NEWS AND VIEWS

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Items to Note!

1. Next COPA 26 Meeting is Tuesday February 11, 2025.
2. Our February speaker will be a Region of Waterloo Airport staff member (details to come).
3. The next Pilot Decision Making (PDM) Zoom Workshop is Feb 5, 2025. . To join, send an email to cykf.pilotworkshop@gmail.com.

In this Issue!

WELCOME and Happy New Year 2025!

More Insights from Waterloo ATC!

(Geoff Gartshore, Editor)

On December 17, 2024 our Guelph COPA 1 group, along with some EAA Canada members enjoyed an informative tour at the Waterloo ATC Control Tower.

The Nav Canada folks were very accommodating with our large (almost 20) group, dividing us up into 2 groups for the tour. While one group was touring the control tower, the second group remained in the boardroom and received a great "ground school" in ATC and recommended pilot procedures, as well as some case studies and a very helpful question and answer period.

Nav Canada staff were most appreciative of our interest and questions/discussion, and especially of our thank-you gift of fresh pastry snacks for the break room - nothing like a little bribe, right…..?

Some key takeaways for me from this tour were:

- "Less is More" concerning ATC communications. Time is a precious and limiting commodity in aircraft/ATC communications, so avoid unnecessary speaking when talking with ATC. Some examples are provided…

- Only read back Restrictions and Instructions, such as. Line Up and Wait, Hold Short, Fly Runway Heading, Taxi and Cross (Runway __).

Coming Events!

- A Regional staff member from the airport will be our speaker at the February meeting (details to follow).
- Remember that the requirement for a 406 ELT in your aircraft is due by November 2025, if you have not already equipped your aircraft!

- For all other communication, including receiving altimeter settings and transponder codes, you do not need to read those back - just reply with your aircraft registration (GCUD or CUD, in my case) . The rationale here is, if you read either one back and they are incorrect, additional time is spent on the airwaves for tower staff to correct you and repeat the information. They will see your incorrect transponder code on the radar screen soon enough and will correct you at that time. They will also always provide you an additional altimeter setting during your call up prior to entering the control zone.

- When you are "Cleared to Land", it is judged safe to do so by ATC based on the current situation (traffic on the runway and exiting, your aircraft speed and performance). This clearance can occur even if an aircraft is still on the runway but judged by ATC to likely be off prior to your touchdown. Despite this, **the final choice to land is still yours as PIC, and do not hesitate to Go Around if you are uncomfortable with the situation** (This has occurred to me on a few occasions at Waterloo over the years).

- You might also be cleared to land even while another aircraft takes position on the runway for departure. The same conditions apply as above - Do not hesitate to Go Around if you are not comfortable with the clearance.

- Have the Waterloo Control Tower phone number readily available on your phone (519) 648-3055 (confirm this first in your CFS). This phone number is identified in the CFS as the emergency contact number for ATC in the event of an emergency. In the event of a Comm failure, ATC staff would prefer a phone call via their dedicated line to direct you in for approach and landing, rather then squawking 7600 and having to discern light gun signals. However, if you cannot get an answer on their phone, of course squawk 7600 and watch for the light gun.

Several photos are provided on the next page highlighting our visit and the great views from the Control Tower!

Thanks again to Nav Canada staff for an excellent and informative tour!

Assembling in the Boardroom at the Tower for the Nav Canada Briefing

ATC Controller Melissa (with Lanyard) who gave the Tower tour upstairs

Bill Farr (Guelph COPA 1 Navigator) thanking ATC for the tour. The white box of pastries on the table in front of Bill was happily received by ATC for their snack room!

Control Tower View to Apron 3 (to west), with the window shades down.

Same view with the window shades retracted….

View of Taxiway Alpha and the Runway beyond, with the window shades down…

Looking along Alpha towards Runway 32, and Aprons 2/3

A taxiing Cessna 152 Aerobat on Alpha heading back to the Flight Centre….

Pilot Workshops

"With an airplane piston engine, how much oil leakage is too much?"

Pilot Workshops Answer:

“It is difficult to achieve zero oil leakage on many aircraft piston engines. That makes it easy to become complacent, especially if your airplane has been leaking a small bit of oil for a long time. However, as in all areas of aviation, complacency is dangerous. Here are some indicators that might indicate a bigger problem:

If it’s dripping on the nose tire in a single-engine airplane.

Engines sometimes leak a little oil out the breather tube after shutdown, but the tube outlet is usually away from the nose tire. If oil leaks on the nose tire, it is likely a significant leak that runs down the inside of the bottom cowling, making its way to the centre aft area. This is an indicator that something is wrong.

If you can’t take a 4-hour trip with your airplane without worrying about the oil level.

You have enough things to be thinking about in flight, without wasting mental energy on wondering if you will run out of oil in the engine.

If your oil consumption exceeds the manufacturer’s recommendation.

Do some research for maximum oil consumption for your specific engine, and if it’s more than the recommended amount, it’s worth evaluating the situation.

Finally, if the line guy says, **‘That’s a lot of oil under your engine, we need to get that cleaned up,**’ you have a problem. A big enough puddle on the ramp to attract attention probably needs a visit to the maintenance shop before your next flight.”

Everything Electric in Vancouver

(Lee Coulman)

I nerded out in late summer 2024 and went to the Everything Electric Show in Vancouver (Sept 6, 7, 8, 2024).

Officially, I had told my wife that I was coming out west to visit my son and his partner. The reality was that we spent the 3 days looking at eVs with vehicle to grid, heat pumps, and oddly enough, electric airplanes. The YouTube channels **Fully Charged** and **Everything Electric**, originating from the UK, have captured the world's interest. This was my second Everything Electric (VR) but this one was different. The 40 or so half hour theatre sessions had some interesting topics with industry-leading panel members.

Low Impact Living was not my favourite session, but **Is Flying the Biggest Elephant in the Room?** turned out with some surprising fact fighting and interesting ways forward for GA. The lean design guru Sandy Monroe was arguing that hydrogen was still on the table for large airplanes, while the energy strategist, Michael Barnard thought that "sustainable fuels" were the only practical way forward for long distance aviation. The real surprise for me was the GA representatives from Sealand Flight and Harbour Air - Mike Andrews and Erika Holtz.

> *What barely seemed plausible a few years ago, is fast becoming a reality. But what types of electric flight will we see, and when and where will they operate?* (Everything Electric)

Canada's First Flight School Flying an Electric Airplane

Sealand Flight is a small flight training operation in Campbell River on Vancouver Island. As of June 2024 they became the first flight school authorized by Transport Canada to operate an electric airplane for pilot training. Mike Andrews, their chief pilot, confirms that the e-Trainer works with their 172 fleet for local training. This is an accomplishment that comes with a lot of negotiation and commitment.

The architect for the transition appeared to be Nancy Marshall, whose business knowledge and technical drive engineered this eV startup. She explained the difficulties of dealing with Transport Canada but also the technical snags with the charging environment. Prof. Paul Parker from UofW talked to the KW RAA in January 2023 and described the challenge of connecting the Velis 400 V 3 phase power supply in the WFC hangar. The VELIS airplane requires at least 400 V DC to charge the 2 battery packs and doesn't have an onboard AC charger. At Campbell River they only have a single phase 120/240 AC connection. This is not enough. The WFC solution transforms commercial 600V 3 phase to 400V 3 phase, which in comparison, is no big deal. This is litmus test for the future of ALL electric!

This will be a problem when we start using more electricity in place of what some call "*dinosaur fuels*". The grid needs an upgrade to get 3 phase at higher voltages to the point of use for 2 way charging. BC Hydro is aware of this problem for eV chargers. Also, because of the high peak demand, the solution may need chargers with internal battery storage. The very large eV chargers use this concept. In their case, it was suggested that a Tesla PowerWall could be used to supply the 20kW at 400V from solar power and the grid. The other snag is that they really can't go anywhere because Transport Canada has not eased up on the 30 mins reserve. This needs to be redefined for electric aircraft as the eBeaver has the same problem. Harbour Air is working on a CARS solution.

Nancy Marshall and her team at Sealand Flight packed up the VELIS and transported it from Campbell River. This exhibits an extraordinary commitment to the future of e-Aviation. This was expensive but it created so much interest and excitement. It can be done but we need champions like Nancy and Sealand Flight.

It was such an honour to meet Nancy and her team. Our Professor Emeritus (retired), Paul Parker was there to lend a hand in the project! It was whistle stop this time in between home in Vancouver and commitments in Australia and Waterloo.

HARBOUR AIR and the eBeaver

We walked along the waterfront, finding the one and only yellow Beaver sitting at the Harbour Air dock.

The eBeaver project has been going on since 2019 and won't be concluded anytime soon. This ambitious project sounds sketchy from our perspective because of the short range but may actually be feasible for their 30 minute operational hops. Harbour Air (HA) is a huge operation using piston Beavers, turbine Otters, Caravans, and twin Otters. They have made a large commitment to this project but as of today it may be showing a few cracks as they are rolling back on some of their routes. Nevertheless, HA has been working the technical and certification challenges with another champion, Erika Holtz. As a DAR she has the ear of Transport Canada and understands the mechanical and certification challenges. She presents the technical issues very well, if not optimistically. We all need a positive view of the future.

These are the design specification goals for the standard and extended Range eBeaver. The current test aircraft does not necessarily meet all of these parameters but is supposed to stay at 5600 lbs gross.

Standard Range	Extended Range
Passengers: 6	Passengers: 4
Payload: 1216 lbs | 552 kg	Payload: 936 lbs | 425 kg
Range: 82 km	Range: 130 km
Endurance: 60 minutes	Endurance: 75 minutes
Cruise Speed: 145 mph	Cruise Speed: 145 mph

The biggest problem is the range. They are trying to certify the airframe for electric flight for either land or floatplane configurations. The current aircraft is very congested with 1000 lbs of battery packs, one in the nose, more under the belly and in the cabin. Although this may satisfy the C of G limits, it doesn't help the battery temperature conditioning and potential overheating during discharge and charging. Since 2019, batteries have more than doubled in capacity to almost 500 W-hr/kg. Newer batteries will improve the situation but changes slow down the certification process. What if the batteries were put in the floats to improve the thermal management and C of G?. This may be a certification issue as it would include the float supplier and would also limit certification to float operations only.

The bigger elephant in the room is the **definition of adequate reserve**. The Transport Canada 30 minute reserve requirement is not helpful and HA is working on a solution using percentage battery reserve. Erika is working on that definition.

Currently the aircraft **24V battery is not being charged** by the aircraft systems. There is no engine driven alternator for that purpose. Automotive eVs are charged by the on-board high voltage batteries using a DC to DC converter. The converter that HA put in there created so much electrical noise that the VHF radio was useless. For the test aircraft, there is a paltry AC cord from the dock and into a DC power supply to charge the battery.

Ever wondered why Teslas don't have AM radios? Have you had problems with DC to DC converters to charge your electronics, i.e. USB power supplies? The problem is not uncommon but it may need a lot of design attention, a clean design so to speak.

I suggest that you look at the "1258 Electric Seaplane" link on YouTube to see the real project and get the details.

For further information:

https://ca.everythingelectric.show/

Canada's First Flight School Flying an Electric Airplane – Sealand Flight

Paul Parker | Waterloo Institute for Sustainable Aeronautics | University of Waterloo (uwaterloo.ca)

Harbour Air to Speak on Future of Electric Aviation + Display Electric Airplane in Downtown Vancouver September 6th-7th | Harbour Air Seaplanes

(1258) Electric Seaplane? Exclusive look under the hood of the eBeaver by magniX at Harbour Air Vancouver! - YouTube

Episode 21 with Erika Holtz from Harbour Air Canada (youtube.com)

Is flying the biggest elephant in the room?

MEGA Theatre 30 mins

Imogen Bhogal, Presenter - Fully Charged

Michael Barnard, Chief Strategist - The Future is Electric

Mike Andrews - Sealand Flight

Kymm Girgulis, Key Account Management, Transportation and Infrastructure - BC Hydro

Erika Holtz, Engineering and Quality Manager - Harbour Air

Sandy Munro, Chief Executive Officer - Munro & Associates

Coming in the March-April 2025 Issue

ELECTRICAL FAILURE OVER LONDON!