



EAA CHAPTER 9 NEWSLETTER

VOLUME 50 ISSUE 12

DECEMBER 2008



The Leader In Recreational Aviation

Experimental Aircraft Association Central Ohio

EAA Chapter 9

NEWSLETTER



VOLUME 50 ISSUE 12

EAA9, Inc. Based at Ohio State University Airport, Columbus, Ohio

DECEMBER 2008

EAA 9 Calendar of Events

<i>Date '08</i>	<i>Day</i>	<i>Time</i>	<i>Place</i>	<i>Event type</i>	<i>Details</i>
Dec 9	Tues	6 PM	Der Dutchman	Chapter social	Holiday diner
Dec 11	Thur	7 PM	Clare Lutton house	Homebuilder visit	Sonex

<i>Date'09</i>	<i>Day</i>	<i>Time</i>	<i>Place</i>	<i>Event type</i>	<i>Details</i>
Jan 15	Thur	7 PM	OSU classroom	Chapter mtg	Tuskegee Airmen at Lockbourne Army Airbase
Feb 7	Sat	TBD	OSU->DAY	Tour	Family trip to AF Museum
Feb 19*	Thur	7 PM	MedFlight	FAA Seminar	Details TBD
Mar 19	Thu	7 PM	OSU classroom	Chapter mtg	UAV initiative. Brian King
Apr 11	Sat	TBD	TBD	Chapter mtg	open
May 4*	Sun	8 AM	I73	FlyIn	Funday Sunday
May 25	Mon	8 AM	170I	FlyIn	Haas memorial fly-in and breakfast
May30*	Sat	10AM	MRT*	FAA Seminar	Pancake breakfast

NOV 08 EAA 9 EVENTS

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30						

DEC 08 EAA 9 EVENTS

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*denotes Tentative

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- Holiday Dinner
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- Young Eagles recap for 2008
- What is an experimental?
- Homebuilders invade Marysville

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COVER PHOTO—Robert Simon's Lancair ES-P

Our cover this month is graced with Robert Simon's Lancair E-SP. We thank Robert for providing us with a presentation at the November Chapter 9 meeting. As we saw the work that went into this plane, we can see that his energy is boundless; his vision wide. This is no ordinary Lancair, as noted by the coveted workmanship prize from AirVenture Oshkosh 2008. This sure is a very special Lancair. To begin with, Robert moved the pressure bulkhead aft a considerable distance. This was a huge engineering fete. It has dual almost everything. It even comes with a 7.5KW dedicated alternator for the deicing. While capable of over 260 kts, he often cuts the fuel burn back to 17 gph by poking around at only 200 kts. If you get a chance to see Robert's prize winner in person, be prepared to spend some time looking. It is exquisite. (see article by Robert Simon on page 8 of this issue)

The President's Message

by Dick Wetherald



2008 has been an interesting year indeed. Gas prices were up then they were down, the economy was up and now it's down. In spite of what is going on around us, the Chapter has been as active as ever. We have had many new members join our ranks and much more sport flying and homebuilding than ever before. It is as though, folks are determined to not forsake their dreams even when times are uncertain. 2009 will be an important year for general aviation and as an organization, we are committed to embracing our love of flying and through camaraderie and singularity of purpose, we WILL pursue our passions. -Dick

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Audit Committee
Curt Jenkins
Tom Webster
Stanley Sutton

Elections Committee
Ted Kellog

Holiday Dinner.....December 9th (Tuesday)

This holiday season we will have the opportunity to have a chapter dinner. EAA 9 has reserved a large room at Der Dutchman in Plain City. If you haven't eaten there, you won't be disappointed. Great food and a casual atmosphere. The date is December 9th at 6pm.



Mike Cencula (RV-7A builder) has agreed to coordinate the event and as part of that task we need everyone that plans to attend to RSVP him at eaa9@cencula.com by December 4th.

The meal will be hot and cold buffet that has a variety of meats, etc. Cost is \$14.49 per person

(separate checks) and that includes the buffet, dessert, tax, and gratuity.

Don't miss out by not attending. Last year was spectacular and everyone had a great time!

The address is 445 S. Jefferson (Route 42). Roughly a 1/4 mile south of SR161 in Plain City (NW of Columbus).

All EAA members and guests are welcome, but to reiterate, if you plan to attend, please RVSP as soon as possible to give the restaurant an accurate count and avoid penalty on our minimum reservation.

