

CARB HEAT

The Newsletter of Experimental Aircraft Association Chapter 245
Ottawa, Ontario, Canada
Volume 50 No. 4 December, 2020

Our Next Meeting

TOPIC: Transport Canada's New General Aviation Safety Program

Presenter: Simon Garrett – Flight Standards Inspector, Transport Canada

Simon is well known in the Ottawa area from his many years at the Rockliffe Flying Club

When: Thursday, January 21st, 2020, 7:30pm

Where: Virtually, via Zoom on-line meeting

Prior to the meeting an invitation will be sent by email from our Chapter President

(it's really not hard at all to join a Zoom meeting – try it, if you're having trouble, contact one of the execs who will help you out)

Important Chapter News

In addition to moving our monthly Chapter meetings to an on-line format, recent directives from the Ministry of Health mandate that public gatherings be cancelled for 28 days, commencing December 26th. By now you will have seen email to this effect from our President:

“So, how does this affect us? It means that we cannot have organized gatherings at the chapter hangar, and specifically work parties on the Zenith during the lockdown. I'm sorry we have to institute this ban, but for the safety of us old geezers, and because there are hefty fines for violating the order, we have to follow the law.

If you happen to be at the hangar to use the workshop or toolcrib, a mask is necessary.

If we can lift this ban earlier, then we will do so as soon as it is legal.”



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Editor's Comments

Mark Briggs – EAA Chapter 245 Newsletter Editor



Oh boy, here we go again... Yet another edition of *Carb Heat* is coming together. It seems like such a long time since the last issue was published. Well, yes, in fact it *has* been a long time since the last issue! No excuses – I'm cranking them out at a rate commensurate with the editor's pay scale!

Seriously though... We are fortunate to have some very good content in this edition. While COVID may be knocking many industries for a loop, the build-it-yourself aircraft world seems to be very busy indeed. I've been fortunate to have found a little time to fly and even a little time to start the monstrous task of polishing the wings on the Sportsman. If anybody feels boredom setting in during this next round of lockdown, just let me know and I'll set you up with the polishing materials. It's a very rewarding task. OK, maybe not so much, but it sure develops shoulder muscles and a healthy appreciation for painted aluminum.

In addition to our usual Executive Roundup, in this edition we have a great update on the Chapter Cruiser project, some sage advice from our President in his Bearhawk-building quest, and some exciting news from Charlie Becker of EAA Headquarters.

During this festive season I hope you will find time to reflect on the joy that aviation and the companionship of like-minded individuals brings to our lives. May 2021 bring you peace, prosperity and, above all, good health.

Until the next time, I remain...

Ed.

President's Message

Mark Richardson – EAA Chapter 245 President



(This update was originally provided to me waaay back in November... Production of Carb Heat has been a little, ah... slow lately! Ed.)

Hi folks

Well, here it is mid-November and I'm completely confused with the weather. We sweltered in our house a week ago with the warm, summer like temperatures because we designed our house for passive solar gain. That means this time of year we let as much sunlight hit our concrete floors in the house as possible to offset the cold temperatures outside.

Well that didn't work out great... The house was getting up to 29C. I thought summer was over!

Now the temperatures are back down to where we expect them to be, which means it has gotten chilly out in the hangar doing the annual inspection on the Maule (which needs a cylinder overhauled, thank you very much). What with COVID, the bizarre election happenings down south, more named hurricanes in one year than ever before, summer temperatures in November, it feels like we are on day 6,245 of 2020 with another couple of thousand days to go...

Of course, it hasn't been ALL bad, at least as far as our EAA chapter is concerned and flying in general. We have more members this year than ever (I think... over 90, anyway), our tie down areas are pretty much full, and there is lots of activity in and around the chapter hangar. The Zenith Cruzer has come out of build hibernation and actually has the wings on! That is a huge leap forward.

The executive elections were held via email/Zoom in October. Although we call them elections, in this case it was more of a case of "ya, you're all fine, carry on" as there were no nominations for any of the positions and the incumbents are, well, carrying on. All except for Webmaster, actually. Our Webmaster Jack has moved back to southern Ontario (as far as we can tell). Phil Johnson has graciously volunteered to take over the job in addition to Membership, at least until someone else steps up. This is the second member of the exec to take on two jobs; Mark Briggs has been doing both the Young Eagles Coordinator as well as the Newsletter Editor jobs. We could REALLY use some help (hint, hint, hint).

Speaking of Zoom and chapter meetings, unfortunately we are going to be stuck doing the virtual Zoom meetings for at least the next few months as COVID Two, the subsequent pandemic plague (for

all you Borat fans) sweeps through Ontario. Our last meeting where Peter W gave us an excellent presentation on the Zenith was really good. We are hoping that the next one coming up will be as good (you have either received or will receive the invite and notice for this meeting). The conduct and content of these virtual meetings is still being ironed out. I am trying to present at least one EAA HQ video at each meeting, but my rural internet at home is TERRIBLE for uploading, so Phil has been the projectionist. We will keep trying to make these as smooth as possible.

