



Second Quarter 2020

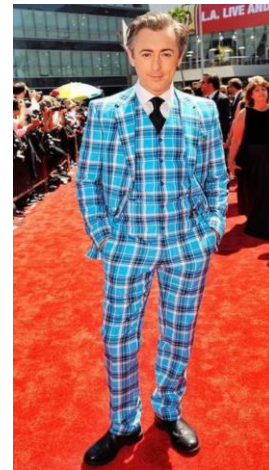
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Letter from the Editor:

Hi everyone and welcome to the 2nd quarterly edition of Arion's newsletter for 2020. Seems like minutes ago we were celebrating the New Year and now we're almost halfway through the year. This newsletter is (obviously) a little later than normally published but I was constantly hoping to wake up from the Covid-19 nightmare and realize it was only a bad dream and all flying events and adventures were still on and the weather was perfect. Hey, we can hope right? No doubt about it, this has been a challenging year so far, but I hope you are all happy, healthy, and finding new ways to get out and fly. Even if it has not been your Plan-A, that is what we do, adjust right? Early on, I had a suspicion that Sun N Fun was going to be cancelled because there was so much the world did not know about the pandemic and likely not enough time to adjust to the necessary safety requirements. But I was truly devastated and shocked about Oshkosh. Personally, I planned to attend both like most years, but this year was going to be different. My son and I were going to spend the entire week at Oshkosh with the camper and a small pocket full of dollars I've been hiding away for things and gizmos that I didn't even know I needed but was anxious to discover I was foolish not to buy! So, I did what any responsible person would do with spare time and a little money, I bought more stuff for the plane and tinkered while I was "social-distancing" from work. My plane was completed in 2017 and I have around 150-175 total hours on it so far. But my wife never liked the red panel we have. I thought it was a good contrast to the mostly gray/white exterior with a red pinstripe accent but apparently, I have no fashion sense. Who knew?



Truth be told, I created my original Lightning-Garmin wiring harness in the basement while the plane was finishing up out in Arizona. When finished, everything electronic worked as advertised but for safety reasons, I had left every connector and wiring run a little longer than necessary just in case. I was terrified that I would show up at the build center with this newly built harness and everything was just a little short when I fitted it into the plane. What ended up happening was I had to loop and zip-tie quite a bit of unnecessary harness length up under the dash. In my mind, this was thousands of unwanted pounds and it had to go. Plus, by now I had determined that my version 2 panel was going to have some minor changes to better fit my flying needs. If you ask Tracey, she will tell you I was making excuses to tinker with the plane and that is my best effort to justify it. Either way, I was determined that I was going to move a couple of things here and there, therefore creating a new harness now that I was an "expert" harness builder was in my plans.

With that excuse, I wisely enlisted the help of Midwest Panel builders in Lapeer Michigan to produce my panel while I tackled the new harness challenge. During the week that I had the plane down for this transformation, I was starting to wonder if Tracey was somehow right. Was I truly insane? It was a great project and what a perfect time to take advantage of the downtime from work and tackle it. But for anyone who's done this, it's certainly no easy task. I totally gutted the plane's wiring and started fresh. Well, mostly. I was able to salvage the navigator and audio panel connections as they were the most complicated to build so I simply cut them to custom length and completed the other ends. After about 6 days of constant detail work, I was ready to re-install this new octopus and smoke test the result. Later in the newsletter, I'll add some photos and specifics on some of the more interesting points and challenges. Maybe I was just looking for something fun to toy with while I was in lock-down, but I am thrilled with the results and the best news of all.... no smoke escaped from any of my Garmin boxes on power-up. Gotta call that a success, right?

Well, again here's hoping to everyone out there that you're doing well with what is proving to be our new normal, and you're still finding ways to enjoy your airplane and staying safe. Enjoy the newsletter and as always, if you would like to include something of your own or you have suggestion to what you would like to see in future newsletters, drop me a note.