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How to Join EAA Chapter 9

EAA Chapter 9 (EAA9 Inc) welcomes EAA National members and volunteer-only participants. We are an active chapter with a multitude of activities, events and opportunities to meet others in the aviation community. And we love to fly, too!

With the 2007 overhaul of the Bylaws, participation was clarified.

Regular membership: Current membership in EAA National is required. Dues are \$9.00 for the calendar year. You can join by mail, at a meeting or **on our website via paypal**. (www.eaa9.org)

Volunteer participation: Those without EAA National membership are welcome and are encouraged to participate. Sign up is requested. Dues are not required.

Come join the fun!

Volunteers Needed—Really!

We have asked for volunteers in each newsletter. Some have come forward, but we would like you to seriously consider one of the posts so we can keep the chapter growing. Otherwise, the Board has to track all the details leaving the Board unable to look into new activities. Feel free to contact any of the Board members for a more thorough discussion. Our email addresses are listed on early pages of the Newsletter.

Program chair and co-chair –

The program Chair (and co-chair) will manage details of monthly meetings and other events that do not have their own chairs. Set dates and times, reserve the meeting place, open and close the meeting place, and ensure required equipment is in place. Contact speakers reminding them of their commitments to speak. Assist the Newsletter editor with brief advance stories of each speaker and provide short email reminders of the activity.

Doesn't sound too tough does it? The Board has a slate of speakers set for many dates this year, so this is a great time for a new program chair to ease in to the role. With time, the program Chair will solicit and arrange for speakers. This task is surprisingly not very difficult.

Each board member has done this activity so there are many mentors to help. Please step forward and help coordinate the most visible part of EAA 9 chapter life.

Major Events Chair and co-chair –

Unlike other chair roles, this one generally has a firm start and finish date. In the past, this has meant coordination of the B17 or the Ford Trimotor visits. This is one of the most interesting leadership activities available at any price. There is plenty of mentoring available; contact President Dick Wetherald to learn more.

Assistant Chairs –

Assistant chairs are needed for the posts below. None of these are very difficult, but they are essential. In these roles, you can contribute as much or little time as you wish. Please consider participating.

Young Eagles

Treasurer

News reporter

Newsletter Editor

Webmaster

Information technology (IT)

Homebuilder subgroup

Merchandising

Everything You Thought You Knew About a Jet Engine

by Greg Schroeder

On Saturday Oct 18th we had the pleasure of welcoming Mark Neubauer, Lead Engineer, GE Aviation to our Don Scott Field. He flew his homebuilt Glasstar in with friend and Sportsman 2+2 builder Joe Marconi. Recently, Mark was featured in the GE video from Airventure, and you can view the video at: http://www.airventure.org/2008/news/080923_ge.html.

Currently Mark spends part of his working days testing the HF120 Honda Jet engine under the Honda/ GE partnership to manufacture the engine. The balance of the time is spent on the F136 engine which is the power plant which provides the thrust to drive the Joint Strike Fighter. Mark started sharing information on the HF120 and the intricacies of the Honda Jet airframe and particularly the engine mount geometry. The Saturday morning group jumped right in with several questions on the GE/ Honda relationship and their collective plans for the future. Mark went on to share his involvement in the F136 engine at the GE testing facility at Peebles, Ohio. It was a specially constructed facility due to this engines thrust vectoring capability and the stresses that are produced in its testing. From the pictures he shared it was one impressive facility as a matter of fact Mark noted it was an interesting site from the air as well. Several made note of that for a future overflight during their next pleasure flying excursion. Mark went into great detail on how the engine worked and how it was unlike anything else produced. Most who attended knew the fundamentals of jet propulsion, but after a few questions and the depth Mark answered them we knew he had probably forgotten more about the workings of a jet engine than most of us had ever known.

Mark closed his presentation with the Glasstar he had completed. He shared the spec sheet with us and by that time we were dying to get a look at it. We adjourned to the ramp and did several laps around his beautiful bird. Mark has it well apportioned inside and clean and polished outside. Joe Marconi and I both hoped that our Sportsman projects would turn out nearly as well. Great workmanship Mark! He is also an invaluable technological resource in the Glasstar/ Sportsman online build-

ers group. The day closed with many thanks to Mark for making the trip and sharing his aircraft and knowledge with us.




