ACRO SPORT Newsletter

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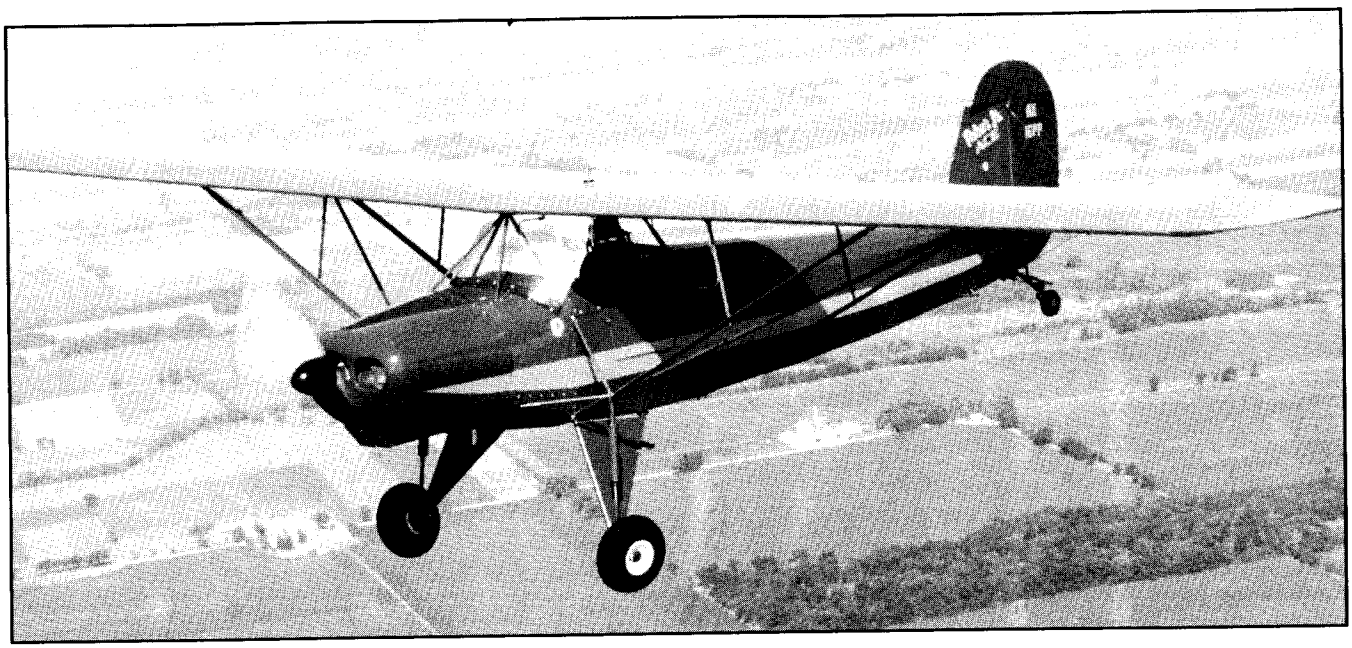

"Enjoying the countryside" in the Junior Ace! The prototype Pober Junior Ace has over 65 hours now, many with Young Eagles on board!

GUEST EDITORIAL

by Paul H. Poberezny

It has been quite a while since I took pen in hand to write a few words to the readers of the Acro Sport Newsletter. On behalf of all you readers, I would first like to extend a big thanks to our editor, Bill Berrick. He has taken on this additional leadership role on top of serving as President of EAA Chapter 80 in Omaha, Nebraska.

In addition, I would also like to thank my long time friends, Wes Schmid and Ray Scholler. Wes has provided the professional help needed in the layout work of the Newsletter and has also served as Secretary of EAA for many years. He has also been responsible for the work involved in the preparation of many of our EAA Manuals, along with serving as Chairman for our EAA Convention forums. All are volunteer positions. Our EAA Vice President, Ray Scholler, has been the printer of all of our fine EAA publications since 1953 and has served in a great many volunteer capacities, including the handling of our evening programs at the Theatre in the Woods during the Convention.

And one more special thank you to Bill Blake of St. Peters, Missouri for the fine drawing work that makes building from scratch so much easier - even though we give him a little extra work when little gremlins get into the drawings and need attention!

What would EAA be without fine folks like these and the many others who give so much of their time and effort?

