



Carb Heat

NEWSLETTER

Hot Air and Flying Rumours

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APRIL 1988

NEXT MEETING 15 April 1988 at the NRC 100 Sussex Drive

PROGRAM—Video and Audio-Slides night including such topics as

Take off and landing techniques

Wake Turbulence

Engine Operations

Owner maintenance

Propeller operations and care

Propeller Safetyand more

COMING UP at our next meeting at CARP in May

For all you prospective builders.....The Great Construction,
Materials and Type Selection Debate.

Hear and see the pros and cons of differing methods
of construction

President - Doug Richardson	592-5279	Hangars - Dave Murray	256-3674
Vice President - Roger Fowler	225-6070	Aircraft Operations - Garry Fancy	836-2829
Secretary - Andy Douma	225-1559	Special Events - Gord Standing	224-2879
Treasurer - Deric Dods	692-6121	Membership - Rodney Stead	836-1410
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EAA Chapter 245 March Meeting

Date: Friday 18 March 1988
Location: NRC Building 100 Sussex Dr.
Attendance: 30 Members, 5 Guests.
Time: 2000 Hrs.

Chapter president Doug Richardson opened the meeting and introduced this evenings visitors -

- John Perrin and Mark Richardson who are interested in building a Cristavia,
- James Oliff who is building a Baby Great Lakes,
- Nigel Field who is gathering information about homebuilding,
- and - Joe Scoles who is our guest speaker this evening.

By evenings end, James Oliff, Nigel Field and Joe Scoles had become Chapter members. Gentlemen, welcome.
With the renewal of Irving Slone our membership now stands at 71.

Chapter Business:

Doug gave an update report on progress of the Hangars paperwork. We are still confident of an early start to construction.
Doug also brought to our attention a book brought in by Olav Petersen about aircraft engines.

At this point the question of EAA affiliation was brought up. A short discussion ensued on the merits of being an affiliated chapter and member of the USA based Experimental Aircraft Association. It was specifically pointed out that to maintain Chapter affiliation in good standing, we will henceforth require all Full Chapter members to subscribe to the EAA-USA parent body.

Andy Douma put forward a motion endorsing the Executive board's proposal that we continue as an affiliated Chapter of the USA based Experimental Aircraft Association.
The motion was seconded by Rodney Stead and the motion was carried by unanimous show of hands.

George Ried read a letter received from EAAC's Jack Greenlaw.

Andy Douma brought up EAA's fight against the FAA's heavy handed proposals concerning Mode "C", altitude encoding transponders and the "mega", 92 miles across, control zones.
He encouraged our members to help the EAA fight these measures since, in the interest of trans-border regulation uniformity, these measures could ultimately be introduced into Canada.

*****Imagine Ottawa as the center of a 92 mile wide control zone in which you would need altitude encoding equipment. Also imagine a 92 mile zone around Montreal, Trenton, Toronto, etc. What about those of us whose aircraft do not have electrical systems. Right - no more flying!! Think about it - then write a letter to MOT.*****

Guest Speaker:

The speaker was introduced by George Ried. Joe Scoles works with the Aviation Safety Programs Branch of MOT. He started the "Amatuer Builder" publication and he is a major contributor to the "Maintainer" pamphlet that occasionally appears with the AIP mailings. He has spoken to the Chapter in the past about Ballooning. Joe briefly outlined what he wanted to talk about before we stopped for the coffee break.

After the break, Joe projected a transparency of the N-AME-AO circular that appeared some months ago he also had a stack of extras as handouts. This circular, which goes out to all aircraft owners, laid out the ground rules for using automobile fuel in aircraft engines on a trial basis. The bureaucracy is somewhat long and involved i.e. extensive record keeping, fuel sampling and testing and controlled fuel storage in sufficient quantity. The auto fuel trial program is open to anyone whose aircraft has an engine that uses 80/87 fuel.

Homebuilt aircraft may use auto fuel at any time - however some factors must be taken into consideration. It is advisable that a newly overhauled homebuilt aircraft engine should be run on leaded aviation fuel for at least 100 hours before switching to auto gas in order to lay down a sufficient lead coating on valves and seats to prevent heat welding.

Potential problems to note are:

- 1 - Deterioration or swelling of rubber o-rings or hoses may occur. Auto fuels have been known to attack the rubber seals in the primer circuit causing leakage - also - some carburetors have rubber tipped float needle valves, deterioration of these can prevent proper fuel shutoff allowing the float bowl to overflow, drip fuel, and present a fire hazard. To check this, - remove all rubber items that may come into contact with fuel, immerse them in auto fuel for some weeks and see what happens. replace with a suitable (automotive) substitute.
- 2 - Note that auto fuels are not yet readily available at Canadian Airports. This means that you have to bring fuel to your aircraft in Jerry cans, usually plastic. The problem in pouring the fuel is the potential for a static electric charge buildup and grounding a plastic can is very tricky. It is also advisable to use a suitably grounded metal funnel as plastic funnels may again be subject to static charge buildup.
- 3 - Some fuels may be of doubtful quality. You should buy fuel from the major companies only as their quality control is generally adequate. When buying from the local discount gas bar you don't know if the fuel doesn't contain a variety of additive combustibles such as paint thinners. That stuff can really do a job on seals and hoses.

4 - Then there is the oft mentioned problem of vapour lock. This may occur due to the higher volatility of automobile fuels sold in colder climates to facilitate easier starting.

Several steps may be taken to minimize the possibility of a vapour lock.

These are (a) - Keep the temperature of the fuel "down", in the tank and in the engine compartment. Do this by not leaving the aircraft in the hot summer sun, painting the aircraft a light reflective colour and/or insulating the fuel lines in the engine compartment.

(b) - Try to route the fuel lines with as few sharp turns as possible.

(c) - Use a fuel line of greater diameter.

(d) - Fly below 6000 feet ASL and when the OAT is less than 24°C.

It should be noted that extensive tests by EAA have determined that the Specifications for fuel vapour lock in small aircraft engines are much too severe. It may also be noted that aircraft have been flying with auto fuel on some very warm summer days without any problems being noted.

Some other problems occasionally noted with auto fuels are:

5 - Harder starting.

6 - Soot buildup. Not a real problem.

7 - Insurance Company concerns.

8 - The use of auto fuel is not recommended by engine manufacturers or aviation fuel companies. This is largely in response to the potential liability problem.

9 - More dirt in the fuel and subsequently in the strainer systems that will require more checking.

10 - You may encounter carb icing at higher ambient temperatures. i.e - carb ice can form at a range of temperatures 20°C higher than with aircraft fuels.

11 - A definite no-no is any kind of alcohol in the fuel. In quantities over 10 % it will substantially lower vapour pressures and lead to vapour lock. There are also indications that burning alcohol fuels has a detrimental effect on the earth's ozone layer.

Test kits are available to check for alcohol in fuel. This is not a problem in Canada but alcohol is often used in the USA - BEWARE! A test kit or information may be obtained from EAA Oshkosh - Quote Field Information Circular No.85-01.

Auto fuel is in common use in the USA where you need to buy an STC approving it's use in your type of engine installation.

Great Britain and New Zealand have both been using auto fuels without trouble.

An Item of Note from Environment Canada is the reducing lead content of "regular" automotive fuels over the next several years;

		before 31 Dec 1987	as of Jan 1 1988	after Dec 31 1992
Lead	Regular	0.77	0.29	0.029
Content:				
TEL	Unleaded	0.013	0.013	0.013
g/l				

Some Advantages of using Auto fuel in your Aircraft are:

- 1 - LOWER COST. In addition to the lower cost of auto fuel You may even claim a road tax refund upon presentation of appropriate receipts.
- 2 - Due to its high cost of production and low volume sales, 80/87 fuel is being phased out. In the USA it is becoming very hard to find at some airports. It would therefor be advantageous to be using auto fuel when 80/87 is no longer available.
- 3 - In the USA it is becoming commonplace to see auto fuel available at airports while 80/87 is disappearing. This will eventually happen in Canada.

Note that there are no problems with mixing avgas and unleaded auto fuel according to EAA test Data.

Throughout Joe's presentation many questions were asked by the audience. Joe invites anyone with subsequent questions to contact him at 990-5444.

The meeting adjourned at 2245 hrs.

Notice to all members

On June 18 1988 the Rockcliffe Flying Club will be holding a fly-in breakfast to help celebrate the opening of the new aviation museum. There will be several static displays set up in front of the club house. They would like the EAA to participate by displaying a partly finished or finished homebuilt aircraft.

Anyone interested should contact TIM ROBINSON at 330_4317

The chapter lounge needs a spring spruce up. We could use a sandpoint and handpump to provide on-site water. If anyone has a roof type cooling turbine or a screen door for the lounge, they would be appreciated and would save the chapter some money!

WHAT'S UP

Just as sure as the spring signals the return of the robins, it also beckoned the return of Laurent Ruel from Australia. He past on many thoughts and stories, and one stood out on it's own. I will not waste space on the details, but if you think it is expensive to fly in Canada ask him about the costs involved in New Zealand. I believe that you like me will be pretty surprised.

I was witness to a precautionary landing at Carp on March 26. The Lake amphibian was doing some circuits when the nose gear remained locked in the up position. After numerous attempts to dislodge it the choices narrowed to a wheels up landing, or search out open water. Aircraft in the area over open water reported on the availability, but in the end Carp was selected. A classic precautionary landing was then put to use, two inspection circuits followed by the landing and slide to a stop in front of Bradleys on the grass. Certainly no damage to the aircraft due to the skillful handling of the plane by the pilot, who remained very calm through out the event. Good work!

A discussion at the hanger about the volume of both flies and heat in the lounge has led to the same being on the agenda of the April Board of Directors meeting and I will report back to you at the next meeting. I hope also to be able to talk about the aircraft and tiedowns at Carp for a few minutes.

With the coming of the warm weather the airport bums have been slowly started to talk about CUBYS. A quick chat with Henri Beaudoin has confirmed that around May he will start to bring his plane to the airport for final assembly. Henri has spent that past eight years at this plane and it should be a pretty good example of this type of construction. He says that he is finally allowing himself the luxury of dreaming about that first flight.

Other members planes are nearing the elusive 95% completion point of their projects and are starting to plan the move. Jim and Tim Robinson and the Zenith 250 TD are the speed builders now, it's just a matter of finishing those internal systems. Gord Standing indicated that so far this summer is not ruled out, but he needs some warm weather to finish the doping.

As far as the grapevine goes, I heard that Charles Martel has had his Sportsman 2+2 signed off. My Zenith 250 has also been signed off so that both of us now enjoy an unrestricted Flight Permit.

Ted Chambers, the Zenith 300 builder is still racking up the hours with a flight to southern Ontario on Easter weekend. He must have on about 150 hours in the last 18 months.

Easter weekend brought out just about all the aircraft owners to clean and fly their planes and the space at Carp presently is getting tight. If you want to bring your plane to Carp or back to Carp, please call Garry Fancy prior to movement so that he may allocate you a place. His number is on the front page.

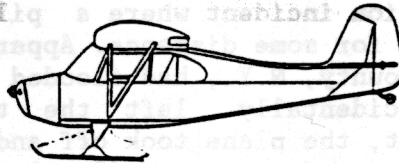
One last note to all people who wish to upgrade to Mode "C". Gralen were (are) running a special price for the parts and installation to upgrade your transponder.

Flight Lines

by Nina and Olav Peterson. April, 1988.

To inject a touch of aviation adventure into our otherwise humdrum winter, devoid of flying, we decided to pay a visit to an airport, unfamiliar to us, in the Ottawa Valley. We planned a drive to the Embrun/Russell airfield where apparently our old friend the yellow Pietenpol was spending the winter. When we arrived on a Sunday morning in mid-February we found the small, rural airport quite active in spite of the fact that large portions of the field were completely covered by ice. We watched an Aeronca on skis take off from a rough, icy stretch next to the runway. A Cessna with the side door removed was making preparations to go up with sky divers. Inside the clubhouse a fellow was untangling the ropes of his parachute and arranging the accordion-like pleats of the canopy. While packing his chute he gave us a quick lecture on the finer points of parachuting and pointed out the much smaller black emergency parachute. For added safety, parachutes, like aircraft engines, are designed with failsafe redundancy. Behind the clubhouse and situated on slightly elevated, well-drained ground stood Ken Cavers' hangar with EAA painted in large letters on the roof. A collection of EAA aircraft was hibernating behind the yellow translucent hangar door which illuminated the spacious interior and cast a sunny glow over the aeronautical inhabitants. In addition to the Pietenpol there was Terry Peters' Piel Emeraude, a small red and white biplane called the Hyperbipe and Charles Martel's beautifully finished Sportsman 2+2 with a plexiglass door for downward visibility. The see-through door is a feature of which we as C172 flyers and would-be aerial photographers are envious and is one of the special features that Chris Heinz has incorporated into his CH-701. In his article about the STOL, Chris Heinz mentions that he particularly likes the downward vision at low speed when there is time to enjoy the scenery below.

(EEAC's The Recreational Flyer, v.1, 1988, p.40).



An Aeronca in winter attire.

News from homebuilders across Canada:

"The Windsock", which is the newsletter of the Stanley Sport Aviation Association, Dartmouth, N.S., informs us in its January and February, 1988, issues that the Nova Scotia chapter is busy planning an active summer program of social gatherings for the whole family. On the agenda are several fly-in breakfasts, a visit to the fly-in and lobster dinner at Mount Pleasant, P.E.I., two local camping trips and a cross-country flight to Maine. The trip to Maine, they point out, should be of interest to pilots with homebuilts since they will now have fewer problems with border crossings to U.S.

The January issue contains an excerpt from a 1976 AVCO Lycoming "Flyer" on the characteristics of fuels and fuel contaminants, avgas versus mogas and references to Lycoming service bulletins on engine conversions for the use of 100 grade fuel.

The February issue contains a summary of one of the 1987 Oshkosh forums which dealt with the causes and cures for Cessna nose wheel shimmy problems; evidently in 99% of the cases, an unbalanced wheel has been the culprit.

Chapter 305 is fortunate to have an active and energetic Ladies' Wing, which raises funds, makes monetary contributions and even extends loans to the Stanley Sport Aviation Association. In addition, the ladies organize pinch hitter courses and have made substantial improvements to the clubhouse by adding new flooring, a new kitchen stove, new bunk beds and long tables. It sounds like they pretty well run the show!

The Newsletter from the Montreal Chapter recommends the Space Walker as a simple and inexpensive aircraft to build. Before tackling the real thing one of their members, Carl Larson, decided to first build a 1/4 scale radio controlled model.

The column, Blatter's Blurbs, contains an interesting profile on Wallace Rupert Turnbull, a Canadian engineer in New Brunswick who is credited with having built the first wind tunnel in Canada and with the invention of the variable pitch propeller.

This column also describes the incredible and widely reported aviation incident where a pilotless Aeronca took off and flew for some distance. Apparently a Douglas Young of Jefferson County, N.Y., had flooded his vintage aircraft and had accidentally left the throttle open. While handpropping it, the plane took off and travelled unassisted by man the amazing distance of 65 miles before settling into treetops in a nose up position. This story is fantastic enough to be reminiscent of the children's classic "The Adventures of Baron von Munchhausen" who in one of his extraordinary tales was travelling in the countryside when he

was overcome by a blizzard. He tied his horse to what seemed to be a post and went to sleep in a snow-bank only to wake up the next morning and find his poor horse tied to the top of a tall church steeple. An overnight warm spell had melted away the immense snow drifts covering a whole town including the church and had left the horse of the celebrated baron perched in a most precarious position. Although Douglas Young's predicament was equally implausible the story about his Aeronca is actually true, and while the plane was damaged, the incident was a tribute to the remarkable stability of the aircraft. It would be quite a feat for a plane of current design to fly by itself for 65 miles.

Chapter 379E, which holds its meetings alternately at the Brockville and Smiths Falls Flying Clubs recently undertook a trip to Haliburton, Ont. to visit the Seawind International Factory where they received a very informative tour and observed the various steps involved in the manufacture of this Canadian amphibian. It is a most appropriate plane for Canadians to build in the 1980s since we have a multitude of lakes and rivers which provide unstructured and uncontrolled landing places. With many municipal airports closing, amphibians provide an alternative and beckon us with unlimited opportunities. The fact that Canadian aviation has from the earliest days shown and interest in aircraft with an aquatic potential is discussed in a new book available in the Nepean Public Library: Foster, T. Sea Wings. Toronto, Methuen, 1986. (623.746 Fos).

The Newsletter from Oshawa, Ont., Chapter 364, mentions that their plans for the forthcoming summer include a "fun type" Air Race.

The agenda of their meetings frequently includes educational activities; an examination of the art of producing aluminum castings was a recent topic.

The Toronto, Ont., Newsletter is people-oriented and always features action-filled photographs of the chapter's many social events. We catch glimpses of the Xmas party, the beef carving ceremony and the Awards Banquet, as well as of the homebuilt planes and other building projects.

They are an ambitious group of aviation enthusiasts who have chartered a Convair for a 1 day trip to the Dayton, Ohio, museum in February for the price of \$200.00 Cdn. We look forward to reading more about this trip in the next Newsletter.

From Barrie-Orillia, Ont. comes a Newsletter which notes that one of their members, Len Bowyer, has acquired a copy machine for making wooden propellers and has given demonstrations to the members. He is able to help builders with laminating and copying propellers.

Flight Lines April 1988 (cont'd)

"Propwash" from Brandon, Man., informs us that their Chapter library has a good selection of VHS video tapes covering topics like basic aircraft welding, the ceconite 7600 covering process, V.F.R. tips, basics of mountain-, winter-, night- and over-water flying, as well as emergency situations.

One of their chapter members received a media interview on CKX-TV which was video taped and shown during one of the chapter meetings.

"Ground Effect" from Victoria, B.C., mentions that they also show videos and have educational activities during their meetings. They recently had a tour of an engine restoration shop and viewed a film about covering fabric aircraft.

Readings and Reviews:

Of interest to cross-country flyers is the recent announcement by DoT that Loran C has now been approved as a supplementary R/NAV. Under IFR the receiver must be approved by Transport Canada and adequate signal coverage must be available. Western Canada should receive increased signal coverage next year when four new U.S. Loran C installations start transmitting. (Canadian General Aviation News, Mar. 1988, p.1).

A special VFR flight corridor through the Los Angeles TCA has been announced by the FAA, which, although it requires mode C, is intended for non-turbojet VFR traffic flying at no more than 140 knots. (Sport Aviation, Mar. 1988, p.8)

Something new in composite homebuilts was exhibited at Oshkosh in 1987. Even though The Graflite, which is designed for the kit market, looks like the many current "glass fantastic" composites, it is different in that its much stronger frame is constructed entirely of graphite or carbon fibre. The use of carbon fibre is associated with a significantly lighter wing, increased stiffness and greater fatigue resistance. (Sport Aviation, Mar. 1988, p.13).

If you are planning to attend the Oshkosh convention in 1988 make a point of seeing Burt Rutan's Model 81 which will be competing in this year's CAFE 400. Known as the "Catbird", it is reputed to have the most aerodynamically efficient wing flying today. The airfoils were designed by the talented John Roncz who created the airfoils for the Voyager's wings and props. (Sport Aviation, Mar. 1988, p.11).

An illuminating idea arrives from British Columbia. A novel hangar design known as the Lindome features a translucent fabric dome ceiling which is claimed to provide a high

SHORTCUTS!

Here is a tip on control cables. My building area was for the most part a one car garage. The total fuselage was assembled only once at home for the critical measurements, and major component fit ups. As it took both my neighbour's and my laneway, it was taken apart promptly after the weekend. Sawhorses etc. held the control surfaces in the proper position, while I made cable length templates for future use. On several occasions after purchasing all the necessary components, and looking at the bill for them, I could not help but wonder if the measurements were good, how much slack was in the templates themselves and how much slack would the turnbuckle absorb and still be OK. TOO much room for Murphys Law I thought, and left the whole job for final assembly at Carp. Sound familiar?

Getting to the job at Carp I noticed an easier way by far. In each cable run there are at least two ends - four if you count the turnbuckle ends. So long as at least one end is not finished at home the proper length can be easily achieved during final assembly and it takes only a couple of minutes to complete. The only catch is each run must be carefully thought through. Some times the installation dictates the end that is easiest to work on, or which one has to be last. Cables can be attached to all parts then to i.e. turnbuckle eyes, thimbles, control horns, shackles installed, clevis bolts and on.

At the airport all you have to do is slide the nico press sleeve on, ensure the turnbuckle is quite loose, and pull the cable up hand tight. A tiwrap will hold it in place while the turnbuckle is disconnected and the squeeze is done. Reassemble and tighten the run to the tension called for using a cable tensionometer.

The real bonus after saving the cost of redoing the cable runs is this. Hundreds of times in the building cycle you have 10 - 20 minutes to work on the bird- but everything you are presently doing is too involved. Here is one solution. (1) lay out run with all parts in place and order. Make a diagram of the run and it's measurements as close as possible. Tape parts to cable at proper position. (2) Put every thing in a labeled bag. (one run - one bag) (3) got 10 minutes? Do a nicopress joint. etc. This then becomes a spare time job only and the system is prefabbed with no real time aloted for it - and that's great.

FOR SALE : Pober Pixie with Cont. A-65 engine. Has 200 hours on the airframe. This plane has always been hangared and well maintained. Available for viewing and flying soon. Open to offers. Also have a hangar at Carlton Place for sale. Dimensions are approx. 30' x 40', and has a cement floor. The building also has a bifold door. Open to offers. Will sell seperatly or together your choice. Dave Murry call 596-3910 during busseness hours or 325-8071 at home.

NEEDED: I need a couple of old VNC charts AIR 5000 and AIR 5002. Also would appreciate a couple of old WAC F-2I. If you have any of these please see Doug at the next meeting on Fri.

Flight Lines April, 1988 (cont'd)

level of interior light even on overcast days. This design, which might be of interest to the hangar builders amongst us, is particularly suitable for our dark Canadian winters. (Aviation Trade, Mar, 1988, p. 25).

If you have reservations about the two-cycle Rotax or find its thin sound too acute or shrill, you might consider one of the new, upscale Hirth engines which have been designed for the ultralight and amateur built market and are noted for their quiet sonorous rumble. Falconar Aviation Ltd. of Edmonton has received R&D contracts for the testing program for the complete line of Hirth aviation engines which are rated for 1000 hours before overhaul. New technology involving the Nikasil process is credited with wearproof cylinder walls, while piston and head redesign yields increased fuel economy. The 40 hp 63 lb. Model F23 is reported to be very quiet at full rpm with a low-pitched powerful sound. The 110 hp 80 lb. Model F30 is still undergoing tests, but is supposed to be available in early 1988. (Canadian Ultralight News, Mar. 1988, p.1, Canadian Aircraft Operator, Feb. 1988, no.2, p.3).

AOPA (Aircraft Owners and Pilots Association) is urging its members to join the "Fly-A-Reporter" program and participate in a nationwide media and public education campaign, intended to demonstrate the safety and utility of general aviation. Too often inaccurate or inadequate news coverage distorts the overall safety statistics of general aviation, while terrifying headlines about fatal crashes induce fears ranging from mild anxiety to all out panic.

The Fly-A-Reporter program encourages pilots to write to newsmedia, to hold a media day at your airport, to invite a reporter to go flying with you and make positive headlines. Why not contact a radio station and see if they have a traffic reporter on staff who might be willing to come along. The local television station might consider including a hands-on general aviation flight demonstration in their programming. (Canadian General Aviation News, Mar. 1988, p.23).

Among our signs of spring are an ELT wrapped and ready to be shipped for its annual check-up, insurance forms from COPA waiting to be filled out and a can of WD-40 on the basement stairs. The other day when we tuned in Uplands ATIS on the kitchen radio we noticed that once again they had started to advertise "Migrating birds in the area".