

J A N U A R Y 2 0 1 7

EAA Chapter 25

ON FINAL

MINNEAPOLIS/ ST PAUL, MN

“Flight Lines”

- from Mike York
EAA Chapter 25 President

Happy New Year! I hope this newsletter finds you well. Once again we had a wonderful Christmas Party and all who attended had a great time. This years' party was graciously hosted by Jim and Shirley Fischer and they did an amazing job providing food and refreshments for all who attended.

I would like to recognize Craig Nelson for leading this organization for the last two years. We have some great people who volunteer their time to this organization and Craig is one of them. Please thank Craig when you see him for his service to our chapter. With the New Year comes new leadership for Chapter 25. An introduction is in order. My name is Mike York and I am your new President. I fly a 46 7AC Champ when time allows. I moved to the area three and a half years ago and reached out to Kim Johnson and became involved in the Pietenpohl build sessions on Wednesday nights. If you haven't been to a build session and would like to help or simply socialize, it's a great



bunch of guys that really enjoy building. Hopefully the weather and snow will cooperate and allow some ski flying in the coming weeks. I'm currently in the market for a flying RV6 or 6a or a project that is nearly complete. I'm making arrangements as I write this to look at a project for sale while I'm visiting my daughter and grandson in Illinois. Hopefully it's a good quality project and a deal can be struck.

The other new leaders are Jim Fischer serving as Vice President and Ned Lebens as Secretary. Gordon Duke will continue to serve as Treasurer. Please thank these folks for serving on our leadership team.

This month's presentation will be a demonstration on how to build a homemade ADSB receiver from parts ordered from e-bay or amazon. Parts are around \$100 and the finished product will allow you to receive ADS-B weather data while in flight. It can talk to a GPS enabled iPad via wireless network connection and displays information on a moving map. It's built out of inexpensive and easily obtainable components that simply plug together. It should be fun watching one assembled. Chapter member Jeff Coffey has volunteered to buy all the components and put together his homemade ADSB receiver in front of the group. We hope to project on the big screen the build for all to see.

Finally, a reminder, Kim Johnson has sent out the chapter renewal form in the mail. Please supply the requested information and send it along with your dues payment to Gordon Duke. Annual dues are \$25 if you receive the On Final newsletter via email and \$30 if you prefer to get a paper copy in the US Mail. I look forward to seeing you on Jan 18th at the chapter hanger.

Mike York P1

Patrick Hoyt P3

Gordon Duke P5

November Meeting Minutes P2

Kris Olson P4

For Sale/ Wanted P7

EAA Ch. 25 Minutes of the November 16, 2016 Chapter Meeting

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

Guests: Les Kapaun, raced stock cars at Raceway and Elko. Tonya Black, Raven Black. Raven would like to apply to attend Air Academy in 2017. Tonya is Raven's mother. Paul Dietz and two friends.

Financial Rept.: Craig summarized Treasurer, Gordon Duke's report as of 11/14/2016. There is \$17,301 in checking and \$10,260 in savings, \$13,401 in the restricted Scholarship Fund for a total of \$40,962. All the accounts are current and bills have been paid.

Young Eagles: We have had to cancel Young Eagles the last couple of months due to weather and the weather outlook appears to be unfavorable for our event on Saturday, 11/19/2016. In the meantime, continue to advertize our Young Eagles program to youth and let Kris know of any kids looking for a ride.

On Final Newsletter Editor: David Olson, Editor, has a lot of content and will publish a special December edition focusing on the year in review. Contact David (oly1963@gmail.com) or Kim Johnson, Membership Coordinator, (kvince989@gmail.com) if you are not receiving the newsletter either by e-mail or USPS.

Scholarship Fund: Craig announced that to date, 44 members have sent in donations totaling \$2,796, representing 93% of our 2016 \$3,000 goal. Only \$204 more is needed. If you have not yet contributed or can help us meet our goal with a second contribution, please mail your tax deductible donation to Mamie Singleton. Her contact information is available on the Ch. 25 website: www.eaa25.org.

The Board has considered sending some of our restricted (designated) Scholarship funds to schools with aviation education programs like the University of North Dakota, Minnesota State – Mankato and Northland Aviation in Thief River Falls, MN. The University of North Dakota will match contributions to its Omega Endowment Fund. UND distributes only 4% of this fund per year in scholarships, which is less than investment earnings, so the Fund does not deplete. Therefore, contributing some of our restricted Scholarship funds to the Omega Endowment Fund and having them doubled for scholarships is a possible prudent use of this money.

Banquet – The annual Ch. 25 Banquet was held on

Sunday, October 9, 2016 at the Eagan Community Center. EAA's Chris Henry spoke about EAA's B-17 and told heart-warming stories of the brave crews who flew in B-17's during WW II.

Craig took time to present the Ron Oehler Award to John Schmidt, since John could not attend the banquet. Chapter 25 awarded John the Award for his activism and passion for aviation. John has been a Ch. 25 Board member for many years, serving on the Scholarship Committee, identifying Air Academy candidates and connecting youth with aviation. John is an active Young Eagles pilot and provides consistent support of Chapter 25 activities.

2017 Officer Vote: Craig introduced the following members as officers in 2017:

President: Mike York

Vice President: Jim Fischer

Treasurer: Gordon Duke

Secretary: Ned Lebens

Mamie Singleton made a motion, seconded by John Koser to appoint the above as Ch. 25 Officers in 2017. The motion passed unanimously by voice vote. We are still looking for a Membership Coordinator. This individual would maintain member records and sit at a table by the front door as members arrive at monthly Chapter meetings, greeting attendees, handing out name tags and welcoming guests. Contact an Officer or Board member if you could fill this role.

2016 Chapter Service Awards: Craig presented Chapter Services awards to Kim Johnson for serving as Chapter Secretary, Membership Coordinator and Web Editor and to Kris Olson for serving as Young Eagles Coordinator. Upcoming Ch. 25 Events – Put these dates on your calendars!

12/4 – Holiday Party – At Jim and Shirley Fischer's home in Lakeville from 3 – 7 pm. Ch. 25 is providing the food, soft drinks, coffee and water. This takes the place of our Chapter meeting in December, so there will be no meeting at the BSAEC on the 3rd Wednesday in December.

Miscellaneous –

Food - Craig asked members to show their appreciation to Gary Stinar for doing the arranging and cooking for this meeting. Gary and Ron Oehler did the cooking. We would like to figure out a way to vent the grill outside so the grill and cooks can remain inside during the cold winter months.

Tool Crib: Pat Halligan suggested that the Chapter build a tool crib in the BSAEC. He suggested that members solicit donations of tools such as a: spark plug cleaner, scope, scales.

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The Saga of an Airpark Home (Part 3)

by: Patrick Hoyt

The Slab is Poured

One day a text message arrives: the concrete slab will happen this week. The Big Pour is on!



On the appointed day, well before sunrise, the big "Pumper Truck" arrives. This truck has a large boom through which the concrete would be pumped to widespread areas of the foundation. A crew of workers were on hand to spread and smooth the concrete, as well as to set the appropriate shapes for things like slope angles at the hangar and garage.

Soon, the big Turnip Trucks started arriving. These were large trucks

with rotating turnip-shaped drums full of concrete. One after another would back up to the Pumper Truck and deposit their loads of concrete, which was then pumped over to various parts of the foundation, where workers spread it out and smoothed it.



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Young Eagles Update

By Kris Olson

EAA Chapter 25 cancelled our December 17th Young Eagles rides, due to forecast cold temperatures of 0 to 5 degrees and winds of 10 to 20 mph. We had some groups of kids signed up and contacted them.

EAA Chapter 25 flew 11 kids at a special Young Eagles event at Airlake Airport on Tuesday, December 27th at 1 pm. The clouds from the morning cleared up around 12 pm. The temperature was around 22 degrees and the winds were low at 5 to 7 mph. Frank Ahlman and John Schmidt flew the kids. We had several ground crew: Ron Hoyt, Ron Oehler, Ralph Goracke, Alan Ross, and Kris Olson.

We have a few kids interested in coming for our January 21st rides event. Let me know if you are interested in flying kids or helping with ground crew at any of our monthly events.



On Final

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The Saga of an Airpark Home

(from page 3)



Twenty truckloads of concrete were pumped onto the foundation in about four hours. That's just for the foundation itself, and doesn't include the piers, taxiways or driveways.

The workers finished smoothing the concrete, and were gone a couple of hours later.

After letting the slab sit for a week, framing would commence.

(to be continued....)

Patrick Hoyt



Upcoming Ch. 25 Events –Put these dates on your calendars!

01/18 – Chapter Meeting

01/21 – Young Eagles Event

Taxi-testing for Gremlins By Gordon Duke

My airplane is haunted. It is possessed by gremlins who enter the hangar at night and break things. I believe they are trying to kill me. My best defense has been frequent and thorough inspections along with taxi-tests. Every pilot must know the importance of inspection – preflight, post-flight and annual. However, I don't recall anyone instructing me on the importance of or how to conduct taxi-testing. Perhaps this applies mostly to experimental aircraft. Perhaps other airplanes are not possessed by gremlins. I have personally benefited from a lot of taxi-testing. In this short article, I hope to share with others the methods I found useful and the benefits I derived from taxi-testing. Let me tell you what gremlins have done to my airplane and how I have thwarted them so far. As a preface, I was chatting with an old pilot from our local Civil Air Patrol chapter. I complained that every time I taxi-tested my airplane, something broke. He wisely replied that I should "keep on taxiing until things stop breaking." This is the punchline to this article. This is the idea I want to share. This is very similar to the old airplane saying, "it is better to discover problems on the ground rather than in the air." I am pleased to report that every problem I have found with my airplane, I discovered with all three wheels on the ground. I have beaten the gremlins so far. I should define what I mean by taxi-testing. I do not mean exactly a "crow-hop" or a "take-off and land-back." I have been warned about the perils of these maneuvers and I agree with those warnings. You cannot take off a runway and land back safely because you have violated the golden rule of a good landing – every good landing begins with a stable approach. Along the same line, a take-off and an immediate landing is not a required nor a normal airplane procedure. It might be

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EAA Ch. 25 Minutes (from page 2)

3 in 1 Brake, Shearer and Roller: The Piet Builder group recently purchased a 3 in 1 brake, shearer and roller and presented it to Dale Johnson for his 80th birthday.

Poor man's ADS-B Receiver: Doug Beck has developed a way of building an ADS-B receiver. It was suggested that the Chapter order the parts and build one at a future Chapter meeting.

Glider Ride Auction: A glider ride that was to have been auctioned at the Banquet was auctioned at the Chapter meeting. Mamie Singleton won it for \$70.

Presentation – Paul Randall, a lifetime member of EAA since 1967, who has missed only 3 AirVenture's since then, a former Ch. 25 member, the past VP of Ch. 54 and current Pipistrel Aircraft Dealer, spoke on Electric and Hybrid Electric propulsion for aircraft. Paul said that progress is rapid, dramatic and accelerating in the timeline of electric propulsion of aircraft. Slovenia is the Silicon Valley of electric aircraft development. He recommended a vacation trip there to learn and observe what is being accomplished. Three phase brushless electric motors are being developed. Progress on battery storage is progressing, but heat management is a big issue. Pipistrel is developing an Alpha Electric Trainer. Paul said that quiet, safe and reliable electric energy can be provided for approximately \$1.70 per hour. There may be a higher up-front cost, but on-going cost would be less. www.hypstair.eu is a good site for more information about a hybrid electric aircraft motor being developed.

Respectfully submitted,

Kim V. Johnson, Secretary and Membership



Taxi-testing for Gremlins (from page 5)

useful if the engine fails on take-off, but (like spins) it is not clear that there are net benefits to practicing it.

What I mean by taxi-testing is taking the airplane out on the runway and subjecting it to the procedures and stresses that it will face when flying. I seldom run the engine up to full power, instead I have a blue "bug" on the tach at around 80 or 90 percent power. This helps keep the airplane under control. The normal thing to do when you enter the runway is to push the throttle full forward. This is good for a takeoff but is very bad for taxi-testing. I have heard from other pilots how the airplane jumps off the ground under full power and then you are tempted to chop the power and you are facing a hard landing and a few bounces or maybe a scraped wing or a ground-loop. When I do a taxi-test, I generally have a specific test in mind and I keep notes and take video. I am looking for the telltale signs of the handiwork of gremlins. I am not trying to execute a take-off followed immediately by a landing. I am giving things a chance to go wrong while I am relatively safe on the ground.

BACKGROUND

I purchased my airplane in flying condition but with a lot of obvious needs. The seller was very candid with what needed to be done to the airplane. The price reflected the necessary work; so, I can't complain – I bought the airplane with full knowledge that it needed a lot of love and care and I got a fair price.

I had the engine professionally rebuilt and I replaced all the fuel lines and most of the electrical system. I rebuilt the carburetors and replaced the gear legs and lift struts. I replaced the canopy, windows and the seat belts. I added instruments and gauges. Now, I thought I was ready to fly -- I was premature.

THE HANDIWORK OF GREMLINS

The first problem I discovered was when I first cranked the engine. Once stated, the airplane wanted to roll and was hard to stop. The engine pulled the airplane along a hard surface taxiway at a high speed even with the throttle full back. The brakes were only barely able to hold the airplane back. More significantly, occasionally when I pulled the power back, the engine died.

Remember, it is better to discover problems on the ground... Okay. I rebuilt the throttle linkage and replaced throttle cables. I added some extra return springs. I adjusted the carbs and reset idle. I replaced the brake cables and adjusted the pull. Eventually, I was able to taxi around the airport without the

(Continued on page 7)

Stuff for Sale/Wanted

engine dying and with the airplane under control. The second problem occurred during a high-speed taxi on the runway. The starboard tire blew. I was sufficiently slow and the airplane was stable with the blown tire, so this was not a frightening event. It was a mysterious event. The airplane had just passed its annual. The tires were good a month before. In a very short time with no take-offs and no landings, the starboard tire wore through the tread. Gremlins or a very old and cheap tire? I replaced both tires with good 4-ply airplane quality tires from the designer of the kit. I also readjusted the front gear geometry until it was spot on by the builder's manual. I continued to taxi-test the airplane. I wanted to get comfortable with the tail-wheel and I was discovering the advantage of finding problems before trying to fly. About a month later, gremlins struck a third time. I was taxiing very slowly around the airfield and was almost back to the hangar when the port wheel failed and split open. This was not the tire but the spun aluminum two-part airplane wheel. I have asked around and found no one who had ever heard of a wheel splitting open. This wheel had fatigue cracks from the lug nuts outwards and the wheel had broken out from the nuts. I later discovered that the original builder had used three bolts to hold the wheel together. The builder's manual calls for six. Perhaps in this case, the Gremlins were of a more human form. Therefore, I replaced both wheels and assembled them with six bolts as per the builder's manual. The fourth attack was a little milder than most. I returned from a taxi-test and discovered that the muffler rattled when shaken. Inspection led me to a broken tab on the airframe. The steel tab had failed from fatigue cracking and the bolt was free to pull loose. I repaired

(Continued on page 8)

"Wanted: a partner in the building of a Murphy Rebel. This is a High wing, all metal plane with a gross weight capacity of 1650 lb. I can be contacted at 952-8884380 or rrhoyt@ieee.org." Ron

Free to Chapter 25 Homebuilder: Welding equipment including acetylene and oxygen tanks due for renewal at end of August, stand and piping, numerous welding tips and torch, plus oxygen-only cutting torch. Contact Bert Sisler, phone listed on chapter roster.

For Rent: Hanger for rent at Flying Cloud beginning December 1st, south facing electric door, cement block building. Please contact Mark Kolesar; kolesar.mark@gmail.com, [763.656.8374](tel:763.656.8374). Mark Kolesar,

Wanted: Your dusty old VFR instruments for my Pietenpol project. Please contact Ned Lebens 952-567-3329 or nlebens@gmail.com

For Sale: Ellison EFS-2 Throttle Body Injector don schlais <d.schlais@hotmail.com> 763-479-8228

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the tab and added a tension spring to absorb some of the vibration.

The fifth attack was very subtle. The header tank would not reliably fill from the wing tanks during taxi. I cleaned and inspected the fuel lines. I was told that when flying, the wing tanks would pressurize due to ram air and would probably feed well. I took very little comfort in this. Instead, I rebuilt the entire fuel system including cross venting the two wing tanks with the header tank and installed transfer pumps to force-feed the header tank. I enlarged the ram air vents to provide more pressure in flight. Finally, I installed a low-fuel level monitoring system, which turns on a big bright orange light if the header tank gets below half full.

Now I was beginning to get confident. I was learning the airplane and I had found and corrected several problems. I was also getting better at controlling the airplane during high-speed taxi even in cross winds. Pride goes before a fall.

