

WINTERMAIL

EAA CHAPTER 25

MINNEAPOLIS / ST PAUL, MN

SEPTEMBER 2015



Young Eagle Update

by Kris Olson



Chapter 25 flew nine kids on Saturday, June 20th. Don Eide and Pete Gabrail flew kids in their planes. Bob Dunst, Ron Hoyt, David Olson, and Kris Olson helped with ground crew.

Chapter 25 flew 42 kids on July 18th. Pete Gabrail, Steve Olson, Kirk Mahlen, Gary

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Making the Flaps & Ailerons

By Patrick Hoyt

The Flaps and Ailerons for my current project are made out of aluminum, along with some 4130 steel components. Each flap and aileron consists of a single piece of aluminum skin, an aluminum rib on each end, and a tubular aluminum "spar". There is an internal 4130 torque tube assembly with bushings, and the ailerons include a weighted

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#1—Olfa Cutter

Craig's "Flight Lines" Sept Meeting, Aug Minutes

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Final Approach Trivia Quiz
Oct 10th Cirrus Tour

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Oct 4th Chap 25 Banquet

P5

Flight Lines



—from Craig Nelson,
EAA Chapter 25 President

Wow. The days are getting noticeably shorter and there are fallen leaves in the back yard. Fall flying with the nice autumn colors is fun but I'm not quite ready to give up on the summer evening flights I enjoy so much. A glance at the MNDOT Aviation Events listing shows there are plenty of fly-ins still going on during the weekends. Get out there and enjoy some

pancakes before the cold weather brings these fly-in activities to a halt.

The AOPA Fly-In at Anoka/Blaine Airport was a big success. The foul weather that was forecasted held off until after the event although it was a breezy day. Chapter 25 had 16 volunteers help out with serving breakfast and manning the beverage station. The volunteer pool included folks from the Youth Initiative Aviation Academy and Air Academy scholarship winner Brett Fredricks with his mom, Julie. I was told over 700 breakfasts were served. I am still waiting to hear what the final count was and what our take home pay will be. Thank you volunteers for your service with this fund raising event.

Speaking of fundraising, letters went out to all members in mid-August asking for donations to the Chapter 25 Scholarship Fund. In the past month we have received \$1341 or nearly 50% of our \$2750 goal. Thank you to those that have donated. This is a good start but let's keep the momentum going. Please send your donation to Mamie Singleton, PO Box 17093, St. Paul, MN 55117. If half of our membership donates \$50 each, we will reach our goal which will put us in a good position to support our scholarship initiatives in 2016. Remember this fundraising campaign is replacing previous year's raffles and your donation is fully tax deductible. Please consider making a donation to this worthwhile cause.

We have a number of Chapter events happening in October. Our banquet will be on October 4th at the Eagan Community Center. The program will feature a presentation titled "Doolittle Raider Doc: Thirty Seconds Over Tokyo, the Rest of the Story" by Dr. David Schall. Dr. Schall is the FAA Great Lakes Regional Flight Surgeon and is writing a book about the flight surgeon who participated in the Doolittle raid over Japan. I'm looking forward to hearing this talk. Tickets are \$22 and can be obtained from Pat Halligan. See article on page 5. Pat is also arranging for us to tour Cirrus Aviation in Duluth on Saturday, October 10. See page 5 for more information.

Our meeting this month will be at the BSAEC at Airlake Airport. We will have the rescheduled presentation by retired ATC Controller Mark Schreier. Mark's talk is titled "Mark's Believe It or Not: Truly Unbelievable Tales from the Tower". Mark has a great sense of humor so I suspect this will be a very entertain-

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Minneapolis/St. Paul

Visit our website at eaa25.org

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This Month: Wed Evening Sept 16th—BSAEC at Airlake

Grill on at 6:00 pm, Meeting at 7:00 pm

Please bring something to share (meat and buns provided): deli salads, chips, cookies, utensils, soft drinks and water.

Program: Rescheduled presentation by retired ATC Controller Mark Schreier. "Mark's Believe It or Not: Truly Unbelievable Tales from the Tower".

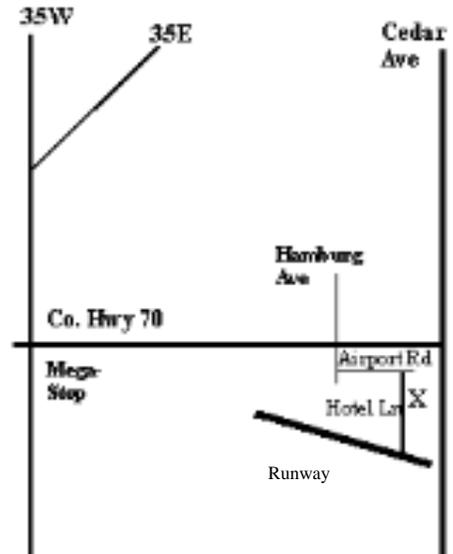
Saturday, September 19th: Young Eagles

Saturday, September 26th: National Girls Aviation Day at Downtown St. Paul Airport.

