



The Beacon

The newsletter of Chapter 54
Lake Elmo, Minn.

JUNE 2015

June 2015

NEXT MONTH'S PROGRAM WILL BE ON

MONDAY July 11, 2015

- Come at 7:00 pm and socialize.
- **CHAPTER HOUSE, ENTRANCE B, LAKE ELMO AIRPORT 21D.**
- Our Chapter Web site address: www.eaa54.org
- *U-2 / SR-17 Pilot Presentation*

By pathabu <pathabu@aol.com>
"The Flight Crews of the Blackbird"

Tanis Engine Preheaters for Rotax 912 Series Engines by Dave Syverson

Last winter we acquired a Tanis preheater kit for our Kitfox 7 equipped with a 912ULS. I spent a lot of time studying this deal and made some changes to the recommended installation and did some additional analysis to better understand the whole thing. One conclusion I came to is the Tanis heats the engine from the inside out while the method I had been using



INSIDE THIS ISSUE:

TANNIS ENGINE PREHEATER	1
YOUNG EAGLE REPORT	3
EDUCATION CHAIR REPORT	5
PRESIDENTS MESSAGE	6
SECRETARY NOTES	7
LEARNING JET	8
WEEKEND WORK PARTY	9

Upcoming Events

1. Next Young Eagles event — July 13, 2015
2. Aviation Day Pancake Breakfast August 16, 2015
3. July Meeting— Special Event — U-2 & SR-71 pilot Presentation

heats the engine from the outside in. Rotax has a video on the Tanis on a 912 on their web site which provides a lot of additional performance information.

The kit included six heaters and the harness; plus, there are some installer supplied hardware items required for a total installed weight was 20 ounces. One pad heater for the oil pan, four heater bolts for the cylinders and one heater bolt for the crankcase - total designed wattage is 230 watts while the install checked out at 227 watts. The harness has one extra

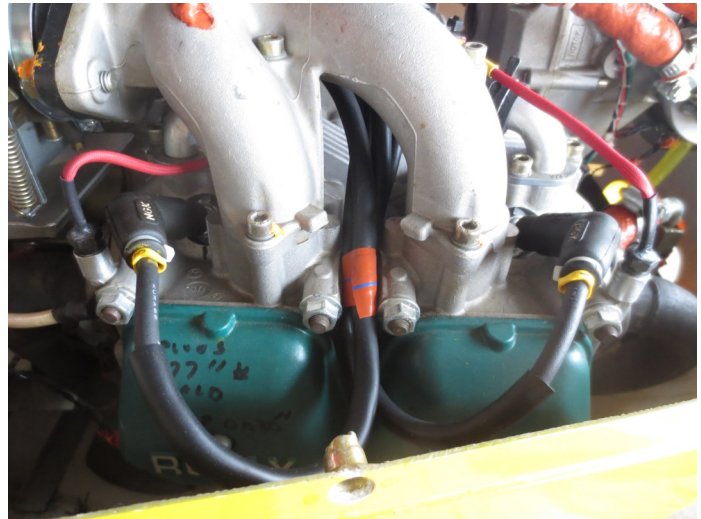
plug if a person wants to add a battery heater.

The instructions call for screwing the cylinder heater bolts into one of three places - Upper coolant flange, intake runner flange or the baffle ears. Tanis leans towards the coolant flange because of its location near the center of the cylinder & coolant chamber. I chose the baffle ears for the cylinder heaters because that location is not used for any other purpose on a Kitfox/Rotax combination except for the front port side location which holds a cushion clamp. The baffle ear location places the heater a couple inches further from the center of the cylinder but later performance testing indicates the location works fine.

I fabricated 1/2" long aluminum spacers to go under the heads of the heater bolts for the baffle ear location on the cylinders to meet the Tanis spec of not running the threads out the far end of the hole more than a couple threads. Tanis does supply short spacer which are normally used on the coolant flange location. The best length for the spacer on the baffle ear would be 7/16" and I will probably change to that dimension later.

The Tanis instructions call for removing one of the bolts securing the crankcase halves on the bottom of the case towards the front and use that for the crankcase heater bolt. I elected to use one of the 6 mm holes on the back of the gearbox in order to place the heater in a hole that was not used for anything else. The back of the gearbox is integral with the case. Three of the thin Tanis aluminum spacers plus one washer were used on this location as this heater is longer than the cylinder heaters.

The oil tank location was per Tanis instructions. The location of the heater pad is below the oil level. I elected to include a modification to my operating instructions to burp the engine before plugging in the heater to assure that the oil level is at its max; and, most of the oil gets heated.



A couple issue arose during the install. Tanis sells a socket with a slot in the side so a person can use their torque wrench. The problem is the outside diameter interferes with some locations. I set the socket aside and went back to my calibrated fish scale, combination wrench (open end on the heater, box end to hook the fish scale) my metal ruler and a little math - which works without any interference. If you use a fish scale, do calibrate it, they all read high to make fishermen and women feel good about their fishing prowess.

Next issue - Due to manufacturing variation of the Rotax intake manifold, you cannot be assure this location will work....maybe it will, maybe it won't. I shared this fact with Tanis and I believe they are changing their instructions due to the situation with the manifold.

How did this work out performance wise with my modifications? We set the plane up for a 20 hour overnight run with nine channels recording the temp every minute - approximately 10,800 data points. One sensor was placed on the prop hub to find out how much heat loss there is through the hub. Turns out a Rotax with a composite prop does not lose much heat this way. Engines with a direct drive aluminum prop shed a lot of heat out the prop hub and get rid of it on that great big cooling fin called a propeller. Other sensors were located at the top of the crankcase, bottom of the crankcase, inside the oil tank, one for each cylinder and ambient. A note on the oil tank heater - there is such a thing as too much heat here as a person does not want to end up with spot coking inside the tank - temp was low enough to avoid that.



Basically the temperature rise is comparable to installations utilizing the other locations for the heater bolts meaning 50 to 60 degrees temperature rise above ambient. Stability was achieved at four hours. This is in a drafty hangar with no cowl blanket or cowl plugs so there was convection cooling going on through the cowl (in the bottom, out the front). With good results even without cowl plugs and a cowl blanker, better results yet are expected with those items. The heaters themselves do not get overly warm as the aluminum they are screwed into draws the heat to the larger mass quite quickly.



Young Eagles 2015 — Report by Linda Amble, Young Eagle Coordinator

Young Eagles, June 13, 2015

Today happened to be International Young Eagles Day. Everyone was lined up. There were six planes and pilots, 31 kids, and a great forecast...until last evening.

This morning was MVFR with ceiling at 1800ft. agl. Then it started to rain around 7:30 am and rained until past the noon hour. It seemed as though the only place it was raining in the Twin Cities was Lake Elmo.

The Boy Scouts from St. John's in New Brighton were planning on an FBO and hangar tour with John Regenold so they arrived as scheduled. Fortunately for them, Leif Erickson pinch hit a talk about a flight he had made in Georgia last winter. The guys were a great group and they will be back next time for a flight.

The future Young Eagles dates are :

July 11
August 8
September 12 and
October 10

Thank you to everyone for your support of the Young Eagle program!

Linda Amble
Young Eagle Coordinator.



Education Committee Report June 2015

Private/Sport Pilot Ground School

The months of February through May are a busy time for the chapter members involved in the Private Pilot Ground School Course. The 2015 course started on Thursday, February 5 and concluded on Monday, May 4. There were a total of 23 class sessions spread over Mondays and Wednesdays. We registered a total of 15 students that were in various stages of flight training. Some were waiting to start their actual flight training until completion of our course. Others were near the end of their flight training and just now preparing for the written. Four chapter members audited the course.

At Jim Pearsall's suggestion, we signed on with Eventbrite to handle on-line registration and course fee payment. Out students were able to register and pay their \$100 course fee on the Eventbrite website. That process proved to be very convenient and efficient for all involved. We were able to communicate with the students about the required course materials and what to bring to the first class session. Eventbrite services are not free. After their fee was subtracted from the registration cost, the chapter still netted over \$1,300 of income.

Twelve of the fifteen students earned their sign-offs to take the written exam. So far, we have heard from three that passed the exam with excellent scores.

Thanks to Paul Rankin for handling the Lead Instructor responsibilities. He put in countless hours developing curriculum (Power Point slides) and three stage exams. The quality of his work is evident when 80% of our students earned his signoff to take the written exam. Other faculty members included; Bettie Seitzer, John Renwick, Jim Pearsall, Paul Randall, and Leif Erickson.

I want to express my thanks to the chapter for authorizing the purchase of the new computer, HD data projector, and projection screen. They provided a much needed enhancement to the quality of our Power Point and video presentations.

Farnsworth Hangar Tour

The Farnsworth Hangar Tour for the second grade class was held on Thursday, May 21. Mother Nature treated the kids to a delightful spring day. This year over 100 kids participated. My thanks go to Dave Syverson, Joe Harris (and Brad) from the MAC, Bettie Seitzer, Dan Bergstrom, Dave Becker, and Marvin Sanderson (and fellow Sod Busters RC Flying Club members) for their participation in the event. We hosted five hangars for the students to visit.

The highlight of the tour was Dan Bergstrom's flight demonstration in his Experimental Tailwind. It was very exciting for the kids to watch Dan do a takeoff, high-speed pass down runway 32 at 180 mph, and a landing. Check out more of Dave Becker's photos in the Photo Gallery on the Chapter's website.



EAA CHAPTER 54 TREASURER'S REPORT

BY TOM GIBBONS

EDITORS NOTE: AS DISCUSSED AT A RECENT BOARD OF DIRECTORS MEETING, THE TREASURER'S REPORT WILL NOW BE ON OUR WEBSITE AT WWW.EAA54.ORG/MEMBERSONLY



Farnsworth Science Fair

On Wednesday, May 20 Leif represented Chapter 54 as a judge at the 5th and 6th grade Science Fair at Farnsworth. There were over 180 projects to be judged.

They ranged from determining the size of a crater generated by falling objects of different weight, to determining whether or not a person's heart rate is affected by listening to different styles of music.

All the students were required to use the scientific method to conduct their experiment. The scientific method involves; 1) formulating the experiment in the form of a testable question, 2) developing a hypothesis, 3) collect data using appropriate dependent and independent variables, 4) presenting the data in tables and graphs, and 5) drawing a conclusion, based solely upon the data, that either proves or disproves the hypothesis.

The students were evaluated on; 1) their use of the scientific method, 2) their presentation skills (being articulate and maintaining eye contact when describing their work), 3) demonstrating knowledge of the scientific principles involved, and 4) the quality of their display and difficulty of the project.

Overall it was a fun and rewarding experience both for the kids and the evaluators.

Education Director,

Leif Erickson



Dear Lake Elmo volunteers, thank you for spending time with us at your air port. (It was fun, awesome, exciting, cool, fantastic, wonderful.) I learned alot about airplanes and other stuff the air plane simulator was cool and fun. Your Farnsworth Friend Kiera.



FROM THE FLIGHT DECK (PRESIDENTS REPORT)

JIM PEARSALL

Greetings from the land of 10,000 Aviation Events..

Or that is what it seems like here in June of 2015.

Last month ended with Discover Aviation Days up in Anoka. The following weekend a visit to the Fairey Gannet up in New Richmond was attended by several chapter members and like Anoka, an appearance of the Bamboo Bomber piloted by our own Paul Rankin with Tim Christman being as he said, "dragged along" for the flight up to RNH. What an amazing airplane and like many aircraft rescues an amazing story. You may see some pictures related to either of these events elsewhere in this issue of The Beacon and a video of it's rescue will likely be coming to a chapter meeting near you soon.

Yesterday notable among aviation, our Young Eagles flights were scheduled. They being cancelled due to weather, I took the opportunity to visit the Saturday Morning Seminar at FCM where I heard Greg Albjerg who is Vice President, National Aviation Planning Leader, HNTB Fellow, talk on Airport/Airspace Design. Greg's talk was timely for me to understand what I think is driving the longer runway at 21D. See AC 150/5300-13A and also AC 150/5325-4B if you want to also learn, dig into the detail. The most important bit of info I took away from the talk? FAA standards are not "Mandatory" unless of course you accept Federal funding.

Following, and facilitated by the 2015 Air Expo at FCM July 11-12, for our next meeting on the 13th, we will have a special guest speaker Maj.Gen. Patrick Haloran. After the big show, our Pancake Breakfast here at Valters with the Forest Lakes event the day before and the AOPA event at ANE the following week. Phew. Are we done yet? No.

What prompted my realization there was so many aviation events around here was asking myself what am I going to do next weekend? I have the "whatever you want card" so how do I use it? We have two established local Pancake Breakfasts here hosted by the CAP and down at Stanton, another breakfast on my wife's home turf up at Moose Lake, and an airshow at Granite Falls. If I only had a means of fast transport that could bring meal over the state in the same morning ...



Tailwinds Flying Club Partnership Welcomes New Members

Tailwinds Flying Partners is based at Lake Elmo airport. We are a non-profit corporation of 39 pilots who equally own three aircraft and one hangar (25E). Our goal and philosophy are to fly great airplanes safely and inexpensively. We currently have a Cirrus SR20, Archer II and Cherokee Six. Some of our members belong to EAA 54 and we love to fly Young Eagles. Please stop by and visit us anytime! To inquire about membership, please email or call Mark at 651-983-6206. www.tailwinds21d.org



Chapter 54 Meeting Minutes

By Bettie Seitzer, Chapter Secretary

Farnsworth Hangar Tour – May 21, 2015

Every year Chapter 54 hosts about 100 2nd graders who come to 21D to see what real hangars look like, and to talk to real pilots and plane owners.

Second graders are very enthusiastic and these groups were no exception. We had 50 children in the morning and 50 in the afternoon. The kids arrive my school bus and pile out onto the lawn near the beacon. The first challenge is to divide them into groups of ten. Each group of children has two adult chaperones who keep them on track moving between stations.

Visiting the hangars is a very special treat, and for most kids it is the first time they see a hangar and a real general aviation plane. Most of them have never flown on any kind of plane. Moving from station to station they learn about weather, get to look inside a cockpit, walk the pattern with arms extended as wings. They also got a chance to climb into the big equipment that is used to take care of the grounds.

My responsibility is the snack station. Greg lets us use his office with a fabulous view of the runway. It was a beautiful day and almost every group had a front row seat for a take off or a landing – or both!! The children really loved the snack – apples, cheese, crackers and apple juice.

We had a good view of the windsock and discussed what it is and what we learn from it. Some of the kids knew and some did not, but now they do.

I asked the children if they enjoyed visiting the airport and got very excited and loud YES from every group.

The children were very well behaved and well supervised; the adults seemed to enjoy the tour as much as the kids did. If you have not yet had a chance to volunteer for the hangar tour, consider doing it next year; Leif does a fabulous job of planning and facilitating the day, and I promise that you will enjoy the children!



Subject: Wings Beneath Our Wings Car Show at St. Paul Airport - July 11

As you may have or have not seen - there is a Boeing 727 parked at the St. Paul Downtown Airport. The MN Association of Women in Aviation, who owns the jet, have renovated the donated FEDEX cargo plane into a classroom and it's called The Learning Jet. The interior renovation is complete and its pretty cool. You can go to our website and check out the pictures. www.mnawa.org or you can schedule a visit.



The Learning Jet is available for special events, meetings and of course fieldtrips for students during the year. To help keep our costs low for students visiting the Learning Jet, we are having a fundraiser on July 11 from 3-8pm. The MN Street Rod Association is helping us spread the word about the car show at the St. Paul Downtown Airport. All the proceeds will go to the Learning Jet. We are also inviting antique or classic aircraft to be a part of a static

display.

So, mark your calendars for Saturday, July 11th from 3-8 pm for a great fundraiser for the Learning Jet. "Wheels Beneath Our Wings" Car Show.

WE NEED YOUR HELP -----

We are in need of raffle prizes and bottles of wine. Please ask your family, friends and acquaintances for items to donate. All proceeds to benefit the Learning Jet.

You can drop off items at the St. Paul Downtown Airport Terminal Building. Please have them to us by Wednesday, July 8th (The terminal building is open M-F from 8:00am-3:30pm). Or we can arrange to have the items picked up.

Or send it to:

St. Paul Downtown Airport

Attn: Learning Jet

644 Bayfield Street, Suite 120

St. Paul, MN 55107

Thank you in advance for helping us make this event a success.

Darlene Dahlseide

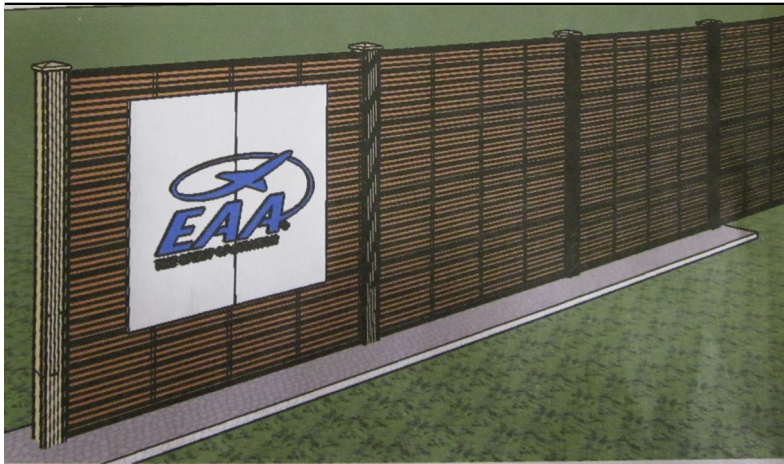
President

Minnesota Association of Women in Aviation

a non-profit 501(C)3 organization

<http://awammn3.org/thelearningjet/mnassocofwomeninaviation.html>





Weekend Work Party Report Out:

We built parts of a tall partition that will screen some of the noise on the North side of Theater in the Woods.

We built the panels and the posts that will support

the wall. We stayed at the updated Binder House and ate meals in the volunteer dining room.

They provide square meals and treats—this was the first time I ate flour,



sausage and cream on a biscuit.

The highlight for me was seeing the presentation “The Final Mission” stories about booking the EAA B-17 flights. They do research on the passengers and shared their stories on Saturday night. Rides for WWII veterans is an important service and gives people the chance to connect and experience the flights.

Our Chapter often sends a crew to work on important projects and any member should participate at least once. You can contribute at your own level of activity—they will find something for you to do to help.



Chapter 54 Directory

President
Jim Pearsal
president@eaa54.org

Vice President
Paul Randall
vicepresident@eaa54.org

Treasurer
Tom Gibbons
treasurer@eaa54.org

Secretary/Class IV Director
Bettie Seitzer
secretary@eaa54.org

Education Director
Lief Erickson
education@eaa54.org

Housing Director
Dave Fiebigler
housing@eaa54.org

Membership Director
John Renwick
membership@eaa54.org

Young Eagles Director
Linda Amble
youngeagles@eaa54.org

Newsletter Editor/Director At-Large
Dale Seitzer
Newsletter@eaa54.org

Chapter Historian: Jeff Hove