

- November 2017 -



November's monthly meeting was very informative and gave members an opportunity to try metal forming using various hammering techniques from ball peen hammer and wood block to powered machines and English wheel.

President's Message

Many thanks go out to Gary Wolf for his informative talk and demonstration of metal-working techniques on sheet aluminum. Gary's knowledge and skills accumulated over many years made this an interesting and informative presentation to our KWRAA members.

Gary enlisted Ted Welfred's assistance to demonstrate that even someone with very little experience in hammering techniques can produce reasonably good results if the proper techniques and tools are used. Patience and persistence are also helpful in producing a showroom quality part, but a great finish is not out of the reach of most builders. Many of us didn't realize just how easy it is to hammer out 3D parts from a 2D sheet of aluminum if you know how to do it and have a good instructor.

I have included some photos and short description in this newsletter of the presentation at November's meeting and processes discussed.

Thanks again Gary and Ted!

I hope most of you got out flying to enjoy some of the great summer-like weather we experienced this fall and checked out the autumn colours from the air! The wind this year stripped the trees pretty quickly, so the window of opportunity was fairly small this year!

Winter weather is here, so I brought my Highlander home to the Garage Mahal to clean it up a bit, do the annual maintenance, and make a few more cool modifications. I'm going to check the empty weight again before I fly and modify the Weight and Balance report accordingly because of all the little add-ons. Unfortunately, a big bag of helium isn't one of them! ☺ I will keep you posted, but all I can say right now is that I love having an amateur-built aircraft and being part of RAA! We are truly blessed to have so many knowledgeable pilots and builders to assist us with the knowledge and skills required to make this such a great hobby!

See you at the Christmas Party!

- Dan

KWRRA Elections

First, I would like to thank Clare for his many years of dedicated service to KWRRA. Clare stepped down after many years in the President and VP roles at KWRRA.

Second, I want to congratulate Lee Coulman who moved from the Director position to take on the VP role.

Third, I wish to acknowledge the excellent work of Mike and Mac who were acclaimed to the Treasurer and Director positions they have held for a number of years.

Next, I would like to thank the members for trusting me to continue to serve as your chapter President for another year.

Finally, I wish to welcome anyone else who may be interested in joining the executive in either the Secretary or Director position.

The KWRRA executive will be meeting soon to discuss the chapter's progress in meeting our mandate and the needs of the members. We will be plotting our chapter's course for 2018 and attempting to secure all of our guest speakers well in advance of each meeting. If you would like to have more of a say in the affairs of KWRRA, please join the executive or at least forward your ideas to us for discussion at our planning meetings.

Congratulations again to all of our executive members and thanks for your continued service to our organization.

- Dan

November Meeting

Gary Wolf gave a very informative talk and demonstration of metal-working techniques on 3003 sheet aluminum turning flat stock into a small cowling.



Gary showed us an example of a large cowling hammered out from a sheet of aluminum then enlisted the help of Ted Welfred to demonstrate some of the hammering techniques that anyone can use to create a smooth professional looking fairing from a small piece of sheet aluminum. Gary recommends using 3003 mid-hardness aluminum. It is possible to use 6061, but it will be necessary to anneal it several times during the hammering process.



Once the rough form was hammered out on a wooden block, Ted moved to a pneumatic hammering tool to get more depth and shape worked into the material.

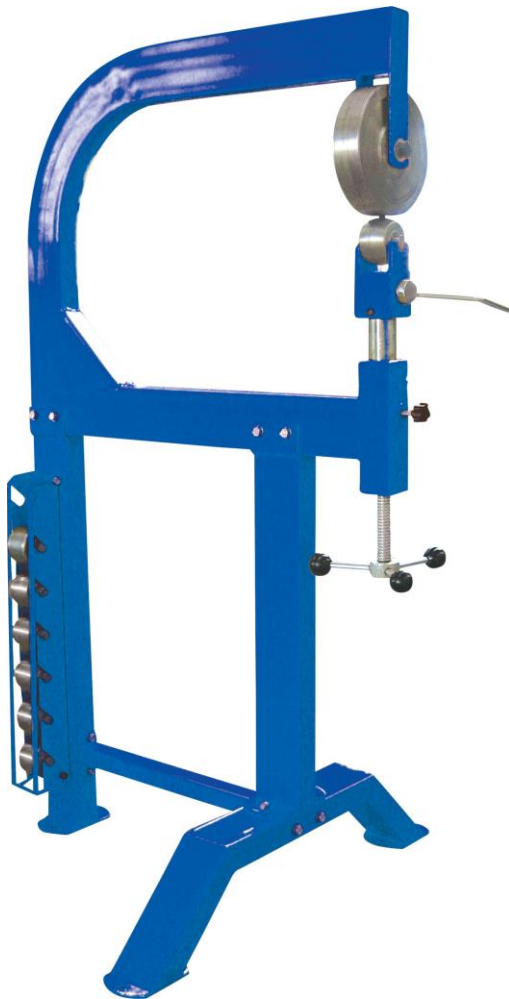


The Leading Edge

As the fairing started to take on the basic shape required, he inspected it to determine what further working of the material would be required to get it smoothed out.