Sunday, October 4th: Annual Banquet, Eagan Comm. Ctr. See page 5 for more application and more information.

Saturday, October 10th: Cirrus Tour in Duluth See page 5.

Saturday, October 17th: Young Eagles Contact Kris Olson, pilots/ground crew needed: 651-675-6826, ksimpson2@yahoo.com



EAA Ch. 25 Minutes of the August 19, 2015 Chapter Meeting

The meeting was called to order by President Craig Nelson at 7:00 pm at the BSAEC. Lt. Col. Lou Martin led us in the Pledge of Allegiance and asked us to observe a moment of silence for all those in harm's way tonight and for all who paid the ultimate price for America since its inception.

Guests: 3 guests were welcomed.

Informed member –Bruce Anthony reported that Terry Carmine underwent heart surgery today. We know Terry would welcome cards and well wishes of support.

Treasurer's Report – Gordon Duke, Treasurer, informed us that our finances are in a healthy state. We have \$14,177 in checking and \$10,209 in savings for a total of \$24,386.

Young Eagles – Kris Olson reported that the Young Eagle event scheduled for 8/15 was cancelled due to lack of pilots. The next Young Eagle event will be on 9/19. Kris is planning the same group of kids from August plus 2 -3 more groups for a total of 25 – 35 kids.

There will be an aviation expo for youth ages 10 – 17 at the St Paul Downtown Airport on Saturday, September 26th

during the day. Women in Aviation, Stars of the North (Minnesota Chapter) and AirSpace Minnesota are hosting it. September 26th is National Girls in Aviation Day. Female mentors, possibly an astronaut and a WASP will be in attendance. Boys are welcome too. EAA Chapters are invited to run a Young Eagles rally during the event. Chapter 25's Young Eagles and other local EAA Chapters are looking for volunteer pilots (EAA members) and any ground crew that can help. Organizers are looking for people who will teach about aviation.

Pilots and ground crew are needed for these events! Please advise Kris if you will serve.

Dick Navratil Silent Auction – The event was successful Dick's rotary Piet and incomplete Volmer and Scout have been posted on Barnstormers.

Fund Raising – Craig thanked those who volunteered at the AOPA Fly-In on 8/22. We have not heard how much we earned.

Craig informed members that we are making a change in approach to fund raising for Chapter 25 expenses. Instead of conducting a raffle, we are asking Ch. 25 members to make a donation to our Scholarship Fund. Our goal is to raise \$2,750 to cover our scholarship commitments. A letter suggesting a \$50 tax-deductible donation will be mailed this week. Vice President Mamie Singleton is coordinating this campaign. Your support in this endeavor is appreciated.

Broadhead and Oshkosh – Peter Denny showed pictures of both events. Bob Ueek brought his Airstream complete with Ethan Allen furniture and mice. Greg Cardinal and Bob Poore reported that flying weather was good (Continued on page 5)

Final Approach Trivia Quiz

By John Schmidt

What's a Lufbery Circle?

Answer on page 5

Young Eagle Update

(From page 1)

Rosch, and Gary Stinar flew kids. Our ground crew was Gordon Duke, Bob Dunst, Ron Hoyt, Kim Johnson, David Olson, Kris Olson, and Bob Styer.

For our August Young Eagles, we had 28 kids signed up, but did not have enough pilots to run our event. I cancelled it a couple of days before. Most of the kids plan to come to our September Young Eagles event.

Kris Olson



Cirrus Tour

from Pat Halligan

Chapter 25 has lined up a tour of the Cirrus plant in Duluth for Saturday, **October 10 at 11:00 am.**

Gary Black, the regional sales rep, will be our tour guide. The tour will take about one hour and then Gary will order pizza, and while we eat, we can watch a film on the airplane parachute. Everyone, including spouse, friends, neighbors are welcome.

You can fly up or drive. We can even look at carpooling/ride sharing. Since the fall colors should be beautiful, some have asked about getting rooms at the same hotel/motel and spending Saturday night in the Duluth area. **Let me know if you are interested, by sending me an email.**

flyinghooligan@gmail.com

EAA Chapter 25 Banquet

Sunday October 4th, Eagan Community Center

Social Hour 5:30pm Dinner 7:00pm

Besides good food and cold drinks, we have a great speaker/presentation lined up for you. Dr. David Schall will be giving a fantastic presentation of Jimmy Doolittle's raid.

What I would like for you to do right now is, decide if you can make the banquet and if you can, fill out the form at the bottom of this article and mail it back with your check ASAP.

