THE SPORT FLYER

NEWSLETTER OF THE SHELBYVILLE EAA CHAPTER 1326

President	*Randy Kelly*	*661-400-0203*
Vice-President	*Tim Rosser*	*570-751-3104*
Secretary	*Sharon Tinkler*	
Treasurer	*Leigh Kelly*	
Newsletter Editor/Writer	*Randy Kelly*	*661-400-0203*
Guest Editor	*EE Zurg*	*unlisted*

January 2024
Volume 21,
Number 1

Ch-1326 Website: https://chapters.eaa.org/eaa1326

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.

Kommandant's Korner: 2023-2024. "The GOOD, the BAD, and the UGLY (not necessarily in that order").

Dear EAA Chapter-1326 members and friends,

Welcome to 2024! After relatively pleasant weather in December, the Winter weather daemons have returned with a vengeance the last couple weeks. Over the last week and a half we've had high winds (up to 40 kts), sub-zero temperatures (down to -8 deg F), and about 6" of snow in Shelbyville. "Winterizing" has been the word of the month as we all turned on heaters and either drained water lines or set faucets to dripping to prevent damage in our homes and hangars. Lois the Skylane is in an unheated hangar but at least she's under shelter and she has a trickle charger to keep her battery topped. The "Experimental" engine heater that served me well out in the "high desert" keeps tripping the thermal breakers so until I build a new one or it warms up again to the 40s I'm probably not going to be flying Lois for a while. I'm not complaining - LAST year at this time Lois was sitting in a cold hangar, out of annual, and her logbooks were still hiding somewhere in the PODS with all our household goods from that same "high desert".

This last year was good flying wise as we found Lois's logbooks, got her annual current, and flew her at least a couple times a month. Although we didn't get any long cross countries flown, she did get to spend a weekend away from home and flew ten Young Eagles and one Eagle. The story of one Young Eagle's first introduction to aviation maintenance is later in this issue. Members of the Chapter conducted several museum visits, got one RV rebuilt and on the road to first flight, another RV "out of the jigs" and headed to a hangar for final assembly, and several members supported the activation and activities of an Aviation Explorer Post that is introducing new young adults to aviation. We also made new friends with students from Middle TN State University (MTSU) who helped provide manpower for our monthly breakfasts and went on some of our "tours".

2024 should be an exciting year for all of us once "Our Mr. Sun" convinces the cold weather daemons to move back North enough to keep us above freezing and we can start being active again. Our first Chapter meeting (even if it's only a staff meeting) is this Thursday January 25th, and our first fly-in breakfast (though it's currently looking like a drive-in or boat-in) is this Saturday January 27th. Our two RV (re)builders should

expect a visit from the Project Police sometime in the next few months. Our new pilot friends with aircraft access should be able to help us fly Young Eagles and Eagles, and we can expect future calls for help, lecturers and/or tours in support of the local Aviation Explorer Post. We hope to see you all at the field, at breakfast, or at/on one of our tour events.

Randy Kelly
EAA Ch-1326 President

Last Month's Meeting

There was no November meeting because the meeting day fell on Thanksgiving evening, and we knew everybody was going to be too stuffed with turkey to care. Some business still had to get done though so I'm going to use the newsletter to report that we've officially renewed our Chapter registration and insurance request with EAA National. There is still a question as to how our "volunteers" are covered by our event insurance, but everybody at EAA National has been Winter vacationing in "Cognito" for the last couple weeks, so I guess we'll figure that out early January.

Randy Kelly For Sharon Tinkler
Ch-1326 Secretary

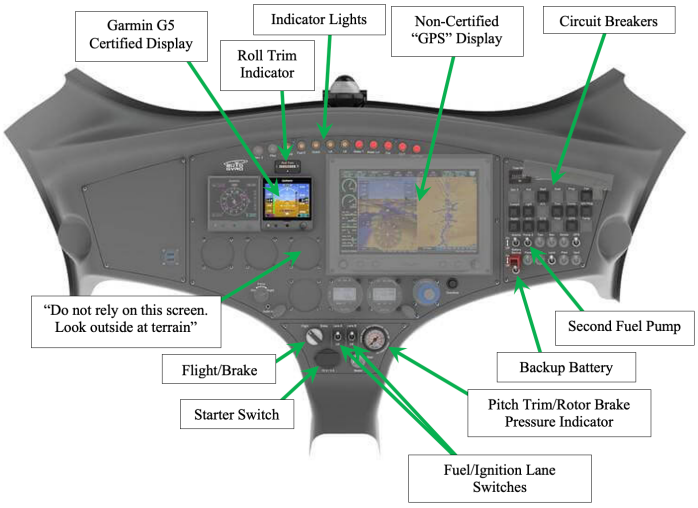
December 2023 EAA Ch-1326 Fly In Breakfast?

