Carb Heat

September 2012

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Contents

Next Meeting: Thursday September 20 at 7:30 PM
Bush Theatre
Canadian Aviation and Space Museum

Presentation:

Sploshkosh Review

by Colin McGeachy and Phillip Johnson

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@the Carp Airport, just west of Ottawa.

President:	Cary Beazley	613-226-4028	cbeazley@innovista.net
Vice President:	Phillip Johnson	613-253-2229	vice.president@eaa245.org
Treasurer:	Curtis Hillier	613-831-6352	echillier@yahoo.ca
Secretary:	Peter Zutrauen	613-831-0348	secretary@eaa245.org
Operations:	Ken Potter	613-259-3242	kjpotter@sympatico.ca
Membership Coordinator:	John Montgomery	613-599-1240	membership@eaa245.org
Webmaster:	Russell Holmes	613-226-8273	billy.bishop@sympatico.ca
Newsletter Editor:	Yvon Mayo	613-830-1935	eaa245@gmail.com or yvonmayo@rogers.com
Technical Information Officer:	Nathan Aligizakis	613-730-1644	nathan.aligizakis@gmail.com
Young Eagles Coordinator:	Alfio Ferrara	613-836-8285	longeron@gmail.com
Chapter Historian:	Wayne Griese	613-256-5439	wayner@igs.net
Carp Airport Liaison:	Martin Poettcker	613-832-1210	Martin.Poettcker@marpoe.ca
Hangar Group Liaison:	Bill Reed	613-831-8762	Bill@ncf.ca
EAA 245 Website:	http://eaa245.org/	and	http://www.245.eaachapter.org/

President's Message by Cary Beazley

Happy fall solstice everyone. Wow! Nice summers have returned after a few years of absence.

Open House

The weather gods were indifferent again this year but overall we received a lot of positive feedback regarding the format change despite the lower (weather related) attendance.

Thanks again to **Curtis Hillier**, the Hillier family, the Stone Soup works (yum!) and all the volunteers…

The open house displays covered the gambit of aviation from member's flying planes and more grounded projects in the works including cast aluminum parts, custom radial engine bits, Wankel rotary engine assembly and disassembly, a wooden aircraft project, the shelter project. Some of the flying bits included a Nanchang, trike, a Yamaha conversion, scratch built Zenith 601HD and 701, a Davis v-tail, several nice RVs and a Rebel.

The wood rib building and aluminum riveting demos were the usual hit along with the balsa gliders for kids big and small.

A huge thanks again to all of the presenters and project people for their efforts.

Check out some of the video photos: http://www.245.eaachapter.org/apps/photos/

TC Safety Seminar Sept 26

Michael Shaw of COPA flight 8 has forwarded an invite to attend a TC safety seminar by Will Boles at the Canada Aviation and Space Museum, Rockcliffe Airport on 26 September at 19:00 hours. Come by air, land or river... http://web.ncf.ca/fn352/flight8/upcoming.html

Michael Shaw
Captain: Flight 8 - Ottawa / Canadian Owners and Pilots Association
airmail@rogers.com
twitter @copaflt8
copaflight8@joindiaspora.com
613-824-7145

Carp WCD FBO fuel discount via Ken Potter

As of July, West Capital is giving a fuel discount to pilots based at Carp. You have to register with the FBO. When you fuel, you swipe your driver's license first, and then your credit card. The driver's license ID's you to the computer which then discounts the fuel. I've used it and even though it's only about 2 cents a litre, every little bit counts.

Makerplane - Open Source Aircraft Project

We were fortunate to have **John Nicol** give us a preview of the Makerplane Oshkosh presentation: http://makerplane.org/

I have seen comments by interested parties in a number of forums. Thanks again for the presentation John.

Around the Patch

Dwayne Price's girl got a hot new (less pink) facelift.

Martin Poettcker's Zenith showed signs of life for the open house.

Phil Johnson's Cozy is threatening to fly shortly ;)

Bill Reed's RV8 is also threatening to fly shortly

Jeff Whaley's Sportsman is almost ready to go again, it may be done before you read this.

I also want to thank everyone who assisted in **Rao Janahama**'s Zenith field retrieve.

Hugh Thayer's Murphy was looking sharp.

The are also a few new members on the flight line – always good to see.

Dynavibe prop balancer

EAA chapter 245 has purchased a new Dynavibe prop balancer thanks to **Phil Johnson**; put it to good use!

EAA 245 Club Stuff

Sunday morning get together continue @ 10am at the Carp EAA hangar. See you there.

As usual, many chapter members get together for dinner prior to each EAA 245 meeting at Swiss Chalet (corner of St Laurent Blvd and Montreal Road) @ 5:30PM, Everyone is welcome.

See you at the meeting!

Cary

Meeting Schedule

20 Sep 2012	SplOshkosh review with Colin McGeachy and Phillip Johnson First Flight Plaques to be Presented by Cary Beazley
18 Oct 2012	Flammability (of stuff we put in our cockpits) with Curtis Hillier
15 Nov 2012	Presentation to be determined, Annual Elections of Executive Positions
No December meeting	

Editor's Comments

This month as usual, Cary Beazley presents the President's Message and Wayne Griese brings us a historical look at Carb Heat.

Jeff Whaley is continuing his series on the build of "My Plane". This series started in January and this is part eight of the series.

Curtis Hillier and John Montgomery gives us an overview of our 12 August open house.

Alfio Ferrara offers technical buying advice in Gadget Corner; this is the second article and is looking more like a new regular column.
Flying season is still with us and there is a lot of flying taking place.

We need more stories and information to pass on to our readers. If you go to fly-ins, take notes, pictures and write a short article so ohers find out what they missed.

Carb Heat has been growing in content and includes more pictures than ever. This means an increased file size for distribution by Email. If this bring some difficulties for you, send me a note.

Yvon Mayo

Bartoon

Barnstormers issue 228

My Plane - Out With The V6, In With The Wankel

(This is part of a series; see previous articles in every Edition from January 2012)

Situation

With the Ford V6 dying in its infancy, MY PLANE had just morphed from an airplane back into a "project". Aspects of the engine I liked were the throaty roar it made through straight pipes, parts were readily available and all connections to it were with SAE or NPT threads. The easiest and fastest solution would have been to repair the Ford engine; however, it wasn't as good a match to the 2+2 as expected. I wanted something lighter, more reliable and needed it yesterday.

Photo 1: As it Arrived, Stock Intake and HI-VO Chain Drive

Bail me out Willy

When the project started I actually had some disposable income but now 12.5 years later that money was pretty much disposed. If I couldn't afford a Lycoming in the beginning, I sure couldn't afford one now. As fate would have it there was another potential "airplane engine" in my workshop. With the passing of my father, the family sold his homebuilt PA-12 project; the buyer didn't want the Wankel engine bolted up front, so I put it away for a rainy day. It was raining pretty hard; the Wankel might just be the bailing bucket I needed.

Considering the Wankel

Digressing back to 1990 and the V6, I had seen several fly into Oshkosh; other auto-conversions were bolted to trailers or in the bed of a pick-up truck. I had considered using Mazda's 13B Rotary version of the Wankel engine but discounted it due to bad press regarding its fuel consumption. Plus at the time there weren't any actual flying examples, I would have been going it alone. Thirteen years later, speaking with Cary Beazley I learned there was an active builders group and a few companies were supplying parts and/or complete conversions. One company stood out from all the rest: Real World Solutions (RWS), though a Ma and Pa shop in every sense they were selling components and flying what they sold. Tracy Crook (an unfortunate name) had logged some 700 hours on his 13B conversion RV4 with a "Sun 100" air race victory to his credit. I ordered a copy of his conversion manual and got acquainted with the on-line forum. The Mazda Rotary was designed to be operated at high rpm, so with a reduction drive up front should be a natural fit for aviation use.

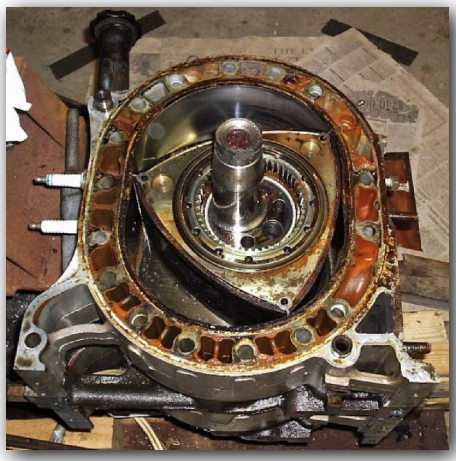


Photo 2: Taking it Apart

Starting Over

An engine install from scratch turns out to be in the range of 500 hrs labour and at the rate I worked this was going take at least one year. I had seen the Mazda running on the PA-12 project, swinging a metal propeller attached to my father's home-spun, hi-velocity chain drive. It had real potential; I wasn't sure about the drive but the engine block was a good starting point. One oversight on the

Ford was not going to be repeated; regardless if the engine still ran it was going to be torn apart and completely overhauled. I'm no engine genius but can follow good instructions and fortunately the tear-down and overhaul of a rotary engine is a lot simpler than any piston engine. I bought an overhaul video and watched it a couple of times to get up to speed.

