James Haney teaches Skip Egdorf the Jedi Way

EAA Chapter 691 Newsletter
September 2023

On the Web @ eaachapter691.org

EAA 691 is:

President: Will Fox

Vice President: John George

Secretary: Pierre Levy

Treasurer: David Young

Web Editor: Marilyn Phillips

Newsletter Editor: April Fox

Young Eagle Coordinator: April Fox

Table Of Contents:

Upcoming Events

Meetings Schedule (unless otherwise noted)

9:30am - social time

10:00am - business meeting

10:30am - speaker/workshop/training

Upcoming Events

September – EAA Chapter 691 hosts the Ford Trimotor, September14-17, 2023, (SAF) Coordinator- Will Fox/Marc Bonem

September - Espanola Young Eagles/Cookout, September 23, 2023, (E14), 8:00-12:00. Coordinator- April Fox/Sonyamaria Martinez

October- Los Alamos Young Eagles/Cookout, October 21, 2023, (LAM), 8:00-12:00. Coordinator- April Fox

October- Chapter Fly-out to Conchas Lake – September 2023, date to be announced, Coordinator- John George

Check out our Chapter Website at https://www.eaachapter691.org for more information about upcoming activities.

1929 FORD TRIMOTOR Rides

September
14th-17th

Location: Santa Fe Airport, Jet Center

September 14th - 3:00 pm to 5:00 pm
15th - 9:00 am to 5:00 pm
16th - 9:00 am to 5:00 pm
17th - 9:00 am to 5:00 pm

Viewing: Free
Rides: Adult/$95, Children (17 and under) $65

Hosted by

Experimental Aircraft Association
Green Chile Chapter 691

For questions or additional information: go to eaachapter691.org or email Marc at mbonem7@gmail.com. All are welcome.

Letter from the editor(s)

by April Fox

We are gearing up for Young Eagles at the Española/ Ohkay-Owingeh airport. We have 5 pilots and 10 groundcrew and the airport manager there is planning to cater the event. This is an awesome opportunity to fly and inspire kids and give back to the community. If you're on the fence about volunteering don't hesitate to reach out, this is an incredibly rewarding experience (as most of you know) and a great way to share your love of aviation. We've got a great crew of folks promoting this event, let's get these kids up in the air!

President's Report

by Will Fox

Ford Tri-Motor and Young Eagles

What does the Ford Tri-Motor and Chapter 691 Young Eagles Rally have in common? They are both giving rides to the public this month. The Ford Tri-Motor will be at the Jet Center at the Santa Fe airport from September 14th – 17th providing rides for the general public. Adult rides cost $95 and children, age 17 and under, are $65. Chapter 691 is hosting the event and volunteers will provide ground crew support. Contact Marc Bonem at mbonem7@gmail.com for more information.

Also coming up this month is the Young Eagles Rally in Espanola on September 23rd at the Okay Owingeh airport. Parents can register their kids for a free ride online. Don't dally though, as the slots are filling up fast. But don't fret if the event is booked because we are having another Young Eagles Rally on October 21st at the Los Alamos airport. Registration for it will open up after the Rally in Espanola.

Gary Dawson, a previous Chapter member, homebuilder, and accomplished aerobatic pilot, recently passed away and his wife Nan has graciously donated Gary's Kitfox to the Chapter. The Kitfox is a cute little bugger and only has a little more than 100 hours on it, but it does need some TLC to get it in good flying shape. That is certainly something we can do to help get it back into the air again.

Chapter 691 gets lots of interesting requests, but we got a pretty unusual one the other day. Andrew Devecchio called up and wanted to know if we would be willing to loan or donate some aircraft parts for use in a possible upcoming movie. Sure, was the answer so in no time at all Andrew showed up with with Bryan, who is a Production Designer for the movies to see if we had anything to fit the bill. Turns out that between Skip and I we did, so who knows, maybe Chapter 691 will show up in the credits of some future movie. What is the movie about? That is a secret, but I think I heard the word aliens mentioned:-)

Finally, EAA Chapter 691 has a new place to call home. It is Hangar #5 on the Los Alamos airport. The floor has been refurbished and after a few more repairs we should be able to move into it:-)

EAA's Ford Tri-Motor (N8407) will be giving rides in Santa Fe on September 14-17 and is hosted by EAA Chapter 691 and the Santa Fe Jet Center.

Bryan, Andrew, and Skip show off our newly acquired Kitfox in the hangar that EAA Chapter 691 can now call home.

Step Cracks, Swiss Cheese, and Enroute Decisions

By Paul Price

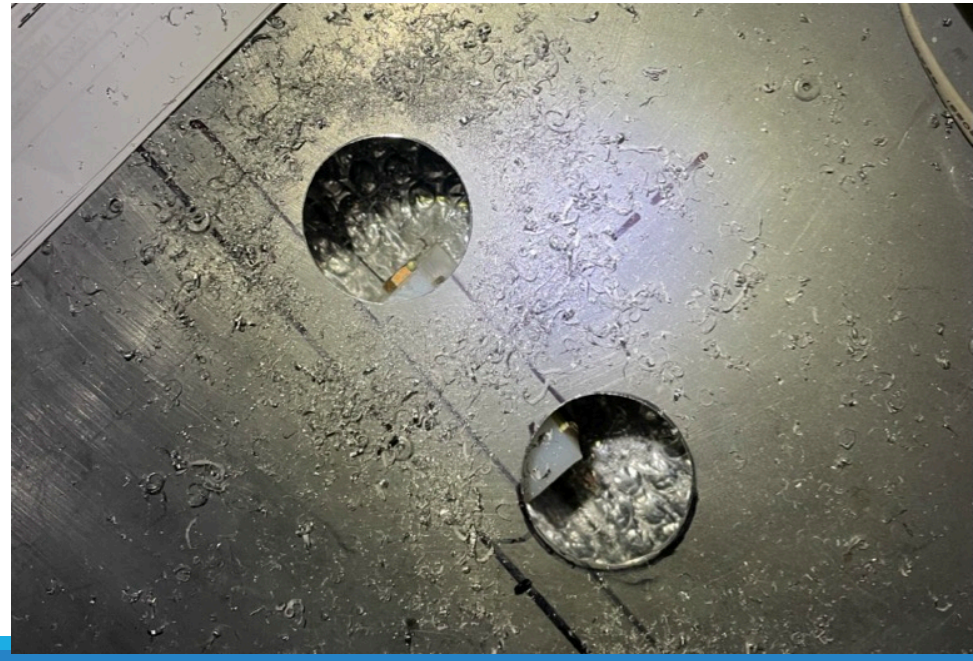
In 2019, when I purchased my VANS aircraft RV9A, I first became familiar with VANS NOTIFICATION 18-03-21. The notification instructs the owner to inspect the underside of the steps to look for small cracks that can develop after repeated use. These tiny little fissures were evident in the pre-buy inspection and the seller agreed to have them TIG welded prior to my taking possession of the airplane. That all went fine and put me on the alert to watch for them to possibly reappear. Within 2 years of using the airplane I could see the cracks reappearing. I watched them carefully until it became evident that they must be more completely repaired.

VANS instruction for this repair is to purchase a one-piece gusset and weld into place on the underside of the arm that supports the step. Here is a picture of my foot peg supporting arm with the cracks obvious and rusted; also showing outline of where the gusset would be TIG welded after cleaning and welding the cracks beneath it.

I contacted several welders in the St George area and could not find one that could both come to the airport with their welding equipment and feel confident in doing the repair without overheating the surrounding aluminum.

Feeling I had no other choice I decided to remove the foot pegs and either repair and reinstall them or replace them with new steps from VANS. I decided to replace with new based on the assumption that I could replicate the rivet hole pattern in the new steps mounting plate and replace the rivets using the existing holes from the old mounting plates. This turned out to be a bad assumption. At this point I could have simply taken the old steps to the TIG welder had them repaired, the gusset welded on and then reinstalled the steps on the airplane with using the existing holes. In hindsight, that would have been a much simpler and probably just as acceptable of a solution.

It should be noted here that the step assembly is attached to the airplane in two places. One place is a pattern of rivets between the mounting plate and the fuselage skin. The second place is at the end of a long tube extends from that mounting plate to the central longeron on the lower portion of the fuselage. The second attachment is made by a single bolt through a nylon fitting that is bolted to the longerons. The VANS instruction for this repair suggests removing the entire floor of the baggage compartment by drilling out the rivets and then later replacing them. I found on VANS AirForce that others doing this repair had cut an access panel through the floor of the baggage compartment rather than removing it. I opted for cutting the new access panel and accomplished it by carefully cutting a circular whole on each side of the nylon bracket so that I could reach each end of the bot that forms the attachment.



