



# ***THE SPORT FLYER***

## ***NEWSLETTER OF THE SHELBYVILLE EAA CHAPTER 1326***

|  |                           |                            |
|--|---------------------------|----------------------------|
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|  |                           | <i><b>August 2024</b></i>  |
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|  |                           | <i><b>Number 8</b></i>     |

**Ch-1326 Websites: <https://chapters.eaa.org/ea1326> or on Facebook  
<https://www.facebook.com/groups/1348130305678885/>**

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Chapter 1326 meets monthly on the Thursday preceding the Fourth Saturday of the month in the Shelbyville airport conference room at 1800 (or 6:00 PM, whichever you prefer.) Any changes of meeting date and venue will be announced in the newsletter or by text message.

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### **Kommandant's Korner: August 2024**

Dear EAA Chapter-1326 members and friends,

Well July and August have certainly been busy months, not just for us, but for the entire EAA and General Aviation community. The last full week of July was EAA AirVenture week at Oshkosh. Several of our local members (as well as some of our "Detachment" Project Police) were up there so hopefully we can get a first hand report over the next few months.

As you will read later in this issue, we had a good fly-in breakfast the end of the month despite the competition for folks by AirVenture and the summer thunderstorms that continued to roll through. We did manage to get four "Young Eagles" flown during the last month. Both Ch-1326 and some of the other local Middle TN Chapters have added some more Young Eagle qualified pilots to the roster over the summer, so hopefully with the "stability" of an active school year back in affect again, we should see some more Young Eagle and Eagle flights the remainder of the year.

In the mean time, be sure to come visit us at KSYI for our next fly in breakfast this coming

Saturday morning (August 24th). I hope to see you at the airport soon.



Randy Kelly  
President

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### **Last Month's Meeting**

Randy convened the meeting at 6:05PM. Members present were VP Tim Rosser, Treasurer Leigh Kelly, Mike Loehle, Mark Cannon, Brennan Lewellen. Present "virtually" were Sharon Tinkler, Evan Schaeffer, Det 1000 member Russ Erb. Member Lamont Taylor arrived after the start of the meeting.

**Old Business:** Randy noted that the June minutes were summarized in the July Newsletter that had gone out except for the financial figures which are recorded in the "official" June 20th, 2024 hard copy minutes. Tim Rosser moved to accept the minutes. Another member seconded and the group concurred. Leigh Kelly gave the treasurers report noting that by all estimates we had over 150 attendees at the June Fly-In breakfast.

**New Business:** Randy reviewed and confirmed the workers who said they would be available for

the breakfast setup Friday (26 July) morning and available to work breakfast Saturday (27 July) morning. Mark Cannon, Tim Rosser and Randy and Leigh would be doing setup. Lamont Taylor said he may be available for setup. For breakfast, the following people said they would be available, Tim Rosser, Mark Cannon, Helene Wharton, Sharon Tinkler, Diana Socher, Randy and Leigh Kelly, and Lamont Taylor. Tommy and Jo Anne Lynch had planned to be available but had encountered transportation problems beyond their control and would not be back till Saturday night, so Leigh took an action to make the potato casseroles. After reviewing the workers, Randy turned over the floor to Brennan Lewellen who presented a technical program on "Care and feeding of Rotax Engines". The technical program was recorded on WebEx and will be available for several months.



Randy Kelly  
Staff Editor

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### **2024 August Fly-In Breakfast**

Like many of our Summer breakfasts, the question of the week is "is everybody going to be around to help with breakfast?" I'd gotten a preliminary "headcount" of workers early during the week and we looked good. Thursday morning I got a text from Tommy and Jo Anne Lynch that their plane had gotten "downsized" causing them to get bumped and they were stuck in London and wouldn't be back till Saturday evening. This unexpected twist made finalizing who was on the setup and "breakfast" team one of the first pieces of "routine" business during the Thursday evening meeting. Fortunately, it looked like we had plenty of folks set up to cook and serve Saturday. We even had a couple volunteers from the Middle Tennessee State University's Alpha Eta Rho aviation fraternity on the work sheet. We were actually more concerned about visitors because this was the weekend of AirVenture 2024, we had a number of members in Oshkosh already and the weather was looking a bit "iffy".

Mark, Lamont and I converged at the field at the normal setup time Friday morning to move Mark's Warrior out and setup tables. With Tommy and Jo Anne still stuck in London, Leigh added potato casserole ingredients to her inventory and grocery list and planned to cook the potatoes that evening. We discovered a small problem with our meat slicer and I took the parts home to affect a repair.

