RAA
RECREATIONAL AIRCRAFT ASSOCIATION
RÉSEAU AÉRONEFS AMATEUR CANADA

The Leading Edge

Monthly Newsletter of the Kitchener-Waterloo RAA

- July 2023 -

I try not to endorse individual products, although I do comment on, or review the things I use in my own plane, but I must say that "The Station" restaurant at the Goderich airport has gone through some interesting changes, mostly due to Covid 19, and has come out the other side as a great place to fly-in for a quick lunch, snack or dessert. Originally a 100-seat diner, it is now a great little dine-in or take-out snack bar with home-made burgers and Kawartha Dairies ice cream. The owner is very friendly and helpful. Lee and I had an opportunity to "drop in" near the end of May. It's at the east end of runway 28.

President's Message

Summer is finally here! We have had a real mishmash of weather during the month of June and to top it off we had a week of fairly thick wildfire smoke blanketing much of Canada, including Southern Ontario. The smoke was thick enough to prevent some of us from taking flights we had planned and reducing visibility for those flights we were able to take. It sounds like there will be some impacts to visibility for much of this flying season, with some fires expected to burn well into the fall of 2023.

I mentioned in the May and June newsletters, that I have made a few upgrades to Aerial 2, and I will attempt to expand on that somewhat in this issue. I also encountered an interesting self-imposed technical problem with the pitot-static system. I will explain the problem and my attempt at a temporary fix in some detail and show you a few photos.

As you can see from the photo above, Lee and I have been out travelling again a bit, so I will include a short article about our flights and one I made to join a past member, Gary Walsh, for a little fishing on Father's Day.

The Cadet Youth Aerospace Program received accolades from the Experiential Learning Co-ordinator, teachers and a few parents who attended the training session. Dan Pfohl, the program coordinator is hopeful the school board will include fall and winter sessions once the budgets are finalized for the 2023-2024 school year. We will be looking for volunteers to teach subjects like aero engines, propulsion, and other aircraft related topics once classes resume… I will keep you posted. Thanks again everyone who has participated so far!

2023 is going to be a great year for KWRAA!

- Dan

Upgrades to Aerial 2 (cont. from May & June)

Seeing my hydraulic fluid level in the float gear pump reservoir has been an issue since I first completed the floats in 2016. This year, before I installed them back onto Aerial 2, I decided it was finally time to do something about it.

I had installed an access panel with a small view port, but it was very difficult to get enough light into the tiny window to see inside the float. Even shining a small flashlight into the port did not provide adequate illumination and viewing of the fluid level in the reservoir. I decided to try replacing the entire panel with lightly tinted Lexan. I had a number of scraps left over from the construction of Aerial One and Aerial 2.

Rather than putting the twenty-eight 8-32 stainless screws into each one as I had previously done, I created a small offset bracket that tucks under the top edge of the opening and riveted it to the Lexan. I then lined the opening with 1/8" weather stripping foam and only installed four 8-32 screws along the bottom of the Lexan cover to hold the Lexan in place. It seems very solid and functions well.

When viewing through the port at a distance, the Lexan reflects like a black mirror and looks pretty good… like it's meant to be there.

In order to see inside the float compartment, you either need a light to illuminate the pump and reservoir or you can place your cell phone camera lens against the Lexan, which blocks out the outside light and uses the ambient light to "see" right through the tinted Lexan. This little "trick of light" works well in many places where reflections prevent you from seeing inside something. Below is a photo of the pump taken by placing the lens against the Lexan cover.

I replaced the cover on the pilot side too, even though there is nothing mounted inside the float. What that allows though, is for me to "see" if I have taken on too much water in the float when it has been sitting for any period of time in the water, including overnight.

I think this simple upgrade is one of my favourites so far. It was relatively easy to accomplish and quick to complete. Now I may have to think about installing more viewing ports as a quick visual check of what's happening in each of the chambers of the floats… but that's only an idea at this point and probable overkill.

- Dan

Auto-pilot on Aerial 2… Soon, I hope!

I promised to report on my newly installed Levil AP, which should provide me with auto-pilot in the Highlander, but I still have to do a number of calibration flights before I can report on it. Once I have completed those flights, I will write up another article on it, just in case one of you might be considering this option on your amateur-built aircraft.

It's pretty amazing when you consider all of the neat safety-related items we can add to our planes that the certified guys cannot add. Maybe Transport Canada will get their act together and introduce a Canadian equivalent of the NORSEE rule for our certified friends.

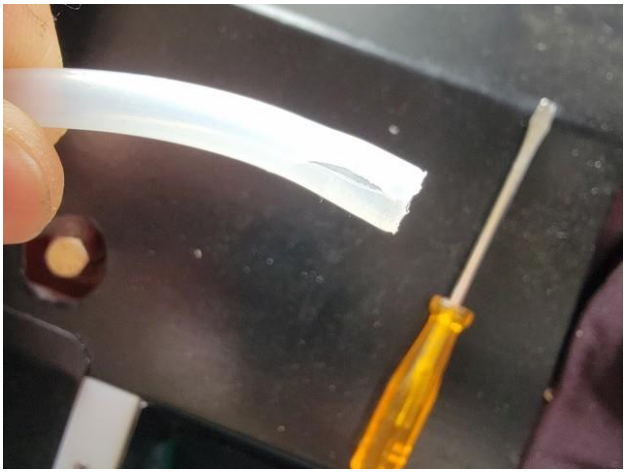
Pitot-Static Problems (Self-Imposed)

When I originally plumbed in the pitot-static lines in Aerial 2, I looked at various one quarter inch hoses to use. Polyethylene seemed like a good choice. It is strong, works under pressure, fairly flexible and just soft enough to slide over the connectors. Using it for pitot-static lines seemed logical, but turned out to be a big mistake.

I first noticed the problem when my airspeed started reading way too low and my transponder stopped reporting altitude. I assumed that it must be a leak in the static line, so I tracked down a spot where the tubing had cracked. I replaced that section with a short piece of the softer black hose that had been supplied with the Highlander kit a few years ago, and went for a test flight.

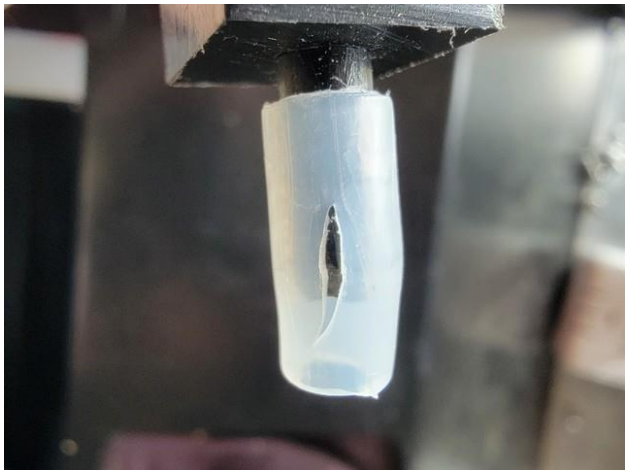
Airspeed indications appeared to be much better and my transponder was reporting altitude correctly… for a while. I headed over to Puslinch Lake to do a couple of water landings and returned to Guelph. Part way through the flight, the airspeed readings went low again.

After the flight, I checked out the stats on Flight Aware only to find that as I touched down on Puslinch Lake, my ADS-B OUT also stopped working and found out that my airspeed readings became erratic again. The next day I headed to the airport for more troubleshooting.



As it turns out the two issues were only related through vibrations and stress. Sure enough, I had more than one split in the pitot and static lines. All of these connections looked good when I did my annual a couple of months ago, but the temperature swings, vibration and likely parking the plane in the sun a couple of times caused the lines to crack and subsequently leak.

Every single connection where the tubing was slid over a male connector had split. I was shocked to say the least! The stress point appeared to be right at the spot where the male connector ended.



Obviously, I had to find a way to repair these lines even if only temporarily.

I used some of the softer 1/4-inch black tubing and pushed it over the end of the polyethylene line. It was a very tight fit and took a little persistence, but it slowly went together. I thought about how I would hold the joint together, but the black tubing acted like a Chinese finger puzzle around the polyethylene tubing. I don't think I could pull it apart again if I wanted to do it. I am hoping the black tubing does not dry out and crack from the pressure around the splice with the polyethylene tubing.

I completed this repair process for the other three joints that I found, where the polyethylene had cracked. As it turns out, that was all of the joints where I had slid Polyethylene over the male connectors.

Unfortunately, for now at least, the static line inside the wing was all polyethylene line so a permanent replacement will have to wait until the annual when my Highlander is back in the shop for service.

I checked the end of the tubing near the pitot tube and found that I had already used pieces of softer tubing to make all of the connections. The pitot, static, and AOA lines all have to make a tight bend in the wing, so I assume I used the softer transition pieces in order to accomplish this during the construction of the plane.

I had never heard anything negative about the use of Polyethylene tubing for pitot-static lines previously and was shocked to find out what had happened to mine.

The altitude issue turned out to just be a loose connector at the back of the transponder. As for the airspeed issue, take this as a warning to anyone building a new aircraft… **DO NOT USE Polyethylene for your Pitot-Static lines!**

Tom Shupe Fly-in

The KWRAA fly-in at Tom Shupe's was not as well attended as past events, but weather, conflicting events for some members and the number of chapter planes currently undergoing repairs likely had a lot to do with that. At least that's what I have been telling myself. I am hopeful that we will have a lot better attendance at the next fly-in.

Merle and his family attended and the kids had a good time drawing all manner of airplanes and other things with sidewalk chalk on Tom's large hangar apron.

Regardless of the low attendance, the fly-in went well and a good time was had by all. Three of us flew in and Tom had his Maule and a project plane on display for us to check out.

All taildraggers again… co-incidence???

I think not!!! Somehow, taildraggers and grass strips go so well together.

Thanks Mac, for supplying these photos of the Shupe Fly-in.

Here are a couple of scenic shots from the Goderich trip Lee and I did in June. The Huron shoreline was as beautiful as ever!

On my return to Puslinch, I photographed Juergensen Field with all of the canola planted around it.

This photo also ended up being selected as a weather watcher photo on CKCO Kitchener TV news the night after Lee's aerial photo of another canola field just north of Juergensen Field.

Day Tripping in Southern Ontario

It was good to be back on floats again and I was looking for a short flight to do where I could perform a few water take-offs and landings to hone my skills for this upcoming float-flying season.

I contacted Lee to see if he wanted to join me for some flying and as usual, he was up for any challenge that involved flying his Searey, especially near water.

It was already after noon and after a little research, I suggested we meet on Belwood Lake and try out the little restaurant near the bridge. Apparently, Lee had been there before on his bicycle with his wife Diane, but had never flown in. Challenge accepted!

When viewed on Google Earth, the red-roofed diner can easily be seen and it's not too far from the water's edge. The shoreline has been modified a bit from this picture, but there is a small public park that is easily accessed from a float plane near the bridge over the north-east arm of the lake.

Lee arrived first and secured his Searey along the soft shoreline and saved the dock for my Highlander floatplane.

There is a nice little public park with a portable toilet and picnic tables. Unfortunately, like most parks near water, the Canada Geese have desecrated it.

After a nice lunch at the diner there, we headed back to the planes and decided to fly up to Williams Lake near Chatsworth to pay a short visit to Tim and Susan at Glendale Aerodrome.

Glendale is a once-very-active aerodrome on the side of a small marl lake. The runway is not registered, and the pavement has deteriorated since its heyday, but it's still pretty good since Tim and Susan keep it well mowed. Perpendicular to the lakeshore, it is obviously slightly uphill as you clear the lake and just 1600 ft long, but the incline helps to slow you down as you land.

Lee and I land on the lake and taxi onto shore, but the strip is quite easy for almost any small plane.

And, by the way… Tim and Susan asked us to say hello to their friends at KWRAA.

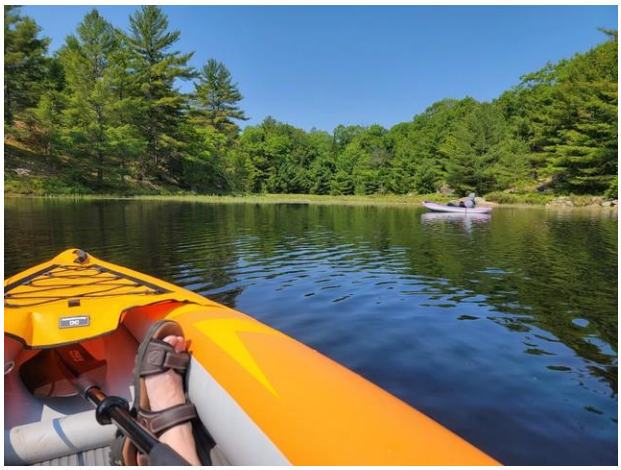
Father's Day Fishing Trip - 2023

Last year, I met with Gary Walsh to do a little Father's Day fishing in Muskoka. This year, I contacted him the night before and asked if he wanted to do it again. He agreed it would be a fun trip and we planned to meet at the lake around 9 am. Although Gary said he would get the boat ready, I told him not to bother as I wanted to try out a couple of inflatable kayaks I had in the back of the Highlander.

Since moving to Orillia a few years ago, Muskoka trips have become a lot shorter for Gary. For me, that meant a little more flying to get there, but I don't think I have ever complained about flying in my Highlander and looked forward to the trip.

Gary met me on the radio as I travelled up to Muskoka and it became obvious, he was travelling with another plane in tow. His friend Craig had flown in with "Blue Fox", his Kitfox 4. When I arrived, Craig was just leaving and had only really joined Gary to get a little flying in that day. My spot at the dock was freed up soon after.

Once docked, I pulled out the inflatable kayaks and prepared for a couple of hours of fishing. One of the kayaks was given to me in rough condition until I spent a bit of time cleaning and repairing it last fall. The refurbished kayak looks like new and performs really well. It's a 9 ft model from Aquaglide. The second one is a 13.5 ft Aquaglide Deschutes 130 that tracks well and is a bit more spacious. Both perform well as fishing kayaks that inflate and deflate quickly for easy travelling. There is also a hand pump and repair kit… just in case.



Being in separate vessels allows you to move around freely, yet stay in contact easily.

I cannot overstate the versatility of inflatable kayaks for remote fly-in fishing.

Gary and I had a great morning of fishing on Father's Day and Gary said to say "hello" to the guys at KWRAA!

Letter to KWRAA From the Cadet Youth Aerospace Group

Dear Dan,

If it weren't for the help of the KWRAA, the Cadet Youth Aerospace Group's "Tailfeather " trial student training program would not have been the same.

You and your group, Geoff, Lee, Dave, Don and the late Bob Schauber, modified our KR2 into the first and only folding wing version in record time so it could be better utilized for demonstrating and more easily stored. In addition, both you and Geoff contributed greatly as instructors preparing and delivering lessons during the 5-week trial period.

The program was a great success!

As CYAG's Director of Training, I want to personally thank you and your group for all your help! We are looking forward to next year when we hopefully will repeat our fundraising project - "Tailfeather". This project was designed to meet the goals of the aviation component of the grade six curriculum, but also introduces and reinforces science and technology concepts that will assist the students later in life.

We would like to reach out to you and your group again (KWRAA) to let you know, if there are any of your members who could help with any of our many one-off projects or as instructors in Aero-Engines and Airframes, Avionics, Robotics, Drones, or any other aerospace related subjects, we would welcome them into our Cadet Youth Aerospace Program as we prepare for the next semester. The expertise and experience that your members have in aviation has assisted us in achieving our mission to inspire our community youth in their aviation and space related interests.

The synergetic relationship between the Kitchener-Waterloo RAA and the local Cadet program has always been a great one and the “Tailfeathers” program has only served to strengthen this bond. I look forward to the opportunity to work with even more of your local RAA members in the coming school year.

Sincerely

Dan Pfohl

Cadet Youth Aerospace Group

Director - Training

Upcoming Events in 2023:

- Highlighted lines are KWRAA Events*
- Bolded Lines are KWRAA Fly-ins*
- *Fly-in Data Sheets are available on the KWRAA website at www.kwraa.net*

July 8	**-**	**KWRAA Fly-in at Largo Woods - CLW6 (Winterbourne)**
July 8	-	Shiny Side Up Rendezvous – Midland (CYEE)
July 24-July 30	-	Oshkosh Air Venture 2023
Aug 5	**-**	**KWRAA Fly-in at Juergensen Field CPG7 (Fergus)**
August 12	-	Gathering of the Classics – Edenvale Aerodrome
August 18-20	-	UPAC Convention 2023
Aug 26	**-**	**KWRAA Fly-in at Largo Woods - CLW6 (Winterbourne)**
Sept 2	**-**	**KWRAA Fly-in at Deming Field – CDF6 (Damascus)**
September 14	-	September Meeting at 7:30 in the Cadet building at CYKF
October 12	-	October Meeting at 7:30 in the Cadet building at CYKF
November 9	-	November Meeting at 7:30 in the Cadet building at CYKF
November 24	-	KWRAA Christmas Party – Details to follow later in 2023

* KWRAA events are fly-in and/or drive-in.

KWRAA Executive Contact Information:
Due to an increase in spam emails, please reach out to me directly for the latest contact information for the KWRAA Executive members. Thank you, Dan Oldridge (519) 651-0651.

Classified Ads:

Mac Mc Culloch has two folding bikes for sale. He is asking for $150 each, or best offer. Contact him at macpat@live.ca for details.