There was no December Fly-In breakfast, so hopefully you didn't show up at KSYI at 07:30AM the Saturday before Christmas Eve to discover the hangar was locked. Nobody from Shelbyville Airport has reported any strangers showing up asking about breakfast that day so hopefully you all were spending a pleasant holiday with family. This week we're currently starting our logistics planning for our regular "4th Saturday Fly-In Breakfast" currently scheduled for this coming Saturday January 27th and we hope to see all of you there to celebrate another year of aviation fellowship over coffee, pancakes and the "fixins".

Randy Kelly
EAA Ch-1326 President

Qualitative Evaluation of a Gyroplane; Part-2

Staff Editor note: This is the second and final installment of the gyrocopter "flight report" from my fellow USAF TPS instructor and EAA member Russ Erb chronicling his and another fellow TPS graduate and real "Test Pilot" Karl Major's visit to "Adventure Air" in Chino CA to fly an autogyro.



Cavalon Instrument Panel

The instrument panel in the Cavalon was similar to the one shown above. There were two major screens, a small Garmin G5 display and a larger Garmin display. Next to the larger display was an unusual placard, reading something like "Do not rely on this screen. Look outside at terrain". If I'm not supposed to rely on this screen, then why is it there? Apparently the small G5 is the certificated Primary Flight Display (PFD), and the presentations on the larger screen, including synthetic vision, are not certificated. However, the screen that I'm not supposed to rely

on has the only presentation of critical things, like rotor and engine RPM, as well as engine temperatures and other important engine data.

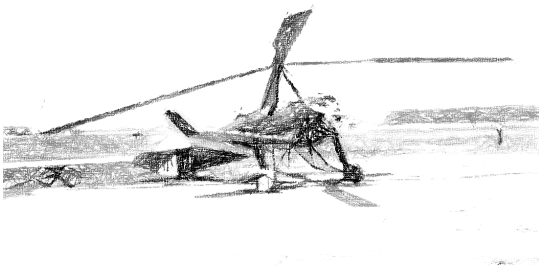
In this particular Cavalon, the screens were set up in an unusual fashion. Airspeed on the G5 display was shown in miles per hour, while the airspeed on the larger display was shown in knots. Personally, I was much happier with the knots display. (I would later find out that these displays were set up this way because the owner was trying to decide which units he preferred.)

AutoGyro MTOsport 2017

Karl chose to fly in the AutoGyro MTOsport 2017, which was a two-seat tandem open cockpit gyroplane. The front seat was considered the primary seat. Flight controls and throttle were provided in the rear seat with minimal instrumentation. Radio controls, such as for changing frequencies, were only available in the front seat. Because Chino Airport is a very busy towered field, Karl chose to fly in the rear seat and leave the radio manipulation to instructor Pete.

This example of the MTOsport 2017 was powered by a Rotax 9-series engine of lesser horsepower than the 915is, but I don't remember exactly which one.

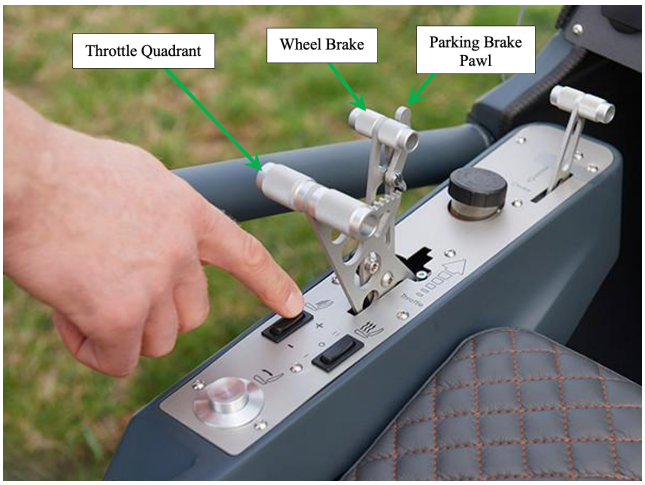
AutoGyro MTOsport 2017



Karl with Red MTOsport 2017

The rotor system, landing gear, and tail assembly were very similar to the Cavalon.

The throttle was located on the left sidewall of each cockpit. Mounted on the throttle lever was the Wheel Brake lever, which was actuated by pulling the wheel brake lever toward the throttle lever. A pawl was provided that could be placed in any of several notches to hold the wheel brake lever in place, providing parking brake functionality.



