED INFORMATION PLEASE CONTACT..

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AUTHORIZED ACRO SPORT DEALERS

As reported in the September 1992 issue of SPORT AVIATION, Alexander Aeroplane Company, P.O. Box 909, Griffin, GA 30224 (1/800/358-5228) and Wicks Aircraft Supply, 410 Pine St., Highland, IL 62249 (1/800/221-9425) are authorized suppliers and dealers for materials and supplies for Acro Sport aircraft. When ordering, state the type of aircraft materials needed — Acro Sport I or II, Pober Pixie, Pober Super Ace, Pober Jr. Ace and Nesmith Cougar I.

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