Oh, and regarding content for meetings....we need some. Every month it is a minor panic trying to find a presenter for the chapter meetings. A lot of our ideas and plans involved government people (TC, DND, etc) coming and doing talks. However, they are all on COVID plans and are not available so it is up to us. If you have an idea for a meeting topic, or better yet, are willing to present something, please let us know. We would ALL be interested in hearing about your project, invention, cool aviation related job, etc.

And a final note on the chapter meetings; we have taken to inviting other chapters to attend our Zoom meetings. Last time it was EAA 65. This time I am sending out invites to all Canadian EAA chapter presidents for them to forward to their members, plus the EAA Canada Council. I'm hopeful they will reciprocate and invite us to their meetings. It would be great to get a country wide perspective on the EAA.

(By now we know the November "virtual" chapter meeting was a huge success, attended by not only EAA245 members but also by members from chapters across the country – well done, Mr. President, for drawing in attendees from such varied geographies! Ed.)

That's enough rambling for this month.

Check Six

Mark

Vice President

Mike Lamb – EAA Chapter 245 Vice-President

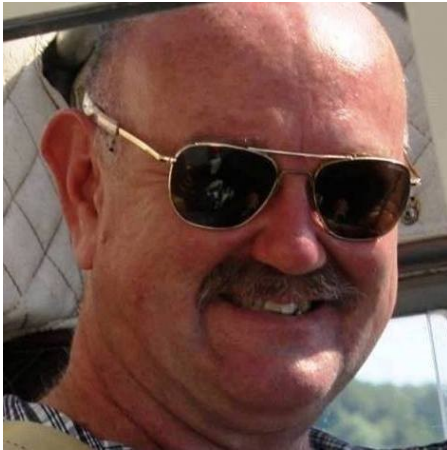


(Mike's input is again conspicuously absent in this edition. Clearly he's busy flying, and when not flying, getting his own BD-4 aircraft ready to take flight. I hold great hopes of seeing an update from him in our next edition of Carb Heat. If you happen to see him, perhaps needle him a little bit on this point – maybe we can collectively guilt him into writing something! Ed.)

Mike

Treasurer and Marketing Manager

Ken Potter – EAA Chapter 245 Treasurer & Marketing Manager



As the year winds down I think we can all agree that putting 2020 behind us will be a relief. But reflecting back on 2020 as the Chapter's Treasurer I can only express wonder that we not only financially weathered the challenges of Covid 19, but in fact have come out ahead as we approach the year end.

On one hand we did not have income from the annual Fly-In Breakfast but then, we had overall fewer operating expenses. We went from 3 tie-downs to a high of 13 at one point which considerably added to our overall bottom line. In addition, our membership numbers rose to new recent high with several younger members joining to supplement us senior citizens.

While finances are one thing, the social aspect of the Chapter is what I have been missing most, although numerous members have been out on Sundays to visit in a responsibly masked and socially distanced manner.

Looking towards the next year I believe that we are going to emerge from this pandemic stronger.

Cheers,
Ken

Secretary

Mark Cianfaglione – EAA Chapter 245 Secretary



As we continue this COVID-19 slog hopefully everyone is safe. The silver lining to this is that we have a little more time and an excellent excuse to work on our projects under the guise of "social isolation".

It's been a little more challenging to work on my Zenith CH250 when it's below zero but I'm trying to impress the editor when he sees the work. The electrical work is one of those things that seem to progress so slowly but is becoming more and more important to our modern aircraft and instrumentation. Gone are the days of Irving's Pietenpol and my dad's Coot with only an altimeter, airspeed and a watch.(They both had a radio so they had at least one fuse)

Well onwards and upwards. Stay safe.

Mark C.

Operations

John Montgomery – EAA Chapter 245 Operations



(John provided this update in November... let's be happy to think of the Indian Summer days to which he refers below... Ed.)

Hi all. The Indian Summer we have experienced in Ottawa has come to an end and freezing weather is upon us. We need to start getting the chapter hangar ready for winter operations. Because of the freezing temperatures is critical that all members do a walkaround when leaving the chapter hangar.

