September 1982

ACRO SPORT NEWSLETTER

Editor: Ben Owen

ISSUE 1

Getting enough interest among builders of a particular aircraft has always been a difficult task. We desire information but sometimes it seems easier to raise the phone and call someone to answer a question rather than make known one's interest in a letter.

Here we have the opportunity to increase our knowledge through a form of communication that hopefully will grow — our newsletter to 55 builders of the Acro Sports or Pixie. An earlier attempt at putting out a newsletter drew very little response from the great number of plan holders. Possibly many of them did not observe the notice in *SPORT AVIATION*.

We will give it our best shot and hope that we can bring enough of our plans holders together. With this newsletter questions regarding modifications, alternate powerplant installations, etc. can be answered and tips on building can be shared.

The prototype Acro Sport I, Super Acro, the Acro II two place and Pober Pixie were developed on an "as is" basis. However, many builders do seek modifications in landing gear, powerplants and often times in structure.

The first time builder has many questions on reading the drawings, while the experienced builder can take a much less detailed drawing or even rough sketches and do very well. I can well appreciate the problems of the first and second time builder. I have spent many nights in bed thinking about how to solve a problem in building my first two aircraft, without drawings or the experience to lead the way. It took a lot of imagination, looking over other aircraft and available manuals.

We would like to have the names and addresses of builders of the various aircraft such as Pixies, Acro I and II's so that an interrelationship can be established — especially for those who have modified their aircraft from the original drawings. For example, we tried to make the Acro II as light as possible. Using the Lycoming 180 hp, the prototype came out at 879 lbs. empty and flies very well. We put minimum instruments in the rear cockpit, no electrical systems, no battery, radio, starter, upholstery, etc. When these extras are added, as on any light aircraft, performance changes as well as weight and balance.

We will try and do our best to help all of you — the 55 at this time who have been willing to share the printing and postage costs.

We will grow — Paul Poberezny

PROJECT SCHOOLFLIGHT

The Acro Sport and Pixie series of aircraft are the outgrowth of Paul H. Poberezny's interest in aviation education. His plan to promote aviation education was begun before he founded EAA in 1953. Since that time, the EAA Aviation Foundation Project Schoolflight has been able to help get over 500 aircraft started in the schools.

The original drawings of the Acro Sport I were detailed more than normally. This work was done to insure that schools would find it easy to build the aircraft. Later on the Pixie and Acro Sport II plans were also detailed to a similar standard.

The great effort extended in the construction of the original prototypes at the EAA Aviation Foundation and the accurate representation on the plans did make it easier for both you, the individual builder, and the many students who have worked on the aircraft. At this time, the Foundation mechanics are building an Acro Sport II powered by a Lycoming O-235 engine. Due to our involvement with the school program, we have extended great amounts of time and effort to insure that corrections are made and passed on to the builder.

No set of plans ever drawn was perfect. We will continue to pursue our goals of zero errors and as good a set of drawings as can be found. We would appreciate your assistance on any corrections — please notify us of any plans errors. What we would like you to do is pass on any corrections and suggestions for improvements of the plans to us. We will use these to insure that future builders and school programs can be more successful and also find it takes less time to complete their aircraft. We ask your support so the process of aviation education involved in both individuals building aircraft and schools can succeed. Working together we can meet our goals.

The first plans built Acro Sport I flown was a Schoolflight built aircraft, built by students of Ron Alexander's, Central Okanagan High School, Kelowna, British Columbia, Canada. The aircraft was started in August 1973, and flew on June 25, 1975.

We have given away hundreds of sets of Acro Sport plans of all types to schools and youth clubs. Many more have been sold at reduced rates. This program was initiated with the EAA Biplane and thousands of sets of the EAA Biplane were distributed to the schools free of charge. Some of the schools building our aircraft include:

ACRO SPORT II

Messmer High School, Milwaukee, WI
Colorado Northwestern College, Rangley, UT
Como High School, St. Paul, MN
Brown County High School, Sterling, IL
Explorer Post 2145, Deseret, UT
Parchment High School, Parchment, MI
Mundelien High School, Mundelien, IL
Kelley Secondary School, Prince George, British Columbia, Canada

POBER PIXIE

Explorer Post 504, Livermore, CA

ACRO SPORT I

Wisconsin State Reformatory, Green Bay, WI
Gavilan College, Gilroy, CA
Reedley College, Reedley, CA
George Baker Aviation School, Miami, FL
Tulsa Voc. Tech., Tulsa, OK
Ranier Beach High School, Seattle, WA
State College, State College, MS
Spring Lake High School, Spring Lake, MI
Mosley High School, Panama City, FL
North Valley Occupational, Los Angeles, CA
LDS Church, Eugene, OR
Kempsville Jr. High School, Virginia Beach, VA
Tri State College, Angola, IN
Sheridan High School, Sheridan, WY
Pinellas Voc. Tech., Clearwater, FL
LaFollett High School, Madison, WI
Spartan School, Tulsa, OK
Ash Fork High School, Ash Fork, WI
Pekin Vocational, Pekin, IL
Tech High School, Omaha, NE
Huntsville Vocational, Huntsville, AL
Parchment High School, Parchment, MI
Layton High School, Hill A.F.B., Utah

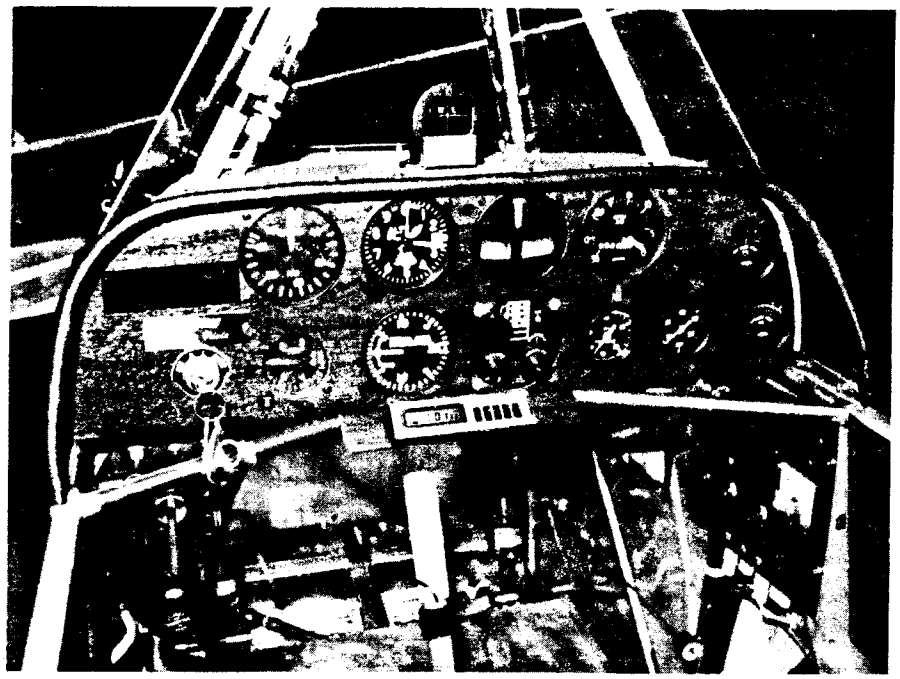
The same advantages and enjoyments you find in building your aircraft are truly multiplied in Project Schoolflight. We know that our program has reached in excess of 20,000 students. Working with hand and mind, students are able to build an amateur built aircraft. If it motivates and excites you to build your own airplane — can you imagine what students feel? For instance, what would you have given to have had the opportunity to work on an airplane in school when you were young? I know what it would have meant to me!

Ben Owen, Editor
The Acro Sport Newsletter
P. O. Box 229
Hales Corners, WI 53130

Make checks payable to Acro Sport, Inc. $10.00 paid subscription for four issues per year.

