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News!

May 2023

On the Web: www.EAA80.org

Facebook: www.facebook.com/eaa80

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President's Corner



Bruce Mundie

Thanks for all the volunteer assistance to help make our EAA National Leadership Bootcamp as great success! We had officers in from South Dakota, Wyoming, Kansas, Iowa, Missouri, and Nebraska. Without the help

of our chapter volunteers, we would not be nearly as successful as a chapter.

Speaking of success, EAA 80 was selected as either a Gold or Silver status chapter for 2022. The chapter had programs for 8 out of the 10 graded criteria, but the grading team did not give us credit for our ongoing chapter aircraft build projects. Regardless of the outcome, if we are able to keep up this level of activity throughout this year, we should be able to achieve Gold level status for 2023.

Scott Pridie hosted the first 2023 Young Eagles event for 2023 on 22 April. Besides the brief morning snow squall the rally a huge success! Many thanks to include Hague Howie for sponsoring Scout Troop 537 from Council Bluffs, Iowa, for their Aviation Merit Badges.

Thanks to Cole Dostal for leading the scholarship process for this year's winner Marcus Gross! Marcus will receive \$2000 for

his summer semester at UNO. Congrats to Marcus on his new aviation scholarship!

We are right in the middle of selecting our 2023-2024 Ray Scholar. We are expecting to announce our winner before the May meeting.

Gone West: With regret I inform the chapter on the passing of long-time member and former EAA 80 President (1982) Robert F. "Bob" Soukup. Westside H.S. graduate and avid owner and pilot, he will be missed by all that knew him.

We are still looking for a project lead for the Glstar build. Let me know if you are interested.

If the darn wind would let-up, we might be able to get some flying in!

Thanks, and fly safe! Bruce

Bruce

Miscellaneous Notes

Vice President

Bob Dyer

May 8 Travis Arnold from TRACON will be the meeting presenter.

June 12 the NOAA weather center from Valley will be presenting. Get your weather questions ready.

July 10 we will have Mark Gaffney from the FSDO FAASTeam presenting on maintenance and airworthiness.

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

Social Coordinator

Ed Kirker

September 10 Plattsmouth Picnic at 12pm

TBD Christmas Party 6pm Social Hour, 7pm Dinner

Fly Outs

Mike Howard

On April 23, 5 people flew out to Beatrice for lunch.

We'll be doing more fly outs in May!

Membership

Rich Kolkman

We had four folks join the Chapter at last April's meeting.

Welcoming:

- George Stratbucker, Glenwood, IA (complimentary membership given his recent aircraft donation to the Chapter);
- Patrick Ingman, Louisville, NE;
- Mike Swanson, Council Bluffs, IA; and
- Jason, Vandersnick, La Vista, NE

Yong Eagles

Scott Pridie

Twenty Young Eagles were flown April 22.

The next Young Eagles rally is scheduled for May 20th.

Calendar of Events

May 8, Chapter meeting, 7pm, Oak View Mall
Able Ace

May 13, Young Eagles, 8:30 am

Chapter meetings at KMLE resume in June

June 12, Chapter meeting, 7pm, Oracle
Aviation

June 17, Young Eagles

July 10, Chapter meeting, 7pm, Oracle
Aviation

July 15, young Eagles

Jul 24-30, Air Venture 2023, Oshkosh

Aug 19, Young Eagles

Sept 2, Young Eagles

Sept 10, Young Eagles

Sept 10, Plattsmouth Picnic, 12pm

Oct 14, Young Eagles

Nov 18, Young Eagles

EAA Chapter 80 Meeting Minutes

April 2023

The chapter meeting was held on April 10th, 2023 at ABLE ACE, Oak View Mall, and called to order at 7 PM by Bruce Mundie.

Guests and New Members: Guests attended: Jason Anderson, Mike & Martha Swanson, Ivan Stahl
New Members: Welcome Robert Roehrborn.

Meeting Minutes: Meeting Minutes from March 13 were approved with no changes or modifications.

Treasurer's Report: It was reported the current balance as of the chapter meeting was \$13,316.93. Chapter dues can now be paid using a credit card with a \$1 surcharge. The chapter will release the last \$2000 for Delaney's training.

Membership: Rich Kolkman reported that the membership is at 129. Reminder Rich needs pictures of some members for the membership roster.

Scholarship:

- Delaney, 2022 Ray scholarship recipient, reported she needed help finding a DPE for her check ride.
- The chapter has been approved to offer the 2023 Ray Scholarship. Deadline for applications are April 16, 2023. Interviews for finalists will be held the first week of May.

Final selection will be May 5.

- Scholarship amount has been increased to \$11,000
- Congratulations to Marcus Gross, the winner of our 2023 academic scholarship!

Tech Counselors: No Report

Young Eagles (YE):

- Next Young Eagle event will be April 22 starting at 8:30am.
- Upcoming events May 13, June 17, July 15, August 19, September 2. September 10 will be at Plattsmouth in conjunction with Harvest Days. October 14, November 18.

Tools: Contact Nathan Beyer your tools manager.

Friends of EAA80:

- Stemaha: Provided instruction for Boy Scouts for their Aviation Merit Badge.

Builder Reports:

Bill reported his inspection was imminent. The Gilbert RV10 had a first flight on April 3rd.

Builder Meeting: None scheduled.

Chapter Build:

- Zenith working on firewall forward and cables at Council Bluffs Airport.
- Club RV 12 is at Millard with a fresh coat of paint.
- Glastar needs a volunteer to lead on this project.
- Regarding the Metrotech RV no updates

Fly-outs: No updates. There was a proposal to schedule a cross country to the Spam



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KMLE 12916 Millard Airport Plaza Omaha, NE 402.934.5300 www.oracleaviation.com

Museum in Minnesota.

Social Coordinator:

Leadership Conference is April 14, 2023.
Dinner at Brazen Head. 5:30 Social Hour.
6:30 Dinner. Meeting at Oak View May 8,
2023.

Ed Kirker reported:

Chapter Picnic and Flyin September 10 at
Plattsmouth

Christmas Party 2023, December 2023

IMC/VMC:

IMC meeting is every 2nd Thursday at Able
Ace.

VMC meeting is every 2nd Tuesday at Revv
Aviation (Council Bluffs airport).

VP: Bob Dyer, Any ideas for speakers?

PRESIDENT: Bruce Mundie

- The Chapter has earned Silver status from EAA National. We missed out by 1 point on gold. Possibly because our chapter builds weren't reported. Bruce is appealing the rank.
- Presentation was made to OAA about building a chapter hangar at Millard. They like the idea. But chapter would need to look at fundraising. Also on the table is a 3 hangar building at the North Omaha Airport. It would be a lease and improvements would need to be made.
- We need volunteers for the Leadership conference April 14 & 15. Drivers are needed to pickup and drop-off from Millard.

Need to source breakfast, lunch and Dinner April 15. Arrange for table and chairs from the Mall.

Calendar:

Young Eagles March 18 8:30am at Millard
Apr 10 Chapter meeting, 7pm, Oak View Mall
Able Ace Apr 15 National Leadership
Conference at Able Ace April 22 Young
Eagles at Millard

New Business:

A new tensioner gauge is needed as the old one broke. Cost is \$225 to replace. The chapter voted unanimously to spend the \$225 with chapter funds..

Old Business:

Chapter Coffee Mugs and Koozies are in the works.

Announcements: The drawings for an EAA80 T-shirt were won by Jerry and Chock Blocks by Craig Tylski

Presentation: Bob Condrey gave us a First Timers Guide to AirVenture in Oshkosh

Next Meeting: The next chapter meeting is May 8 at the Oak View Mall Able Ace facility, 7pm.