Saturday morning the weather was looking "iffy" with a narrow dewpoint spread and about a 30% chance of rain. We had a bit of ground fog and some low stratus, but the sun was peeking over the horizon about the time I got to the field.



*Flagship Detroit greets the sun.*

I started the coffee pots and ovens and reinstalled the repaired part on the meat slicer. A few minutes later Leigh showed up and started baking the biscuits. A little after that the rest of the crew, Tim Rosser, Mark Cannon, Helene Wharton, Sharon Tinkler, Diana Socher and Landry Dupree from MTSU showed up. We started cooking a little after 07, just about the same time the first aircraft, an RV-8 showed up.



*RV-8 First arrival taxis behind Flagship Detroit.*

The RV-8 was followed a few minutes later by a Steen Skybolt. As the Skybolt taxied up to the EAA hangar we heard a turbine engine approaching and looked up to see a Hughes 500 Helicopter "taxi" in and settle in the fuel pit just

in front of the Skybolt. Having watched a light taildragger get blown around it's single chock earlier this year, I ran out and grabbed two pairs of chocks to chock both mains on the Skybolt and grabbed the tail. The Skybolt pilot thanked me for the help and in the mean time the Hughes pilot proceeded to begin a "hot fuel" operation. The pumps for some reason did not oblige the Hughes pilot so he shut the system down to go in search of technical help and we returned to start breakfast.



*A Steen Skybolt was the second to arrive!*



*An upside down "egg beater" showed up before the crowd to take on fuel.*

As the sun climbed higher in the sky it became apparent the weather wasn't as bad as we had feared and soon we had a slow but steady stream of aircraft showing up.



*Jon Fernandez marshals in a Grumman American Yankee.*

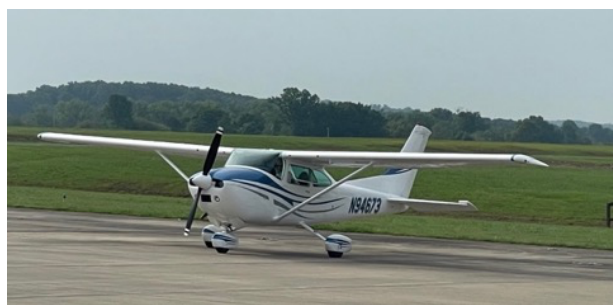


*Aviators gathering around the Skybolt before heading in to eat.*



*An old Champ finds a comfy place in the grass to park.*

We had the "normal" 08:00 rush and soon had folks at all the tables. It appeared that folks had other plans for the day and not long after a number of our guests had eaten, they headed back out to the flight line, cranked up and departed the fix. A small but steady stream of arrivals continued to roll in though to keep the marshalers and cooks busy. In between batches of pancakes I took some quick trips out to the flightline to check on arrivals and departures.



*A late and lonely Skylane out along the grass.*



*Late arriving RV-7A starts a new line.*





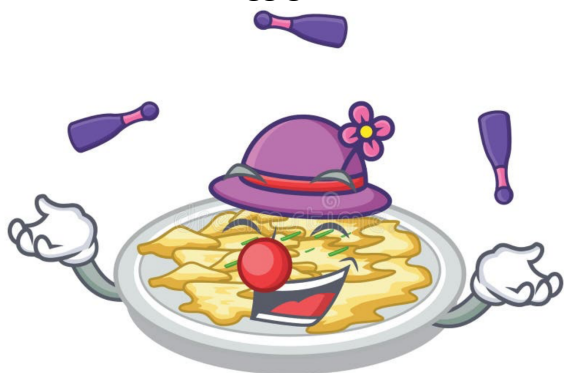
*The "second wave" of arrivals gets food.*



*Cessnas from the "second wave" take over the first row!*



*Helene clears Landry for supervised solo on the egg griddle.*



*The gyrocopter got lots of attention!*



*This nice looking Cub was one of the last visitors.*

Things had slowed down significantly by a little after 9:00AM and by 09:30 it was time for the final cleanup to begin. Cleanup went pretty smoothly with all our volunteers. Despite our concerns about the weather the day before it looks like we had a successful fly-in day with about 20-25 aircraft and about 50 participants.