If you are unable to attend, I still need a favor of you. Please email me or call me and let me know you are unable to join us. It really, really makes my life easier as I won't have to form a calling committee and call those who have not responded. So, I hope you can attend, but either way let me know soon.

Patrick Halligan flyinghooligan@gmail.com 651-341-9264

Name (print) : _____

Number of tickets: _____ x \$22 = \$ _____

Mail to: Patrick Halligan
4379 Kaufmanis Way
Eagan, MN 55123-1862

Answer to Final Approach Quiz (See page 3)

The **Lufbery Circle**, also spelled "**Lufberry**" or "**Luffberry**", is a [defensive air combat tactic](#) first used during [World War I](#).

While its name derives from the name of [Raoul Lufbery](#), the leading fighter ace of the [Lafayette Escadrille](#), he did not invent the tactic; how it acquired this name is not known, although it may be due to his popularization of it among the incoming U.S. pilots he trained. In non-American sources it is in fact usually referred to simply as a "defensive circle".

This air tactic can only be mounted by formations of aircraft working together: it involves forming a horizontal circle in the air when attacked, in such a way that the armament of each aircraft offers a measure of protection to the others in the circle. It complicates the task of an attacking fighter - the formation as a whole has far fewer "blind spots" than its members, so that it is more difficult to attack an individual aircraft without being exposed to return fire from the others.

http://en.wikipedia.org/wiki/Lufbery_circle

August Minutes (Continued from page 3)

at both events and no breakdowns or issues were encountered.

Air Academy Reports – Craig shared a thank you letter received from Julie Fredericks, mother of Brett, who attended Air Academy for the first time this year. Brett shared his excitement about the camp at the July Chapter meeting. Matthew Davidson gave a PowerPoint presentation of his experience, complete with videos.

Officer Nominations – Craig informed members that Ch. 25 Officer Nominations for 2016 will be announced and closed at the October Chapter meeting. Let Craig know if you are interested in running for any position. The election will take place at the November Annual Meeting.

Wall of Fame – John Koser reminded all Ch. 25 members who have built homebuilt aircraft to submit a picture of your plane to him. We know there are many more than he has received and posted on our wall.

(Continued on page 7)

Making the Flaps & Ailerons

(From page 1)

counter-balance.

According to the drawings, the chord of the flaps and ailerons is tapered, with the widest section on the flap at the wing root; and the narrowest section on the aileron at the wing tip. Some builders chose to make these of a constant chord, however I built the tapered design.

In order to maintain an accurate and consistent taper, I built each wing's flap and aileron skin as one single piece, and then cut them apart after they were bent.

The dimensions of the flaps and ailerons are first laid out on a 4'x8' sheet of 6061-T6 aluminum, and then a long straight-edge was clamped into place. An "Olfa P-Cutter 800" (Photo 1) was used to make the long cuts in aluminum sheet. The tungsten blades on these effectively last forever. This is the second airplane I've built using this blade (and the first airplane was all aluminum), and it's just as sharp today as it has ever been.

After cutting the aluminum sheet, the bend lines were drawn and a friend's bending brake used to make the initial bends. This resulted in the workpieces being bent about 90 degrees along the entire length. I needed quite a bit more bend, so I made a bending brake on my workbench using door hinges and a long, straight 2"x6" board. Bending the aluminum the rest of the way took a fair amount of force, so I used clamps to secure the workpieces in place, and my own body weight to perform the remaining bending (Photo 2).

Wooden blanks were made for the end ribs, over which aluminum stock was hammered into shape (Photo 3). A hand tubing cutter was used to cut pieces of thick 6061-T6 tubing for the flap and aileron spars.

Rivet lines were then drawn on the skins, and a Rivet Fan used to mark a consistent spacing between rivets (Photo 4). Rivet holes are first drilled in the aluminum sheet, which is then used as a template for drilling the holes in the spar tubes, with clecos used to hold everything together.

Once all the holes were drilled, and everything securely clecoed into place, I again used the Olfa knife to cut apart the flaps from the ailerons, which ensured a constant, unbroken taper across the pieces. I went slow and took my time on this, and it turned out well.

The rivet holes in the spar tubes were then countersunk, and the mating holes in the aluminum sheet were dimpled. I used a "Micro-countersink" cutter (Photo 5) on the spar tubes, and a set of dimpling dies and a rivet squeezer for the skins.

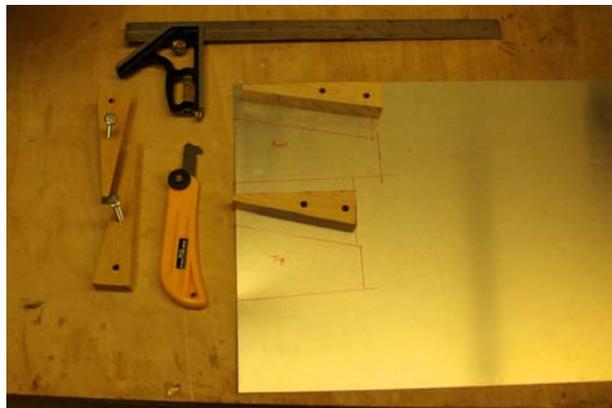
A lathe was used to trim the 4130 hinges for the ailerons and flaps, after which they were permanently mounted. The skins were then flush-riveted to the tube spars and the end ribs.

4130 steel tubing was cut into the specified length for the torque tubes and aileron counter-balance pieces. The

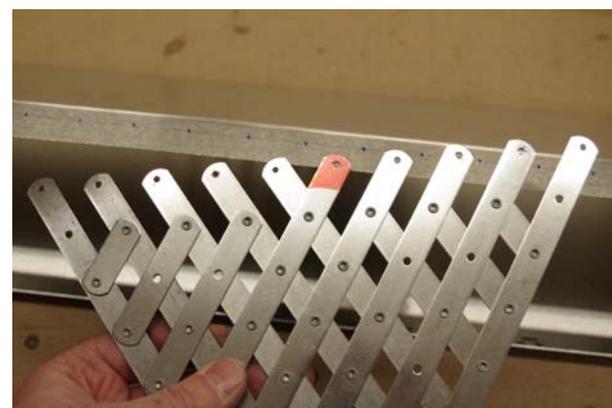
(Continued on page 8)



#2—The Aileron Bending Happy Dance!



#3—Aluminum Rib Pieces



#4—Rivet Fan for Spacing Holes



#5—Micro-Countersink Cutter



August Minutes (Continued from page 5)

Upcoming Events –

- August 22 - Volunteering at the AOPA Fly-In.
- Sept 16 – Chapter Meeting with Mark Schreier presenting “Mark’s Believe It or Not: Truly Unbelievable Tales from the Tower”
- Sept 19 - Young Eagles Event
- Sept 26 – National Girls Aviation Day at Downtown St. Paul Airport
- Oct 4 – Ch. 25 Banquet at the Eagan Community Center. Dr. David Schall will speak on Doolittle’s Raid. Plan an enticing Silent Auction item to give away as a donation.
- Oct 17 – Ch. 25 Young Eagles Event
- Oct 21 – Ch. 25 Meeting featuring engine preheating equipment by Tanis
- Nov 18 – Ch. 25 Meeting – Shooting Aviation Videos by Ryan Moore of Flight Flix
- Nov 21 – Ch. 25 Young Eagles Event

Presentation – The scheduled speaker had to reschedule so Craig arranged a Vacuum-Forming presentation by Steve Adkins, a Fuel System Design presentation by Gordon Duke and EAA Chapter Video Magazine segments.

Vacuum-Forming Aluminum – Steve Adkins demonstrated vacuum-forming .016 aluminum. This is aluminum so thin that it will dent if polished, so vacuum forming using duct tape and a regular shop vacuum is an effective way of making nose ribs.

Fuel System Design – Gordon’s Rans fuel system is complicated because of its aerobatic capability. Gravity feed is ineffective because of the plane’s low wing configuration, so Gordon added two Fuel Guardian pass through pumps with one-way stop valves that has resolved fuel pressure problems.

We watched entertaining videos on the de Havilland Mosquito, an AutoGyro with a Rotax 912 engine and a ballooning video about playing on the rocks in New Mexico.

Respectfully submitted,
Kim V. Johnson, Secretary and Membership Coordinator

Next Chapter Meeting: Wed, Sept 16th

Young Eagle Events: Sept 19th
contact Kris Olson (see p2) if you can volunteer

Aircraft Insurance and Hangar Insurance



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Maple Grove, MN 55369

Flight Lines

(from page 2)

ing presentation. In October, Doug Evink with Tanis Pre-Heating Systems will join us to talk about engine preheating, a timely topic as the weather starts turning colder. Then in November, Ryan Mohr will give his rescheduled presentation about the "Ins & Outs of Shooting Aviation Video". Ryan will review what equipment is available and present information on how to safely shoot video from cameras mounted on aircraft.

Finally, with the end of the year in sight we need to start the process of nominating next year's slate of officers. If you have an interest in serving as a Chapter 25 Officer, please contact a current officer and inform them of your interest. Nominations will be presented in the October meeting with voting occurring during our November meeting.

I look forward to seeing you at the BSAEC on September 16.



Making Flaps & Ailerons

(from page 6)

counter-balance pieces were TIG welded together, and then filled with molten lead, with the completed counter-balance assembly being riveted to the outboard edge of the aluminum aileron spar with steel rivets.

Two sets of bushings were fabricated on the lathe, one set using bronze stock, and the other using sections of a rod of oil-impregnated hard plastic (Photo 6).

Patrick Hoyt



#6—Making Bushings on Lathe



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