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EAA Chapter 569 Newsletter

Lincoln, NE



EAA 569 Contact Information

President

Cristi Higgins
H: 402-798-0230
higginschristi@msn.com
P.O. Box 68
Cortland, NE 68331

Vice President

Keith Gomon
H: 402-766-4791
207 John St
P.O. Box 132
Odell, NE 68415

Secretary

Doug Elting
H: 402-423-3916
W: 877-445-6311
nelting@neb.rr.com
5701 So Coddington Ave
Lincoln, NE 68523

Treasurer

Mark Werth
2110 Spring Meadow Circle
Lincoln, NE 68521
mw92713@windstream.net

Tech Counselors

Erick Corbridge
402-499-1039
Corbe99@Yahoo.com

Tom Henry

H: 402-791-2116
W: 402-479-1540

TomHenry3@aol.com

Newsletter and Web Editor

Doug Volkmer
H: 402-483-1108
r77doug@gmail.com
3720 Stockwell Circle
Lincoln, NE 68506



Meeting Announcement

Date: Tuesday, January 8th

(please note, this is the 2nd Tuesday)!!!

Time: 7:30pm

Program: Jeremy Thelander

Jeremy co-owns CrossLinc Custom Coatings (www.Crosslinc.biz) in Lincoln. They specialize in powder coating. He'll share with us what all they can do for us.

Place: Duncan Aviation Engine Shop
5000 NW 44th St – Lincoln, NE

President's Message Cristi Higgins



Well the world didn't end so I guess I'll keep writing these letters to you. I actually knew it wouldn't because it is too great of a place with so many wonderful people. Just like our chapter.

We had a tough year but we all came together and spoke out to keep us together. I want to thank all of you for being who you are. I know I am on the younger side of this club but I learn from all of you. Your grace and attitude are something I hope to lasso up and take to the future. Looking back on this year I see strength, courage, wisdom and all the fun we had. The Christmas party was a great success. Even though the registrations were a low count up to the end I had the Knoll's put out an extra table and we filled them all.

This chapter is made up of folks who don't let each other down. We enjoy each others company as we take in a program, sweat in the hot sun on a ramp, clean up after a breakfast, teach folks about the fundamentals of flight or fly together in the skies. I am so lucky to know you and call you friend.

A New Year toast to my fellow aviators... Here is to a successful year on our tail. Let our leading edge stay clear and our landing lights shine bright.

SASM's Boy Scout Aviation Merit Badge Program needs your help

By Dennis Crispin

We are updating the Boy Scout Aviation Merit Badge program at Strategic Air and Space Museum.

We hope to include a class on air navigation. To this end, we will need a bunch of Sectional Aeronautical Charts.

If you have some obsolete and outdated sectionals that are cluttering up your flight bag, please bring them to the next Chapter 569 meeting or breakfast.

Or send them to:

Dennis Crispin
531 10th Street
Humboldt NE 68376

Christmas Party 2012



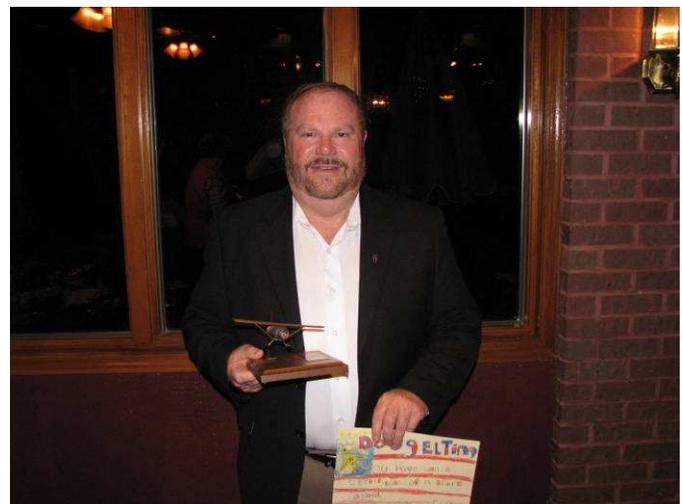
The Knoll's was the setting for the Chapter 569 Christmas Party. A very nice turnout on an unusually mild evening in December. The party committee did a wonderful job with the decorating.