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The prototype Junior Ace now has some 65 hours on it and has been flown by more than a dozen pilots, all with favorable comments. About 40 hours of its time has been flown on weekends at the EAA Aviation Founda-

tion's Pioneer Airport, carrying Young Eagles. EAA volunteer, Bob Lumley of Milwaukee, has been the primary pilot in this effort.

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There are a great many loves and variety of interests within the homebuilt movement. There seems to be a type and kind of flying machine for everyone. It is often difficult to support this great variety of enthusiasm, especially when they so often change their desires. Leadership is then expected to support and give great attention to their interest of the moment.

However, one in a leadership position must not veer too far from the course of serving all, as we have done in EAA. It matters not what type of airplane we fly or build, it is the unity of all that will keep aviation alive for everyone. There are so many facets in communities and government to be dealt with.

Though I have been privileged to fly many types of aircraft in my career, I still like the airplanes with charisma like the open cockpit biplanes. Maybe it was the influence of my interest as a young lad in World War I aircraft and the excitement of those pulp magazines depicting battles of the biplanes and triplanes of that era. Before World War II, I was flying OX-5 Wacos, American Eagles, and Swallows, and it seems that those are the times that one now reflects upon.

The Pober Junior Ace, an open cockpit, two place, side-by-side airplane with outrigger landing gear is to me a sport plane with the good old days' charisma.

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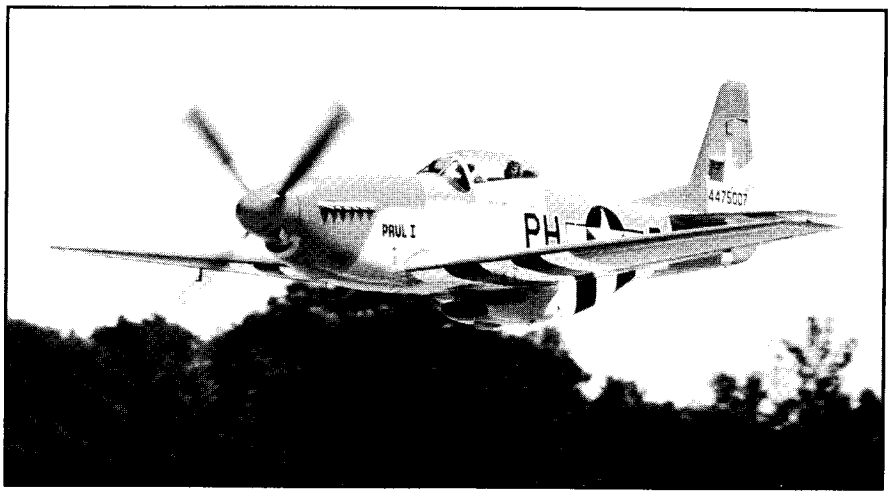
I sure would appreciate any help you can give to Bill as Editor. Please send in your comments, progress reports and photos for the Newsletter. Over these 40+ years with EAA, I have often heard the comment that one is too busy building to send information, etc. But when the project is done - it is asked why some magazine doesn't recognize their accomplishment - a completed airplane.

Letters To The Editor



Young Eagle flight — in First Class section!!!

Dear Paul:

The PIXIE II is still coming along. I have the seats finished, (except cushions), and have the control sticks and torque tube/bellcrank assembly done. The rear stick is offset to the back in order to get sufficient forward movement. I have about 20 degrees each up and down available in the cockpit. This should translate the needed 30 to 35 degrees at the horn. I also have completed the rudder pedals and their installation. I have integrated Matco master cylinders to the rear pedals. I am now starting the throttle quad's and other engine controls. I expect to build the wing lift struts after that so aileron controls can be installed. It's all shaping up nicely, although the engineering time adds a lot.

I have tried to consider future servicing and inspection needs with each sub-assembly. The seats are removable and also tilt forward by removing SJ fastpins that hold them securely in shear. I made the bottoms of aluminum sheet and the backs of 1/8" ply. The frames are a combination of 5/8 x 035 square and round, with the legs made of 049. They attach to 1/2 x 1" rails which are bolted in six places to the frame. I used the J-3 and me for dimensional references.

