

#### Club Meetings

Board Of Trustees:  
4/1/21  
General Membership:  
4/17/21 Saturday



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Dear Members,

*2021 has already been a year of challenges and changes for the club. One of those changes you may have noticed was the Board's appointment of Nick Billows as club Treasurer effective 4/1/21. Nick will be replacing Tom Smock in this position. After 11 long years of dedicated service to the club, Tom expressed to the Board last August his desire to step down.*



*The club has seen tremendous growth over the last 11 years and with that growth came significant financial challenges. Over these years Tom was instrumental in helping the club manage them. Accounting, record keeping, invoice management, dealing with suppliers and vendors along with numerous other responsibilities, Tom always handled them extremely well and professionally.*

*I believe I speak for the entire club when I say, Thank you Tom. All the best.*

Joe

#### Eddy Current Testing by Charles Burke

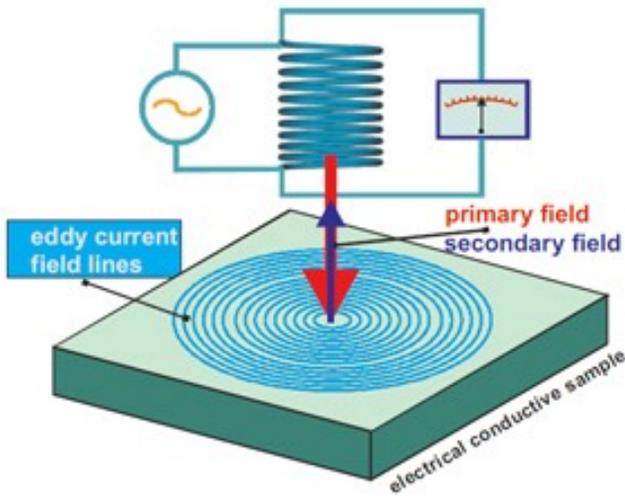
Testing for internal fractures or stress faults in a metal is essential because they can lead to a catastrophic failure especially in an aircraft. One way to detect such faults is a non-destructive system called Eddy Current Testing. This system was recently employed on one of our aircraft after the FAA mandated that an inspection be carried out because of problems with the landing gear. But what is Eddy Current Testing? The best analogy is to take a bowl of water, put a drop of food dye in it then run you finger through it. You will see that behind the finger, swirls are created and these are eddy currents. But using food dye on an aircraft will do you no good other than possibly staining your finger.

The history of this testing system is a long one that dates back to when electricity was first being studied. One experiment revealed that when an electrical current is passed through a coil of wire, a magnetic field is created around it. You may have made one of these yourself by taking a long piece of insulated wire and wrapped it around a nail then attached the ends to a battery (DC-Direct current) This simple electromagnet would then pick up paperclips or small tacks.

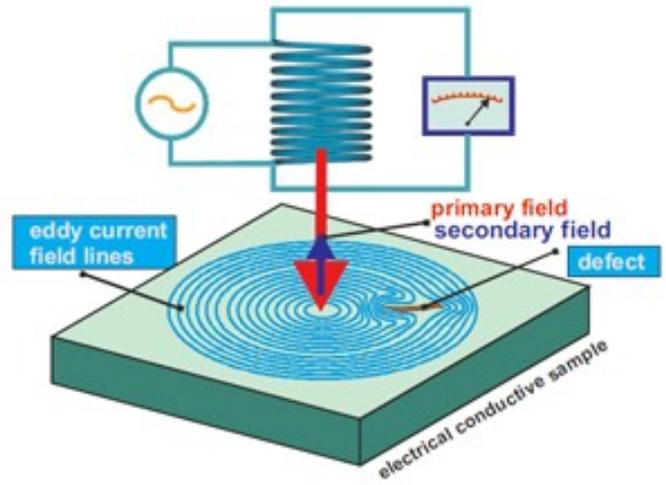
But in this case, we are using AC (Alternating current) which means the electricity keeps changing direction back and forth. This is what you have coming out of your electrical outlets in your house and it changes direction 60 times a second. By the way, this is super slow! In certain applications such as your microwave oven, the changing of direction takes place around 2.45 gigahertz (GHz) This changing of direction will have an effect on the magnetic field created in the coil by making it also expand and contract at the same rate. From this point on we venture into some deep physics. but will keep it super simple here. For the sake of our study, the magnetic field grows, stops, changes direction then repeats this over and over again. But what makes this valuable is that if a piece of metal, that can be magnetized, is brought into this changing magnetic field, it creates an electrical current in that metal which runs in the opposite direction from that which created it.

