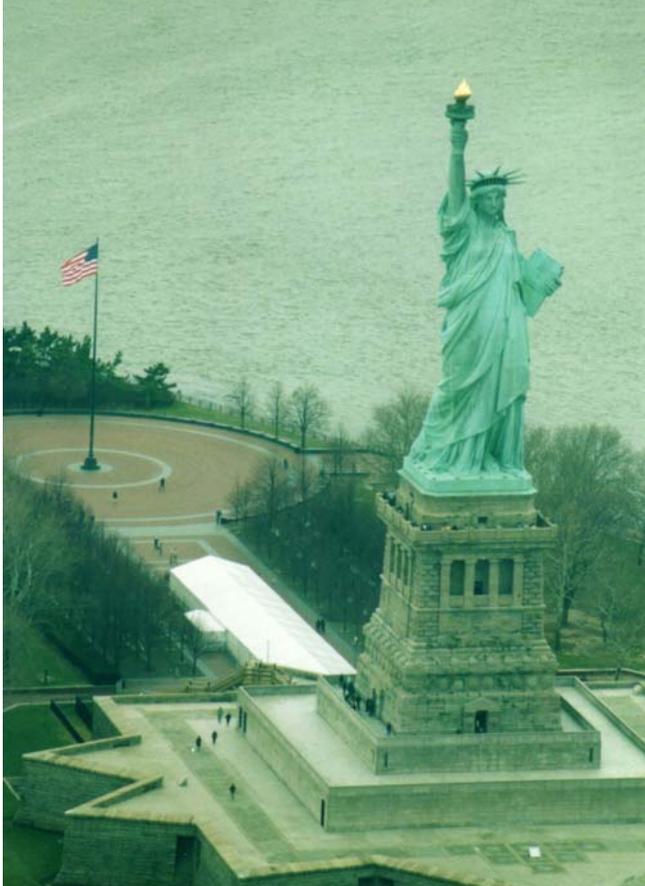


ONLINE

EAA CHAPTER 25

MINNEAPOLIS / ST PAUL, MN

FEBRUARY 2005



Hudson River

Run

Article and photos

by Ty A. Sibley

For those of you who don't know me, I am one of the chapter's younger members. My name is Ty Sibley, and I have been involved with the EAA for almost 10 years now, not too bad for a guy who is 20 years old. I spent a year at the John D. Odegard school of Aerospace Sciences at the University of North Dakota. That didn't work out too well for me, so I am currently a flooring installer for my uncle's business. I recently enlisted in the Navy and will be leaving for Basic Training shortly after Airventure. But enough about me, I have got a very interesting story that I think many of you will enjoy, and find very interesting.

When I was 16, EAA chairman Jim Gorman paid my way to attend the EAA Air Academy at Oshkosh. It was here that I befriended a kid who was even taller and (Continued on page 4)

Centrifugal Force - The "Imaginary"

Force (or, The Physics of Coordinated Turns)

by John Koser

The diagram shown on page 45 of the August 1997 Issue of "Flight Training," also in part of several other flight training aids (*Jeppesen Pilot Manual*, *FAA Flight Training Handbook*, & *ASA Private Pilot Test Prep*), is basically incorrect from the outside observer's (as they illustrate it) point of view. Two features about the diagram need to be addressed. The diagram looks much like the one shown below, where the two horizontal vectors are the same length, and the upward pointing vertical vector is longer than the downward one.

(Continued on page 5)



John Koser (right) discusses Washburn Sonex project with Steve Johnson

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Cleared for Takeoff

by Pat Halligan



You've all heard of cabin fever; well I think I had hangar fever if there is such a thing. I hadn't flown the Cessna since the first weekend in December when my black lab Molly and I flew to Faribault for the Tree of Hope gathering. Even though I'd only been to the hangar once to shovel snow, I found myself thinking about a peaceful ride above the white countryside on some smooth winter air. The problem was either the weather wasn't cooperating or I was too busy. Last weekend we were in Grand Forks celebrating my daughter's 21st birthday. If she is getting older, I must be getting older too. Before that I was in Colorado

skiing with my family. Then there was Christmas and New Years. This weekend we were going to go snowmobiling, but surprise surprise the weather was too warm, so we stayed home and I got to go flying this morning.

My lab Molly was the only one home when I decided to go flying, so her and I headed to the hangar around 10am even though it was a little windy- south at 18G24. It was very bumpy during the climb, but not bad at 2500'. It was fun to be flying the Cessna again even if the ground isn't white and the air wasn't smooooth.

Some great news from the Lakeville airport. Matt Ketcham and Chris Damlo (two of our members) both got hired by Mesaba Airlines in the past month. These two fellows are the ones who own and operate the Airlake Flight School. Chris will be flying the Avro jet and Matt will be flying the manly Saab. And don't worry, they are going to keep the flight school open.

I'm sure some of you have found a used book store or good website where you get a great deal on aviation books. I became one of those lucky people last week. I was on a layover in San Francisco wandering the streets after lunch when I went into a used book bookstore called Acorn. I found the aviation section and for the next hour or so I looked through a lot of old/used books and I ended up buying two. One was about the life of Charles Lindberg and it was a first print-first edition book in good shape. I paid \$12 for a book that was \$30 new. The second one is titled The Leading Edge by Walter Boyne and it has some absolutely beautiful aviation pictures in it and to top it off, it is signed by the author. That one was \$7. If you know of any websites or stores in our area, just let me know and I'll pass it on to the rest of the members.

Another way to spend an enjoyable hour is to take a morning out of your busy schedule and go to Washburn High School and visit with Peter, his kids and checkout the Sonex. If you wait until the airplane is flying all you'll see is a finished airplane, but if you visit now you'll see kids building it piece by piece and then when you see it fly you'll remember the faces and work that went into the building process. This is not a Cessna coming off an assembly line; it is an expression of love being shaped by teenagers.

When the weather warms up a little more, we will have a work day at the hangar and clean it up and organize the books, magazines and videos. If you plan on donating something to the chapter let one of the officers know ahead of time, and don't just drop things off as the hangar starts to look like a flea market. Or is that a fly market. Thanks for your consideration.

I'm already thinking about our banquet later this year and if you have something to donate that would make a great door prize or silent auction item, please let me know. I already have a new set of headphones, but we will need more items to make it as enjoyable as last year.

If you know of any company that would like to be a newsletter sponsor please drop me a line as we are always looking for ways to offset the cost of the newsletter. With our new website their ads will be seen by more people.

Pat and my backseat co-pilot Molly.

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ON FINAL



Minneapolis/St. Paul

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The Leader In Recreational Aviation

This Month—Feb 16th—Washburn High—6:30 pm

Meeting starts at 6:30 Free coffee & snacks

Speaker: Our speaker this month will be Mike Schoen, CFII, member of EAA Chapter 1229 and President of Prescott Flying Club at Fleming Field. Mike will give a presentation on Runway Incursion. Mike is working with the local FSDO to get this presentation qualified for the FAA WINGS Aviation Safety Program. Stay tuned!

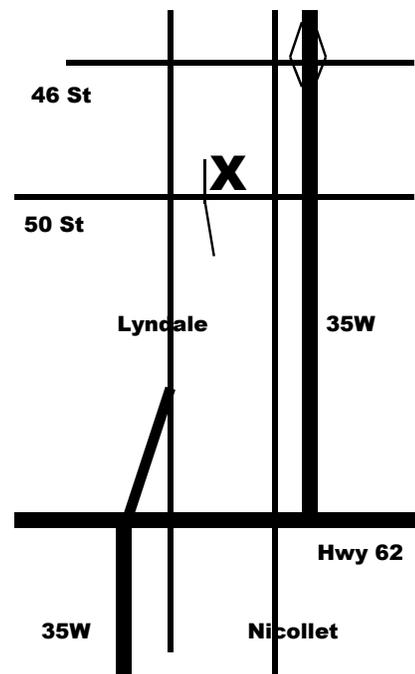
Saturday, Feb 19th—Young Eagles Flights at 9am

Several of our chapter Sonex pilots will have their planes on site!

Saturday, March 5th: 11 am-1 pm Annual Chili Feed!!

Chapter Hangar at Airlake—Bring family & friends and your favorite chili or another dish to share, chips, desserts, etc. Coffee, hot chocolate, cups, dishes & utensils will be provided. **Young Eagle Flights at 10 am**—bring the kids early for free airplane rides before the chili feed!