Throttle Quadrant and Wheel Brake

Startup and Taxi

A checklist was provided for startup, and was similar to most aircraft, especially those aircraft with a Rotax 9-series engine. One difference was confirming that the rotor control was in "Brake" and that the brake pneumatic pressure was at a minimum of 6 bars. With the rotor brake engaged, the stick must be full forward, and the rotor brake will not let you move the stick aft. The wheel parking brake was engaged before starting.

Rotax refers to each fuel injection/ignition system as a "lane". Lane 1 was turned on, the ECU computer ran a self-test on the system, and if everything was okay, turned on a white indicator light. This process was repeated for Lane 2. The electrically driven second fuel pump was turned on to ensure sufficient fuel flow for high power running, and then the starter was cranked. With electronic ignition and fuel injection, startup sounded much more like starting a car than starting an airplane. Because of the pusher prop, the actual start was monitored by listening rather than visually.

Taxiing began by releasing the parking brake. Idle thrust was sufficient for a reasonable taxi speed. Steering was by direct connection from the rudder pedals to the steerable nosewheel. The rudder pedals were pivoted at the bottom, much like gliders and the Bearhawk.

On my first opportunity to taxi, when I felt the need to slow down before a turn, my first response was to try the non-existent toe brakes. When that didn't work, I tried to reduce the throttle, which was already at the idle stop. Finally, I remembered to squeeze the brake lever into the throttle lever. Sufficient braking was possible with just finger pressure.

In the run-up area, there was no need to do a "mag check" as the Rotax 9-series engines don't have magnetos. Rotax states that if the white indicator light is illuminated, then that lane is functioning properly. If you really must turn one off and then the other, you can, but all you are really doing is turning the lane off and back on again, which requires waiting for another self-check.

Takeoff

Takeoff was nothing like a tricycle geared airplane, where you push the throttle to full power, steer, and wait to get to rotate speed. There were other things to do, similar to a taildragger takeoff where the tail is raised during the ground run. At a towered field, it may be good to alert the tower that you will need an additional 20 seconds or so on the runway to do the pre-rotation. While the pre-rotation can be done prior to taking the runway, there are issues with making turns on the ground with the rotor spinning (as in tipping over) that are best avoided for low-time pilots.

The pre-rotator was engaged by pressing a button on the stick under the thumb. The stick must be held full forward while pre-rotating whenever the rotor RPM is less than 200 RPM. Below 200 RPM the rotor does not have enough centrifugal force to stabilize it, and moving the stick can lead to excessive flapping, which will likely result in very expensive noises caused by mast bumping and the rotor striking the propeller, vertical tails, and possibly the ground.

For the takeoff (on the runway lined up for takeoff):

1. Move the rotor brake switch to "Flight" and confirm the brake pressure releases.
2. Engage the wheel Parking Brake or hold the brake lever.
3. Advance the throttle to 2000 RPM. Hold stick full forward and press the pre-rotator button. Hold this position until the rotor RPM exceeds 200 RPM. Add power if required to keep engine from bogging down.
4. In a smooth motion, release the pre-rotator button, pull the stick to the full aft stop, release the wheel brakes and advance the throttle to 3000 RPM. Steer with your feet.
5. As the rotor exceeds about 300 RPM, the nose wheel will rise off the runway. At this point, apply full throttle and lift off. Right rudder pedal will be required because of increased P-factor at high power and increased propeller angle of attack. Left stick will also be required.
6. Using the pitch stick, climb out around 60-65 KIAS. Trim as required using the coolie hat.

For shorter takeoffs, the pre-rotator is capable of spinning the rotor up to about 325 RPM, which can then be used for an almost immediate takeoff.

Cruise

In an airplane in cruise, we are used to flying what flight testers call a "front side" technique, where the pitch stick controls altitude and the throttle controls airspeed. If you try to fly a gyroplane this way, your brain will rapidly become confused, because nothing will seem to work right. Gyroplanes fly very naturally according to a "back side" technique, where the

pitch stick primarily controls airspeed and the throttle controls altitude. This is the same way we teach flying the glider. Pitch controls airspeed. In the pattern, the spoilers (acting in the same direction as a throttle) control descent rate.

To demonstrate this, we did a level deceleration by just slowly pulling back on the stick without touching the power. In an airplane this would cause a gain in altitude. The airspeed decreased, and the altitude remained unchanged.

As a glider pilot, I also felt right at home with the yaw string taped to the canopy. Worked just like in a glider.

In cruise flight, there was some shaking in the stick, but it was not objectionable. Because the stick is directly connected to the rotor, this could be caused by a large number of things. Clearly, if the rotor is unbalanced, its vibration relative to the fuselage could result in shaking in the stick. However, an unbalanced propeller could vibrate the fuselage relative to the rotor, which could also result in shaking in the stick. Even slop in the control system, such as worn bearings, could result in shaking in the stick. It can be a maintenance challenge to keep the shaking down to an acceptable level.

The rotor RPM may get as high as 450 RPM in cruise flight, and possibly more. A bit of recreational maths can tell us the tip speed. A rotor diameter of 28.6 feet gives a radius of 14.3 feet. 450 RPM multiplied by 2π/revolution and divided by 60 seconds per minute gives an angular velocity of 47.12 radians/second. Multiplying this by the rotor radius gives a tip speed of 674 feet/second, or 399 knots. At sea level, standard day, that gives a tip Mach number of 0.60, still well below transonic. With a maximum airspeed of 104 knots, the rotor appears to still be far away from retreating blade stall.

Because of the flexibility of the rotor, the effect of turbulence on the occupants is greatly reduced. Turbulence mostly flexes the rotor blades, and little of that acceleration is passed on to the fuselage.

Maneuvers

For maneuver practice, we proceeded west about 7.5 nautical miles to a location that Adventure Air refers to as "Happy Valley". I was told that this was a large area of privately held land with an owner that has turned down all offers to buy up his land and "develop" it. This is very convenient for Adventure Air, as it provides a location for practicing maneuvers and low level flight without annoying homeowners who are less than impressed with gyroplanes.

Gyroplanes cannot stall like an airplane, which was exactly what Cierva was going for when he invented the Autogiro. This leads to some interesting capabilities. For instance, you can pull the throttle to idle and bring the stick back until reaching zero indicated airspeed. Of course, at this point the gyroplane is descending at about 1500 feet per minute. To recover, the nose is lowered by pushing the stick forward to gain airspeed (using gravity as thrust) and the throttle is advanced to regain altitude.

Pivot turns could also be accomplished by reducing the throttle and bringing the stick back to slow down. At about 30 knots indicated, left stick was used to bank 5 to 10 degrees left, then a large boot of left rudder spun the nose to the left. Stopping the pivot after 180 degrees of turn was easily managed by centering the rudder. Recovery was by lowering the nose and applying power. This impressive maneuver could be used to turn around in a box canyon, or after losing power on initial climbout, thus making the "impossible turn" possible. Left rudder was used to take advantage of the left turning tendency from P-factor. Continued application of full left rudder simply made the gyroplane fuselage spin around within its own footprint, presumably losing altitude at the same time.

Traditional steep turns by banking and pulling yielded a very small turn radius because of the low true airspeed. We exploited the inability to stall, the tight turn radius, and the large power available to fly about 100 feet above and around some small ridges. It felt like we were flying through the Fulda Gap on our way to stop the godless Commies!

Pattern and Landing

At Chino, gyroplanes essentially follow the fixed wing pattern. With a pattern airspeed around 60-65 knots, it is easy to mix with the airplanes.

I found downwind, base, and final to be very much like a glider pattern. At the perch (abeam the numbers), I maintained my airspeed using the pitch stick. I retarded the throttle (much like deploying spoilers) until I saw the descent angle I wanted. Turns from downwind to base and from

base to final felt very natural and similar to glider turns.

The flare was at a similar sight picture to a glider flare, around 2 to 5 feet above the runway. Power was pulled to idle to allow the gyro to lose altitude. Because the power was reduced, the P-factor decreased, which required less right rudder pedal or possibly even some left rudder pedal to keep the nose straight. The pitch stick was slowly pulled back to maintain altitude. Once the pitch angle was slightly above the horizon, the main wheels were allowed to sink to the runway. The pitch stick continued to come back until reaching full aft, holding the nosewheel off the runway as long as possible. When the nosewheel finally came down, ground speed was about that of a walk. The phrase was to "hold the nosewheel off as long as possible". I don't think the issue was wearing out the nose wheel. It was merely a convenient indicator to keep the rotor back in an aerobraking position to slow the craft down.

To take off again, check that the rotor RPM is still above 200 RPM. At this point, it was usually still above 300 RPM. Hold the pitch stick full aft, advance the power and apply right rudder pedal. Takeoff as described before.

We asked about wind limits. We were told that the POH states 40 knots (!) of wind, but that wind wasn't as big of an issue for gyroplanes as with airplanes. As for headwind, more wind just slows down your ground speed at touchdown. As for crosswind, with such low landing speeds, a gyro can generally point into the wind and easily land across the runway. With no wing, there was little to no dihedral effect, so any issues with maintaining lateral control were greatly reduced.

Also demonstrated was a "vertical approach" where the gyroplane was slowed to almost zero airspeed just short of the numbers, descending vertically toward the runway. At an altitude of a few hundred feet, the nose was lowered to accelerate to about 60 knots and a normal landing was made.

After Landing

After a full stop landing, the pitch stick was moved full forward and the rotor brake switch was set to "Brake". Pneumatic pressure was applied by pulling down ("aft") on the coolie hat until indicating more than 6 bar of pressure. The rotor will brake to a stop in about 60 seconds.

Gentle taxi turns can be made to exit the runway. Aggressive turns with the rotor still spinning can cause the gyroplane to tip over or the rotor to hit things it shouldn't.

The preferred position for a stopped rotor was directly fore-aft. If the rotor stopped in some other position, a button marked "Overdrive" could be pressed until the rotor was in the proper position. This button engaged the pre-rotator to turn the rotor, even with the brake applied.

With the brake applied, the rotor could still be turned slowly by hand as needed for parking.

The Cost

Like any other type of aircraft, flying isn't cheap, especially when renting someone else's certificated aircraft. In this case, we flew for 1.0 hours at a rate of $269/hour, which included wet gyroplane rental with an instructor.

Upgrade Path

14 CFR Part 61 lays out the requirements for a gyroplane rating at the private and commercial pilot certificate level. Also available is a Sport Pilot rating for gyroplane, which will allow you to fly as Pilot In Command of a gyroplane with the least amount of required training, though there will be limitations on what you can do. For an initial Sport Pilot gyroplane rating, you will need 15 hours of instructional flight, 5 hours of solo flight, pass an FAA Knowledge Test, and pass a practical exam with a different flight instructor than gave you the training. Much of this time is intended to teach you basic airmanship skills that all pilots require.

However, adding on a Sport Pilot Gyroplane rating becomes very attractive if you already have some form of pilot certificate. By the Sport Pilot rule, all I have to do is to fly with an instructor just long enough to attain proficiency in flying a gyroplane. Then I fly with another instructor to demonstrate that proficiency. If the second instructor is satisfied, then he will make an endorsement that will grant me Sport Pilot Gyroplane privileges. And you thought the Sport Pilot rule would never be of any benefit to you.

Interestingly enough, the same procedure can be used to add a Sport Pilot Instructor Gyroplane on to my Instructor certificate.

YouTube Videos!

I encourage you to visit Adventure Air in Chino or some other gyroplane flight school near you and try it out yourself. In the meantime, Henry Boger has a YouTube channel called "Adventure Air" (clever, huh?) that you can check out to see what I have been talking about.

Some recommended videos:

Unbelievable! & Mind-Blowing Skills of a Gyroplane
https://youtu.be/Fjb18_UidqY?si=A0IJyaKlWtKbHmRq

Safety First: Common Gyroplane Flight Errors
https://youtu.be/qTQYwRE6Ph4?si=O6PEJF-jk6UABnfS

Gyroplane 101: Answering FAQs
https://youtu.be/2w4EkAjVK-I?si=4qejUeeFjR4y3mTo

And if you want to see what is involved in trying to minimize stick shaking:

Eliminating Stick Shake: Balancing the Prop and Rotor Part 1
https://youtu.be/dqbeoNI7GMc?si=ggvoi92JWagJ2n-E

- **Russ Erb,** with help from **Karl Major**


Russ Erb

Maintenance Korner: A Young Eagles Ride Goes Haywire, or "Bad boy, bad magneto. shame on you!", OR "Aircraft Magnetos 100".

This is a not so short tale of a failed Young Eagles flight a few months ago that turned out to be a good lesson for a Young Eagle after all.

Some of you may recall some comments in the last year that members of EAA Ch-1326 were hoping to help establish an Aviation Explorer Post in Shelbyville. While that's NOT the subject of this article, it is related because one of the ways Ch-1326 volunteered to help was to provide EAA Young Eagles rides to young adults who may be interested in becoming pilots as an incentive to join the new Aviation Explorer Post. The very first ride of one of these Shelbyville Young Eagles ended up being more of a lesson than we had originally anticipated. After strapping the Young Eagle into the front seat of Lois and his Dad in the back seat, I turned the checklist reading duties over to the Young Eagle so he would get a chance to see how flying an airplane was a whole lot more involved than riding in a car. Everything went well up to the magneto check during the Before Takeoff Checklist. When I switched to the right magneto the engine completely lost ignition. No roughness, no sputtering, just DEAD. "Darn it" I thought, "so much for this Young Eagle flight!" I explained to the Young Eagle and his Dad that their much anticipated flight wasn't happening today.

Dad asks "What is wrong?"