Thanks to Prange Photography, Van's Aircraft, Aircraft Spruce, EAA, Dean Hoy Insurance, Avery Tools, Pam Eisenhower (1 hour massage), Don Shoemaker (Camair airplane ride) and everyone else who donated door prizes for our party.



Luke Peterson entertained the party with a selection of Johnny Cash songs. He did a real good job.

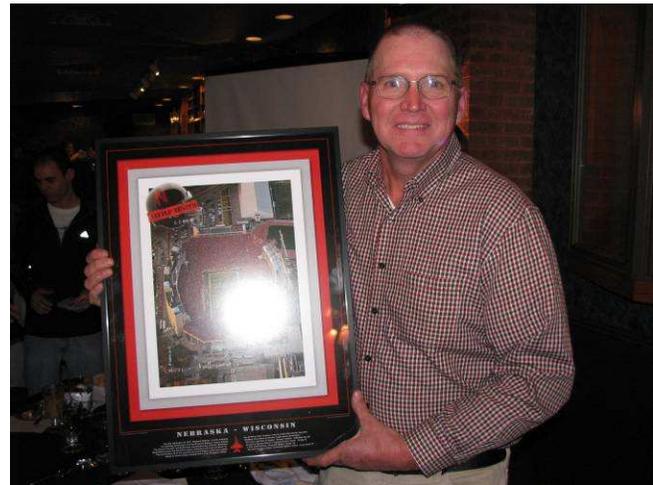


Doug Elting was the recipient of the Spark Club Award for 2012. Doug has done a fine job as our Secretary, a position he has held since 2010. He also helps out with the monthly breakfast and other Chapter activities. Thanks for all you do Doug.

Christmas Party 2012



The tables were decorated with airplane weathervanes meticulously handcrafted by Jerry Carlson. I hope Santa puts one of these in my stocking this year.



Lyle Eisenhower left the party with a very nice door prize. No, he didn't steal it. He won it.



President Cristi Higgins presented Don Shoemaker with a framed photo of the above picture, created by our cartoonist Bob Chambers. Nice job Bob.

Cox part of game day flyover

By Doug Volkmer

Chapter member John C. Cox and a couple other members of the Beatrice-Fairbury based Flying Conestoga club performed the flyover before the November 17th game against Minnesota. John is the lead pilot in the picture below. He told me he had to be crossing the field at 14:27:55. There was a spotter on the ground that gave him a 6 minute warning so they positioned themselves 6 minutes out and waited for the call.



Photo taken by Doug Prange

Paul and Sandy Muhle's Acro II

By Jack Cox

The Reserve Grand Champion Plans homebuilt at Oshkosh '93, an Acro II built by Paul Muhle of Richland, Nebraska, won that high honor strictly on the basis of superb craftsmanship. With the exception of a full canopy, it was built exactly to the plans as a day, VFR sportplane. The cockpits were not upholstered, the electrical/avionics/instrumentation package was basic and there were no lights . . . but what Paul did put into the project was some 4,000 hours of labor over a period of 7 years and a determination to make every part to the very best of his considerable ability.

Paul came by his aviation interest honestly. His father, Duayne K. Muhle, Sr. (EAA 9163), soloed at 16 and although he did not continue to fly, retained a lifelong interest in aviation and instilled it in his three sons. Paul was a very young boy when he attended his first EAA Convention . . . at Rockford . . . and remembers spending hours on end poring over a set of Fly Baby plans his dad had ordered. The Fly Baby was never built, but the plans were an inspiration for Paul and his brothers to begin building models. They progressed through the various levels to RC, and, later, all three, Duayne, Jr., Kurt and Paul became pilots. Paul learned to fly in a Piper Warrior in the late 1970's, but in 1980 he, his brothers, his father and cousin, Reg Briza, bought a 1947 Aeronca Chief. This was his father's ticket back into active flying and Duayne, Sr. is the sole owner of the Chief today. Each of the sons and the cousin eventually sold their shares to the elder Muhle, usually to buy their own airplanes. Kurt bought and restored a Piper Pacer and Paul bought a Citabria.