And here is where Eddy Current Testing comes in. If there are cracks in the metal or other defects, it causes a change in the current of the initial magnetic field and this indicates you have a problem. Your test instrument will then show that there is a change from what the reading should be indicating something is wrong and the part needs to be replaced.

This is all there really is to the story but I cannot leave without pointing out something that many people do not realize, magnetism and electricity are like the two sides of a coin. They may look different but that are actually the same thing. What you see just depends on how you chose to look at it.



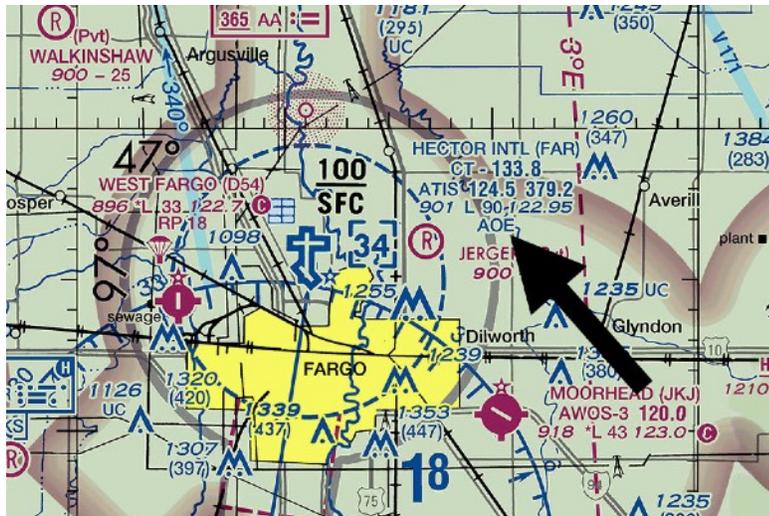
Coil on a defect-free sample



Coil on a sample with a defect

**VFR Trivia** by Navin Ohri CFI

Question: What does AOE mean?



**Be an Aviation Merit Badge Counselor!** by Charles Burke



One of the most rewarding experiences of being a pilot comes when you share your passion for flight with others, especially young people. In my case, this has been a lifelong enterprise as an educator initially working with high school students. But the latest involvement came about because of my grandson when he crossed over from being a Cub Scout to the status of a Boy Scout and began working on Merit Badges. Wishing to support his efforts, one thing led to another and I ended up as a Boy Scout Adult Volunteer and a Merit Badge Counselor.

In sharing this story with a few other MAFC members, some inquired if they could also follow a similar path and share not only their aviation knowledge but also information related to their own career specialties. This, in turn, led to developing a step by step guide for members who might be interested in becoming a Boy Scout Merit Badge Counselor.

While simply providing a step by step guide to those who wish to explore this idea would provide all that is needed, I can also offer assistance with the study materials in the form of a complete Powerpoint Aviation Merit Badge program as well as a few sub topics such as weather and Weight & Balance. There are also some demonstration items and loads of materials to help explain concepts.

But what if you simply would like to have copies of any of these materials just described for use with your own children or other family members? Once again, you are welcome to it all.

If this sounds like something you might be interested in doing or, just want more information, contact Charles Burke at [tvacable@verizon.net](mailto:tvacable@verizon.net).



**Spotlight on: Tom Beyer**



I first became involved with aviation in 2011, in high school, when I joined the OCVTS Aviation and Aerospace Technology program. My Vo-Tech instructor, Mark Lamb, inspired me to take interest in airplanes; both flying and fixing them. He took our class on introduction flights at Robbinsville Airport, and it was a life-changing experience. Mark also helped me secure an internship as an apprentice mechanic at First in Flight repair station at Monmouth Executive. I actually worked on some of the club aircraft there, and that's how I learned about MAFC. I joined the club in 2013 and learned to fly here at N12! I completed most of my PPL training with Janis in the 152's, but I have some time in the Robbinsville Air-Mods Warriors too. I now have about 95 hours under my belt. I've also flown the 172, Piper Seminole and Archer, and Cirrus SR-20. I've sat right-seat in an R44, Bell 206, T-34 Navy Trainer, and Gulfstream G550 for a bit.

