Illinois Valley Beacon

July 2008 | Chapter 563 Chartered in 1976 | Volume 15 Issue 7

The first breakfast will be held on the First Saturday, July 5th, in the EAA Hangar from 8:00 to 10:00.

The regular meeting will be held on the Second Thursday, July 10th, in the EAA Hangar starting at 7:00. We have a new flight school out at Mt. Hawley and this would be a great time to meet the instructor. Please come meet Ty as he introduces himself and explains the differences in the operations of rotor wings and fixed wings.

The second breakfast will be held on the Third Saturday, July 19th, in the EAA Hangar from 8:00 to 10:00.

The Directors meeting will be held on the Third Thursday, July 17th, in the EAA Hangar starting at 7:00. **All members are welcome to attend.**

Secretary's Report

MEETING MINUTES –12 June 2008

President Al Phipps called the meeting to order at 7 pm in the chapter hangar, with about 25 folks in attendance. Guests included Ron Henson & son. Minutes of the May meeting were approved as printed in the Beacon.

Young Eagles Coordinator Bill Engel asked for, and received, commitments from four members to be the ground crew for about 40 Young Eagles we expect on Thursday June 19. We also will have a flight after breakfast on the 21st.

Special Events Chair Sam Sisk noted that we had about 30 people at our first hangar cookout, and those present this evening expressed their desire to have more of them.

Al mentioned our hosting of the EAA B-17 this fall, and urged members to commit to volunteering, as lots of ground support will be needed over the 4 days.

The chapter expressed thanks to Sam Sisk for his donation of a bandsaw to our tool collection. Also, certificates from Oshkosh were handed to several members for their much-appreciated efforts in 2007 to further the goals of sport aviation.

Our program for the evening, presented by Ron Vice, was on powered parachutes. Even though the weather was not suitable for flight, Ron displayed his machine, laying out the lines and fabric for all to examine. The single-seater, powered by a 50 hp Rotax, has a cruise speed of about 26-mph. In answer to one of many questions, Ron stated that more power would improve rate of climb, but not speed. Because of its low speed, Ron prefers to fly from locations where he does not have to mix with other traffic. Thanks, Ron, for a good look at an unusual means of aviating!

We finished the evening with cookies courtesy of Bob Young, and coffee.

Respectfully Submitted, Bill Engel, Secretary

BOARD MINUTES – 19 June 08

President Al Phipps called the meeting to order at 7 pm in the chapter hangar. After short discussion we decided to leave the board meeting schedule as is.

Minutes of the May Board meeting were approved as distributed.

The **Financial report** for May was accepted as presented by Treasurer Pilon.

Membership Chair Morrie Caudill was out of town.

Our **Program** Chair, Chris Tate, stated that at our July meeting we will hear about helicopter operations. The Board decided to eliminate the August general meeting, and substitute our second Hangar Cookout, the first one being well-received.

Under **Properties & Safety**, the long-awaited projector is in hand. The emergency exit for the hangar is complete. Al will bring a steel post to guard the outside, and Bill will make some appropriate signage.

Special Events Chair Sam Sisk suggested that our Hangar Cookout be held on Friday evening, August 15th, and the board concurred. This will take the place of the picnic at Sam's. The next Performance Challenge will be after the Hangar Breakfast on July 19.

Youth Outreach Chair, Bill Engel, reported that four pilots flew 28 Young Eagles on Thursday, June 19. The kids bussed in from the Bloomington YMCA. More kids are lined up for Saturdays after our breakfasts.

Under **NEW BUSINESS,** President Al stated that at our next meeting he would have information to report on our hosting of the EAA B-17 this fall.

Respectfully Submitted, Bill Engel, Secretary

Don't Forget

Coffee and conversation every Thursday morning at the Chapter Hangar.