Photo 3: Engine Block

Tear-Down

Once you get past the 300 foot-pound rear nut and the 90 foot-pound front nut on the eccentric shaft (e-shaft) the rotary engine comes apart pretty easy. It has two end housings one center housing and two rotor housings, stacked and bolted together liked dominos. The e-shaft runs through the center mated to one rotor per rotor housing. After removing the 18 tension bolts a few blows with a rubber hammer separates all the housings. Removing the first end housing reveals what you see in photo 2, a rotor sitting inside one trochoid combustion chamber or rotor housing. All the parts lift out vertically until you're left with one end housing bolted to the custom engine stand. After removing all the parts they need some serious cleaning and careful measuring to see what is reusable, typically all the housings are reusable as are the rotors, eccentric shaft and oil pump - most of the rotor seals will have to be replaced.

Rebuilding the Rotary

The rebuild process starts by deciding where to buy the replacement parts – some options are: OEM Mazda, Racing Beat, Atkins or RWS. I chose to buy an overhaul kit from RWS and supplemented that with a few parts from Mazda. Second step is to paint all the reusable parts while waiting for the new ones to arrive. The next photo shows all the pieces that make up the engine block stack, measuring about 1 cubic foot. The blue parts are cast iron housings while the grey parts are the aluminum rotor housings.

Each rotor has 2 oil seals per side that prevent the cooling oil pumped through the e-shaft into the rotor centers from escaping into the combustion chamber – new Mazda oil seals were installed. Each rotor has 3 apex seals which seal the rotor tips to the combustion chamber outer wall – these were all replaced with RWS seals. Each rotor has 3 side seals and 3 corner seals per side – these seals were all reusable. There are 4 combustion o-rings and 4 water jacket o-rings – these absolutely must be replaced at overhaul. The simplicity of the engine is it has only 3 moving parts inside: 2 rotors and the e-shaft. The complexity is it has a lot of seals and springs; in my view, each rotor has the equivalent of 15 piston rings. Critical to the overhaul is ensuring the seals and o-rings are installed properly.

Photo 4: Exploded Block and Moving Parts

Block Modifications

There are several modifications available; except for blocking the exhaust gas return ports, I chose to ignore all that promised more horse power, opting for ones that offered weight-savings or improved reliability. The rotary is 2/3 water-cooled and 1/3 oil-cooled; water cools the block, oil cools the rotors. In an effort to bring the engine to operating temperature faster, Mazda stops the flow of oil into the rotors until the engine reaches a certain temperature. This feature was modified to allow full-time oil flow into the rotors by removing the thermal pellet from the e-shaft and replacing its check balls with screwed-in jets; the end result should be gradual heat distribution and longer rotor bearing life. The rotor seals are normally lubricated with engine oil using a metering pump and injector system; this system was removed entirely, resulting in about 5 lbs weight savings but adding the need to mix 2-stroke oil with the fuel.

Engine Mount

With the overhaul completed the next step was to decide on an engine mount configuration. There are basically three options: 1: Bolt the engine to an aluminum sub-plate using the oil pan bolts then cushion-mount the sub-plate to a bed-mount. 2: Use the two stock Mazda mounting points plus a third located at the top of the block, all with custom cushion-mounts. 3: Rotate the engine CCW 90 degrees for a "plugs-up" configuration, attached by option 2. As can be seen in photo 5, I went with the aluminum sub-plate configuration. It was great to have a milling machine and all the tools to make the custom pieces, including the rubber bushing holders. My welding skills had developed to the point to dare make my own bed-mount.

Turning it into an Aircraft Engine: To make an aircraft engine you've got to couple it to a propeller. For most automotive engines this means using a reduction drive that creates an offset from the crank shaft to the prop-shaft. The small dimensions of the 13B block allow it to be lifted up into the thrust line; however, the stock Mazda intake is very tall, thus was cut down as well as the throttle body in an improved copy of Tracy Crook's dynamic intake. I say improved because part of his intake was actually made of plywood; I replaced that with aluminum and had it professionally welded. The engine comes with multi-port fuel injection, 2 primary injectors in the block, and 2 secondary injectors in the intake. Reducing the profile of the intake raised the relative position of the secondary injectors so they were later moved from the stock position shown in photo 6.

My father had configured the engine with the stock Mazda intake and designed an offset HI-VO chain drive (see photo 1). Every automotive installation is a one-off; there are no two identical; however, most of the flying rotaries were using components supplied by RWS. I decided to follow the crowd and replaced the HI-VO chain drive; with a (2.85:1) geared reduction drive from RWS and also bought their ECU.

Photo 5: Engine and Bed-Mount

Continuing the theme of not reinventing the wheel, I followed Tracy Crook's lead on the oil-return point from the re-drive and improved on his original exhaust configuration. His exhaust was

ported to a collector/muffler underneath the engine using stainless flex-hose; I bought some 304 stainless U-Bends and adjusted their radius to wrap into a collector under the engine, then piped that into a muffler mounted under the airframe. Surprisingly having not welded stainless before, I'm happy to say all my welds are holding up – so far.

