

The Cleco

Experimental Aircraft Association Chapter 393

Keeping Your Medical

Our speaker for **May 24** 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.

Fly Out May 27: Young Eagles with Pat Peters, then lunch TBD

Other topics scheduled for our regular meetings are:

- June 28: Ricky De Agrela
South Africa UltraLight Freedom Flight continued on a MotorBike
(Alternate: Bruce Seguire
Aluminum Welding)
- Aug. 23: Bill Call/Andy Marshall
Fiberglass Lay-up Techniques
- Sep. 27: John LeNoue
Vimy Build Process
- Oct. 25: Rick Lambert
Aircraft Rigging
- Nov. 22: Bruce Sequine/Scot Stambaugh
Riveting
- Jan. 24, 2007: Scot Stambaugh
Aircraft Wiring Basics
- May 23, 2007: Scot Stambaugh
Flight Testing Your Experimental Aircraft

Presidential perspective:

This month I want to talk about Fly-Ins.

I make it a point to attend 2 Fly-ins every year. The first on my calendar is Golden West and the second, Arlington. These 2 also happen to be the closest major Fly-Ins to our chapter.

I realize that you haven't heard a lot from me regarding the Golden West Regional Fly-In for some time as I haven't been in the organization for the last 6 years. I still believe that it is important for the local chapters to have a regional get-together

around which they can view various flying projects and learn about what other members are working on. For me it's an opportunity to immerse myself in experimental aviation for 3 days, see some interesting aircraft, visit with people who have already finished their projects, and listen to some experts talk about various topics related to airplanes.

For those of you unfamiliar with the Golden West Regional Fly-In it is held in Marysville, CA at the Yuba County airport. It is approximately a 2 hour drive from my house in Lafayette. This year it runs 6/9-11, Friday thru Sunday.

I usually arrive Thursday afternoon, park, set up my tent in the camping area, and go to the volunteer tent to sign up to help out. I spend about half the day enjoying the Fly-In and the other half volunteering.

There are many areas to help with. I usually assist our very own Guy Jones, head of GW security, by manning one of the many gates to make sure that everyone who passes has paid the admission price. I also find myself acting as an ad hoc information booth as well. Linda has worked admission, Young Eagles, Aircraft registration, and many other operations.

We find that volunteering adds to our enjoyment as well as filling the inevitable slack time that arises when you spend 3.5 days at a 3 day Fly-In. There is also a wonderful sense of fulfillment that comes from community service in the furthering of aviation awareness. Plus there is sometimes a free lunch provided.

We volunteer not just at Golden West but also regularly at Arlington as well as Copperstate and Oshkosh. In each case we have found the experience much more fulfilling when we include some volunteer

activities. As you may have guessed, I *highly* recommend it!

Some of the relevant details of the Golden West Fly-In are as follows:

Hours	8-5
Admission: adult	\$15/day
adults w/EAA membership	\$10/day
child	\$ 5/day

Breakfast and lunch are available in the food court area. There is a sit down dinner on Friday and Saturday for \$15 with an interesting speaker planned.

Camping is available, both tent and RV for \$10/night plus \$25 for power in the RV area with advance reservation.

There will be airplanes from most of the major manufacturers on display along with demo rides available. There are always several large hangars full of vendors selling all things related to aviation.

There is always a great turnout of warbirds and last year Linda bought the ride of a lifetime in a B-17. They were offering rides in a B-24 as well. There were helicopter rides available all day.

There are always dozens of forums covering a wide range of topics each day. As well as presentations from all the major kit plane manufacturers. Check out the web site for details:

<http://www.goldenwestflyin.org/2005flyin/forum%20listing.shtml>

As always there will be an airshow on Saturday and Sunday featuring many warbirds and aerobatics from both high performance planes as well as traditional biplanes. Last year they even had some impressive military fly-bys of F-18s, an F-15 and a U-2 with the F-18s as static display both days. One of the F-18s provided an unintentional show when he parked in the wrong location and sank into the asphalt up to his axles and had to use full power to get out and then some fancy maneuvering to avoid hitting any of the other parked planes while moving to a more suitable parking location.