EAATM
THE SPIRIT OF AVIATION

Young Eagles

by Chuck Hoisington

HAPPY HOLIDAYS

The Young Eagles Program sponsored by EAA9 Inc and the OSU Airport wish the best to all!

Thanksgiving is for all of those who make the program possible, and especially the youth we serve are very grateful for the efforts gladly given by the Airports personnel, the pilots who fly, and the ground support people.

The Christmas season is a time for Chapter 9 and guests to socialize at their annual holiday dinner where we will introduce and recognize those who make it happen, and reflect on the past year. Again, a big thank you to all!

We had eight events in the season. Five were at our home base at KOSU, one at Columbus State Community College located on Bolton Field, one at The Union County Airport, and one at the Madison County Airport in conjunction with the London Strawberry Festival. The latter was interesting with the visiting royalty who came out. Lots of pictures were taken of them.

A total of twenty two helped with ground support. They are John Blakely, Lee Ritter, Don Morgan, Bob Miller, Saryn Mayfield, Debbie Doucette, Alan Edmonds, Paul McClennan, Muyezen Schroeder, Melinda Baccus, Dick Wetherald, Andrew Hale, Jeff Beachy, Al Harding, Marti Worth, Bob Delaney, Jon Delaney, Chris Lind, Kevin Parsons, Clare Lutton, Ted Kellogg, and Linda Lusch.

Seventeen pilots contributed their services and the use of their planes. These are, together with the number of riders accommodated as a part of the program, Rick Hunt 83, Dick Wetherald 112, Bob Lewis 34, Dick Willis 29, Wayne Williams 49, Bill Zink 5, Steve England 6, Tom Maish 15, John Wilson 27, Jerry Isbell 6, Our best (and only) lady pilot Jan Bowne 79, Angelo Campanella 6, Mike Weinstein 6, Kenny Harding 36, Ted Kellogg 8, Ted Kellogg 8, Gary James 10, and Bob Leffler 6. Chapter President Dick Wetherald again is the leader, Rick Hunt second, and Jan Bowne third in total numbers flown. The total-FIVE HUNDRED AND SEVENTEEN!

Planning is underway for the next season. Please plan to turn out and help, or just to visit and see the fun we have doing this before you volunteer.

Best wishes to all.

Chuck Hoisington Young Eagles Coordinator EAA9, Inc.

Kenny Harding is one of the featured young Eagles in EAA's 2008 young Eagles yearbook. Kenny has already flown over 25 young Eagles and he is only 17. He further distinguished himself by flying solo to and from AirVenture Oshkosh this year. Kenny grew up thinking it was routine to have a pair of accomplished pilots as parents. He also thought it was normal to have airplane parts scattered around the house. Chapter 9 is proud of Kenny. So are Lelah and Alan Harding.

What is an Experimental Aircraft? A Series of Choices!

By Robert Simon

I just “completed” the building of my second experimental aircraft (100% done, 10% to go), and looked back over the stream of consciousness during the selection and building process. Had I waited until all the analyses were done I would never have started the construction, let alone completed it!

The selection of the Lancair was based on basic criteria of carrying capability (4 people), speed (250 kt), designer history (years and completed kits) and safety (goof-proof design, whatever that might mean). I searched databases and performance reviews and decided the Lancair ES was closest to meeting my requirements, but not quite. After meeting with the Lancair staff a plan began to unfold that led me down the path of morphing the basic design into an aircraft that truly fit my needs.

The ES was designed to carry 4 people so no change was needed there. The speed I wanted was available but only in the flight levels, and that meant a tube up the nose through 18k and a mask for higher flights. For occasional flight that would be fine but for everyday flying this would become tedious and downright uncomfortable. At the time of my decision Lancair was already toying with the concept of pressurizing the ES. They had a decade of experience with their IV-P and figured the same techniques would work with the ES. However it had never been done so I was to be the guinea pig and climb the learning curve. Since I was breaking new ground I figured that I might as well tailor the plane to more closely fit my anticipated missions.

The IV-P was designed with a pressure bulkhead forming the support for the rear seats. That made for a short cabin and unpressurized baggage accessible only via a small hatch. By this time I had three greyhounds and to travel with them I would need the full baggage area available in the stock non-pressurized ES. No problem thought I, just cut out the pressure bulkhead and construct one at the baggage aft wall. And then figure out how to construct the new seat backs. And make them fold forward to give the dogs full access. The baggage hatch would require an extensive redesign to accommodate the pressurization, so I just eliminated it (too small anyway for dogs, large bags and folding bikes).

The Lancair engineers calculated the force on the extended fuselage walls and decided that the structure could not take it – so I added another 5 BID (bi-directional) of graphite fiber to strengthen it. And after the design aspects were handled there came the challenges to execute this first-of-the-kind construction. The normal pressure relief valve fits onto the standard pressure bulkhead which was gone and the replacement was too small. I elected to dump pressure out the side and into the wing root fairing. That worked but pressurized the wing root and set up a harmonic that shook the plane. It took weeks and many false starts to find a technique using air dams and reverse NACA scoops to fix that annoyance.

The extended cabin is 50% larger than the standard IV-P so a stock air conditioner might not do the job. The new smaller-than-normal tail bay was too small for a stock unit anyway so we worked with an A/C engineer and custom fit a one-off unit into the tail. Then to cool the cabin we fitted two evaporators, one on the aft bulkhead and one under the instrument panel. It was powered by an engine mounted compressor for about four months until I found that the compressor interfered with the anticipated prop de-ice and worse was in close proximity to the electronic ignition pickup – a broken belt would shut down the engine! Back to the drawing board, and I changed to an electric A/C compressor mounted inside the cabin (requiring a complete reroute of the A/C lines and power cables).

The A/C exhaust is usually dumped through a large port beneath the tail cone but that looked rather crude so using a simple hole saw I cut three holes of decreasing size as they went aft in the tail cone. Then I developed a plenum to tie them all together and added more graphite to strengthen the area.

The horizontal stabilizer for the ES and IV-P is set square against the fuselage. Although it looks OK I knew that a fairing at this area enhanced low speed handling of the GlaStar (my first homebuilt) and later discovered such fairings are used on Lancair Legacys for air flow smoothing at high speed. I glued rigid foam in the area, shaped it with a rasp and sandpaper, and covered with graphite composite. After curing the structure was pulled off, the foam removed, and the fairing bonded permanently in place. This greatly improves the aesthetics in my humble opinion and low speed handling is fine.

The seats for the ES are strong but simple 26G frames. For ultimate comfort I attached to the seat frame blocks of rigid foam and shaped them to fit my physique. Then I sealed the foam with Bondo, covered these forms with graphite fiber, and pulled off 2 shells. These shells were riveted to the seat frames and eventually covered with just 1" of foam for strong, lightweight, and very comfortable seats.

The ES was designed for a 360 cu.in engine and 5 hrs (75 gal) of fuel on board. For the ES-P Lancair suggested the Continental TSIO550, a relatively thirsty beast, and they suggested wetting additional wing lockers to 100 gal capacity. I had planned to extend that even further but ended up leaving the wings at 105 gal and adding a 16 gal aux fuel tank under the baggage area. This was plumbed so that when drawing from the right wings the fuel in the aux tank is pumped into the left tank. Now running at 65% power lean of peak I have nearly 7 hours total time, or 6 hours plus reserve, making the range an easy 1200 nm and even more at economy cruise.

The engine was a stock TSIO550, polished, ported, and balanced to put out 400 hp. Since I have only one engine, its health and continued running is of paramount importance, so I have numerous redundancies. I elected to use one electronic ignition (for easy start and smooth running LoP) and one pressurized mag (for limp-home if the EI were to fail). There are three alternators, 100amp 28vDC, 25amp 28vDC, and a 7 kilowatt 100amp 70vDC to run the de-ice. I added a backup oil pump in case the engine driven unit goes dormant. The paper oil filter is replaced with a fine SS mesh unit that also acts as an oil cooler, and has an integral chip detector to give an early warning when the engine starts turning big pieces into little pieces.

The instrument panel is split into 2 busses with diode protection so either alternator/battery system could run the entire panel. The prime instruments are a 3-screen Chelton system and a Garmin GNX480 WAAS, backed up with an SL-30 and a set of steam gauges including an attitude indicator with battery backup. The autopilot is a Sorcerer with its own climb/descent and cruise programming.

The most recent development had been installation of a hot wing deice package.

My ES-P was the first one outfitted and we spend nearly a year fine tuning it until it now works flawlessly. Once armed it senses air temp and cycles power to keep the leading edges at 40 F. As the air temp drops it takes more power until finally the atmosphere no longer has enough moisture to allow ice to form. The prop is heated as well, cycling one and off each minute. The pitot tubes are heated as well – and did I mention that I have redundant dual pitot static systems? That's one pitot on each wing and two static ports on each side of the aircraft. Redundancy is a good thing!

My Lancair ES-P is fully functional and flying but there are still tweaks on which I am working. I have already installed a panel button to activate a wind-screen glycol de-ice mist and soon with complete the manifold that I'll bond into the firewall. And by then I'll be thinking of something else.

Robert M. Simon



Author's beautiful LancairES-P

Homebuilders Invade Marysville

by Dick Wetherald

EAA Chapter 9 hosted a homebuilder's site visit at Marysville, Saturday 10-25-08. Five projects were available for viewing.

Craig Schneider showed dramatic progress with his Rans S-19 fast build kit. The fuselage forward, center and empennage sections are built as subassemblies. That approach makes the sections compact and easy to squeeze into the construction space. Craig primed most components and powdercoated the rest.



Clare Lutton has a completed MiniMax in the same hangar. The mighty two cylinder engine and external wing bracing ensures that, by comparison, Cessna 150 drivers will be proud to fly so fast in the pattern. Clare did not fly this day. We are not sure if he was off put by the strong, cold winds, or just the cold of the open cockpit.

Don Austin could not be present on this occasion but made arrangements for all to look at the latest changes to his GP4. Jeff Beechy's young son Nick asked "How did he make wood look so smooth as it bent around corners?" Indeed, a precocious comment the adults all echoed. It is easy to see why Don's plane was an award winner.

Mike Hayhurst showed his Zenith Zodiac XL. His slow build kit has lived in five states as Mike's career has taken him hither and yon. He promises the next time it moves, it will be on molecules of air. The flying surfaces are done. With 4 fuel tanks totaling 48 gallons, it will be a real cross country traveler. The fuselage is the next area of focus.

A couple rows away, we were introduced to Joe Maynard. Joe is a certified welder, and the tubing work on his Sorrell HiperLight is exquisite. Joe has a serious case of the builder's disease. This is his seventh project. This one will fly any time now.

Jeff Beachy flew in his recently completed Zenith CH701. Dick Wetherald flew in the Cessna that was less recently completed (by 3 decades). It was great to see a good turnout and so many familiar faces.



Mike Cencula holds up 2 fingers and we can only guess the conversation among these builders was "two more months and this thing may be

Bulletin Board

The annual EAA Chapter 9 business meeting was held on November 20, 2008, along with the annual election of officers. Per the bylaws, nominations were solicited in September and October, and a slate of candidates was presented at the November meeting. Voting occurred by written ballot and the following officer and directors were elected by majority vote:

President	– Dick Wetherald	Vice President	– Clare Lutton
Secretary	– Brent Owens	Treasurer	– Greg Schroeder
Director '09	– Ted Kellogg	Director '09	– Danny Lee

Respectfully submitted,

Nominating Committee

Lori Robishaw, Chair

Andrew Hale & Chuck Hoisington

Plane Pictures Wanted

Put your favorite plane on the Newsletter cover. It can be the one you own, your favorite rental, your friends, or the one you wish you still had. Send a digital picture of at least 1 megapixels to newsletter@eaa9.org. The best are front quarter shots. Include a shot with and without you in it.

When you send it along, optionally say something about it. Here is an example:

N738BL is a 1978 Cessna 172 that Dick and Kendra Wetherald have owned for over 20 years. Bought as a run-out with poor cosmetics, they continued to upgrade its condition over the years. They have flown all over the country with it, often flying IFR. The long range tanks, new 180 HP Lycoming engine, recent interior and paint along with IFR GPS make it a nice traveling machine as well as local hamburger hopper. Over 500 Young Eagles and plenty of Angel Flight patients have experienced flight in this plane.

Send us your pictures of your plane.

Dues Due

What other club has dues of only \$9?

We have to admit, we did not do a great job collecting for 2008. If you can, we ask you to pay for both 2008 (if you haven't already) and 2009. New for this year, we have can accept multiple years of dues in advance to lock in the rate before we figure out it is too little. So take advantage of the low \$9 rate.

We have three ways to make it easy.

Use PayPal – www.eaa9.org -
Members tab - Join EAA9 tab

US Mail

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Suite 14 – Membership
Chair
2140 W. Case Rd
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Bring your dues to the next event



EAA 9, Inc. (EAA Chapter 9)

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