

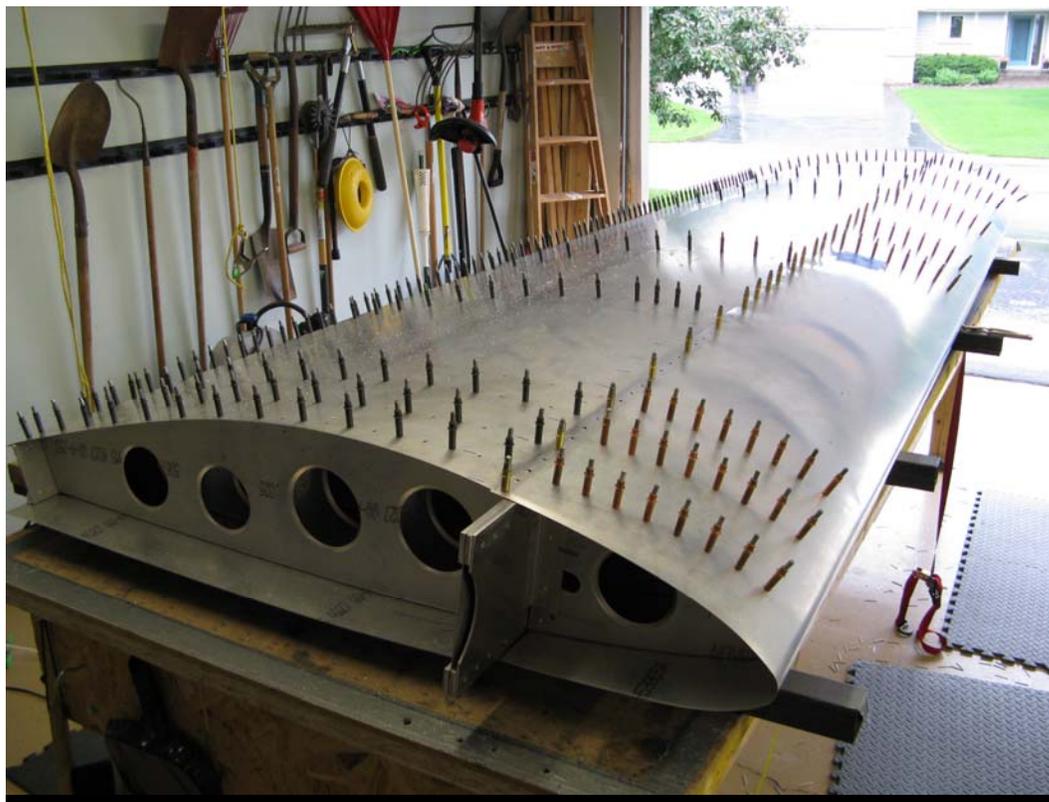
WINTERFALL

EAA CHAPTER 25

MINNEAPOLIS / ST PAUL, MN

SEPTEMBER 2010

Zodiac—"The Upgrade" *by Pat Hoyt*



Most people involved with homebuilt aircraft are aware that there are government mandated modifications that must be made to the Zenith Zodiac. In short, people who are building Zodiac 601XL and 650 aircraft must complete certain modifications prior to obtaining their airworthiness certificates. Owners of factory built Zodiac SLA's also must have their aircraft modified. These modifications are collectively referred to in the Zenith community as "the upgrade".

(Continued on page 4)

Kenneth Wofford Passes

Former Tuskegee Airman and friend of the Civil Air Patrol Colonel Kenneth Wofford (USAF, retired) died Sunday at his home in Golden Valley. Wofford was a member of the Minnesota Aviation Hall of Fame, active in the U.S. Air Force Association, and was extremely active in the community working with kids. Wofford was a friend of the Anoka Composite

Squadron and frequently was called upon to share the story of the Tuskegee Airmen. He also established a scholarship fund for cadets of the squadron.

Note from Noel Allard

Ken was one of the founders of the Hall of Fame. It was his *(Continued on page 6)*



Koser's Comments

Sept meeting, Aug minutes, **YE help needed!**

P2

P3

Oct 3 Banquet, Stanton Runway Redo

Ads **P7** Events, Flight to Log Cabin

P6

P8

Koser's Comments



September sure comes up fast. We need to have a Board of Directors' meeting in September, so following Young Eagles on the 18th, the Board will meet at BSAEC. On our agenda is setting up a slate of officers for 2011. I'd like to see that accomplished so we can present it to the October Chapter meeting for members to offer additional nominations and then vote on the slate. This means we'll get out to the membership via the Yahoo Group and via ON FINAL, October issue so

that voting can occur on 20 October.

If you haven't signed up for our banquet on 3 October, please do fill out the form and get your check to Kris Olson ASAP. We have a speaker of note, Max Haynes, aerial photographer (see MaxAir2Air.com) who I think will entertain and inform all of us, members and guests.

Also, please get your raffle ticket money to Terry very soon. We need to complete this prior to the banquet. Terry should have all raffle sales before end of September.

The potential sale of the 0-200 engine has possibly hit a snag. More on this at the September meeting... Hope to see everyone there!

We are still trying to find a home (preferably a school) for the Sonex project from Washburn HS. If you have connections to a school where this project might end up to be completed, please contact either John Schmidt or John Koser.

We look forward to Bill Jansen speaking to us about flying the L-39 at our September 15 meeting. I hope we get a large turnout and that weather permits his taxiing it over to the BSAEC. The noise of that engine alone should provoke a lot of interest.

Bill Brown has lined up about 75 Young Eagle candidates for the 18 September YE event. With our current total YE flown of 340, this means we'll break 400 before October! I firmly believe this is one of our most important activities introducing young people to the joy of flying. I also think we can hit 500 this year if we work at it. That would be a major record for the Chapter.

—John



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ON FINAL



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The Leader In Recreational Aviation

This Month: Wed Sept 15th—BSAEC, Airlake 6pm

**Grill on at 6pm, meeting at 7pm
Please bring something to share**

Program: Our September meeting will feature Bill Jansen who will talk about his L39 jet trainer.

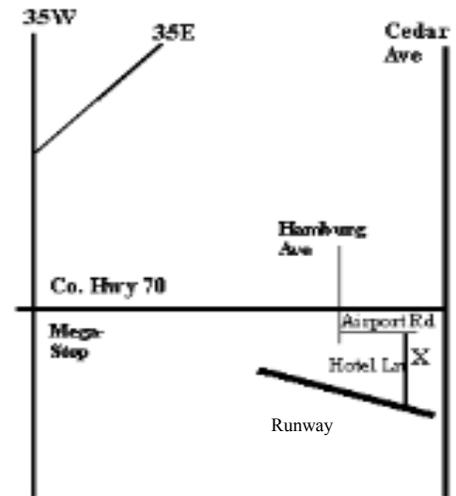
Sat Sept 18th—Young Eagles at 9am. Young Eagle volunteers, please contact Bill Brown for more information.

Sun Oct 3rd—Annual Banquet at Eagan Community Center

See page 6 for directions and application form.

Directions to BSAEC (Bert Sisler Aviation Education Center):

South on I-35 to Hwy 70 (Megastop), then East to Hamburg Ave (3rd stop sign.) Right turn and South to airport perimeter road. Left on airport perimeter road then right on Hotel or India Lane. If the surface is firm, please park on space between hangars.



EAA Chapter 25 Meeting Minutes August 18, 2010

Presiding Officer: John Koser

Location: Bert Sisler Aviation Education Center at Airlake.

Business meeting discussions

Lou Martin led the group in the Pledge of Allegiance.

A treasurer's report was circulated. We have a cash balance of \$2,489 as of August 18.

We have now given 309 kids Young Eagles flights this year. This beats our 2010 goal of 300! This coming Saturday's rally is set for volunteers. September 18th rally will be a big one with over 65 kids signed up. We need help so call Bill Brown if you can fly or work ground crew.

The Pietenpol Team continues to meet most Wednesday nights at Dick Navratil's hangar to work on their project. The wing ribs are complete and the fuselage sides are nearly done. All members are welcome to join in on the building process.

Terry Carmine distributed ticket packets to new members for the annual fundraising raffle. \$1400 worth of tickets have been sold with \$4500 remaining. Please step up your sales effort and be sure to turn in your ticket sale money before the banquet on October 3. We are still looking for members to sell tickets at local fly-ins which are listed in our newsletter. Contact Ed Hansen for details if you can help out.

Lou Martin reminded the group about the history of the large wood propeller clock that is mounted in the BSAEC. Lou got the prop from his older brother who found in a field. It

Call for YE Volunteers

The September 18th event is going to be a whopper!

I already have over seventy (70) kids signed, mostly Boy Scouts and Girl Scouts, with the possibility of quite a few more. All hands on deck! We will need all the help we can get. Please mark your calendars for 9-18 and let me know if you can help!

We are currently at 340 for the year and this should put us over 400!

—Regards, Bill

is a remnant from the 1930's barn storming days. Dale Johnson refurbished the prop so it could be displayed as we see it.

Upcoming chapter events include:

Our September meeting will feature Bill Jansen who will talk about his L39 jet trainer.

Our annual chapter banquet will be held October 3rd at the Eagan Community Center.

Program

CFI Randy Schoephoerster gave a FAA Wings qualified presentation on float plane operations.

Submitted by Craig Nelson

Zodiac Upgrade

(From cover)

As a builder of a Zodiac, I've been very aware of the entire situation and am currently in the midst of upgrading my airplane.

This upgrade consists of adding aileron mass balances, beefing up the aileron belcrank support area, thicker upper spar caps, thicker material in the main spar roots, heavier rear attachment points, and thicker material in the fuselage center section, as well as some other fuselage gussets and reinforcements.

Photo 1 shows the old spar cap versus the new spar cap. The old piece was a bent piece of .032 aluminum, and the new piece is an 1/8th inch aluminum extrusion. It extends about 3/4 of the way out to the wing tip, and is secured with AN3 bolts and 3/16 inch solid rivets. Installing this piece involved deskinning the wings, removing the nose ribs, removing some of the rear ribs, drilling out the existing solid rivets in the spar, and then fitting the new piece prior to solid riveting the new cap to the main spar. This was a good opportunity for me to learn how to do solid riveting, and I first practiced on some scrap material of the same dimensions before doing my spars.

Photo 2 shows the new 1/8th inch thick Root Plate, as well as a view of the new Spar Cap. The main spar originally was of a "built-up I-beam" type, whereas now it is more of a "box" type in the root area. The 1/8th inch plate is new as there was no piece like this present before. Before drilling the holes for my wing attachment bolts, I calibrated my drill press with a dial indicator, and then used an accurate punch to mark the centers of the 5/16th inch thick bolt holes. I started with a small drill bit, and worked my way up until the holes were slightly undersized, and then finished with a reamer. They all came out dead-accurate on both wings.

Photo 3 gives another view of the new Root Plate. Not as visible is extensive work done around the nose ribs. These ribs had previously been riveted to the spar web, but with the new root plate in that location the nose ribs had to be trimmed to fit. Additionally, there is more reinforcement on the nose ribs and surrounding area. I was able to make a template using my existing rivet lines in the nose skin in order to maintain the same alignment as before.

Photo 4 shows the old and new Aileron Belcrank supports. The old piece was .025, whereas the new piece is physically larger and is made of .040 aluminum.

Photo 5 shows aileron belcrank supports which tie the belcrank to both the upper and lower skins, as well as to the next wing rib. All of this metal is new and was not present before, as previously the belcrank support was only attached to the one rib, and not to the skins. Having put my hands on this, I can tell you that the difference this makes in this area is substantial.

(Continued on page 5)

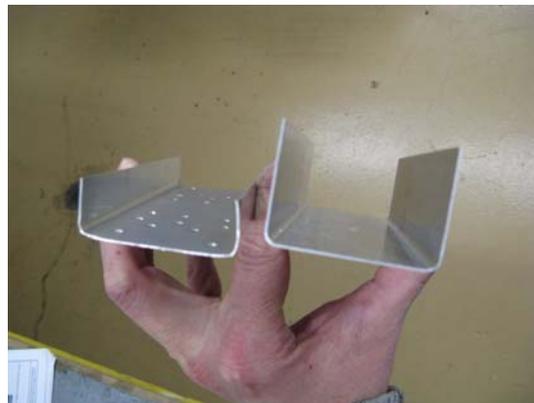


Photo 4—Old vs. New: Aileron Belcrank Support

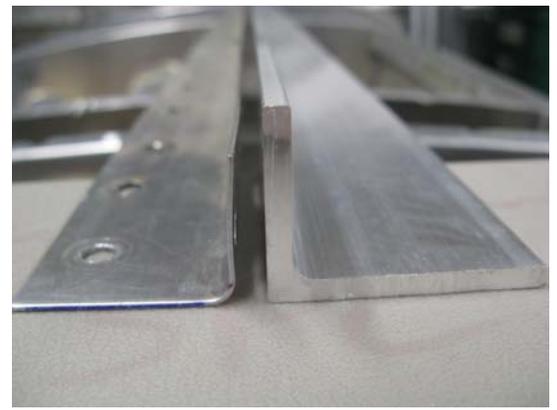


Photo 1—Old vs. New: Spar Cap



Photo 2—Root Plate and Spar Cap



Photo 3—New Spar Plate at Spar Root



Photo 5—Aileron Belcrank Area

Zodiac Upgrade

(Continued from page 4)

Photo 6 shows the new Aileron Counter Balance. This is all new. I verified the correct balance of the counterweights versus the ailerons themselves by reassembling the wings and then setting the ailerons in motion and watching them come to rest in the neutral position. I also made a video of this to document it.

Photo 7 shows an additional rivet line in the upper skin where some angle braces are installed to prevent oil canning. Similar strips are installed on the lower skin. Additional reinforcements include a doubler of the rear spar from root to tip, an additional doubler at the root of the rear spar, and a doubler around the area of the aileron pushrod. New internal doublers are also present inside the ailerons themselves. I also installed larger rivets in the line attaching the nose skin and rear top skin to the new extruded spar cap. Rivet pitch is also halved on the bottom spar cap.

After riveting my wings back together, I used some Nuvite to polish them. I've got 3 grades of the polish, but I only used the roughest cut. I was able to see my reflection pretty good after a relatively small amount of work. I'm not going to do any real "detail polishing" until after phase one testing is done...

Now that my wings are done and back together, my next step is to complete some upgrades to the fuselage and center section area. I've just started those, so I'll report on the progress in those areas when I finish them.

Some other observations from this whole process:

I had already completed my wings prior to all this, so I had to take them apart. Not as big of a deal as you might think, although it's taken the better part of a year as there were an awful lot of rivets that I had to remove. I don't know how many, but I counted over 200 in just one area of the top skin, so I'm guessing it was over a thousand for each wing. I made a tool to make some of this easier, but a lot of it was kind of tedious. Not all of them were easy to get to, particularly some of the solid rivets in the main spar, and to get to some of those I had to first remove other stuff. I ended up removing all of the nose ribs and half of the rear ribs, and about half of the rivets in the bottom skin.

Some people think that having to do the upgrades "kind of sucks", and I do agree that it should be left to the individual builder to decide if they are needed or not - and not forced by some government agency. But given that they are required, I went ahead and did them and I've now got a better airplane than I did before. There's no comparison between what these wings were before, versus what they are now. Some builders who have experimentals that are already flying have chosen to not do the upgrades, as they are aware of the operating limitations (not one of the Zodiacs that went down was flown by the guy who built it).

The upgrade adds about 30 pounds to the weight of the airplane. I've tried to save weight where I can, and I think this airplane will be around 800 lbs when it's all done.

