

EAA Chapter 81 Meeting Minutes
August 15, 2020

Meeting was called to order at 1002 by President Erik Fjerstad in the Ryan Field meeting room.

Treasurer's Report: Eric Nelson has skedaddled to parts unknown, hopefully without taking the check book with him. We're pretty sure that he will be back, eventually.

Secretary's Report: Before Bob Miller could even begin, there was a motion to accept the Minutes of the July 18 meeting as published in *Sky Writer* and on the website eaa81.org. Had someone actually wanted the Minutes to be read, Bob would have been SOL (Sadly Overly Lax), because he actually forgot to bring a copy. However, the amazing David Schiffman was ready to save the day, producing a copy and waving it around as though anyone would want to see it (nobody did). Thanks anyway, David. We appreciate everything you do for us (which is a lot).

President Fjerstad made a point of thanking Larry Wilson for "funding our hangar". Larry is doing final assembly of his Zenith 701 STOL there.

Visitors: Jeff Black flies a Piper Arrow with the automatic gear-up mechanism enabled. Brave soul! He has been a member of EAA for years. Dana Stoker bought an RV-7A and has built other airplanes. He is moving from TIA (in this case, Tucson International Airport, not Transient Ischemic Attack, also known as a mini-stroke) to Ryan Field. Matt Habib recently bought a Pulsar with a Jabiru 2200 4-cylinder engine.

Next was our featured speaker, Erik Fjerstad. Erik informs us that he has a five-year itch when it comes to engineering jobs. He has had four: General Electric fire-control systems, his own computer business, aircraft systems engineer for fuel-measuring systems on multiple aircraft, including digital replacement systems on Boeing B-52 bombers (which were produced through 1962, so Erik is not as ancient as you might think), and finally, he worked on electromechanical flight-control systems.

Erik's presentation covered the FAA's requirements for fuel gauges (they only have to be accurate at zero!) and the need in some cases for accuracy at other points. 1% of the full fuel load for a 747-400 is almost 600 gallons, or about 2 tons of Jet-A, which can impact the CG calculations and is almost 20 minutes of flying time at the end of a long flight. 1% however for Erik's RV-6A, however, is only about 2.5 lbs, so probably not very important. The most common fuel gauging technologies were discussed, including visual level, visual floats, electric sensor using floats, submerged capacitance tubes, ultrasonic (sonar) probes, external "drip sticks" that essentially lower a standpipe to the fuel level to see the overflow (used as a manual back-up to confirm fuel tank quantity under conditions of gauging problems), and totalizer systems that integrate consumed fuel flow measurements to decrement a starting fuel load value. Despite having designed many fuel gauge systems, Erik's Hatz utilizes visual float gauges and his RV-6A utilizes simple potentiometer float gauges, not seeing any reason to have

anything more exotic in these aircraft. A question regarding the choice of gallons, pounds, or kilograms was posed. Erik summarized that for large airplanes weight is critical for various phases (takeoff limits, landing limits, etc.) and that fuel energy is proportional to fuel mass (fuel density varies with fuel constituents and temperature) and engine performance is set in mass per hour. For small airplanes, especially those using gasoline, gallons has been historically used. The selection of pounds or kilograms has had unintended consequences, for example when the air and ground crews mishandled a gauging fault and subsequent refueling of an Air Canada 767 and took off after loading a specific quantity of pounds when that number of kilograms was requested, resulting in the infamous "Gimli Glider". The 767 with its glide ratio of 20+ made it to the former RCAF Gimli airfield with both engines windmilling.

Builders' Progress Reports: Erik is finishing up the installation of a pre-owned Lycoming O-360 to take the place of the O-320 previously in his RV-6A. Bob Miller is hanging the lateral stringers and doors on his Kitfox Series 5 Vixen. Larry Wilson had fuel gauge problems, handily solved by our resident fuel gauge expert, Erik Fjerstad. Like many electrical instrument problems, it was a bad ground. Larry also learned the hard way that aircraft electrical wiring is not intuitive, having tragically toasted his Tosten grip switch (he said alliteratively). Erik is helping him sort out the rest of the wiring, as Zenith, at least initially, did not provide an adequate and specific wiring diagram. Larry has had another Chapter 81 member, Jason (Bubba) McCoy make vinyl decals to make his Zenith CH 701, already painted Sand Gelb (yellow in German), resemble a Fieseler Fi 156 Storch. For those not familiar, the Storch was an extreme STOL (Short Take Off and Landing) liaison airplane used by the Germans before and during WW II. Larry was persuaded to replace the authentic swastikas with Balkan Crosses so as not to offend the sensibilities of onlookers. Speaking of wiring issues, Matt Habib is having problems with his GRT EFIS (Electronic Flight Instrument System) and is working with GRT on this; also, he replaced his starter, but is having fuel sender and tachometer issues, and the strobe breaker pops. Dana Stoker has 20 hours on his RV-7A and is having high oil temperatures. The engine, originally from a Cherokee, had a 5" circular intake there, but the RV has instead a NACA duct and ram tube that narrows considerably on the way to the oil cooler. He wonders whether this could be the problem (it could!).

Old Business: George Snyder, in Ryan Field hangar C-5, reminds us that he has a sheet-metal brake, shear, and even an English Wheel, available to Chapter 81 members gratis, and George will even provide instruction. Jim Keown is seeking volunteers to partially dismantle and restore the Cessna 140 donated to us. Vice President Steve Horton has already offered to go over the logs. Work will begin when it cools down, if ever. Jim also would like to know if there is any interest in starting a flying club. He has contacted David at EAA about how to organize one. Erik suggests that we should do the restoration and worry about what to do with the plane when it is flyable, but Jim is forward-thinking and believes that having a flying club will increase interest in the restoration. Some potential issues with a club based upon the 140 would be that this is a tailwheel aircraft, more prone to ground incidents, and accordingly more expensive to insure.

Finally: the WASP (Women's Air Force Service Pilots) fly-over in celebration of Edith Baugh Upson's 99th birthday. The flight will organize at Ryan Field at 0900 on Sunday 8/30. The flight will be of light aircraft in single-file at about 1,000 feet AGL on a loop avoiding controlled air space once out of Ryan's Class D. Erik will make an announcement on the website.

New Business: This actually was not discussed at the meeting, but it should have been.

It's getting to be that time of year when we start to think charitably. We have been sponsors of Southern Arizona Teen Aviation for several years and they have been very successful at getting these young men and women enthused about general aviation. The group includes 2 newly-minted pilots, 3 Aerospace Engineering students at Embry Riddle and U of Alaska, a very determined young lady who has her heart set on being an A&P, and a bunch of rivet-happy kids having a great time building an (RV-12is) airplane that each will have a chance to fly! Our last donation of \$3,000 (along with others) made it possible to purchase several kits on the current airplane (#2) before selling #1. The faculty of SATA is purely volunteer; all the money goes to Van's for aircraft parts, plus a few needed tools and supplies here and there. At the September meeting, we will ask for another donation.

Meeting was adjourned at 1140. The next meeting will be held at the Ryan Field conference room on Saturday, September 19 at 1000. There will be a featured presentation, topic TBA.

Respectfully Submitted by
Secretary Bob Miller