- Check that the bathroom is secure.
 - The window is fully closed.
 - The thermostat is set between 10 to 15 degrees. It is critical to check that there is power to the bathroom so that the heaters work and the toilet will not freeze.
 - The toilet tank is not continuously filling/flushing
 - We installed a small door keeper but it is not strong enough to fully close and latch the door. Always keep the bathroom door fully closed and sealed to retain the heat.
- Confirm that the door between the hangar and the bathroom vestibule is also kept closed to retain heat. (We need to install a door closed here as well.)
- Check that the main hangar door is closed and latched on both ends. Also check that the man door is latched.
- Hangar lights should be turned off and any heaters or work lights must be unplugged. Check that the door between the shop and the hangar is fully closed to retain heat. It should also be locked when leaving the hangar.
- Check that the water pump is not continuously running. The compressor should not be running either. Check that the door to the tool crib is closed and latched. Make sure that the door between the shop to the stair is fully closed to retain heat.
- All windows in the lounge must be closed, and all light switches turned off. Any devices such as fans or heaters should be unplugged. We ask that the switch for the outside flood light also be left off as the current motion sensor is defective and the light may stay on continuously. (We recently installed solar motion lights so we can leave this light turned off.)
- Most importantly – ALWAYS make sure that the electronic lock on the door is engaged. Do not leave it unlatched, even if you think someone else is around. Do not assume “that other guy” will lock it. Our members know the door code so there is no reason to leave it unlocked.

We will be putting the tractor away in the shed for the winter, though we plan to first do some much overdue maintenance as well as a tune-up. We think the battery has likely been left discharged by the ignition left on one-to-many times. But batteries have a fixed life and it needs to be replaced. We will also be getting the snowblower ready for use. Please remember that though the chapter does try to keep fuel for the snowblower on hand we encourage our tie down tenant who use the snow blower to chip in and occasionally supply a few gallons of fuel.

On cold morning we may have start lighting fires in the wood stove upstairs. Some of the wood we burn is scrap and may contain screws and other metal hardware. Please do not use the ashes as traction sand or throw them out in the snow. Cold ashes may be put in the garbage.

When visiting the hangar please try to park in allocation that does not block the row hangar taxiway or access for the aircraft tie downs. We will endeavour to keep vehicle parking areas clear over the winter. In times of new snow we may ask visitors to park out by the gate and walk across Bravo. With regards to hangar booking and borrowing chapter tools, please use the respective booking board and sign out sheets. We ask that you also send an email to ops@eaa245.org to help us better keep track of things. We really appreciate the members who, if they see problems with the hangar or tools, then step up and help make things better for all of us.

The Cruiser build project is continuing. We have an excellent group working on it. We now have an aircraft with wings and control surfaces in the hangar! Please be aware that this project is still underway. We recently found out that someone had cut up one of the wing root covers. I guess they mistakenly thought that this laser-cut and predrilled metal was scrap? We need to make sure that all Cruiser parts and hardware are labelled and kept separate to help prevent this from happening again. Unlike previous winters, and despite Covid restrictions, I expect the current project momentum to continue and look forward to seeing how much gets done over the winter.



Here we see some of the terrific work being done on the Cruiser and its position in the chapter hangar to accommodate other member aircraft.





(In this unflattering shot we see Colin Montgomery working on the installation of new motion-sensing outdoor LED lighting for our chapter's front door. Colin isn't even a member of our Chapter, yet he shows up to help out. With young people like this hanging around we can be sure our Chapter has a wonderful future. Ed.)

We have a great facility at Carp – but we need all our chapter members to maintain it and make it even better. Let me know how I can help you do that.

See you at the hangar,

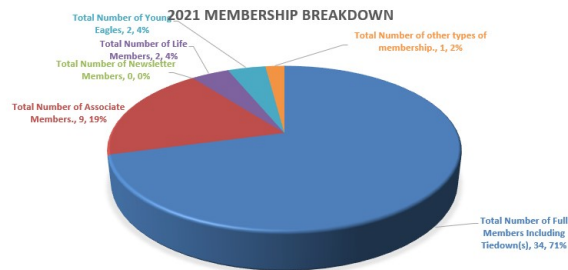
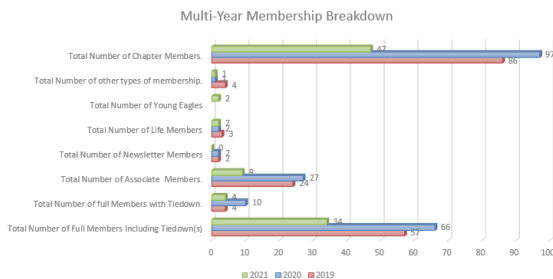
John M.

