# *The Trailing Edge*

August 2023

## Ford Trimotor Pax Qual

It is very common, and even endorsed by EAA Headquarters, to describe AirVenture as so big that you can't possibly do everything. You just have to accept that and pick what things you are going to do.

In 2000, 2002, 2004, and 2006 I was very focused on things that had to with building my airplane. In 2009 I was very focused on repairing my alternator so that I could go home at the end of the week. In 2011 and 2013 I was focused on showing Tuki around the grounds.

It's okay that you can't do everything, but at some point you realize that shouldn't always just do the same things. You should do some things you haven't done before. In 2014, I decided to finally go take a flight on one of those Bell Model 47 helicopters that were always buzzing over the grounds. I had seen them every year that I had been there, but had never done it. I went on the first Sunday, before the show officially started, when the line was really short. I wasn't so much interested in seeing the Convention grounds; I was more interested in seeing the helicopter that my Dad had worked on. If I remember correctly, he designed the plate that connected the transmission to the fuselage frame in this model, a part that basically supported the whole fuselage and kept it in the air. This was also the first time Tuki and I went to the Seaplane Base, even though Doolittle had been raving about it in 2011 and 2013.


Returning to AirVenture in 2023, I had the mind to do something else that I had never done before—I was going to take a flight on the Ford Trimotor, which, like the Bell Model 47, always seemed to be flying over the convention. I couldn't do a "Qual" (or Qualitative Evaluation) since they wouldn't let me in the pilot seat, but I could evaluate the

passenger accommodations, hence the "Pax Qual". I was going to do it on the first Sunday, like had worked so well for the Bell 47. The only problem was the Trimotor didn't start flying until Monday.

On Wednesday morning, 26 July 2023, we arrived at the field. It had been raining that morning. As I arrived at the Bearhawk around 0915 to drop off or pick up some stuff, I looked over at where the Trimotors were boarding, about 500 feet away. There didn't seem to be much activity there, so I thought maybe the lines would be short. This was the time to strike. I proceeded in that direction.

## Preflight and Boarding

To be clear on what you are getting, it costs $85 for a 15 minute flight over Lake Winnebago. That 15 minutes includes the taxi time, so the actual time airborne is less.

I got into line to buy my ticket. As I had guessed, the line was short at maybe 6 to 8 people (it would be longer later). I presented my AOPA credit card and was charged appropriately. I signed the waiver that said things like this airplane is really old and the pilots are volunteers and not necessarily professional aircrew. I was then sent to the next window to be manifested on a flight. They had two spots left on a flight not too far in the future and called for any party of 2. Another guy spoke up as a single, so I volunteered as a single too. We became their de facto party of 2 and were added to the manifest. We were directed to be present at the standby tent at 1030. As that was about an hour away, I walked the 500 feet back to the Bearhawk, got out the chair, and perused some of the literature I had accumulated.

I had been manifested for the "big" trimotor which had 10 pax seats. Trimotor NC9645 was a 1928 Ford 5-AT-B, serial number 8. It first flew in 1929, and currently belongs to the Liberty Aviation Museum in Port Clinton OH. It is currently powered by three Pratt & Whitney R-985 radial engines of 450 HP each, mounted in the high-drag, no-cowling configuration. I'm pretty sure that is not the type of engine it originally flew with. In 95 years there may have been an engine swap.

The other trimotor that was flying was the EAA Ford Trimotor. It only had 6 pax seats, and thus was referred to as the "little" trimotor.

I mustered at the appointed time in the standby tent. The boarding tent B (for "big" trimotor) had room for two pax manifests, those on deck, and those on deck for on deck. After the pax manifest two before you had loaded, you were called to move to the boarding tent. In the boarding tent we received the FAA mandated briefing. There was no discussion of oxygen masks dropping from the ceiling, though there may have been a discussion about where to find a flotation device. We were informed that the Stewardess didn't show up for work today, so there would be no inflight service. As a consolation, everybody was booked for both an aisle seat and a window seat (not hard since the seating is 1x1). Since there were no overhead bins, no carry-on luggage was allowed, and a big box was provided by the boarding tent for checking your bags. I had anticipated this and left everything at the Bearhawk.

The #3 engine (right wing) was shut down while boarding through the right side cabin entrance door. I suspect the propeller was not of the feathering type, so the only option was to shut down the engine. Even so, it was still plenty windy from the slipstream of #2 (nose). The "jet-way" or "jet-bridge" consisted of a single step box placed in front of the door. We were warned to watch our head twice, once for the cabin entrance door, and once for the wing box carry through, which was significantly intrusive into the cabin. I stepped aboard and proceeded forward to seat 2F, right next to the #3 engine. There was a light with a switch above each seat. I tried the switch on mine and the light came on! No one else seemed to notice since there was plenty of daylight to fill the cabin.

## Startup and Taxi

The "gate agent" closed the cabin entrance door and the pilots started engine #3. For the wing engines, the engine instrumentation, to include oil temperature, oil pressure, and tachometer, was placed on a strut above the nacelle. The pilots look out the window to see how the engine is doing. I'm guessing it uses a mechanical tach, which means the drive cable is relatively short, compared to snaking it through the wing and into the cockpit. The engine instrumentation for #2 was in the cockpit.


**The cockpit. Visible are a magnetic compass, period correct intercom panel, clock, airspeed indicator, turn and bank indicator, #2 tachometer, altimeter, period correct Garmin GPS, throttles, magneto switches, and period correct radios and transponder**

**Engine instruments on the strut**

We taxied to runway 18R, in accordance with the normal Airventure departure procedure. I noticed that for taxi, all engines started in idle, and would frequently return to idle. To taxi straight ahead, advance #2 throttle. To turn right, advance #1 throttle. To turn left, advance #3 throttle.

Suspension on the main landing gear was a coil compression spring on the vertical strut under the engine nacelle. The coil spring was covered in a rubber/fabric boot. The unusual design choice was that the main gear strut was cabled to the top of the spring, while the nacelle was cabled to the bottom of the spring. In flight, the main gear strut hangs in tension, but remains sprung on the compression spring instead of being on a hard stop.

**Landing Gear spring (in boot) compressed on the ground.  Note loose cables.**

**Landing Gear extended in flight.  Note tight cables.  Lake Winnebago in the background**

## The Flight

Once cleared for takeoff, the pilots advanced the three throttles, and the noise level in the cabin rose to insane, most certainly unhealthy levels. I need to bring ear plugs, both for this and for the airshow. Don't even think of carrying on a casual conversation with another passenger.

**Cabin looking aft. Imagine it is really loud**

We made a sweeping turn to the left. Airplane parking that used to stop at the south end of runway 36-18 now extends well beyond that, seemingly all of the way to Fond du Lac. We then proceeded out over Lake Winnebago (I'm still not sure why they named the lake after a recreational vehicle) and continued a big sweeping circle. As best I could tell from staring at the instrument panel from seat 2F, we were flying at about 900 feet AGL and a blazingly fast airspeed of 80 KIAS. Wikipedia, the source of all knowledge, lists a cruising speed of 107 mph. Assuming that is a true airspeed and converting to calibrated, we should have been at 91 KIAS. I presume there was not any reason to push the engines that hard and we were just maintaining a good pattern airspeed. The airspeed indicator appeared to be the same type of sensitive airspeed indicator that we used at TPS, which is good to something beyond 600 knots, and we were using from 40 to 80 KIAS of its range.

A continued turn lined us up on base for runway 18R. We turned final and proceeded to a smooth touchdown. I watched as the weight of the aircraft transitioned from the wings to the landing gear, smoothly compressing the big spring.

**Control cable in-flight inspection**

## Post Flight

We taxied back to the same place we boarded for disembarkation. An EAA volunteer was standing ready to use your phone to take your picture by the vertical fin. Of course, I did the obligatory ***Project Police Picture Point***.

Watching other flights turning final reminded me of a scene in Casablanca, even if that airplane was a single engine.

## Final Thoughts

While sitting in an incredibly loud airliner, the thought occurred to me, what a horrible way to cross the country at a blistering 80 to 90 knots? Just how bad was the train that people chose to travel this way?

But that was then. This is now. (S. E. Hinton) If you are at AirVenture, I highly recommend spending your $85 for a 15 minute time travel experience back 95 years. History is much better experienced than studied where possible.

**- Russ Erb**