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# News!

## January 2024

On the Web: [www.EAA80.org](http://www.EAA80.org)

Facebook: [www.facebook.com/eaa80](https://www.facebook.com/eaa80)

Twitter: [https://twitter.com/eaa\\_80](https://twitter.com/eaa_80)

### President's Corner

Bruce Mundie



Happy New Year!! 2024 is our 57th year as a chapter and big plans are in the works: a new scholarship endowment announcement, Ray Scholarship, new chapter build announcement, RV-12 project, Glstar project,

Offutt Airshow participation and more! Even with the cold weather, EAA 80 continues to stay busy!

Our chapter officers have volunteered for another year of service. Please look ahead to 2025 and see if there is room in your schedule to take on a leadership position in EAA 80 in 2025.

Attend our meeting on January 8 at the Oak View Mall to hear about two incredible announcements! A possible pilot training scholarship endowment and a possible new chapter build project! Stay tuned for more information.

The Offutt Air Show returns in 2024! I would like to plan for an EAA 80 display to highlight our organization and general aviation. Please plan on attending with your homebuilt aircraft! A busy chapter is a happy chapter. Look for a very active 2024!

Thanks, and fly safe!

Bruce

## Miscellaneous Notes

Please visit this link to take the yearly chapter survey. The link will take you from the EAA link to Survey Monkey:

### [EAA Chapter Survey](#)

## Vice President Bob Dyer

Pat Ackerman will be the January 8 presenter. He will be presenting about the big improvements and plans for the North Omaha airport.

If you have any future presenter ideas, drop Bob Dyer a note.

## Membership Rich Kolkman

- No new members since last reported.
- Over the holidays we have transitioned our membership information from a locally updated MS Excel file to a web based tool offered by EAA.
- In January, I plan on sending each member a copy of the information we currently have on file for them so they can review and update accordingly.

## Chapter Zenith Build

The airworthiness certificate was issued for the chapter build Zenith CH750 on 12/11/23 and the official transfer of ownership to Bob Graham took place on 12/14/23.

Thanks to the people that put the time into the build and congrats to Bob on his new airplane!

## Calendar of Events

January 8 Chapter 80 Meeting - Pat Ackerman, North Omaha improvements at ABLE / ACE, 7 pm.

## Social Coordinator Ed Kirker

Fifty-five members and guests enjoyed a night out in December for the holiday party at Gorat's.

I am looking forward to 2024 and the Plattsmouth picnic in September and a Holiday Party in December. We need a new Social Chair to head up these events and manage refreshments for the meetings. Anyone interested, please let an officer know.

## EAA Chapter 80 Meeting Minutes

### December 2023

The December meeting was replaced with the Holiday party at Gorat's. Please see this are next month for the January minutes.

### →Koehler's Korner→



I mounted a uAvionics AV-30C in the Mooney about a year ago to replace the vacuum driven Attitude Indicator (AI). I am now in the process of upgrading it with

the addition of a magnetometer. This month we will discuss this project, including some of the whys and wherefores.

Let's back up a little bit first. For your plane to be IFR capable Federal Aviation Regulation 91.205 states that among other things it must have a "gyro" based AI and similarly, a "gyro" based Direction Indicator or Directional Gyro (DG), better known as a mechanical compass. The least expensive DGs have traditionally been vacuum driven free gyros in which the pilot must periodically reset the heading by reference to a magnetic compass. The usual magnetic compass in the plane is the old "Whisky" (or "wet") compass which is a magnet mounted on a rotating pin in a non-freezing liquid with 360 degrees marked on it. The wet compass only gives reliable readings

when the plane is flying straight and level. The vacuum DG gives good heading information in mild turns and straight and level, but will, over time, drift off the correct heading information due to drag in the system. In engineering terms, the gyro has short term stability but drifts with time, whereas the wet compass has long term repeatability but is unusable in other than straight and level flight. Depending on the quality of the bearings in the DG, it may require resetting by the pilot as often as every few minutes. Think in terms of about \$1000 to \$2000 for a new vacuum DG.

An alternative to the vacuum DG is an electric DG. The least expensive are also free gyros, needing updating by the pilot, but they are expensive, at roughly twice the price of the vacuum driven type.

One can also buy free DG models that have a navigation pointer (VOR, ADF, GPS) on them, but this added equipment adds drag to the free gyro and generally makes them prone to early overhaul due to the requirement for frequent pilot updating in flight.



To preclude the requirement for the pilot having to constantly update the free DG, one has to have a "slaving" system that does the updating automatically. This requires the addition of an external electric magnetic

compass with associated wiring to send the "magnetic compass" information to the gyro, plus there must be a system to actually do the updating automatically. On early systems they actually have a floating wet compass with fine wire sensor data on slip rings. These were common on ships. However, cost and weight considerations on aircraft have led to the use of a magnetometer on our aircraft. Simplistically a magnetometer is a specially wound coil of fine wire that senses the earth's magnetic field. If you are really interested in the details, look up explanations of "magnesyne" and "selsyn" synchros. Most use alternating current which is passed through adjacent coils and the interaction with the current induced in the reference coil can be detected and used as an indication of magnetic heading. The good news is that these units have few moving parts, and so are relatively robust, maintenance-wise, but they are complicated electrically requiring a stable alternating current and several sets of shielded double or triple wire between the magnetometer and master gyro. However, with the sensed magnetic heading, it is relatively easy to feed in a correction signal to an electric gyro to get it to always know your exact magnetic heading. But this DG has now become a fairly complicated piece of electrical equipment needing a power supply, gyro, magnetometer, and display. Since the system is now always automatically being corrected, the drag from adding navigation displays is not an issue, so it is usually included. Unfortunately, this has now become a complicated and expensive system. A good example is the age-old King KCS- 55A. It is called a Horizontal Situation Indicator (HSI). Think in terms of about \$10,000!

Century used to make a vacuum DG with electrical correction using a magnetometer. It was the NSD- 360, which retailed for around half the cost of the King HSI, but it had higher maintenance requirements. It is now out of production and unsupported.

Enter modern electronics. Today you can install a Garmin G5 for about the cost of an electric DG. It comes with a magnetometer in the package. The AV-30C referenced above is about 20% cheaper and did not have a magnetometer option until recently. It is just an electronic free gyro, and the heading drifts regularly. The latest software smoothed it out

a bit, but I found that it needed resetting about every 20 minutes on my plane. The magnetometer module cost about \$200 from Spruce.

Gone are all the complicated wiring and shielded alternating current cables and inputs. The cable between the AV-30C and the magnetometer only has three wires, Power, Ground, and Data Link. Everything is solid state, but the operating principle is the same.

Ditto on something like the G5 and equivalent Dynon systems.

To install, you mount the magnetometer sensor in an area as free as possible of magnetic and electrical interference and run the shielded triple wire to the connector on the display. Then there are a series of set-up routines to tell the display where the sensor is, how it is oriented, and calibration information for magnetic North. You “swing” the system to calibrate it to North. The process takes about a half hour. My old KCS-55A had 23 wires for the same info, and still required a long and complicated swing, recheck and reswing for reasonable results.

Isn't technology great!

Hope this little tutorial helps you better understand the systems in your plane.

Keep building, flying, and maintaining.

Dick  
12/2023

A note from Oshkosh:

## Homebuilders Week – Online Event Starts January 22

### *An online opportunity to learn about building your own aircraft*

By Charlie Becker, EAA Homebuilt  
Community Manager

Homebuilders Week is an online opportunity to carry on the founding mission of EAA by sharing as much knowledge and information about building your own aircraft as possible in five days. We start on Monday, January 22nd, 2024, and end on Friday, January 26th, 2024. Each day, we offer six live webinars back-to-back, starting at 11:30 am central time and running every hour and a half until the last session at 7pm central. The sessions are live and allow time for questions. To sign up for the sessions, visit [www.EAA.org/HomebuildersWeek](http://www.EAA.org/HomebuildersWeek)

The topics cover a wide variety of areas of interest to anyone curious about building their own aircraft. We try to make sure there is something for everyone, whether you are just considering the idea of building an aircraft, are knee deep in a project or getting ready for test flying. We even have EAA president Jack Pelton lined up on our anniversary date, January 26<sup>th</sup>, to talk about EAA's Advocacy efforts on behalf of the homebuilt members. EAA Homebuilders Week coincides with the anniversary of the founding of the Experimental Aircraft Association in 1953. We have come so far since that first EAA meeting. Back then, information on homebuilding was sparse and hard to come by. I know that if our founder, Paul Poberezny, was still with us, he would give us a big thumbs up for this effort to support the homebuilder.

EAA Homebuilders Week is made possible through the generous sponsorships of Aircraft Spruce & Specialty Co., Dynon, and Scheme Designers, Inc.

Visit [www.EAA.org/HomebuildersWeek](http://www.EAA.org/HomebuildersWeek) to sign up.





# Homebuilders Week Schedule

## January 22 - 26, 2024

To sign up: [EAA.org/HomebuildersWeek](https://EAA.org/HomebuildersWeek)

Time CST	Monday 1/22/24	Tuesday 1/23/24	Wednesday 1/24/24	Thursday 1/25/24	Friday 1/26/24
11:30-12:45	Building an Aircraft: What You Need to Know Charlie Becker	Composite Construction Basics Mark Forss	Amateur-Built Certification Process Joe Norris	Lies, Darned Lies, and Homebuilt Accident Statistics Ron Wanttaja	EAA Advocacy Update: Top Homebuilding Issues and the Impact of MOSAIC Jack J. Pelton, Sean Elliott & Rob Hackman
1:00-2:15	Wiring Basics Dick Koehler	The Nuts and Bolts of Nuts and Bolts Kerry Fores	Building on the Cheap Ron Wanttaja	Lycoming Engine Installation Dave Prizio	Working With Wood 101 John Egan
2:30-3:45	Welding Basics: Gas & TIG Charlie Becker & Tracy Buttles	Fabric Covering Basics Nate Hammond	Buying a Used RV Aircraft Vic Syracuse	Sonex Aircraft and AeroConversions Products Mark Schaible	Zenith Aircraft Kits & Plans Sebastien Heintz & Roger Dubbert
4:00-5:15	Sheet Metal Basics Jim Scott	Factory-Built to Homebuilt: What's the Difference? Tom Charpentier	Advanced Flight Systems Rob Hickman	Garmin Experimental Avionics Solutions Brad Brensing	Scratchbuilding From Plans: 90% Done and 90% to Go! Marty Feehan
5:30-6:45	Panel Planning and Wiring Marc Ausman	Dynon Avionics Michael Schofield	Flight Testing 101 Paul Dye	Propeller Selection for Homebuilts Steve Boser	Latex Paint: A Low-Cost Alternative Malcolm Morrison
7:00-8:15	Rotax 9 Series Installation & Operation Phil Lockwood	Painting Your Plane: DIY or Use an Expert? Craig Barnett & Ken Reese	Engine Break-In Mike Busch	Van's RV Aircraft Kits Greg Hughes	Common Builder & Maintenance Errors Vic Syracuse

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## EAA 80 MONTHLY TREASURER REPORT

Dec-23

### Income

Zenith Sale Proceeds	\$65,000.00
Rex Ekwall Memorial Scholarship	\$10,000.00
Ray Foundation Scholarship	\$4,400.00
Holiday Party	\$3,294.74
Member Dues	\$50.00
Aluminum Sales	\$39.96
<b>TOTAL INCOME/RECEIPTS</b>	<b>\$82,784.70</b>

### Expenses

Zenith Expenses- Mike Howard	\$22,124.46
Holiday Party- Gorat's	\$3,568.66
Holiday Party- Other Expenses	\$198.69
Plattsmouth Picnic	\$96.61
Meeting Drinks/Snacks	\$45.48
Trailer Registration (2 years)	\$109.05
EAA National Dues/Insurance	\$632.00
Oak View Rent	\$150.00
<b>TOTAL EXPENSES/OUTFLOWS</b>	<b>\$26,924.95</b>

### Assets

RV 12 Project	\$13,000.00
Glaster Project	\$25,000.00
Shirt Inventory (est)	\$500.00
Checking Account Balance	\$85,253.45
Venmo Balance	\$2,071.91
<b>TOTAL Assets</b>	<b>\$125,825.36</b>

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- Pilot Supplies/Merchandise
- Aircraft Brokerage
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# Photos!

## Christmas Party



Left:  
President Bruce Mundie and our 2023 Ray  
Aviation Scholarship recipient Andrew Paneda

Below:  
Bruce and Hague Howie - "Most Valuable  
Player"



Left: Bruce Mundie and Bob Condrey  
- "Exceptional Volunteer Service"

Right:  
Bruce Mundie and Mike Howard -  
"Most Valuable Player"





## Photos!

Christmas Party (cont.)