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Out with the Old

And Finally, The New Harness



CFI Tips

Wake Turbulence Avoidance

(Article by Jim Dexter, CFI)

All pilots know about wake turbulence. However, are you sure you know how to avoid it? When ATC gives the “Caution, wake turbulence” warning, it is up to the pilot to avoid the vortices. For a review, Advisory Circular (AC) [90-23G](#) provides advice on how to avoid wake turbulence. But this AC has some misleading advice. It states; “Every aircraft in flight generates wake vortices.” This is true, but it doesn't warn of vortices when an aircraft is on the ground. Specifically, this AC says “an aircraft generates vortices from the moment it rotates on takeoff to touchdown”.



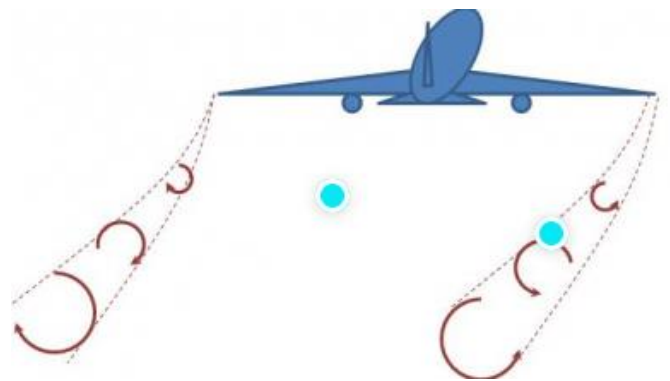
In reality, an airplane rolling down a runway is producing wingtip vortices well below flying speed. So if you are landing behind another aircraft, touching down somewhat beyond the first aircraft's touchdown spot doesn't protect you from wake turbulence. The amount of wake turbulence depends on the aircraft's wing area, speed, weight, angle of attack, and wing configuration. As you probably know, the heavier and slower an aircraft, the more powerful the vortices. A clean wing configuration will produce stronger vortices than with flaps extended.

In order to avoid the wake turbulence from another aircraft, considerations include the wind speed and direction, the other aircraft's liftoff or touchdown spot, and time duration from the other aircraft. If you are using a downwind parallel runway, you need to be aware of aircraft operations on the upwind runway.

As mentioned, all airplanes produce wake turbulence, regardless of the weight. Glider pilots are trained how to deal with and avoid the turbulence from the tow-plane, as they are typically towed 200' behind the tow-plane. A required glider pilot maneuver is called “Boxing the Wake”, by flying a rectangular path around the wake.

To prove airplanes produce these wingtip vortices while rolling on the runway, check out the YouTube video titled Wake Turbulence Video at <https://www.youtube.com/watch?v=c-Eab3buKzM>.

Helicopters produce [rotor-wash](#), which is more difficult to visualize, so it is best to keep a safe distance from a hovering, landing, or departing helicopter.



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My Panel Adventure Continues

The Panel rebuild with Midwest Panels. As I mentioned in the intro, there wasn't really anything wrong with my original panel that couldn't be fixed but I decided to go with the pros

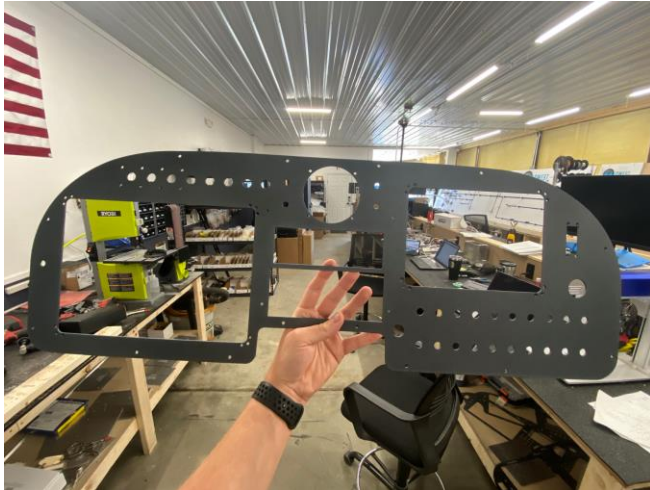
and have a new one precision cut, powder coated and the labels laser etched. My original labelling was adhesive labels that seemed to droop in the heat and I actually wanted to change the switch configuration a little bit also. As you know, having built the Lightning's panel is a large rectangle sheet of aluminum and it's up to us to cut it accurately, arrange your chosen avionics in a way that best suits your layout and then cut their holes. And somehow do this straight. For the Garmin GTN650Xi Navigator that I have, this has an additional challenge as the bezel around the Navigator is very small so one moment of lost concentration and you have a "custom" feature! And of course the red panel I have now isn't all that Tracey bargained for. After watching a ton of different YouTube channels, she practically insisted we explore other color choices. That's my excuse anyway.