Paul and his brother, Kurt, are in business together. They are builders of residential homes and, with one employee, do all the work themselves except for plumbing, heating and

electrical. The building that seems to run in the family extends to airplanes, because in addition to Paul's Acro II, his father is building a Pietenpol and Duayne is building an RV-4. Before Paul ever started on his Acro II there were a couple of higher priorities in his life that had to be attended to. He met his wife-to-be, Sandy, in February of 1982 and they were married in 1983. Shortly before their wedding, they began building their house . . . which was planned from the beginning to have space for building an airplane. The home had to be an after hours and weekend project, so it took two years to complete, but, finally, Paul was ready to start cutting metal on his Acro II. He had grown up attracted to biplanes and had always loved the Acro Sport series. When the Acro II came along, he knew that was his airplane. He particularly liked the Acro Sport paint scheme, but preferred red as the basic color rather than the blue of the prototypes. The Acro Sport paint scheme, with its white, black and yellow trim, was designed to allow a choice of several basic colors: blue, red, green, black . . .

anything that will go with yellow . . . so, Paul knew he would have an attractive, photogenic airplane when he completed it. There was one heartbreak involved with the start of the project, however:

He and Sandy had to sell their Citabria to finance the building of the Acro II.

The first act of building was to wall off and insulate a portion of the garage as a workshop . . . then the rib jigs were built. The next year was spent building the four wing panels and center section, which Paul says was a very enjoyable process because there was so much visible progress at the end of each work session. He used Hughes FPL 16A glue, which he says works very well if joints are nice and tight. He has been impressed with the thicker consistency of the T-88 his father is using to build his Pietenpol, however, and might consider it for some applications if he builds another airplane. Paul purchased the Wag-Aero materials kit for the wings, but did all the work himself, including the fittings and brackets - most of which he cut out of sheet steel with a hacksaw. When completed, the wings were sealed with Stits (Poly Fiber) epoxy varnish and stored in the basement. As events transpired, they would remain there for quite a while, but were a source of pride every time Paul passed and glanced at them.

Much as he had enjoyed building the wings, Paul was really looking forward to the fuselage. He worked with wood every day, so the wings had not been that much of a challenge. Learning to weld would be a new experience and he was really looking forward to it. Fortunately, he had a friend who was an expert welder who taught him the basics . . . after which he started on a bushel basket of steel scraps and practiced until he felt comfortable with the welding process. He bought his tubing in Omaha from Airparts, hauled it

home and began cutting it to size. He had already constructed a 14' table, had drawn out the fuselage sides and affixed the jig blocks. All this had been planned to coincide with a week's vacation so he could devote full time to the start of the fuselage . . . and he did mean full time! Seven days later he had put in some 115 hours in the shop, averaging over 16 hours per day, but had a complete, tack welded fuselage to show for his efforts. His friend came back in at this point, welded up one cluster for Paul to observe - and left him to do the rest of the job himself. Paul says all he had noticed during his practice welding came into focus watching an expert at work.

"I had a blast building the fuselage. I really enjoyed the welding and I miss it now that the airplane has been completed." Paul recalls that one of the high points of the project was the first time he was able to mount the landing gear and roll the fuselage out onto the driveway and get some cockpit time. After that milestone, it was time to build and install the control system and make up the sheet metal parts. With brother Duayne building an RV- 4, he had the instructor teach him how to build his metal turtleback, as well as the rivet guns, bucking bars, dimple dies, etc., to actually do the work. One change was the decision to omit the floor panels in favor of foot rails and a glass belly under both cockpits. The glass bellies were intended for aerobatics, but have also proven to be both helpful and interesting for cross country flying, Paul notes. A lot of things are missed by not being able to see straight down, he has found.

At this point it was time to retrieve

the wings from the basement and begin the task of mounting them to the fuselage . . . no small feat on a biplane. The first job was to remove the temporary wall that had been built in the 24' x 24' garage in order to provide space to fully assemble the airframe. Then, the fuselage was fixed securely in a level attitude and 2" x 4" fixtures were built and put in place to mount the wings in the proper position. This allowed Paul to take all the precise measurements for the cabane and I-struts, make them up, install them, and install the flying and landing wires. This was a crucial set of operations, with the flying qualities of the finished airplane on the line whenever any dimension was taken, any alignment made. Since building the wings, Paul had not been satisfied with the metal trailing edge material, feeling it was too light. Consequently, while he had them out for fitting to the fuselage, he made up and installed new, stronger trailing edges with material he purchased from Wicks.

To be able to fly in Nebraska's harsh winters, Paul planned from the beginning to add a canopy over both cockpits. There was no off-the-shelf canopy available for the Acro II, so he had to make his own . . . which in his words was "the most miserable part" of the entire project. It would take a year and a half of hard work and frustration to build and install the canopy and its associated tubular frame, fairing skirt, gas spring and latching mechanisms. Paul had Gee Bee make a bubble to his specifications . . . which he was very pleased with . . . and he did the rest of the work himself.

A 180 hp Lycoming IO-360 BIB was purchased about a year into the project and was stored in the

family's basement for about two years before being hung on the Acro II. Paul learned about the engine through Central Cylinders in Omaha and purchased it from a Glasair builder who had decided to use a 160 hp Lycoming instead. A dynafocal ring was purchased from Aircraft Spruce, the rest of the material was bought at Wicks and Paul did the welding to complete his engine mount. He also installed a Christen inverted system for aerobatics. In wiring the airplane, he was able to call on brother Duayne's expertise once again. Duayne works for the phone company and "... is into some pretty complicated systems," Paul says. "It was a big thrill the first time we tried it and everything worked . . . in something I knew nothing about at the start."

After completing all the structural and systems work, it was somewhat discouraging for Paul to have to tear the airframe down again for cover and painting. Fully assembled, it looked like an airplane, but torn down it was just a collection of parts and pieces again. He cleaned up all the tubing by hand prior to priming, but says he would use sand blasting if he had it to do again. The Poly Fiber (Stits) process was used exclusively to cover and finish the airplane, and although it was Paul's first experience with fabric, he really enjoyed the work. Applying and shrinking the fabric and rib stitching was the fun part, he recalls, but the sanding was pure drudgery. To spray the airframe, he built up a 7' x 14' x 7' paint booth in his garage, with four filtered fresh air inlets and an exhaust fan that vented out through a garage window. A bank of florescent lights was mounted around the bottom of the

booth so that the smallest imperfection could be easily seen. All the painting was done in the winter, so the booth also had to be heated. Paul used a mask with a charcoal filter while spraying and experienced no problems, but thinks a fresh air mask would be a better if he does any more painting.

The first engine runup was in February of 1992 . . . and it did not go very well initially. The Lyc started, but ran quite roughly. The problem turned out to be a plugged injector, and after it was cleaned the engine ran beautifully. Paul was concerned about using a metal prop for aerobatics, so he settled on one of Craig Catto's composite props.

After getting the Acro to the airport in nearby Columbus, Nebraska, the usual longer-than-expected time was needed to assemble and rig the airframe, do the weight and balance, get all the paperwork in order . . . and, finally, get the inspection done on June 12. A month later, on July 12, the big day finally arrived.

"I had been taxiing it around quite a bit, half hour to 45 minutes at a time, and I got the tail up a couple of times. It felt good, so I decided it was time to fly. On the morning of the 12th, I got to the airport about 4:00 a.m. and was very excited. A storm was blowing in from the west, however, and I thought flying was over for the day. Luckily, it cleared by 8:00 a.m. and I decided to go. I had talked to Ben Owen at EAA and his advice was to simply be aware of the sensitivity of the elevator, compared to the factory airplanes I had flown. After one last check of all the instruments, I gave it power, got the tail up and let it fly itself off. I climbed up to 500 feet and was

still over the runway, so I made a quick glance at my instruments. The first thing I checked was the fuel pressure gage and it was on zero. After a few more seconds went by and the engine was still running, I knew the gage wasn't working so I decided to fly it around the airport for about 20 minutes.

"When I came in for my first landing, I did a constantly turning carrier approach to keep the runway in sight . . . but still lost it when I turned final. I had already made up my mind that if everything didn't look good I wasn't going to land. I was a bit off to the right of the runway and it just didn't feel right, so I went around. The second time, I carried a little more power, 3-pointed it ... and made one of the best landings I've ever made. As it turned out, the only problem I had was with the fuel pressure gage, which was just a bad electrical connection. Otherwise, the airplane was a dream to fly."

Paul spent the summer of 1992 flying off his test time and keeping a very close watch on the airframe and all the systems. Two instances of accelerated wear and tear showed up fairly quickly. A crack developed in the lower cowl and the fabric covering the landing gear legs began to show signs of distress. The latter was halfway expected because Paul had talked to a lot of Acro Sport, Pitts, Skybolt, etc., builders at Oshkosh over the years who had experienced the same problem and had metallized their landing gear legs. It seems that while fabric covered landing gear legs are perfectly suitable for low powered airplanes like Cubs, Champs and the like, the fabric takes a real beating when subjected to the prop blast

behind 150, 180 and larger Lycomings and Continentals. Unwilling to put up with these flaws in his airplane, Paul spent the winter of 1992/93 metallizing his landing gear legs and building a completely new cowling.

Looking at the old cowl, he realized the carb air box was rubbing it and probably caused the crack to develop. Consequently, he switched to a more compact air cleaner and built a new, smaller air box to provide the necessary clearance between it and the lower cowl. He had also noticed that the cowl cheeks had seemed rather flexible, so he put formers inside to provide better support. That winter had already been intended as the time to install the Aero's radio and intercom system, and Paul did manage to squeeze those jobs in between his cowling and gear leg work sessions.

While not the result of a failure of any sort, Paul was also dissatisfied with his Naugahyde bungee cord covers. Right in line with the exhaust, oil vapor, bugs and dust, they were in constant need of cleaning and it was a pain having to take them on and off. As a result, he decided to make form fitting fiberglass covers that could easily be wiped down after each flight. He made a male mold of foam, coated it with candle wax and laid up glass over it. Then he split the cover, removed the foam, finished and painted it ... and was soon heading off to Oshkosh '93.

When he and Sandy landed at Wittman Regional Airport, they had about 60 hours on the Acro. Paul is extremely pleased with the airplane, its performance and handling. It came out with an empty weight of 1,035 pounds, which just missed his

initial target of 1,000 pounds. With the canopy and battery mounted behind the rear seat, he feels the weight is quite acceptable. Cruise is between 135 and 140 mph indicated at 2,500 rpm, burning 10 gph. The rate of climb is around 1,500 fpm . . . and as much as 1,800 fpm on a cold day. Paul has just under 500 hours of flying time, most of which was in his Citabria, and he has found the transition to the Acro II to be quite easy.

The Acro has no bad habits in the air or on the ground, he says, and with the power to weight ratio, is a real rush on every takeoff.

N42690 represents a good part of 7 years in Paul and Sandy Muhle's lives, spread over the period from 1985 to 1992. Except for the canopy work and some of the bigger sanding jobs, Paul thoroughly enjoyed the building process. The biggest payoff, however, came at the conclusion of Oshkosh '93 when he and Sandy were awarded the

Reserve Grand Champion - Plans trophy for their airplane. It had been quite a week for them. They had arrived at Oshkosh early so they could get a convenient spot in the campground . . . only to be caught in the fierce storm on Tuesday night. They were literally washed out of their tent by the deluge, but were taken in by sympathetic EAAers in a nearby motor home . . . and, fortunately, the Acro II did not suffer any storm damage. After that, things just kept getting better for them as the Convention progressed.

Paul and Sandy were busy in more ways than one during the time the Acro was in their garage. They became the proud parents of two daughters: Jessica, now 4, and Angela, now 2 ... plus a very spoiled puppy, Sandy says. They plan to be back at Oshkosh this summer, so if you missed this beautiful Acro II last year, be sure to look it up on the Acro Sport line and say hello to Paul and Sandy.



(This article originally appeared in the May, 1994 issue of EAA Sport Aviation.)

Events

York Airport (JYR), EAA Chapter 1055 Fly-in breakfast on the 1st Saturday of every month. 0800-1000. Free will donation.

Crete Airport (CEK), EAA Chapter 569 Fly-in breakfast on the 3rd Saturday of every month. 0800-1000.

July 29 - Aug. 4, AirVenture, Oshkosh, WI, <http://www.airventure.org/>

Classifieds FOR SALE

2 Lightspeed 25XL ANR headsets.
\$150.00 each for EAA 569 members.
Lightspeed is offering credit of \$250.00
each for these if you are upgrading to
their newest headsets under their "trade
up program".

These headsets work perfect and
Lightspeed gives away new ear seals at
Oshkosh but they ran out this year
before I got there!

I changed to an over the ear headset
because at 6'6" I need all the clearance
from the canopy I can get!
Contact Tom Henry 402-791-2116



John Cox
2279 County Road 2425
DeWitt, Nebraska 68541-2518