**Randy Kelly**  
Staff Editor



## Technical Korner



**Evil Editor Zurg:** Those of you who follow the "Sport Flyer" are probably the inquisitive type. Lots of my subj - uh, I mean, friends, seem to be not only inquisitive, but also on the "geeky" side. I commented to my friend Buzz one day that I didn't understand why my speeder tended to roll level at small bank angles and he muttered something about the prominence of C-L-Beta (whatever the heck that is) over C-N-Beta. I was unholstering my disintegrator when he said "You know...dihedral effect." So simple - uh, maybe not. So for a little more understandable explanation, here's a short treatise written by a fellow EAA Newsletter Editor and guest writer, Scott Stormy Weathers.

## Straighten Up and Fly Right

A part of learning to be a pilot is figuring out when you are being lied to. You know your magnetic compass lies to you, but you learned how to adjust for that. The airspeed indicator lies, too. It doesn't indicate your groundspeed or even the speed of the air (nitrogen, oxygen, et al) molecules rushing past your airplane in flight. You have to adjust the indicated airspeed for temperature and altitude to get your true airspeed and account for the wind to determine the groundspeed. Well, that's what we had to do before they put that GPS gadget in the panel.

In some cases, the lie has less to do with what happens and more to do with why it happens. I would like to address just such an instance. The mathematicians define "dihedral" as an angle between two planes. Anyone in the aviation community uses the word "dihedral" to refer to the angle at which the wings are tilted up, either at the fuselage or somewhere along the span. As student pilots, we were told that the purpose of that "tilting up" was to give the airplane lateral stability. If the plane gets perturbed from wings level flight, it will tend to return to wings level - unless your back seater is pushing on the flight controls as he tries to reach his box lunch. All of

this is as true as it can be. The lie in this story came when you were told why that happens.

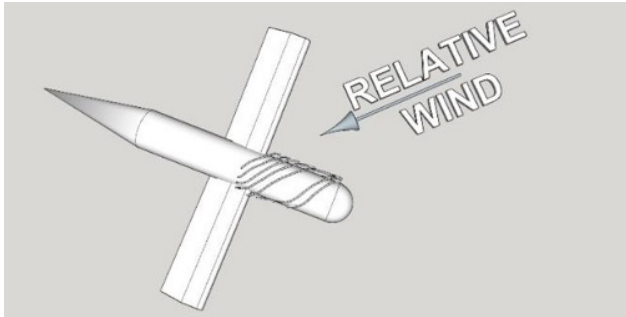
You may argue, "Why do I care? I understand how it behaves. That's all I need to know." If that is you, I can't refute your argument. Stop reading. Really, just stop. No one is watching. There will be no quiz. However, if you would like to further understand the phenomenon known as "dihedral effect," please keep reading.

First, let's bring the myth out into the daylight. Then, we can dispatch it to the underworld and further our understanding of what really happens. The myth goes like this: If the bank angle of the airplane is perturbed from wings level, then the lift vector of the lower wing is acting more vertically than the lift vector of the higher wing, and it rolls the aircraft toward wings level. In 1979, I was naive enough to raise my hand, pull the ring on the side of my neck, and recite the myth to my professor and classmates in my Aerospace Systems Design course at the University of Illinois. The professor looked at me and said, "Sum the moments."

Yes! Of course. The lift of each wing is providing a rolling moment about the longitudinal axis of the airplane. Gravity (or the local vertical) has nothing to do with that. If the lift is the same on both wings, there is nothing that would cause the plane to roll back to wings level. There must be something else going on. Indeed, there is, and it has to do with sideslip. When the plane is perturbed from wings level, gravity starts to pull the aircraft through the air sideways. If you had caused the roll with the ailerons, polished aviator that you are, you would have skillfully manipulated the rudder at the same time to keep the ball in the center and the slipping and skidding to a minimum. However, when nature throws the plane a bit off kilter, she is not so careful.

When the plane starts to slip toward the lower wing, it adds a lateral component to the relative wind. Therefore, the wind hitting the lower wing is at a slightly higher angle of attack (AoA) than the other wing. Now, with a difference in AoA there is a difference in lift between the two wings, and the result is a rolling moment that brings the airplane back to wings level flight. We call this

“dihedral effect.” However, it isn’t completely dependent on the dihedral angle of the wings.