→Koehler's Korner→



I Last month I chatted about a Cherokee 180 in which we were replacing the autopilot (TruTrak), primary engine instruments (JPI 930), and an electronic DG/HSI (Garmin G5). I mentioned that each of these systems had a data buss linkage to other systems in the plane and introduced the RS-232 buss, ARINC 429 buss, and CAN buss. This month we will look in more detail at these busses.

Before we get into it, let me explain that I challenged the owner to study the operation of all these new systems prior to flight, including downloading video tutorials on their operation. He called me back and said that all the tutorials on the Garmin G5 showed a dual installation and asked what it would cost to do the same. Since we already had the first G5, including its magnetometer and GAD29B (for inputting navigation data), adding a second G5 to replace the Attitude Indicator (AI) only cost an additional \$2400! So, we were into a dual G5 installation and the total removal of the vacuum system on the plane. To leap ahead a bit, the plane got a huge update in reliability and functionality, and a reduction in empty weight of 26 pounds!

All of these new systems are tied together with data busses. The oldest of these is the RS-232. RS stands for "Recommended Standard." It was introduced in 1962 as a standard for serial communication between data terminal equipment (such as a computer terminal) and data communication equipment such as a modem or other peripheral equipment like printers. The driver voltage is 7.5 volts DC with the Logic "0" when the voltage is between +5v and +15v, and is Logic "1" when the voltage is between -5v and -15v. The RS-232 is simple and low cost and does not require a twisted pair of wires for transmission. However, it is recommended that the interface cables should be shielded and the shield grounded at both ends. This is in contrast to audio wiring in which the shield should only be grounded at one end. Even

though it is over sixty years old, the RS-232 is commonly used to transmit aviation data from a GPS navigator to other avionics that need the data, such as modern autopilots, modern displays, like the G5, and engine analyzers, such as the JPI EDM systems. For instance, a Garmin GNS-430/530W sends "Aviation" data such as distance to next waypoint and ground speed to the JPI EDM-700/800/900 displays and the display sends outside air temperature and fuel flow and fuel quantity to the GPS, each on a dedicated RS-232 data buss. The older format for the data on these busses was "Aviation," but the newer is "MapMX." One must make sure the busses are set up with the right format and baud rate as part of the final installation and activation of a new avionics package. In the installation on the Cherokee, a RS-232 buss came out of the GNS-430W and was paralleled to the EDM-930, both of the G5s, and the TruTrak autopilot. I had to install one output and parallel it to four receivers of the data. Additionally, there was another RS-232 from the EDM back to the GPS sending mostly temperature and fuel data.

The next common data buss I had to install was the ARINC-429. It was standardized by Aeronautical Radio, Inc. in Annapolis MD. It was primarily developed by Boeing in the 1970s for the 757/767 program and has become the predominant avionics data buss used on the majority of higher-end commercial and transport aircraft. The standard defines the physical and electrical interface of the two-wire data buss and the data protocol to support an aircraft's avionics local area network. By the way, somewhat in parallel, a similar data system was developed for the military called the Mil-Std-1553, which was initially used on the F-16 and F/A-18. The two data systems are similar, but not interchangeable. Think "civilian" and "military" versions of similar technology. The twisted wire pairs carry balanced differential signaling using a 32-bit word. The two wires carry data A and data B respectively and typically data A uses +5v and data B -5v with null being "0v". The lower and balanced voltages, compared to the RS-232 make it much less vulnerable to interference, and capable of much higher speeds. On my Cherokee installation, there were five 429 busses all connected to the GPS. One of these sent GPSS navigation data to the autopilot and also a second, in

5.11 Dual G5 with GPS/VHF Navigator

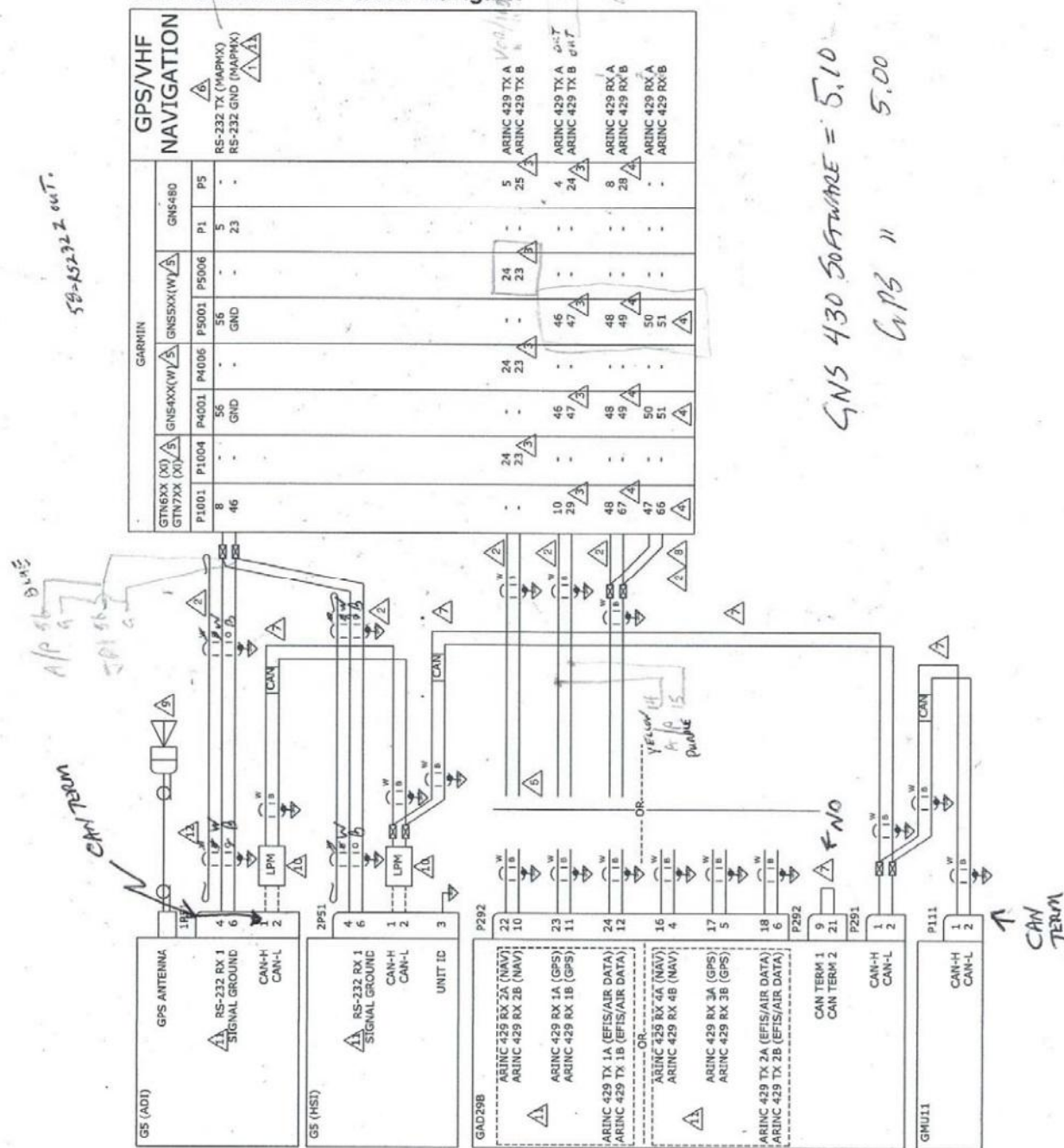


Figure 5-12 Dual G5 with GPS/VHF Navigator

Garmin G5 Electronic Flight Instrument Part 23 AML STC Installation Manual

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parallel, to the G5s, via the GAD-29B. This GPSS data allows the autopilot, among other things, to anticipate turns prior to crossing way points and to do procedure turns during an instrument approach. The data to the G5s allows them to display such information. Another 429 buss comes again from the GPS

to the GAD-29B to provide VOR/ILS data to the G5s (in lieu of about a dozen discrete wires on an old analog system). A fourth and fifth 429 send EFIS and air data information from the GAD-29B to the GPS for calculating such things as true airspeed and the wind direction and speed.