With the internal bolts removed, and the external rivets drilled out, I attempted to very carefully align the new mounting plate with the existing hole pattern and replicate that hole pattern in the new mounting plate. I created a thin metal template by riveting it onto the old mounting plate and drilling the holes from the old mounting plated into this template. The template was then attached to the new mounting plate and the holes drilled. One of the things that made this particularly difficult is that the original builder, who I feel did an excellent job on the plane overall, chose not to use the VANS recommended pattern for 18 rivets but instead use slightly smaller rivets and put in 27. I first discovered this when I removed the exterior paint and exposed the rivet heads (figure 1).

Drilling out the old rivets went well and did not expand the original holes in the aluminum skin. Being concerned about getting an exact match on the hole pattern, I attempted to align just six holes using the template rather than all 27. After trying to line up those 6 holes it was obvious that the margins were too small for an exact match and attempting to slightly enlarge the holes to make them match resulted in six ugly snowman holes which obviously had compromised holding strength. The unexpected Swiss cheese pattern created by the 27 holes was getting worse by my attempt to match it. See snowmen in figure 2.

Figure 1

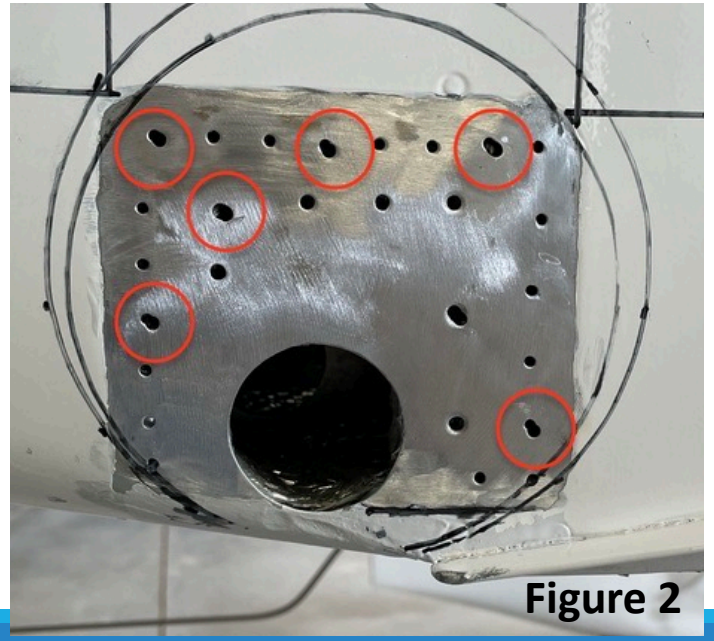


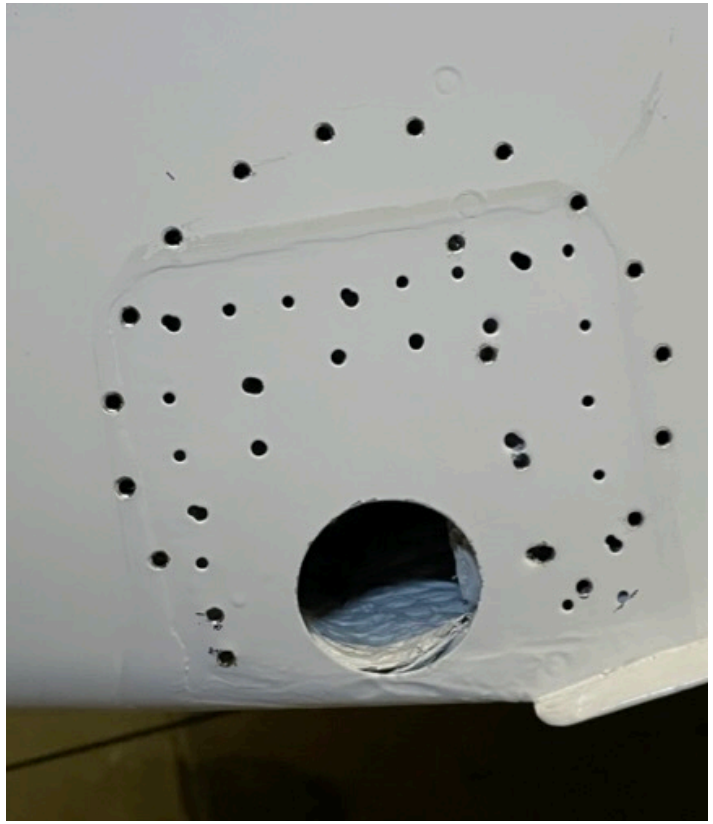
Figure 2

What to do? Again, I probably should have just repaired and reinstalled the old steps. Instead, I decided not to use any of the existing rivet holes in the fuselage skin. I designed a circular rivet pattern just large enough to be outside of the square, highly-perforated aluminum and put all of the rivet holes in undisturbed or virgin aluminum skin except for the vertical stripe of rivets that connected to a rib in the fuselage side-wall. The rib was much heavier material than the skin and I felt it could hold up to a few new holes.