The certifications I hold are Private Pilot SEL, A&P Mechanic, and Remote Pilot- small UAS. I'm putting a pause on my instrument flight training so I can study for my Inspection

Authorization (IA). I also have my bachelor's degree in Unmanned Aircraft Systems with a minor in Aviation Safety from Embry-Riddle. I was born in Somerville, NJ and grew up in Jackson with my family. Life before aviation was pretty "grounded". While training for my PPL, I was able to travel the country as I worked, preparing Customs and Border Protection documents for Saudi MedEvac flights. After I received my A&P and PPL in 2016, I moved to Florida for 3 years to go to school and gain experience. Returning to Jersey and finding work at Piedmont Airlines in PHL as a line maintenance technician helped me learn about turbine aircraft and larger, more complex systems. Unfortunately, Covid-19 made its way to the U.S. and I quarantined in Maine with my girlfriend. Luckily I found work at a corporate jet repair station throughout the summer in Bangor. Currently I'm a lead A&P at Infinity Flight Group in Trenton and somehow I'm still not tired of being around these tin cans! Other than airplanes, I enjoy playing soccer, traveling, hiking, and going to concerts. I'm looking forward to the warmth of summer

**A Song About Aviation: Come Fly With Me Josephine**



[www.youtube.com/watch?v=uc3KJBoozx4](https://www.youtube.com/watch?v=uc3KJBoozx4)

One Cylinder Down and Three to Go: By Israel Plonthak

As my check-ride date approached, things hit a minor unsettling bump in the road. A week before the test, I encountered an in-flight vacuum leak. But fortunately it turned out that this was nothing to what would unfold later.

After a week and half of practice flights, and check-rides cancellations due to aircraft maintenance and weather, Tuesday March 9 was now on the calendar and it marked the last day before the examination. Hoping to get in a little more training, it was decided to schedule some additional air-time.

The plan for the day was to take N93KK out with Javier and run through a series of maneuvers including additional takeoffs/landings. What can possibly go wrong doing these basics which had been practiced over and over? The flight path was to take off from N12 then initially head out to the shore for some slow flight stalls and maneuvers. After that, I would finish up by heading to KMJX to practice landings. With calm winds favoring 24 and clear skies, everything started off perfectly.

Once in the practice area over the shore, and while turning into the wind, we started with some slow flight. At that point, a slight vibration or shaking was noticed as we coasted along at a groundspeed of 15 knots. In the left seat, it felt like the plane needed a little more power than usual to regain the needed altitude that I always seem to lose in slow flight. We decided that maybe it was just a loose cowling and the best option would be to head to KMJX land and assess the situation.

On the way there in cruise flight, it felt like the aircraft was a little sluggish with some vibration but not as pronounced as in slow flight. The landing was uneventful and after taxiing to parking and doing some ground power ups, we shut down and checked the cowling oil etc. There were quite a few screws missing and decided to head back to N12 and let the mechanic there add the missing fasteners.

After paying extra attention on the run up we departed 24 at KMJX with a soft field T/O. The takeoff seemed pretty normal but at around 400 msl, when flaps were removed, I pitched for climb speed and this is where things started to go downhill quickly.

Did someone say 78?! I was afraid to pitch down anymore and I was getting 70 instead of seeing nice blue sky my windscreen was half blue half green. After double and triple checking the flaps, and throttle mixture, I quickly said to Javier I could not get the speed up. After exchanging control of the flight, we made a really slow left turn 180° to the downwind of 24 letting everyone know on the radio.

Midway downwind between looking at speed altitude and traffic I noticed the RPM would not get over 2000. We finally got up to about 1000 msl abeam 06 and did a slow circle until final was clear. Javier then did the best forward slip I have seen as we dived down on final adding full flaps and coming to a graceful landing.

After taxiing to Ocean Aire and having things checked out, it was discovered that one of the cylinders had developed a crack in the wall! Since this is not a good sign, the plane was turned over to them and they replaced the cylinder. But this left me with a dilemma, what do I do, we had no plane to fly?

Talking to Hannah at Ocean Aire, she was able to arrange for me to rent a plane the next day. But this leads up to asking what happened on the next day? After checking out in the aircraft in the late morning I was able to take the check-ride in the plane in the afternoon and thankfully passed the flight test!

**Crack in cylinder wall**



**KWRI & Midair Collisions by Charles Burke**

In The November 2020 MAFC newsletter, there is an article describing the dramatic increase in military flights around our immediate geographical area which increased the chances for midair collisions. In the November article it was noted that of this, consideration is being given to change the airspace at McGuire to a Class C.



