



Keeping Your Medical

Our speaker for **September 27** is Dr. John Toth who will talk about "Keeping Your Medical." Dr. Toth is a recognized Aviation Medical Examiner with a practice in Family Practice/General Practice.

Other topics scheduled for our regular meetings are:

Oct. 25: Rick Lambert
Aircraft Rigging

Nov. 22: John LeNoue
Vimy Build Process

Jan. 24, 07: Bruce Seguire/Scot Stambaugh
Riveting

Feb. 28: Scot Stambaugh
Aircraft Wiring Basics

May 23: Scot Stambaugh
Flight Testing Your Experimental Aircraft

Also being considered is a request to have the Airport administration give a talk on development plans at the airport. This would displace a talk otherwise scheduled.

EAA393 Young Eagles

October 7, 2006 9 AM at PSA
Sign up with Pat Peters.

The Radar Screen

Buchanan Field (CCR) Master Plan Update, September 28, 2006 at 7 p.m., Crown Plaza Hotel <http://www.buchananfield-byronairports.org/ccrMPupdates/ccrMasterPlanUpdates.htm>

Mariposa Yosemite (MPI) Open House
October 7, 2006 7 AM to 4 PM
Free Admission; Cheap Fuel; Breakfast and Lunch available on site.

Presidential perspective:

What's going on in Oshkosh?!

Thanks to my recent retirement I was able to treat myself to my longest vacation since I left college, 5 weeks, driving from Fly-In to Fly-In with a little fishing in between. My Fly-In adventures began back in June with our own Golden West and included a weeklong stop at Arlington and then finished up with 8 days in Oshkosh. This year we camped at all 3 events to be closer to the action. We awoke to the sound of airplanes and went to sleep to the sound of airplanes. There was also plenty of opportunity to talk about airplanes with our various neighbors. All in all, a very satisfying way to spend one's vacation. And yet...

I use this as a backdrop to lead into some things that have been on my mind for some time now that relate to our favorite hobby. The problem, which until now remained mostly an uncomfortable feeling that something wasn't right, thrust itself into consciousness at a forum I attended at Oshkosh on Thursday entitled: "Chapter Leaders Forum". This was put on by the EAA Chapter Advisory Council. Arriving only a few minutes after it started, I missed the names of the hosts and also what set off a verbal firestorm that was then going on. It seems that most of the audience was made up of chapter presidents, like myself. The speaker was attempting to finish reading the mission statement as issued by the EAA Board of Directors. This reading had generated some highly confrontational questions from many of my colleagues who took issue with some items missing from the mission statement. More on this later.

We now back track to an encounter I had while working the main security gate at the Golden West Fly-In this last June. One of the attendees walked up to me, opened up his program, pointed to the EAA logo and asked me what it stood for. I explained about the EAA and that it was the parent organization that all the people who were responsible for this event belonged to. Later I approached one of the people responsible for managing Golden West and asked why there was no reference to the "Experimental Aircraft Association" in any of the signs at the Fly-In. I was informed that one of the conditions under which EAA provides sponsorship and permits the use of the EAA logo is that the logo must not be displayed anywhere near the word experimental. I was flabbergasted. EAA distancing itself from experimental? To me, experimental is mostly what EAA is all about.

This got me thinking. Upon returning home from the event I noticed that Sport Aviation magazine, the official publication of the EAA, which used to call itself "EAA's Monthly Membership Magazine" has, since 1/1/2001, referred to itself as "The Journal of Recreational Aviation". This change, even though it's right on the cover, was subtle enough to escape my notice for the better part of 5 years.

So we now have a situation where EAA seems to be trying to distance itself from the "Experimental" label. It has changed the focus, as stated on the cover, of it's magazine very quietly for many years. The magazine, which used to be full of "how to" articles, has for the better part of the last 10 or so years been mostly deficient in such articles until very recently. Instead it is now made up of mostly bland airplane articles and dreadful columnists that I consider several notches below their counterparts in the AOPA rag. Possibly the worst column by far has been that of the president. I used to look forward to reading Paul's column that always seemed to have something interesting to say. I read Tom's column for a few years and came to realize that it was mostly bureaucratic meanderings of little or

no interest. At best it was over-enthusiastic cheerleading and at worst a transparent attempt to manipulate our perception of whatever headquarters was pushing at that particular moment. Gone was the reveling in all things experimental, the wonder of new designs and accomplishments of the membership.

