



## EAA Chapter 648

Longmont, Colorado 80503

Unfortunately, because of every one's concerns regarding the Corona virus, there will be no scheduled general membership meeting this month.



**T**hanks to all of you for reading our newsletter and I will keep on working to increase our readership and don't forget to patronize our advertisers if an aviation purchase is in your future.

*Remember, "Nothing happens until somebody sells something"*

### Chuckle of the Month:

By the time a man is wise  
enough to watch his step,  
he's too old to go anywhere.

*- Billy Crystal*

### It is membership dues renewal time

by Treasurer Dan Berry

The chapter's most critical source of income is our dues. Your \$20 membership dues are used to pay facilities expenses, offset the cost of chapter projects, our newsletter, and various other things like our EAA National Chapter dues and insurance policy.

**NEW: "Join or Renew via PayPal" simply by going to [EAA648.org](http://EAA648.org), on the left side of the screen, and pay for your membership with a credit card or PayPal account. The link is on the front page of this newsletter.**

You may also pay by cash or check by including your email address, EAA number, and phone number with your form of payment and sending it to our Chapter Treasurer; Dan Berry, 930 Champion Circle, Longmont CO 80503

I found this article in one of my monthly emails and thought I would pass it on.

Haiko, Editor

# The FIRC That Refreshes

Paul Berge



**“Shine out, fair sun ... that I may see my shadow as I pass.”**

Sound advice from Shakespeare’s Duke of Gloucester (Richard III), a CFI who understood the importance of looking outside the cockpit and away from the electronic gewgaws that distract us from flight. Gloucester was an unlikely inspiration as I recently underwent a biennial FIRC. If unfamiliar with the acronym it may sound like a twice-yearly TSA audit or a mildly intrusive aeromedical probe, except it recurs every two years and decodes as *Flight Instructor Refresher Course*. Or more personally, Flight Instructor Reality Check.

What is reality? Impossible to say outside of Firesign Theatre. Face it, it has been a strange year on planet Earth, so renewing/refreshing my flight instructor certificate was a timely assignment that dragged me away from YouTube. FAR 61.197 tells CFIs how to renew their certificates every two years or lose the privilege to sit right seat in a 60-year-old Cessna, wondering

how the hell the heater works. Note: No one knows. Let that ticket lapse, and you are facing another CFI check ride, which could prove embarrassing.

The FAA offers several refreshing options; we will consider two. If during the preceding 24 months, the instructor endorsed at least five students for a certificate or rating practical test, and 80 percent passed on the first try, then renewal is semi-automatic. There's e-paperwork, of course, and possibly a goat sacrifice to IACRA. I have not exercised that option lately, but when I was a busy primary instructor, I would visit the FSDO, present my punch card of two-year successes, then stroll out with a renewed certificate plus a free jelly doughnut. At least I think they were free ... like those pens they leave on their desks.

Another option is to check into a sanitarium with 57 other expiring CFIs for a two-day, butt-numbing class with a ground instructor who sticks tenaciously to the syllabus. The one time I chose that route it reminded me of structured learning in Army basic training: "This, gentlemen, is the M18A1 antipersonnel Claymore mine; note the safety placard, 'Front Toward Enemy.' Any questions? I did not think so. Moving on ...." I despise cram courses in Lysol-scented hotels, but what is a procrastinating CFI to do?

Stay home like the rest of America and regain legitimacy in the COVID-safe privacy of your Ikea Slumber Suite™. My biennial go-to FIRC is King Schools, but other home study courses (Gleim, AOPA, Walmart ...) qualify. The medium evolved over decades from VHS tapes (Google it), through DVD and now, online. I suspect the next iteration will include a microchip implant, so whenever we stumble over a student's question, Alexis whispers,

“Stall occurs when the wing exceeds its critical angle of attack ... shall I explain, Firesign Theatre?”

A FIRC is not a BFR, although successful completion qualifies for the ground portion, so it is kind of like a flight review without the fun part—flying. I whine every two years when faced with the renewal course but am predictably humbled by what I had forgotten since the last recharge or never completely understood. Despite a half-century in aviation, what I do not know about flight could overload a stretch DC-8. What I do know was largely acquired when students dreamed of one day flying DC-8s. Included in my past are countless stories of ways I have screwed up either as pilot or air traffic controller, plus accidents I have witnessed but, I swear, did not cause. Such experience the FAA now recognizes as invaluable and not merely actionable.

Effective flight instructors are storytellers who keep the mythology alive that makes aviation cool, and if you do not think flight is cool, you are not worth knowing. Inexperienced instructors have temporary authority to borrow other instructors' tales until earning their own. To that administrative end the FAA promotes scenario-based instruction, wherein the instructor utilizes what-if situations, even if the virginal CFI has yet to personally what an if. Examples: What if weather changes enroute and, heaven forefend, you must deviate from the flight plan? What if ForeFlight quits, and you are forced to shout, “Mayday!” while resorting to paper charts? What if your credit card is declined while placing an emergency order for them? Textbook answers are not as important as displaying the pluck to anticipate risk and handle trouble's inevitable appearance. Such as: On every takeoff I ask, “Where would you go if the engine quit?” When the real event happens, you are two seconds ahead of the game, allowing time to switch to a tank that has gas in it.

At heart I am an old-school, daytime VFR pilot with my tail dragging in the grass. Gadgets do not impress me so much, especially in the traffic pattern, where I am scanning both sky and ground “that I may see my shadow as I pass,” and more importantly, the shadows of other aircraft passing me. So, I was pleased with the emphasis FIRC places on flying the airplane and not merely monitoring it. John and Martha promote decision-making skills, illustrated with confessions of chillingly poor choices they had made in their nascent flying days.

That noted, almost getting killed in an airplane is not a proactive approach to safety. I know. Tried it too many times. If the FAA’s Wings program awarded medals for near-death stupidity, I would have earned a chest full before turning 40. None to be read as badges of courage. Defying reason did not make me a better pilot but merely showed how lucky I have been. Passing those warnings along to future pilots will not prevent stupidity. Each generation will, and should, explore safety envelope margins because that is what pilots do. By pressing the edges of risk, we expand our skills and, frankly, have more fun. By recklessly setting markers beyond reason, though, pilots create a bogus sense of well-being: “Don’t worry, folks. I’ve scud-run Death Canyon before and survived, therefore we’re good.” Misinterpretation of what seems, but is not, safe can kill. As storytellers, CFIs might explain that occasionally the Claymores we set, thinking we are protected, can be pointed toward an enemy that, as Pogo warned, is us. Chances are I will need reminding in two years.

## **Airworthiness Certification (AWC) On-Line Process** by Dan Berry

I am not an A&P, rather an EAA Technical Counselor and I am simply sharing some information I use. Always research the needed resources for your brand of equipment.

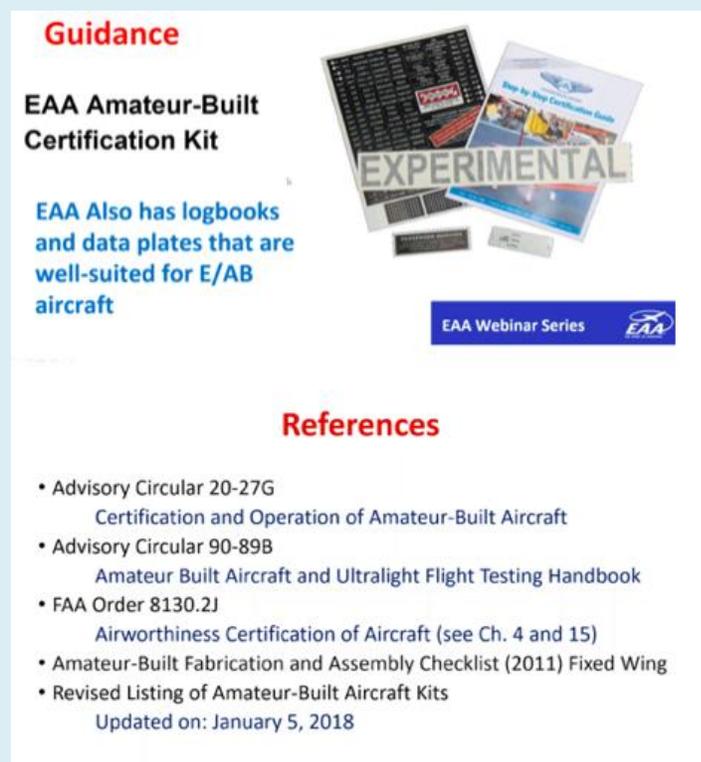
On a cold windy Saturday, I attended a great EAA Webinar on the FAA's on-line Airworthiness Certification process. The webinar, "FAA Certification Basics" was presented by DAR and Kit Planes author Dave Prizio and hosted by Charlie Becker.

I will share the highlights I learned from the webinar.

If you are going to be applying for your Airworthiness Certificate, a must read is Dave Prizio's March 2021 Kit Planes article. He helps step through the on-line AWC process and portal.

The AWC website is at this link [awc.faa.gov/AWCExternalApplicant/Splash/Index](http://awc.faa.gov/AWCExternalApplicant/Splash/Index)

There are a few steps and resources you may want to consider before starting with the AWC portal. The following screen shots are courtesy of Dave Prizio and used with his written permission.



The slide features a central graphic with a laptop displaying a checklist, a book titled "How to Buy Construction Guide", and a sign that says "EXPERIMENTAL". Below the graphic is a blue box with the EAA logo and the text "EAA Webinar Series".

**Guidance**

**EAA Amateur-Built Certification Kit**

EAA Also has logbooks and data plates that are well-suited for E/AB aircraft

**References**

- Advisory Circular 20-27G  
Certification and Operation of Amateur-Built Aircraft
- Advisory Circular 90-89B  
Amateur Built Aircraft and Ultralight Flight Testing Handbook
- FAA Order 8130.2J  
Airworthiness Certification of Aircraft (see Ch. 4 and 15)
- Amateur-Built Fabrication and Assembly Checklist (2011) Fixed Wing
- Revised Listing of Amateur-Built Aircraft Kits  
Updated on: January 5, 2018

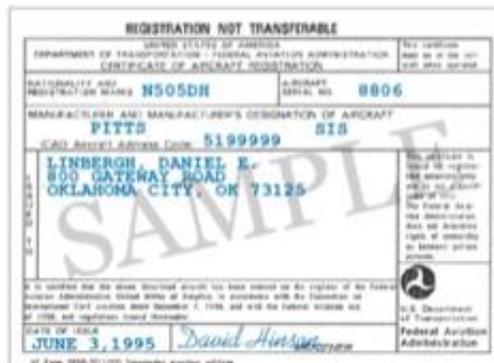
## Getting Started

- Apply for your aircraft registration
- Be sure to use the most current forms from the FAA website: [faa.gov/forms](http://faa.gov/forms)
- Apply for this about 2 months in advance
- Application – Form 8050-1
- Affidavit of Ownership (notarized) -- Form 8050-88
- Bill of Sale – Form 8050-2, or receipts for major components if plans built



## Before You Start the AW Process

- You must have your permanent registration (Form 8050-3) on hand or at least have your registration show up in the FAA data base when you do an N-number search.
- The airworthiness process begins after the registration process is complete.



## Documents You Will Need

- Registration
- Program Letter – ask your DAR for help with this
- Form 8130-12, notarized – Eligibility Statement Amateur Built Aircraft
- 3-view drawing or photos of your aircraft (top, side, front)
- Weight and Balance with empty, forward CG, and aft CG loadings
- Amateur-Built Fabrication and Assembly Checklist – only if you used commercial assistance or a kit that is not on the FAA approved list
- Builder's Log – usually not submitted through AWC

## Summary of Paperwork

- Copy of Registration – form 8050-3. Applicant provides.
- Program Letter – Applicant provides with DAR guidance.
- Weight & Balance for the plane – Applicant provides.
- 3-view drawing or top, side, and front (or photos) – Applicant provides.
- Airworthiness Certificate – DAR provides.
- Operating Limitations – DAR provides.

## Airplane Preparation

- **Review of Construction Process Paperwork**
  - Builder logs
  - Photos
  - Tech Counselor visits
  - Testing artifacts
    - Composite aircraft
  - Engine logs and O/H documentation, if applicable
  - Fuel flow test documentation

## Fuel System Testing

- Fuel system problems cause fatal accidents
- Fuel flow testing before first flight and after fuel system modifications can prevent accidents and save lives
- Fuel system testing can be cumbersome, but it will promote safety and most DARs now require it



## Typical Problems Found

- Jam nuts, jam nuts, jam nuts!
- Use of fiber nuts instead of castellated nuts
- Inadequate engine/prop control cable travel
- Not using Torque Seal or other markings
- Improper/missing labeling of switches, controls, knobs, lights, etc.
- Improper flight control travel and/or blockages (stick grip interference)
- Use of old hoses – 10 years max. (see current Op. Lims.)
- Missing safety wire

## Typical Findings

- Data Plate must match the Registration and must be Stainless Steel
- N-Numbers FAR part 45 – **See AC45-2E**
  - 3" numbers on Lancair Legacy won't work
  - Times New Roman font won't work
- Improper lighting and location of lights for night flight
- Improper swaging of nicopress sleeves
- Unavailability of plans/construction documents
- Missing logbook entry stating aircraft is in a condition for safe operation (initial condition inspection)

## Typical Findings

- Missing ELT functional check (if ELT installed)
- Fuel caps missing labels for quantity and type of fuel
- Passenger Warning placards missing (especially tandem aircraft)
- Unsupported wiring, especially for electronic ignitions
- Lack of log book entry that all SB's are incorporated in completed airplane

## The Plane Should be Ready to Fly

- The plane must be 100% complete
- Do a thorough inspection before the DAR arrives – Call your Tech Counselor
- Plane should be opened up to allow inspection of major components
- Builder's Condition Inspection should be entered in logbook:

I certify that this aircraft has been inspected on \_\_\_date\_\_\_ per the scope and detail of Part 43, Appendix D, and was found to be in a condition for safe operation.

Signature, print name,<sup>\*</sup> certificate number, total time on aircraft

*\* Dave mentioned your Pilot License number is used for the first conditional inspection record Certificate Number since a Repairman Certificate has not been issued to you at this point in the project.*

## The Plane Should be Ready to Fly

- Transponder certification in logbook if first flight in Class D airspace or under Mode C veil.
- Get permission to fly to another airport to get transponder certification if not available at your airport.
- Make sure battery is fully charged so engine will start!

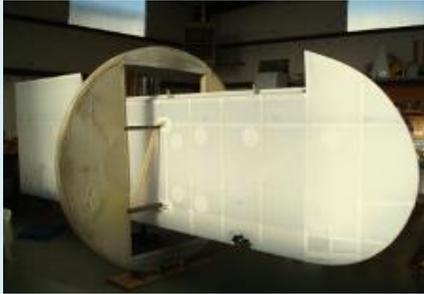
Start early on your registration, have those aircraft, engine and prop logbooks ready. Dave also mentioned it is best to show your most essential photos in your builders log you present to your DAR. He told a story of a builder who had over 10,000 photos, he only needed less than 100.

Make sure your DATA PLATE information is EXACTLY replicated from your Registration.

I hope this helps you navigate the Airworthiness Certification of your project.

A note on Fuel System Testing. I performed my Legend Cub fuel test per the requirements of CFR 23.955 Fuel Flow (a)(a1)(b)(3a), CFR 23.957 Flow between interconnected tanks (a) and 23.959 Unusable fuel supply (a).

Fly On - Dan



## Wing Rotisserie for Free

(wing shown not included :)

Contact Mike Duggan email - [dugganboulder@msn.com](mailto:dugganboulder@msn.com)

Call or Text - 303-912-9038

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