Membership

Phillip Johnson – EAA Chapter 245 Membership Coordinator



We're now in late December 2020 and the time has come to renew your membership. Our prices have been unchanged for more than five years and we are again continuing to maintain the same membership rates as in previous years. This year has been troubled by this raging pandemic and we understand that we have been unable to offer the same level of service as in previous years however the running costs have not altered either. Fortunately, we have had a great influx of new members, many sporting aircraft using our tie-down options. The executive thanks all its members for their continued support. The graphics below show the membership at the end of 2019, 2020 and the beginning of 2021 with the following breakdown:



As of the time of writing, 37 existing members have renewed their membership for 2021. While I had a late start flying this year as a result of my medical expiring and Covid preventing me from having my check-up, I have managed to achieve 26.4 hours the end of July and since I will not be heading South anytime soon I anticipate getting a few more hours before the end of the year. The Cozy has been running sweetly and I am definitely feeling at one with that machine. It always amazes me when I see the canard out in front and we are at 10,000 feet sipping 7 gallons per hour and achieving a speed of around 170KTAS. It's some slick machine. *(Having had the privilege of flying with Phil, I can assure you the Cozy feels like a rocket ship... slowing down is not its fort e! Ed.)*

Below is a cool shot taken by the president when I terrorised Cedar Hills International Airport.



And you can see the cameraman (El Presidente) in this cockpit view.



Notice the two Stratux ADSB-In antennae just below the Canadian Tire magnetic compass. The Stratux ADSB was described in the last issue of *Carb Heat*.

For this year it has been a full year. I am now on the Canadian Council as the Chapter Liaison guy so if you need anything from the council, please let me know. I've also been promoted to EAA Tech Counselor with specialities in Composites, Automotive engines, and Electrical. If you want expertise in building an RV don't come to me as I'm not your guy, but in case everyone has forgotten, I am the Technical Information Officer (TIO) for the chapter so if you need some technical information please come to me and I'll see if I can help you out. I may not have the knowledge but I can definitely help you out in doing the research.

Phillip Johnson

Young Eagles

Mark Briggs – EAA Chapter 245 Young Eagles Coordinator

As we would expect, 2020 has been a difficult year when it comes to flying Young Eagles. In fact, for some chapters this year has been a total bust. But not for EAA Chapter 245! While we were unable to make a full-scale Young Eagles Rally happen, we've still managed a few ad hoc flights. Our volunteer pilots are to be commended for their willingness to work with families to find ways to conduct flights while respecting the health challenges associated with COVID-19 protocols.

I thought that, as we moved into the late autumn, Young Eagle activity would fizzle out. Imagine my surprise when I ended up flying Young Eagles flights on two successive Sundays in November! As a result of this terrific youth outreach program we now have in our chapter two young gentlemen who have a strong interest in aviation and a bunch of enthusiasm to help keep we old codgers motivated to stay ahead of their questions!



As is always the case, if you are interested in flying a Young Eagle, please let me know by email to the young.eagles@eaa245.org email address.

Likewise, if you know of a young person who would like to experience flight, please reach out and I'll do the very best I can to link that young person to a volunteer pilot. Of course our volunteer pilots are the backbone of this operation, providing the critical "lift" it needs to accomplish the goal of giving flight. If you're interested in flying Young Eagles please fire off an email in my direction and I'll add you to our roster.

Mark.

Webmaster

Phil Johnson – EAA Chapter 245 Webmaster

(Yes, you're reading this correctly... When COVID forced our previous webmaster to retreat to his family home in southern Ontario, Phil stepped up to the plate to keep our chapter website alive. Thank you, Phil! Ed.)

You may have noticed our web pages had become stagnant. I have taken the bull by the horns and started to learn how to do the web pages for the chapter. You may notice there has been no change to the overall format, but the contentt has increased dramatically.

- You will notice the home page is now up to date and will continue to be up to date while I am doing this function. ([Chapter 245 \(eaa.org\)](#))
- There is also an "Event Calendar" where upcoming events will be included for such things as fly-ins, fly-outs, or BBQ's or anything you would like included. ([Event Calendar \(eaa.org\)](#))
- I've included "Pilot Tools" where you can find the ling for online flight planning, obtain easy to read weather, or see webcams, at all the local destination airports. ([Pilot Tools \(eaa.org\)](#))
- There is a Builder Resource page where there are links to many suppliers. If you have any additional suppliers you would like on the page, please contact me and I will endeavour to include it. ([Builder Resources \(eaa.org\)](#))
- I've included a tool crib page but that needs a lot of work as I want to show pictures of our tools etc ([Chapter Tool Crib \(eaa.org\)](#))
- If you need to go back and find a newsletter then look no further as there is a page with links going back as far as 2016 ([Newsletters \(eaa.org\)](#))
- The work on the Zenith Cruzer is also being shown & Peter Whittaker is feeding me with pictures and a few words. I expect that to be stagnant for the short term as work on the Cruzer has stopped because of the COVID lockdown. ([Zenith CruZer \(eaa.org\)](#))
- Mark Briggs's Young Eagles work is now being reflected in one of our pages so if any of you have done a flight and have a few pictures, please send them to me for inclusion in this section of the site. ([Young Eagles \(eaa.org\)](#))
- I have included a page for pointing members to other member YouTube videos. ([Members Videos \(eaa.org\)](#)). If you have any such videos and you would like to have them linked to the chapter website, please contact me. (membership@eaa245.org)