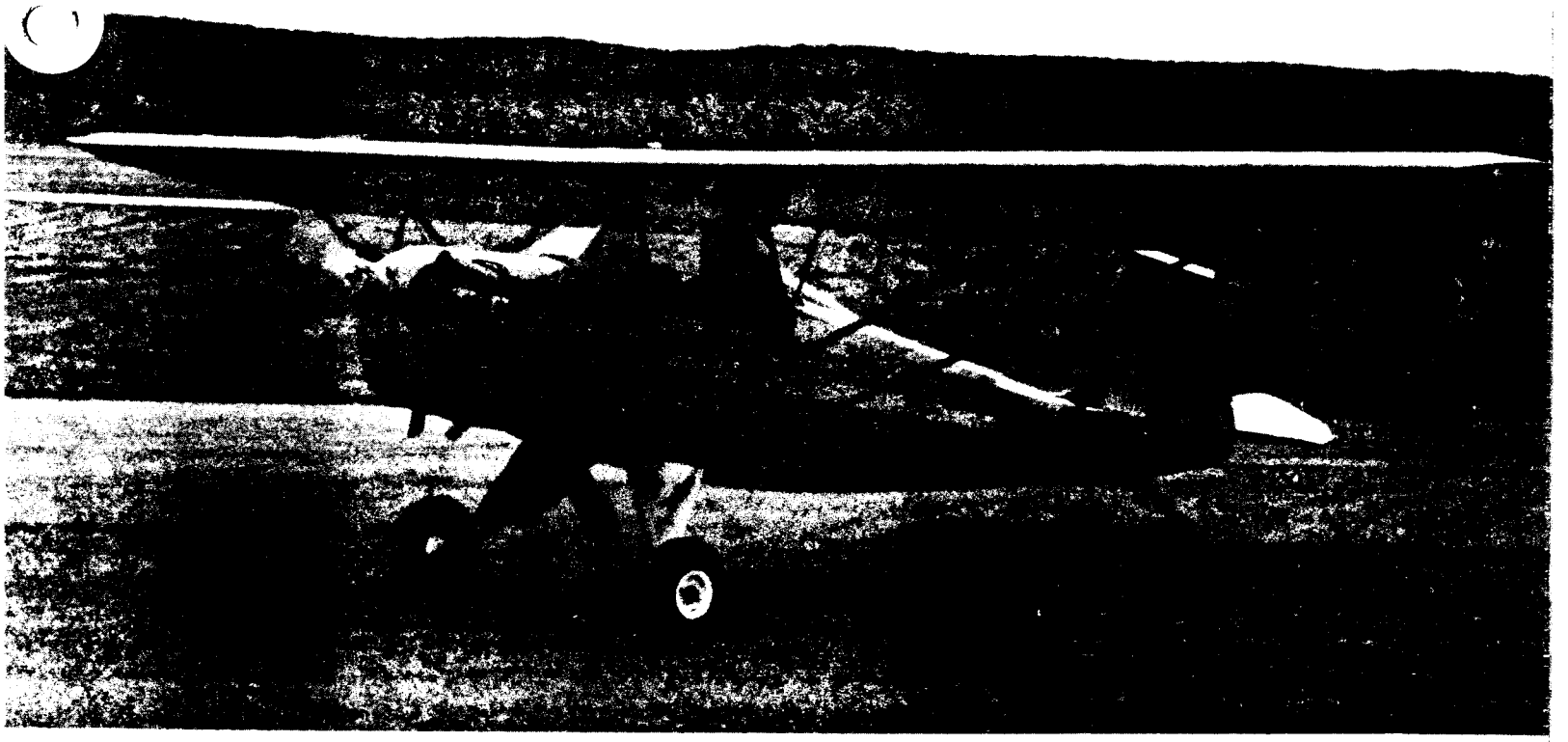
Articles and black and white photographs are actively solicited. A sincere "THANK YOU" for those who have contributed to our newsletter.

JOHN LEITUS' POBER PIXIE



Details of the instrument panel and windshield area — John Leitus's Pixie.

Roaring Spring, Pennsylvania Airport is about 1200' MSL. Initial rate of climb is about 800 fpm at this field, with a Continental A-75-8 engine. The propeller is a Sensenich 75/72. The wheels are 6.00 x 6". Empty weight is 620 lbs. and normal flying weight is 924 lbs.

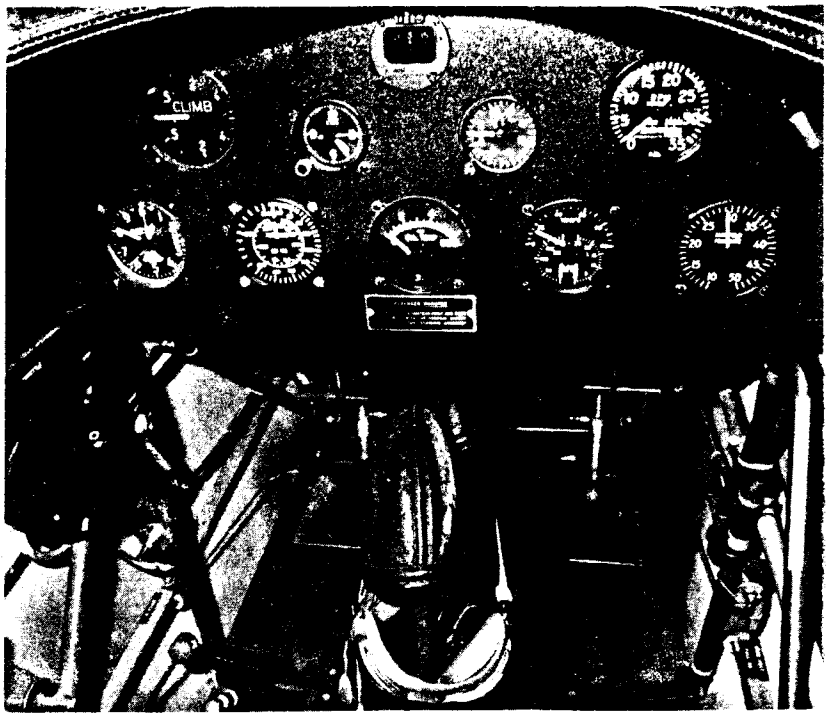


John Leitus of 817 Roosevelt Avenue. Roaring Springs. Pennsylvania 16673. has been flying his Pober Pixie since November 2. 1980. He says the aircraft is a "beautiful flying aircraft". The cruise on this aircraft is approximately 93 IAS with 2150 rpm at 2500' of altitude. MSL. At 2300 rpm you can get over 100 mph cruise.

FACTS AND INFORMATION
Pober Pixie

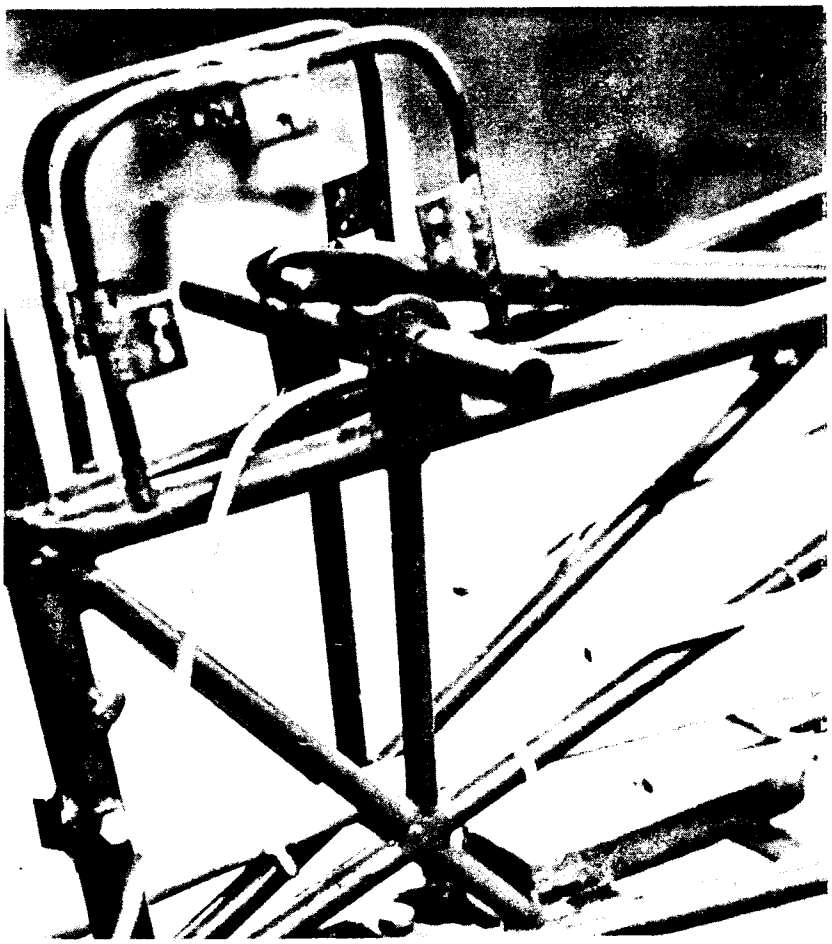
1. The Pober Pixie utilized the "Clark Y" airfoil. This airfoil will tolerate an aft C.G.
2. Quite a few Pixies have been built with aircraft engines like the A-65. For an engine mount for these you will have to do your own design work. For instance, on our Volkswagen Pixie the tube being used is .035" x 5/8". The Acro Sport I uses .058" x 3/4" tubing for the various engines that power it.
3. The Pixie aileron hinge angle is 22° down from horizontal.
4. The cowl on the prototype was supplied by Rattray Aircraft Parts, 2357 Afton Road, Beloit, Wisconsin 53511. Telephone (608) 362-4611.
5. The Pixie was designed to a positive 3.5 volt "G" yield factor and a negative 1.52 "G" factor. However, these factors only apply at the recommended gross weight for the aircraft. The aircraft is actually non-aerobatic. It can do stalls, "lazy 8's", chandelles, and steep banks up to 60°.
8. Propellers used on the prototype include:

Propeller Maker	Diameter & Pitch	Engine	Comments
Ladd Custom	53 x 24	Monnett Volks.	good
Hoffman	59 x unknown	Limbach 1700 EA	poorer than above
Sensenich	54 x 30	Limbach 1700 EA	equal to Ladd



Acro Sport I instrument panel — NIAC June 1972.

9. The wheels on the Pixie are of the 5.00-5 style. The McCreary wheel had a radius of 6½" and a width of 6½". The Goodyear wheel has a radius of 6¾" and a width of 6¾". There is a difference between parts and their fit to the axles and pants. For this reason, it is very important to tack weld the axle components in place first, fit the wheels, and then final weld. The same applies to the wheel pants.
10. The windshield used on the Pixie is the same as the Acro Sport I. (A cut down Miller canopy, see Acro I Questions and Answers.)
11. This aircraft is one of the slowest landing regular aircraft for which plans are sold. It has a stall speed of approximately 30 mph. Only ultralights like the Sorrell Guppy, which stalls at about 29 mph and ultralight aircraft land slower.
12. NASAD has given its O.K. for both the Pixie and the Acro Sport I.
13. Control travels is as follows:
    Rudder 32° right — 32° left
    Aileron 22° up — 22° down
    Elevator 30° up — 30° down.
14. Plate nuts used various places on the Pixie are of the MK1000 or the K2000-3 variety. Rivnuts can be substituted.
15. On the ribs, you can use cement coated nails, Monel staples, or regular shop staples. We use the smallest industrial stapler gun that Sears sells. A supplier of cement coated nails is Trimmcraft Aero, Francis Dahlman, 6254 Highway 36, Burlington, Wisconsin 53105. Telephone (414) 763-3036.
16. Among components that should be tack welded and checked before final weld are: the landing gear, wing cabanes and "I" struts.
17. Any set of aircraft plans ever drawn has had changes. This is also true of the Pixie. If you do not have the recommended changes to the plans, I suggest you write for them.

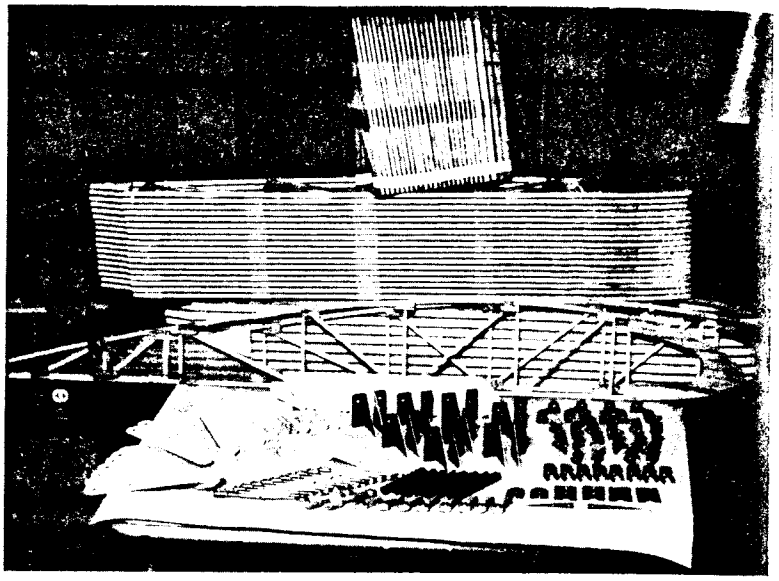


Acro Sport I — NIAC November 1971. Showing: Elevator push rod, tail post, tail spring, tail weight and support breather tube, horizontal stabilizer support, inspection plate support, etc.

John has a lot of time in Citabrias and says the aircraft handles very much like the Citabrias with a slightly improved roll rate. It takes off from 30-40 mph. He flies most approaches at 50 mph indicated. The sink rate, power off, is about 350' a minute. It has a very short landing and take-off roll.

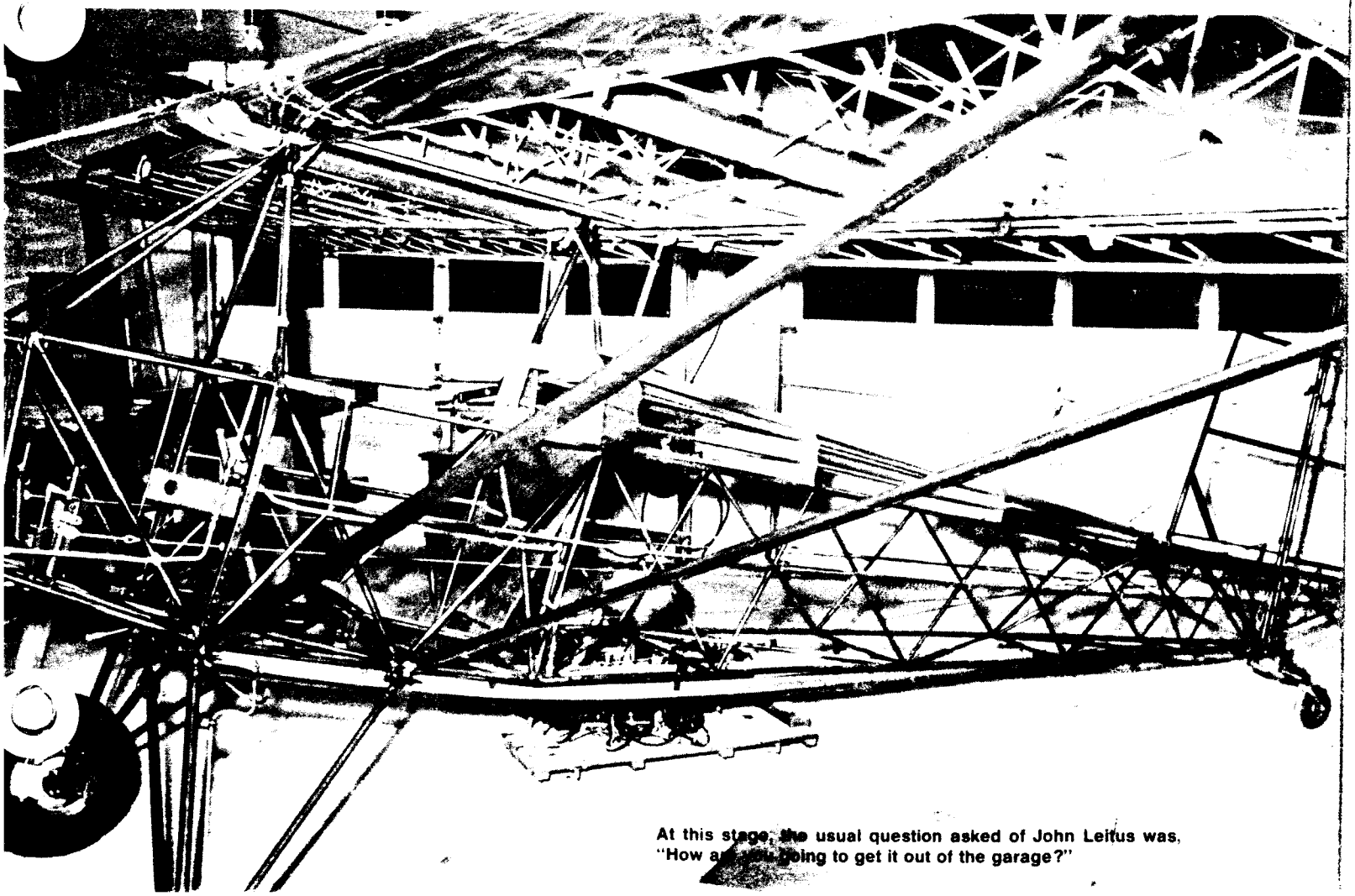
He used a J-3 Cub Cowl. Fuel consumption is about 4.4 gallons an hour. The ailerons are the most sensitive control. He says both longitudinal and yaw stability are excellent but when the wings are displaced from level, they won't come back unless you fly them back with ailerons. He says he cannot pick up a wing with the rudder. He was having slight buffeting in the rudder pedals, but he says it may be due to his windshield, which is shaped somewhat similar to a PT-19 and uses the front cabanes for support. Like the Citabrias, the aircraft starts to feel somewhat softer in flight around 60 mph. He built it exactly to the plans with the exception of the engine, wheels, and cowling. He further states that the balance point is about 1" more forward than our original, but the airplane feels slightly tail heavy to him. His engine mounting length is 6¾". The empty weight on the tail is 29.5 lbs. with the oil in the engine. He does have a communications radio and the battery is located in the baggage compartment area. The paint finish is Randolph dope and lacquer.

There is a trim tab on the elevator control from the cockpit. Side slips and forward slips are excellent, the aircraft is stable in turbulent air. Crosswind control and performance is reported as excellent. It is a very good STOL aircraft. Wheel landing and take-off roll — control excellent. Three point landing roll out — not that good. (Soft single leaf tail wheel spring may have something to do with that.)



Near the start of his project with about 17 months yet to go. John's Pixie ribs.

He reports the construction plans are of top quality. He derives great pleasure in owning and flying his Pixie and the construction time was most enjoyable. In a telephone conversation with EAA Headquarters earlier he states that "it flies beautiful" and he wants to thank Paul and all those who were responsible for developing the airplane. In a newspaper article on his airplane, he reports that the time spent on the Pixie was "the most enjoyable thing he's ever done". John is an active member of EAA Chapter 400.



At this stage, the usual question asked of John Leitus was, "How are you going to get it out of the garage?"

FACTS AND INFORMATION
Acro Sport I

1. On sheet 8.01 of the Acro Sport plans there are three engine mounts depicted. If modifying your Acro Sport with an electrical system, use as short a mount as practical to allow you to service the magnetos, etc. Most Acro Sports with electrical installations have a forward C.G. The aircraft was designed to be light and not have an electrical system. With a forward C.G. the aircraft can do aerobatics (within its listed gross weight) but aerobatics are best performed in a lightweight aircraft, unmodified, without the addition of an electrical system.
2. All Acro Sport I plans owners should have changes and corrections that include a brace to the stabilizer leading edge. This brace is a mandatory change for any aircraft.
3. There has been some question concerning the sandblasting of tubing. If you do have mild rust on your tubing prior to priming it, use very fine steel wool. Most sandblasters are too harsh.
4. The axle plugs that support the wheel pants are not held rigidly in place.
5. Dacron is a DuPont trade name for a polyester cloth. Aircraft grade Dacron is also known as griege Dacron as it is unshrunk and not run over the hot rollers after fabrication. This is so it can be shrunk by the iron after gluing it to the structure. Dacron sold in fabric stores is usually preshrunk. Nitrate dope adheres to Dacron better than butyrate dope. However, nitrate is more flammable. For this reason, a good lightweight finish for Dacron would include one coat of "foolproofer" or other fungicide. Follow this with two cross coats of nitrate brushed on. Following this, two clear coats of butyrate dope, one at 90° to the other. Light sanding should follow. After this, spray on two coats of silver, one cross applied to the other and follow this with two coats of color.
6. Acro Sport I aerobatic entry speeds are: loop 135, snap roll 120 and roll off the top of the loop 135 mph. These apply to the prototype aircraft.
7. The Acro Sport I has a yield of positive "6G" and negative yield is minus "3G". This is similar to the Pitts Special and other aerobatic aircraft. However, this G loading only applies when the aircraft is flown below the 1178 lbs. gross weight. If you are going to fly your aircraft at higher gross weight, do not fly aerobatics.
8. An important change to the Acro Sport I plan was the increase of the size of the front gear leg tubing from .049" wall to .120" wall thickness. Wag Aero supplied some kits with the .065" front wall and a .065" rear leg. These have proved acceptable in service.
9. So far, we know of only Acro Sport I that has been flown in acrobatic competition. This was by Paul H. Poberezny in the 1976 IAC Sportsman Contest at Fond du Lac, with very limited practice. Paul finished 14th out of 35 entries. We would be interested of hearing any other Acro Sports that have been flown in IAC competition. Many air shows have been flown in IAC competition. Many air shows have been flown in the prototype N5AC Super Acro Sport by various pilots.
10. Bob Davis has been flying the Super Acro Sport at the EAA Burlington facilities. Bob has extensive experience in aerobatic competition and air show work. His comments regarding the Acro Sport can also be applied to any aerobatic aircraft. First, he says he doesn't want to get it too heavy. This includes eliminating such things as super paint jobs, heavy upholstery, floor boards, large smoke oil tanks, etc. If you want to build a sport plane with full electrical battery, upholstery, etc., then you should be satisfied with aerobatic performances that are not quite the best. If you want an aerobatic aircraft, it would be better to build the aircraft as light as possible. Bob has been experimenting with "spades" on the aileron and reports a significant improvement in roll rate. They have been flown on the aircraft approximately 25 hours. At this time, we have no plans for drawings of this until thorough testing is completed. A "spade" performs the function of aerodynamic balance ahead of the hinge line and also adds effective aileron area. A direct result of this is a much lighter aileron control.
11. To keep the cost of the plans down, and also to insure that the amateurs can familiarize themselves with the plans prior to starting construction, materials list were not prepared for the Acro Sport I. Following is an Acro Sport I tubing list supplied to us by Darrel R. Lenz, Acro Sport I builder.

Diameter And Wall Thickness Of Tubing	Length Of Tubing
3/4 x .035"	95'
5/8 x .035"	54'
1/2 x .035"	16'
7/8 x .035"	2'
3/4 x .049"	12'
7/8 x .049"	10'
.049 x 3/4 x 3/4 sq.	1'
.065 x 1/2 brushing	3-4'

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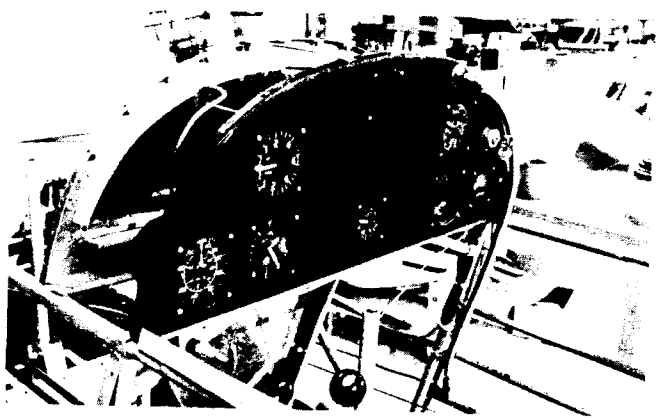
7/8 x .049"	10'
.049 x 3/4 x 3/4 sq.	1'
.065 x 1/2 brushing	3-4'

12. Acro Sport I and Pixie colors are: Bahamia blue, Insignia white, Dakota black and Lemon yellow.



Acro Sport II Prototype
Rear Instrument Panel
January 6, 1978

FACTS AND INFORMATION
Acro Sport II

1. The wing access covers are held on with "PK" screws.
2. The wing gap covers are screwed to the front rib with "PK" screws.
3. The wheel pants are held on by one 1/4 x 20 NC tapped bolt into the axle plug and two bolts to plate number 5 listed on sheet 2, zone A42.
4. You do not need to plug the ends of the squared tubing "I" struts unless you wish to do so for appearance.
5. There is a correction to the weight and balance. The main wheel to the tail wheel distance is 143.75", not 195.25".
6. The maximum never exceed speed is 180 mph.
7. The maximum maneuvering speed is 140 mph for full aileron deflection.
8. Normal climb is 80 mph as is normal approach speed.
9. The duration of flying time on the Acro Sport II is 2.3 - 3.2 hours on the average. Depending on your mixture setting, you should lean at about 3000' on up.
10. The pressure carburetor rebuilder is Precision Air, 3610 NW 41st Street, Miami, Florida 33142. Telephone (305) 635-5293.
11. The plans are supplied by Acro Sport Inc., P.O. Box 462, Hales Corners, Wisconsin 53130. The aircraft kits are supplied by several firms, the main one being Wag Aero Inc., P.O. Box 181, Lyons, Wisconsin 53148. Technical information is available from Ben Owen at EAA Headquarters.
2. Acro Sport II colors came from an automotive store. We use DuPont Imron, the white is number 508U, the brown is 3295U, yellow is 5819U and orange is 5080UH.
13. For elevator trim, we use the Wag Aero throttle cable catalog number 1-877 and the Fork end clevis I-942 (10-32 Female control rod). This throttle cable is also available from Aircraft Spruce catalog number A-900 and Fork end clevis AN486. You should measure for length before ordering from any source. (For cables!)
14. Our aircraft was not internally varnished but you can if you like. You should tape off the glue areas and bring the glue line up to the varnish line when gluing.
15. We use Sig Epoxy. This is available from several sources and it's manufactured by Sig Company, Montezuma, Iowa. Telephone (515) 623-5154. Other good glues would include Hughes FPL-16A and Chem-Tech T-88.
16. A floor mounted drill press is the best for drilling the spars after assembly.
17. The windshield supplier for the prototype is Jim Miller, 4753 Harvard, Kansas City, Missouri 64133. The canopy, slides and drawing are also available from Jim.
18. Our 10-360 has a full power static run up rpm of 2300 on 180 hp. Our propeller is a Sensenich 76-56. At approximately 1200' MSL a full power run at 2700 rpm produces 130 mph with our aircraft.
19. Some builders have had difficulty in constructing the stick support. If you would like a more accurate stick support drawing, please write to EAA Headquarters.
20. In order to make the prototype Acro Sport II snap and spin, we had to attach a stall strip near the root rib on the leading edge. These are approximately 18¾" long and are made up of aluminum strips ¾" wide, bent in the center along the long edge to a 90° angle. These are then taped to the leading edge with wide 3M clear tape.
21. All builders of Acro Sport II aircraft should have plans changes. If these are not sent along to you, please write Acro Sport Inc., P.O. Box 462, Hales Corners, Wisconsin 53130 for this. Also give the color of your plans set cover.
22. The Forest Products Laboratory is located in Madison, Wisconsin. They have confirmed that epoxy does have much better gap filling qualities than other earlier glues. However, they know that resorcinol formaldehyde is still the best in waterproof glues. It is the standard with which others are compared. However, it does not have the gap filling qualities that epoxy glues have. It is the two can glue and is sold by quite a few aircraft suppliers. Another type glue is known as plastic resin glue, which is water resistant (it is a one can glue). With these glues maximum strength is developed when the glue line is .004-.006" thick. They will not tolerate glue lines much thinner or thicker than this. Epoxy glues will tolerate larger gaps which makes it excellent for the amateur.
23. The horizontal stabilizer on our aircraft was set level with the top longeron and has not been changed since the first flight.
24. The elevator horn should be perpendicular to the push rod or you will have differential elevator up or down.
25. The side stringer clips should be tacked in place. They should be made longer than necessary. The stringers are then clamped to the clips and the clips cut after the proper length has been determined on the aircraft.
26. Pneolic is still the best material for control tube blocks. The National Electric Manufacturing Association set the standards for Phenolic in the early days. Phenolic now is used in mechanical parts and in large machine shops, telephone companies, etc. Phenolic grade LB has a tensile strength of 14000 psi and a cross tensile of 14000 psi. Grade L is another good grade. The manufacturer of Phenolic is Synthane, Oaks, Pennsylvania. The Milwaukee distributor for Phenolic is at (414) 962-0890.
27. The center of gravity, loaded, on the prototype is from 1.5" forward of the leading edge of the lower wing to 5" aft of the leading edge of the lower wing. Some other Acro II's have had their center of gravity as far back as 7" aft of the leading edge, lower wing. This is very close to the aft limit.
28. The shock cords used on the Acro Sport II were 1380HD. When they become weaker you can use two cords.
29. The trailing edge center section bow has a radius of approximately 4' 10", with its center approximately 8½" back of the turtle deck leading edge.
30. The dimensions from the front face of the propeller to the rear tire is approximately 207.625" on ours. We also have approximately 45 lbs. on the tail wheel when it was in level flight attitude. The distance from the front face of the prop to the rear tire on George Jones Acro Sport II was 206.00". He had 69 lbs. on the tail wheel in level flight attitude. He also put an electrical system in his aircraft and has the battery aft of the rear seat. It might be noted that one other builder **had** his battery under his fuel tank when it shorted out. Due to the sparks in the vicinity of the fuel tank, he also moved his battery to aft of the rear seat.
31. It is very important to make cardboard templates first, of the firewall cockpit enclosures and other sheet metal areas before cutting metal.

ACRO SPORT AWARD WINNERS AT OSHKOSH '82

Best Pober Pixie:
Mr. John Leitis
Roaring Springs. Pennsylvania
N81JL

Best Acro Sport II:
Mr. William Merwin
Clarksburg. California
N15BM

International Outstanding Acro Sport I:
Mr. John Kimber
Essex. England
GB-JAK

Design Recognition:
Mr. Paul H. Poberezny

Co-Design Recognition:
Mr. Bill Chomo

Prototype Builder:
Mr. Bob Ladd

John Kimber's Acro Sport I was not at the Oshkosh Convention. However. it has won three amateur built awards in England and Europe. One of these is the Popular Flying Association "Best Homebuilt" award. It is also noted that the designer has been recognized by Acro Sport. Paul Poberezny is not an officer of the corporation and is being recognized by Acro Sport for his contribution and design work.

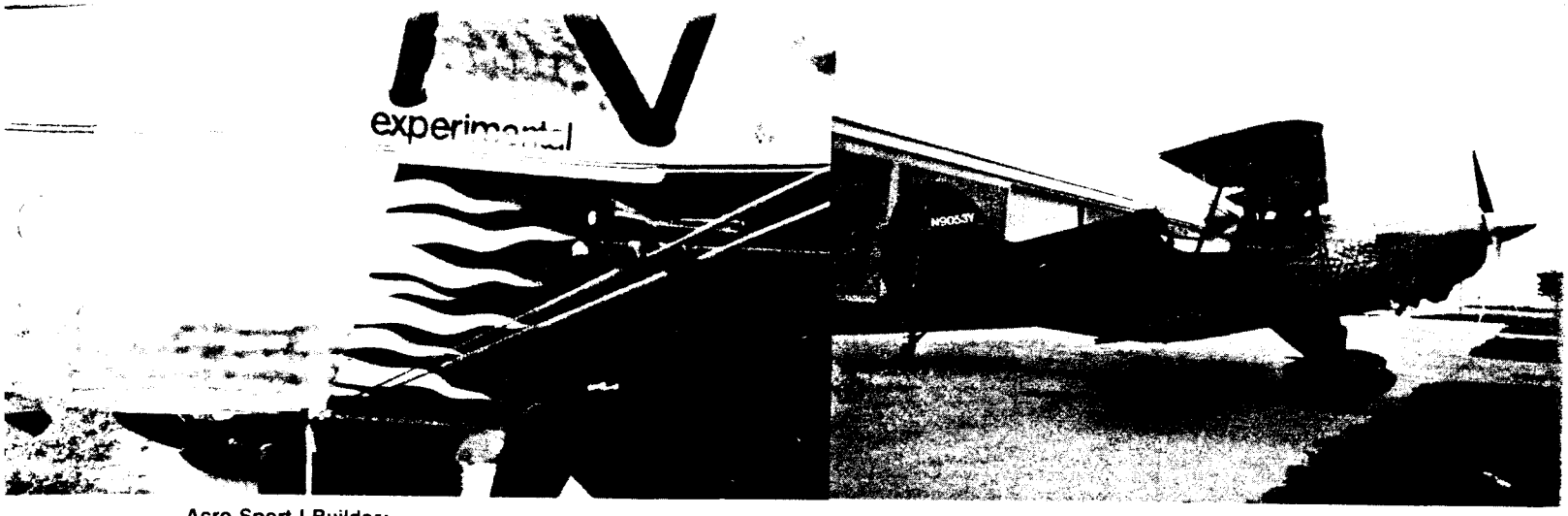
Acro Sport I Builder:
G. T. Baker Aviation School
Schoolflight Project #338
Construction Started 1975

Date of Test Flight:
2/13/80
Engine Type:
Continental 0-200. 100 HP
Propeller:
McCauley
69" Diameter
48" Pitch
Aircraft Empty Weight:
783.80 Lbs.
Normal Flying Weight:
1023.00 Lbs.

Empty Weight C.G.: 61.85"
Normal Take-Off Weight: 1023.00 Lbs.
Empty Weight On Tail: 45.00 Lbs.
There is a dry cell electrical system.
Battery Location: In Baggage Compartment

Acro Sport I Builder:
Dick Maulsby

Construction Started: 1973
Estimated Cost: $4.700
Propellers:
Sensenich
70" Diameter
46" Pitch
Approach Speed: 85 mph
Aircraft Empty Weight: 925 Lbs.
Inverted Fuel and Oil System
Battery Location: Behind Seat. Under Turtle Deck Floor
Date of Test Flight: October 1978
Engine Type: Lycoming IO-320
Cruise Speed: 105 mph at 2350 rpm at 2000' altitude MSL
Landing Speed: Stall at 55 mph
Empty Weight on Tail: 52 Lbs.
Rate of Climb: 1500' FPM
Paint Finish: Randolph Dope and Enamel

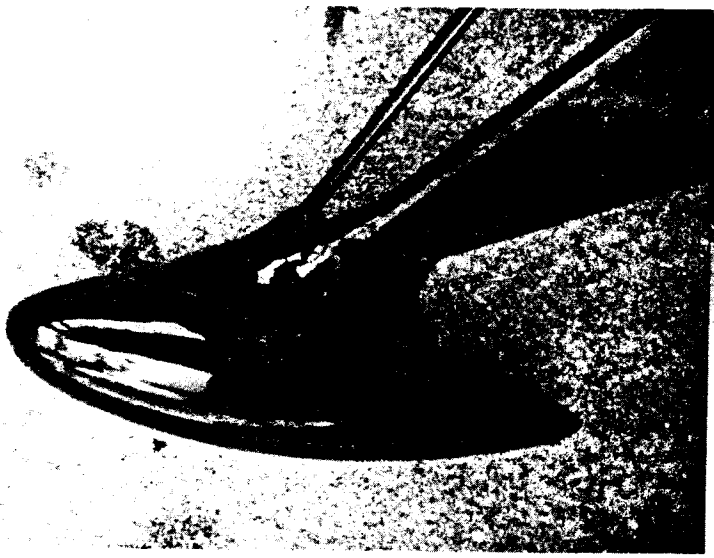


Acro Sport I Builder:
F. C. Caravetta
255 Alhambra Circle 825
Coral Gables, FL 33134

Empty Weight: 856 Lbs.
Top Speed (Straight Level): 140 mph
180 HP
76 - 56 Propeller
Cowling: Burnished with end wire wheel. Etched with Stits Alumathane coated with Aerothan 100.
Stits Coating
Cruise Speed: 130 mph
Solid Shaft

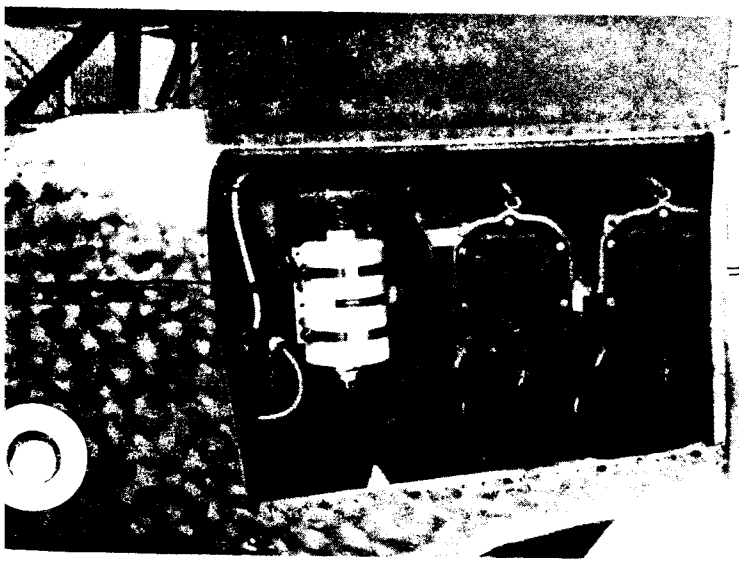
FULL SIZE FITTING DRAWINGS AVAILABLE

Jim Triplett, P.O. Box 101, Ames, Iowa 50010, has a four page set of full size fitting drawings for the Acro Sport II. The cost is $10.00, which includes postage. These full size drawings appear to be complete and well done.

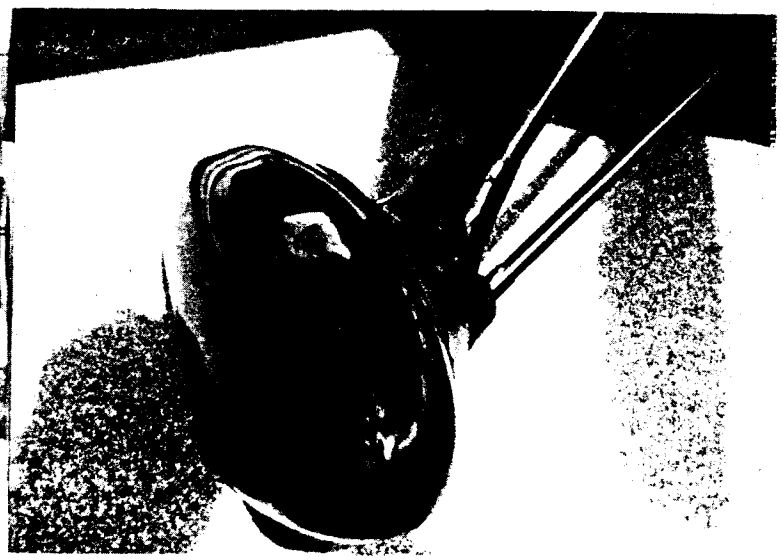


Top view — wheel pants and fairing.

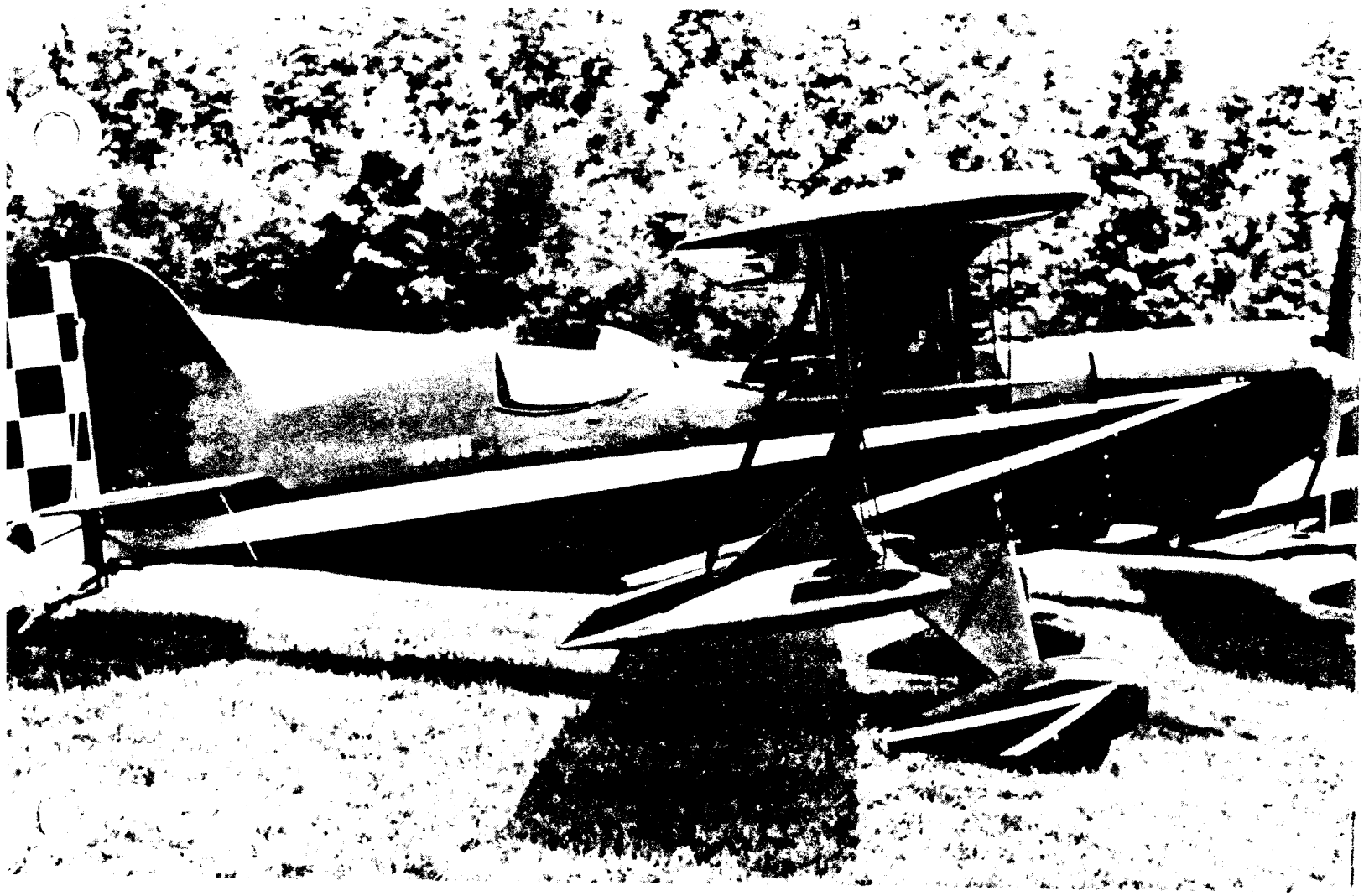
Note the fiberglass fairing on "I" strut and overall fine finish.



Engine compartment. Christen inverted oil system. Good side panel access.



Note the neat fiberglass wheel pant fairing.



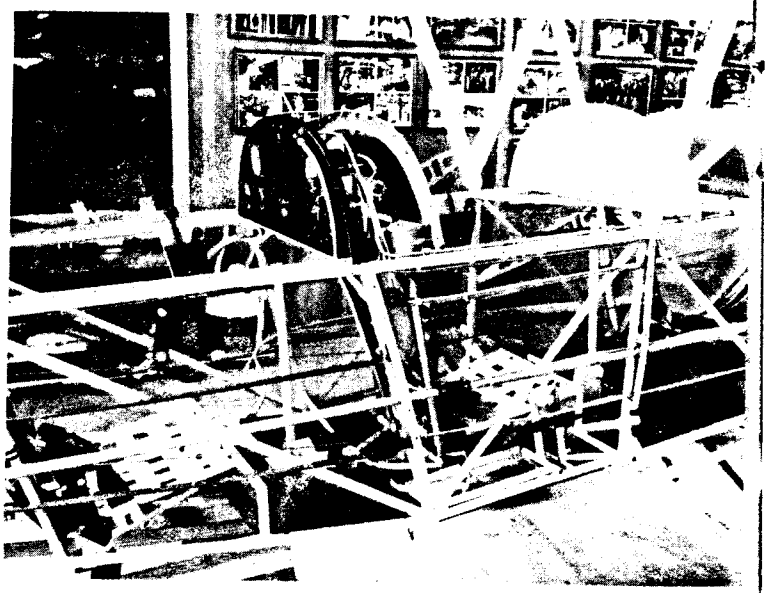
Acro Sport II Builder:
George Jones
Route 1, Box 430
Ruffin, N.C. 27326

George is an active aerobatic enthusiast and has already sold this aircraft after updating it from its original 150 HP engine.

Construction Started: May 12, 1979
Engine Presently Used: O-360
Rate of Climb: 2000'
Normal Flying Weight: 1350 Lbs.
Normal Take-Off Weight: 1350 Lbs.
Electrical System Is Installed
Inverted Fuel and Oil System
Approach Speed: 75-80 mph
Date of Test Flight: December 2, 1980
Cruise Speed: 125 mph at 2500 RPM at 1000' altitude MSL
Aircraft Empty Weight: 1020 Lbs.
Empty Weight C.G.: 65.93 Lbs.
Empty Weight on Tail: 62 Lbs.
Battery Location: Aft Rear Seat
Paint Finish: Imron
Landing Speed: 60-65 mph

The aircraft was pictured in the January '82 issue of *SPORT AVIATION* and has been repainted since then.

The spin test with a 205 lb. pilot and parachute spins 7 turns left and 7½ turns right, and exhibited normal recovery characteristics.



Acro Sport II prototype in construction January 6, 1978

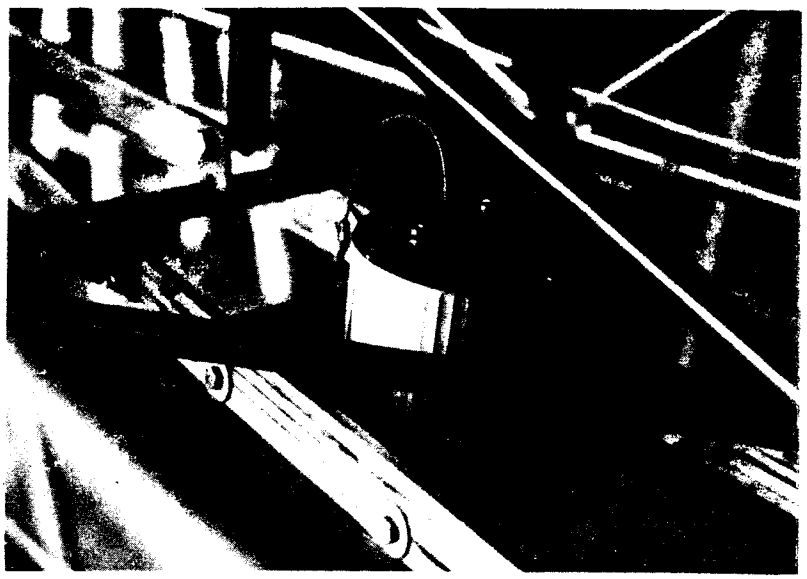
DETERMINING FLYING & LANDING WIRE TENSIONS

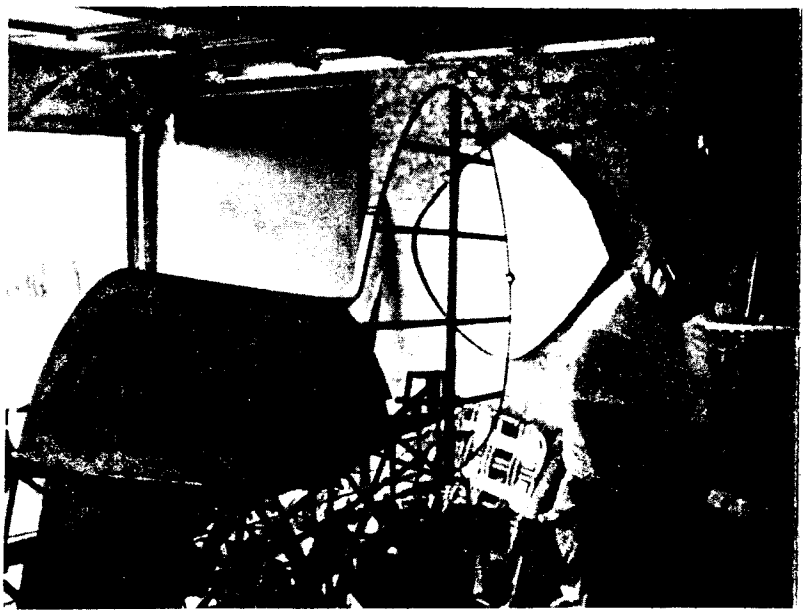
This following idea comes from the Pitts Aviation Enterprises Inc. S-1 Assembly manual. Their instructions state: "Hold a ruler or yardstick perpendicular to a wire at its midpoint which you have marked with tape. Hook the spring scale through a rope loop at the middle of the wire. A pull of 50 lbs. perpendicular to the flat side of the wire at its midpoint should deflect the wire 1¼" when the wire is tensioned correctly. Check all 8 wires. Following these instructions (we used a thick piece of rope to pull on, tied around the wires so they would not be damaged or sharply bent), we checked a Pitts in the EAA Aviation Museum Foundation. Lo and behold six of the eight wires measured exactly 1¼" deflection at 50 lbs. pull and the other two measured 1⅜". This was pretty remarkable! The Pitts tail "tie rods" are supposed to deflect 1⅛" to 1¼" using the same test. Here we found this particular Pitts measured very close to these also.

We then ran the same tests on the Acro Sport NIAC. It has slightly different geometry, longer wires, etc. This is what we came up with for the Acro Sport and the Super Acro Sport recommendations. (Use a 50 lb. pull at the wire midpoint, use a rope loop. Do not use wire or sharp objects around the tie rods.) What we used were two 27 lb. fish scales in parallel. We pull them to 25 lbs. each to give a total pull of 50 lbs. These fisherman's "De-liar" are available in many fishing supply houses.

Tie Rod Location	Deflection at 50 lbs.
Front flying wires	1-3/4"
Rear flying wires	1-3/8"
Landing wires	1-1/4"
Tail wires - upper	1-3/4"
Tail wires - lower	1-1/4"
Roll wires	3/8"

For the engineering minded, we have a friend who has an old World War II flying wire tensionmeter. The flying and landing wires measured a 750 lb. tension at the above deflection. This corresponds to a "dull thud". It is felt that the deflection method is a very good method in getting the correct tension on Acro Sport, Pitts and other aircraft. You may have to work out the geometry for tensions on your own individual aircraft. It might be mentioned that obtaining a tensionmeter of the proper tension for flying wires is somewhat expensive. It is not necessary if one does use the above method of deflection.





ACRO SPORT II LANDING WIRE TENSIONS

The Acro Sport I and the Acro Sport and Acro Sport II really aren't much different. The tail wires on the Acro I are about two inches shorter. The landing wires are also about two inches shorter. The cabane or roll wires are about five inches longer on the Acro II. The rear flying and front flying wires are just about ten inches longer on the Acro II than the Acro I. You should be able to get a pretty good idea by using the Acro I information shown above.

Pitts Aerobatics, Box 547, Afton, Wyoming 83110 sells a tensionmeter for aerobatic aircraft.

ACRO SPORT T-SHIRTS

We have a limited supply of Acro Sport II T-Shirts still available and want to make room for new designs. We have Child Medium and Large and Adult Small, Medium, Large and X-Large still on hand in limited numbers. PLACE YOUR ORDER NOW!!

Price: Child $4.50
Adult $5.50

Include $1.00 each postage and handling.

ACRO SPORT PATCHES!!

Due to many requests, we are presently offering a jacket patch for Acro Sport Builders.

$2.50 postpaid.

ACRO SPORT DECALS!!

Decals are available which are suitable for display on the vertical fin.
Approximate size— 6½" x 8".

$2.50 each postpaid.

ACRO SPORT INC.
P.O. Box 462
Hales Corners, Wisconsin 53130

POBER PIXIE NOTE

John Leitus' article on the Pober Pixie was presented as he wrote it. I think it is important to note that the prototype Pober Pixie has over 200 hours of flight time on it, using various engines and at one time having been powered by alcohol. The original prototype has never had a tail heavy condition. The prototype aircraft will return to level flight from a bank by itself. It's possible that John's original and modified canopy has an adverse effect on the tail.

The Pober Pixie prototype is presently based in the Dallas/Ft. Worth, Texas area and will be flown to a number of Southern Fly-Ins and air shows (as a static display) this winter.