We made it to Oshkosh again this year, making the best of Camp Scholler. I only saw you once and you were doing about 250 knots with a young Eagle in the back of the P-51; sure looked good! I met Bob Lumley and Bill Blake on the flight line after Bill's ride in

EDITORIAL/Good News - Bad News Department

by Bill Berrick, Editor

Good News! The next time you get a notice to renew the FCC Radio operators license for your aircraft it will be for a period of 10 years. The "rest of the story" goes downhill precipitously from here on. It will cost you $115!!!!!!

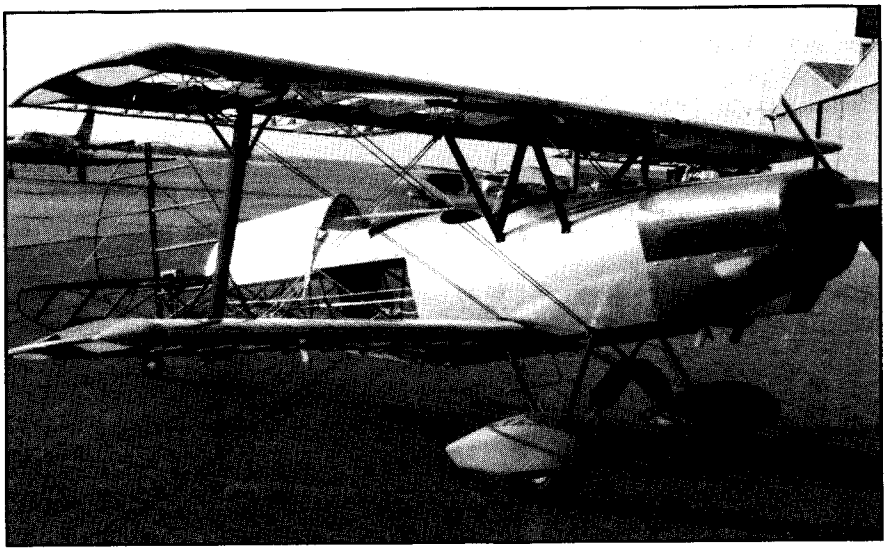
The FCC explains that the Application fee has really only changed from $35 to $45. The remainder is a "Regulatory Fee" of $7.00 per year for each of the ten years, payable in advance. If you would sell the aircraft, you could apply for a refund of the remaining years' Regulatory fees by returning the license.

The current renewal FCC Form 405B still says it is for five years, but we are assured that the ten year term is valid and will be a part of the Automated Re-newal Process

the Junior Ace. Nice guys! I was able to explain the story of the Pixie II to Bill - he remembered it well. He really enjoyed the Junior Ace flight. That plane turned out really nice, Paul. I hope the Pixie II flies as well as Bob says the Junior does.

The Convention seems bigger and better each year. I have set the goal of flying my project to Oshkosh '98. That probably does not seem very aggressive, but for me just being able to make the goal is pretty special. My first trip was '88 and I thought I would be another composite builder back them. Times do change. Well, 5th period is about to start, so I'll sign off. Stay in touch, Paul.

Sincerely,
Michael B. Hoye
7 Pintail Point
Heath, TX 75087



Dan Reed's AcroSport II, N400GB, ready to cover.

Ed Note: Builders of all designs - please note the above advice, "CONSIDER FUTURE SERVICING AND INSPECTION NEEDS WITH EACH SUB-ASSEMBLY". Believe me, it gets more difficult each year to stand on my head to work behind the panel of my AcroSport II!

Dear Bill:

I heard from Acro Sport II builder, Frank Rosner, who has recently completed his airplane. He was having some trouble with the bungees, and so he went to an AV 1380-HD available from Wag Aero, and found that this made a tremendous improvement in the landing gear. Possibly, you might want to pass that on to Acro Sport News recipients.

My best regards to you, Bill.

Sincerely, Ben Owen

Ed. Note: I originally used 1280 HD bungees, two on each side, for my AcroSport I. These were too weak and were letting the gear sag in 12 to 18 months. I tried pairs of 1380s which were just too stiff for the lighter weight of my one-holer. One each of the 1280HD and 1380 on each side seem to suit my Acro I just fine now.

Dear Brother Owen,

As I promised you some time ago, here is a photo of my ACRO II project as it was assembled prior to cover. This will be N400GB. I have made mods to the wing tips by making bows for them rather than the standard fiberglass tips, and have modified the upper center section cut-out to allow a bit easier entry/egress in the front cockpit.

Instrumentation in the rear cockpit is basic VFR plus rate-of-climb and a Delcom hand-held radio mounted in the panel by means of a McCoy adapter. The battery has been removed from the radio and it is powered from the aircraft buss through a couple of series-connected forward-biased diodes which drop approximately 1.5 volts. This arrangement seems to work nicely and no additional filtering of the power supply to the radio appears necessary. Front instruments include airspeed, altimeter and tachometer. The aircraft has a "full" electrical system with an Aerogell-30 battery and a Dukes boost pump mounted on the firewall. No nav lights are planned, however.

The engine is a Lycoming O-320-D3G, (160 HP @ 2700), which has been retrofitted with a Bendix fuel injection system. The propeller is a used Sensenich M74DM with a pitch of 56". This propeller may be a bit "skinny," however, in that the full-throttle static RPM is 2500. I will pay more attention to that after the airplane is covered and flown.

The empty weight uncovered is 954 lb. @ +58.96". The cover and paint and seat cushions should add about 80 or 90 lbs., which should bring the completed empty weight up into the 1030 to 1040 lb. range.

That's about it for now. Thanks for all your help, and keep plugging.

Dean Reed
1209 East Republic Avenue
Salina, KS 67401-5279

Dear Bill,

Everyone felt the convention was great, at least 90-95% thought so that have talked to me or written.

I was in Washington this week for two days meeting with FAA. They are concerned with many Kits being presented that don't comply with the 51% rule and the manufacturing of complete aircraft being sold as "amateur built"; as well as many aspects of commercial operation to by-pass type certification. They are also concerned with the illegal use and operation of ultra-lights - lack of pilot knowledge, carrying for hire of the public or friends. They don't want to see the amateur-built movement jeopardized. I was the only one meeting with them at their request.

Bob Lumley gave a lot of rides in the Pober Jr. Ace and he said a lot were interested in building it. It has over 50 hours on it now. A lot of Young Eagles have flown in it also.

I'll be going to the WWI replica Aircraft Convention August 10-20th at Gadsen, Alabama. My Fokker Triplane wings and tail group are covered and ready for paint; fuselage is on the gear; it needs fuel tank, seat, and instruments. It has a 145 HP Warner. My Project X, no name yet, is on the gear - a single place mid-wing with 160 HP Lycoming.

And it takes me two days for one cutting of the grass at home!

Your friend - Paul

EXHAUST LEAKS

by Joe P. Spencer

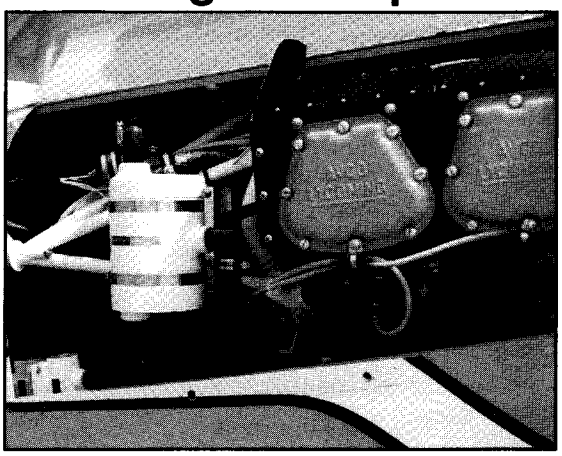
Having problems with exhaust leaks where the stack bolts to the cylinder? Try sandwiching one of the thick no-blow type gaskets between two of the thin copper ones. Turn the raised circles on the thin ones away from the no-blow. It worked for me.

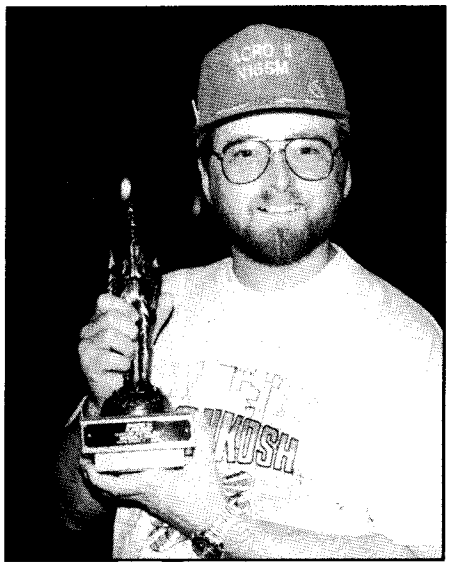
you want to over-rev your particular engine. I heard Charlie Hillard at an Oshkosh forum tent say that Lycoming said over-revving is OK but never to exceed 3400 RPM under any circumstances. However, I do not have any such thing in writing, and you are on your own here!!!

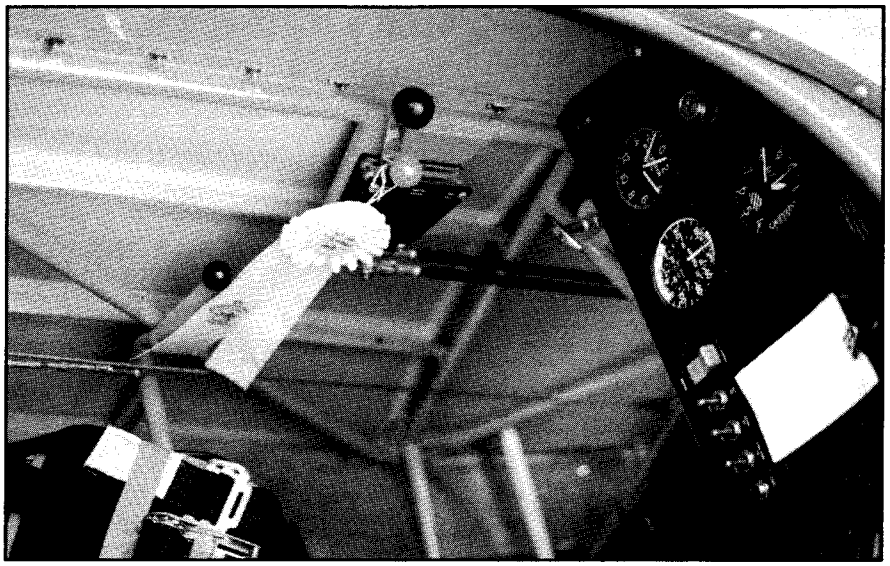
Wind drift correction in a loop is really not too difficult, but wait until you learn the maneuver well before worrying about it. Crosswind drift correction will require you to misalign, (crab), the airplane at the beginning in order to get the desired ground track. This will require a normal heading compensation while setting up for the loop. On the way around, very little correction will be needed, and the entire loop should already have the proper direction of "crab" into the wind to offset the drift. As airspeed changes around the loop, the amount of crab may need to be changed in order to be perfectly correct, but it usually is not that critical. Ailerons can be used to rotate the wings slightly near the top to fine tune things.

The loop is the basis for many other maneuvers, so practice it a lot, get a good observer, with radio, if you want perfection, and practice your little heart out. Keep flying, keep practicing, and keep on a grinin'.

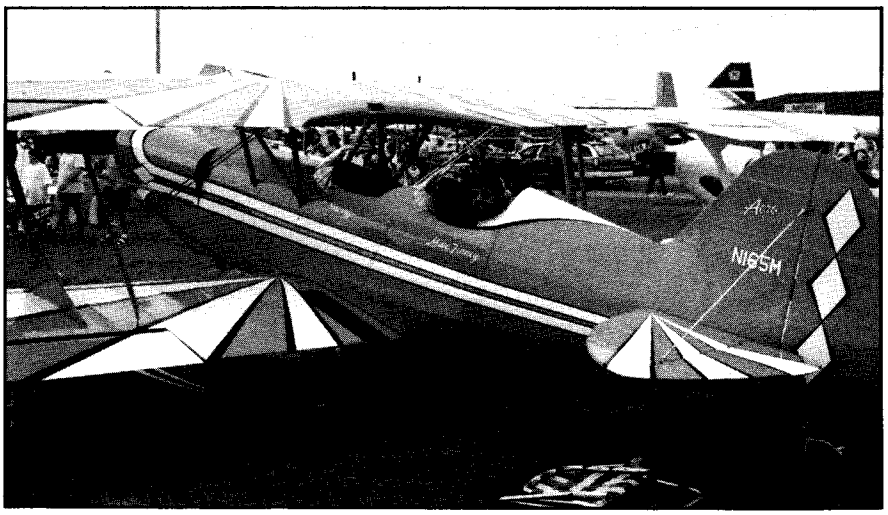
Mike Finney's '94 Bronze Award Winning Acro Sport II







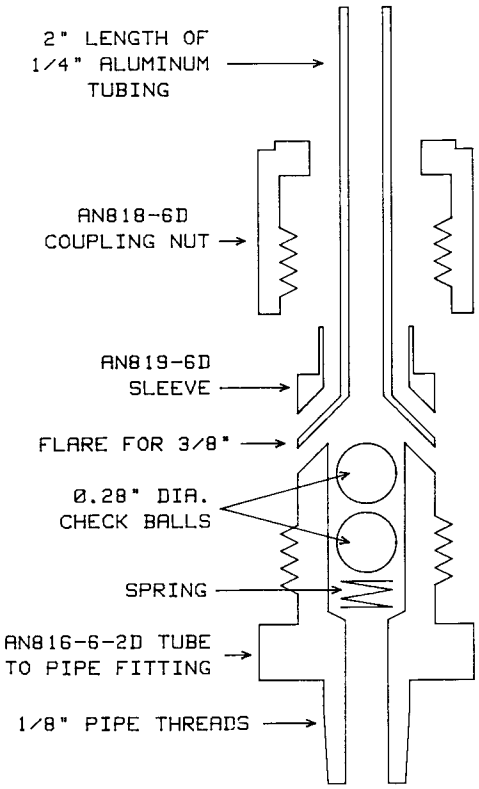
Mike Finney with his EAA '94 Bronze



Preventing Loss Of Brake Fluid During Aerobatics

by Don Baker

I have tried various methods to keep the brake fluid from leaking out of the reservoir vent during aerobatics in my Acro Sport II. Various bends in the vent tube even when combined with a tiny vent aperture still resulted in fluid leaking all over the instrument compartment and dripping onto the cockpit floor. Venting the reservoir overboard or moving it to the engine compartment does not solve the basic problem, and it would compromise the simplicity and reliability of the existing airframe design.



The diagram shows my solution, and it has worked perfectly for nearly three years now. It is a simple check valve made from junk box parts and is easy to construct. The heart of the valve is an AN tube to pipe fitting, AN816-6-2D. This fitting screws directly into the reservoir's 1/8" pipe threads. The other side of the fitting connects to the vent pipe which is made from a two inch long piece of 1/4" aluminum tube. Note that the vent is a 1/4" aluminum tube, but it is used against the 3/8" tube fitting. To accommodate this mismatch, the tube is carefully "over-flared" by letting too much tube extend into the flaring tool before the flare is made. This "big" flare will now fit the 3/8" fitting using the normal 3/8" coupling nut, (AN818-6D), and sleeve, (AN819-6D). The flared end of the 1/4" tube makes a funnel shaped "seat" for a check ball. Most aircraft flaring tools will nicely burnish the inside of the flared surface and this will provide an excellent seat and seal for the check ball.

I used two 0.28" diameter ball bearing balls just slightly smaller than the 0.30" inside diameter of the AN816 fitting. Their weight is sufficient to give a good seal when inverted, and also enough mass to overcome the viscosity of the fluid to unseat the valve when upright attitude is resumed. By using two stacked balls, the distance is quite small over which the ball must roll to reach the seat, thus the check ball always seats before any fluid can leak out. When testing the valve on the bench, no matter how slow or fast the reservoir was rotated to the inverted position, the check valve never leaked or dripped brake fluid. I believe that a pair of check balls will work better than a shuttle rod because of the higher friction of a sliding rod compared to a rolling ball. The low rolling friction lets the ball seat almost immediately when the valve passes through horizontal attitude.

A very light spring is used to keep the balls from sealing the vent at the bottom of the AN fitting. This spring should be just strong enough to keep the balls elevated slightly, but not press them up against the check valve seat at the top. In this manner, the reservoir remains freely vented to the atmosphere for all normal upright, (landing and taxiing), braking operations.

Finally, a small piece of folded cloth should be secured over the open vent pipe with a nylon cable tie to keep foreign debris out of the system. The cloth filter also serves as a visual indication that the check valve is working properly, i.e. dry is good and wet implies a malfunction. Mine has stayed dry since installation, in spite of frequent "G" loads between -4 and +6.

Portrait of a happy Pober Jr. Ace pilot!

ACRO SPORT

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