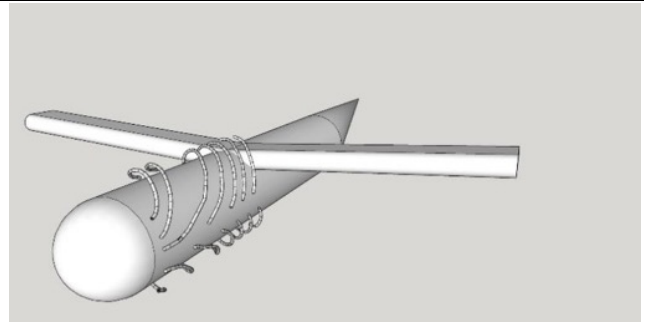


(SIDESLIP ANGLE EXAGGERATED FOR CLARITY)

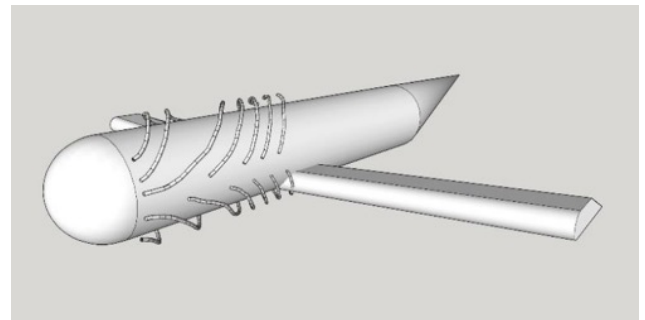
There are, after all, some planes with no built-in dihedral angle that still exhibit some stability due to the dihedral affect. It still has to do with sideslip and the effect on the angle of attack of each wing. Consider the OV-10 Bronco. That airplane looks like they used a giant yardstick for the spar. It’s as straight as it can be. Nevertheless, it has some lateral stability baked into the design.



Let’s look at what makes this happen. With no sideslip, the air flows down the sides of the fuselage. The flow on both sides is the same. However, when we introduce a bit of sideslip, the airflow must go around the fuselage to get from the upwind side to the downwind side, some over the top and some under the bottom. If the wing is connected to the fuselage in the middle, not the top or the bottom, there is no effect on the AoA of either wing. On the other hand, if the wing is attached to the top of the fuselage as it is on the OV-10 and the Cessna 172, then there is an effect on AoA. The air going up and over the fuselage hits the upwind wing, increasing the AoA near the fuselage. It has the opposite effect on the downwind wing, slightly decreasing the AoA in the region near the fuselage.



For airplanes with low wings, like the Cherokees and Mooneys of the world, the flow around the fuselage has the opposite effect. For this reason, the dihedral of the wing must be large enough to compensate for the destabilizing effect and still offer a positive dihedral effect. Have you ever noticed that low wing airplanes seem to have a lot more dihedral angle? Now you know why that is the case.



It is important, or at least interesting, to note that not all airplanes are designed and built with all that stability in mind. We want our training aircraft to be well behaved and forgiving to our ham-fisted students. On the other hand, we want fighter aircraft to be agile and responsive. When you are trying to roll the lift vector toward the surface-to-air missile that is screaming up toward you, you don’t want to have to overcome a lot of lateral stability before the aircraft starts to roll. A lot of fighter aircraft are a bit unstable in one or more axes. With modern fly-by-wire airplanes, we can put some of that stability back in the form of software in the flight control computers. Let’s look at a plane that predates all that fly-by-wire technology, the F-4 Phantom II. Despite the lack of automated flight controls, it was equipped with a Pitch Stability Augmentation System. There was no such system for lateral stability. In fact, the original design had no dihedral angle on the wings, even though the wings attach to the fuselage at the lowest possible position. What happened next, it’s hard to say. The rumor that floated around the F-4 community said that a fight

broke out between the aero guys and the structures team. It might have gone something like this.

Aero team: "We need two degrees of dihedral."

Structures: "Well, you should have thought of that before we designed the wing carry through box."

Aero: "But, it will be unstable! What good will your wing box be if the plane is uncontrollable?"

Structures: "OK. The Navy insisted that it have folding wings. You can have your precious dihedral at the pivot station."

Aero: "Fine! Give us four degrees."

The next time you have a chance to look at an F-4 up close, check out the dihedral angle at the wing fold and tell me you can't hear the slide rules hitting the table and imagine guys with crewcuts, white shirts, and skinny black ties glaring at one another. In the end, the dihedral effect on the F-4 was adequate. In fact, due to some other quirks that got baked into the design, the plane could not be rolled with the ailerons if there was any load on the wings. Nevertheless, pushing on the rudder provided sufficient roll authority. That was all due to dihedral effect.



Scott Weathers  
EAA Ch-661 Minister of Information

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### EAA Chapter 1326 Young Eagle Report



Well, between the weather daemons and folks summer schedules, there didn't seem to be any Young Eagles available during the decent flying days the last couple weeks. Unfortunately, sometime every year, we aircraft owners encounter that mandatory annual inspection known either as an "annual" or "condition inspection" depending on the category of our baby's airworthiness certificate. Lois is a production aircraft so after taking her for her last legal flight on July 31st, I handed her over to our

trusty EAA Tech Advisors working at Mack Air L.L.C. for her annual inspection. In the mean time we received another request from EAA Chapter 1326 member Lamont Taylor to fly a friend of his on a Young Eagle flight the upcoming weekend. I said I'd be happy to accommodate the request as long as said "Young Eagle" was willing to fly in a sailplane. Seeing as how our new soon to be Young Eagle had a fair amount of time in a powered aircraft, this seemed like a great opportunity to provide the YE with a "new" flight experience. So on the appointed day our new YE "Lincoln" showed up at Eagleville Soaring Club for his first REAL dead stick landing in an ASK-21.



*Lincoln wondering where the power lever is.*

Welcome Lincoln to both the world's largest logbook as well as the ranks of pilots who have landed with no engine.

The following week we had a request from a Japanese couple who are friends of one of our fellow EAA members to fly their 17 year old son Kai as a Young Eagle. When they showed up at "the appointed time" they asked if Kai's two younger brothers who had never been up in a small plane could go too. "No problem..." we said as we had plenty of Young Eagles forms. (Wow, that's 4 in a week, I guess we better order more.) With a little "rewickering" of the Eagleville Soaring Club glider schedule, we managed to get all 3 brothers flown in a couple hours. Welcome new Young Eagles Kai, Jin and Go.





*An old buzzard and 3 Young Eagles*

In other news, this last week we received word that two of our "Eagles" flyers had completed significant milestones. EAA Ch-1326 member and "Eagle Flyer" Lamont Taylor passed his Private Pilot Written exam. Also Eagle Flyer Bradley Eden has completed both his FAA Private Pilot written AND his Practical exam. Congratulations to both our Eagle Flyers.

## Project Police Aircraft Spotters Quiz



### Evil Editor Zurg

Last month's first Spotters Quiz was this interesting specimen spotted at a recent Ch-1326 fly in breakfast.



Several of our Project Police ventured guesses. One of our PPs ventured the comment "Yea, verily, I saw this last month, thought it was a bargain basement version of a Helio Courier. Its pilot told me the name and country of origin, from eastern Yurp somewhere, name had lots of right side consonants rarely used in this hemisphere." Another PP provided the correct answer of "UTVA-66" but he recused himself because he

used a Zurg prohibited source. Anyway, the UTVA-66 is a STOL aircraft, which was produced in the former Yugoslavia. It was developed from the UTVA-60 and first flew 1966. The aircraft has fixed leading edge slats (which is why our original thought was a Helio Courier). According to Wikipedia, the aircraft could be configured and flown as fixed gear, float or ski aircraft, and could also be configured to carry stretchers. Only 130 were produced and the last military versions were taken out of service in 1999.



OK, for our August 2024 quiz aircraft, I've selected this at first rather plain looking, but actually very unusual aircraft.



*Anti-gravity engines maybe??*

I may be evil, but I'm not without pity. Given this is an "unusual" aircraft I'm willing to give you some clues. First, I'll note that the body should look somewhat familiar to anybody with some familiarity of Vietnam War vintage aircraft, and second, that there is more than one correct answer. (That should be enough clues for you to get started. Heh, heh.) As usual, send your answer or best "edumacated guess" to Staff Editor Randy Kelly, at [electricrow@pobox.com](mailto:electricrow@pobox.com).



## Project Police Tales Wanted

EAA members OR aviation enthusiasts. Do you have an

interesting project you'd like to talk about or show us? Have you seen an interesting or unusual aircraft? Do you have an interesting maintenance or build story? Did you take a flight or ground trip to someplace you think your fellow aviators would like to visit? Snap some pics and write up a short report or make some notes to give to our staff writer Randy Kelly for inclusion into *The Sport Flyer*. We're not picky. *We don't care if you're from OUR EAA Chapter, some other EAA Chapter, or*



## THE SPORT FLYER

*just an aviation aficionado* – we'll publish your story anyway. IMPORTANT LEGAL NOTE - If you shoot pictures of minors at your event and they are easily recognizable, you need to let me know whether their parents or guardians give permission for us to use that image.

### Chapter 1326 Mission Statement

*The Mission of the Shelbyville Sport Flyers Club, EAA Chapter 1326 is to enhance the quality of aviation life for its members by providing information about aviation, flying, and mechanical/maintenance knowledge shared by fellow members, guest speakers and special events which respond to the expressed needs and desires of all members.*

### Chapter 1326 Calendar

**August 22<sup>nd</sup>, 2024;** Regular Thursday meeting, 6PM. KSYI airport.

**August 24<sup>th</sup>, 2024;** EAA Ch-1326 Fly-In Breakfast, 0730-0930, Sport Flyer Hangar, KSYI airport.

**September 22<sup>nd</sup>, 2024;** Regular Thursday meeting, 6PM. KSYI airport.

**September 24<sup>th</sup>, 2024;** EAA Ch-1326 Fly-In Breakfast, 0730-0930, Sport Flyer Hangar, KSYI airport.

*Special EAA Chapter 1326 Board of Directors Meetings are sometimes held on an unscheduled, as needed basis. If you need to be at one of those, you'll be notified by email or text.*

For a good summary of aviation related social and training events in Middle Tennessee, check out the website <https://www.socialflight.com/>

### CHAPTER 1326 ADMINISTRIVIA

**To join Chapter 1326, send your name, address, EAA number, and \$20/year club dues to: EAA Chapter 1326, 2828 Hwy 231 N. Shelbyville, TN 37160-7326, attn Leigh Kelly. NOTE: You must also be a member of EAA National (<https://www.eaa.org>, or call 1-800-843-3612, \$40/year National dues).**

Contact our officers by e-mail:

President Randy Kelly: [electricrow@pobox.com](mailto:electricrow@pobox.com)

Vice President: [timothy.rosser@mtsu.edu](mailto:timothy.rosser@mtsu.edu)

Secretary Sharon Tinkler: [tinkler@me.com](mailto:tinkler@me.com)

Treasurer Leigh Kelly: [leighkelly@pobox.com](mailto:leighkelly@pobox.com)

## EAA CHAPTER 1326 NEWSLETTER

Chapter Technical Assistants are EAA and/or other aviation technology enthusiasts who may or may NOT be a real expert in that area but are willing to share their knowledge and building expertise with other members who need some help (or just a sympathetic ear) while accomplishing their build. If you are able/willing to serve/help in this capacity, please contact Randy Kelly at [electricrow@pobox.com](mailto:electricrow@pobox.com).

| Composite Construction                                |  |  |
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| Wood Construction                                     |  |  |
| Brennan Lewellen                                      | <a href="mailto:blewellenvw@yahoo.com">blewellenvw@yahoo.com</a>   |  |
| Fabric Construction                                   |  |  |
| Brennan Lewellen                                      | <a href="mailto:blewellenvw@yahoo.com">blewellenvw@yahoo.com</a>   |  |
| Aluminum Sheet Metal Construction                     |  |  |
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| Electrical Systems                                    |  |  |
| Randy Kelly   | <a href="mailto:electricrow@pobox.com">electricrow@pobox.com</a>   |  |
| Instrumentation and avionics requirements for VFR/IFR |  |  |
| Jack Bosse  | <a href="mailto:Bossej3@gmail.com">Bossej3@gmail.com</a>           |  |

Inputs for the newsletter or any comments can be e-mailed to Randy Kelly at [electricrow@pobox.com](mailto:electricrow@pobox.com)

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***THE SPORT FLYER***

***EAA CHAPTER 1326 NEWSLETTER***

***C/O Randy Kelly***

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***Shelbyville, TN 37162-0767***

***<https://chapters.eaa.org/eaal326>***



**ADDRESS SERVICE REQUESTED**

***THIS MONTH'S HIGHLIGHTS:***

- Kommandant's Komments
- July Meeting notes
- July Fly-In breakfast report
- Technical Corner: Straighten up and fly right (Dihedral effect)
- Ch-1326 Young Eagles Report
- Evil Editor Zurg's Aircraft Spotter Quiz
- Monthly plea for "Project Police" participation for new stories