A Heads Up On Auto Fuel

As the price of 100LL gets higher, more and more of us that can burn auto fuel are doing so. The problem has become finding a source that is free of ethanol. The only sources I know in the Peoria area are Shell "V" 100 and the highest priced pump at Phillips 66, which still says "100% Gasoline". You still can't trust them and you should test for ethanol before you put any in the plane. Below is an email from Bill Hounshell relating his experience in Pekin.

Hi Morrie,

On an unrelated issue, I think you are aware that I burn an 80/20% mix of 87

In the past, Illinois required that a notice be posted on pumps if fuel contained Ethanol. Casey's 87 Oct has not contained Ethanol for many years. Their 89 Oct has contained 10% Ethanol. I noticed yesterday that a new notice was posted at Casey's for both 87 and 89 Oct. It states, ***"10% Ethanol May be used in this fuel."*** I asked the attendant if the 87 Oct fuel contained Ethanol or not. He was unable to answer, and said that his regional manager was unable to answer either. I will now have to test the fuel ***at the station*** before buying auto fuel for my airplanes. Perhaps other local EAA members are unaware of this change.

EAA CHAPTER 563 - Membership Application for year 2008

NOTE - To be a chapter member you must hold a corresponding membership in EAA.
Phone 1.800.564.6322, with credit card handy, or they can tell you of other options.

Blanks with an asterisk must be filled in. *Other information is optional. We do not disclose member information except for the basics required by EAA, and as may be required by law.*

For NEW members only - **At your option,** we will prorate dues for remainder of year. See Treasurer or Secretary.

Regular Membership (individual over age 18) $**25 per calendar year:**

NAME * _____ Spouse name _____
ADDRESS *_____
_____
EAA Membership Number * _____ expiration date * _____
Home phone * _____ Work phone _____ Cellular phone _____
E-mail _____ *(please provide this if you have one - it will save Chapter funds!)*

Family Membership (spouse and/or children at home wishing to be included) **$30 per calendar year:**

Please indicate each name as **H**us, **W**ife, **S**on, **D**au : EAA Family Membership Expiration Date * _____
NAME *_____ EAA Family Membership Number * _____
NAME *_____ EAA Family Membership Number * _____
NAME *_____ EAA Family Membership Number * _____
NAME *_____ EAA Family Membership Number * _____
ADDRESS * _____
_____
Home phone * _____ _____ Work phone _____
Cellular phone(s) _____ _____ _____ _____
E-mail(s) _____ _____ *(this info saves Chapter funds!)*

Optional information that can help us serve the chapter better:

Approx. year you **:** first joined EAA _____ first joined Chapter 563 _____ had first plane ride _____
Other aviation org. memberships _____
Aviation-related licenses and ratings: _____
Mil. av. experience _____
Professional av. experience _____
Aircraft owned (N) now (P) past _____
Aircraft Construction (C) or Restoration (R) projects (F) Finished, (P) in Process, (T) Tabled, (D) Disposed of.
_____
Future projects or interests _____
Recreational or occupational skills you could share _____
_____
Other personal data you think useful _____
_____
Any notable acquaintances? Ideas for programs? _____
_____
May we call on you for help with a chapter event or project? _____

Please return this form with check **payable to EAA Chapter 563**
To: Morrie Caudill, 5320 N. Sherbrook Ln., Peoria, IL, 61614

In Over My Head

My Airplane-Building Adventure
By Philip Jones

Prologue:

As soon as I finished installing my nav-comm radio, I turned it on to bask in the satisfaction of a job well done. To my dismay the message "comm failure" appeared on the screen. At the end of a fruitless day of calling various people for help, I was on the phone with a local avionics expert said to be friendly to amateur builders. During our conversation, he asked me something about my localizer. I asked, "What's a localizer?" To which he responded, "You don't know what a localizer is? Sounds like you're in over your head."

"Exactly!" I thought; "That just about sums up the entire project."

Most of the things I have read about building a plane concentrate on either construction techniques or the kind of equipment to put in the plane. My aim is to give a hint of what goes on during those hundreds of hours of construction.

Just what can an ordinary bloke with no airplane construction background or particular knowledge of engines and avionics expect if he (or she) is foolhardy enough to undertake such an endeavor?

More on Tools

As mentioned earlier, I bought the optional toolkit from Zenith. The most useful thing in it -- indeed, the almost indispensable thing -- was the pneumatic riveter. The mere thought of trying to pull all those rivets with a hand riveter makes my arm ache. I rather doubt the pneumatic drill served me any better than my ancient electric drill would have done. There were occasions when its small size made it handy for getting into tight spaces but, considering that it trailed an air-hose, a small cordless drill would have done as well. The crimping tool was good, as was the collection of drill bits in the proper sizes, although there are never enough of them, but the files, tin shears, and so on are readily available elsewhere.

One of the most annoying aspects of the undertaking was having to order everything from replacement parts to simple nuts, bolts, and electrical wire from afar and wait three days for it to arrive. Not being able to complete something for want of a nut is frustrating and means that several tasks are under way at once. My mind just does not mesh well with "multi-tasking." I wanted to finish one thing before moving on to another, and I wanted to work my way through the plans in an orderly fashion without having to search through them repeatedly looking for what I was working on last week.

Having or obtaining the right equipment was a constant concern. As it happened, the things that worried me most turned out to be relatively minor problems. For example, I worried from the beginning about how I was going to lift the engine into place. All the time I was riveting the fuselage and affixing the landing gear, I visited rental stores, inquired of friends about engine hoists, jacks, and other devices, and worried in general about how I was going to get the engine into place.

Landing Gear Woes

Before mounting the engine, however, I had to get the landing gear on, and that turned out to be the most difficult job of all. First, I discovered that I had the holes on the right side of the fuselage skin cut wrong for the landing gear "spring" support bracket and had to order a new skin. Second, I had to order a new set of support brackets because I could not tell where to drill the holes for the bolts that hold the brackets to the internal braces and, inevitably, I got them in the wrong place. Third, I could not get the spring to fit into the channel designed for it on the bottom of the fuselage.

It is unpleasant to recall the hours spent on my back under the fuselage filing away on the heavy aluminum spring poised on jacks and wooden crates above my head. There must have been a better way to do it than jacking the thing up and then letting it down to file more over and over again. Somehow filings managed to get around my goggles and into my eyes on two occasions, but I finally got it to fit and the brackets bolted around it ... only to discover it was on backwards.

I could hardly believe my eyes and checked the picture on the instructional CD against the pictures I had taken of the demonstrator at the factory. Sure enough -- no question about it -- the thing was on backwards. Nothing for it but to go through the entire process again.

When it was done, after much wailing and gnashing of teeth, I turned to the plans for the next step. Lo and behold! The blasted thing was drawn in the plans the way I originally had it. I had been going by the plans! The slight gratification I felt at being vindicated did not compensate for the irritation of having the plans and the CD contradict each other. I had been told to follow the plans if there were any discrepancies between the two, but why had the factory built the demonstrator differently

from the plans?

A call to the factory was unsatisfactory. The person I spoke with said it did not matter which way the offending part was installed because it made a difference of only three-quarters of an inch in shifting the balance point. I measured and found that it made a difference of almost three inches in shifting the wheels toward the front or rear of the plane -- resulting in a considerable difference in the effect on the balance.

Advice from other builders was conflicting. The only thing they agreed on was that it would be a serious mistake to have the gear going the wrong way, and they were all convinced their way was correct. I had tried to keep my plane as much like the factory demonstrator as possible on the theory that the people there probably knew best and could give me better advice about something they were familiar with. Moreover, I certainly did not want to change it again, so I went with the CD and the demonstrator rather than the plans.

The Dreaded Engine Mounting

When I ordered the Jabiru 3300 engine from the US distributor in October 2006, I was told that I was on the waiting list for January. Foolishly, I assumed that meant a January delivery, but it really meant that it would supposedly be produced in Australia in January. It finally arrived in March by motor freight. Having had some experience by then in the world of motor freight, I took a bit more wily approach.

Upon hearing that I had to pay an extra $105 to have a truck with a power-lift tailgate deliver it to my house, I said that I refused to pay anything extra for the equipment on the truck, but I expected the crate to be set down on my driveway. I was also informed that the driver would do nothing because it was not his responsibility but, when he arrived, he was very accommodating, and he was driving a truck with a power-lift tailgate. Not knowing when the delivery would take place, I was unable to arrange for any help with the crate and assumed it would have to sit at the end of the driveway for a while, but the driver had a little hand-operated fork lift and wheeled it right into the garage. The $497 delivery fee I was told I would have to pay dwindled down to $144. Various discounts and rebates that magically appeared when I protested account for the reduction. Someone better informed will have to explain why it cost twice as much to ship a one-pound wing channel 250 miles than to ship a 200-pound engine from Tennessee.

Engine under Firewall Forward Kit

I gathered the devices I had accumulated and called upon a small crowd of friends to handle the engine, but only three people were required to lift it into place. The "Homebuilt" video of a workshop on engine-mounting held at the Jabiru distributor's indicated that getting the bolts to line up with the engine mount could be a problem, but I had no difficulty, and all my worries proved for nought. Of course, I still had to hook up all the hoses and other fittings that came with the "firewall forward" kit from the distributor.

In reading articles about the Zenith, I had several times seen references to how good the factory instructions were, but I often cursed them and wondered why they were so worthy of praise. When I saw the Jabiru instructions, I found out why. Without the "Homebuilt" DVD, I would have been at sea.

think much of the problem is caused when the experts fail to realize just how ignorant we novices are. For example, after I had broken the lens for the landing and taxi light opening in the wing, I called Zenith to order a new one and ask if there was some trick to bending it. My advisor told me, "Well, of course you have to cut it down to fit the opening." It may have been obvious to him but, without being told, it was not obvious to me.

It was August (a year since beginning) before I had the engine completely installed, mainly because it was August before I received the last of the parts -- the muffler from Australia. When I called to complain about not having everything (I had placed the order the previous October after all), I was told that there were problems with suppliers -- whatever that might mean.

Off to the Hangar

Sam Sisk kindly supplied his trailer and his expertise in making the journey to the hangar. My wife, Donna, and Toby, the cat, were glad to have the aluminum filings and bother gone, but I flatter myself that they were not glad to see me go with it, as I now spent thirty to forty hours per week at the airport.

I supervise as Morrie and Sam load up

Putting on the wings turned out to be a bit more than the twenty-minute job claimed by the factory. I despaired of ever getting the first one on, even with the help of another small crowd of friends. The struggle became something of a show as people driving by the open hangar door stopped to contribute advice and muscle. Sam came up with the winning idea by tapering some bolts to help find the elusive holes in the wing spar.

I must have learned something in the process, because the second wing went on in much less time, and with the aid of only four other people. For a variety of reasons (a flap cable that was too short, forgetting to attach a wire to the fuel gauge sender, etc.), I had to take the wings off and put them back on several other times. Each time it seems to get a bit easier and it is now actually possible to do it with the aid of only one other person, although two or even three others make for an easier time of it, and it probably does take only twenty minutes. This is a fortunate development, because I am going to have to take the wings off at least once more for the trip to the painter and to install a wire to the taxi light.

Or, maybe, I will only have to fish out a wire that already goes to the taxi light. The fact is that I cannot remember whether or not I installed the wire. People often say to me, "It's good that you're building this plane; you'll know everything about it." No, I have already forgotten much of what I did at the beginning of the project, including the details of installing the taxi light. In fact, I had forgotten so much by the time I was ready to attach the wing that I did not realize the taxi and landing lights were separate, which explains why I fished only one wire out of the wing for both of them.