All these thoughts were just below the surface while I was sitting in this meeting on Thursday, listening to a significant minority of the 40 odd chapter presidents present ripping the EAA management for their loss of direction and abandonment of its experimental aviation roots. The speaker (I learned later was none other than Alan Shackleton, Executive Secretary of the EAA Board of Directors and Chairman of the EAA Chapter Advisory Council) was trying to sway an increasingly hostile crowd. At that point Bob Warner, Executive Vice President of EAA stepped in to attempt damage control. Now I've known Bob since the early days of Golden West. He is a very reasonable and intelligent guy, probably the best that headquarters has. But nothing that he said could sway this room. He took some very personal attacks and managed to keep his composure. Still he could offer nothing that would appease the crowd. Finally he came out and admitted that home builders and restorers made up only 1/3 of EAA members and that the organization was now focusing on the needs of the other 2/3 whom they described as those members interested in flying and those interested in following developments in experimental aviation. Alan had the gall later in the meeting to remind all those present that they must not forget their "obligation" to support the organization. It was a very poorly timed variation on the JFK line "Ask not what your country can do for you..." only this time it was "ask not what your EAA can do for you but what you can do for your EAA". And that about sums up my current impression of EAA management. To them, the organization currently exists to promote the board's view of aviation's future and we are

obligated to support them regardless of the relevance to experimental aviation.

Oh yeah, the missing element in the EAA mission statement that started this brawl? Not one word about building airplanes anywhere in the entire document!

So here's my take on this whole situation. Tom Poberezny is a big fish in a little pond. This is a situation that he is working very hard to remedy. He needs to grow the pond. However the traditional pond, aka home builders, aren't growing very fast. He needs more members, lots more. This is where the EAA's 2 major new programs come in. Young Eagles provide a steady growth of the pilot/member pool of the future and the newest program, Light Sport Aircraft fills the most important short term requirement, lots of new pilot/members flying already built LSA's. It would seem that Tom wants nothing more than to be the head of a next generation AOPA. On the surface this seems to be a good thing, more flying members. However the down side to this new era is that the home builders become increasingly marginalized as we become a stagnant piece of a growing pie.

What I'm trying to do here is to get this issue out in the light of day where it can get a wide audience and spark lots of discussion and perhaps so we can put off for some time becoming increasingly less important to what used to be "our" organization.

Now here's what I want from you. I'm putting together a letter to send to Bob Warner outlining my concerns. I want you to bring your opinions to the next meeting and let me know how you feel. I also need to know if I'm sending this letter as president of EAA 393 or just Ken McKenzie, concerned member. Normally a letter like this would likely just be read by some lower level staffer who would record the dissenting note and file it in some sort of monthly log under general complaints and that would be the end of it. However since I know Bob personally, and more importantly, he knows me, I feel confident that whatever I send will make it to his desk. So what do we want brought to his attention and what do we

want him to do about it? I'll be awaiting your response at the meeting.

EAA 393 General Meeting

August 23, 2006

Our speaker was Andy Marshal, who "wrote the book" *Composite Basics*, which is now its seventh edition. Andy has sold the book rights to Aircraft Technical Publications, Inc., in Colorado at this point.

Andy often does this talk at Oshkosh, and has included a few new subjects. One of these is Lightning Strikes. He noted that there has been less concern recently because there have been less strikes. But they do strike metal airplanes, and they do strike carbon fiber airplanes. In the last few years there have been 9 planes blown out of the sky by lightning strikes, including a Boeing 747. On a metal airplane, the lightning usually makes just a pinhole in the surface. On a fiber glass airplane, it will make a hole the size of your fist. On a carbon fiber airplane, it will make a huge hole; it could even take the whole wing off a small plane. It is not clear why the carbon fiber is so much more susceptible to lightning damage. Don't go through bad weather with a carbon fiber plane! For the Boeing 787, the whole airplane is carbon fiber. There are protection systems for lightning for carbon fiber. The solution is to apply a layer of conductive material over the carbon fiber. One manufacturer produces Dexmet and another produces Strikeguard, which is an anodized expanded aluminum mesh. [See <http://www.compositesworld.com/hpc/issues/2006/July/1366/1> for additional information. -Ed.] Andy recommends getting a roll of Dexnet and coating the airplane with it. Bury it in adhesive. It will add more weight than a coat of paint, but it is worth it.