Finally, Garmin chose to interconnect their G5 system with a Controller Area Network, or CAN buss. Physically, a CAN buss is a two-wire buss that connects various items in the avionics system. The buss has a starting and ending point and units in between are wired sequentially in series. In other words, the buss is terminated at both ends with a 120 ohm CAN buss termination resistor. And in between, the two wires are daisy chained from unit to unit. On the buss, each unit or piece of avionics can put packets of information on the buss and can accept or reject other packets from other avionics. There can be up to 70 units. The buss is simple and low cost, replacing otherwise huge bundles of dedicated discrete wiring. It is easy to add and subtract avionics components, making the CAN buss very efficient. It is very robust, being naturally resistive to electric disturbances and electromagnetic interference. The OBD2 system on modern

a 9-pin D sub connector module supplied by Garmin. From there I ran the shielded twisted pair to the GAD- 29B, and then to the HSI configured first G5, and then to the Attitude Indicator second G5 where it was terminated with another Garmin buss terminator that just connects between the 9-pin connector on the back of the G5 and the 9-pin connector on the cable. The GAD-29B, you may remember, gets all the GPS and VOR/ILS navigation data from the GNS-430W and then puts it on the CAN buss for all units to use. Similarly, the magnetometer (GMU-11) puts magnetic heading information on the buss for all to use, and the G5s, which are plumbed for pitot/static, put airspeed and altitude info on the buss for all to use. Think about how many wires I saved over the old point to point wiring approach. The G5s, for instance, which have loads of data on their displays only have six wires to them, power and ground, the RS-232 bus and the CAN buss! Compare that to old VOR/ILS needle displays that had upward of



cars is a CAN buss developed by Bosch back in the mid-1980s. It has been continually updated with flexible data rates and higher speeds. There are actually RS-232 to CAN buss converters now!

Back to the Cherokee: I started the twisted pair CAN buss at the GMU-11 (magnetometer) with a CAN buss terminator (120Ω resistor) in

twenty wires in the back of them.

I hope this little discussion on modern avionics buss systems helps you better build and maintain your plane.

Keep building, flying, and maintaining.

Dick 4/2023

Photos!

EAA Regional Leadership Conference



Photo from the Brazen Head Friday before the weekend EAA Regional Leadership training held at ABLE ACE April 15.



Left: An EAA trainer at the Regional Leadership Conference

Below: ABLE ACE attendees at the EAA Regional Leadership Conference



Photos! (cont.)

This and That



Ben and Bob Gilbert's RV-10 took flight April 3rd. Ben was the PIC for the maiden voyage. The photos show the takeoff and taxiing after return. Congrats!



Photos! (cont.)

This and That



Left, below left, and below:
Photos from the April 22 Young
Eagles rally at Millard



Above and left: Michael
Stahl (and his dad)
showing off the RV-8
progress-The engine is
mounted and electronics
are powered up! It
appears things are
moving along nicely!

Upcoming Webinars

[Booted Out of Annual!](#)

Qualifies for FAA WINGS and AMT credit.
5/3/23, 7 p.m. CDT
Mike Busch

[The P-6 Hawk](#)

Museum Webinar Series
5/9/23, 7 p.m. CDT
Chris Henry

[A Look at Clouds](#)

Qualifies for FAA WINGS credit
5/10/23, 7 p.m. CDT
Prof. H. Paul Shuch

[Stop Dreaming and Start Flying – Flight Training First Steps](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/15/23, 12 p.m. CDT
EAA Staff

[Flight Simulators 101 - Leveraging a Home Simulator for Flight Training](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/15/23, 7 p.m. CDT
Chris McGonegle

[How to Pass the Private Pilot FAA Written Test in Less Time](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/16/23, 12 p.m. CDT
Bret Koebbe

