

- May 2023 -



Dave Gowing, who has headed up the Cadet program at Breslau for over 20 years thanked KWRAA for our on-going support of their organization. In spite of our membership dwindling from 60+ members during aviation's heyday to about 30 members now, we still make an annual donation of \$500 to the Cadets. Dan Pfohl of the newly-formed Cadet Youth Aerospace Program spoke to our members about their need for assistance to deliver the aviation component of the grade six curriculum. Students will be bussed to the Cadet Training Centre to take part in an experiential learning process using training aids and flight simulators. Lessons will be delivered by volunteers including interested KWRAA members.

President's Message

After a brief warm spell, we have been forced to endure a cooler April than normal. As climate change heats up (pun intended), we find that maybe the cool weather isn't so bad, as parts of the US west coast are faced with a record heat wave... again.

Maybe it's not all bad. The cooler wet weather has given me an opportunity to do a little maintenance on the plane as well as make a few upgrades to the panel in Aerial 2. I should have a couple of interesting stories for upcoming newsletters and hope that each of you will consider doing the same as you work on your own aircraft.

This month the newsletter has a great story from Lee Coulman about the lighting he installed in the panel of his Searey last year.

It has worked out well for him and he is sharing this easy upgrade with all of us.

There is also an article that shows the excellent support our members can provide when we gather together to assist a worthy cause. At the April meeting we received a ringing endorsement for a proposed program where KWRAA members assist the Cadet training personnel to deliver part of the aviation component of the grade six science curriculum. I asked for volunteers and a number of you stepped up to help. I called for a planning session to see what we could do and before the meeting was over, we had actually accomplished some of our goals. Wow! I'm so impressed and grateful. Thanks again!

2023 is going to be a great year for KWRAA!

- Dan

Let There Be Light! (Seeing Red!)

I never seem to have enough light on my panel. Some instruments and most switches don't have lights to help us at night or even at dusk, when the lighting and shadows can make seeing things on the panel a bit challenging. So, when I extended the glare shield in my Searey, I saw an opportunity to consider a better lighting solution. My plan was to add a multi-colour LED strip and connect it to the panel light dimmer control.



It seemed like a pretty straight forward wiring job and I expected to see a white light that dimmed with the turning of the dimmer knob, but when I tested the combination, I got an unexpected yet interesting result.



The illumination was good and the power consumption low but the dimmer turned the strip lights red at the lowest settings. This serendipitous result was good, but why did this happen?



The multi-coloured strip lighting consists of individual strings of red, green and blue LEDs. Normally, these LEDs would be controlled for intensity and colour balance by a dedicated remote-control unit. Connecting directly to the strip pins leads to another option and effect.



The picture above shows two strips with one tri-colour LED module and 3 resistors in each, these resistors correspond to the different colour strings. The positive voltage is connected to the "+" terminal, coupling to the colour strings "R", "G" & "B". Each of these resistors is different, to adjust the current for equal brightness to be able to see "white" with 12V applied. The supplied remote control has specific voltages programmed for each of the RGB LEDs to select predetermined colours.

It is an interesting vision trait that using deep red lights allows night vision to continue. To reduce night blindness effects, pilots use red light, which does not trigger the neutralization of the chemical rhodopsin produced in the body and used by the rods in our retinas. White light rapidly depletes the rhodopsin, which is photoreactive. It only takes a few seconds of bright light for the rhodopsin to decay and the rods around the periphery of our retinas stop working, leading to night blindness for 15 to 20 minutes while the rhodopsin is replaced.

Herein lies the secret to where my red light saga begins. LEDs have different threshold voltages. Blue is the highest at about 3.3 volts and red is lowest at about 1.7 volts. As the external voltage is reduced by the dimmer, the red LED takes the most current and effectively blanks the others out. Thus, the effect of dimming to red is a simple by-product of using a single supply voltage for all of the LEDs in the strip instead of the supplied remote control.

To achieve brighter illumination, I installed two LED strips in parallel and joined them at the end using a set of 4 pin connectors. Most LED strips are made to be cut at strategic points to fit any panel. Two strips placed end-to-end worked out well for the Searey.

I also add a single pole, double throw, centre off selector switch so that the light strips could be connected to the full aircraft voltage for maximum brightness, to the dimmer for adjustable voltage, or off. In the photo "A" is the Panel Lights Mode selector switch, "B" is the Dimmer and "C" is the Panel Lights On/Off switch.



I have had this in place for a year now, but I have only used it at dusk. Night operations are not very practical at an unlit field, but this setup will allow me to divert to other suitably equipped airfields, if necessary.

I've also replaced the lamps in my main instruments and magnetic compass but that is another story for another time.

- Lee Coulman

Upgrades and Maintenance on Aerial 2

Other than the first week or so, April has been rather cool for the most part, which has meant Aerial 2 is still in the Garage Mahal with me working on it whenever possible to get the annual done. One of my goals this spring is to upgrade a number of items and replace a few things as part of the maintenance.

As such, windshield replacement was high on my list of items to take care of since the original had developed some crazing where I applied too much pressure without heating the Lexan. This time, I used the metal brake to make a series of folds at about 15 degrees to form the corners. This technique worked well on the turtle deck, so I figured I would try it on the windshield.

I am currently doing a bit of rewiring behind the panel, so having the windshield out has been quite beneficial so far.

In the June issue, I will provide the full story on how I have done my windshield replacement and reveal how it has worked out for me as I begin flying in May.



I will also fill you in on a number of other upgrades and (low weight) add-ons I have installed in Aerial 2.

- Dan

KWRRA Members step up to Assist the Cadet Youth Aerospace Group (CYAG)

At the April KWRRA meeting, we received full support of the members to assist the CYAG to deliver an experiential-based program at the Cadet Training Centre at CYKF. In addition, several of our members offered immediate support to modify some of the donated equipment the Cadets have received over the years into useable teaching aids for the program.

At the April meeting, Dan Pfohl showed the members a number of props that needed modification in order to turn them into useful teaching aids. A week or so later, I asked for volunteers to plan out the process of converting them. Here is the result when our members showed up the following Monday.



One of the donated props is a Rand KR-2 fiberglass over foam and wood aircraft that flew here from Vancouver to be donated by the owner. The KR-2 is a 165mph two-seater that is VW powered and has a wooden propeller. The agreement was that it would never fly again, so we set about modifying it into a teaching aid.

The plan was to figure out what had to be done and come up with a schedule and workplan.

Not to be discounted, Geoff Gartshore showed up to spend time on the flight simulators. Geoff agreed to be an instructor in the new program and offered to assist with overseeing the students as they learned to use the flight sims.

As you know, aircraft builders are hands-on people and the planning session quickly became a 'let's just get-r-done' session.

By inserting the top bolts of the wing attach points, we quickly found out that it might just be possible to create a folding wing, which would allow for easy storage of the complete aircraft in about the same floor space as the fuselage alone took up previously.



Thanks to Bob Schaubert, David Wood, Don Sinclair and Lee Coulman (who had tools in his trunk), we carved away at the structure to expose the hard points and linkages.



While some worked on the wings, others removed the canopy to reveal the inner workings, which will be made visible to the students learning about aircraft and how they work. All of the linkages worked well, so modifications should be relatively simple from this point forward on the fuselage.

The Leading Edge



As work progressed on the KR2, the guys continued to develop ideas about how the plane could be modified into the ideal teaching aid. At one point I climbed in only to find out the cockpit is very tight and some other alterations would be required if students are going to be able to sit in it to work the controls.



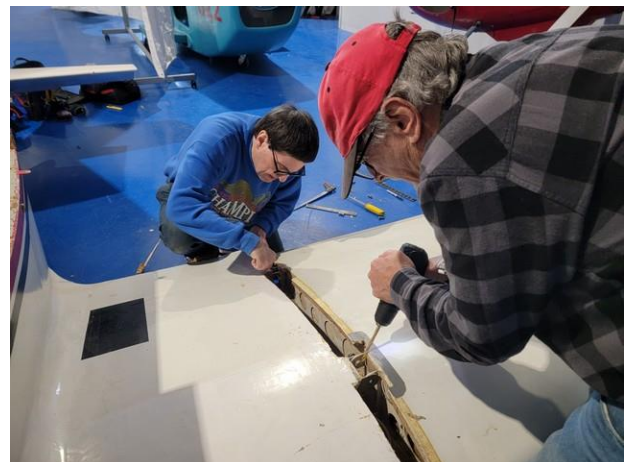
The guys mounted the second wing and refined the folding mechanism.



Before too long we had what might be the only folding wing KR2 in the universe. Knowing that it would never have to fly again made the modifications a lot easier of course.



In order to fold up to, and beyond, 90 degrees meant that the upper wing surface had to be carved out to allow it to fold into itself. This left a bit of a gap, which will be covered with a thin removable strip when on display. - Dan



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*

May 11	-	May Meeting at 7:30 in the Cadet building at CYKF
May 27	-	Swap Meet and Fly-in at CYEE (Midland)
June 3	-	KWRAA Fly-in at Tom Shupe's (Mount Forest)
June 18	-	Father's Day Fly-in at CNC4 (Guelph)
July 8	-	KWRAA Fly-in at Largo Woods - CLW6 (Winterbourne)
July 24-July 30	-	Oshkosh Air Venture 2023
Aug 5	-	KWRAA Fly-in at Juergensen Field CPG7 (Fergus)
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.