Far and away the most interesting part of the event for me is walking the aircraft parking area and looking at all the different

homebuilts. There are almost always several up to dozens of the more common kitplanes. You can usually find the owner/builder camped under the plane ready to answer the many questions and show off some of the more interesting features or equipment.

As always one must keep in mind that these events are outdoor events and that means sun and lots of it all day long. Don't forget the hat and sunscreen...applied often and in large amounts.

Well I hope that this intro has inspired you to attend Golden West this year. After all, this is one of the few chances we get all year to congregate with our own kind and eat, sleep and breath aviation in our own backyard, if only for a long weekend.

I hope to see you there.

GP-4 Airplane Project for sale:

Airplane builders, EAA members, want to finish my project, a 240 mph personal plane? I am 81 years old and cannot finish it. It is made of wood, covered with fiberglass. The construction is like a model kit and like the Mosquito Bomber of WWII. The fuselage and empennage are done but need covering. The main wing spar is done. The fuselage hardware is done, including stick and rudder controls. Forms with which to make the fiberglass gas tanks are done. Jim Pedersen made the engine mount and retractable nose gear, all beautifully powder coated. Raymond Beazley ray1beazley@accesswave.ca will make the retractable main gear. This sale includes the plywood and spruce necessary to complete the project, fiber glass cowl, wheels, brakes, tires, Cessna electric flap motor, throttle and mixture controls, and the 4 x 28 foot plywood table needed to finish the wing. Needs a Lycoming IO-360, but will take a 6 cylinder Eggenfellner Subaru. I spent \$6000 on the engine mount and retractable nose gear alone. \$10,000 OBO fbo Tucson. Serious inquiries only. Doug Page EAA # 045482, Tucson, AZ 520-514-7836 dougpage2@earthlink.net

EAA 393 General Meeting

April 26, 2006

President Ken McKenzie welcomed members and guests.

Ken announced a fly in at Cloverdale sponsored by Quality Sport Planes, featuring the Zenith brand of Light Sport Aircraft
http://www.qualitysportplanes.com/qsp-2006_036.htm on May 6th. A BBQ lunch is being provided by the Liberty Field Flyers.

Ken led a discussion of next December's Holiday Party. The caterer (Sunrise Catering) has significantly raised their prices for sit-down dinners, and they are also too busy on December 9th to staff a sit-down dinner. They proposed a buffet dinner at a cost similar (but slightly more) to last year's event. An event with hearty *hors d'oeuvres* was also suggested by the caterer. Members preferred the buffet choice.

Pat Peters announced that there would be Young Eagles/Boy Scouts events (leading to Aviation Merit Badges for the Scouts) in late May or early June.

Dick Sperling talked about his interaction with Bill McArthur, a NASA astronaut. In conjunction with his work with the Boy Scouts, he has been corresponding via email with Bill for about 8 months. He brought a print out of an interview with Bill from the NASA web site:
http://www.nasa.gov/mission_pages/station/expeditions/expedition12/exp12_interview_mcarthur.html

Our speaker was Scot Stambaugh who reviewed the principles and techniques of drag reduction, as exemplified in the book *Speed with Economy* by Kent Paser. He covered the following areas:

- Construction features for good performance as the aircraft was originally built

- Engine exhaust system modifications
- Engine intake system modifications
- Engine cooling system modifications
- Aerodynamic cleanup and drag reduction

An overriding principle is to avoid changing direction of air masses, either on the outside of the plane or in the cooling system. An outline of Scot's presentation is here:
http://www.eaa393.org/Presentations/ScotS_rev_SwEconomyKentPaser2006.pdf

EAA 393 Board Meeting

May 4, 2006

Attending: Ken McKenzie, Linda McKenzie, Scot Stambaugh, Louis Goodell, Harvard Holmes

Advertising in the Cleco was again discussed. The Board determined to proceed to solicit advertising, with the revenue available to support our speaker program and other uses. If the Cleco becomes short of space, the contact information on the last page could be omitted from time to time. Our limit on Cleco size is 5 sheets of paper, if we want to avoid paying more for postage.

Action Items:

- Harvard Holmes will respond to Barnstormers.com with our rates.
- Ken McKenzie will contact PSA and Sterling about ads, and also Rich Powell. If PSA continues to support the Young Eagles program (as they did under Maureen Bell, the former owner), they should get a business card sized ad for free or a reduction on a larger ad.