Directions to Meeting: From the South: Left exit 10B from 35W at the Crosstown. Continue north on Lyndale Ave to 50th Street. Right turn and proceed 3 blocks. Turn left into the school south parking lot. **From the North:** 46th street exit from 35W, turn right. on 46th street to Nicollet, turn left. South on Nicollet to 50th, turn right. West on 50th past the Junior High School to the Sr. High School 2 blocks west of Nicollet. Turn right into the school south parking lot. **Entry: South door #9, meeting room on your right.**



EAA Chapter 25 Meeting Minutes

January 19, 2005

Presiding Officer: Jon Cumpton

Location: Washburn High School

Business meeting discussions

- The following guests were introduced:
 - Charlie Weerts
 - Brent VanTassel
- The Chapter 25 website has been revamped by Jeff Coffey and is now live. Check it out at EAA25.org. Jeff welcomes any comments and suggestions. Thanks Jeff for all the work. It looks great.
- John Koser gave a Young Eagles update. There were no flights in January. Our usual third Saturday YE event is on for February 19. The rally will be held at the FBO at Airlake. Last year we flew 252 YE. If we all work on recruiting kids we could do 400 this year. Talk it up. Jeff Coffey is now co-coordinating the chapter YE program along with John.
- Peter Denny gave a Washburn Sonex project update. A paint scheme has been developed and a drawing of it was circulated. Jon Cumpton commented on his recent visit to the project to work with the students. All members are encouraged to visit and get involved. Please call or email Peter if you are planning on visiting to assure that it will be a workday for the students.
- Peter also gave a Gusty update. It is currently at Roosevelt HS where it is about to be painted. Once painted it will be moved to the University of North Dakota where it will be put on display.
- Rich Monteleone, our membership coordinator is working on

updating the membership roster so that it can be published. Please email any changes of your membership information to him.

- The chapter officers are exploring ideas on how to use the Earl Adam Memorial gift money that the chapter received. One idea is to buy some audiovisual equipment so we can hold ground school classes. If you would like to champion this effort or have other ideas, please contact one of the chapter officers.
- The chapter is looking for candidates for our annual OSH Air Academy scholarship. If you know of a kid interested in aviation who would be a good candidate, please contact one of the chapter officers.
- We discussed the concept of having a hanger oversight committee. This group of members would coordinate hanger issues and assure that we do not clutter the structure with unneeded items. If you would like to be involved in this committee, please contact a chapter officer.
- The Treasurer's report for December is as follows:

Beginning Balance	\$9285
Income	\$ 816
Expenses	\$2681
Ending Balance	\$7420
- Dale Johnson won the \$20 nametag drawing.

Program

Fractional airplane ownership through the company Our Plane was explained by chapter member Brent Behn.

Submitted by Craig Nelson
January 29, 2005

Hudson River Run

(Continued from page 1)

lankier than me. His name is Aaron Wypyszynski; everyone at camp called him Wyp for short. We kept in contact over the years and now we meet up every year at Airventure and camp together. He is now a sophomore at Purdue majoring in Aerospace Engineering. I got a call from him a couple of months ago and he asked me if I wanted to fly out after Christmas and drive from his house in New Jersey to Mont. Tremblant Canada to do some skiing. I agreed, especially after hearing that his parents would flip the bill for the airline tickets. Aaron earned his Private Pilots license when he was 17, already has Instrument and is getting very close to his Commercial. At some point in the pre-trip planning, he mentioned that if the weather is good enough when I am visiting, we will go flying before our drive up to Canada.

I ended up flying into Newark on Christmas Day, Aaron picked me up and it was about an hour drive to his house in Chester New Jersey. The next day brought beautiful flying conditions, a high overcast with no winds and a 10+ mile visibility. We drove another half hour to the airport where Aaron learned to fly. The airport was a beautiful old airport called Caldwell (CDW). We walked into Century Air, the FBO and he got the book for the plane we would be flying, Cessna N738QZ, your basic 172 beater. We pre-flighted the aircraft and boarded our trusty steed and taxied to runway 4 for a North-East departure. As we took off, we stayed below fifteen hundred, so that as we approached New York City, we would stay below the Class Bravo airspace. I couldn't really believe that we were flying a plane right towards New York City. Aaron has made this flight a few times, the pilots in the area call it the Hudson River run. So as we were cruising along I was looking to the North-East at the New York City sky-line, something I had only seen in movies and pictures. I looked over at Aaron, and on his kneeboard he had the frequencies for stuff like La Guardia Tower, Newark Tower, and New York Approach. Never thought I would have a prayer of talking on



USS Intrepid

those frequencies unless I was sitting at the controls of an airliner. So we continued flying North-East until we hit the Hudson River. We rolled in on the river, by roll I mean a descending 60 degree banked right turn. And now things start happening very fast. We announced our position on the Hudson River UNICOM as we passed over the George Washington Bridge at 1000 ft msl. We then climbed to 1500ft msl. And got on the radio with LaGuardia (LGA) tower and got a transition to the East River. We made a left 90 degree turn and flew right over the heart of central park at an altitude of 1500 feet. Moments later we picked up the East River and made a 90 degree turn to the right and followed the east river all the way to the Brooklyn Bridge, and past the southern tip of Manhattan.

Now we switched frequencies to the Hudson River UNICOM and started looking for helicopters. We made a very tight 360 degree right turn for spacing, and fell into a pattern with about 5 helicopters, the closest being no more than a 1/4 mile in front of us. So Aaron dropped 40 degrees of flaps and we slowed to around 70 kts. By this time we had descended to 800 feet above the water of New York Harbor. We were now number 4 in line to start our turn of flying "laps". If you are unfamiliar with the geography of the New York City area, there is one very prominent landmark in New York Harbor that people come from all over the world to see, and I was about to be flying laps around it at 800 feet and a range of less than a 1/4 mile. The Statue of Liberty was standing tall and looking beautiful as she kept watch over the Harbor. We were one of 4 aircraft flying laps around her, Aaron was doing all the flying up to this part, as I was busy shooting roll after roll of film. After about 3 laps and a whole roll of film, we broke off from the pattern and headed back up the Hudson river where we had come in. This route took us directly past Ground Zero where the Tragic events of September 11th 2001 occurred. It was nothing more than a massive hole in the ground, but it was very moving to look down and see where thousands had lost their lives. It is more than just a hole in the ground though, the hole in the skyline where the towers should be is equally impressive.

Another interesting sight that we passed over was



Ground Zero today, showing recovery post 9/11

Hudson River Run

(Continued from page 4)



Giants Stadium

the USS Intrepid, an aircraft carrier turned into an aviation museum. And sitting on a barge next to the Intrepid sat the Concorde, what a beautiful looking aircraft. On our way back up the Hudson River, we got on the radio with Teterboro tower and they vectored us back to Caldwell, via the Meadowlands (Giants Stadium).

So as you can imagine this turned out to be a very fun flight. For a farm kid from Minnesota to get his first taste of "The Big Apple", from a small plane at such a low altitude, it was an awesome experience. Another reason I really wanted to write this article is to tell people that general aviation is alive and well. Not many people are aware that you can fly right through the heart of New York City, and above all do it legally. September 11th may have hurt us for a while, but I believe that it has probably helped to make us better pilots. We pay a lot closer attention to TFR's and other flight restrictions. So to conclude, I would like to say there is a lot of good sight seeing to be had all over this great nation of ours, just do your homework first!



Tyler after first solo flight

Coordinated Turns

(Continued from page 1)

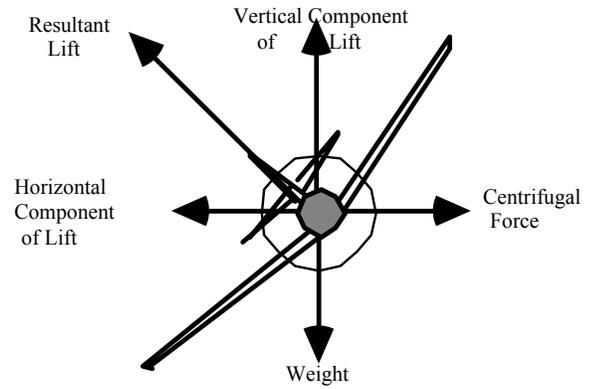


FIGURE 1

A. The vectors shown all seem to be real from the point of view of the pilot aboard the aircraft (shown heading toward the reader), but from the point of view of an observer in the position of the reader, suspended in space, there is one vector shown that shouldn't be there - the one labeled "Centrifugal Force."

B. The relative lengths of the vectors shown also need to be addressed, as vector addition is a scale process, and the vectors shown aren't drawn to correct scale.

Analogy - Ball on a String With Vectors

To examine the two ideas, look at a simple analogy - a ball suspended on a string, which is whirled around in a horizontal circle. The airplane shown in the diagram is supposedly flying in a horizontal circle, so from our position in front of it as readers, we would be in relatively the same position with respect to the ball, and in the same horizontal plane.

If one considers a ball being swung on a string so its path is a horizontal circle, and asks, "What forces act on the ball?" one could see that the two forces (ignoring air friction) acting in the plane of the paper are: **weight W**, and **string tension T**. See Figure 2, noticing that *no other forces act on the ball*.

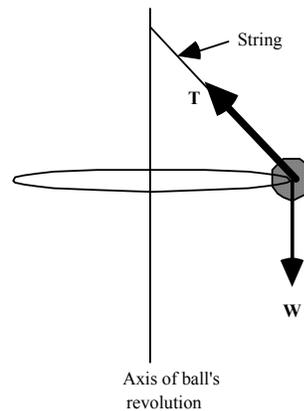


FIGURE 2

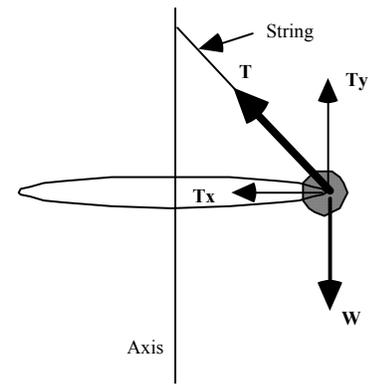


FIGURE 3

(Continued on page 6)

Coordinated Turns

(Continued from page 5)

Since the ball is not accelerating in the vertical direction (no unbalanced forces, therefore no acceleration - Newton's Second Law), the vertical component of the vector **T** must just be balanced by the downward pointing vector **W**. See Figure 3.

Notice that the vector **T** has no component pointing to the right. Its only components in the **x** and **y** directions (horizontal & vertical) point up and to the left (toward the center of the horizontal circle in which it is moving). The component of **T** which points to the left **T_x**, which is also toward the center of the horizontal circle of the ball's movement is a *center-pointing* force, or *centripetal* force. It is an unbalanced force, therefore it produces acceleration (Newton's Second Law again). The direction of this resulting acceleration must be in the same direction as the unbalanced force, which is to the left in the diagram, and this direction is along a radius, which points toward the center of the circle. In effect, the ball, going in a horizontal circle is always being accelerated toward the center of the horizontal circle.

Is there an Outward (Centrifugal) Force?

Where does the idea of a **centrifugal** (outward-pointing) force come from? If you are the pilot of the aircraft coming toward the reader (Figure 1), you *feel* an outward pointing force, just as does the driver of a car going around a horizontal curve. If you were riding on the ball in Figure 2, you would perceive that same outward pointing force. You think you feel this force, because the car, or the ball, or the airplane, to which you are secured by the seat/shoulder belt system, is pushing you inward. It does this because it's an accelerated system, not an inertial system. In our everyday experience, we tend to think of all forces as balanced by equal and opposite forces (Newton's Third Law). We tend to think there must be a force opposing this inward - pointing force, but that's not true. It is this inward pointing force that makes you go in a circle. If you suddenly could remove it, you would continue in a straight line tangent to the curve at that point, except that gravity would make you begin to accelerate downward (an unbalanced force).

Comparison of Ball on String with the Airplane

The tension vector **T** on the ball is analogous to the lift vector provided by the airplane's wings. The lift is produced because the wings are moving toward us through the air, whether the wings are oriented horizontally or at some angle (angle of bank). This lift vector describes a cone as the airplane banks at a constant angle about a vertical axis, just as does the string suspending the ball. The airplane then, generates lift perpendicular to its path, and that lift vector has two components, vertical and horizontal. The vertical com-

ponent must be equal and opposite to the airplane's weight and the horizontal component is completely unbalanced, therefore generating acceleration in the direction it points - toward the center of the horizontal circle.

Vector Addition and Vector Lengths

Notice in Figure 3, the vertical component of lift and the weight vector are the same length. That must be true since there is no vertical acceleration. When a vector is resolved into its components along coordinate axes, the components are defined to the same scale. If the angle of bank to the horizontal is \emptyset , and if we define the Lift Vector as **L**, we use trigonometry to define the components as:

(Vertical Component) $L_y = L(\sin \emptyset)$, and

(Horizontal Component) $L_x = L(\cos \emptyset)$.

That's why the "Resultant Lift" vector shown in Figure 1 is too long for the vector diagram's scale.

Conclusion

There is no centrifugal force - only a perceived such sensation as felt by the pilot because the pilot is accelerating toward the axis of the horizontal circle, but it's really the airplane exerting an inward force (which he/she perceives as an outward force) on the pilot.

The only force that's unbalanced is the center-pointing force, which causes the acceleration toward the center of the circular path.

Anything going in a horizontal circular path is constantly being accelerated toward its center by an unbalanced force, the **centripetal force**.

Corrected Diagram

The diagram in Figure 1 can easily be corrected by making the vectors of correct length to represent components of lift **L** and by removing the fictitious centrifugal force vector. See Figure 4 below.

In this diagram, **L** has been divided into its components, **L_y** and **L_x**. These two components replace **L**. Since **L_y** is countered by the airplane's weight **W** as it moves in a horizontal circle (not accelerating up or down), **L_y** & **W** disappear, and the only remaining force is **L_x**, the net force, which is a centripetal force.

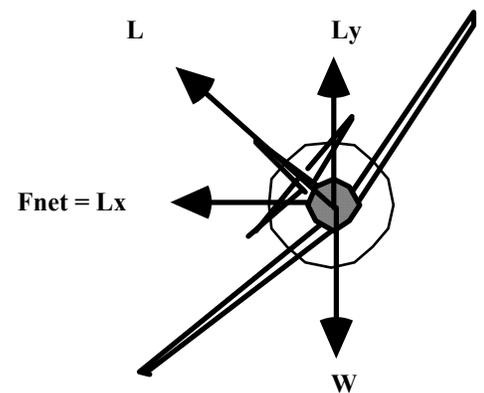


FIGURE 4

EAA's Aviation Services

EAA members are one call, email or letter away from a wide range of technical aviation services available from the Aviation Services Department at EAA. First and foremost, the Aviation Services Team is responsible for answering member technical inquiries relating to pilot and aircraft issues. This one-on-one consulting covers everything from "How do I register my homebuilt?" to "What's involved in the A&P exam" to "How do I convert my ultralight for the new sport pilot rule?" and more.

Experienced pilots, aircraft owners, homebuilders, ultralighters and sport pilot specialists staff the department. Their personal and professional experience enable them to field just about any technical aviation question that comes their way. And if they can't answer your question right away, they'll do the research needed to help guide you to the right resource or solution. EAA's in-house library is an additional resource the Aviation Services team counts on for information and the library is also available to members visiting the Oshkosh headquarters offices.

The Aviation Services Department supplies a great deal of the technical information found on the Members Only portion of EAA's website at www.eaa.org. The Homebuilders Headquarters section on the site provides a wealth of information on building, maintaining and flying an experimental amateur built aircraft. A significant amount of the content on EAA's Sport Pilot website page is also developed by the Aviation Services team.

Two of the most popular "hands on" offerings from the Aviation Services Department are the Technical Counselor and Flight Advisor programs. There's a network of over 1,000 EAA members across the US who are registered EAA Technical Counselors that will come to your homebuilding location to provide in-progress inspection of your project. The Flight Advisor program has several hundred EAA members who will provide advice and assistance on taking that first flight in your new homebuilt aircraft.

FAA Medical assistance is one of the individual offerings also available from the department. If a member needs assistance receiving a special issuance from the FAA, Aviation Services personnel will track the application all the through the process until approval to ensure that nothing derails your application. In addition, we have a network of doctors that are AMEs and EAA members who volunteer their services to help other members retain or regain their medical.

For more information on your EAA Technical Services offerings please call 1-800 -EAA-INFO. They're ready for your questions!

Washburn Aviation Website

Check out this website to learn more about Washburn High's Aviation Program. There is even a section called Sonex Diaries that give a week by week history of the Sonex building project. Thanks to Celia Poehls for her work on the aviation pages and for telling us about it!

<http://washburn.mpls.k12.mn.us/Aviation.html>

You can contact Celia at cezzium@yahoo.com

ON FINAL FEBRUARY 2005



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Chapter Events and Fly-Ins

Feb 16th Chapter 25 Meeting
Washburn High School 6:30pm
 (See directions on page 3)

Feb 19th Young Eagle Event LVN

Mar 5 Annual Chili Feed 11a-1p
& Young Eagle Flts start 10am

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

Feb 19 So St Paul Mn (SGS) 11-1p
 Ski Fly-in Jeff 612/849-5940

Feb 26 Hinckley Mn (04W) 8-11a
 Bkfst 320/384-6488

Feb 27 Warroad Mn (RRT) 8a-1p
 Ski Fly-In Bkfst Skis land on
 Warroad River 218/386-1818.

Mar 5 Duluth Mn (DYT) 10a
 Ski/wheel fly-in 218/723-4880

Mar 6-8 Fargo ND Holiday Inn
 Upper Midwest Aviation Symp.
 kasowski@aero.und.edu.

Mar 12 SoStPaul Mn (SGS) 9-11a

Mn Seaplane Pilots Assn Mtg
 Donuts&coffee 651/450-9669

Mar 12 Superior Wi (SUW)
 Fly-in bkfst 218/729-7764

Mar 19 Cloquet Mn (COQ) 10-2p
 Fly-in lunch 218/879-3062

Mar 24-25 St Paul Mn
 Mn Aviation Mtce Tech Conf
 Radisson Riverfront Hotel.
 800/857-3922.

Apr 12-18 Sun N'Fun 2005 (LAL)

Apr 13-15 Mankato Mn (MKT)
 Mn Avia. Symp, Civic Center

Apr 23 Bloomington Mn 5pm
 MAHOF Induction Banquet.
 For reservation contact Nancy

Olson, 1101 E. 78th Street,
 Suite 150, Bloomington, MN 55425

Apr 28-30 Rochester Mn RST)
 Mn Av. Symp. mnairports.org

Apr 30-May1 Oshkosh Wi (OSH)
 'Coupe Cub & Aeronca Fly-in
 Pioneer Field 715/842-7814

Stuff for Sale/Wanted

Wanted: Rebuilt low time engine for my PA12: 108, 115, 125 or 135 HP would be acceptable. Jan (grounded supercruiser) Berghoff cell 952-994-4114 home 952-829-5914 office 507-357-6565.

For Sale: pair of new headsets from Sporty's, model Air-680, \$120 ea. New. Plus Flight Gear carrying bag, will sell both headsets plus bag for \$75. Pat 651-452-7050

For Sale: 29'x34' homebuilder's shop with walkout rambler attached. Burnsville, joins Skyline park. 3 bdrm/fam rm/dbl garage. \$279,000. Pat Green 952/890-3514

For Sale: 1/10th share in J-3 Cub & hangar at MIC. Low cost flying.
 Call Dan: 612/991-6392 for specifics.

For Sale: Wittman Tailwind built 1972 by Wally "Pat" Carlberg. Improvements developed by Steve Wittman incl. a roomier cockpit and upgrades for higher hp. <700 hours TT w/70 hours since major on a 160 hp Lyc. 0-320-B2B including new cyl. & crankshaft. New light wt. starter & alternator. King KX-155A w/KI-208 Head. KT-76Y Xponder w/Encoder. Intercom with dual headsets. Dual shoulder harness. Includes many never used/needed spare parts. 100 lbs. lighter than most Lyc. powered Tailwinds. \$28,500 OBO Forrest Lovley 952-492-6126

Chapter 25 Month-Year Treasurer's Report

	Begin-Balance	Income	Expenses	Ending-Balance
February	7,679.20	640.00	2,538.91	5,780.29
March	5,780.29	1,202.00	1,835.67	5,146.62
April	5,146.62	522.75	1,165.44	4,503.93
May	4,503.93	58.78	1,339.07	3,223.64
June	3,223.64	1,647.83	1,090.08	3,781.39
July	3,781.39	399.24	176.31	4,004.32
August	4,004.32	633.12	404.42	4,233.02
September	4,233.02	2,297.40	1,236.84	5,293.58
October	5,293.58	7,039.44	3,233.88	9,099.14
November	9,099.14	890.00	704.06	9,285.08
December	9,285.08	816.00	2,681.00	7,420.08
January	7,420.08	1,000.00	240.04	8,180.04

Submitted by Ron Oehler, Chapter 25 Treasurer



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