Once it was close to the right shape, Ted moved to the English Wheel and continued to work the material under Gary's guidance.



This is what the English Wheel from Princess Auto looks like. Gary's is slightly different in construction, but the working mechanism of a flat wheel and domed wheel is the same. The rack of different sized domed wheels on the left side of the stand allows for different radius bends to be worked on the wheels.

Gary advised that the biggest mistake made by new operators of the English Wheel is to try to tighten it too much. The proper pressure makes the metal move easily in the wheels and slowly squeezes out the material from the edges to the middle of the dome. Light pressure and steady hands will smooth out the surface little by little without deforming the material in an undesired fashion that might otherwise crease or distort it..

There were a total of 13 members and one visitor in attendance at the November meeting. After the demo, members were offered the opportunity to try any of the hammering devices they wished to operate, including the rolling hammer known as the English Wheel.



Our guest spent a bit of time checking out the equipment which is mentioned in his Aviation courses at U of W, but no practical experience using these tools is given in the program. Gary has offered the young fellow some additional time to learn more about metal-working to make one-off aircraft parts.

Thanks again Gary for the use of your hangar, equipment informative presentation. Thanks also to Ted Welfred for making it look so easy!



Will that be ice with your Rotax 912?

I've had carb icing at least twice in my Searey. I think I now have some guidelines to at least recognize it on my 100hp. Rotax 912S.

The first encounter was after I had some engine work done. I was expecting some sort of problem. On my test flight I was ready for the worst, not merely something "obvious" like carb icing. I had noticed that I needed to add some throttle after the engine "had warmed up some more". When I came back to land, all hell broke loose. I was cleared to the left base with nobody else in the circuit so I left my throttle reduction to the very end. Sputter, sputter as I reduced the throttle, almost quitting! I immediately increased the throttle to where it ran smoother, and then advised the Tower of my predicament.

My Searey didn't have carb heat control as I had a letter from the kit manufacturer saying that this model is not prone to carb icing. Maybe the engine cowl version in Florida is 100% not prone, but my exposed engine and open carburetors are a different story; add to that the fact that I'm often flying onto water. Icing doesn't happen to me all that often but once is enough to get my attention.

So let me continue with what happened...

I coaxed the engine to the runway but had trouble keeping it running long enough to get

taxi clearance back to my hangar. At the hangar my plan was to remove the plugs to check for mixture problems or worse, valve issues. I looked for disconnected spark plug leads; then on the wing for dripping oil. What is this water on the wing under the cylinders? I wiped it off and then went to the other wing. What is this moisture on the wing ... that was from ice melting on the outside of the carb!! I'd seen pictures of this but couldn't believe what I was seeing. I concluded that the carburetors had iced up on the outside, as well as on the inside. I think I pulled a plug on my usual suspect cylinder but didn't see much of an evidence trail. I fired the engine up again and there was no indication of rough running.

My records indicate that the OAT was +4°C with a dew point of +1°C. My carb temperature was -2°C so the chances of icing were in retrospect "obvious".

How do I detect carb icing now? I carefully reduce the throttle over a safe area and search for rough running. The roughness is not just due to the carb icing but the mismatch between the carburetors as they ice up at different rates. Balanced air flow between the Bing carbs is critical to smooth running of the Rotax 912 series engine, especially at low RPM's. I use a Carb-mate regularly to keep mine well balanced under normal conditions, so when I detect this roughness as I reduce the throttle, I know it's time to exit these

conditions at a higher throttle setting that keeps the engine running smoothly.



Using a Carb-mate regularly to keep your Rotax running smoothly is the key to knowing when carb ice is probably the culprit for rough running at lower RPM's. Luckily, for KWRAA members, the chapter has one to loan out to its members.

I now have a thermostat and sensor controlled electric powered carb heat system, but the 40W heaters aren't enough at high engine power settings to heat up the throat area of the carbs. I watch my carb temp very closely now. Further, if I leave the heaters on at low power settings I find that the Rotax generator doesn't keep the bus voltage in check. I am in the process of installing a manual bypass and disable switch for the heaters. I will apply the heaters at lower power settings when I detect roughness.

Last week I was flying with an OAT around -2°C with a dew point of -8°C. My carburetor temp was at -9°C to -4°C depending upon the power setting. I did a few water landings, just to push the penny, but I couldn't achieve full

climb rpm and there was some rough running when I reduced the throttle. It all cleared up as I climbed away from those conditions.

Some of you probably have a real carb heat system which either uses heated air or I think better an engine coolant heated carb flange heater. The former is simple and only heats the carb body with almost no engine power reduction; likely the best option for a Rotax if you have an extra \$500 to spare. If you have a cowl over the engine and carbs you probably don't need to worry as much, but you still need to plan for your Rotax 912 installation approval on any new build.

The lessons to be learned from my personal experience are:

- Keep your Rotax 912 series engine carburetors balanced so you can more easily recognize possible carb icing problems
- Learn to recognize the signs of carb icing and have a plan committed to memory on how you can act on it quickly
- Have a means of heating the air or throat of your carburetors to deal with carb ice if it forms in your plane's carburetors

I was lucky to be over an airport when carb ice formation happened, but it could have happened elsewhere and the outcome may have been much worse.

- Lee Coulman

KWRAA Members...

Please send your stories and helpful hints to me for inclusion in future newsletters. If you have trouble writing or just want a bit of assistance, let me know and I will gladly assist you in making it into a great article for the other members to read and learn from.

Thanks again to Lee for sharing another one of his personal experiences with the rest of the members. It gives us all something to think about when it comes to improving our own aircraft and flight safety issues we should be considering!

See you at the KWRAA Christmas Party!

It should be a great meal and it's always a fun time with our own Mike Thorp as Master of Ceremonies

The Leading Edge

Upcoming Events in 2018: (Highlighted lines are KWRAA Events*)

January 8	-	January Meeting at 7:30 in the Cadet building at CYKF
February 12	-	February Meeting at 7:30 in the Cadet building at CYKF
March 12	-	March Meeting at 7:30 in the Cadet building at CYKF
April 10-15	-	Sun-n-Fun in Lakeland Florida
April 9	-	April Meeting at 7:30 in the Cadet building at CYKF
May 14	-	May Meeting at 7:30 in the Cadet building at CYKF
June 21-24	-	COPA National Convention in St. John, NB

* KWRAA events are fly-in and/or drive-in (Please advise the host in advance if you plan to attend whenever possible.)

Executive Contact Information:

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Director:	Open	(Looking for a Volunteer)
Director:	Mac McCulloch	(519) 831-0967 macpat@live.ca
RAA Canada:	Gary Wolf	(519) 648-3030 garywolf@rogers.com

FOR SALE

RV6 C-FTXF - Standard build, slider with extension kit - SN 22483 - based at CYKF
VFR, Lycoming O-360, first flight Sept 2014, painted 2017 by Purple Hill Aviation
Sensenich fixed pitch cruise prop, Whelan strobes, Wig wag landing lights in wing tips
new tires, no damage history, all service bulletins up to date
Flew back from Oshkosh this year in just 2:25hrs - KOSH to CYKF direct
\$85,000 – Contact: Steve Gale at (519)496-5903 or stevegale@rogers.com

David Clarke Headset (H10-13.4) – Over \$400 new!

Lightly used, works very well, looks brand new... **\$200**. Contact: Dan Oldridge at oldridge@golden.net

Fuel Tank Caps and Parts

2 - RIEKE, 3" composite tank filler neck and cap (asking \$10.00 each)

2 - SHAW AERO, Aerobatic fuel stopper, non-vented adjustable type (asking \$25 each; current list price \$66.75 at ACS)

Contact: Clarence Martens at cemartens@rogers.com

Rotax Heat Monitor Strips

Mac has a number of Rotax Heat Monitor Strips that can be applied to sensitive areas to monitor for extreme heat readings. They are presently being recommended by Rotax to monitor the ignition modules. He is offering them individually for \$15 each incl. HST. or two for \$28 incl. HST.

Contact: Mac McCulloch at macpat@live.ca

WANTED

Stringer Material

5/16" x 1" rectangular tubing with 0.50 wall thickness in 12' lengths. Contact Ted Welfred if you have some for sale or know of any available.