Left:  
Bruce Mundie and Rich Kolkman -  
"Member of the Year"

Right and below:  
Various photos  
of the meal at  
Gorat's





# Upcoming Webinars

## Time & Materials Maintenance

Qualifies for FAA WINGS and AMT Credit  
Wednesday, January 3, 7 p.m. CST  
Mike Busch

## The Van's RV

Tuesday, January 9, 7 p.m. CST  
Chris Henry & Dick VanGrunsvan

## Chilly Checklist: Tips to Preheat Aircraft Engines

Qualifies for FAA WINGS Credit

Wednesday, January 10, 7 p.m. CST  
Prof. H. Paul Shuch

## Young Eagles Coordinator Onboarding

Wednesday, January 31, 7 p.m. CST  
David Leiting

These are the current webinars listed on [eaa.org](http://eaa.org).  
Please check the site at:  
[www.eaa.org/en/ea/news-and-publications/ea-webinars](http://www.eaa.org/en/ea/news-and-publications/ea-webinars) to see if there are other webinars available.

*EAA Chapter 80 is classified as a Non-Profit Charitable Organization per section 501(c)3 of the Internal Revenue Code. As a result, we are eligible to receive tax-deductible contributions in accordance with Code section 170. Your contributions will go towards such things as:*

- ✓ Aviation scholarships
- ✓ Scholarships to send kids to EAA's Air Academy in Oshkosh, Wisconsin
- ✓ Helping promote Young Eagles events and rallies for the community
- ✓ Many other events that promote aviation in the Eastern Nebraska and Western Iowa region.



*EAA 80 is a 100% volunteer organization, there are no paid members to the staff. Our only funding comes from chapter dues and occasional fund raising.*

*Please visit our website [eaa80.org](http://eaa80.org) or contact an officer to inquire about making a tax free donation.*

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## EAA CHAPTER 80

### NEW MEMBER APPLICATION FORM

#### CONTACT INFORMATION

NAME:	<input type="text"/>	EAA #:	<input type="text"/>
HOME ADDRESS:	<input type="text"/>	SPOUSE NAME:	<input type="text"/>
E-MAIL ADDRESS:	<input type="text"/>	HOME PHONE #:	<input type="text"/>
PROFESSION:	<input type="text"/>	CELL PHONE #:	<input type="text"/>
RETIRED? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]		STUDENT? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]	

#### MEMBERSHIP PROFILE

OWNED AIRCRAFT? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]	TYPE:	<input type="text"/>	N-NUMBER:	<input type="text"/>
AIRCRAFT BUILDER? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]	TYPE:	<input type="text"/>	% COMPLETE:	<input type="text"/>
AIRPORT BASE:	<input type="text"/>	HANGER:	<input type="text"/>	
PILOT LICENSE/RATINGS: <input type="text"/>				
JOIN E-MAIL GROUPS: [ <input type="checkbox"/> Fly-Out <input type="checkbox"/> Builders <input type="checkbox"/> Young Eagles <input type="checkbox"/> AirVenture <input type="checkbox"/> Chapter Build ]				
YOUNG EAGLE VOLUNTEER? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]		YOUTH PROTECTION TRAINING CURRENT? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]		
OK TO PUBLISH INFO. IN CHAPTER DIRECTORY? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]	DO YOU HAVE A NAME TAG? [ <input type="checkbox"/> Yes <input type="checkbox"/> No ]	YEAR JOINED EAA80? <input type="text"/>		

#### ANNUAL DUES – \$25 (\$15 STUDENT)

PAYMENT FOR YEAR(S):	[ <input type="checkbox"/> 2024 <input type="checkbox"/> 2025 <input type="checkbox"/> 2026 <input type="checkbox"/> 2027 <input type="checkbox"/> 2028 ]		
PAYMENT DETAILS:	TYPE: <input type="text"/>	AMOUNT: <input type="text"/>	DATE: <input type="text"/>

#### MAIL CHECK TO:

EAA80 MEMBERSHIP  
C/O RICHARD KOLKMAN  
18058 LEAVENWORTH ST.  
ELKHORN, NE 68022

#### FOR MORE INFORMATION:

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