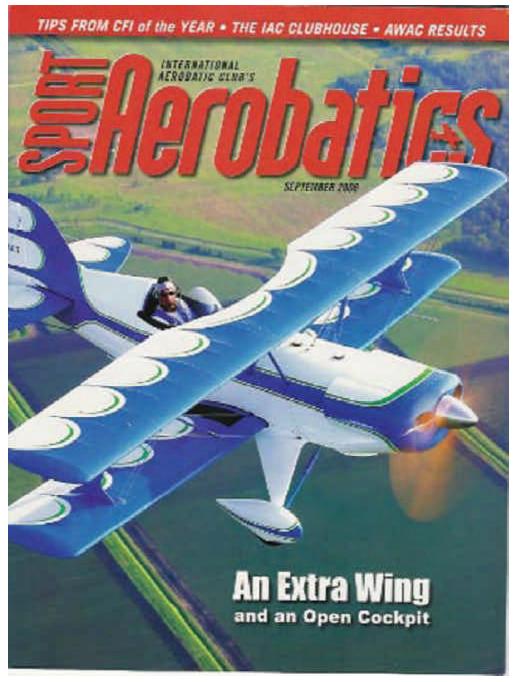


Jim Bower, Editor

October, 2006

We hope to see all of you on Sunday, October 22 at 1:00 (potluck bbq) and/or 2:00 (meeting).



Kudos to our very own Dave Lucas, who made the cover of *Sport Aerobatics* magazine AND the newsletter!

EAA Chapter 32 Meeting Minutes September 24, 2006

The meeting commenced with the Pledge of Allegiance. Ron Wright mentioned that Rita Donaldson's visitation would be held on September 28 at the Warrenton location of the Pitman Funeral Home. There was some uncertanty as to where this will actually be held, as our website mentions the Wright City location, and other people were told that it was to be held in Wentzville. Hopefully it will be straightened out.

Dave Lucas' Acro Sport won several awards, and was on the cover of "Sport Aerobatics" magazine. We acknowledged Dave's achievements, and he was later gifted with a coupon book.

The Chapter's participation in the St. Louis County Fair and Airshow was deemed a success. We made \$210.00 profit from soda and water sales. Despite this, a lively discussion ensued as to whether we will participate in future airshows. It is possible next year's airshow will be the last, so this could be a moot point. We have until next spring to defer this issue.

The Chapter earned \$1,600.00 for our participation in the B-17 visit. We probably would have done better (we usually do), but another organization's last-minute B-17 visit encroached on our customer base.

President Karsten asked everybody to start thinking about nominations for standing committees. Those will be taken at the October meeting. It might be a good idea to attend that meeting if you are interested in being on a committee.

Karsten also asked for suggestions as to equipment purchases. Some suggestions are: A large, fixed air compressor, assortment of aircraft hardware, portable swamp cooler, some aviation oil for emergencies. Be thinking about items that would see a lot of usage by various people, but is too expensive to purchase on your own, and suggest them next month.

Visitors were recognized and applauded.

Young Eagles: 106 Young Eagles were flown during the recent Silver Swallows rally. Laura Million has agreed to be our next Young Eagle Coordinator! George Stephenson is highly excited about this event, and wishes her well.

Jan McKee announced a YE rally in Alton on September 30. She said they expect a turnout of 4,000 people. Everybody is invited to come and fly, or work the ground crew.

The open house at Greenville Airport on October 6-7 was announced.

Dues:

Treasurer Jim Hann stated that between our checking and savings accounts, we have more money than we need for

normal expenses (actual amount is available upon request). Not only do we not have express purposes for this money, but we may be in violation of the spirit of the 501 (c) 3 rules under which we are a nonprofit organization. Therefore, we are proposing to cut dues in half (to \$30.00/year). Ron Wright pointed out that we are required to announce this 2 months prior to voting on it. We only have two more meetings this year, so the vote will take place at the November meeting. (Note that the November meeting may be held one week earlier (11/19/06) due to Thanksgiving weekend interfering with the normal meeting date.) A lively discussion ensued on this issue, with several dollar amounts being thrown about. Our fund raisers have served us well, and one school of thought says that if enough people buy grocery store coupons, we could reduce dues to \$0.00/yr and still be in good shape. Another assumption is that we may pick up enough "new" members to make up for the dues reduction. Many folks decided the value they recieved from Chapter membership wasn't worth \$5.00/month, so they didn't renew. A reminder...this issue will be up for a vote in November.

Dave Doherty said that coupon books will be on sale again. The Chapter will buy 100 books this year. See Dave if you want to buy a book.

Another money saving strategy:

Newsletter printing and mailing costs constitute a significant chunk of our monthly expenses. On a normal month, we are spending \$60.00 to \$80.00, which amounts to \$600.00 to \$800.00 per year (remember that there are no newsletters in July and December). This amount can be greatly reduced if all Chapter members who have Internet access would agree to get their newsletter from our website. The bylaws state Chapter membership includes the right to a printed, mailed newsletter, but if someone VOLUNTARILY agrees to get his or her newsletter elsewhere, we can legally remove them from the mailing list. Please note that some people have been getting their newsletters in this manner for many years. A problem arose when our editor e-mailed the newsletters directly to the members. Often, e-mail addresses were invalid, resulting in the mailings bouncing back, complete with attached newsletter. This was a big issue when dial-up was being used. We have since posted the newsletter on the Chapter website and notified members via the Yahoo bulletin board. This has been problematic for some people who are not members of Yahoo. Therefore, we will attempt to once again contact our members directly via e-mail, but only to notify them that the newsletter is available on the website and provide a link. We encourage everybody with Internet access to avail themselves of this chance to save money while recieving the newsletter in full color and highest

Learning As We Go "The Old Basic Six"

mr.bill

It is funny how we now start most conversations these days. "Well, back in the day"...or "in a previous life"....It is not that I feel old but I have seen a lot of old stuff turn new. Man, this old stuff is changing quickly these days.

At Oshkosh I was told by the two mini men that I brought with me that I should fly the FAA "gyro" simulator. This device is an updated Link partial motion simulator that is used to demonstrate to pilots how the inner ear fluid can be put into motion and causes a pilot to experience vertigo or spatial disorientation. Well, the mini men were able to watch outside of the simulator on a monitor what was occurring on the inside of the "stimulator" to see if I became disorientated. It WAS going to happen it is just a matter of time. The first major hurdle was that the instrument panel had the old basic six "T" instrument panel full of round gauges.



Hey, wait a second! Where's my Primary Flight Display (PFD) and my Multi Function Display (MFD) which has all those old round "steam gauge" instruments flattened out and overlapped so I can see and casually scan everything at once. It is very easy this way to monitor the operation. Also missing was the great flight director, the magenta wings, which shows the pilot how to obtain what he or she desires the airplane to do. Attitude wise it will display a constant: pitch attitude, altitude (Hold), airspeed, or rate of climb or descent. Navigation wise the Magenta Flight Director wings will display: a constant heading, or VOR display or LNAV or GPS indications. If we keep the yellow airplane chevron "in" the magenta flight director command bars the airplane will do what we have commanded it to do. (We as pilots must remember what we have asked the flight director to do or show us. Those requested indications

are on top of the PFD display screen. (The green commands are at the top of the screen ROL HDG LNAV on the left. On the right the display is PIT, V/S, SPD, MACH, or ATL.



OK! I can do this. Back to instrument flying 101. Start at the artificial horizon (AH), glance at the altimeter (ALT) which is primary for pitch in level flight. Back to the AH. Glance down to the vertical speed indicator (VSI) and then back to the AH. Glance at the heading indicator (DG Directional Gyro) and back up to the AH. Glance down and left to the turn coordinator (TC or in the really old birds the turn/slip indicator. Also known as the needle/ball indicator.) Are we going straight thru the air? The needle is straight up and the ball is centered. Yes we are! Last, but not least we lift our eye above the TC and glance at the airspeed (AS) indicator. That took 12 seconds to scan all six basic instruments. Usually once every minute the pilot scans the engine instruments which on old aircraft are located on the right side of the instrument panel; the reason for this "gyro" experience in the first place. When we move are head to the right we set the inner ear fluid moving. Well the flight was going pretty good. The "controller" had me changing frequencies and squawk codes (the radios were on the extreme far right of the instrument

panel) which required one to turn your head to look and adjust a frequency or squawk code. This movement gets the inner ear fluid moving. The simulator itself is turning left like a merry go-around to really help the fluid move. Then they stop turning the simulator and your inner ear fluid keeps moving! I was doing alright fighting the urges of the vertigo effects. (I usually keep talking to myself to focus on the gauges.) Well, the next thing I see is the artificial horizon going upside down and stopping at 135 degrees to the right. Whoa nelly! Keep scanning. Check the turn coordinator. Check the altimeter! Easy head movements. Get a piece of paper and put it over the failed instrument!!!

The side door popped open a minute later and the flight was over. "You're a seasoned instrument rated pilot." Who me? "Yes you know the tricks to counter the vertigo effect so we had to fail the artificial horizon instrument on you. Thanks for coming out today!" The mini men were sad that there were no explosions or crashing sounds. They did not recognize the whooped puppy that was exiting the gyro simulator. Hey guys I'm on vacation! That was hard work!!! Sad thing many

people push their flying limits like the Kennedy Kid who just could not fight the vertigo feeling and keep his airplane upright. Sometimes it is best to take the airlines or just stay on the ground. When all else fails... PRESS THE RED BUTTON!!!



HOW MANY ROLLS OF TOLIET PAPER USED AT OSHKOSH???.....10,600

Help your Chapter Save Money

As you may have seen in the minutes, we had some discussions in the September meeting about ways to save the Chapter some money. One way is to reduce newsletter expenses. Right now, we are paying about \$80.00 per month for printing and postage, which works out to \$800.00 per year (we don't issue newsletterrs in July and December). To put it into perspective, that amount is equal to the yearly dues from THIRTEEN members! Six members at the meeting immediately asked me to remove their names from the mailing list. Now THAT'S proactivity.

For quite some time, Web Designer Laura has been posting the newsletter on our website for the benefit of members who have elected to read them online. The advantages are many: You save the chapter money and

you will be able to see pictures in the newsletter in full color and better resolution than is possible with the printed copies. You even help avoid killing trees, and be directly instrumental in depriving the USPS of money. Not only that, but your newsletter is NEVER shredded by a careless postal worker. If you must have a hard copy, you can print it out.

We will notify you via the Yahoo board AND by your personal e-mail when the new newsletter is available. So, if any more of you want to help save money for the Chapter, please consider removing your name from the mailing list. Just notify me (your friendly editor) at jimbower@hotmail.com, or 314-869-8971. Also, if your current e-mail address is different from the one shown in the roster, or ever changes, you will need to inform me of that as well. Thank you!

An Extra Wing and an Open Cockpit

Reprinted from Sport Aerobatics

There's something about biplanes. Maybe it's the extra wing, the typically bright colors, or for those lucky enough to have one, the unmistakable sound of a radial engine. People love them. As an impressionable teen I was smitten, too, and as an adult that crush has turned into full-blown romance. As a kid I remember two Stearmans that were based at our local airport in south suburban St. Louis. One was newly restored, covered in the familiar army blue and yellow paint scheme. The owner flew it every day after work and on weekends. Its sheer size and the drone of that big Continental was enough to turn my head even after girls came into my life. But the other Stearman was the one that most influenced my flying. Tied down in the grass, covered in silver only, I doubt that it was airworthy. My friends and I would climb in, buckle up, and imagine how great it would be to fly that beautiful biplane low and slow over the nearby river bottom. To this day I would still love to own a large 1930s-era biplane, but my childhood dreams and my adult budget don't share the same checkbook.

In the summer of 1993, in my late 30s, I passed my checkride. I realized soon that renting aircraft was unfulfilling for me. I might have looked into a flying club or joint ownership, but the truth is, I could never get the feel of that Stearman out of my head. I think it was the feel of the control stick in my hand, seated in the centerline of the airplane where, I am sure now, I am most comfortable. Slowly it dawned on me that there is more than one way to get into my own biplane. I could build one.

I knew something about the Experimental Aircraft Association (EAA) from my early teens. I remember buying a special edition of a popular flying magazine that featured the first EAA convention at Oshkosh. From cover to cover it featured the popular designs of the day, including the Breezy, the EAA Biplane, the Teenie 2, and the Baby Ace, to name a few. In 1994 I joined EAA and went to Oshkosh that year determined to find a sport biplane that my wife, Katie, and I both liked. By midweek at the convention I had researched all

the two-wing, two-place designs and narrowed the search to four airplanes: the Hatz biplane, the Starduster Too, the Skybolt, and the AcroSport II. I discussed all the four models with fly-in builders, designers, and EAA technical experts, like Ben Owen. I was looking for three attributes. First, I wanted an open cockpit. Second, I was after a reasonable cruise speed. Third, having no tailwheel time, my airplane would need to be relatively friendly near to and on the ground. I visited the International Aerobatic Club (IAC) "backyard," as I like to call it, where most of the sport biplanes park. Builders Mike Finney and Steve Manweiler showed me their beautiful AcroSports and had nothing but positive remarks about them. They went on about the good performance, docile handling characteristics on the ground and while landing, ample buffeting before stall, and good crosswind performance. Steve and Mike both said the AcroSport drawings were clear and easy to follow. Soon enough I saw those drawings for myself when I stopped at the AcroSport Tent where La Fonda Jean Kinnaman showed me a set of plans for the AcroSport II. She said the latest edition of the plans was being printed, so I ordered a set, along with the back issues of the newsletter. They arrived in the mail about a week after returning from Oshkosh.

Construction of N114KT began on our dining room table in November 1994. I began with the wing ribs, and when components started to accumulate I began to get the inevitable ribbing from friends about my sanity with regard to flying something that I built myself. "Now is this a *real* airplane?" or the only slightly kinder "So is this one of those ultralights?"

Real interest in the project became apparent about six or seven years into construction, when N114KT started to look like an airplane. When my friends and I finally assembled it, even Katie was pleasantly surprised. Now, after 12 years of construction N114KT is flying into Oshkosh. Twelve years after La Fonda Jean sent me the plans, I was honored with an award from AcroSport for Grand Champion AcroSport II and, best of all, an award named for the designer

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himself, EAA founder Paul Poberezny. I came home from Oshkosh a very happy builder.

Now, some of you probably did a double take when you read "12 years" of construction. If you are planning to build an AcroSport or comparable ship, don't be discouraged. You can get the job done sooner, and in my case, I was able to take my time. I am a firefighter in Creve Coeur. Missouri, in suburban St. Louis, and my schedule permitted me to work at least four days a week on the project. Of the 3,600 logged hours building N114KT, about 400 were logged while on duty at the firehouse. I spent the first three years building the five wing sections. I especially liked building the wings. In fact, I wish I could build wings for a living. I had never welded before, but I purchased a small Smith torch and practiced my welding by constructing perfect 4130 steel cubes, diagonals and all. I made four cubes of different dimensions using different diameter tubing. I cut and welded gussets to many of the corners, and by the end of the fourth cube I was ready to start on the fuselage. I'm still surprised by the number of

builders that recommend starting the weldment with the tail feathers. I strongly disagree. The rudder, horizontal stabilizer, and elevators are some of the hardest components to shape and weld. Save them for last.

I started with my fuselage sides jigged on a 3-1/2-foot by 1S-foot table. When the sides were finished, like most builders, I removed the jig blocks and made a new pattern for the top plane of the fuselage. I gas-welded the main fuselage, but by the time I was ready to weld on the tabs, gussets, and formers, I had purchased a TIG welding outfit. TIG made the detail welding much easier. I purchased my 24-gallon main fuel tank but made my own 7-gallon auxiliary tank easily enough using the TIG welder. I sandblasted and painted the fuselage along with all the other attachments, and that would be the last painting I would do. Aerothane is pretty, but not fun to work with if you're a novice.

Ben Owen at EAA headquarters sent me plans for a wood turtledeck. It was easy to make, a little heavier than some alternatives, but I was much more comfortable working with wood than aluminum at the time. I located my ELT in the back of the turtledeck, and I expected to have better transmission from the antenna with wood in the vicinity rather than aluminum.

The common advice from all the builders and technical counselors is to purchase as much engine as you can--it's not the place to cut corners. I knew I wanted at least a 180 hp. I preferred a Lycoming, and if a fuel injected engine turned up, then all I would need was a Christian inverted oil system to fly upside down. I found an engine in Ontario that the owner had removed from a Mooney M20]. Some of my airframe and powerplant mechanic friends thought I was crazy, but I wanted a quality rebuild, so in the winter of 2000 my friend Gary Halfacre and I drove to New London, Ontario, picked up the Lycoming 10360-A3B6D and delivered it to Penn Yan Aero in the Finger Lakes region of New York state.

About a month later the engine arrived at my home. I had the folks at Penn Yan paint the case bright red and install chrome valve covers. The engine installation was not trouble-free, but it was fun to do. I had no firewall-forward experience when I started. My phone bills were a little high for the year or so it took to mount, plumb, and wire the engine, but I learned a lot! Steve Manweiler was especially helpful with the engine installation.

I needed wider cowl cheeks than normal due to the big angled-valve engine. I did not construct the nosebowl, but I modified one by splitting it horizontally for easier maintenance and to gain 2 inches on the bottom so it would clear the air filter on the fuel servo. I chose a fixed-pitch wood propeller to pull the airplane through the air. Sensenich recommended its 76-by-60 standard prop. It is a reasonable compromise between a climb and a cruise prop. I get 122 mph at 2500 rpm, my normal cruise setting. This engine has a hollow crankshaft that once turned a constant-speed propeller. The advantage of the wood prop is that it is lighter and more flexible, making it easier on the crank during aerobatics. The prop is a work of art, especially capped by the polished aluminum spinner.

My AcroSport is not especially light. Its empty weight is 1,111 pounds. The engine is heavy, and the Stits process, though beautiful, is quite heavy as well. I have a sexier instrument panel than most serious acrobatic biplanes, and I installed marine vinyl on the inside rear cockpit to hide the bare pinkcolored fabric. The extra fuel tank adds

weight, and I do not yet have a lightweight starter and alternator. I made an extra battery mount behind the pilot's seat just in case I had CG issues. It turns out I don't.

In retrospect I might have built N114KT lighter, but I have to remind myself that my original goal was to build an open-cockpit biplane that Katie and I could have fun with, not to perform serious aerobatics. Of course, flying aerobatics can mean many different things. From recreational flying to precision competition to airshow antics, aerobatics is something that is enjoyed by many different kinds of pilots in several types of aircraft. A *few* extra pounds does not mean the barnstorming aerobatics I dreamed of as a boy in the cockpit of that forgotten Stearman are out of reach.

When I moved the project to the airport two years ago, the experienced pilots all had the same response when I stated that I was not particularly interested in aerobatics. "You will be!" they said. Boy, were they right! Flying basic aerobatic maneuvers adds a whole new dimension to flight training. In fact, I feel like I'm learning to fly all over again. Maybe the early training was kept simple for a reason, but now concepts like "adverse yaw" and "critical angle of attack" really do make sense. Every hour in the airplane now is a learning experience for me. For me, this really is the only way to fly: an open-cockpit biplane, with both wings in front of me, seated in the thrust line with the stick in my hand and the wind in my face. After the unforgettable first flight, with more than 60 hours on the aircraft, I feel so much less like I am along for the ride. With every flight I become more of a pilot than a passenger.

We couldn't have picked a better home for N114KT. Creve Coeur Airport, also known as Dauster Flying Field (IHO), has a vintage aircraft museum comprising three large hangars of antique aircraft. My EAA Chapter 32 has many of its members on the field, but our home field and headquarters is about 10 miles north at Smartt Field. Chapter 32 is one of the largest and oldest chapters, and we are very active in Young Eagles and other public events. My chapter friends were

very helpful during the 12-year building of N114KT. The late Bill Blake, a longtime Chapter 32 member, actually drafted a few of the AcroSport Inc. drawings. One of the highlights of debuting my AcroSport II at EAA AirVenture 2006



The person who made it all possible...and the guy who built it!

was the flightline visits by many of the chapter members. I truly appreciate their support and advice over the years.

Until now the IAC has played a small but important advisory role in the construction of our AcroSport. During the life of the project I have called upon IAC members for technical help while building and, in more recent months, flight advisory help in preparation for the test flight and the first 40-hour test period. The "Technical Tips" series of books that IAC put together a few years ago is an absolute must if you are building an aerobatic aircraft. IAC also has excellent videos and books on spin awareness and recovery from unusual attitudes. I'm hooked. I can't seem to find enough reading material on aerobatics. My next investment will be in a well-organized aerobatics course, concentrated into a long weekend. As I transition from "builder" to "flier," I can see that IAC will be an increasing part of the adventures that lie ahead.

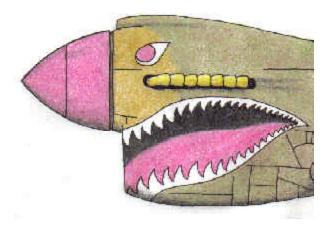
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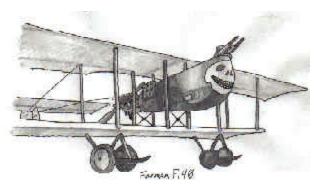
by Dave Deweese

Your veep turned forty just after the September meeting. Any birthday with a trailing zero is best not admitted to by office-dwelling cubicle monkeys like myself, lest we find our workspace festooned with black crepe paper and a gravestone-shaped sheet cake in the breakroom. Oh, the antics we endure from poor uninformed folks who have not yet filled their skulls with aviation trivia.

Turning forty is only depressing to those who cannot associate numbers with aeroplanes, like the most famous forty of 'em all: The Curtiss P-40 Warhawk. Makes you feel good just saying the name. Go ahead, give it a try...Warhawk, Warhawk, WARHAWK! WOOHOO, I'm ten again! Remember the point in childhood, when, after first seeing a P-40, you thought that any airplane in the world would look twice as cool with a shark mouth painted on the cowling?



Plenty of other -40's have graced the skies, and a cursory search of the internet and airplane book collection reveals several. Farman's F.40, a WWI machine, is appropriate to name here because it, too, wore distinctive nose art: a skull in this case. You'll have to look up Caproni's first

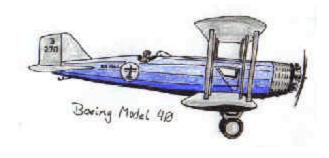


world war offering, the Ca 40, for yourself. This multiengined triplane bomber is such a staggering collection of struts and bracing wires that even thinking of drawing one makes my hand hurt.

Back in the early days of aviation our government worked to apply some standards to aircraft manufacture, granting "Aircraft Type Certificates" to machines that met certain criteria. ATC #40 was another well



known Curtiss bird, the OX-5-powered Robin. Around the same time Boeing came out with their model 40, a big single-engined biplane. Like other mail planes of the period it had a door and window in the fuselage ahead



of the open cockpit. As a boy I wondered what it'd be like to ride in there.

Speaking of Boeing, the YB-40 is another one I'll skip drawing because we all have a pretty good idea how it looked. It was sort of a fortified Flying Fortress. The plan was to add extra guns to a few of the planes so they could act as escorts, but apparently this didn't work so well, all the extra drag making them too slow to maintain formation. Long-range Mustangs made this variant unnecessary.

As World War II drew to a close the Luftwaffe considered more and more creative solutions to the problem of Allied bombing. Blohm Und Voss designed the BV40, a wooden glider armed with machine guns that a powered plane would tow to a point above the SuperForts and release. Sounds more hazardous for the glider pilot than the bomber crews.

Russia has a few forties for the collection. The Iljuschin IL-40 would have looked fairly conventional had it not been for that nose. The example rendered here shows dual jet inlets as far forward is they would go. Another variant moved the holes to the wing roots (where they belong) but added a glazed, bomber-like nose. Soviet designers seem to have a warm spot in their hearts for plexiglass in the nose: even some of their airliners have a seat for a bomardier. More distinctive yet is Beriev's



A-40, the world's largest amphibious jet.

With the year progressing to its inevitable conclusion there's no denying that the holiday season is sneaking up on us. How many remember browsing the Sears "Wish Book"? Aerocrafter serves a similar purpose



these days, and I seem to recall a forty in there to represent the homebuilt side of things. Sure enough, a fellow named Gene Turner designed one he calls the "T-40". In fact there's even an internet link:

http://www.turnert-40airplanes.com/.

Hmm... the fun of a catalog filled with glossy prints of toys is something you never outgrow, kind of like drawing airplanes. A hobby like ours embodies the old saying, "You have to grow old, but you don't have to grow up." Time to celebrate the twenty-ninth anniversary of my eleventh birthday.

Until the next meeting, Happy Contrails -

Dave

Hey...Young Eagles Volunteers:

EAA 1387 is having a Young Eagles Rally on Saturday, October 28th at 9am in Greenfield (M71). If anyone is interested in flying or working ground crew, contact Janine at <u>JanineRN5@aol.com</u> for details. Free hotdog lunches for pilots and workers too.

Laura

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:OT

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