Steve and Adam at Midwest Panels are a father and son team that will go out of their way to work with you and help design the panel you're wanting. I had most of what I wanted figured out but after speaking with Adam at length, we made some slight additions/changes that made this choice worth it. (Not Sponsored by Midwest Panels) When you call Midwest Panels, you get them. Not a service or an answering machine. And when you send an email, you get the same. Most every time, they get back to you within minutes and are super easy to work with. Both are pilots and have a ton of experience with layouts that work. Adam has a passion for new ideas and options that are cool to consider, and for me, I might add one or two of them on version 3! One possibility is a pushbutton start with a FOB that only needs to be in your pocket. This allow you to get buckled in, situated and NOT have to then realize, oh no. You left your key in your pocket and need to sumo-wrestle yourself to get at it. And if someone else is checking out your plane, they can't accidentally start the engine at the worst time because only the pilot with the FOB will allow the system to work. If you have technical questions or curiosity, give them a call and they'd be happy to discuss it with you. I liked the idea but was too cheap to spring for the upgrade. Maybe another reason to change my panel next year! They also have a lot of experience with the Vertical Power system, and in the Lightning, this is certainly something to consider as panel space is at a premium for sure. Although I am a glutton for punishment and wanted to do the harness myself, they also are a VERY capable shop for creating a custom wiring harness to your specifications.

Here's the good part. I carefully traced my current panel onto paper and sent it to them. They had their CAD guy draft it up, place my components and then send me a file to have printed at the local Fed-Ex printing shop inside Walmart. I took this "template" out to the hanger to verify the fitment and from there we experimented with the new layout. What does this mean for you? Well, if you're building or are considering an upgraded panel like me, just give them a call and they now have the stock Lightning's panel on file. This can save you a

ton of time and a little bit of CAD money. All you have to do is tell them what you want and they have the measurements and files for all the components you want to add. Once you place everything where you want it, they'll send you a computer rendering that looks like a photograph to stare at and determine if you want to make any changes.

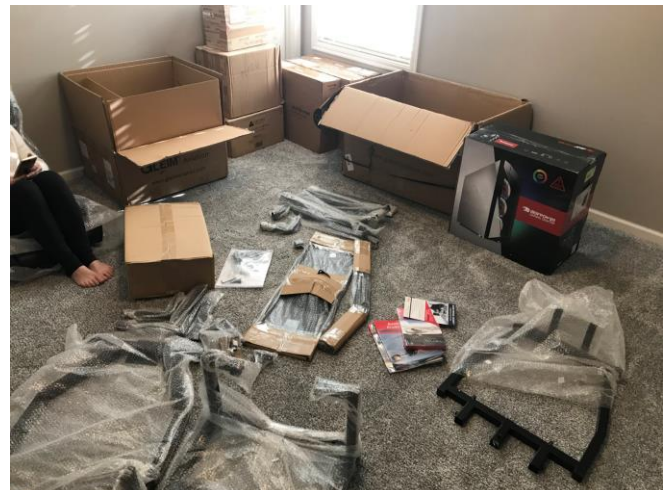


Toy or Tool? (Depends who you ask)

While we're on the topic of spending money wisely! At the start of what became the Covid-19 stay at home plan, I decided to google everything I could "Airplane" and see what came up! Not a bad plan, right? Well honestly I have often looked at a home simulator and wondered if I could get the same enjoyment and challenge from simulator flying as I do real flying. And Tracey is pursuing her Fixed-Wing license so I thought this just might be a great opportunity to look into what was out there. Now I looked a number of different options and manufacturers and without dragging you through my twisted decision-making process, we settled on Gleim's Flight Simulator package with their Flight Training program added in for Tracey. The UPS man almost had a heart attack delivering all the heavy boxes but in a few short days, it arrived!