[How to Save Time and Money in Flight Training](#)

Learn to Fly Week Webinar
5/16/23, 2 p.m. CDT
Larry Bothe

[Become a Professional Pilot; Which Path is Best?](#)

Learn to Fly Week Webinar
5/16/23, 7 p.m. CST
Paul Maloy

[Getting Back into the Left Seat – No Matter How Long It's Been](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/17/23, 12 p.m. CDT
Jamie Beckett

[Getting Started in Ultralights](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/17/23, 2 p.m. CDT
Timm Bopenhagen

[Pass Your Checkride \(Part 1 of 2\) – The Oral](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/17/23, 7 p.m. CDT
Larry Bothe

[Preparing to Attend a Flying Start Event](#)

Learn to Fly Week Webinar
5/18/23, 12 p.m. CDT
David Leiting

[Pass Your Checkride \(Part 2 of 2\) – The Practical Exam](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/18/23, 7 p.m. CDT
Larry Bothe

[FAA Medical Certification and You](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/19/23, 12 p.m. CDT
Tom Charpentier

[Conquer the Checkride: Strategies for a Successful Practical Test](#)

Qualifies for FAA WINGS credit
Learn to Fly Week Webinar
5/19/23, 2 p.m. CDT
Loren French

[ATC & You: Communicating with Confidence and Clarity](#)

Qualifies for FAA WINGS credit.
5/24/23, 7 p.m. CDT
Karoline Gorman and Wendy Smith

Upcoming Webinars

(continued)

Introduction to Hot Air Ballooning

Qualifies for FAA WINGS credit.

5/31/23, 7 p.m. CDT

Gary Brossett

Flying With AOA

Qualifies for FAA WINGS credit.

6/6/23, 7 p.m. CDT

Paul Dye

Mechanic Crisis

Qualifies for FAA WINGS and AMT credit.

6/7/23, 7 p.m. CDT

Mike Busch

The Thorp T-18

Museum Webinar Series

6/13/23, 7 p.m. CDT

Chris Henry

Tips for Flying Into EAA AirVenture 2023

Qualifies for FAA WINGS credit.

6/14/23, 7 p.m. CDT

Fred Stadler

How to Celebrate International Aerobatics Day

Qualifies for FAA WINGS credit.

6/20/23, 7 p.m. CDT

Gordon Penner

EAA AirVenture 2023 Features and Attractions

6/21/23, 7 p.m. CDT

Rick Larsen

International Aerobatics Day: What's It All About?

Qualifies for FAA WINGS credit.

6/22/23, 7 p.m. CDT

Patty Wagstaff

Ultralight/Homebuilt Rotorcraft Arrival Procedures - AirVenture 2023

Qualifies for FAA WINGS credit.

6/28/23, 7 p.m. CDT

Mark Spang

Cloudy With A Chance of PIREPs

Qualifies for FAA WINGS credit

11/08/23, 7 p.m. CST

Prof. H. Paul Shuch

These are the current webinars listed on eaa.org.

Please check the site at:

www.eaa.org/en/eeaa/news-and-publications/eeaa-webinars to see if there are other webinars available.

EAA 80 MONTHLY TREASURER REPORT		
Apr-23		
Opening Balance		\$13,316.93
DEPOSITS		
	Dues- Square	\$50.44
	Dues- Cash	\$200.00
	Dues Venmo	\$81.57
EXPENSES		
	Oak View Rent	\$150.00
	Ray Scholar	\$2,000.00
	Food & Drink	\$13.72
Ending Balance		\$11,485.22

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 or contact an officer to inquire about making a tax free donation.



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"/> 2023 <input type="checkbox"/> 2024 <input type="checkbox"/> 2025 <input type="checkbox"/> 2026 <input type="checkbox"/> 2027]		
PAYMENT DETAILS: TYPE:	<input type="text"/>	AMOUNT: <input type="text"/>	DATE: <input type="text"/>

MAIL CHECK TO:

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