When the sixth attack occurred, I had just pulled onto the runway for yet another high-speed taxi. The engine had “burped” a little earlier and I was testing a high power run-up. I pushed the throttle forward until the tach hit my marker at around 80 percent of full power. The engine ran up and the airplane accelerated down the runway for about three seconds. Then everything went silent. The engine stopped cold. I had sufficient speed to play Bob Hoover and I taxied the airplane off the runway without power. Well, better on the ground than in the air.....

This problem was a fuel pressure problem. I have a fuel pressure gauge and a video of the cockpit showed it going to zero just before the engine quit. Therefore, I started with the carbs and took everything apart looking for evidence of the Gremlin’s work. I proceeded to the fuel pump, to the filters and to the valves and lines finally ending up at the header tank.

This is where the Gremlins had done their mischief. I had been advised to replace all fuel lines because the original lines were not ethanol tolerant. I bought new lines and thought I had replaced every one. I almost had. My header tank has a flop tube so it can draw gasoline under negative G loading. The flop tube moves around with loading and is subject to wear. Over the years, the tube had developed a crack which would suck air rather than gasoline, but only when the level in the header tank was below half full. I was testing my low-fuel level warning system by drawing the header tank down and observing the orange warning light illuminate. When the gas got low, the broken flop tube drew air and the engine lost fuel pressure and so it stopped. The solution was to replace the flop tube pickup in the header tank with a new fuel line. I also added inspection of the flop tube to my personal annual inspection check-list.

My seventh and most recent event resulted in a lot of damage. I thought I was ready to fly around the pattern. It had been two years and I had accumulated 30 hours of taxi time. I was comfortable with the tailwheel even in a crosswind. Just to be safe, I would do a few more tests.

I decided to test the fuel pressure since I had recently had a problem and I had completed a repair. I pulled onto the runway and ran the engine up to 80 or 90 percent power and began my test run. At about 50 mph, there was a loud scraping noise from the rear of the airplane and I lost directional control. It was immediately clear to me that I had lost the tailwheel. The airplane wanted to go off the runway but that was okay. I had been on the south side in the grass with the blown tire and grass is safe. Hard surface is dangerous; grass is much more forgiving of a tail-wheel airplane. This was a good idea except that I hit a runway light. The wooden prop split off on one side. The airplane came to a stop with the engine still running.

Some friends came out and we towed the airplane back to my hangar. We cleared the runway of trash and looked for the missing tailwheel. We never found it. The fork of the tailwheel assembly was still attached but the wheel and its axle were missing. Careful inspection showed that the weld had failed and it probably wasn’t a thorough weld in the first place. I have asked around and no one I interviewed has ever heard of a tailwheel failing at the weld joint. These gremlins are devious. Later inspection showed that one of the engine mounting bolts had broken, two others were bent and that the starboard wing had a small hole. The prop strike must have been severe to do this much damage to the engine mounts. I plan to carefully test the engine when repairs are complete – more taxi-testing.

This was one of those airplane problems that is easy to fix just expensive. The hardest part was writing the check. The prop is standard and was easy to replace.

The designer of the airplane had a new more robust tailwheel in stock. I also replaced all engine mounts, bushings, and hardware. The wing was poly-fiber and was a simple patch.

Now I am back in business. I have learned one lesson. My plan is to do more taxi-testing. I would like to believe that I have corrected all of the gremlin’s handiwork but you can never tell. It may take me a good while more before I can fly this airplane but when I do, it will be free of gremlins.

Finally: gremlins are mischievous demons who like to

break things on airplanes. British pilots during world war two were especially plagued with gremlins but discovered that the German pilots were also. Gremlins don't take sides but are willing to do their work on any airplane. Careful, frequent and thorough inspections will go a long way to uncovering the work of gremlins. Remember that they can be subtle and devious. Taxi-testing will give problems an opportunity to show themselves when a static inspection may not. And it is always better to find a problem when on the ground. In addition to inspections, my personal advice is to take your airplane out and run it hard without

actually flying. This will allow you to concentrate on the performance of the airplane rather than on flying. You may find problems while you are relatively safe on the ground rather than when you are in the air. Be careful up there and honor the advice of the old CAP pilot: keep on taxi-testing until things are no longer breaking. Here is wishing you blue skies, tail winds and an airplane free of gremlins.

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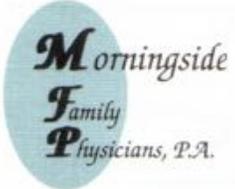
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