



# EAA Chapter 691 Newsletter February 2023

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On the Web @ [eachapter691.org](http://eachapter691.org)

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# Upcoming Events

➔ **Meetings Schedule (unless  
otherwise noted)** ←

**9:30am - social time**

**10:00am - business meeting**

**10:30am -  
speaker/workshop/training**

**March 18<sup>th</sup>, 2023:**

Chapter Fly-out to Navajo Lake -Navajo Lake Airport (1V0) - 9:00-11:00 AM.

**April 15<sup>th</sup>, 2023:**

Building Skills Training – Composites- Los Alamos Hangar - 10:00-12:00 AM

**May 20<sup>th</sup>, 2023:**

Back Country Flying – Ron Keller KSAF Jet Center Hangar, 10:00AM-12:00 AM.



Please join us this Saturday, February 18th at the Santa Fe Jet Center for a thrilling talk by local warbird enthusiast, pilot, and instructor Larry Salganek of the Jet Warbird Training Center. More information can be found [here](#).



**Experimental Aircraft Association  
Green Chile Chapter 691**

**Meeting: March 18, 2023, social time (donuts and coffee) at 9:30 am, meeting at 10:00 am, presentation at 10:30 am.**

**Location: Santa Fe Airport, Jet Center**

**Speaker: Larry Salganek, Jet Warbird Training Center**



For questions or additional information: go to [eaachapter691.org](http://eaachapter691.org) or email Marc at [mbonem7@gmail.com](mailto:mbonem7@gmail.com). All are welcome.



# President's Report

by Will Fox



## Learning about Flying

“It had long since come to my attention that people of accomplishment rarely sat back and let things happen to them. They went out and happened to things.” — Elinor Smith

Last month's flyout to Grant's Aviation Heritage Museum, started out with a cold, overcast day, and trying to plow through 30 knots of headwind. But before it was over we had 8 planes sitting on the ramp and 10 members enjoying a nice breakfast at the Wow Cafe and a tour of the museum on a sunny day with blue sky. A bonus was the 30 knot tailwind on the way home. It was a fun trip for all.

This month Larry Salganek, owner of the the Jet Warbird Training Center in Santa Fe, will be talking to us about flying jets. Larry has been teaching pilots how to fly jets for 25 years. He is very accomplished pilot and instructor and you should check out his website at <http://www.jetwarbird.com/> to learn more. The meeting will be this Saturday, March 18<sup>th</sup> at the Santa Fe Jet Center FBO at KSAF. Coffee and donuts at 9:30am, meeting at 10:00am, and Larry's presentation will start at at 10:30am.

Walt Atchison has been wanting to gets kids involved in aviation for quite awhile. Last year he started planning a Young Eagles Workshop to do just that. On March 11, 2023, thanks to Walt's leadership and with the help of Andrew Devecchio, Skip Egdorf, April Fox, Roger Smith, and Will Fox, he managed to make that happen. We had ten kids, ages 10-14, and five parents attend the Workshop. Walt's theme was Aviate, Navigate, and Communicate so the kids got to learn about how planes fly, how pilots navigate, and how they communicate. They also found out about the various opportunities in the field of aviation and different ways to get a pilot's license. The workshop covered the various forms of construction used in aircraft and the kids all got to build a wooden airplane rib to take home with them. It was a good time for kids, parents, and pilots turned teachers.



Walt Atchison lead the Young Eagles Workshop.



Chapter 691 members gather for a group photo in the Grants Aviation Heritage Museum.



## Flyout to Grants, By Marc Bonem

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On February 18, EAA Chapter 691 had a flyout to the Western New Mexico Aviation Heritage Museum in Grants. Twelve people attended in five (?) airplanes. The flight out was overcast and chilly, but uneventful.

The group voted to eat first so we walked to the Forever Diner, which was staffed by sloths and turtles. As the diner was mostly empty, it is hypothesized that the wait staff was distracted by nefarious activities in the basement. The food was deemed adequate by those that survived long enough to eat it. (In truth, the Museum staff apologized for bad experience. They offered to arrange rides to a better establishment or food delivery for our next visit).







The museum, as described in the last newsletter and at [Airway Heritage Museum \(cibolahistory.org\)](http://AirwayHeritageMuseum(cibolahistory.org)) documents the beacon system, established in 1929, which was used for cross-country navigation prior to ADS. The system included stations spaced every 10-15 miles. The stations used concrete arrows (to point the right direction) in the daytime and lights on towers at night. The Grants beacon was part of Los Angeles to Amarillo segment, which was established by Charles Lindberg. The beacon station is fully restored, including the tower and concrete arrow. There was also a museum building with artifacts of the period, including wreckage from an airplane that crashed into the mesa before the beacon went into operation. Remnants of the system, including the concrete arrows can still be found in New Mexico, including one east of Santa Fe.