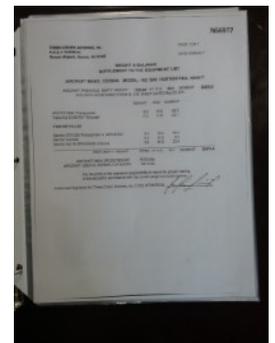
Speaking with a representative from McGuire, it was learned that one simple action on our part can make a big difference in reducing the chances of an accident and, the possible switch in airspace classification... TALK TO THEM BY OBTAINING FLIGHT FOLLOWING! Once you link up with them and enter the transponder code number, they will be keeping an eye on you and the airspace surrounding you. It is like having your own radar system that will actually talk to you.

The ATC people at McGuire are there to help. What this means is that once you depart N12, dial up 126.475 Mhz and identify yourself. When they respond, simply tell them where you departed, where you are going, what you are flying and the altitude. But what if you intended to simply fly over to the bay and practice maneuvers, if that is the case, just tell them that this what your intentions are. In fact, during the summer, the north/south flow of traffic along the shore line increases dramatically but when you have ATC looking over your shoulder, you will have a much better picture of who else is up there in your area.

To help you understand the situation, the staff at McGuire recently produced a short 11 minute video that is now posted on You Tube. Please note that the link is not searchable so you cannot access the video unless you have the URL. You are urged to watch this presentation and also, if needed, obtain assistance from a CFI to help you in digesting the data. While this may seem to be a possible imposition on those who are not flying IFR and who do not employ flight following, look upon this as a win-win. You will not only be flying in a safer mode but also be gaining confidence in talking to ATC no matter where you are flying. <https://youtu.be/hP1U8gSKX14>

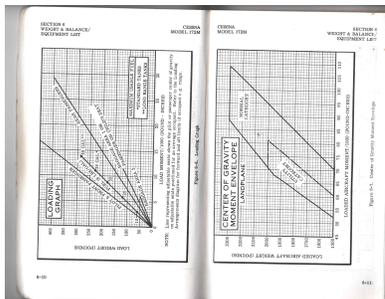
**Weight & Balance Information by Tom Griffin**

Weight and balance data sheets for each of our airplanes (except for 87Q until after engine overhaul) have been placed in a loose-leaf binder next to the printer on the dispatch counter in the trailer. These sheets contain the most current empty weight, CG location and moment for weight and balance calculations.



As we know, there are charts and graphs in the aircraft information manuals or pilot operating handbooks for doing the actual weight and CG calculations for specific conditions. It's also possible to use the Weight and Balance section of Foreflight or other online sources. We hope to soon have airplane specific weight and balance tools on Flight Circle or the FlyMAFC web

**Cessna 152 fuel and Weight & Balance by Tom Griffin by Tom Griffin**



We cannot emphasize enough the importance of checking weight and balance in our flight planning. This is especially true for the C-152s because they are easily loaded with fuel and people to a weight that might exceed ramp and takeoff limits. For a given load of occupant weights, the only variable we have left to adjust is fuel. Therefore, we've established that, rather than having the airplanes topped off after each flight, they will not be refueled until the next pilot advises the FBO refueler how many gallons to add before a flight.

For flight planning, when the total weight of the occupant/s is known, the pilot must determine the maximum amount of fuel that can be added in order to stay within gross weight limits, then dip each tank with a measuring tube to determine how much fuel is on board, and then advise the refueler how much fuel to add to each tank. Since the 152 doesn't carry that much fuel, pilots need to be aware of the fuel endurance with required reserve – may be quite limited.

**Revised Aviation Dictionary Submitted by Janis Blackburn :-)**

Alternate Airport: The area directly beyond the active runway when the engine quits on takeoff.

**What Did He Say? Submitted by Nick Billows :-)**

Airspeed, altitude, and brains. Two are always needed to successfully complete the flight.

-Basic Flight Training Manual-

Answers to the VFR Trivia Test:



This means that this airport is an airport of entry. This indicates that there is an U.S. customs and immigration office located on the field.



Announcements



Congratulations to Israel Plonhak! He passed his private pilot check-ride in spite of having to "borrow" an airplane from Ocean Aire at MJX.(See page 4)



Andrey Zelenovsky! Andrey passed his private pilot check ride. Primary instructors were Javier and Patrick. Way to go!

Awesome Paint Jobs: Art Templeton



Takeoffs are optional but landings are mandatory



**KWWD Cape May Airport**