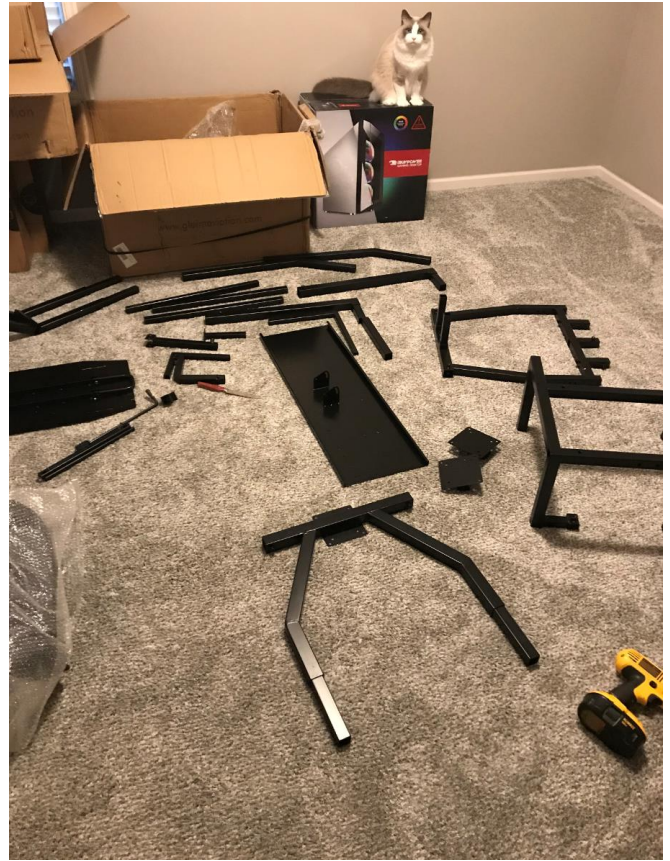


Side note on the computer, I thought I may someday want to expand into the VR world of simulator flying so I decided to buy all they had but minus the PC, which I bought at Best Buy. A little more power, memory and flexibility on the PC for almost the same cost. It felt like I was building the Lightning all over again but after a couple of beers and some assembly time, I was up and running. I am blown away at the quality and realism of X-Plane coupled with Gleim's Virtual Cockpit. I spend hour practicing my Instrument Approaches while Tracey kicks me off for her next lesson on obtaining her Private Pilot's Certificate. What a great addition and a fantastic tool to help keep your skills sharp when the weather or other factors keep you from actually flying. Just another way to adjust when trying times keep you at home more than you planned.



Toy or Tool? (continued)

A word of warning though, it's addictive! You can really get drug into a particular flight or change the time of day and weather and lose track of time flying somewhere when conditions are a little rougher. Certainly not a cheap decision but that aside, what a great addition. If you're ever in the market for another way to sharpen your skills, give Gleim or X-Plane a look. Once you get past the sticker-shock, you'll be happy with your choice.



Wow, I'm Going FAST

(Story submitted by from Dennis Wilt)

Airspeed Seems High?

I just completed my condition inspection a couple of weeks ago. I flew a test flight and everything worked very well. So, everything is good, right? Well think about it, everything is ok and then something is broken. It happens. Donna and I took a short 20-minute flight from Sebastian (X26) to Okeechobee (KOB) this morning for breakfast. As I took off the plane felt slow as I rotated at about 45 knots. And as I climbed out, the plane was flying just fine, but things weren't right. The engine was making good power, but I thought that the plane was slower than what the indicated airspeed was telling me. We decided to continue the flight. As we were cruising at 2600 ft. MSL, I thought, "Man, we are screaming." See the picture of my Dynon with an IAS of 132.



For that power setting, that Indicated Airspeed just does not make sense. When I landed at KOB, things felt wrong for my power settings and airspeed. Nothing matched what I expected. But, I have flown my plane a lot, I know how it feels and how it flies at the power settings needed for landing. I did not have any issues landing, but again the indicated airspeeds just were not right. We had a very nice breakfast and flew home. We had the same issue coming back and

when landing at Sebastian. Donna and I both decided something was not right with the pitot-static system. So, an inspection was necessary after we got home. See the second picture of the static lines going back to the fuselage. The line on the right had broken off. I had inspected the lines visually during the condition inspection and felt the lines near my ADAHRS for brittleness and made sure they were connected securely. Obviously, they are getting brittle back in the tail and not under my baggage compartment. Time to change the pitot-static lines. If for some reason your airspeed is higher than normal, then the static system is not right. If it would have been the pitot line, then the airspeed would likely be lower than normal.



Classified Ads?



A few have been asking about adding a Classified Ads section to the newsletter. I think it would be a great idea to give it a try. And if there's little to no interest, then we can reevaluate the topic later on. I think it would be a good plan to mention/observe some basic guidelines just to be sure we're doing all we can to not have anyone accidentally misrepresent an item they may have for sale or for a potential buyer. And to be sure they do their due diligence when determining whether to purchase something they see on this section. I

CLASSIFIED

personally would have no way of “validating” the items someone is trying to sell when adding it to the classified listing so be sure to do your best on describing accurately something you want to list or ask the necessary question when buying. If you’re wanting to sell something, describe it well, a photo or 2 couldn’t hurt but let’s limit the number of photos so it doesn’t get out of hand. Then add a method of getting in touch with one another to finalize your deal. I feel this could go both ways as well. Why not ask if anyone has anything if you’re in search of. Who knows, someone may have it laying around and not need it anymore. Consider what you might want to add or offer and send it my way. If there’s something additional I need, I’ll contact you. Let’s give it a try and see how it turns out.

Hey, I Was Here First!



Thought I would take a couple of minutes for a **Tech Tip** based on an experience a fellow friend/pilot who was flying at a local airport encountered. So my friend, we’ll call him Gary is a Sport pilot and flies normal VFR procedures in his LSA. One day while Gary was approaching an un-

towered airport (in VFR conditions) he found himself doing what most of us enjoy doing. And that is, a short flight to burn 5 gallons of fuel to buy 5 gallons of fuel at a \$.05/gallon discount! Or better stated, a fun flight looking for any excuse to fly. While making the standard 45° downwind entry, to Base, toward Final with appropriate radio calls, he hears a last minute, first time caller “CTAF Traffic, Cessna 1234 crossing ZTEG at 1500’, Short Final, CTAF Traffic.”



Gary had **NO IDEA** what this guy just said but fortunately he did recognize there just might be a possible conflict and he went on High-Alert. In his situation, there was enough time to look around, spot the potential conflict and do the necessary radio call and turn-out to avoid what could have been a very disastrous situation.





Glider Fling Anyone?

(Article Submitted by Jim Dexter)

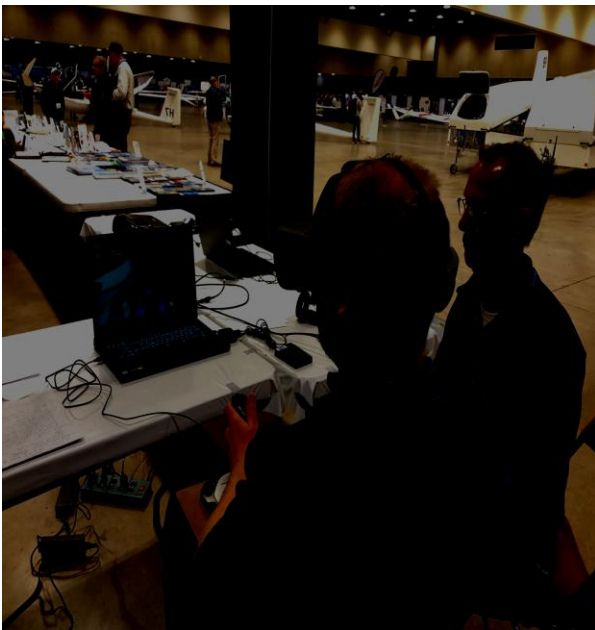
Ever considered flying gliders? Sailplane (glider) flying is a sport called “soaring”. It is a great introduction to aviation, and some say glider flying will make you a better pilot. You focus on aerodynamics, the wind, and learning to really use the rudder. Powered pilots can make the transition to gliders without lengthy flight training, and there is no written test. Also, no medical is required to fly gliders. The Soaring Society of America (SSA), the oldest aviation organization in America, has a website full of information at www.ssa.org.

The last half of February 2020, SSA held its annual convention in Little Rock, AR. The exhibit hall had a number of gliders on display. Gone are the days of wood, tube and fabric, and metal gliders. Almost all the new gliders produced are composite material. Most new gliders are equipped with advanced instrumentation. There are the traditional gliders that need an aero-tow or winch launch to get airborne, but many now are self-launching. On display at the convention were gliders that are all electric with propellers and even jet powered gliders.

An interesting feature of the convention was the demonstration of a glider simulator (Condor, <http://www.condorsoaring.com>) that now has virtual reality capability. After donning the virtual reality (VR) headset, you are immersed in a new environment, and the real world disappears. Those who tried it at the convention, believed it was better than any other simulator experience.



Soaring facilities can be found on the SSA website at <https://www.ssa.org/WhereToFly>



News from the Factory

Tennessee and Nick's Latest

Nick and the factory are still going strong and continue to stay busy. It's disappointing that the major shows were cancelled but that certainly takes a ton of time and pulls them all away from the shop to attend and demonstrate what's new. Due to the Covid-19 concerns, no walk-ins or demo rides but Nick and the team would still love to hear from you and if you're considering on placing an order for your new Lightning, now's a great time to get on the list! Look them up on Facebook or the website for more photos, latest first flight info and more.

News from The Dealers

Lightning Aircraft West:

Greg Hobbs and his Geronimo Build Center near Tucson are still incredibly busy these past few months. He continues to develop test designs for the Lightning's "Gap Seals" and has a couple of planes with this configuration now flying and gathering speed and performance data. His best guess is that by closing the openings below the wing at the flap and aileron gap area, he can improve cruising speeds in the neighborhood of 5-8 knots. It's a fascinating concept and I believe he's on to something. It's not always about more horsepower. One of the most often discussed topics of improving airplane speed is by eliminating drag or "dirty air". Give Greg a call if you need some advice, a story or two or if you need some service performed. He's not just a wealth of knowledge on the Lightning and the Jabiru, but his build center is an amazing testament to his dedication and commitment to the Lightning and his interest in aviation.



Current Lightning Dealers or Representatives



Arion Lightning, LLC, contact Nick Otterback, Shelbyville, TN, 931-680-1781,
www.flylightning.net



Southwest: Geronimo Experimental Aircraft, Greg Hobbs, 18750 West Avra Valley Rd, Marana, AZ 85635, 520-405-6868 www.lightningaircraftwest.net



★ Russia and CIS, AVIA-NIANIA Ltd, Moscow, Russia, Phone: + 7495518-62-75, Mobile Phone: + 7925518-62-75, avianiania@mail.ru or avianiania@aol.com

For Sale:



N214DG

Experimental – Light Sport Compliant, Located at Geronimo Experimental Aircraft, in Marana, AZ

Asking \$87,000



Contact Lightning West for details and more information.

Upcoming Events

It's a little bit of a challenge to know who's having what event and is it going to truly happen? Take some time to find some of the smaller, local gatherings and events in your area and help support their attempts to keep the ball rolling. I recently attended an Aviation Explorers Post 8000 Breakfast Fly-in at Ottawa Kansas (KOWI) that was raising money for young "future pilots" to explore the aviation world and get to see a larger cross-section of airplane types available to the General Aviation community. There wasn't a lot of people there and social distancing was in effect, but they did a great job in organizing their breakfast and gathering. If you're not familiar with Social Flight, give that a try as well. Maybe there's an event in your area that would be as fun, and a smaller gathering.



This may be way out on the calendar but here is an exciting event in September to attend. Always a good opportunity to see what someone has in the works and you never know, you might need something that you did not know you needed!