

Vol. 3, No. 9, November, 2007

LEADING EDGE



Photo furnished by Jim Pratt

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EAA Chapter **1414**

5151 Orth Road
Poplar Grove
IL 61065

President

Steve Langdon

(815) 874-5432

slangdon51@hotmail.com

Vice President

Lee Hilbert

(815) 271-5166

Secretary

Frank Herdzina

(815) 544-6727

Treasurer

Bernie McLean

(815) 547-4224

Website

Scott Ross

eaa1414.org

Newsletter

Glenda May

(815) 544-0215

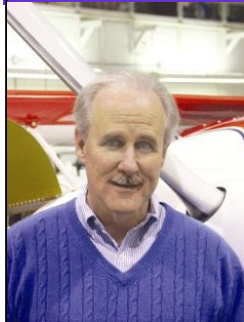
mayge46@verizon.net

Mission

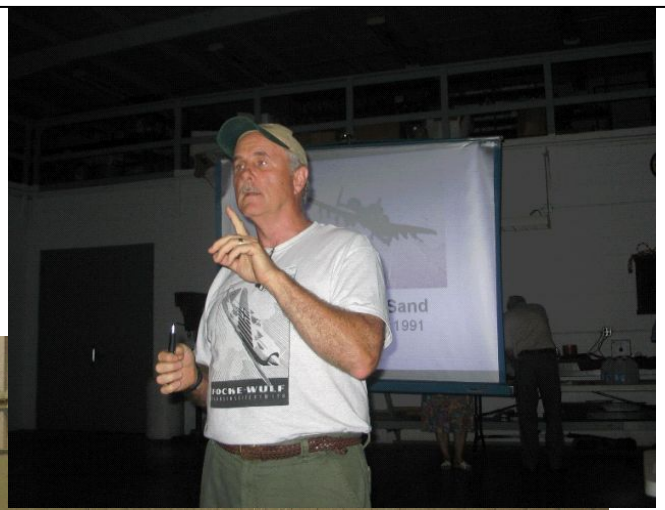
Statement

**Promote,
encourage
and facilitate
an environment
that fosters
safety, education
and high standards
in the design,
construction,
restoration and
operation of all
types of recreational
aircraft, as well
as, nurture
camaraderie
and friendship
amongst all
members!**

PRESIDENT'S PAGE



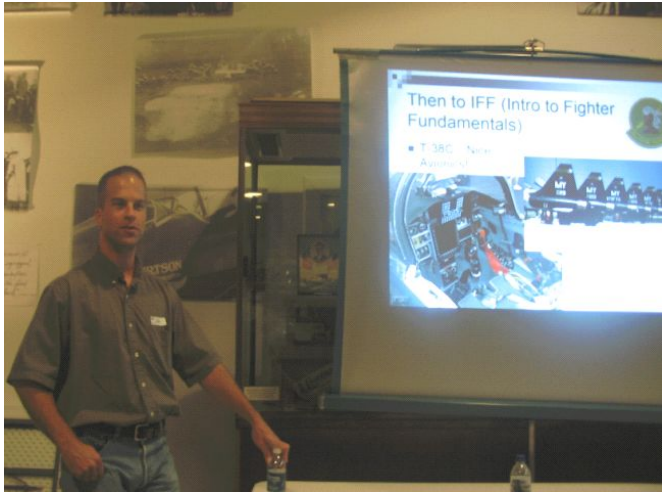
Steve Langdon



Steve Langdon, 2007 Chapter President, will preside at his last meeting in November. He will be stepping down after the election of new officers. We all wish to thank him for his great leadership.

NOTE: EAA Chapter 1414 does not project or accept any responsibility for the participation by any newsletter reader or Chapter member at any fly-ins, functions, forums or events that may be publicized in this newsletter. All material herein of a technical nature is for reference only and is not necessarily recommended or approved by the editor of this publication or any official of Chapter 1414. This publication is produced only as a medium of communication amongst members and friends of Chapter 1414.

October Meeting



Andy Meyer, F-16 pilot

In October members enjoyed a stimulating presentation by Andy Meyer, who flies the F-16 for the Air National Guard. Andy shared some of his experiences in training and combat in Iraq during two tours of duty. Through power point and pictures he showed us a typical day and gave us much information on the technical aspects of the aircraft. He showed us some very exciting cockpit videos of bombing missions and refueling in the air. In his spare time, Andy is a glider tow-pilot and is building an RV-7 and a Lancair 360.

The meeting was presided by Vice-President Lee Hilbert, who announced the upcoming 2008 election of chapter officers and directors. The election will take place during the November meeting. For more information on the election and the ballot see the article on page 4.

Buck Wyndham announced the progress on the Chapter 1414 Virtual Tool Bin. The plan is for members to share tools for their project through the website. Contact Buck or the website about tools you have to share or need to use.



Buck Wyndham

David Shelton, aerospace engineer who has recently joined Chapter 1414, will be our guest speaker for the November meeting. Here is a brief description of his presentation:

An entertaining review of some peculiar homebuilts: \$500 glider; wing in ground effect vehicle, unmanned air vehicles and flying motorcycles. This presentation will describe the design and construction of each project, as well as the humorous circumstances surrounding them. Learn how to fit your homebuilt in an elevator; ground-loop like a pro, hide from lawyers and more.

EAA Chapter 1414 Scholarship

Chapter 1414 funds a \$500 scholarship through the Vintage Wings & Wheels Museum Youth Aviation Academy. The money is for use toward the flight training of a young person who is interested in aviation. Applications should be made through the museum. For more information visit the Youth Aviation page at www.wingsandwheelsmuseum.org.

Events Calendar

- | | |
|--------------------|--|
| November 13 | Chapter 1414 Board of Director's Meeting, Vintage Wings & Wheels Museum , 5151 Orth Road, 5:45PM . All Members are welcome. |
| November 13 | Chapter 1414 Monthly meeting, Vintage Wings & Wheels Museum , 5151 Orth Road, 7PM |
| November 13 | Election of 2008 Officers and Board of Directors during meeting |
| December 11 | EAA Chapter 1414 Christmas Party , Frank Herdzina's Bird Hangar. Bring a dish to pass. |

Welcoming Our New Members

Chapter 1414 gained four new members at our October 9 meeting. Joining us were:

Thore Henningson, Rockford
Sean Stratton, Marengo
Larry Tomblin, Poplar Grove
Bill Huffman, Roscoe



*Bill Huffman and son,,
aspiring aviator*

Young Eagle News

Dennis Blount reported that the Young Eagles program for the year was a big success. Events were held in May, July and September. Just less than 200 Young Eagles were flown with eleven pilots volunteering. All but one pilot were from Chapter 1414.

The following pilots from 1414 participated:

Red Bainbridge
Ron Cox
Abbie Friddell
Bob Fry
Chuck Jansen
Steve Langdon
Dean May
Bob O'Quinn
Scott Ross
Paul Wallem

And from Chapter 22 in Freeport:

Rick Ellis

It's Renewal Time Again!

The new year is almost here, and it is time to renew your chapter membership. This year the first 50 people to pay dues will receive **FREE** 2008 EAA Calendars. See page 11 for an application and fees.

Chapter Election

On Tuesday, 13 November EAA Chapter 1414 will be holding an election for Chapter Directors and Officers. A total of eight positions will be decided upon: **Four Directors, Secretary, Treasurer, Vice-President and President.**

Absentee ballots may be found on the web-site (www.eaa1414.org) for those unable to attend the meeting. **Absentee Balloting** is only available to those members not attending the November 13 meeting and are dues paid members. Absentee ballots must be returned by November 12.

Absentee ballot envelopes will be checked against the membership roster. Qualifying ballots will be removed from their envelopes and placed in the **Official Ballot Box** during the Tuesday, November 13, meeting and will be counted with those ballots cast during the meeting. During the Election Meeting members present will be asked to vote and their completed ballots will be placed in the **Official Ballot Box**. All votes will be counted by the end of the meeting and results will be announced that night. Results are final, a coin toss or any reasonable, mutually agreed upon method will determine the outcome of a tie.

The officer's slate is as follows:

President
Lee Hilbert
Vice-President
Adolph Svec
Bill Moses
Dean May
Secretary
Frank Herdzina
Treasurer
Bernie McLean

The four Director positions will be decided by those members who are in attendance at the November meeting.

Airplane of the Month

We build 'em. . . .

Kitfox V



N743JT Profile

By Tom Anderson

Way back in 1994 my daughter Stacey was becoming really interested in aviation as a career. That year I took her to Oshkosh to look around and talk to some of the aviation schools that are typically represented there.

Of course we started sitting in any airplane we could get our hands on. Later that fateful August day I had my most interesting impulse buy ever – a brand new Kitfox V kit.

Delivery was January 1995 – son was just getting out of the Army, cousin was working for Wilbert Vault – so between the three of us we picked up the 500 lb, 15 foot long box at the trucking company and delivered her to my barn on a flat bed burial vault truck in a blinding snow storm.

During the 3 ½ year, ~ 2,500 hour building process I was encouraged to include new windows, furnace & air-conditioning, hardwood floors, and corian countertops into the design. If you look really closely to the attached picture you might get a glimpse of these unique features. I've been told these items help the airplane cruise quite economically at around 100 miles per hour.

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But alas, my first flight was April 11, 1998 at the only airport the plane has been based – Poplar Grove.

Weeding out the bugs – all engine related – started with my break-in trip to Alaska. We left C77 with 40.5 hours and returned from the 8,000 mile odyssey with 120 hours and a new exhaust manifold & turbo charger. I had installed an NSI EA81 Subaru, turbocharged, 150 horsepower engine. I don't believe there are many Kitfox airplanes flying with this engine. I think there were only about a half dozen engines sold and possibly only 3 to 4 flying.

Over the course of the next few years I've made many modifications to the engine and cowling to get control of the turbo charger heat related issues. Thermal profiling using thermocouples and chart recorders resulted in reducing oil temperatures by 60 degrees and liquid coolant by 30 degrees. I've been able to fly and maintain 190 degree oil and water temps through an ambient range from -15 to 95 Fahrenheit

Now with 550 + hours on the engine things seem to operate quite well. The Kitfox is not a fast airplane and a hi-horse power engine only makes it go up quickly (initial climb can be as much as ~2,000 ft/min), but I cruise comfortably at 100 mph @ 4.5 gph. I can get to Vne (140mph) at 3,000 feet but I'm burning 11+ gallons an hour.

The prop is also a source of some conversation. It has an electric motor driving an acme worm gear that allows for 52 angular degrees of blade adjustment – from minus 26 (beta) to plus 26 degrees. Sometimes when I back into a ramp parking area folks have been known to wonder.

The Warp Drive blades are rather flat and I'd like to spin them faster. Cruise is @ 3,000 engine RPM and with a 1.92:1 reduction gear they are only turning ~ 1,600; this with about 23 degrees of pitch. Reduction system also has a sprag clutch that virtually eliminates torsional vibration.

All in all it's a rock solid airframe – 1,550 gross (600 useful load) – 26 gallons of useful fuel so the range is quite a bit farther than my kidneys.

Basically it's a fun airplane – I think I'll keep it at least until the Murphy Rebel is done and the 3rd airplane is ready to build.

We fly 'em . . . !

Luscombe 8A



By Jim Pratt

I purchased my 1947 Luscombe 8A in March, 2006 after renting for 30 years. My Dad also owned an 8A in the mid 1950's. I have since flown my Luscombe over 80 hours in the last 18 months. The Luscombe is based here at Polar Grove.

Here are the specs: *Cruise: 85-90 mph, Stall Speed: 45 mph, Gross Weight: 1,260 lbs, Empty Weight: 841 lbs, LSA Compliant, Engine: 65 hp Continental, Fuel Capacity: 14 gallons, Fuel Burn: 4.5 gallons per hour, Wing Span: 35 feet, Length: 20 feet, and no electrical system.*

This Luscombe is about as original as you will find. It was completely restored by Jerry Cox and John Cooley in 2004 in Mattoon, Illinois with a newly majored engine, propeller, paint, windshield, gear legs, and Decker wheel pants.

I have flown my Luscombe to Oshkosh, Wisconsin and the Luscombe Fly-in at Mattoon, Illinois, for the past two years. I look forward to more distant cross country flights in the near future.

The Luscombe has a reputation and history of groundlooping, however, it is not the airplane that grondloops; it is the pilot!

Of General Interest

Some of you may have also received this story via email. Someone suggested our readers might enjoy seeing it.

U.S. Pilot Helped Clear The Fog Of War

Greg Harbin saw a way to streamline air strikes. The solution -- and his cause -- was the Rover, a device that would one day save his life.

By Julian E. Barnes, Los Angeles Times Staff Writer

In the summer of 2003, an Air Force pilot named Greg Harbin was doing desk duty at Prince Sultan Air Base in Saudi Arabia. Day in and day out, Harbin sat in front of five computer screens, scanning photographs and video sent by unmanned planes flying 1,200 miles away, over Iraq and Afghanistan. His job was to take that information, along with reports from ground troops, and identify fresh targets -- Taliban fighters or Iraqi insurgents. But one thing puzzled him. When regular units called for an attack by a Predator drone, the request went to Harbin, and then, if approved by a general, to "pilots" in Nevada, who fired the missile by remote control. The process often took as long as 45 minutes.

By contrast, special operations forces could call in attacks by unmanned Predator aircraft in less than a minute.

The difference, Harbin learned, was that a handful of special ops units were equipped with a device called the Rover, which gave them the same view as the pilots in Nevada. This greatly simplified communications. Why don't all American fighting units have the Rover? he asked himself. Then he put the question to his boss, Lt. Gen. Walter E. Buchanan, commander of the Air Force in the Middle East. Buchanan's reply: Why indeed.

Buchanan dispatched Harbin to Texas to get a crash course in the Rover, a combination video receiver and laptop computer, and to bring back several of the kits with him. Seventy-two hours after he left Texas with four Rovers, Harbin was in Fallouja, Iraq, teaching members of the 82nd Airborne Division how to use it.

Harbin's days sitting in front of a computer were over. Over the next four years, Harbin would take a niche technology, spread it throughout the military -- and help change how the Air Force fights wars. One day, it would save his life.

The Rover, or the Remote Operations Video Enhanced Receiver, was born in 2002, shortly after the Afghanistan war began. Christopher Manuel, an Army Special Forces chief warrant officer, had long wanted ground units to see, in real time, the video footage shot by Predators. After serving in Afghanistan, he traveled to Wright-Patterson Air Force Base in Ohio to make his

case. Engineers quickly developed a prototype of the

Rover system. Over the next year, it was used exclusively by special operations forces. Harbin's mission to widen access to the technology began with the 82nd Airborne, the first conventional forces to use the system. His next stop was Mosul, Iraq, and the 101st Airborne Division, which happened to be his brother Eric's unit.

There, Harbin realized a limitation of the Rover: It could communicate only with Predators, and that day the Predators were grounded by bad weather. F-15s were flying, and he wondered why the Rover could not connect with the cameras mounted on them.

So Harbin sent an e-mail to Air Force officials. "Why . . . can't I see what the pilot sees on his targeting pod????? We can do it with Predator, this shouldn't be so hard," he wrote. "I was mad," Harbin said later. "I wanted my brother and his unit to have the best protection they could."

An Air Force officer wrote back: "Harbs, we got it." The message touched off a chain of events leading to a new version of the Rover that also could communicate with fighter planes, bombers and some helicopters. Harbin, now a lieutenant colonel, is 43 and 5 feet 9, with receding blond hair that gets a little longer and wilder when he is deployed. A slight Alabama cadence gives his voice a relaxed, measured feel that nevertheless has an edge of urgency. He is a man in a hurry.

Throughout the early months of 2004, Harbin shuttled from Mosul to Baghdad to Najaf, wherever violence was flaring, teaching people how to use the Rover.

By April, he was near the end of his tour. But on his way to Baghdad for his flight home, he was dropped off in Fallouja. He used the quick stop to show the Rover to Marine Maj. Kevin Shea, a friend from the Air Force Academy.

Harbin accepted an invitation to join a Marine patrol, an opportunity to demonstrate the Rover. Not long after the patrol rolled out of the camp, a rocket-propelled grenade flashed by with a whoosh, and a mortar shell landed with a crack. As the Marines around him scrambled to return fire, Harbin sat mesmerized.

Through the din, Harbin heard a radio crackle and a voice report that a Predator was flying overhead. Through the dust of the battle, Harbin looked out the window of the Humvee for a place to work his Rover kit. This would be no demonstration; this would be survival.

He jumped from his vehicle and sprinted across the road toward another Humvee. The laptop's battery was dead, and the Humvee had no power outlet. Undeterred,

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Harbin cut off the electrical cord and hot-wired the laptop to the Humvee's battery. As the laptop powered up, another rocket-propelled grenade burst nearby.

Harbin reeled. His ears rang from the force of the explosion. He turned back to the Rover. The kit worked, linking with the Predator overhead. The plane's camera sent an image of the surrounding area to the laptop's screen.

Harbin searched the video, and pinpointed the insurgents, about 100 yards away. He yelled for the Marine captain and pointed to the enemy mortar position on the screen. The captain called in a strike. The Predator fired a Hellfire missile at the insurgents, killing them. Harbin and two Marines were injured, one fatally. He would later learn that shrapnel from the grenade had destroyed the hearing in his left ear.

His actions in the fight earned him a Bronze Star Medal for valor, but they ended his days as an Air Force pilot. Harbin and his superiors say the Rover system saved his life and those of many of the Marines on the patrol.

"For sure," he said, "I would be dead without this technology."

When he returned to the United States after the attack in Fallouja, Harbin's inner-ear injury left him feeling nauseated and off-balance. As he was recovering, Harbin learned that Shea, his academy classmate, had been killed in Fallouja by an insurgent rocket in September 2004.

Harbin was deeply depressed, but the loss sharpened his focus on trying to speed the military's acceptance of the Rover, said John P. Wheeler, a top Air Force official. "People try to live two lives after the death of a friend," Wheeler said. "You try to do what your friend might have done."

Over the next few months, Harbin designed a Rover training course and lobbied the Air Force to purchase more.

His next opportunity to use the system did not come until August 2005 --and it was in the United States.

Harbin arrived in New Orleans 40 hours after Hurricane Katrina. He intended to draw video from a small unmanned aircraft to get an overhead view of New Orleans. But the Federal Aviation Administration would not let the craft fly.

He then taped a Rover video camera to a Black Hawk helicopter, but the image it captured was too shaky.

"That is when Col. Harbin said, 'Let's take the high ground,' " remembered Kyle Stanbro, a retired Air Force special operations master sergeant, who accompanied Harbin to New Orleans. They climbed 51 floors to the top of a bank building to set up Rover cameras on tripods. The system beamed images of the flooded Lower 9th Ward to the military command in Colorado.

The images quickly demonstrated the need for additional small Coast Guard vessels to help rescue people trapped in their homes. Within hours, the military command, in part because of the Rover images, ordered more than 100 small boats to New Orleans.

"We could show them visually that we needed more boats," Harbin said. "And those assets showed up a lot faster than they would have."

In the Pentagon, decisions about procuring weapons systems are made by civilians, not uniformed officers. One of the ways civilian service secretaries create their legacy is to find promising, but underappreciated, technology and get behind it. For much of 2005, the Air Force was without a permanent civilian leader, but in November, Michael W. Wynne was sworn in as the service's secretary. He requested briefings on new technologies and initiatives, and Harbin was asked to discuss the use of the Rover in New Orleans. The secretary was sold. "Greg, what you are about to do is . . . change how we fight," Wynne recalls saying.

In early 2005, there were 183 Rover units in the field. There are now 1,500 of the 12-pound kits in use mostly in Afghanistan and Iraq, and the service has ordered 2,200 more. So far, the Air Force has spent about \$72 million on the Rover.

Still, Air Force officers think the Rover should be as common as a radio. To fully equip active-duty military units, the National Guard and the Department of Homeland Security, the U.S. would need 16,544 Rover kits, an Air Force study found. Wynne and Harbin are also pushing development of the next generation of Rover:

-- Rover IV, or what airmen call "the John Madden version"

The operator can draw on the screen and a pilot can see the notation, just as television football commentator Madden draws lines during replays. The new version, which costs about \$90,000, nearly three times the cost of the current model, is due to go into the field in February.

Air Force officers have no illusions that the Rover technology will single-handedly change the course of the war in Iraq. But it has increased the accuracy of bombs: In 2003, "danger close" -- the minimum distance away from U.S. forces a bomb could be dropped -- was 2,000 meters or about 18 football fields. Today, thanks to smaller bombs and the improved accuracy the Rover system allows, it is 75 meters, less than one football field. Harbin says equipping helicopters with Rover technology could help pilots avoid insurgents armed with shoulder-fired missiles. And the

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Rover system helps units minimize accidental civilian deaths.

This spring, Harbin was sent to Afghanistan to show NATO forces fighting the Taliban how to use the Rover. In May, a Canadian army regiment got a call from someone in a village near Kandahar. A group of Taliban had killed two women in the town. Harbin and his NATO team used the Rover to help track the Taliban fighters. They told a NATO fighter plane to hold off as the fighters moved through the alleyways of the village. When the fighters stepped on a road, Harbin's team called in the strike. A 500-pound bomb from the NATO plane killed five fighters. One Taliban fighter escaped, but Harbin tracked him on the Rover, and called for the Predator to launch a Hellfire missile.

As the missile neared the target, Harbin noticed a second "heat signature" on the Rover screen and called for a course correction. The Hellfire struck the fighter, but spared the first target indicated on the Rover, which turned out to be a dog.

"We found them, tracked them, then picked the time and the place to strike in order to minimize collateral damage," Harbin said. "We were so precise that the dog got away."

Now, back from Afghanistan, Harbin walks the halls of the Pentagon, carrying his Rover laptop in a backpack. He darts from office to office, using videos to sell the system to decision-makers from every service. Among top Air Force officials, there is little doubt that without

Harbin, the Rover might have remained a niche technology used by only a few.

"I am not the guy who invented it. I am not the guy who built it. I am not the only one who believes in it," Harbin said. "My role was to get it out there."

Sitting in a Pentagon cafeteria lined with vending machines, his Rover at his feet, Harbin paused between meetings to consider what he had achieved.

"When you believe in something, you can't just talk about it and make PowerPoint slides. You have to go out to the battlefield and show how it works," he said. "I knew it would be useful. I didn't know it would change the way we fight."

*Classification: UNCLASSIFIED
Los Angeles Times
September 13, 2007*



F-15



Contrails at Sunset over Poplar Grove Airport from Bel Air Estates

Those Beautiful Contrails... Another Look

The February through April issues of **The Leading Edge** featured installments of a piece written by Captain Dick Hill about contrails and their inspiration to his flying career. If you are new and missed them, you should really check them out on the website.

That story continues, as Dick has now brought to our attention an article in the **Air & Space Magazine** of July, 2007. "Flight Lines" by Mariana Gosnell gives another perspective on the subject of contrails from controversy to compliments. You can read it at www.airspacemag.com.



Time-delayed photo of United States sky

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Jim Auman jimauman@comcast.net

630-886-0835

On The Cover

This month's cover photo was sent by Jim Pratt of his Luscombe 8A. See page 7 for its story. Jim of Hoffman Estates joined Chapter 1414 in September after attending a meeting with Bob O'Quinn, whose '46 Cessna 120 appeared on the September cover.

Other photos in this month's issue were by: Tom Anderson, Dean May and Alex Von Bosse.

The ultimate responsibility of the pilot is to fulfill the dreams of the countless millions of earthbound ancestors who could only stare skyward...and wish.

Interested in Joining Chapter 1414?

Application For Membership

1414 Member Information Card	
Name (last, first) _____	
Spouse: _____	
Address: _____	

Home Phone: _____	Work Phone: _____
E-mail: _____	
Military: Highest Rank: _____ Branch of Service: _____ Specialty: _____	
Aviation Interest:	
Pilot Rating (past or current): _____	
Type of Airplane(s) I own: _____	
Type of Airplane(s) under construction: _____	
Type of Airplane(s) I have an interest in: _____	
Would like to join a partnership to buy or build a plane (type): _____	
Would like to see more: <input type="checkbox"/> Social Functions <input type="checkbox"/> Ground School	
<input type="checkbox"/> Outside reps from aviation tech. dealers Other: _____	
Would attend additional tech sessions (i.e. painting, welding etc.) <input type="checkbox"/> Yes <input type="checkbox"/> No	

EAA Membership No. _____ Dues: \$20 email newsletter _____ \$30 print newsletter _____

Send to:

EAA Chapter 1414
5151 Orth Road
Poplar Grove, IL 61065

Premeeting Checklist

- ____ • Bring suggestion for activities, etc.
- ____ • Your member profile for the Newsletter
- ____ • Any aviation article of interest that you would like to share
With the other members

EAA Chapter 1414 meets on the second Tuesday of the month in the Vintage Wings & Wheels Museum, 5151 Orth Road, unless notified otherwise in the newsletter. The meeting starts at 7:00 PM.

Directions: From Belvidere, IL, go north on Rout 76 approx. 3.5 miles and turn right on Orth Road. Make the first right turn and the museum is on the left.

The Newsletter is always looking for interesting articles and pictures by our chapter members. Please submit anything you have written, would like to write, or have any pictures that you believe would be of interest to the chapter membership. The preferred method for the editor to receive articles is by e-mail to: mayge46@verizon.net. Alternately, a ZIP disk or CD with articles written with any major word processor with a printed copy may be submitted to any board member at the meetings.

!!Notice!!
Chapter 1414 has a new location for its
monthly meetings. Meetings are being held
at the Wings & Wheels Museum on the
North side of Poplar Grove Airport.

5151 Orth Road
Poplar Grove, IL
61065

1414

EAA CHAPTER