My Zodiac project has been of the "really slow build" variety. I buy the things that I can't make, and I fabricate what I can. A lot of things I've learned how to do along the way. The guys who really have it rough with this whole upgrade are the ones who bought quick-builds. Many of those guys simply don't have the skills or the confidence needed to tear apart a wing and rebuild it. In the case of the guys who bought factory built LSA's, they couldn't perform the up-

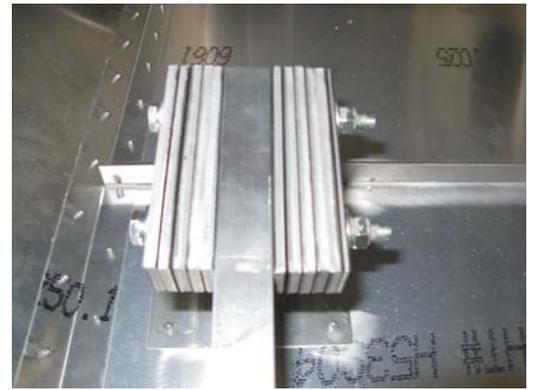


Photo 6—Aileron Counter-balance



Photo 7—Clecoed back together



Photo 8—Polished skin after riveting

grades themselves if they wanted to - they have to get an A&P to do it, in which case the labor costs become prohibitive. Or else they have to find an A&P willing to sign off on it. I've recently seen Zodiacs for sale in the \$30,000 range that had originally sold for closer to \$140,000 just a few years ago. Although lately the prices have started creeping back up again, there is still a real "buyers market" for these aircraft, and guys who are willing and able to do the required work are getting some good deals.



EAA Chapter 25 Annual Awards Banquet

Sunday October 3, 2010
Social Hour 6PM Dinner 7PM

Eagan Community Center
1501 Central Parkway Eagan, MN 55121

Guest Speaker Max Haynes
www.maxair2air.com

Dinner ticket order form

NAME: _____

Number of tickets _____

@ \$17 = \$ _____ (total enclosed)

Mail this form along with your check to:

Kris Olson
110 7th Street North
Cannon Falls, MN 55009-1941

If you would like to donate a door prize or a silent auction item,
please call:

Pat Halligan @ 651-341-9264

The Eagan Community Center is located on Central Parkway. As shown on the map, you can enter from either Yankee Doodle Road or Pilot Knob Road.



Kenneth Wofford

(Continued from page 1)

promoting within MN/DOT that helped get us started after we broke away from the Museum group. Ken was on our board during the formative years and his contribution was huge. He helped formulate our mission statement and was a great communicator. He brought us down to earth in our selection process time after time, always asking, "but what did that person do for Minnesota aviation?"

It was always a great pleasure to see he and his wife Willetta (Billy) come into our registration area at each year's Hall of Fame banquet. In 1999, against his protests, we inducted him into the Hall of Fame. Ken was a cornerstone of Minnesota aviation.

Noel

Internment will be at Fort Snelling Friday September 10th at 12:45pm.

Following will be a reception at Fleming Field, scheduled from 1:30-4pm at the Airport Terminal Building, 1725 Henry Ave, So. St. Paul MN, sponsored by The Commemorative Air Force - Red Tail Project



Stanton Runway Redo

We need your help! Chapter 25 members have indicated to me that they enjoy flying into Stanton to enjoy the ambiance and buy a coke (in a bottle). They also expressed a desire to help the airport but didn't know how.

This project will require removal of sod on either side of the 09/27 runway in order to fill in the swale (dip). The infamous "bump" occurs where the runways intersect. New dirt will be excavated and filled to level the area.

At this time, we are asking for PLEDGES not money. Here is your chance to join your fellow members—a **big thank you to the three Ch 25 members who have pledged so far!**

After reading the note below, please send your pledge to:
Steve Adkins <<mailto:steve@adkins.name>>

The runway project will be started when we are assured that funds are available and when the weather is OK for dirt work. Our goal is later in 2010. There will be a short period of time when runway 18/36 is closed, but ideally the cross runway 09/27 can remain open.

Once we reach \$10,000, we'll move ahead. We are now about halfway there. Thanks in advance for your help.

— S. Steve Adkins EAA 9221

Stuff for Sale/Wanted

For Sale: Long EZ, IFR, 115HP/O235-C2C Lycoming, finished 1987, 107 TTAF, 687 TT Engine, Prince Prop., No hangar rash, No damage history, Builder / owner deceased: buyer will need to provide annual / ferry permit to fly it away.

Contact Harvey @ 952-929-8725 More information at <http://longezpilot.com/PG10%20Aircraft%204%20Sale.htm>

For Sale: Lancair 320/360 kit, Super-Fastbuild kit. Asking \$20,000 or offer. Call 608/797-5752.

For Sale: 2024-T3 Sheets; 1 ea. - .020 4'x12', .025 4'x12', .016 3'x13', .032 4'x4'. \$1, sq/ft. Also smaller pieces. Monel Pop Rivets \$.05 ea. Latches - Hartwell H4600, \$3 ea. Call Jim Mayer (952) 469-2347.

PROJECT FOR SALE: 2001 KITFOX LITE SQUARED (Kitfox Model IV Tri-Gear) - Factory-rigged wings, Airfoiled tail, Conventional cowling, Electric elevator trim, Strut fairings. No engine. Asking \$10,000.

Ben Adamowski - badamowski@comcast.net - 952 949-2186.

For Rent: Hangar space at Airlake. Lot 38G, sharing space with a Sonex and Stinson. \$200/mo. Call 651 423 4273 or email lisamadams@frontiernet.net

For Sale: 1973 Cessna 150L TTAF 3300, 700 SMOH. White w/blue stripe. Exterior 8/10, interior 8/10. Michael single Nav/Com radio, ModeC Xpndr. Fresh annual. Portable GPS included. \$18,000 firm, similar in trade-a-plane for 23-24. Gerald Mercier, gjmerci@aol.com 612/861-6921.

For Rent: Heated hangar space at KMIC. Space has good lighting and use of microwave, refrigerator, bathroom, lounge, and hot/cold running water. Rent dependent on type of A/C or use. Space comes with resident AP, IA, EAA technical counselor, and A/C welder. Call 763-494-6993 evenings.



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Chapter Events and Fly-Ins

Sept 15th Chapter Meeting, BSAEC at Airlake Grill on at 6, mtg at 7 pm
(see page 3 for map & directions)

Sept 18th Young Eagles start at 9am-
Contact Bill Brown to volunteer

Oct 3rd Chapter Awards Banquet 6 pm
Eagan Community Center (See p. 6)

Future meetings 10/20, 11/17, 12/15, 1/19,
2/16, 3/16, 4/20, 5/18, 6/15, 7/20, 8/17, 9/21

Sept 11 Superior Wi (SUW)

Fly-in Bkfst & YE flts 7:30-11a

<http://eaa272.org>

Sept 11 Osceola Wi (OEO) 8a-1p

Pancake bkfst and burger and brat
,unch. 715-294-5622

Sept 12 Maple Lake Mn (MGG)

11:30-2p Fly-in pork chops
763-670-6021

Sept 12 New Ulm Mn (ULM) 7-1p

Flyin bkfst

Sept 12 Flying Cloud Mn (FCM)

8a-12p Chris Cakes pancakes
Irene Lev Memorial bkfst
320-296-5200

Sept 18 Faribault Mn (FBL)

Cancelled due to construction

Sept 18 Grand Rapids Mn (GPD)

8a-12p Flyin Bkfst

Sept 18 So St Paul Mn (SGS) 8p

Bombers Moon Ball, Hangar 3
651/455-6942

Sept 19 Thief River Falls Mn

(TVF) 8a-1p Fly-in bkfst
218-681-5585

Sept 19 Hector Mn (1D6)

7:30a-12:30p Fly-in bkfst
320-848-2745

Sept 19 Mora Mn (JMR) 10a-2p

Chili feed 320-679-3515

Sept 26 Bowstring Mn (9Y0)

10a-2p Fall Colors Flyin Lunch

Oct 9 Bowstring Mn (9Y0)

10a-2p Monthly flyin lunch

Oct 16 So St Paul Mn (SGS)

11a-4p CAF Craft fair and
chili feed 651/455-6942

Oct 30 So St Paul Mn (SGS) 7a

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"SPECIALIZING IN ENGINE REBUILDING AND REPAIR"

Flight to Log Cabin

Many thanks to Norm Tesmar for these beautiful photos taken on the way to the Log Cabin fly-in Sept 5th from Dick Bylund's Cub. Note Greg Cardinal's



Piet in the photo to the left.

"There were about 9 J-3's, 1 PA 11(Cub Special), and one New Cub Sports parked in front of Doug's hangers. The airfield was full. It was the best ever."
—Norm



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