I am left with an emotion somewhere between rage and stupefaction when I read a blithe statement in the factory instructions such as, "Attach the wing using the six bolts in the six holes on each end of the center spar." How one is supposed to get to the six holes, align the holes in the wing spar by feel, hold the wing in place, and reach the bolts to tighten the nuts is left to the ingenuity of the builder. Fortunately, there are only a few of these situations that require the aid of a double-jointed monkey with x-ray vision. The worst for me was probably attaching the horizontal stabilizer to the tail. I finally had to give up and drill out the rivets to peel back the skin in order to get the nuts on the bolts.

My most triumphant moment came after attaching the wings. The instructions said to stretch a string from some point on the tail to each wing and see that the two measurements were within 50 millimeters of each other. When I stretched my string, the two measurements proved to be exactly the same. A rare moment of self-congratulation was the happy consequence.

The Canopy

Conventional wisdom holds that installing the canopy is something of a nightmare; conventional wisdom is correct. At least twenty of the 106 times I announced to the world that I regretted ever starting the project came during the work on the canopy. I spent a considerable amount of time constructing the elaborate plywood jigs for bending the two tubes that support the plexiglass bubble as instructed by the plans, but I found them useless. After bending around on one of the tubes for a while, I determined that I would have been better off to have used it as it comes pre-bent from the factory, so I left the second one alone.

The latching and locking mechanism still does not work as well as I think it should, although I lengthened, shortened, and adjusted the cable in about every way imaginable, and I have a pile of cable pieces to prove it. I cracked the bubble only once around a screw hole, but the crack is small and does not appear to be growing.

The front flashing, however, defeated me. One of my happiest moments came when the factory told me I could leave it off, since it is only for looks. In fact the certified version omits it. The factory folks are always helpful and friendly, but there is somehow the subtle implication that a competent person would not be having the problems I am describing. This implication is obviously correct, but I still insist that there is no way to make the flashing conform to the compound curve of the spherical bubble with "simple hand tools."

Now we have arrived at the avionics chapter, but this narrative has already become longer than I intended so, unless there is a groundswell of demand to read more of my adventure, I will forego a description of my avionics struggles, inspection, and actual flying. The first flight of Donna and Toby should provide yet another exciting chapter. I think Donna may be looking forward to it, but I am not sure about Toby. Where can I get a headset for a cat?

2008 Chapter 563 Officers

President: Al Phipps, 6305 Suffolk Dr., Peoria, IL, 61615, Ph. 693-2943 eli2arl@aol.com
Vice President: Barry Logan, 627 Coon Creek Rd., Metamora, IL 61548, Ph. 367-2697 lcci@mtco.com
Treasurer: Jerry Pilon, 110 WindRidge Dr., Washington, IL 61571, Ph. 745-1139 plongt@hotmail.com
Secretary: Bill Engel, 7114 N. Willow Bend Pt., Peoria, IL. 61614, Ph. 691-6466 engelwk@mtco.com
Nsletter/Web Editor: Morrie Caudill, 5320 N.Sherbrook Ln., Peoria, IL. 61614, Ph. 691-3613 flyvfr@comcast.net
Technical Advisor: Al Lurie, 605 E. Armstrong Avenue, Peoria, IL. 61603, Ph. 682-1674
Technical Advisor: Sam Sisk, 7214 W. Legion Hall Rd., Dunlap, IL. 61525, Ph. 243-5729 sesisk@mtco.com
Young Eagles: Bill Engel, 7114 N. Willow Bend Pt., Peoria, IL. 61614, Ph. 691-6466 engelwk@mtco.com
Flight Advisor: Jim Hannemann, 1404 Miller St., Washington, IL. 61571, Ph. 444-4062 jrhannemann@aol.comm
Flight Advisor: Sam Sisk, 7214 W. Legion Hall Rd., Dunlap, IL. 61525, Ph. 243-5729 sesisk@mtco.com
Flight Advisor: Ron Wright, 616 Kerfoot St., East Peoria, IL 61611, Ph. 694-1527 sonerairon1@netzero.net