At Oshkosh, Andy noted that composite airplanes are not "per se" faster than metal aircraft. The RV series has a few composite

pieces where convenient. Composite airplanes are still with us, but the biggest single type now is the RV series. The main composite airplanes are now the Glasairs and the Lancairs, since Rutan got out of the business. There are other brands but they suffer from lack of promotion.

The fundamentals of working with composites are very involved, like working with fine furniture. If it looks like junk, it probably is!

You need to protect your airplane from UV exposure. You have to paint the airplane. If the FAA finds a composite airplane unpainted, they will ground it! Be sure to use UV resistant paints. If the plane is not painted, the resin is what deteriorates. If you look at the surface of unpainted fiberglass after a month outside, you will see that one layer is almost gone.

Peel Ply: Peel ply is used to help release a part from the mold. Be sure to peel it off to leave a raw surface. It works well, but some peel plys leave a residue of their own. So, buy everything with a pedigree, e.g., Aircraft Spruce. Don't get war surplus stuff, or local used material.

Fiberglass has a surface coating to make it adhere to resin -- "finish." So, get fiberglass appropriate to your resin. Some surface treatments will handle several types of resins.

Resin systems: A resin system is a chemical product that undergoes a reaction to become structure. You need to follow manufacturer's instructions on the use of resins. For example, some epoxies will stick to Kevlar, while others will not. Most will stick to wood, unless it has moisture, but most wood does have moisture. Kevlar will pick up moisture also, even just in the open air. For Kevlar, bake it at 200 degrees for 8 hours to remove moisture.

Wood is a peculiar thing to bond to. Glues for wood are ancient. A good close grained hardwood that is too smooth will squeeze all the glue out and lose strength.

Some epoxies will stick to almost anything. West Systems has one; it works even with moist wood.

There are about 15 manufacturers of carbon fiber. The biggest is Toray with about 10 to 15 products. Each of the materials is different. You need to make test coupons and load them. Consistency is important. When you buy a new batch, it will be slightly different.

There are three types of carbon fibers, depending on how they are manufactured. One is made from nylon; it is a lousy fiber, but it was used for rocket nozzles, since it was "certified." The second process makes carbon fiber from polyacrylonitrile, or from "pitch" yarn from coal tar or petroleum. The third process makes the carbon fiber from PAN fibers; this results in dirt cheap fibers, about \$8 to \$10/pound. The others range from \$50 to \$100/pound. The difference is uniformity, testing and quality control of material. Boeing standardized on Toray T-650 product, with 650,000 lbs tensile strength. The B-787 is built of this.

Pitch fibers (2nd type); there are a whole bunch of these. Andy worked with Nippon on pitch fibers from petroleum. The cheapest of these is more than the PAN fibers, \$30 to \$1200/pound. The difference is in the modulus (stiffness). 33M is typical of carbon fibers; 11M is typical of glass fibers. Most carbon fibers are 33 M. Pitch fibers go from 5M to 130M modulus -- stiffer than steel. Some of the pitch fiber conduction is better than copper or silver -- the heat conduction is better, also. But the lightning protection is still not good! We don't know why! The use of pitch fibers is growing.

The first use of carbon fibers was as golf club shafts. It seemed brittle -- it shattered when it broke. Now carbon fiber is tougher than glass structures (in the last 10 years). Now there is lots of carbon fiber in Indy Race cars for crash resistance toughness! If you are using carbon fiber, get the new stuff, not the old. 10 years younger is much better.

Honeycomb: He consults for a small company in Livermore. They have a most expensive process for honeycomb. Each ribbon is three plies. Aluminum honeycomb is \$10 to \$20/board foot; Fiberglass is \$50 to \$100/board foot; their product is \$500 to \$1000/board foot, but for a space vehicle it is cost effective.

Fiberglass -- there are so many faces to it. In the boat business, most boats are fiberglass, but at a low quality level. Boats use E glass, as do airplanes. Boat hulls are 10x heavier than aircraft. The fiber is much thicker. Aircraft structures are much different. There are more different kinds of fiberglass than there are different kinds of carbon fiber. Most of the differences is in the size of the yarns and the fibers in the yarn. Yarn is made of "singles" -- one group of fibers. Type 7781 is a "single." Type 181 is three ply yarn. The differences are substantial -- use the right material, and after design and test, freeze the material.

Resins and solvents -- all these materials are toxic. Safety Poxo was bad! Some are better, some are worse. Tooling resins are particularly bad --- wear rubber gloves, use a breathing mask, and use an air exhaust system.

Questions and Answers:

Q; Phil has used vinyl resin on his Glasair; does it bother anybody?

A: Yes, polyesters are bad too.

Q: Bob Belshe: regarding bonding to wood, is there any work about our wooden firewalls bonded to fiberglass on the back?

A: Don't worry; the firewalls are lightly loaded; their primary purpose is for fire. After the epoxy has cured, moisture in the wood is not a problem.

Q: Fred Egli: Peel ply -- some have said it is not necessary to sand after removing it?

A: You should sand after it -- some peel plies have contaminants.

Q: Does peel ply provide a textured surface?

A: No. Peel ply is to get rid of mold release. You should sand down to "see" the underlying fibers, but not "cut" them.

Q: Pete Wiebens: Can we get peel ply from fabric stores? It sticks really well -- too well, it wasn't peel ply.

A: The finish on fabrics is linseed oil! Get certified stuff from good suppliers.

Q: Is there a shelf life to resin?

A: Yes

Q: Is there a shelf life to fiberglass?

A: It's indefinite, and generally not a problem. The stuff from Aircraft Spruce would not be a problem.

Q: What's the lifetime of raw glass, not painted?

A: A fabricated piece is ok for 30 years. The finish on the cloth is pretty durable.

Q: With boat parts, there was trouble with sticking.

A: They may not have been cleaned. Clean in an 800 degree oven for 2 days; then a surface treatment. Don't use unfinished glass. To weave glass, they use starch and linseed oil. Without cleaning, it won't stick.

Q: What about gel coats?

A: They are used lots in boats. It gives a beautiful finish -- spray it on, mold it, and you're done! But they are too heavy for aircraft. The Glasair I used it. Some airplanes use it on minor parts.

Q: What fiber is used in the Cirrus?

A: E glass, the 7781, he thinks.

Q: Is there a life limit?

A: With proper finish it should last 60 years fine. But hangar it for sure.

Q: Duane Allen: He has seen where they put holes in a carbon fiber firewall for cables and they shorted and began to smoke! He's also seen where the airplane was put out in the sun and the wings began to sag from the heat.

A: That's a problem with room temperature cure -- it needs a post cure.

Primers don't have UV protection -- you need finish coats.

Q: Rob Hadley: His designer says paint his airplane white only.

A: Andy agrees.

Q: Pete Wiebens visited Burt Rutan, who had a blue plane. It was too hot.

Q: Don Baldwin: With a gel coat do you sand it off before bonding?

A: Yes.

Q: Bob Belshe: He has spider web like cracks in his paint?

A: Always investigate cracks -- but it may be just paint -- watch it.

Q: Fred Egli: With time, the weave of the fabric shows through the paint?

A: He doesn't know why this happens.

Introductions

Ken McKenzie revealed that he has yet to put any rivets in his Glastar. He enjoyed a week at Oshkosh.

Harvard Holmes is working on the fuel lines in his Lancair IV-P.

Harry Heckman related a bad landing in his Lancair 235. He went off the runway at Pine Mountain Lake at the end of his landing roll

when the plane veered strongly to the left. He hit a taxiway embankment that knocked the wheels off the nose and left main. As it settled it broke the prop. Harry was unhurt. With the help of a forklift from Dick Collier Aviation, the plane was moved to a hangar. All the damage to the plane was mechanical; there were no delaminations at all. Harry decided a long time ago that if something like this happened, he did not want to rebuild the airplane. He will sell the plane to Mike Crouther in Petaluma, a friend of his mentor, Mike Maxwell.