The Cleco deadline is next Wednesday, May 10.

The Board discussed how to increase our membership. Ken suggested investigating public service announcements for non-profits that might be available from the media. Harvard noted that EAA could help us do a mailing to pilots in Contra Costa County.

Louis Goodell arranged for Ken McKenzie and Scot Stambaugh to meet him at the bank to be added to the list of authorized signatories for our bank account.

The Holiday Party options were briefly reviewed. Preliminary budget estimates run about \$34 per person. At the next general meeting we need to ask if members again want to make donations (wine, desserts) to the Holiday Party.

Action Item:

- Ken McKenzie will review the menu choices and provide feedback to Harvard for communication to the Caterer.
- Ken McKenzie will bring this up at the next general meeting.

The location for our July Picnic is still not decided; the choices being considered are at the airport (probably in front of Budget), or at a local park (as last year).

Action Item:

- Ken McKenzie will bring this up at the next general meeting.

It was noted that our speakers are generally so engaging that our announcements that wait until after the speakers are getting lost. It was proposed that we have the speakers start at 7:45 so there is a clear time for announcements.

For one of our next meetings, Guy Jones has an ultralight pilot who would like to make a presentation to the Chapter. Scot and Ken will try to fit this in with our existing speaker commitments.

Treasurer's Report as of May 5, 2006
Savings: \$ 2621.44 Checking: \$ 1805.14

EAA 393 Fly Out

There was no fly out this month due to the fly out chairman (Harvard) being out of town.

The Radar Screen

EAA B-17

The EAA's B-17 will be at Hayward May 5-7.
<http://www.b17.org/tour/>

Hayward Air Race

May 18-20, 2006; Hayward to Laughlin, NV
<http://www.hwdairrace.org/>

Collings Foundation

Pat Peters previously announced that the Collings Foundation would be coming to CCR, at Pacific States Aviation, on May 22 to 24th with a B-17, B-24, and B-25. They will need help.

<http://www.collingsfoundation.org/menu.htm>

AOPA Pilot Town Meeting

Thursday, May 25, 2006, 7:30 PM
Crowne Plaza Hotel, Buchanan Field
<http://www.aopa.org/prez/ptm.cfm#115>

Buchanan Master Plan Meeting

June 15, 2006 7 PM; Crowne Plaza Hotel

Harvard and Sara Holmes build a Lancair (continued from the March, 2006 Cleco)

Continuing with WEEK ONE at the Lancair Factory Builders' Workshop... the construction of the speed brake mounting continues with putting the wing skin in place to locate the reinforcing pocket.



The wing is upside down and the bottom skin is being set in place over the speed brake assembly so that the reinforcing pocket can bond to the wing skin. The brass fittings near Harvard's hand are fuel drains.

After the speed brake pocket has bonded, the lower wing skin is removed and the pocket is reinforced by applying several layers of carbon fiber and epoxy around the joint between the speed brake pocket and the bottom wing skin.



After structural glue is applied to the wing assemblies and the wing skins, long straight bars and bags of lead shot are piled on the wings to get a good joint. Each bag weighs about 25 pounds. A couple thousand pounds are put on each wing!

The Lancair uses push/pull control rods for all the control surfaces except the rudder. Complexities arise from the use of side sticks and the need to seal the actuating rods where they pass from the pressurized interior of the cabin to the outside air pressure. Lancair has nicely designed the side stick configuration so that the control sticks ride in rotating rods mounted on the side of the fuselage. The aileron linkage connects from one aileron to a bell crank in the fuselage, then through a pressure seal to a crank on the rotating rod with the control stick on it. At the forward end of the rotating rods there is a crossover rod behind the instrument panel that transfers the motion between the pilot and copilot sides of the

airplane. For the elevator motion, a control rod connects to the control stick and passes rearward along the side of the fuselage. At the pressurization bulkhead at the rear of the fuselage, the control rod necks down and passes through another seal to maintain cabin pressure. By necking down the control rod where it passes through the seal, the effects of cabin pressure are minimized. Behind the cabin, a crossover tube joins the pilot and copilot elevator rods and routes a single rod aft to the elevator.



Sara is assembling the aileron control mechanism. The green tray contains the control stick rod and the aileron bell crank (yellow piece). A seal will go in the middle of the tray and a lid will be put on. One side of the seal will be open to the exterior to allow the control rod to go out to the wing, while the other side will have cabin pressure on it. Next to the green tray is the elevator crossover tube that will be mounted behind the cabin.

The control rods were assembled out of aluminum tubing and rod ends. At each end, the assembly was drilled and riveted together. Since the holes were about 1/8" in diameter and over an inch long, they had to be done slowly, backing out the drill periodically to remove chips. We continued making these control rod assemblies over the next two weeks, as we had idle time waiting for glues to set up.

WEEK TWO

We began the week finishing up the wings by putting reinforcing strips on the leading edges of the wings.



The wings have a recess where the upper and lower wing skins join so that a reinforcing strip can be applied and lie flat with the skins. Here the reinforcing strip has been applied and then covered with peel ply. Peel ply is a Dacron material that does not stick to epoxy. Sara is pushing the reinforcing strip and peel ply down tight onto the wing skin surface. The peel ply will absorb any excess epoxy and also protect the epoxy from air so that it cures better. The rest of the week was devoted to installing the windows and door.



The fuselage has arrived back from the shop where some of the fittings were installed on the firewall.



The top of the fuselage has been set in place on the bottom. Sara is installing Clecos to temporarily hold the top and bottom together.



The Fastbuild kit provides the door and the frame together. There are two door handles -- one operates the bottom latches and the other operates the side latches. Eight latches and two sturdy hinges are needed to withstand the roughly 5000 pounds of force from the cabin pressure.

The door is removed from its frame and the fit of the doorframe is checked before the windows are installed.



The doorframe has been fitted, marked, and then removed again, and Harvard is trimming up the fuselage to accommodate the doorframe.

Before actually installing the doorframe, the windows will be installed. With a pressurized cabin, the windows are a structural element and they are bonded directly to the fuselage. The design avoids making any holes in the windows, as that would create points of increased stress. A special glue (CASCO) is used because it adheres to Plexiglas better than epoxy. The windows are prepared by protecting them with masking tape and contact shelf paper, and then the edges are roughed up with sandpaper to get a good glue joint. The top edge of the front window is beveled with a belt sander to allow positioning the window flat with the outer surface of the fuselage. All of the windows are put into the fuselage for a trial fit and any adjustments made. Then a series of holes are drilled through the fuselage every 4 to 6 inches around the perimeter of each window. Bolts with large washers are put through these holes to

press the windows into place and hold them while the glue sets.



The fuselage top with the windows newly installed is placed on the bottom to prevent any mismatch between the top and bottom as the window glue sets up. Note the bolts with large washers around each window.

After some cleanup, the door and frame are installed in the fuselage while the top and bottom are still fitted together. The frame is recessed back from the door so that it fits the inside of the fuselage. The trick is to space the frame away from the inside of the fuselage so that the door will be flush with the outside of the fuselage. This is done with temporary bolts to tighten things and wooden wedges to space the frame away where it needs it. When everything is lined up as well as possible, then the epoxy is applied and the gap between the fuselage and the frame is filled in with a mixture of epoxy and flox. At this stage, the frame is bonded to the top of the fuselage only. This is allowed to set up and then the top of the fuselage is separated from the bottom.

[To Be Continued...]

Meeting Schedule (2006)

General (Wed.) Fly Out (Sat.) Board (Thur.)

May 22-24, Collings Foundation @ CCR

May 24 May 27 Jun 1

Jun 9-11, Golden West

Jun 28 Jul 1 Jul 6

Jul 5-9, Arlington

Jul 15, Picnic Jul 29 Aug 3

Jul 24-30, AirVenture

Aug 23 Aug 26 Sep 7

Sep 13-17, Reno Air Races

Sep 27 Sep 30 Oct 5

Oct 25 Oct 28 Nov 2

Nov 15 Nov 18 Dec 7

Our meetings are open to the public. Everyone can 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.

The Experimental Aircraft Association Chapter 393 of Concord, CA

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The Leader In Recreational Aviation

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