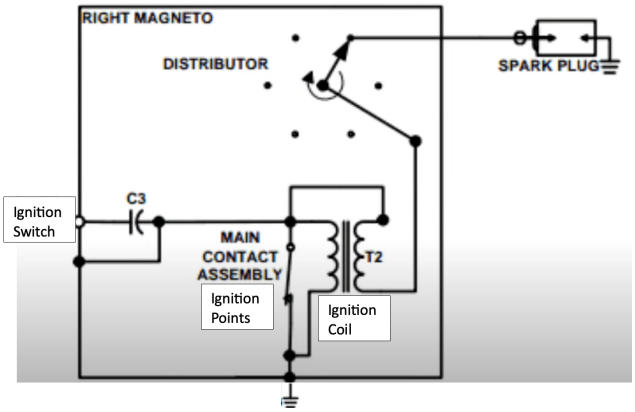
"We have a dead magneto." I replied. "We have two, so losing one is not a problem, but if we're down to one, we have no 'spare', so it's time to call it quits for the day. This is not a big deal, but until we fix it, I'm not going to takeoff."

"A magneto?" Dad queried again.

"Yes. We use magnetos, just like are in your lawn mower or your tractor." Dad looked a little puzzled as to why an airplane used the same technology as his lawn mower, but he didn't ask any more questions.

After I shut the airplane down and was walking them back into the Shelbyville terminal I was bemoaning the fact that I hadn't been able to provide the introduction of flight operations to my Young Eagle, then suddenly realized I actually HAD provided a valuable lesson on aviation checklist discipline and aviation decision making. I also figured this would make a pretty decent article for our EAA newsletter as I suspect some of our readers don't really know how an aircraft magneto ignition works, or may get questions from inquisitive passengers during their pre-takeoff checklist.

OK, so for the sake of being able to answer any "Mag" queries from your non-general aviation savvy friends, let's talk a little bit about magnetos. First, here's a simplified diagram of an ignition circuit, courtesy of Visual Flight Academy's Ignition Systems Principles YouTube video.

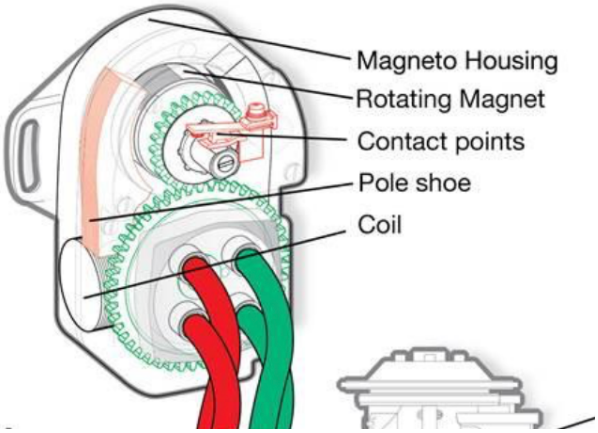


Classic Ignition System

Magnetos are an over 100 year old technology used in both small and large engines to provide an ignition spark. Up until the widespread use of electronic ignition systems in our cars in the late 70s and 80s, the magneto ignitions in our gas aircraft engines were essentially the same as the ignition in our cars EXCEPT that the power to "excite" the ignition coil/transformer was provided by a rotating magnet/generator (magnet-o) instead of the battery. In both those old car ignitions and in aircraft engines, the duration and timing of the ignition pulse was controlled by a set of ignition points. When the points were closed it allowed electrical power to establish a magnetic field in the primary coil of the ignition. When the points opened, the magnetic field in the coil would collapse rapidly causing a large voltage spike across the secondary coil which was fed to the appropriate spark plug by the distributor. (Note: For those of you with a knowledge of calculus, the voltage across the secondary coil, which is an inductor, is E, where E = L * di/dt. So when the points open and try to drop the current through the primary coil to zero instantaneously, then di/dt is a BIG number, meaning the voltage across the coil is a BIG number which will arc across the spark plug gap easily, or knock you halfway across the hangar if you happen to be holding a leaky ignition wire. (Trust me. Any experienced auto or aircraft mechanic will validate that claim.)

Wow, that certainly sounds dangerous, so why would we use such a technology? Well, frankly it is a very simple system, it's very durable, it doesn't require any external power to operate, and there's not a whole lot that can go wrong so the probability of TWO of these operating in parallel failing at the same time is very remote. (When the ignition quits in your car you can simply pull over to the side of the road. Not so in an airplane.)

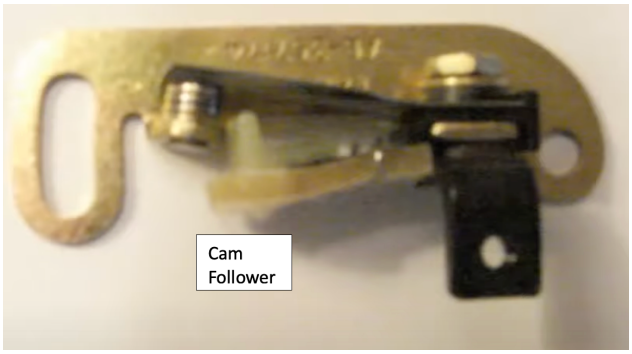
All that simplicity aside, there are some moving parts involved, and anytime there are moving parts, there is "wear" which can cause things to not work like they are supposed to. Next let's refer to another simple graphic I pulled from an AOPA.org website article on magnetos by Julie Walker. The illustration is by Steve Karp. (https://www.aopa.org/news-and-media/all-news/2019/december/flight-training-magazine/how-it-works-magneto)



A "visible Magneto"

This graphic by Steve shows the basic "form factor" of all those parts from the previous illustration except for the ignition switch and the spark plugs. There is a drive shaft in the back of this housing that is coupled by either gears or a chain to the crankshaft in the engine, so when the engine is turning, all the rotating pieces in the magneto are turning too. The "Rotating Magnet" is the magnet that creates a changing magnetic field in the "Pole shoe" that is used to generate voltage used to energize the primary winding of the coil. The "Contact points" have a "Cam Follower" that rides on the top of the magneto's internal camshaft that rotates with the magnet. (Note: There is an additional gizmo not shown in

this illustration called an "impulse coupler" that makes the magnet speed up to increase the generated voltage. I'm not going to go into detail on that here, but suffice it to say that when you turn your propellor by hand and you hear a loud "click" near the top of the power stroke of each cylinder, that is the sound of the "impulse coupler".) The "cam follower" is one of the mechanical wear points that need to be checked every so many hundred hours.



As the "cam follower" wears, the points don't open up as much and when they wear too much, the points never open. When the points don't open, the change in current through the coil is too slow to generate sufficient voltage to arc across the plug gaps, and that magneto is now essentially dead. So, one of the things your mechanic (or YOU if you do your own "condition inspection") will have to figure out is how often you wish to check the magneto's point's gap for your engine. Unfortunately, although I've had my mechanic check the points timing every annual, we haven't always checked the gaps and didn't note the "gap check" in the maintenance logs. However, according one of our EAA Chapter tech experts, Brennan Lewellen, the average time for the cams to wear enough for replacement is about 500 hours, but they can get dirty and/or need to be dressed anywhere between 200 and that 500 hour point.

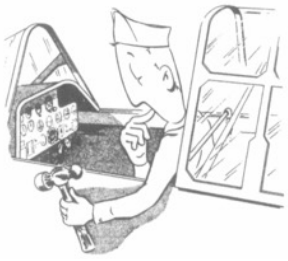
For those of you who want to know more about aircraft magnetos, here is an excellent video explaining how the magneto works: https://youtu.be/9dVy5tf_V90

So back to this specific incident. After apologizing to our Young Eagle and his Dad and promising them a ride later, I started Lois the Skylane back up (it only takes 1 magneto), taxied her back to her hangar and gave Brennan Lewellen over at Mack Air LLC a call. The next day, Brennan taxied Lois over to Mack Air where Brennan, Dakota Simpson (our ex-Viper mechanic) and Jack Bosse started debugging.

Jack pulls the right mag.

After some preliminary debug with a magneto timing tool to narrow down the problem they decided to pull the right mag to make it easier to work on.

Brennan puts on his serious "debugging" face.



Fortunately, it looked like the big problem was just closed points, so they cleaned and re-gapped the points. They were also concerned about the connector on the magneto ground wire to the right mag (it's only 55 years old), so they spliced on a new end to the grounding wire.

Dakota gives Lois a new pigtail.

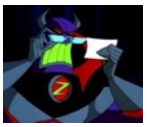
After putting everything back together, Brennan and I started up Lois and she ran fine so we returned her to flying status, and several weeks later I was able to reschedule and fly our Young Eagle. Thanks guys and Dakota. 😄

Lois all ready to go fly Young Eagles again. 🤗

Randy Kelly
Staff Editor

(EEZ note. See my comments in the next article.)

Project Police Aircraft Spotters (and Maintenance) Quiz



Evil Editor Zurg

Last month's first Spotter's Quiz was a "double-header". The first aircraft was taken from an aircraft quiz courtesy of our friends at the National Headquarters of the Alpha Eta Rho professional aviation fraternity.

We had two Ch-1326 Project Police who wished to remain "anonymous" but correctly identified the bird as a Dassault M Rafale. The Rafale is a twin-engined, canarded, delta-winged fighter. The Although limited to Mach 1.8, the Rafale can "supercruise" up to Mach 1.4 with a significant weapons payload. ("Supercruise" means the aircraft can cruise supersonically without needing afterburners. Not needing afterburners during supersonic cruise GREATLY reduces fuel consumption.) The Rafale is used primarily by the French Air and Space forces but export versions are also flown by the Egyptian and Indian Air Forces.

Our second entry was an aircraft that staff editor/photographer Randy saw our November fly-in breakfast. There was an additional question for this entry, namely, "did anything appear unusual" with this aircraft?

Again, two of our Project Police responded correctly claiming it was a Bearhawk. Actually, it was a bit of a trick question depending on how closely you looked. The Bearhawk LSA doesn't have flaps whereas the Patrol does, which is difficult to tell from the photo. One of our Project Police remembered seeing this aircraft in our February 2023 newsletter where we identified it as a Bearhawk Patrol. Oddly enough, nobody answered the "additional question". Look carefully at the strut fairing where it attaches to the fuselage above the left gear aft strut.

OK, now HERE is your quiz for January 2024. This is going to be another "double-header", but I'm going to add another category to make things more interesting. First I'm issuing my standard "Aircraft Spotters" quiz item. This is the easy one. So what is this aircraft?

OK, now here's the tough one. It's NOT an aircraft identification problem, but a general aviation maintenance knowledge question. In Staff Writer Randy's earlier article about magnetos, he opined to me the accuracy of one of the pieces of support information he found to use for the draft article. We consulted our chapter tech experts to discover Randy's explanation of how an aircraft magneto works was sound but as he opined, there WAS an error in one of the pieces of support information he pulled from that great big "Bit Bucket" in the ether (the internet). Soo - my additional challenge for you intrepid readers is, "what is the erroneous piece of information in Staff Writer Randy's article". For this challenge I'm going to give you a big clue. Randy has a degree in electrical engineering, so something associated with actual circuits would probably catch his attention.

As usual, send your answer or best "edumacated guess" to Staff Editor Randy Kelly, at 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 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

January 25th, 2023; Regular Thursday meeting, 6PM. Location KSYI airport conference room.
January 27th, 2023; EAA Ch-1326 Fly-In Breakfast, 0730-0930, Sport Flyer Hangar, KSYI airport.

February 22nd, 2023; Regular Thursday meeting, 6PM. Location TBD.
February 24th, 2023; 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
Vice President: timothy.rosser@mtsu.edu
Secretary Sharon Tinkler: tinkler@me.com
Treasurer Leigh Kelly: leighkelly@pobox.com

EAA Chapter 1326 Technical Assistants

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.

Composite Construction		
Jack Bosse	Bossej3@gmail.com	
Wood Construction		
Brennan Lewellen	blewellenvw@yahoo.com	
Fabric Construction		
Brennan Lewellen	blewellenvw@yahoo.com	
Aluminum Sheet Metal Construction		
Kenneth Rutschow	Ken.rutschow@gmail.com	
Brennan Lewellen	blewellenvw@yahoo.com	
Jack Bosse	Bossej3@gmail.com	
Welding/Welded Steel Tube Construction		
Brennan Lewellen	blewellenvw@yahoo.com	
Engine Installation		
TBD		
Certificated Engines		
Kenneth Rutschow	Ken.rutschow@gmail.com	
Brennan Lewellen	blewellenvw@yahoo.com	
Jack Bosse (+ROTAX)	Bossej3@gmail.com	
Electrical Systems		
Randy Kelly	electricrow@pobox.com	
Instrumentation and avionics requirements for VFR/IFR		
Jack Bosse	Bossej3@gmail.com	

Inputs for the newsletter or any comments can be e-mailed to Randy Kelly at electricrow@pobox.com

---

*From the **Project Police** legal section: As you probably suspected, contents of The Sport Flyer are the viewpoints of the authors. No claim is made and no liability is assumed, expressed or implied as to the technical accuracy or safety of the material presented. The viewpoints expressed are not necessarily those of Chapter 1326 or the Experimental Aircraft Association. **Project Police** reports are generally printed as they are received in the next "convenient" issue, with no attempt made to determine if they contain the standard aviator caveat of at least 10% truth. Please remember that any individually recognizable images of minor persons submitted for an article will be "blurred" unless we have permission from their parent or guardian. So there!*

THE SPORT FLYER

EAA CHAPTER 1326 NEWSLETTER
C/O Randy Kelly
PO Box 767
Shelbyville, TN 37162-0767
https://chapters.eaa.org/eaa1326

ADDRESS SERVICE REQUESTED

THIS MONTH'S HIGHLIGHTS:

- Kommandant's Komments
- December non-meeting notes
- December Fly-in Breakfast
- Gyroplane Qual Eval: Part 2
- Maintenance Korner: Magnetos 100
- Evil Editor Zurg's Aircraft Spotter (and Maintenance) Quiz
- Monthly plea for "Project Police" participation for new stories