- I will be adding a page for photographs of members aircraft but have yet to set that one up. This type of page tends to be rather large so I'm working on how best to arrange it. Please send me your photographs in anticipation and I will start the work shortly.
- Lastly, it seems prudent to have a classified advertisement page for aviation advertisements. The page is not up yet but I will do this as soon as someone wants to use the resource.

Remember, this is your website so if anyone has additional requests on what is needed from a chapter website, please contact me at webmaster@eaa245.org.

Phillip Johnson

MEMBER ARTICLES

Measure Twice, Cut Once....

By Mark Richardson

Back in the 80's and 90's, my Saturday morning routine included This Old House and The New Yankee Workshop on PBS. I really enjoyed watching people build/reconstruct things, especially Norm Abram. On his show he made tons of great furniture and everything always fit perfectly. His mantra is "Measure twice, cut once". Words to live by. I actually built quite a bit of the furniture he had in his books and even bought his DVD series on how to build kitchen cabinets so I could build my own for our new house (which I did).



Fast forward a bunch of years and I have built and flown my RV-8 from a Van's kit. Just about everything is cut out and measured for you, but if you do screw something up, you get on the phone or Van's web store and order the part...again. Admittedly, I did have to reorder a couple of minor parts (can you say trim tab?) but nothing that broke the bank or made me cry.

Fast forward another few years (2012) and Linda and I have finished building our house with, as most of you know by now, a grass strip in the back field. The RV-8 is a bit hot to get in and out of there so I decided to build a 4 place Bearhawk. For those of you unfamiliar with it, picture an upsized Maule with better performance.



But this time, I didn't want to build a kit, I wanted to scratch build (what's that sound? A warning bell?) So I purchased the plans, bought a couple of builder manuals/CDs off the internet because there is no official build manual, and studied everything like crazy. Now, when I say scratch build, I do mean the majority of the airplane comes from the plans and I build all the parts, but I had NO desired to snip wing rib blanks out of sheet aluminum and pound them into shape over a form block for a year or two so I did buy the ribs and spars from Bearhawk Aircraft. While I was at it, I bought the landing gear legs as well. Since this was going to be my first foray into welding I figured something like the gear should probably be done by a pro. So now I get started. I buy a pile of 4130 Chrome-Moly steel tube and sheet, and an oxy-acetylene welding rig and get to work. With the Bearhawk you build an 18 foot long table and mark out where all of the steel tubes go, put the steel over these marks and hold them in place with bits of wood or something so they don't move, and tack weld every joint. What could be easier (Wait, I definitely hear warning bells now)



Remember my buddy Norm from New Yankee Workshop? Well, believe it or not I actually followed his advice and every mark on that jig table was measured twice before I cut the metal. I mean, this is an AIRPLANE and you want to be sure everything is just right otherwise it will not fly right (or at all).

This is where another quote applies, this time from the movie “The Sixth Sense”, and it certainly applied to me; “I see stupid people” (or words to that effect). Somehow, on the first day of measuring and marking where all of the 4130 tubes go on the fuselage top, and for ONLY ONE tube, I somehow forgot that the measurements on the plans are measured centre to centre. So, this means, for this particular 3/4" tube, it was 3/8" too far forward.

And I didn't notice for eight years.

Because I had been so attentive and measured twice before I cut, *obviously* this cross tube was in the right place when I jiggled the top and bottom of the fuselage and inserted all of the other vertical and diagonal tubes in the fuselage. I finished welded the fuselage and spent the next couple of years making and welding in all of the mount tabs for floors, seat latches and rails, stringer stand offs, engine mount, floors, boot cowl, cowl, etc, etc.

Now, why is this one cross tube problem you ask? Because in September of this year I was preparing to mount the wings for the first time and this cross tube was where the rear spar of the wing attaches. You got it, the wings DO NOT fit my fuselage....and there is nothing I can do about it. It is scrap.



As you can imagine, I was gutted, embarrassed, annoyed, humiliated, and pissed. However, believe it or not, all those feelings passed in a few minutes just leaving me embarrassed. Why? Because there were enough things that were, while not wrong, not satisfactory with that fuselage that I was kinda glad I wouldn't have to live with them. In addition, in the intervening years I had seen a lot of improvements and ideas that would make the airplane so much better that I decided on the spot to start again.

My welding was mediocre at best so I decided to learn to TIG weld and do the new fuselage that way as I could eliminate a lot of the heat warps that I had put into the original fuselage with the oxy torch. And I also decided that rather than spend hundreds of hours cutting tube and then fitting/fish-mouthing every piece, I would get a pre-cut tubing kit from VR3 Engineering in Stratford.

I have since received the kit, and in less than a couple hundred hours, I have a new, straight, Bearhawk fuselage almost fully welded and the inter-spar distance is EXACTLY correct. I'm really enjoying this second go at it and am super impressed with the quality of the kit from VR3. When you jig the parts, if they don't fit perfectly, you are doing something wrong.

So, why am I opening my Kimono as they say? Well, first, eventually everyone will hear about it and this saves me embarrassing myself over and over telling the story (I'm just doing it once, like ripping off a band aid). But more importantly, I really just want to say that we all

make mistakes in our builds, and it can get very frustrating, but you can always find a way to carry on. Even if you are stupid people.

Cruzer Project Update November 2020

By: Peter Whittaker

(A word of appreciation is due here... Peter not only works hard to keep the Cruzer project moving forward, he also takes a few extra minutes to produce these excellent updates on the project so our entire Chapter can know what's happening on the project. Thank you, Peter, for your hard work! Ed.)

The 750 Cruzer project resumed in September after COVID-19 restrictions eased enough to allow a small group to work well spaced in the hangar. Work has progressed while wearing masks and has not been too uncomfortable. The major job through September was to get ready for installation of the wings which took place in early October.

Two wing stands were built to facilitate initial placement of the wings while each forward main spar was drilled for their respective bolts. Once the forward spar bolts were in place, the wing tips were adjusted fore and aft until the measurement from each wingtip to the same point at the centre of the fuselage top skin in front of the rudder fin was within the + or – 50mm tolerance. We were able to get the distances to within 5mm and thus satisfy ourselves that the wings were perpendicular to the fuselage centre line. At the same time, a tight string between the wingtips and running along the main spar rivet line had to be centred along the rivet line. At this position the rear spar wing mount bolt holes were drilled and the wings separated to allow for deburring of the holes and filing of the mounting tabs to allow smooth installation (Fig.1).



Figure 1. Our youngest builder, Colin, is busy deburring the newly drilled bolt hole in the rear spar for the rear wing mount bolt. The hole was drilled up to size then a finish size reamer was used, the matching hole can be seen in the grey tab protruding from the fuselage side.

The installed wings were supported by the two wing stands in preparation for adjustment of wing dihedral. Dihedral was set by using the tight string between the wing tips and an iterative process of raising and lowering each wingtip in small increments, supported by moving the wing stands inboard or outboard. The objective was to get a measurement of 85mm + or – 5mm from the top of the first inboard rib up to the string. This proved to be a fiddly business and we ended up at 80mm on both sides and blocked the wing stands at this point (Fig.2).



Figure 2. The wings are installed, perpendicular to the fuselage centre and with dihedral set. The wing stands were left in place and their respective heights were clamped and screwed to hold them secure.

With the wings positioned, the next step was to cut the struts to length with the top and bottom strut brackets temporarily bolted on. The parts come with a tight fit and filing of the bracket mating surfaces was required to get a smooth but snug fit. A strut was first drilled and bolted to the bottom bracket which was then slid into place over the landing gear mount. The strut was then swung into place against the top bracket which was temporarily bolted to the wing mount and the length marked. With the final length cut, the top bracket was drilled and bolted to the strut and the full assembly was swung into place and bolted to the top and bottom mounts (Fig.3).



Figure 3. The starboard strut has been cut to final length and bolted in place at the top and bottom mounts. The port strut was installed in the same manner and the wings now became self supporting.

This work took us into mid-October and then installation of the flaps and ailerons began. These components had already been assembled, inspected and closed by previous Chapter 245 builders a few years earlier so we were able to focus just on installation. Flaps and ailerons are separated control surfaces (Fig.4) and are then bolted together with an offset to give built in washout. They become one single “flaperon” controlled by the centre stick and flap position motor.



Figure 4. The port aileron installed and supported by two brackets, one near each end that extend from a wing rib through the wing bottom skin. The outboard support bracket for the flap can be seen with a warning ribbon taped to it – these brackets are notorious for walking into!

Each flap and aileron has a steel counterbalance weight that are supplied by Zenith with ample excess weight. The balance weights must be trimmed to achieve neutral position balance for each control surface. After balancing, the flaps and ailerons are bolted together and checked again for balance. The weights are then drilled and riveted into place. Target weights were used from the same model 750 Cruiser built at RAA Chapter 85 in Delta, BC and was a project I was closely involved with while in Vancouver. The approximate excess weight was removed using the Craftex Mill/Drill in the machine shop (Fig.5). Between one quarter

and one third of the starting mass was removed (all were in the 914 to 924 gm range to begin with) to achieve a final balance (Fig.6).



Figure 5. Yves busy with milling one of the balance weights. After getting within 30 gms of the target weight, it then became a repetitive process of testing the weight on the control surface for balance, remove small amounts and then retest.



Figure 6. Finished balance weights (apart from a final polish, priming and painting) installed on the starboard wing and sitting in the flaperon neutral position.

One final job to complete the starboard wing installation was to locate the missing wing root top skin to match the one on the port wing. The remaining pieces were eventually located on the window sill in the workshop and the piece had mistakenly been cut up as scrap metal. Word went out to Chapter 245 members for anyone with spare 6061-T6 (either 0.020" or

0.025”) and Don Walker jumped in to the rescue – this saved either buying new sheet metal or ordering the part from Zenith for just under \$90US! Thanks Very Much Don.

The port wing piece was used as a template both for the part outline and for the rivet holes. The part was cut, drilled, deburred, primed on the mating surfaces and to our great relief it fit perfectly (Fig.7).



Figure 7. The starboard wing root top skin was fabricated from 6061-T6 donated by Don Walker. This allowed us to make the part to replace the existing one that had mistaken for scrap metal and cut up. Amazingly enough, the rivet holes lined up and we now have a serviceable part.

While work was progressing on the wings, struts and flaperons. The empennage was re-attached to the rear fuselage and final fitting checked. The remaining task involved riveting the rudder hinge assembly to the inside and sides of the tail fin. Irving and Edgar undertook this job with the weather getting colder in November (Fig.8). Apart from riveting the balance weights to the flaperons, the flying surfaces are now installed and work can focus on navigation lights, wiring, connecting brake lines and running a fuel line up to the firewall, installing the adjustable seat pans and the seat frames, the central console and many more small jobs. There is lots to do and with a tarp over the cockpit and a heater work can continue through the winter.

(As we've seen, both in recent email communications from our Chapter President as well as on the first page of this edition of Carb Heat, the current COVID-19-induced lockdown measures will prevent us from making much progress until late January. That's ok – those of us who live in permanent delusion or climate denial will hope the hangar will be warmer by then! Ed.)

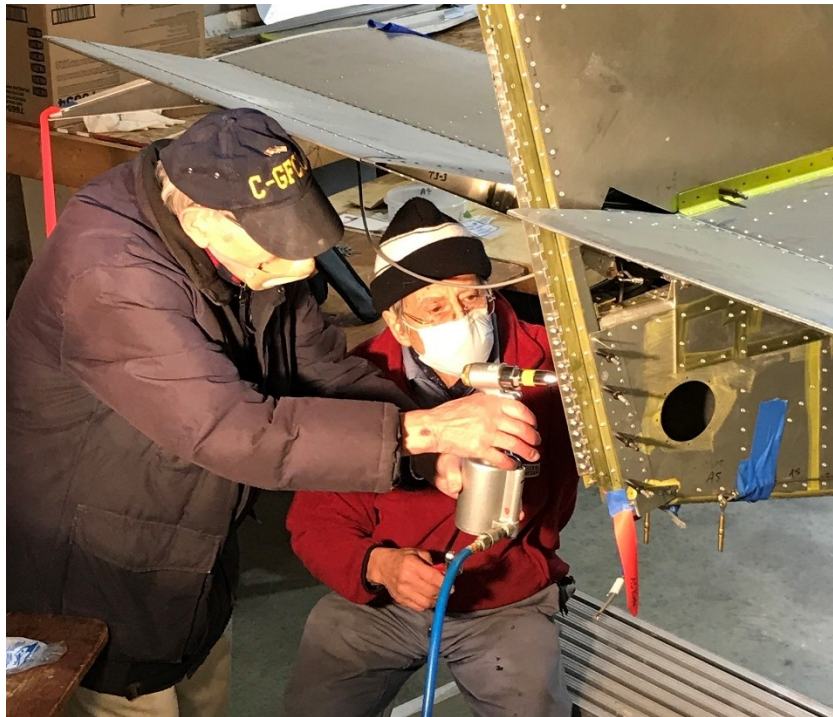


Figure 8. Irving and Edward finishing off the A5 rivets to install the fixed half of the rudder hinge to the tail fin and rear fuselage.

Upcoming Events

With COVID-19 forcing another province-wide lockdown, face-to-face events are proving nearly impossible to plan, let alone execute. Fear not, EAA has a fix for both the COVID-19 Blues and the Winter Blues. Check this out!!!

EAA Homebuilders Week

LEARN. BUILD. FLY.

EAA.org/HomebuildersWeek

The graphic features a large image of a welder in a green jacket and protective gear, with sparks flying from his work. Below this are three smaller images: a man in an orange shirt working on a component, a woman in a pink shirt working on a part, and a man in a blue shirt working on a part.

• **Homebuilders Week – Online Event Starts January 26**

An online opportunity to learn about all aspects of building your own aircraft

By Charlie Becker, EAA Homebuilt Community Manager

EAA is launching a new online learning event for aircraft builders: www.EAA.org/HomebuildersWeek

It will be five straight days of educational forums covering a broad spectrum of aircraft building topics. It will launch on Tuesday, January 26, 2021, and run until Saturday, January 30, 2021. The live online presentations will be open to everyone interested in building their own aircraft. Sessions will start at 1 p.m. CST and run until 8:30 p.m. CST daily.

This event is an opportunity for a new person to jump in with both feet and learn a lot about the wonderful world of homebuilding. We will cover areas like getting started successfully and techniques when building with sheet metal, composites, steel, and wood. But it won't be just for the newbie; we are offering in-depth talks on panel planning, engine selection, FAA certification, flight testing, and selling a homebuilt aircraft. There will be something for every builder, whether you are just starting out, knee deep in a project, or just received your airworthiness certificate — it is going to be a great learning opportunity.

EAA is working with industry experts, kit manufacturers, and other subject matter experts to provide top-notch material for builders. The sessions will be live and allow plenty of time for attendee questions. Recordings will be archived and available to EAA members for review.

The launch of EAA Homebuilders Week coincides with the 68th anniversary of the founding of the Experimental Aircraft Association in 1953. Those founding members of EAA lit the fuse on the homebuilt movement that provides affordable access to aircraft ownership and today has spread worldwide.

EAA Homebuilders Week is possible through the generous sponsorships of Aircraft Spruce & Specialty Co., Dynon, Scheme Designers, Inc., and Van's Aircraft, Inc.

Visit EAA.org/HomebuildersWeek to review the schedule and sign up for a session.

Classifieds

Hmmm... this area is startling in its emptiness...

If you have something aviation-related to sell, or are looking for a particular part or item, drop an email into my in-box at newsletter@eaa245.org and I'll get it posted in our next edition!

Who We Are

Experimental Aircraft Association Chapter 245 Ottawa. We are a group of Amateur Aircraft Builders, Owners, and Enthusiasts with a hangar, lounge and workshop facility located at the Carp Airport, just west of Ottawa.

President:	Mark Richardson- 613-983-7764 president@eaa245.org
Vice President:	Mike Lamb - 613-790-4929 vice.president@eaa245.org
Treasurer and Marketing Manager:	Ken Potter - 613-259-3242 treasurer@eaa245.org
Secretary:	Mark Cianfaglione - 613-600-4501 secretary@eaa245.org
Operations:	John Montgomery - 613-286-8543 ops@eaa245.org
Membership Coordinator:	Phillip Johnson - 613-790-4929 membership@eaa245.org
Webmaster:	Phillip Johnson – webmaster@eaa245.org
Newsletter Editor:	Mark Briggs - 613-725-4361 newsletter@eaa245.org
Technical Information Officer:	Pillip Johnson – membership@eaa245.org
Young Eagles Coordinator:	Mark Briggs - 613-725-4361 young.eagles@eaa245.org
Hangar Group Liaison:	Bill Reed - 613-858-7333 Bill@ncf.ca
Past President:	Phillip Johnson – 613-790-4929 membership@eaa245.org

EAA 245 Website: <https://chapters.eaa.org/EAA245>

Membership Application and Renewal Form

We have a “Google Group” for the EAA Chapter. If you are not familiar with Google Groups, it’s a service from Google that provides discussion groups for people sharing common interests. If you’d prefer NOT to be a member of the group, please tick the box in the membership application form when you renew your membership.

Experimental Aircraft Association Chapter 245

Application Date: _____

New: Renewal:

I do NOT wish to be part of the EAA Google Group



Name: _____

Street: _____

City/Town: _____

Province: _____

Post Code: _____

Phone () _____

Aircraft Type: _____

Registration: _____

Aviation Affiliations

EAA # _____ Expiry Date: _____

COPA: RAA UPAC

Other _____

Annual Dues: January 1st to December 31st (pro-rated after March 31st for new members)

Newsletter Subscriber: \$50

Newsletter only

Associate Member: \$50

Full Member: \$100*

Newsletter, hangar, workshop, tie-downs.

Note. Associate and full members must also be members of EAA’s parent body.

Cheques should be made payable to: EAA Chapter 245 (Ottawa)

On-Line E-Transfers to Treasurer@eaa245.org are preferred.

Note: PayPal payment is available – please consider adding \$3 to cover the fees.