Photo 6: Custom Intake and Geared Drive

Making it Work:

To start with there were only 2 reusable components from the Ford install, the radiator and expansion tank. It is a lot harder to efficiently (low weight/low drag) keep a liquid-cooled aircraft engine in its operating range than an air-cooled engine. The reason is temperature differential. In simplistic terms you want to maintain a liquid-cooled block at <200F while air-cooled CHTs want to be <400F. On a hot day (100F) there is only 100F difference between incoming air temperature and the block, while for the same conditions there is a 300F differential between incoming air and CHTs. The radiator would again be hung from under the engine mount; with the rotary being 1/3 oil-cooled the stock Mazda oil cooler would be a new addition, mounted just behind the prop shaft. The cowl shape and dimensions were dictated by the placement of the two coolers, and the placements selected for best airflow. So, once again a custom mold was made to fabricate the cowls. This time I would go with the top/bottom split style, fastened in the center with piano hinges. I used every type of scrap material to make a male plug and from that made a single piece part that would be cut down the middle.

New to this install due to fuel injection would be dual fuel pumps and the RWS engine control unit named EC2. The EC2 has dual CPUs for redundancy and all the circuitry to drive the 4 ignition coils and fuel injectors. It has many modes used to program the unit including a manual leaning feature and ignition timing adjustment; however, most of the circuitry is designed to control and store the fuel delivery table which has 128 cells x 256 bits. The table itself has a low power range which uses only the 2 primary injectors and a high power range that drives all 4 injectors; where it switches from 2 to 4 injectors is called the staging point. Nothing gives RWS customers more headaches than trying to tune their EC2, especially just above the staging point, so many opt for the mating EM2 which provides engine monitoring and an auto-tune function. Since I work in electronics, handling the EC2 tuning didn't scare me, besides I didn't want to spend the extra $800 - call me cheap if you like.

Revised Weight and balance

The Mazda engine installation turned out to be 70 lbs lighter than the Ford, including removing 16 lbs of ballast from the tail. The small dimensions of the 13B allowed its CG to be 5 inches closer to the firewall and coupled with less weight gave a better moment. This was a win/win situation and a good match with the airframe.

Major Repair Inspection

Skipping forward, after the engine was installed on the airframe and everything wired up it was given a test run (unloaded) to ensure functionality. When all the details

Photos 7, 8: Cowl mold and Initial Part

were worked out, including fuel line routing, radiator and oil line plumbing, prop installed and a few test runs tied to my SUV, it was time to get it inspected. This time (3.5 years later) because the project had already gone through the DABI process it now fell under the direct authority of Transport Canada. The inspection took place on Sept 12, 2008 and not without a few snags. One Snag: The engine is bolted to the sub-mount using 5 inch long, 0.5 inch diameter bolts; I can count to three but didn't think the thread rule applied to a non-aircraft bolt. Why worry about 4-5 threads sticking out past the nut when there are still 10 on the back side of the nut, nothing is bottomed out. "Doesn't matter, it's being used in an aircraft application, aircraft rules apply!" Okay, invoking the maximum 3 washer rule solved that problem. A letter and copy of log book entries with corrections mailed to TC resulted in a new Flight Permit. Once again I had an airplane but no ability to fly it – I needed a test pilot.

Jeff Whaley
EAA 313043

Transport Canada Safety Seminar

The following information came to us from Michael Shaw of COPA Flight 8 through Russel Holmes. Note that Cary also mentions this in the "President's Message.

If you are looking at a way to satisfy the 2-year recency requirements of your Licence/Permit as per CAR 401.05, this is an excellent opportunity to do so.

Just a quick note to invite your members to attend TC safety seminar by Will Boles at the Canada Aviation and Space Museum, Rockcliffe Airport on 26 September at 19:00 hours.

NAV CANADA adopts ICAO flight plan changes

Flight Plan 2012 (FP2012) is an initiative of the International Civil Aviation Organization (ICAO) to update the content requirements of the internationally-utilized flight plan, with a worldwide implementation date of November 15, 2012.

These updates will affect the alpha numeric string codes; in particular Equipment Type codes and remark suffixes used for filing flight plans. These changes are designed to address current and future status of aviation and air traffic management technology.

As of September 15th, NAV CANADA sites across Canada will be able to accommodate both current and new flight plan formats. This is a transitional step towards full implementation of FP2012 on November 15th when only the new flight plan format will be accepted.

For an overview of Flight Plan 2012 changes and additional resources, please visit the OnBoard website:

http://onboard-abord.ca/flight-plan-2012/

If you have any questions please contact NAV CANADA Customer Service at 1-800-876-4693 or 1-613-563-5588. Enquiries can also be sent to service@navcanada.ca

This is a perfect example of why members need to periodically check the AICs click here to ensure you remain up to date and to visit NavCan's OnBoard http://onboard-abord.ca/ website frequently for announcements like this one.

EXHAUST – from the Carb Heat Archives

The following was taken from Carb Heat.

30 YEARS AGO
Summer 1982

A one page Special Issue of Carb Heat came out for the summer of 1982. The building of the club house at Carp was almost, but not fully completed. Construction was the focus of the newsletter and a list of tasks to be completed and material required filled the one page. Rain was seeping in the windows, so a drip edge on the south side roof was to be installed as well as an eaves trough along the full length of the roof.

Weatherproof exterior fixtures were required. Wood trim around the doors and windows inside, fluorescent lights were wanted for installation as well as a cupboard and counter.

Of course painting in site was suggested before laying the carpet. For the workshop, a four inch thick concrete floor with steel mesh was required. And finally, it was suggested, that in order to complete this portion of the building they had to gyproc the ceiling and install electricity. The walls had already been insulated and gyproc installed. Just a little more to do and "we have not even talked about the hangar itself."

The other side of the one page advertised a gathering at Joy and Jim Bradley's strip for August 15th, 1982. Salad, buns, tea, coffee and all you can eat corn was provided. The Bradleys had an 1800x80 ft. grass runway on 24 and 06 headings. Watch out for electric wires along the highway and a ditch at the end of the runway you were cautioned.

20 YEARS AGO
Summer 1992

The Breakfast Fly-In of 1992 was the highlight of the summer of '92. The first visiting aircraft full of hungry aviators arrived 15 minutes before Gord Standing and his army of volunteers were open for business, and the last aircraft arrive about 15 minutes after the kitchen shut down at noon. More than 250 guests were fed.

Visitors were delighted with Ted Slack who brought his computer and printer. He and Bill Laundry maintained a database on amateur-built aircraft and they could tell you everything from the name and address of the nearest Zip-Flugal owner to whether the aircraft registration that has your initials in it had already been taken, and if so, what aircraft it is on. Ted had a small crowd around his table the whole morning.

The September meeting of Chapter 245 was to be held in the National Aviation Museum in the newly renovated theatre and the new seats were reported to be really comfortable, all according to the President's Corner report prepared by President Lars Eif, in Carb Heat for September 1992.

wayner@igs.net. Thanks.

Wayne Griese.

The Aviators TV Series

The following information came to us from Irving Sloane

The Aviators TV Series will now be broadcast on the Public Broadcasting Service (PBS) starting this Fall. PBS is included in the basic TV packages from both Bell and Rogers. The third season is starting next week in the US. You will have to check your schedule for details.

2012 Open House Review

By Curtis Hillier and John Montgomery

Wow we have had an interesting year this year. After much discussion we decided that we wished to expand on the traditional breakfast format. We saw this as an opportunity to promote general aviation, home building, and of course our local EAA chapter - while giving our members a fun way to show the public some fascinating planes and projects.

As many of the membership know, the feat of serving sometimes 400 meals is a lot of hard work, and let's face it we would rather be building aircraft instead of burning toast and trying to get the eggs flipped at exactly the right time (huge kudos to Pierre Brunet and Roger Fowler for their year after year volunteering for that arduous task).

Last year we made a change to ham, which was met with a big welcome from the breakfast volunteers because it freed up both grills for eggs and serving hot ham was a much less challenging task. Even with those changes, and having the lineups reduced somewhat, when we rolled up the profits and compared to the work load by the volunteers it just made more sense to promote our chapter a bit differently.

This year we looked at options for food (because every good pilot wants to eat), we sought out other clubs who are very proficient at the breakfast; but they too only wanted do it once per year for themselves, and preferred not to get in the "business of food sales".

This year we found Stone Soup Food Works who put together a menu that was tasty and a good value They came in, set up on time, and stayed until the attendees stopped coming, then quickly departed with no evidence they had ever been there (except for the belly full of food).

Of those who came and perhaps some of you who did not make it out, the weather was certainly a challenge for the attendees to rationalize attending vs staying indoors away from the threatening skies. However, although the sky threatened to dump on us several times, we did have a few fly-ins and a steady flow of attendees.

We had quite a set of displays and demonstrations. We set up the shelter with two huge banners, which did a great job to draw folks in and show we meant to have an open house. Inside the shelter we had three areas set up: Russ Holmes had a set up of RC aircraft, and for the younger crowd, balsa planes that they could build and fly, and there always seemed to be a balsa plane floating in the air throughout the day. As usual Russ ran a mini balsa FBO where he made expert repairs whenever the balsa planes succumbed to damage (none of which needed to be reported to Transport Canada). The second area was the wood rib building area where Ron Johnson,

Pierre Brunet, John Montgomery and his son Colin Montgomery lead several folks (mostly the younger crowd) through the process of building a wood rib (using the same forms we have used in the past at the Aviation Museum). Relief came from an old expert (Sean Hillier) who was one of the first to do the rib building and has helped out at a few of the museum events. Sean Hillier even had the humiliation of seeing his much younger self on one of the posters John Montgomery put out in the lounge display. The final area set up in the shelter was the riveting area - this was new for us this year, we (John Montgomery) tested this at the young eagles event in June and found a genuine interest in the various riveting methods and the drilling, cleaning of holes and testing of the resulting rivet. The most active tool was the riveting gun and there was noise coming from there and drawing in new folks all day. John Montgomery also had a video running on a small laptop display.

We had several things set up in the lounge. This showcased our lounge where a lot of our pictures on Facebook postings over the winter months come from; we had a video looping on the EAA National Organization, and a PowerPoint presentation on EAA AirVenture and chapter information.

Moving down into the outer workshop we set up a coffee station (Stone Soup could not serve coffee due to the potable water demands of anticipated crowd numbers). Lars Eif did his usual expert coffee services, a few of us kept it full all day. We placed a donation box, which saw some activity to help offset the cost of the open house. We opened the machine shop so potential members could see how organized Ken Potter finally has the tools and workshop (yea there is more work to do!). Next, as you make your way out to the hangar, here Michel Tondreau and wife Chantal Tondreau worked the wood aircraft restoration demonstration. Michel Tondreau also brought in samples of home aluminum castings from a recent seminar he went on that was a really good presentation. Of course if you know Michel Tondreau, you know he is knee deep in trying to manufacture his own engine and not only had some samples of those engine parts but also brought in some casting attempts for blanks for those parts. Next to that was the "Cary Beazley Rotary engine extravaganza". Any time Curtis Hillier ventured in there he found Cary Beazley was chatting with someone and either assembling an engine or tearing it down, a truly unique display. Maybe next year we can have occasional engine running demonstrations, or perhaps a build and run in one day demo (how about it Cary?)

Outside and south of Stone Soups food truck you would find Martin Poettcker with his 601 explaining that "yes he did manufacture every part in that air plane" and "yes it flew" and "yes he even designed built and tested his own carburetor", although the current

brought over the Nanchang we have seen flying in and out of Carp over the past few months (thanks to Colin McGeachy!), this was a huge draw.

installation was a converted motorcycle carb.

On the north of the ramp, Sridhar Rao Janahama displayed his two seat trike, Hugh Thayer and André Beauchamp had the Yamaha marine engine conversion equipped CH701 on a trailer, and Hugh Thayer displayed his beautiful 99%

Finally it was great for the fly-ins (Charlie and Gwen Martel flew in that beautiful RV9A) as well as Matt Pearson's RV7A and Patrick Gilligan's RV8 (there may have been another RV that I missed). André Durocher flew his Beaver over and set up a nice Pontiac Airpark display.

complete Rebel which just came out of the chapter hangar and is waiting for a final inspection. The Fleet group displayed their pride and joy, speaking of "joy" Mark Briggs and Curtis Hillier paired up the two Davis aircraft C-GYLS and C-G"JOY" for a truly unique display. Mark Briggs gave expert descriptions over and over again as to how that thing flies with those two things on the back and very little wingspan. What are those things called anyway - elevators, rudders, elevudders or rudavators?

At the entrance to the ramp just off of Bravo the Nanchang group

All in all, this year was a fantastic experience for those of us who got involved. We have got several tidbits of feedback already on how nice it was to have the food left to

"someone else" and our chapter volunteers focussing on aviation related activities. The volunteer campaign went very well this year with near a 100% yes from those we called.

We had well over 20 volunteers who showed up this year chatting up the chapter and what we do "for fun". This year will go down in the organiser's records as one of the fondest and proudest events run at our chapter. We hope we did well in most members' eyes and next year we do even more displays demonstrations and draw a much bigger crowd with earlier announcements and much better forecasts and weather.

Personal thanks go out to the many people who helped out this year, most of you got a hearty thank you as you left, but for those we missed, please be very proud of what we did this year and we hope to see you again next year!

Curtis Hillier
and
John Montgomery

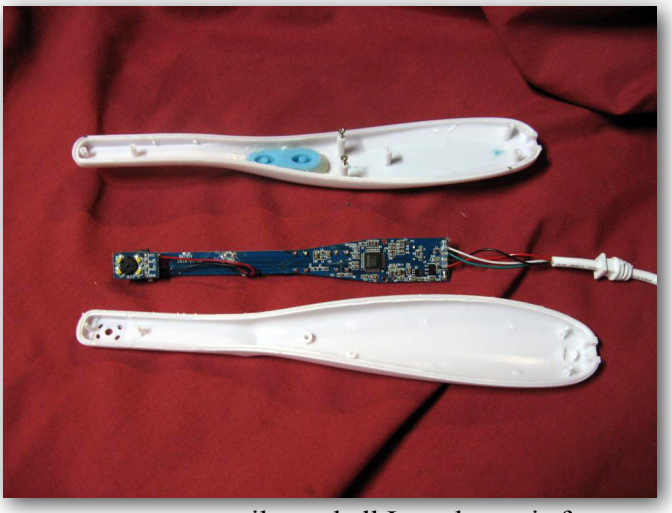
Gadget Corner
by Alfio Ferrara

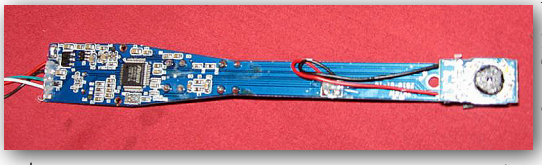
Does your dentist have one of these? My dentist doesn't....

As some of you may already know, I am always on the lookout for new tools and techniques. So what new toy did Alfio buy this time? A dental camera.

Let's just back up a little here. As most RV flyers and builders, we hang out on Vans Airforce forums for ongoing builder/maintenance support. One post that drew my attention was from my friend Ted. He had just bought a dental camera that connects to a USB port and had good results in viewing the valves in his engine. See his post and associated video: http://www.vansairforce.com/community/showthread.php?t=88598&highlight=dental

I bought one of these too, and started making the mods (you need to take it apart and insulate the printed circuit board before you can use it in your metallic spark plug hole. This particular unit takes video as well as 2 MP photos which I thought would be more than sufficient for observing the innards of the engine cylinders. There is no mirror for this unit, so there will be some areas that cannot be observed. I will try to use a mirror in the other hole and see if we can get a good overall view of the valves.





I bought this unit from Chinavasion, sort of a Chinese EBay. http://www.chinavasion.com/china/wholesale/Health_Lifestyle/Personal_Health/USB_Dental_Camera Under $50 CDN shipped (no taxes as it is shipped by post, and seems to fall under some magical threshold). Received it 3 weeks after placing my order. Item was just as described.

I have tested the camera, and it seems to work well. It takes video and still images. The plastic case comes off quite easily, and all I need now is for some appropriately sized heat shrink tubing to insulate the PCB before I slip the unit down a metallic spark plug hole. Have not had a chance to play more, so you will need to be patient and wait for our next column installment. Then again, you can just buy one and maybe beat me to the punch.

As I am writing this, we are also preparing for a cross-country vacation (in our plane of course) to (hopefully) Seattle / Vancouver. A visit to Dynon Avionics is planned with maybe a side trip to Vans Aircraft. Look for maybe another future posting on Alfio and Shirley's adventures.

Alfio

Fly-Out Possibilities

All Items Taken from the COPA Website

September 14-16, Gatineau, QC: Vintage Wings of Canada in partnership with the City of Gatineau present the annual 'Wings Over Ottawa – Gatineau En Vol' Air Show and Fly-In featuring the highly acclaimed Canadian Forces Snowbirds. This year we pay tribute to Warbirds of the Med and will have a spectacular array of Vintage Warbirds on display both on the ground and in the air. Over 200 recreational aircraft are anticipated to visit the Executive Gatineau-Ottawa Airport over the course of the three-day event. It's all taking place at the Executive Gatineau-Ottawa Airport, 1699 Arthur Fecteau Rd. Gates open to the public at 10 a.m. Admission $10/adult tax included, free for veterans and youth 12 and under. Workshops for aircraft owners throughout the weekend – stay tuned for details. Many food vendors and activities for families of all ages. A full weekend of aviation adventure right next to the nation's capital. Visit www.vintagewings.ca and sign up for the Vintage Wings blog for more up-to-date information or call 819-669-9603 or info@vintagewings.ca

September 22, Kingston, ON: Kingston Flying Club:
2012 Provincial Flour Bombing Championship and Fly-In. Food, Fun, Prizes. Ontario's premiere Fly-In event! Demonstrate your skills at Miramar North (aka Kingston Flying Club). Do you have what it takes to be Top Gun? Flour Bombing aircraft will require a pilot plus a bombardier. Get your crew together and arrive early to register! Plan to spend the weekend in beautiful Kingston, visit Fort Henry, take a 1000 Island boat tour. See our poster. To help us gage the number of aircraft and people attending please advise us of your intention to attend ASAP to cfi@kingstonflyingclub.com (Note: Pending TC approval, call prior to event to confirm).

September 23, Hamilton, ON:
In celebration of the 40th Anniversary of the Canadian Warplane Heritage Museum, the Museum will be hosting four 2012 fly-in dates (May 27, July 8, August 19 and September 23). Fly-in visitors will have their landing fees waived and all occupants in their aircraft receive free admission to the Museum. The Museum is open 9 a.m. to 5 p.m. and breakfast and lunch are available for purchase in the café. For further information, visit www.warplane.com.

September 29-30, Haliburton, ON (CND4):
Fall Colours Fly-In, cookshack open from 10 a.m. to 2 p.m. for chili, peameal on a bun and hot dogs. For more information, please contact Paul Robinson at lochlinboy@gmail.com

September 29, Lachute, QC (CSE4):
COPA Flight 118, in cooperation with APBQ is holding its annual Air Rally at Lachute aiport. Registration at 10:00. $5 fee per aircraft. Come to exercise your naviagation and observation skills! For more details, please call 450-562 1330.

September 30, Centralia/ Huron Park, ON (CYCE):
Tim's Terry Air Inc. invites everyone to a morning of great food and great friends at their fall breakfast Sept 30 8 a.m. until 11:30 a.m. Fuel discount available to all participants. For more information, please contact Tim at info@ttair.ca or 519-228-6111.

October 6, Westport , ON (CRL2):
Rideau Lakes Flying Club, COPA Flight 56 Fall Colour Fly-In, Lunch-Fly / Splash-In. Oktoberfest sausage on a bun with pie & coffee from 11:00 a.m. until 2:00 p.m. Transport Aerodrome / Waterfront / downtown. Located at N44 40.012, W076 23.799, 123.2 for communication. For more information, please contact Bill at 613-273-5282.

For Sale or Rent

Place your ads by phone with Yvon Mayo 613-830-1935 or e-mail to yvonmayo@rogers.com or eaa245@gmail.com The deadline is two weeks before the next meeting. The ads will run for three months. You may request a two-month extension. Please let me know if any of the articles have been sold.

FOR SALE

ICOM IC-A200 VHF Radio, Panel VHF Comm radio. It is in great cosmetic and working condition, and no longer needed due to a panel upgrade. Includes tray, and connector with 18 blank wiring pins (which should be sufficient for wiring it to your panel). Email Alfio at longeron@gmail.com or 613 836-8285. $575.

FOR SALE

2003 **Amphib floats** 1850 on Murphy Rebel.
Manufacture Bilmar.
Construction: Kelvar, fiberglass composite, electric hydraulic, hatches, rigging, dual water rudders.
Must sell. 20,000.00$
Contact Paul Sicard
SicardPL@xplornet.com

FOR SALE

Rotax 582 complete with 3:1 C-Box, carbs, and exhaust. 5 hours TT since new which included Rotax break in and taxi test. $ 3,000 OBO
Call Ken Potter at 613 259 – 3242

FOR SALE

$3,000 OBO (Price reduced from $4,000)
Honda CAM100 engine 100 hp engine 150 hrs. complete with instruments and engine mount .
Contact Ron Johnstone 613-745-5431
ronrose@rogers.com

FOR SALE

Tom Smith's 1950 **Piper pacer PA-20**. TTSN 5110 hours. 0-320 975 Hrs SMOH, 406 ELT, two ICOM A200, Aero ski 2000 available. Price: $25,000. Contact Rollie @ 613-830-5346 or Charlie @ 613-487-3036.

FOR RENT

Chapter 245 members can **rent a tiedown** near the EAA 245 hangar at Carp Airport. You can rent the tiedowns by the month or for the full year. Call Curtis Hillier 613 831-6352

FOR SALE

1986 Rutan LONG EZ FOR SALE: $36,000
470 Hrs airframe. Engine: Lycoming 0-235 L2C 2430 hrs TT.(with original logs). 5.0 hrs since Top overhaul & other new parts: Impulse Mag ,Vacuum pump, Starter & alternator. Avionics: Xpndr Collins TDR-950, Garmin 296 GPS, Kannad 406-AF ELT, ICOM A5 Radio, Flightcom 403mc Intercom. Hangered at CYRP. Extra prop (Silver Bullet).
Andrew 613-836-3968, cell 613-295 7451
andrewr@magma.ca Currently in flying condition. Last annual Nov 2011. For specs see http://en.wikipedia.org/wiki/Rutan_Long-EZ

Experimental Aircraft Association
Chapter 245

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Annual Dues: January 1st to December 31st. (prorated after March 31st for new members / subscribers).

Newsletter Subscriber:____ $35.00
Newsletter only

Associate Member:____ $35.00*
Newsletter plus Chapter facilities

Full Member:____ $70.00*
Newsletter, hangar, workshop, tiedowns. (Note: there is a one time $200 initiation fee when you become a Full Member

*Note Associate and full members must also be members of EAA's parent body in Oshkosh WI, USA