Stanford Chan from the Concord Flying Club came with Pete Wiebens.

Pete Wiebens is down to two airplanes. He's still working on the Glasair III, and he has a Cessna 150, also in pieces. Pete departed for OSH with Mike Welsh(?) in the Glasair I that Mike bought from him, but they had brake problems at Evanston, Wy (did a 360 on the runway), than a bad check valve in a fuel vent line, and then heavy turbulence. Eventually they "bagged it" and returned to CCR.

Bob Belshe has a Lancair 235/320 with 740 hours on it. He bought it 10 years ago. It's been quite reliable lately, except for a broken EGT probe.

Duane Allen now has 3 airplanes. The TR182 needs a new AI. The Lancair ES came out of the upholstery shop on Saturday. The Cardinal is still waiting for panel work. Duane is working less now, so he should have more time...

Fred Egli has a Lancair IV. He just spent a couple of days in Truckee. The plane runs well and is comfortable. He has 650 hours in 8 years.

Phil Jenkins has a Glasair II RG with 600 hours in 13 years.

Keith Martz has a Comanche. He's been doing electrical work for his hangar to make

the county happy. He converted from 220 V back to 110 V, then got it signed off. "Ask for Marie Taylor." He did not have to move all the outlets to 5' above the floor. [Pete Wiebens noted that the 5' requirement is only for maintenance facilities, which we are not.]

Don Baldwin is working on a Sonex, a low wing 2 place plane with a VW engine. He noted that deviations are expensive -- he's using a fuel injection system from Calgary that's \$2000. He's putting together a glass panel: \$108 for fuel flow, a small solid state unit for bank and attitude, a unit in the engine compartment that combines engine instrumentation into one 4 wire bundle (made in southern California), and an Easypilot autopilot.

Chris Bristow is working on a Bearhawk. He finished the ribs on July 4th, after working on them for a year.

EAA 393 Board Meeting

September 7, 2006

Attending: Ken McKenzie, Scot Stambaugh, Louis Goodell, Harvard Holmes, Guy Jones

- We reviewed the schedule of speakers, noted elsewhere in the newsletter.
- Debrief on the open house: our stuff went well.
- Next July's picnic: the trees have grown so the shade is nice. Let's have it again at the airport behind Budget Rent-A-Car.
- Pat Peters would like to be replaced as Young Eagles Chairman. We need to find candidates...
- Harvard asked for ideas for fly outs: Santa Rosa - check on radial engine rebuilders; Shafter Minter field has Reno racers; Shelville has a monthly hot dog feed?; Little River has a restaurant on the cliff?; Boonville - (not really); Columbia has a lot of stuff - figure out how to find it.
- Deadline for Cleco is 2 weeks before each meeting.

- There was a brief discussion of the "Presidents Perspective" appearing this time.

EAA 393 Treasurer's Report

September 16, 2006

Checking \$1349.25 and money market \$2627.63; total = \$3976.88

EAA 393 Picnic - see what you missed!



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Meeting Schedule (2006/2007)

General (Wed.)	Fly Out (Sat.)	Board (Thur.)
Sep 27	Sep 30	Oct 5
Sep 28, CCR Master Plan Update Meeting		
Young Eagles at CCR	Oct 7	
Oct 25	Oct 28	Nov 2
Nov 15 (Early!)	Nov 18	Dec 7
Dec 9, Holiday Party at MDPA		
Jan 24	Jan 27	Feb 1
Feb 28	Mar 3	Mar 1
Mar 28	Mar 31	Apr 5
Apr 25	Apr 28	May 3

Our meetings are open to the public. Everyone should consider themselves invited. EAAers might make someone else happy by introducing them to our Chapter, getting them involved in projects, fly outs and just plain good old camaraderie.

Our normal meeting time is 7:30 PM on the 4th Wednesday of the month (except July, November and December) at the old terminal building on John Glenn Drive just south of the tower. Visitors are welcome.

Chapter 393 Fly-Outs are open to chapter members and their guests. Meet at the Buchanan Field terminal building at 10 am, and we'll try to match people and airplane seats to take as many as possible. If the weather is bad, the fly out will be postponed to the next Saturday, possibly with a change in destination.

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