The flight back was sunny and warmer with “moderate” turbulence around Mt. Taylor.

From David Roe:

“The grape vine informed me of a couple of ultra lights for sale down at Double Eagle (AEG). There's a Mighty Max and an Afordaplane. Kenny at 505 235 6067 works at Santa Fe Jet Center (Santa Fe) and is the one who asked me to spread the word. He will be able to hook up anyone interested to the actual sellers but really doesn't know anything about the planes. That's all I got.”



John Graham often sends me fantastic links to add in the newsletter. Thanks John!

“I looked up Mike Mullane and found some videos of his presentation on "normalization of deviance" using the space shuttle Challenger and Columbia disasters as examples. The concept is very much applicable to aviation. Part 4 is pretty much a duplicate of part of his talk to the chapter.”

part 1: <https://www.youtube.com/watch?v=Ljzj9Msli5o>

part 2: <https://www.youtube.com/watch?v=jWxk5t4hFAg>

part 3: [https://www.youtube.com/watch?v=Wuk\\_DoX-rz8](https://www.youtube.com/watch?v=Wuk_DoX-rz8)

part 4: <https://www.youtube.com/watch?v=DABsxJtNcYg>

Some more Click bate [here](#)



# EAA Chapter 691 Young Eagles Workshop





# Tech Corner

by Will Fox



## Flight Level 270

I was getting ready to take off from the Los Alamos airport to climb to 25,000 ft to test the performance of my Pegazair P-100 and my glasses kept fogging up. It was below freezing outside and my oxygen mask leaked when I exhaled, and the water vapor was condensing on the right lens of my glasses. I kept wiping it off as I went through my run-up checklist. The anti-fog that I put on my glasses just wasn't working. The same thing had happened the day before on my test flight.

I had been attempting to see how high my Pegazair would fly for several months now. I had made two previous flights during the summer and fall to see how the turbocharged Rotax powered aircraft would perform. On the first flight, I had oxygen, but I stopped at 17,500 feet because I didn't have the IFR clearance that is required above 18,000. On the second flight I had oxygen and an IFR clearance but stopped at 21,000 feet when it became apparent that the above standard outside air temperatures were really effecting performance and as a result I wasn't going to be able to go too much higher. But what really happened, was that I lost my nerve as I began thinking about all the things that could go wrong with the engine and the plane. The malfunction ghosts come to haunt you when the timber of the engine changes or a strange vibration rumbles through the airframe. They seem to make their presence known whenever you are unsure of yourself or your aircraft. That flight showed me that to beat them, I needed to think through failure scenarios and emergency procedures more thoroughly and have a plan to deal with them. It also demonstrated that the aircraft was capable of flying higher if I could do it on a day with lower temperatures at altitude.

It was January 1, 2008 and I was finally ready to try it again. The day before I had readied the aircraft and did a test flight to 15,000 ft MSL to make sure all systems were OK. That's when I found out that the oxygen mask did not fit the bridge of my nose well and the right side of my glasses kept fogging up. This had not been a problem in the warmer summer and fall months, but with outside temperatures a few degrees below freezing at the surface, it was making itself quite apparent. I would try using an anti-fog agent on my glasses since modifying the bridge of my nose or the oxygen mask would not be an easy task. A little water mixed with dishwashing liquid applied to my glasses should do the trick.



A view of the Valle Grande and Los Alamos, NM from FL270.

Well, so much for that great idea, my glasses still fogged up. As I had finished my run-up checklist and set the altimeter to match the airport elevation of 7,180 ft, my lens fogged up again. I wiped it off again and dialed up ABQ Center's frequency to pick up a clearance. I had earlier filed an IFR flight plan from Los Alamos to Los Alamos, direct, with a request for an unrestricted climb to 25,000 ft for an aircraft performance test. I called Center to pick up the clearance and it was clear that the cryptic flight plan was a bit confusing. As the controller began reading back the clearance, he paused and asked me exactly what I wanted to do. I told him I wanted to stay in the local Los Alamos area and climb to 25,000 ft for a performance test. He asked me if I was ready to depart and I said that I was, so he said he would give me a squawk once I was airborne and he would work things out then. That worked for me. I called Los Alamos traffic, informed them of my intentions, wiped my eyeglass lens one more time, back taxied runway 9, and took off.

I turned north after departure and trimmed the Pegazair for an IAS of 55 mph, reduced the manifold pressure from 38" to 34" and the rpm from 5760 to 5500. I was climbing at over 1100 fpm and the EGTs looked great. They were all within 50 F of each other. As I climbed through 10,000 ft, I switched over to ABQ center's frequency and after a moment called them with my N-number, location and altitude. The controller came back immediately with a squawk and a question as to my anticipated climb rate. I told him that I should be able to average 500 fpm. He cleared me to 19,000 ft initially, and to expect 22,000 ft in a few minutes.

As I climbed through 15,000 ft, I began to think about what could go wrong. My biggest worry was the red-hot turbocharger and exhaust system under the cowl. There is a whole lot of heat under that engine cowl that can wreak havoc on metal and rubber components that are not well protected. I had seen broken exhaust brackets, leaking exhaust expansion joints, cooked oil lines that cracked, and baked sparkplug leads that simply fell off of the spark plug, during the 500 hours that I had accumulated on the engine. I had addressed all those problems during previous flight testing, but what if I missed something? Suppose an unknown section of oil line had become brittle and begun to drip oil on the hot exhaust system? A fire would soon develop that I had no way to combat. My first indication of a problem would be smoke in the cabin. Then it would be a race against time back to the earth's surface, to get on the ground before the engine mount failed, the engine separated from the airframe, and the aircraft became uncontrollable, or worse, the fire burned through the firewall and burned me alive. Even my Ballistic Recovery System couldn't save me from an in-flight fire. My only hope was to get back to the safety of terra firma and away from the airplane. At my maximum descent rate it would take at least 6 minutes to descend from 25000 ft back down the airport. That might be just a little too long. A friend of mine died, when he crashed because of an engine fire shortly after takeoff. It didn't help that his engine was a Rotax 914 just like mine. The ghost of engine fires sent a shiver down my spine.

I climbed through 16,000 ft and pushed the throttle and propeller controls all the way forward to maximized engine power. My manifold pressure would slowly drop from here on up because the waste gate was completely closed and the turbocharger could no longer keep up with the decreasing air density. It would be interesting to see what my manifold pressure would be when the Pegazair stopped climbing. Center called and cleared me to 22,000 ft and asked me for clarification on type aircraft. I told them my



The Sangre de Cristo Mountains in the distance

designation was PEGZ and that I was a two place STOL aircraft. I think they were getting curious about what kind of experimental aircraft they were tracking. I was flying an oblong east to west orbit during my climb and I noticed that the Garmin GPS showed a ground speed of about 40 knots on the upwind leg and 100 knots on the downwind leg.



I climbed through 19,000 feet. I only had 6,000 ft to go. I almost forgot to change my barometer setting to 29.92. I'm not use to flying above 18,000 ft. I checked my pulse oximeter. My oxygen saturation was at 98% and my pulse rate was 106 beats/min. That was almost twice my rest pulse of 58 beats/min when I was sitting in the car earlier in the morning checking out the pulse oximeter. My saturation level had been 96% at that time. It looked like I was getting plenty of oxygen. I had decided ahead of time that if my saturation level fell below 90% I would abort the flight and begin a descent. It was getting cold up here. The outside temperature was -5 F and I started to think about the possibility of ice forming in the fuel lines. It would be -30 F or colder at 25,000 ft and any water in my fuel system would be a solid chunk of ice. I had thoroughly sumped the tanks and fuel lines during the preflight. The Pegazair has five sump locations and I checked them all. I should be fine. Even with a plugged fuel line and a dead engine, I could easily glide back to the airport and make a dead stick landing. That is a nice thing about the Pegazair, it has a decent L/D as well as exceptional vertical and horizontal speed ranges that make spot landings a lead pipe cinch. I checked my pulse rate again and it was 112 beats/min. Oh, those damn ghosts were at it again.

I climbed through 21,000 ft and thought, that at least I had beat my previous record. I looked at the cirrus clouds above me and began to look for holes to climb through if necessary. I had been experimenting with my climb rate and now it seemed that 50 mph gave me the best performance. My manifold pressure was dropping more rapidly now. It was down to less than 30". As I climbed through 24,000 ft I wondered about getting hypoxia or decompression sickness. I checked my oxygen saturation again. It was down to 96%, but still well above the 90% abort point. I had started breathing pure oxygen on the ground about 15 minutes before the flight to reduce the nitrogen in my body. I didn't want to get the bends. I had meant to start breathing oxygen 30 minutes before the flight and I wondered if it made much difference. I felt ok and wasn't experiencing any numbness or soreness in my joints. I didn't have any earaches, toothaches or sinus headaches. I could still multiply 7 X 8 and get 56 so the old noggin was still working pretty well. Sometimes I have a hard time remembering that particular multiplication even on the ground. The ghosts were just teasing me.

I hit 25,000 ft with a sense of elation. I had done it. What a great little plane. I leveled out and accelerated to 80 mph indicated. I rubbed the ice off my right lens and noticed that the view was incredible. It wasn't the same as looking out a tiny window on a passenger jet. The Pegazair afforded a lot more window to look out of. I could see a 100 miles to the north, east and south. There were clouds coming in from the west over the mountains. The mountains were snowcapped and the sky was crystal clear with scattered cirrus clouds a few thousand feet above me. I made a slow 360-degree turn and just



The Rio Grande with the Sandia Mountains just east of Albuquerque in the distance



took in the moment. The speed difference between my climb and cruise speeds seemed to indicate that the Pegazair might just go a little higher. I thought for a moment and then called Center and let them know that I was level at 25,000 ft and requested 27,000 ft. They came right back and approved 27,000 ft. The climb to 27,000 ft seemed to take a long time. The climb rate hovered just above 150 ft/min when I leveled off at 27,100 ft and the plane accelerated to 65 mph indicated. This was really cool. I had not only climbed to my goal of 25,000 ft but had exceeded it by more than 2000 ft. I enjoyed the feeling of being as high as I have ever been in an unpressurized aircraft and in one of my own making to boot.



After a few moments, I called Center to let them know that I was ready to go back down. They cleared me back down to 14,000 ft. I kept the rpm up to keep the engine warm, and reduced the manifold pressure from 20.5" down to 16" as I pitched over to an indicated airspeed of 110 mph. This turns out to be around 170 mph TAS at 27,000 ft. Flutter is a function of your TAS not your IAS. I needed to be very cautious at this high speed to make sure that I didn't get into flutter territory. The airplane felt solid as a rock and I gingerly pulsed the controls in all three axis to check for any control oddities that might appear at this high TAS. Everything felt fine, no unusual vibration, sensitivity, or strange pressures on the controls were apparent. The ghosts were finally gone.



I wanted to prevent shock cooling the engine, so I kept the rpms at 5760 and the manifold pressure at 16" as I started the descent. At 23,000 ft, center asked me if I could hold at 23,000 feet for IFR traffic below me. I did and watched a SWA flight headed for Albuquerque go by underneath me. The was pretty cool! Center cleared me to continue my descent to 14,000 feet. The engine was nice and cool now, so I reduced manifold pressure to 12" and pitched over to 120 mph indicated and my descent rate went to 1700 ft/min. As I approached 14,000 ft I slowed the plane to 100mph and then cancelled IFR. I thanked Center for the help and the controller said that he was happy to oblige. I set up for an extended right downwind for runway 27 at Los Alamos and pulled the annoying oxygen mask off and cleaned my lens off one last time. On final approach, I wiggled the rudders to wake up my feet for the landing. I made a decent wheel landing which was a nice ending to a great flight. I taxied up to the hanger and shut down.



Level at FL270 in the Pegazair

As I sat there, and thought about the flight, I wondered why I felt so good. Lots of people have climbed a lot higher than I did. Thousands of passengers on commercial and business jets do it every day. I guess the difference is that they don't do it in an airplane that they have built with their own two hands. They also don't get to pilot the exploration flight that probes an aircraft's flight envelope for the first time. I guess this combination of airplane builder and test pilot is what feels so good. It is a gratifying experience and a significant achievement to build and then test fly your own airplane. We are lucky in this great Country to be able to build experimental aircraft of every sort and to be able to go test fly them ourselves in the national airspace. It says a great deal about the freedoms we Americans enjoy, and about organizations like the EAA and AOPA that work exceptionally hard to maintain these freedoms for all of us. Everyone that builds and flies their own plane has the chance to experience this feeling. Whether it is that first flight after construction is complete, or the Phase I flight envelope exploration, or additional test flights later in time, we get a chance at that feeling. It's a great feeling. It's something to write home about.

# EAA Chapter 691 Membership Application/Renewal Form



*Please mail this form along with \$25 to our Chapter Treasurer, Checks can be made out to EAA Chapter 691:*

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: