

# EAA Chapter 974 Newsletter

EAA Chapter 974  
Hogan Field (KHAO)  
Hamilton, OH

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### The Prez Says

**Ron Forsythe,  
Chapter President**

Special thanks to Brett Ferrell for coming through at the last minute to give us an excellent presentation at the March meeting on glass panels. It has resulted in Tom Gramlich adding the term “panel envy” to our lexicon.

The FAA presentation by Stan Faske originally scheduled for the March meeting will be given at the April 3rd meeting. This is an opportunity to understand fully the FAA requirements to get your experimental airworthy.

Also, Elizabeth Szoke will acquaint us with all of the new website features.

Paul Kurtz has previously done some review of our by-laws and has suggested a change. Currently Article 4 Section E of the by-laws reads as follows:

“At any membership meeting, a quorum shall consist of the presence (in person or by proxy) of 50 percent or more of the voting members in good standing and ....., the affirmative vote of a majority of the members present or represented by proxy shall be necessary for any action, resolution or election.”

Since we seldom have 50% of the members present Paul has proposed that we change the attendance requirement from 50% to 35%.

Article 10 of the by-laws reads as follows:

“These By-Laws may be amended or restated by a majority vote of the members present in person or by proxy at the annual membership meeting or at any special meeting called for that purpose, provided that the required vote shall be 85 percent with respect to any amendment deletion or other changes to Articles 1, 2(h), 4A(i) and 10”

If we announce ahead that the May meeting will be a vote to amend then with 50% of those in attendance at the May meeting an amendment could be passed..

I'm sure we would all rather be building and flying instead of word smithing however it's an issue that we should clarify.

For those not aware the Wings Weekend is scheduled for June 23,24 and 25th. This will be added to our calendar.

## EFIS Demo Notes

To reinforce a few points that I tried to make during the demo, here are few references I think would be of great use to folks considering a Electronic Flight Instrumentation System (EFIS) or an all-electric airplane.

First is Bob Nuckolls book, website, and email discussion list where you can ask questions and get answers in near-real-time. His website is [www.aeroelectric.com](http://www.aeroelectric.com) and the book is the 'AeroElectric Connection', on it's 10<sup>th</sup> edition, and costs \$30.50.

Second, the Blue Mountain Avionics website is also quite good, [www.bluemountainavionics.com](http://www.bluemountainavionics.com). This includes the EAA's answer to what you need to legally fly IFR with a homebuilt and a non-certified EFIS system ([www.bluemountainavionics.com/pdf/IFR%20equipment.pdf](http://www.bluemountainavionics.com/pdf/IFR%20equipment.pdf)). They also have a 'guided tour' section that explains many of the things I wasn't able to show directly in my demo, because my temporary wiring was faulty. It's at [www.bluemountainavionics.com/efisone/GuidedTour215/index.htm](http://www.bluemountainavionics.com/efisone/GuidedTour215/index.htm)

**The autopilot uses a controller supplied by Blue Mountain and two servos to provide the ability to do any autopilot mode. Available modes are:**

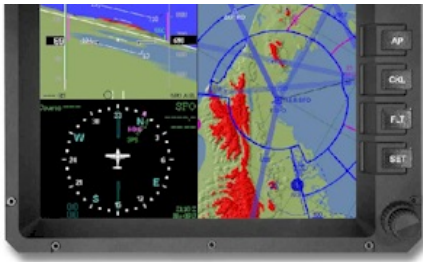
1. **Hold Altitude**
2. **Follow a heading bug/wing leveler**
3. **Climb/Descend at set rate**
4. **Climb/Descend at set speed**
5. **Follow a GPS flight plan**
6. **Follow an external navigation source (NAV radio or WAAS approach)**

The BMA EFIS/One system box, the computer or CPU



The main screen is separated into three major sections. The entire right is the moving map, the left is split between the ADI (Altitude and Direction Indicator) and the HSI (Horizontal Situation Indicator).





The EFIS uses a "magnetometer", or magnetic flux meter to read the airplanes heading rather than a compass - at right

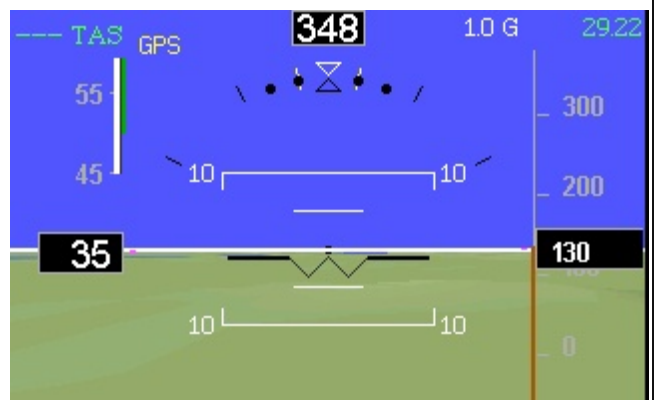


magnetometer

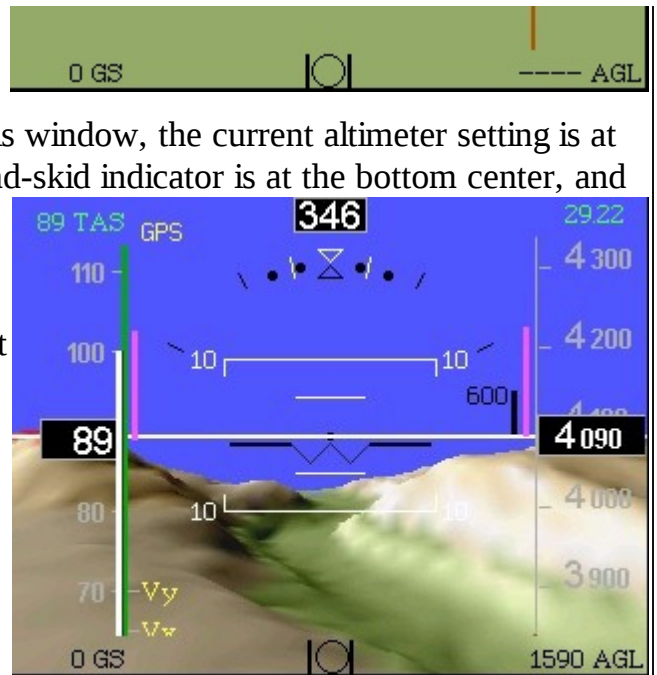
The BMA E/1 uses one primary screen with three sections, the right half is the moving map. This can be selected as VFR, VFR with airways, Low Level IFR, High Level IFR, or just Airports. The picture at right shows the VFR Detail map.



The left side shows the ADI (Attitude and Direction Indicator) on top - what would have been your compass and artificial horizon. This is the second figure on the right. The airspeed is a tape on the left of the this window, and attitude is on the tape on the right. Each has the actual speed/altitude number in larger font, as the heading is directly on top. There are standard rate turn markers in white (automatically adjusted for speed) at the top of this window, as well as marks for every 10 degrees of bank. The pitch is the standard "pitch ladder" with every 10 degrees of pitch. The height above ground level is shown at the bottom right.



height above ground level is shown at the bottom right numerically, as well as the brown line "foot" on the altitude tape. The True Airspeed is GPS calculated from the E/1's GPS receiver and shown at top left of this window, the current altimeter setting is at top right, with the current G loading next to it. A slip-and-skid indicator is at the bottom center, and the GPS calculated ground speed at the bottom left. All of your aircraft's V speeds are shown on the airspeed tape, along with the corresponding color-coded band (white/green/yellow/red). Finally, the scenery can be set for three modes, "Gyro" blue over brown, "Gyro" with synthetic terrain, or acrobatic (just shows the tapes, no color). The terrain mode shows the terrain ahead of the airplane, with any terrain within 200ft of the current altitude or higher colored red.



The lower left window is the HSI. This shows the current ground track, wind speed and direction in the upper left-hand corner. The current waypoint in the flight plan, it's distance, bearing, and estimated time enroute are in the upper right-hand corner. Two engine gauges are shown in the lower left-hand corner, usually RPM and manifold pressure; but they are selectable. The bottom right-hand corner is the current Navaid name, OBS, DME, and finally the current lat and long. The center is a vertical compass card with a heading bug that can be slaved to the two-axis autopilot. The airplane graphic in the center is user-selectable, and there is a CDI and ILS overlay on this screen when you're tracking those type of navigation aides.



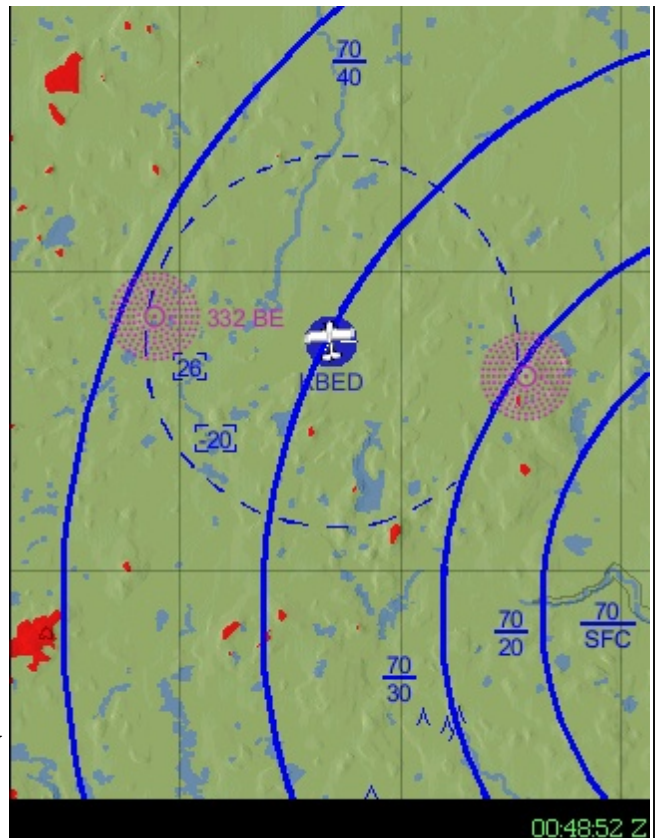
The entire right-hand side of the display is the moving map screen. This has several modes - VFR, VFR with airways, Low Level IFR, High Level IFR, or



just Airports. The picture at left show the VFR Detail map. Any terrain above your current altitude is again shown in red. When the aircraft is moving, a 'leader line' is shown from the front of the aircraft to a user-definable distance forward (usually where the airplane will be in 10 minutes). This makes planning your descent much easier, as you can see you'll be at the airport in ten minutes, you'd best start your descent! This view also shows the airspace with the upper and lower bounds, as well as navigation aides.

The moving map also has the ability to display weather radar data downloaded by XM satellite by subscription to the WxWorks or WSI services, and overlaying them.

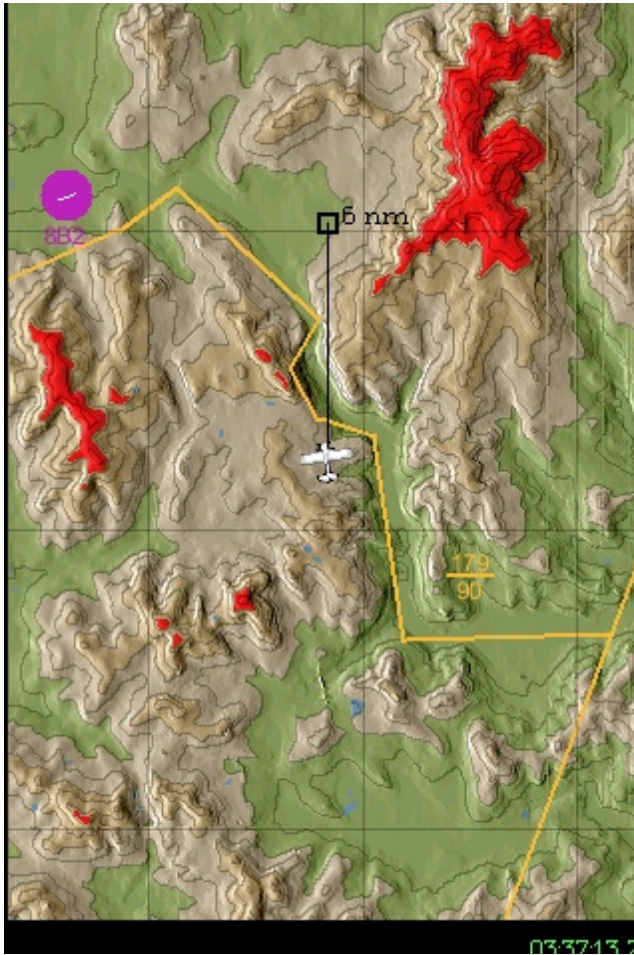
Also, a soon to be delivered improvement is the ability to display data from a Mode S transponder to show any traffic in the area on top of the moving map, virtually eliminating any need for a multifunction display like the MX-20.



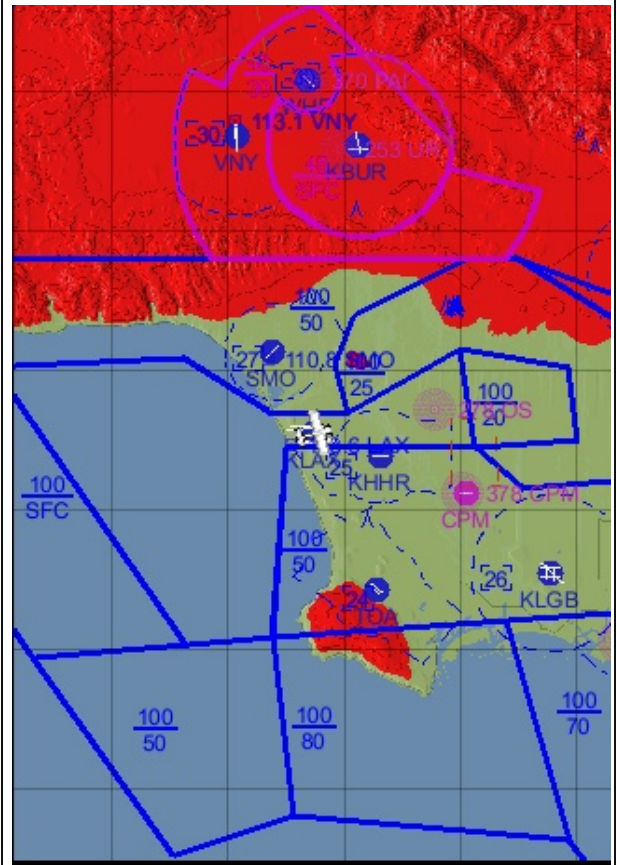
The engine parameters also show up on this side of the screen, either by pushing the inner knob on the lower side of the EFIS screen, or, automatically if any parameter goes outside of your preset acceptable range.

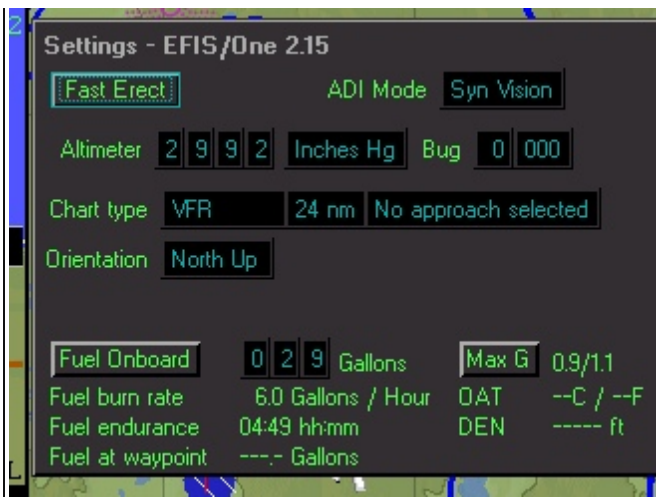


This is the moving map's terrain mode with the leader line.



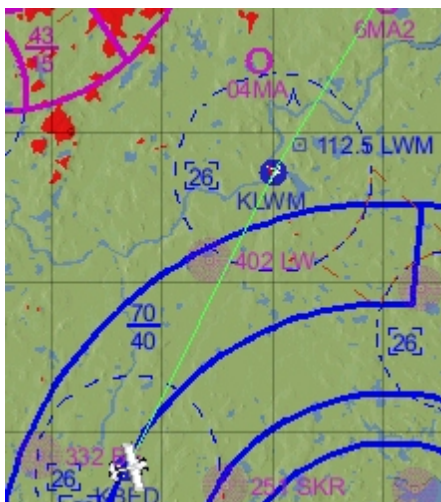
This is the moving map's terrain mode, with a significant area of mountainous terrain ahead.

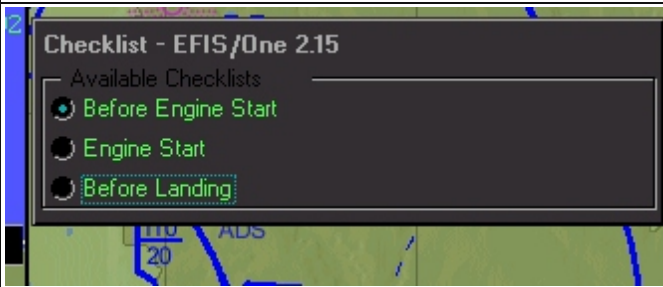




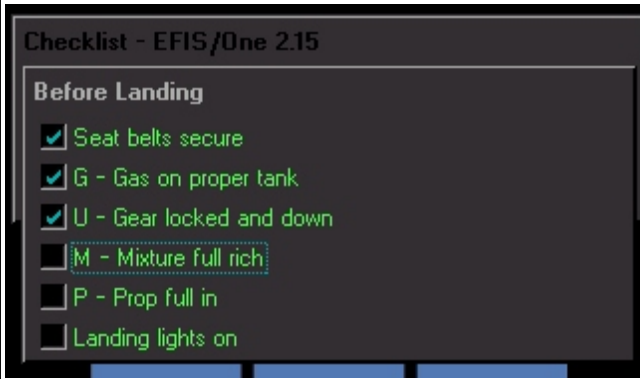
Pushing the 'Settings' button access the settings. From here you can change the current altimeter setting, change the moving map display mode, see the current fuel endurance, check how much fuel will remain at your next waypoint, see the density altitude, set the zoom level, select an external navigation radio, or change the map from 'North' up to 'Track' up.

Pushing the 'Flight' button accesses the flight planning screen. From here you can choose the next waypoint for your flight plan, either from the listing of "nearest" at the bottom, or by the 4 digit letter code. Notice that the display automatically shows the current distance to the waypoint, as well as the length and type of the longest runway. Once a waypoint is selected you can see (at the top) all of the available services at that waypoint (Approach, Departure, Tower, CTAF, Unicom, AWOS) or nearby, such as FSS. Scrolling through will show you the appropriate frequency, and if equipped with a compatible radio like the SL-30, pushing the button one more time will force the radio to this frequency automatically. You can also select a VOR before the radio can actually 'hear' the navigation aid, and the 'virtual VOR' feature will track the station by GPS until the navigation radio begins to deliver guidance information. Once a flight plan is entered, a green flight plan line will be displayed on the moving map.

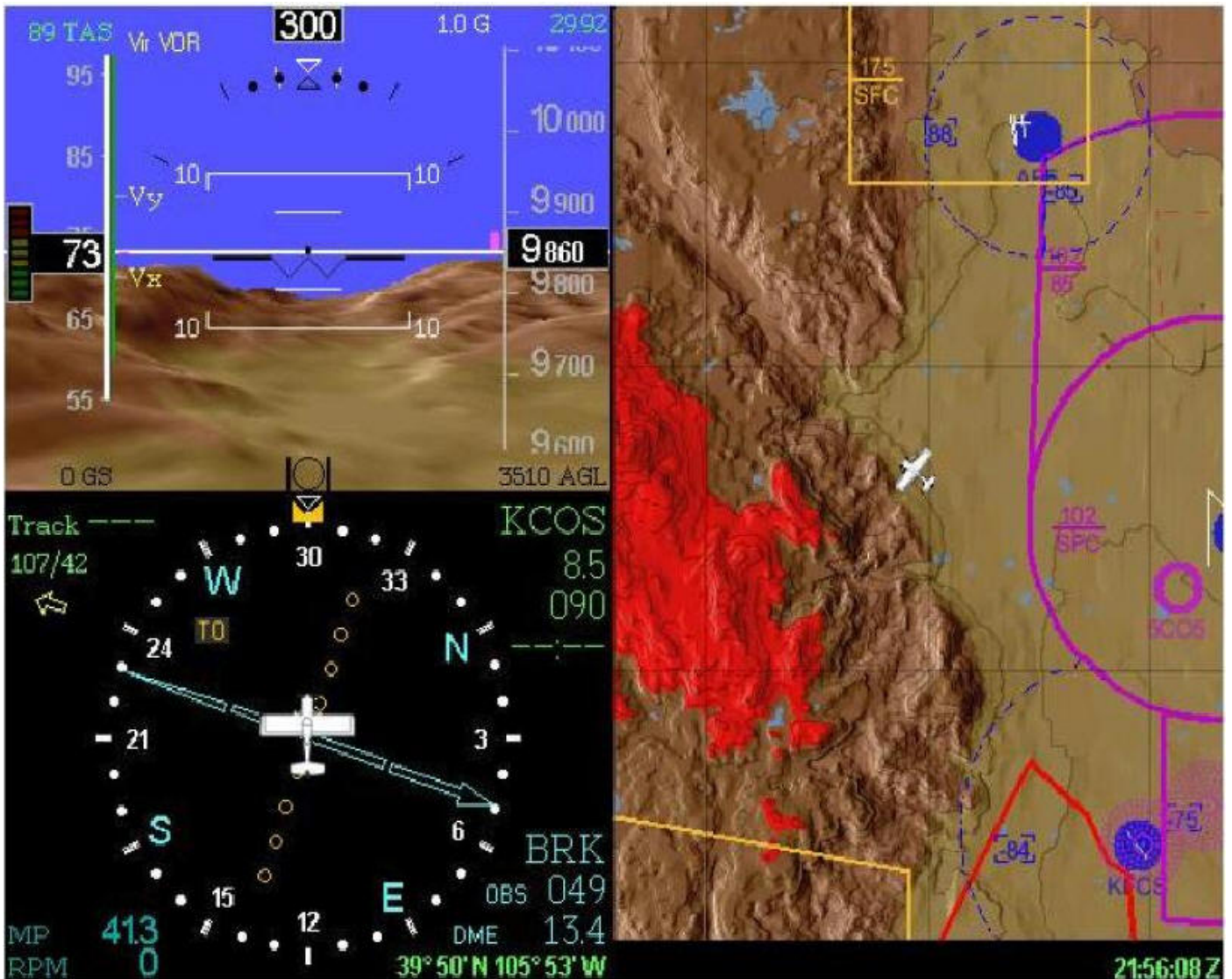




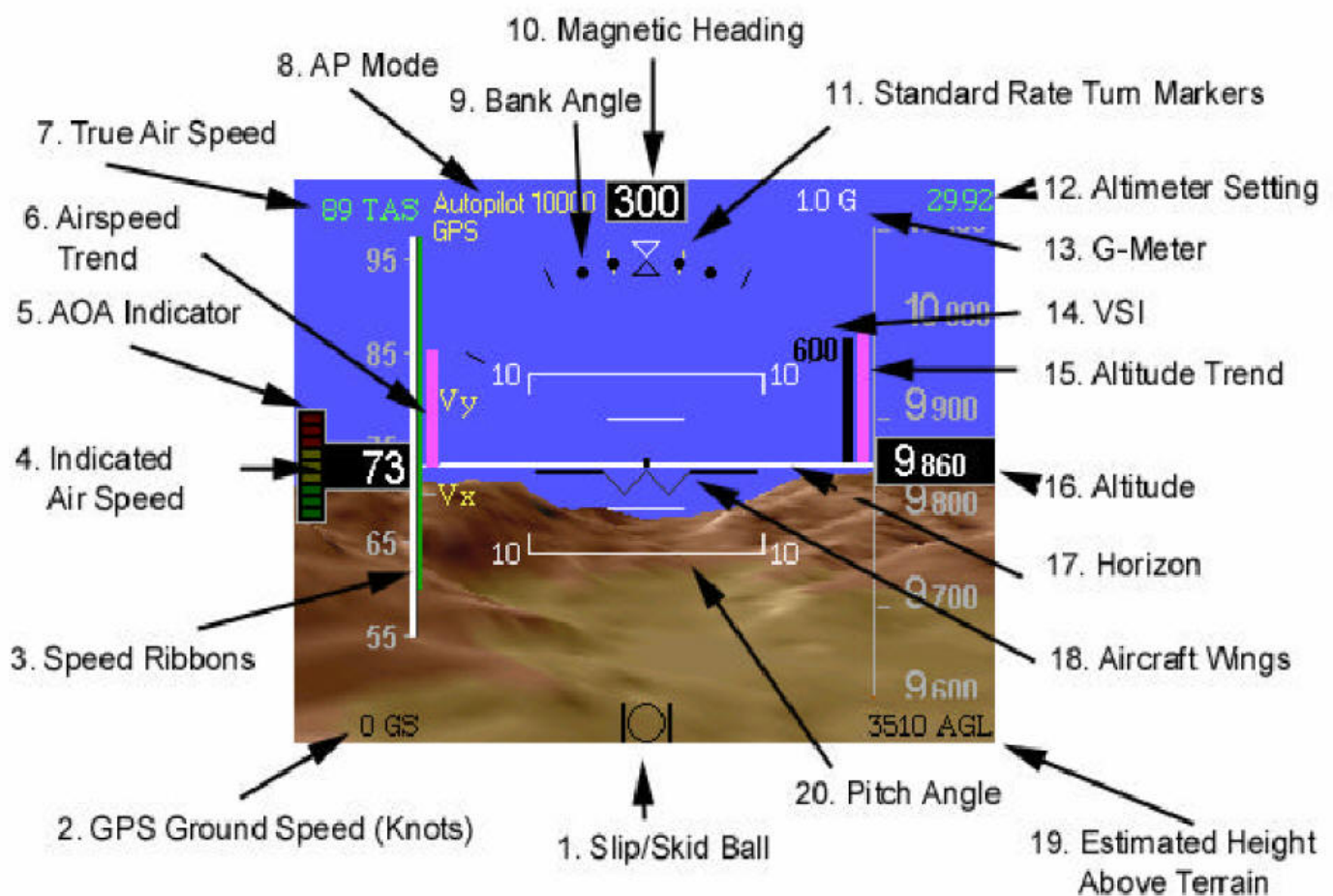
Pushing the 'CKL' button allows you to access the checklists. You can enter your own custom checklists for anything you wish. Typical lists are shown to the left, and an example checklist is shown below. You can check each item off as you complete it.

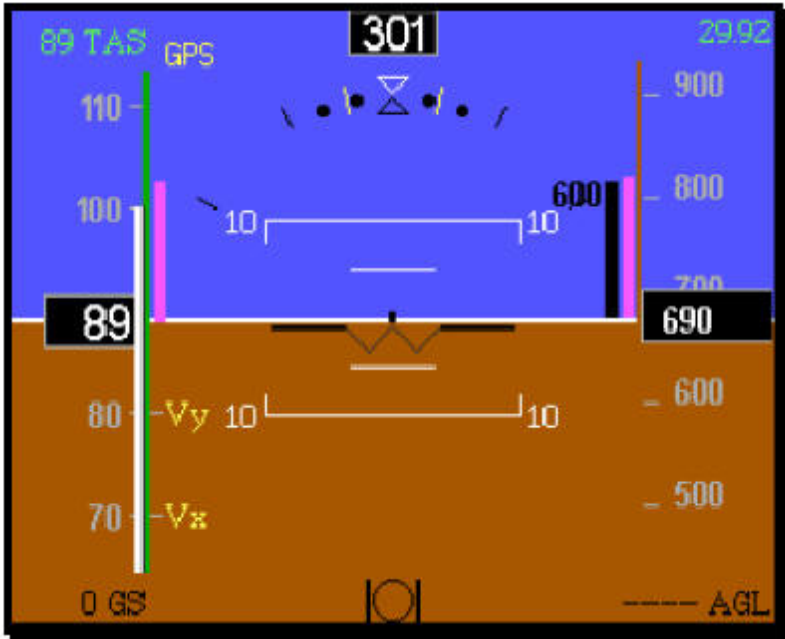


**Detailed view of the whole EFIS Screen**



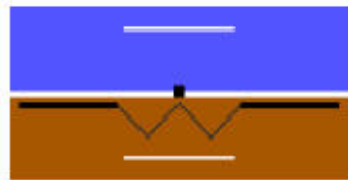
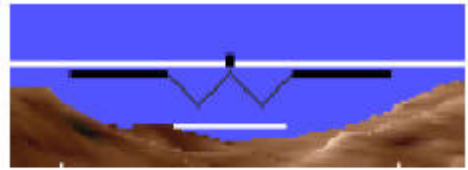
### ADI Detailed Description

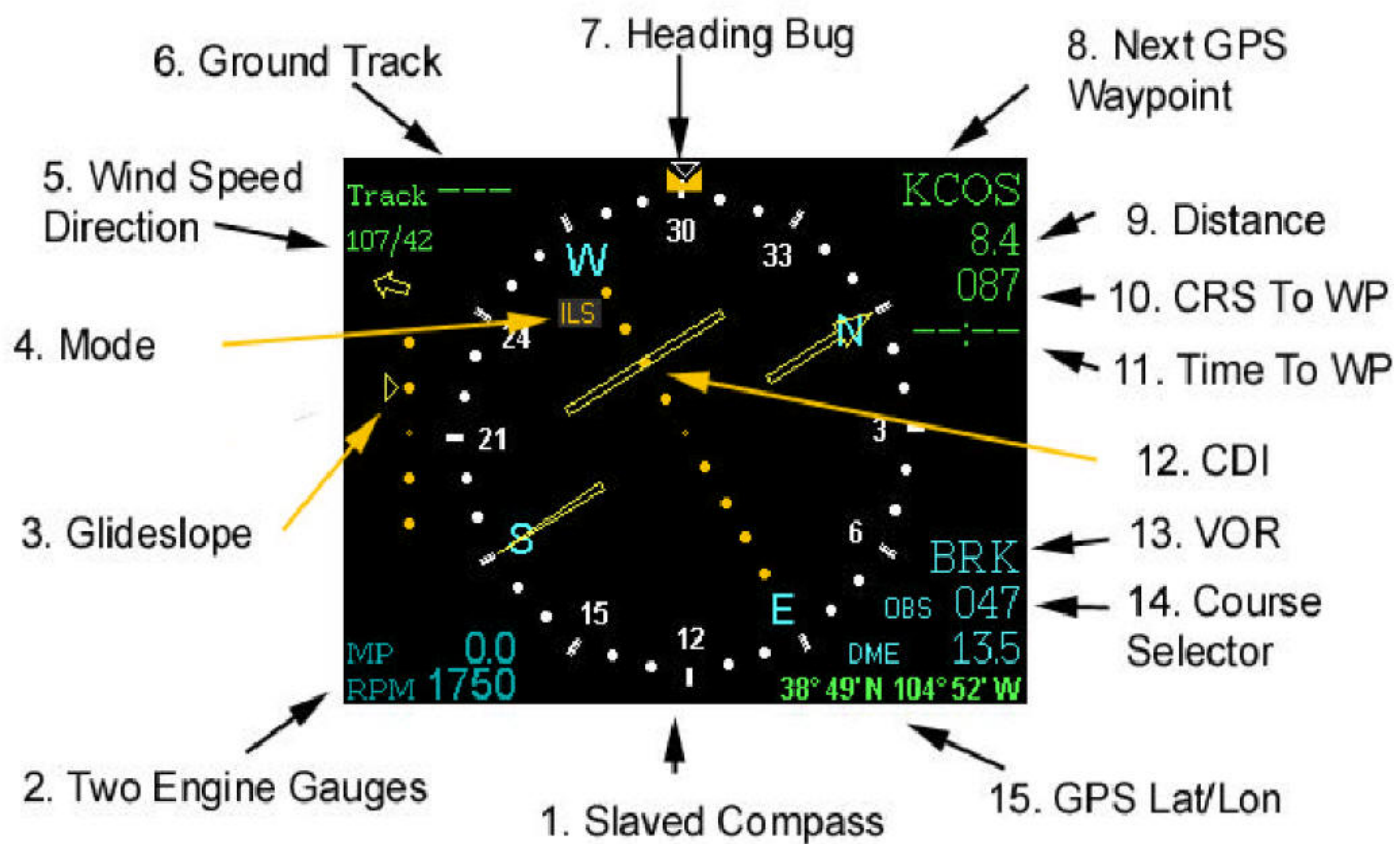




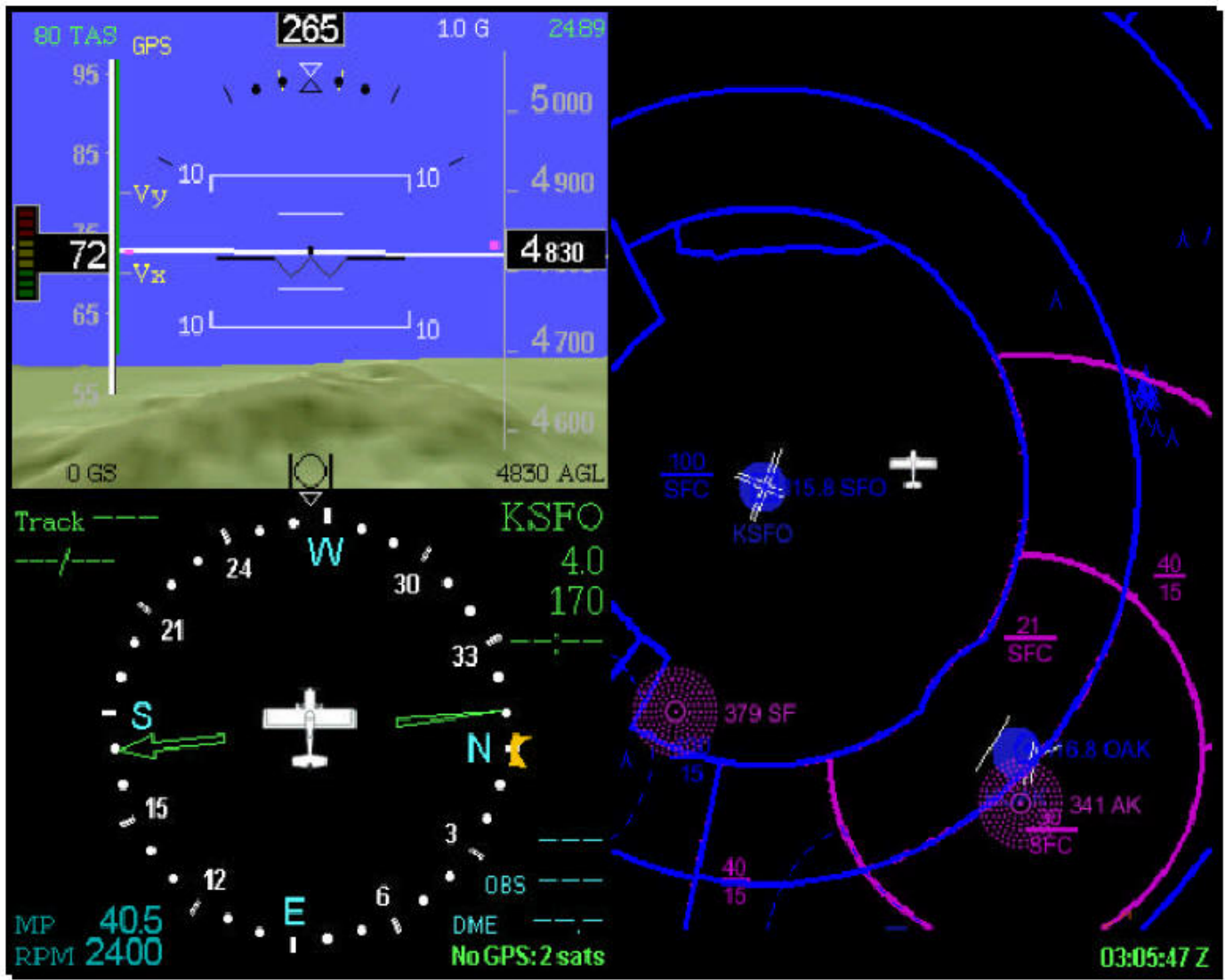
The more traditional "blue over brown" display, without terrain.

Horizon with terrain, and standard



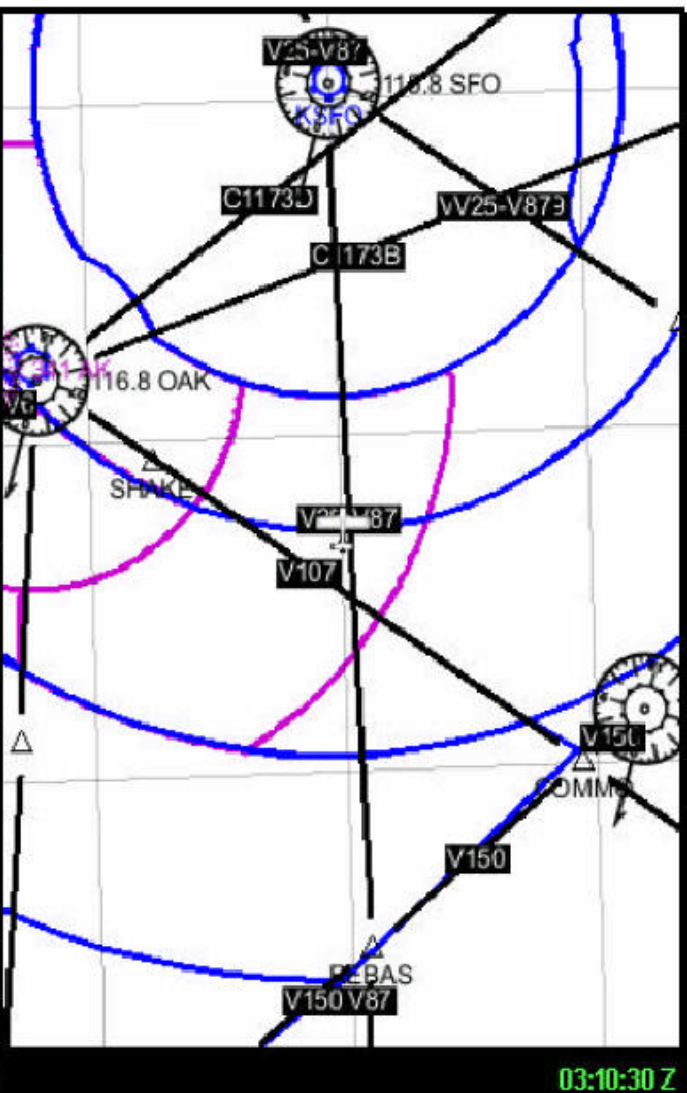


**Airports View**

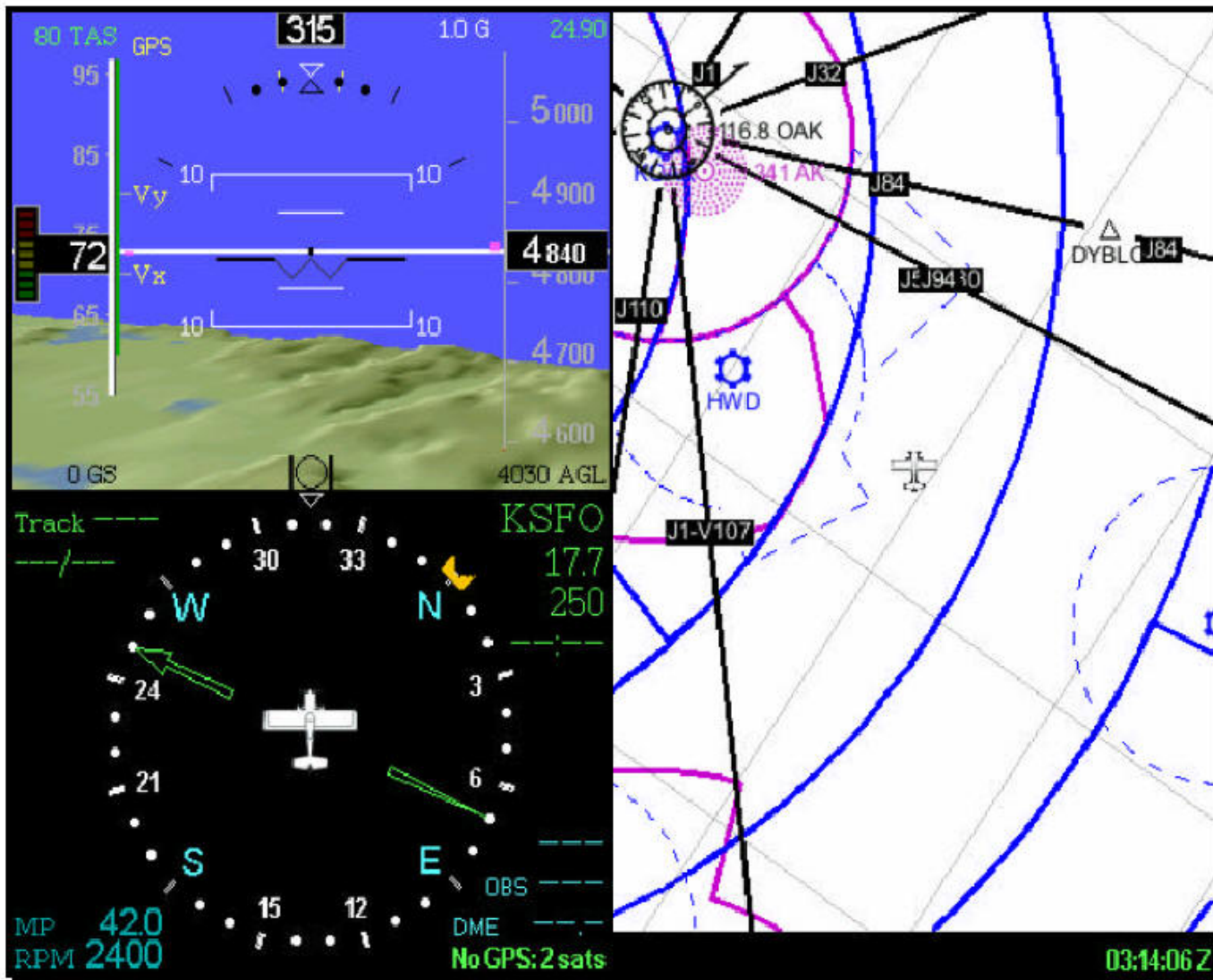


**Airways View**





### High Level IFR View



I have the system back up and running in my airplane, so if anyone wants to see the system in action, or if you just have questions, please feel to contact me to get more information. I think you can see from this write up that this system can easily replace the traditional six pack of gauges, and when the total system cost is considered, is pretty competitive.

Brett

## March 2005 Board Meeting Minutes

**Brian Schermerhorn,  
Chapter Secretary**

Chapter officers gathered on March 6, 2005 at 1:45 pm.

### **Topics Discussed:**

Hanger policy – Barry reported that it was done and would be posted in the hanger in the coming weeks.

By-laws / voting criteria – The bylaws and voting criterion should be reviewed and changes proposed to ensure that our voting takes place within a defined quorum.

Hanger insulation – During the at-large meeting Barry was to bring up the materials and plan to insulated the hanger door.

Flying Circus – mark Taylor will head up the planning committee for this. There will be no car show this year. The chapter will again host a breakfast and organize fly-bys.

Wings weekend—we need to request (and likely conscript) a committee to organize the Wings weekend activities.

## March 2005 Meeting Minutes

**Brian  
Schermerhorn,  
Chapter  
Secretary**

### **EAA Chapter 974 - March 2005**

Chapter President Ron Forsythe called the meeting to order at 2:00pm. The March meeting was at the chapter hanger on March 6, 2005.

### **Minutes of the Meeting:**

#### **New Members/Visitors:**

Joe Nelson, a guest of Rolf Hetic  
Tom Huffard

**Secretary's Report (Brian Schermerhorn):** Minutes from the February meeting were approved.

**Treasurer's Report (Mark Taylor):** Chapter account stands at \$2954.11. Hanger rent for the first half of 2005 was paid in the amount of \$900.00.

Special thanks was offered to Bill Conn for organizing the aluminum can collection. To date he has contributed \$72.00 from the recycled cans.

**Technical Advisor Reports:** None to report.

**Young Eagles Report (John Taylor):** There will be a Young Eagles rally on April 23 (May 14 rain date). 12-15 scouts will be there who will need to be flown in production aircraft. Other participants can be flown in any type of airplane. Flight simulator and airport tours are also planned.

**Hanger Master Report (Barry Fear):** The new Hanger Policy is finished and will be posted in the hanger. Barry has a plan for insulating the hanger door. Materials will cost \$250.00. Barry estimates that a team of 10 should be able to finish the job in one day.

**New Business:** Our two summer events (Wings weekend and the Flying Circus) are coming up and both will require volunteers to coordinate.

People who ordered name badges from Paul Kurtz will need to pay him \$7.00.

The meeting adjourned to the Brett Ferrell's demonstration of his glass panel.

## Young Eagles - April 23<sup>rd</sup>

The Chapter will have a Young Eagles fly day on April 23 with a back up of May 14.

There will be approximately 30 Young Eagles; 12 of them Boy Scouts. We can use all types of airplanes and just keep the Scouts in the production types.

We need pilots and ground people. We would like to have the computers running, to conduct tours of projects and the FBO, and to just keep the flow going.

Please let John Taylor or me know what you would be available for. The general consensus at the last meeting was to do it in one day if we can. If we do not have enough volunteers, we will split the flying into two days and two backups.

Thanks, Ron Gielegem

## Chapter Work Day - April 30<sup>th</sup>

Barry will be organizing a Chapter Work Day at the hangar to install the insulation on the hangar door on April 30<sup>th</sup>. If you can, please plan to attend so we can knock this out quickly. Thanks in advance.

## Chili Cook-off May 14<sup>th</sup>

We're planning our next chapter chili cook-off for the evening of May 14<sup>th</sup>, so get your secret recipe out. No word yet on whether we'll have a movie or not.

## Wings Weekend - June 23-25<sup>th</sup>

For planning purposes, please try to help out with the food booth if you can. The Flying Circus will be back this year, but there will be no car show.

## Chapter Picnic and Auction - July 10<sup>th</sup>

We are planning for the July meeting to be the Chapter Picnic, and will include our annual auction, so clean up your hangars and workshops and bring those items to buy/sell/trade. Also remember that there is now a classified section on the website where you can list or look for items year round.

## Upcoming Fly-ins

### **May 1, FunDay Sunday, Moraine Airpark**

Breakfast and airshow

### **May 21, Saturday - Pancake Fly-in at Middletown Hook Field (MWO)**

7:00-11:00 am - All you can eat pancakes, sausage, coffee, and juice by Chris Cakes Flippers

Also, on display will be the Utah State University 1905 Wright Flyer

\$5 Adults, \$4 children 12 and under

### **May 21, Saturday - Air Rally and Eat-Off at Lunken Field (LUK)**

11:00 am - 20<sup>th</sup> Annual Flying Knights Air Rally. This is a rally of about 100 miles with the start and finish at Lunken Airport. Your declared time over the route will be measured against your actual time (route announced day of the race). Trophies will be awarded for the first 3 places. Registration at 11, mandatory pilot briefing at noon, rally starts at 1. Entry is \$10 per plane, pilot, and co-pilot. Additional crew \$10 each. Food, door prizes, trophies included. (513) 702-3542

Rain Date is Sunday May 22

## Fun Website

If you want to see how Ken Forsythe's RV-10 project is coming along, or just want to invade someone's privacy seruptitiously, you can peek into Ken's basement via the web at [www.4sythe.com](http://www.4sythe.com). Just pick "Live video" and enter the username and password (both 'rv10'). Note that if you have Internet Explorer's pop-up blocker, you may have to select to allow the installation of the Active-X control.