This plan, however, presented the new challenge that the standard square mounting plate on the new steps was not large enough to cover and include this new circular pattern of holes planned for the skin. Using a plasma torch I removed most of the standard square mounting plate reducing it down to its own a much smaller circular flange.

Next, I cut a new circular mounting plate out of mild steel, replicated the outline of the remaining small circular flange still attached of the original mounting plate and welded them together. In the picture below, you can see the reduced mounting plate being positioned and prepared for welding.

After lots of grinding, sanding, and polishing the new plate was connected to the new step, arm and mounting plate from VANS.



I have been using the new steps for about a year and find them to be equally sturdy compared to the originals and much less vulnerable to any future cracking. I learned a lot about decision making and strategy changing in the middle of a seemingly straightforward remove and replace type repair. It was difficult and very challenging, but I feel the outcome is good and esthetically unnoticeable unless you are an RV owner with VANS NOTIFICATION 18-03-21 on your mind.

Your feedback is welcome to continue my learning experience.

Member Happenings

Looking at David's electronic everything airplane

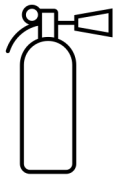
David Roe talks engine technology

Picking up and moving the Kitfox to Los Alamos

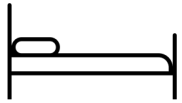
George Stephenson gave Will Fox a ride up to Del Norte to pick up Will’s Bonanza.

Can you find the Hidden Pictures in the New EAA Hangar?

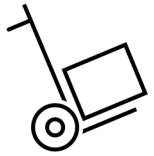
(If not, come on by to help clean it up!)



Fire Extinguisher

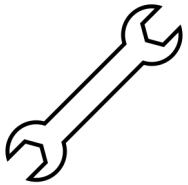


bed

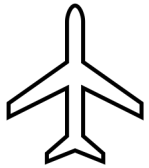


dolly

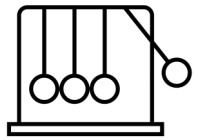
Pack rat



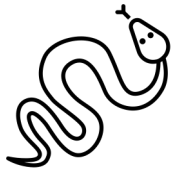
Wrench



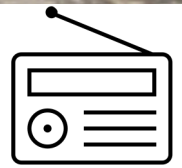
Airplane



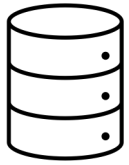
Newtons Cradle



Rattle snake



White noise



Oil barrel

Tech Corner

by Will Fox

Pilot Incapacitation

My Dad got his pilot's license in a 1958 Cessna 172. I was 12 years old at the time and was really excited about it. After a few "interesting" cross country flights with the family, Dad informed me that he was going to teach me to be able to land the plane in an emergency should anything happen to him. Evidently Mom had refused the offer. So began a series of flights where Dad, who was very experienced, in my mind, with more than 100 hours of flight time, taught me how to fly an airplane. My training was very simple. All I needed to know was that pitch was airspeed and power was altitude. As far as landing the airplane went, all I had to do was maintain 80 mph, fly down close to the runway, and chop the power, easy peasy. We didn't actually practice the chopping the power and landing part, but I did learn how to fly around without stalling the airplane and make an approach to a runway. According to Dad, Mom would do the navigating and handle the radio so all I had to do was the flying. This was all very exciting to me and I can remember day dreaming about landing the plane and saving the day. We never discussed how I would get Dad out of the pilot seat and me into it, but I figured I could just crawl over the back of the seat and sit in his lap. That way if he somehow recovered he could take the controls back and land the airplane. In my youthful day dreams, Dad didn't recover until after I had landed the plane and saved the day. This was followed by the FAA giving me a pilot's license for this outstanding accomplishment. Fortunately for everyone involved, Dad never needed me as a backup:-)

A pilot slumped over the controls is bad news.

Pilot incapacitation is something we rarely think about when flying light aircraft. There is no training for it in a normal pilot curriculum nor is it in the Airman Certification Standards, and it is never covered in a Flight Review, so is it really a big deal? Probably not for younger pilots, but as you might imagine, it becomes more of a factor as you get older.

In-flight incapacitation means the pilot is not able to perform his or her duties and must be replaced by another pilot. There is also in-flight impairment, where a pilot is able to continue to do some of their duties, but I will focus on in-flight incapacitation here. Incapacitation may result from a number of problems, such as cardiac or cerebrovascular events, neurological problems, gastrointestinal problems, kidney stones, seizures, loss of consciousness, etc. In-flight incapacitation occurs at a rate of around 0.045 incidents per 100,000 hours for pilots

in their 40s. The rate can be up to 5 times higher for pilots in their 60s, according to one study I read, or about 0.23 times per 100,000 hours. In 2018 General Aviation (GA) accumulated 25,500,000 flight hours. If we apply the in-flight incapacitation numbers for commercial pilots to the flight hours for GA, we get something like 12-60 incidents per year in the US. Is this a reasonable estimate? Let's see.

As far as accidents go with regard to in-flight incapacitation, they are very rare on commercial flights because most commercial flights have two pilots on board. However the same can not be said about most private pilot operations, because they are usually flown by a single pilot, and incapacitation is almost assuredly going to lead to an accident. A quick search of the NTSB accident data base for accidents connected to pilot incapacitation over the last 10 years comes up with 108 accidents or about 11 accidents per year. This is close to the lower bound of the previous estimate made using the in-flight incapacitation rates above, so I think I'm in the ball park.

Is in-flight pilot incapacitation a serious problem? I don't think it is the most serious problem pilots face. Poor decision making ranks much higher on the list, but that doesn't mean we should ignore the problem. Can we do anything to reduce the accidents that result from it? I think so. Pilots are generally pretty good about monitoring their health and only flying when they feel well. However, as a pilot gets older it is even more important to do so. Sudden incapacitation is more prevalent as you age. Yearly visits to your doctor for a good medical exam if you are over 60 is a good idea. If you fly with your family you might consider having your spouse or another family member take a Pinch Hitter course, where they will be taught to fly and land the plane in an emergency. Something else to consider is to use shoulder harnesses that limit their extension to prevent an incapacitated pilot from slumping forward on the controls. Consider flying an aircraft that has a ballistic recovery system in it. These systems are effective at saving lives in multiple scenarios besides pilot incapacitation. Affordable autopilots are coming out with the capability to automatically level the aircraft with the push of a button (the Blue Button) and that can assist not only a pilot but also a passenger with flying the plane in an emergency. Garmin has recently come out with an autopilot that that will automatically land an aircraft with a push of a button. It is currently aimed at higher end GA aircraft but I suspect it will become available for lighter aircraft in the not too distant future.

I'm reminded of another story. Many years ago I was taking a friend's young son for his first flight in a light aircraft. I went through the runup checklist with him, and before we taxied on to the runway I asked him if he had any questions. He looked at me and asked "What do I do if you faint?". I didn't really have a good answer for him, so I said, "Just keep shaking me until I wake up." There are much better answers to that question available today.

Effective ballistic recovery systems exist today for light aircraft and have proven to be life savers in an emergency over and over again.

Will Fox is a flight instructor and homebuilder. He also serves as a Technical Counselor and Flight Advisor for the EAA. In his spare time he enjoys working on and flying his two homebuilt aircraft, a Pegazair P-180 and a Questair Venture. He is also fascinated with solar power and electric vehicles, so his next airplane will be electric. Please feel free to contact him at tailspinfox@gmail.com if you have questions or comments.

Clickbait

7 crashes in 7 days and is the story of a guy trying to fly his newly purchase experimental Seawind 3000 aircraft back home. He crashes it 7 times on the way home. Thanks for the article Vivek!

https://generalaviationnews.com/2023/09/06/seven-accidents-in-seven-days/

EAA Chapter 691 Membership Application/Renewal Form

Please mail this form along with $25 to our Chapter Treasurer, Checks can be made out to <u>EAA Chapter 691</u>:

David Young
819 Gonzales Rd
Santa Fe, NM 87501

Name: _____
Spouse/partner's Name: _____
EAA #: _____ Expiration Date (MM/YY) _____ / _____
Address: _____ City: _____ State: _____ ZIP: _____
E-mail: _____
Home phone: _____
Work phone: _____
Cell phone: _____
Please list your currently flying A/C and any finished or in-progress projects: