
CAA Chapter 32 News

The official publication of Experimental Aircraft Association Chapter 32 - St. Louis, MO (Jim Bower, Editor)

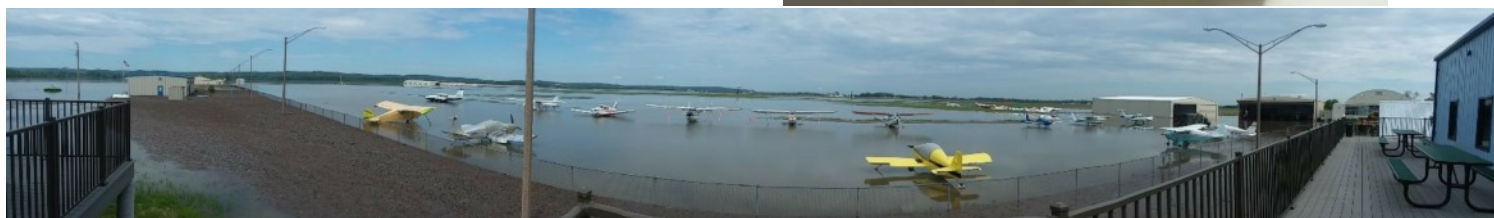
May, 2019

The Flood of 2019

The sun is for Battered Clouds' but in the warm place!



image5
By ddohertycaa32



The May meeting is cancelled and is being replaced with a working party due to flood damage to the ARC. See inside for more details.



President's Corner

by Dave Doherty

President Dave will not be submitting an article this month because he is heavily involved in mitigating the flood damage to the ARC. Your friendly editor is submitting this short piece in his stead.

As you know, KSET was invaded once again by the muddy Mississippi river. At its crest, the water depth at Grafton was nearly 33 feet. This is as bad as it's been since 1993, and the first time water actually entered the ARC.

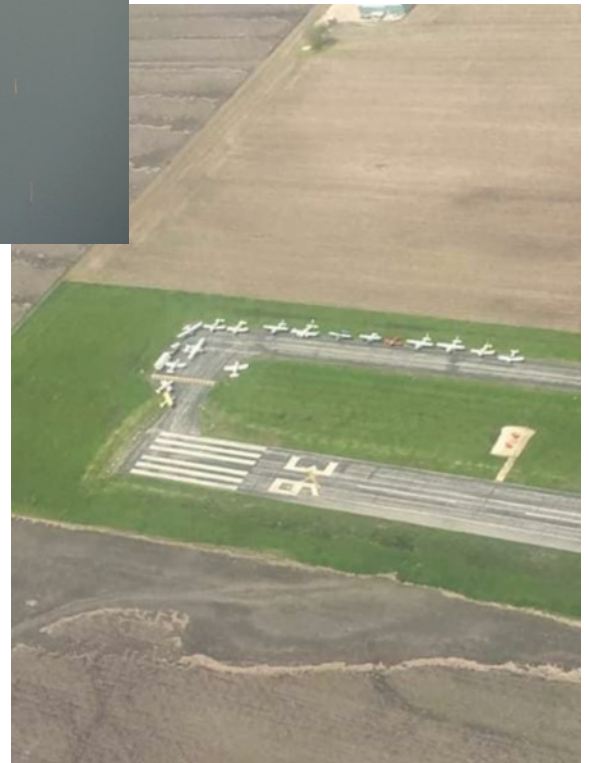
A number of people were involved in a rush effort to get as much of our stuff off the floors as possible. For the most part, that was a success. A couple of kitchen cabinets could not be moved due to them being locked in between the tiles and the ceiling. The pictures tell the story. About 9 inches of water made its way into our facility, necessitating the removal of some wallboard.



As of this writing, some of the floors have been cleaned and disinfected, and it's a matter of moving things from one area to another in order to take care of the rest of the mess. President Dave is asking for as many people as possible to help with this **DAILY** effort. *The May*

meeting this Saturday the 18th is being replaced with a working party. Wear your finest rolling-in-the-mud clothes. Here's hoping you can all attend.





WE NEED HELP! IF YOU CAN
HELP, HEAD TO KSET. IF YOU
HAVE WADERS, WE COULD
USE THEM!!! 314 570 4690

April Meeting Minutes

Dave Deweese

April's meeting began with the Pledge, Dave Doherty presiding.

Bill Florich is here for a presentation; Dave tried to play the DVD part in his laptop, which promptly ate the disc and wouldn't spit it out. Don went to work dismantling Dave's computer and successfully retrieved the DVD. Dave is now running the meeting in analog mode without electronic backup.

Don gave the treasurer's report including checking and savings account balances. We've set up a new account for Ray Foundation and moved \$1,000 into that.

Steve Marr is visiting, long time national EAA member who was not aware of this chapter and is looking to resurrect his Long-EZ. John Wittier is also a national member who's been here once before, years ago, and is back.

Dave continues to work on his 3rd class medical; latest appointment is with a neurologist: those guys are busy around St. Louis such that he filed an extension.

The Ray Foundation scholarship for Kyle's EAA32 is moving along: Chris Ward reports that he's communicated with HQ and the check is in transit. Kyle is working on the Sporty's ground school portion. The bank required minutes from an executive meeting regarding the account....we held a meeting last weekend for this purpose. Don is working on the funds side of this: he's spoken with Herman about buying block time and has spoken with HQ about a direct deposit into our new account.

We're starting up an Explorer Scout post and have the right number of volunteer leaders. The first meeting will be held Tuesday, 5pm at Creve Coeur. See Dave or show up at the meeting if you're interested in participating. We haven't officially started recruiting scouts but will start with local school districts and cap the number at 20. Dave intends to meet every other week. One of our volunteers is involved in STEM and we'll leverage that.

We cancelled our Young Eagles event last weekend as the river was flooding and the ARC was full of refugee planes. May 11 is our next date. May, June, and maybe July are full as far as Laura's merit badge classes go, so we know we'll have good attendance. Note that the EAA Youth Protection online training is required for pilots and preferred for ground crew. It only takes about 10 minutes on the EAA site. When you complete this please let Rick know.

Flying Start is another program we're working on. Jim Hall and Rick May are working together on this: there are plenty of interested parents at Young Eagles events and this is a chance to get them involved. This is envisioned as a mentoring program so we'd need pilots willing to provide flight training guidance to other adults. Rick spoke about an introductory meeting (July timeframe, which implies some recruiting at the May and June Young Eagles events) and would like some pilots who'd be willing to get up and speak about flight training. Art and Libby both expressed interest.



We've been updating promotional supplies, Bill and Dave are working on marshalling wands and wheel chocks. On the promotional side Bob Cameron has updated our logo in a format that will scale up for the new feather flags.

Movies at the ARC are starting up this month, preceded by a pot luck. This month will be Strategic Air Command.

Regarding the recent flooding we need to formalize a plan: at 30' 1" water is on the floor in the ARC, at which point we need to raise or evacuate the contents. Our current plan is to put out an emergency call for volunteers.

Dennis Wiss, the airport manager, is looking to do something with the A-Frame on the airport, Dave is thinking about moving it closer to the ARC for additional space. He's looking at the renewal of our 20-year lease and this might factor in. Doug Killibrew recommends reviewing FEMA requirements for buildings on an airport.

Miles Leesman (?), friend of Lee Arnold, is looking at getting some funds from the estate to pave the gravel path from our hangar doors to the ramp.

Art Zemon has gotten the OK for a tour of Flight Safety. They need some potential dates (8-5 during regular business hours) and a list of interested attendees. Don started a signup sheet.

Chris Ward has become a fulltime substitute teacher at Gateway school. He's working with an instructor who's starting up an aviation program in the next school year. This teacher will be coming out to visit our chapter.

There's another large-scale Boy Scout jamboree coming to St. Louis. We intend to have a presence including some aircraft.

Art's looking for help with upholstery in his plane. Local places he's contacted install kits for a standard model car but can't do custom. Art has frames and needs to create cushioning and covers.

May 4: the Troy chapter will hold a Young Eagles event in Mexico, Missouri.

Dave has food cards. See Bill if you're interested.

Bill Florich is giving a presentation after the meeting. We was in the Air Force for 21 years and will talk about the B-47; he's currently in the local vintage EAA chapter.

EDITOR'S NOTE:

As so often happens, events have overtaken us in the form of 9" of water inside the ARC. The rest of the airport has fared poorly, as you might expect. Many of the events and programs mentioned in these minutes will not be taking place as planned. Watch your e-mail and check out the website for updates.

Jim Bower

Learning as we Go

“STUPID HUMAN TRICKS Or “Premeditated Stupidity”



What is wrong with this mower?

It does not take much to see the problem. The left front wheel is not touching the ground. YOU can see this visually. YOU can feel it as you push the mower because it is digs in on the left front side.

THE REAL PROBLEM WAS THE PERSON MOWING THE LAWN KNEW THERE WAS A SITUATION, KEPT MOWING THAT WAY AND TRASHED THE LAWN! This person is also a student pilot and made all kinds of excuses about why THEY pressed on... like this.

I mentioned that the mower is like the airplane we are flying, if it is not right when we are flying, WHEN are you going to make it right?

Years ago I rented an airplane that had masking tape around the mixture control knob so the control would not go all the way into the instrument panel, the full rich position. It was an early morning departure and the keys were left in the plane so I could make an early getaway. I DID fly the machine but I could not stop wondering WHO jury rigged this thing up. There was trouble and this was the fix. REALLY? What if something happened and there was an accident. “Ah mr. bill, why did you fly this airplane this way?”

Q? Who is responsible for the airworthiness of the airplane?

A: 14 CFR 91.7 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

When the flight aircraft becomes unairworthy, this is when we must declare an EMERGENCY and use

14 CFR 91.3 (b) “the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.” (THE get out of jail card!)

Well class, I flew the airplane because I needed to get there. But all the time in flight I wanted to keep pushing the mixture control all the way IN because it was so unnatural for me to see an aircraft control with tape around it, being restricted from the normal, all the way IN position, where it should be.

Recently I read an outstanding article about

“PREMEDIATED STUPIDITY” by James Albright, Business & Commercial Aviation December 2018.

Holy Bird Brains Batman! In the article were five example of things that pilots did or are doing and they left me speechless. The best was a corporate jet that rolled down the runway with the LANDING GEAR HANDLE IN THE “UP” POSITION!

Really? A photographer took a photo of the plane in takeoff “action.” The other action was an 80° bank on climb out. Wow! Here is the best part:

The FAA was contacted. “The Feds, however, said they don’t have the time to track down every stupid pilot.”

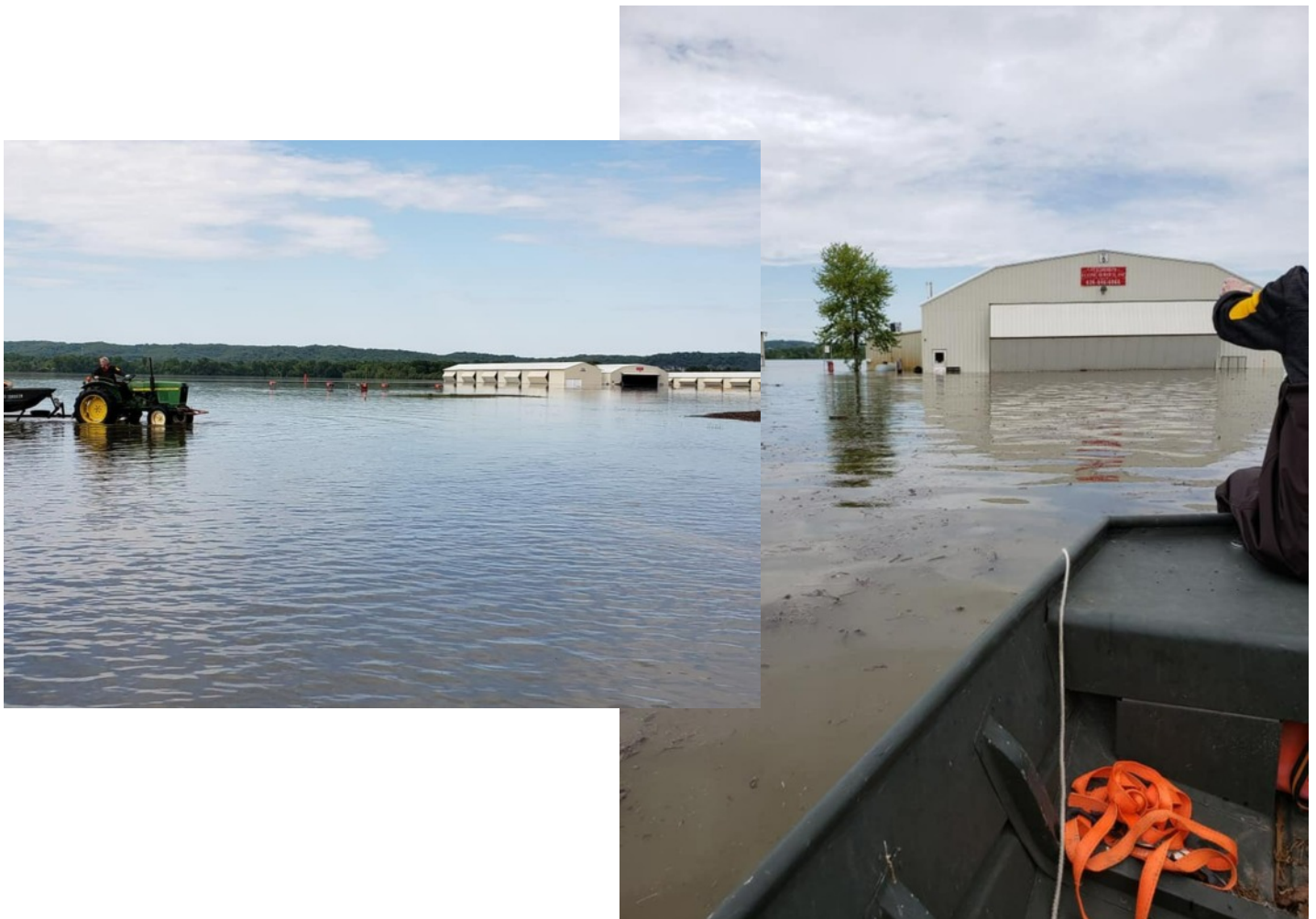
<https://www.lancairowners.com/premeditated-stupidity>

So in an effort to get pilots to known their airplanes, whether they are Van’s RV-12s, Boeing 737s, or their corporate jets, we will always have the Jet Jockeys and Hot Doggers filling the pages of newspapers and flying magazines with their antics.

Be safe out there!

Q? Why are flight schools on an airport referred to as Fixed-Base Operators?

A: In the early days of aviation, some transient barnstormers collected money in advance for promised flights and then disappeared in the night without satisfying their obligations. This led to the expression. “fly-by-night operations.” **The** expression *fixed based operator* was the result of honest pilots remaining on the field for extended periods.



The flyjbs YouTube Channel Takes Off!

By Jeffrey Stephenson

Some readers may already know this, but I recently started a YouTube channel called “flyjbs” to document and record many of my flying adventures. One simply needs to go to the YouTube.com website and search for “flyjbs” to find my channel of videos (or [click here](#)). Think of my YouTube videos as visual journal entries about what it is like to own and fly a small airplane. I am still learning how to shoot good video and then edit it all together, but I am pleased with the results so far. I have already created and posted a number of videos to YouTube so I thought many chapter members might be interested in checking out the channel. If you like what you see, click on the area that says “Subscribe” and then click on the little bell next to it to be notified every time I post a new video. The next video, showing low passes over Smartt during the flood is in production and will be posted to YouTube soon. Here are a few of the topics and links for my previous videos:

Flying to Monroe City MO



<https://youtu.be/Nlz9ASmKcIQ>

This video documents a flight that Michelle and I made to Monroe City back in March. The video shows footage of Mark Twain and how the Monroe City airport became the Captain Ben Smith Airport.

Mississippi River Flooding Scenic Flight



<https://youtu.be/FgAP7wkRsN4>

The video was shot and edited during the flooding that occurred in March 2019. At the time, the flood was not yet expected to threaten the airport.

Mississippi River Flooding (3/27 Update)



https://youtu.be/dlf_1X3jZU

This was an update as the flood waters continued to rise. This video, while dark in color because of the time of day it was filmed, shows some very beautiful shots of the sunset over the waters.

Flying to Safety at Salem



<https://youtu.be/zJ-WN5WWR-A>

A third flood video, this video shows of some of the flooding but also parts of my flight to Salem, MO to insure that the airplane would not be sitting in flood waters.

Flight Fundamentals: Flying the Traffic Pattern



<https://youtu.be/al3SQL36IHA>

I brush up on some of my flying skills as I explain all the things I do when flying the pattern. This is a good educational video for pilots flying the traffic pattern around Smartt.

FOR SALE



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Phone: 636 441-5024

Takeoff and Landing Performance; Fuel Flow Tests

by The Cheerful Curmudgeon (aka Art Zemon)
“A complete lack of ideas and the power to express them.”



Last Sunday, before the high water, I did a few quick performance and fuel flow tests in my Bede BD-4C airplane. I wanted to get a rough idea of “short field performance,” how little runway is required to take off and land. I also wanted to confirm the fuel flow rates at several typical engine power settings.

Takeoff and Landing Performance

Short field takeoff and landing performance means four things:

- How short a runway is required to take off?
- How short a runway is required to land?
- How much horizontal distance is required to take off and clear the top of a canonical tree, 50 feet tall?
- How much horizontal distance is required to land if the same canonical 50 foot tree is at the approach end of the runway?

Measuring those distances is surprisingly finicky because there are so many variables. All of these will significantly influence the distances:

- Wind speed; even 10 knots makes a big difference
- Altitude above sea level; high altitude means thinner air so the propeller and the wing generate less thrust and lift, respectively, and the engine generates less power
- Temperature and, to a lesser extent, humidity; higher temperature and humidity is the same as higher altitude
- Weight of the airplane with fuel and occupants
- Tire pressure
- Runway surface, grass or concrete
- Pilot’s technique

You get the idea. If I were fanatical about it, and wanted to get the absolute best possible number, I would even want an airplane with the fewest antennae sticking out into the breeze, and a nicely waxed paint job.

With all of that in mind, I decided to do a quick test just to get a ballpark idea of the first two numbers.

The day that I had available was breezy, with about 12 knots of wind. I flew a couple of circuits, two takeoffs and two landings. On each takeoff, I got the engine up to full power at the very end of the runway before allowing the airplane to start moving, used two notches of flaps, and had my son, David, observe where the wheels left the ground. For the landings, I landed and stopped in as little distance as possible. My son observed both where the wheels touched down and where I stopped, so we could measure both the ground roll (amount of runway used) and the total distance from the runway threshold (which accounts for my inexperienced flying technique in the BD-4C and the distance I “floated” down the runway before the wheels finally touched).

After we put the airplane back in the hangar, David and I went back to the taxiway parallel to the runway and measured. This is what we came up with on a day with winds 11 knots, gusting 22, density altitude of approximately 500 feet, and airplane weight of approximately 1700 pounds (gross weight is 2400 pounds):

- Short field takeoff: 723 ft
- Short field landing: 792 ft
- Normal landing: 1011 ft

Fuel Flow

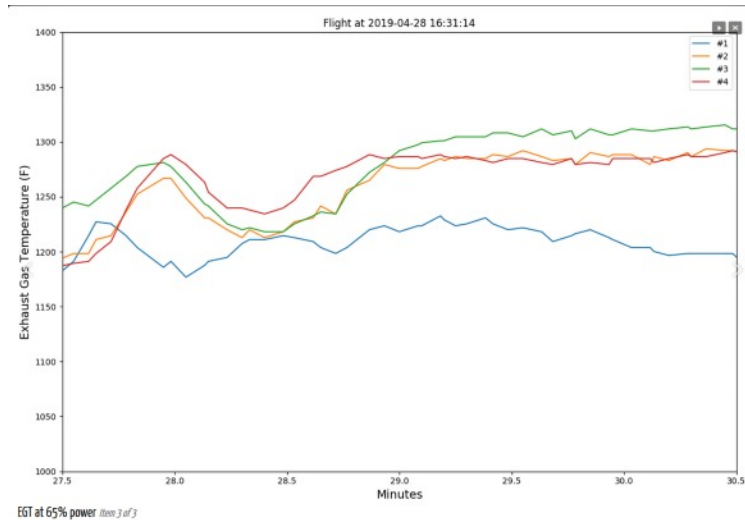
As previously mentioned, I had incorrectly set the K-factor for my fuel flow sensor. After properly setting it to 18,000, I reran the fuel flow tests. I wanted to know the fuel consumption at several power settings:

Takeoff power: “Pedal to the metal” with the mixture full rich. I use this when taking off and climbing to about 1000 feet AGL (above ground level).

Cruise climb: This is 150 HP (75% of the engine's rated power) but with the mixture full rich to reduce cylinder head temperature.

- Cruise at 75% power, 65%, and 55%.

Here is the overview graph:



I extracted the actual numbers from the data to get my measurements. The graph is easier to read but I did not try to interpret the graph into numbers.

- Fuel flow @ takeoff power 15.2 gph
- Fuel flow @ cruise climb, 75%, full rich 11.8 gph
- Fuel flow @ 75% 10.9 gph
- Fuel flow @ 65% 8.00 gph
- Fuel flow @ 55% 7.00 gph

These numbers are consistent with what other people achieve with 200 HP Lycoming IO-360 engines, so I am confident that my engine is doing what it should.

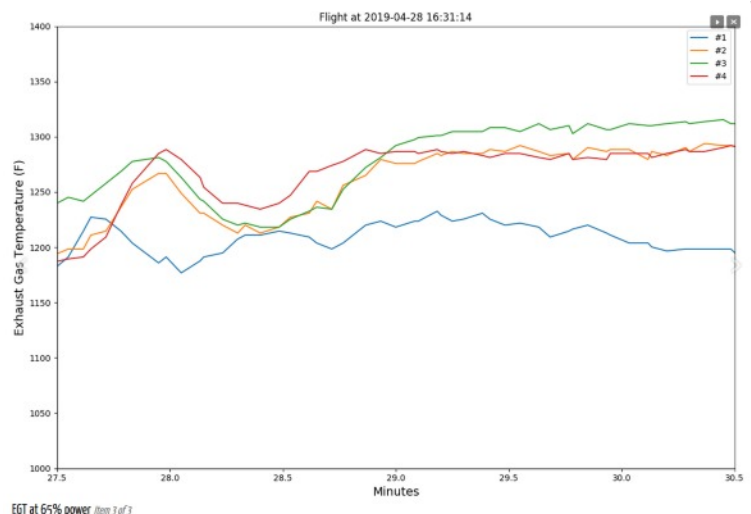
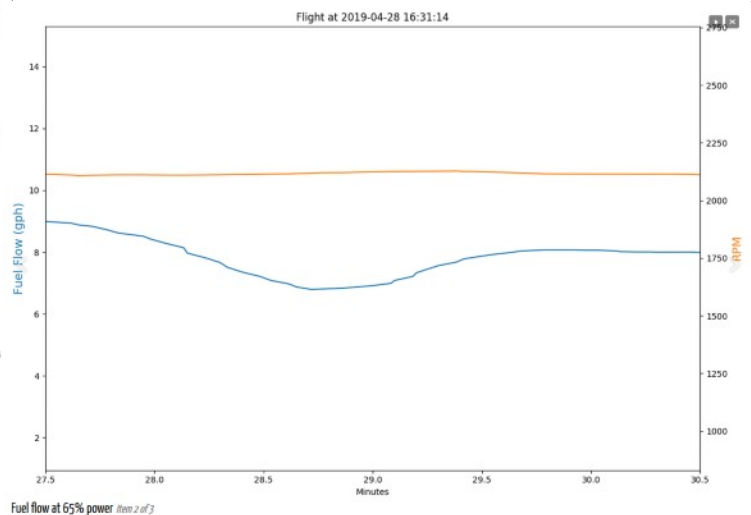
Leaning the Mixture

To determine fuel flow at 75% power, 65% power, and 55% power, I leaned the mixture (air to fuel ratio) to the best economy (lowest fuel flow). Lycoming's engine user's manual gives this procedure:

- 75% power or higher: Lean to peak exhaust gas temperature (EGT) and then enrichen the mixture until the EGT drops 150 degrees. This is called 150 degrees ROP (rich-of-peak).
- Less than 75% power: Lean to peak EGT and optionally lean until the EGT drops 50 degrees. This is called 50 degrees LOP (lean-of-peak).

The Lycoming manual actually says that you can also lean by simply observing when the engine begins to run rough. You may not observe a drop in RPM. Then enrichen until it runs smoothly and assume that this is peak EGT. The manual says that this is as accurate as using the EGT gauge in the airplane. I tried that technique and then analyzed the data on the ground and found that that simple method worked great.

Here are zoomed in graphs for 65% power. You can see the EGT as I was leaning the mixture:



Next Steps

Now that I have the autopilot and fuel flow meter working properly, and I have confirmed that the airspeed indicator is accurate, I will go back and carefully measure airspeed at 75% power, 65% power, and 55% power. Once I have those numbers, I will be able to calculate my fuel economy (miles per gallon) and maximum range (miles) and endurance (hours).

Using the autopilot, I will also finish up the best rate of climb measurements.

Pat Brannan's Marquart Charger Build Update

As some of you may know, I'm completing a Marquart Charger project that I bought from the EAA chapter in Fremont, MI. The project came with the fuselage and wings largely completed, though the wings had a good bit of rib damage from 15 years of storage in the EAA hangar. The fuselage also had the rear seat moved back three inches in what I considered to be an ill-advised design, so I reversed that change.

The project also came with completed struts and wing root fittings. I now know that when somebody hands you a never-been-rigged biplane project with completed struts and wing root fittings there is a good chance that you will be throwing away a few (or most) of the struts and wing root fittings. At least that's the case with the Charger because the forward cabane struts and the center interplane struts are not adjustable and the plane's geometry is sensitive to the accuracy of these fittings. The right way to do it is to build the fuselage and wings and then set everything up on an adjustable scaffold.



LEFT WING ON SCAFFOLD

new forward cabane struts and lower wing root fittings everything came together.

The forward cabane struts, by the way, were supposed to be crazy hard to make. Several people attempted to scare me

When everything is positioned perfectly cut and welded, the struts and wing root fittings to account for errors in fuselage or wing construction.

I really don't want everyone how long it took me to arrive at the conclusion in the preceding paragraph. It's embarrassing.

But when I finally accepted reality, built the scaffold, and made



CABANE STRUT ASSEMBLY



CABANE STRUT TOP

and tack it together. None of this stuff is rocket science and now I have cabanes that fit the plane properly. And I didn't even have to throw away any failed attempts.

I rigged the plane with the new cabane struts and lower wing root fittings. The resulting geometry is as close to perfect as I can measure. I don't care if it's the prettiest plane out there, but I do care if it flies straight.



RIGGED PLANE

Next steps? Lower wing walks, wing odds and ends, leading edges on wings and ailerons, trailing edges, and instrument panels. It's also time to start thinking about a pre-cover inspection and finding a DAR.

As always, if you have any desire to come by and see the project, just let me know.

Thanks for the article and pictures, Pat! - Ed.

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\$28,500

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- Dynon EFIS-D6
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- LED landing and taxi lights
- New tires and brake pads
- Koger canopy shade
- Canopy vents
- Wheel pants



- Wing lockers
- Winter kit

I am the builder of the airframe and the sole person that implemented the building and installation of this Corvair engine that has given me 860 hours of affordable, fun flying, local and multiple x-country flight, some over 1,000 miles.

Ron Lendon
586-484-3391

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Check out our fantastic Web Pages at

WWW.EAA32.ORG

Laura Million, Web Designer

While you're there, take time to join the
Yahoo Groups to help you stay abreast of
Chapter happenings!

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