



NEWSLETTER

Carb Heat

Hot Air and Flying Rumours

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Next Meeting

Thursday March 21st, 1991

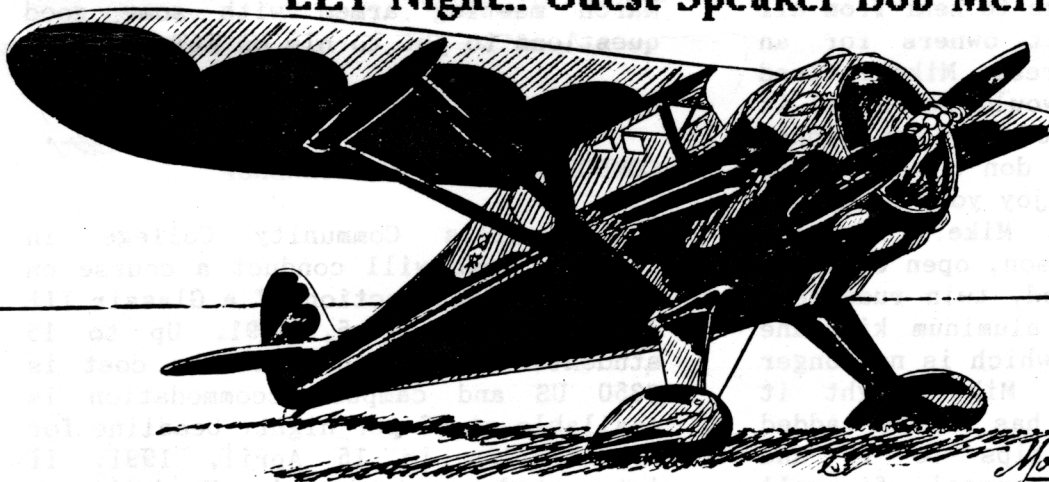
7.30 p.m.

McNabb Community Centre, 180 Percy Street.

Community Room, Lower Level

Featured Topic

ELT Night! Guest Speaker Bob Merrick.



PRESIDENT: Lars Eif 837-6680
VICE-PRESIDENT: Gary Palmer 596-2172
SECRETARY: Luc Mart'n 744-5347
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AIRCRAFT OPERATIONS: Dick Moore 836-5554
SPECIAL EVENTS:
PUBLISHING: Dick Moore 836-5554
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President's Corner

March is upon us already! It won't be long until we see the annual mini-flood out at the hangar which is always a sure sign that warm spring flying weather is just around the corner. I'll keep the column short this month because I know that our ubiquitous Chapter-Taker-of-Notes, Roger Fowler, has at least two sets of Chapter minutes and an account of the Casara-sponsored Pilot's Decision Making Course to publish before the news gets too stale.

On behalf of every member of the Chapter, I extend our sincere condolences to Ed Dodson and his family, at the death of his daughter, last fall, following a lengthy illness.

Anybody who would like a catalog on those excellent tools described by Marcel Boulanger, the RV-6 builder who spoke to us in November 90, should write to: Avery Enterprises, P.O. Box 387, Bedford, Texas, USA 76095. Or, you could call (817) 267-9407 during working hours Central time to get the free catalog. The catalog caters specifically to the builders of aluminum aircraft.

I recently received a very interesting letter from Mike Balipap Jr., 63 Stanley Street, Essex, Ontario N8M 2V3. Mike is compiling a register of builders or owners of BD-5 kits. Over the years, he has built up quite a wealth of info on these aircraft and Canadian BD-5 builders. He would like to hear from all BD-5 builders or kit owners for an update on their progress. Mike retired three years ago and would recommend it (retirement) to all of us. The sooner the better, he says; don't wait until you are too sick to enjoy your hobby. (I couldn't agree more, Mike!) His own aircraft is a one person, open cockpit, VW powered, low winged, twin ruddered, tricycle geared, all aluminum kitplane called a Mini Coupe, which is no longer available as a kit. Mike bought it already built and has since added Hoerner-style wing tips to it and lowered the instrument panel, firewall and cowling to improve forward visibility. To top it all off, he now has a carefully levelled and seeded grass strip 60'x1330' to fly from. Mike has obviously put a lot of effort into his favourite activity and will no doubt

enjoy the fruits of his labour this summer. He is also interested in hearing from Hummelbird builders and owners. By all means write to Mike Balipap; I know he will be delighted to reply to you.

'Just a word about membership renewals. Most everybody has already paid their 1991 dues, but there are a few stragglers. Remember, if you are using the Chapter facilities at Carp for your aircraft, you must be a paid-up Full Member. For partnerships, one partner must be a Full Member; the other partners must be at least Associate Members. Naturally, all Chapter members must keep their EAA International memberships current. Please remember that this is an honour system, but the 5% who abuse it are not being fair to the 95% who are paying their way. Please, if you fall into the 5% category, please rectify the situation immediately, and avoid the embarrassment of having to be notified of your oversight. Rodney Stead (836-1410) and I (837-6680) both have blank membership applications for the Chapter and for EAA if you need them.

I'll close with a plug for the March meeting. Bob Merrick is one of the most knowledgeable people in Canada on ELTs and where the technology is headed. You have probably seen his picture and read his articles in Canadian General Aviation News (CGAN), so come out to the March meeting armed with some good questions to put to him on ELTs.

Happy building and safe flying!

COMPOSITE AIRCRAFT WORKSHOP

Indian Hills Community College in Ottumwa, Iowa will conduct a course on composite construction of a Glasair III June 10 to July 5, 1991. Up to 15 students can be accepted. The cost is \$350 US and campus accommodation is available at \$6 per night. Deadline for registration is 15 April, 1991. If interested, contact John Vandello at (515) 683-5183 or Russell Smith (515) 683-5214. No, you don't get to keep the Glasair when it is finished!

Minutes of Jan 18 Meeting Held at the McNabb Community Centre

Unfazed by the sudden shift in venue occasioned by the Gulf War and tight security at 100 Sussex, President Lars punctually called the meeting to order at 8:01 and welcomed all and sundry to the first meeting of 1991. Once more, guests neared double digit figures and were warmly welcomed by the chapter.

IMPORTANT CHANGE IN MEETING DATES

Because the McNabb facility's rent is much higher on Fridays, the membership voted to hold the March AND SUBSEQUENT MEETINGS on—are you ready for this Gord and Irving?—THURSDAYS!!!

The **May to Sept.** meetings will be at **Carp**. Beginning in **Oct.**, we will shift to the **National Aviation Museum**.

ANNOUNCEMENTS AND REPORTS

The May meeting at Carp will be a joint effort with the 99's—a good occasion to bring wives and children. And speaking of ladies, the 99's are holding an open meeting at 7 p.m. on Mar. 31 at Uplands at which Elaine Summers will speak. Elaine is well worth hearing, so plan to attend.



The address of the tool company recommended by Marcel Belanger at the Nov. meeting is:
Avery Enterprises, P.O. Box

387, Bedford, Texas, 76095 Ph. (817) 267-9407; FAX 817-282-2853. Complimentary copies of the \$1 catalogue obtained by Lars after a mega-dollar phone call to Texas (just kidding, Mrs. Eif, really), soon disappeared.



V-P Gary Palmers proposed a social evening which would recognize our First Flighters and entertain our neglected partners as well.

Rec. Sec Luc Martin is still working on the idea of Builders' Badges and awaiting replies from several firms.

Pres. Lars noted our pressing need for a portable display of such items as a wooden rib in a jig, aluminum rivetting, cut-aways of composite construction, tube welding, AN hardware, etc. The chapter will finance the materials and volunteers can supply the expertise.

Speaking of volunteers, Lars happily announced that 2 members have agreed to be Technical Counsellors and 2 have presented themselves for the Inspector Programme. Hats off to our anonymous benefactors.

Hats off also to **Garry Fancy**, who donated a snowblower to the chapter to help our hardy winter aviators (and maybe even widen the dog trail to the biffy!)

Membership Manager Rodney Stead announced that spiffy new membership cards are in preparation. Rumour has it that these cards will sport the same excellent art-

istry that graces our Newsletter covers, thanks to our talented **James Oliff**.

Tie-Down Tyrant Dick Moore was totally underwhelmed by the lack of payment from most of the tenants. He really hates attaching anchor chains to delinquents' propellers, so please pay up promptly.

Tool Crib Tabulator Andy Douma is busy cataloguing the chapter tools and devising a practical scheme to monitor their whereabouts.

FEATURE PRESENTATION:

Gerry Germain and Réal Lepage: Preparing for Homebuilt Aircraft Inspection

QUESTION: What does a Transport Canada Inspector look for when inspecting a homebuilt?

ANSWER: Far too much to discuss in one evening. Still, we can anticipate many of the inspector's concerns.

Obviously, he will scrutinize the propeller. Some models develop cracks between the bolt holes, so you may be asked to remove the front and back plates. Tip clearance is also obviously important. Taildragers require at least 9 1/2" in the take-off position and the prop should still clear the ground with one tire flat in the take-off stance. A tricycle gear should provide a minimum of 7" at 1 1/2 g loading. Similarly, in installations such as the Seabee or Sea Wind, the prop should clear the fuselage by at least 1". Between the prop and spinner and spinner and cowling, strive for 1" of clearance to minimize the risk of chafing. On a float plane, the prop ought to clear the water by 18".

Under the cowling, the inspector will examine the cab heat intake. A location ahead of the engine minimizes exhaust intake risks. New baffles are easily fabricated and will likely create a better impression than old ones, especially battle-scarred specimens. Incidentally, old leather (about 1/8" thick) makes excellent baffle seals.

The exhaust system should have adequate clearance from such items as ignition wires, fuel lines, cowling, etc. Carefully inspect exhaust systems (particularly second hand ones) for cracks before installation and every year or 150 hrs. thereafter.

Rubber motor mount bushings are inexpensive. New ones not only convey a favourable impression: they will probably dampen vibration much better as well.

Fuel systems, especially since many plans leave these to the builder, are enormously varied. As in much engineering, the principle applies: **Keep It Simple Stupid**. Make sure that venting is adequate, that labels are clear and visible, and that the location and position of selector valves follow established aviation practices.

Another area of concern to the inspector is the nico-press sleeves on control cables. Apply a "Go/No-Go" gauge to them to be sure they all pass this simple test. Swaging is possible but needs a written statement or proof that this method will withstand 1500 lbs of pull. (No firm in Ottawa seems prepared to document their swaging in this way.)

The metal data plate does not have to be in both official languages, but the American version is **NOT** acceptable.

If your plane involves glue, keep numerous glue joint samples clearly identified as to date and where the particular batch was used on the plane. Similarly, be prepared to show samples of your welding. Clusters are convenient because they allow the inspector to cut through them and check for weld penetration.

The documentation on hand should include invoices as one means of establishing the aircraft quality of your materials. You should also have a complete list of departures from the plans and whether you have the designer's approval for such alterations. Summaries of conversations with the designer included in your builder's log might be helpful here.

You must also establish that you have conducted a fuel flow test at the maximum climb angle with the carb fitting at its installation height and with minimum fuel in the tank. The inspector will normally accept this test as valid unless your data is suspect. What he will not easily accept is your testimony that a completely closed in structure is a marvel of impeccable workmanship. Make sure that inspection holes provide adequate opportunity to survey the inside of such structures, including wiring, pulleys, fuel lines, etc.—if necessary, leave the second skin off entirely or only partially attached.

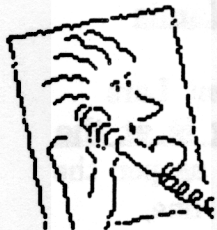
In closing, both inspectors emphasized that the secret to a smooth homebuilt aircraft inspection was γοοδ ματεριαλισ ονδ χαρεφυλ ωορκιονσηη. In other words, study and follow the practices detailed in manuals such as EA-AC 43-13 (Acceptable Methods, Techniques, and Practices: Aircraft Inspection and Repair.)



Your faithful scribe

Roger Fowler

A Day in the Life of a Homebuilder [or, Pre-Cover Ulcer Syndrome]



Dec. 4—I awaken to several inches of fresh snow. Rats! Tomorrow is my pre-cover inspection.

Dec. 5—At 10:30 a.m., I anxiously phone Réal Lepage (my inspector) to find out if our rendez-vous at Carp is still on for 1:30 p.m. It is!

11:00 a.m.—I leave work and head for the airport to make sure my SE5A is not covered by snow blown into the hangar. Also, I want to lay out papers, wings, etc., so that Réal can inspect all components easily.

11:30 a.m.—I drive onto the tarmac only to find the roadway blocked by snowbanks left by the plow. Unrattled, I put the Bronco into four wheel drive and climb over the first three snowbanks. As I start up the fourth mound, however, the truck hesitates, then stalls—worse still, it won't re-start. After a few choice expressions, I realize that the gas gauge is up to its old habit of reading empty. (In my rush to leave work, I have forgotten to tank up.) Double rats!! Fortunately, there is gas in the shed,

but I can't help cursing at the wasted time as I drive up to the hangar.

12:00 noon—I quickly shovel the knee deep snow from the steps. Next, I clear the ankle deep snow from the entrance. As I unload my paperwork and sample glue joints (Réal likes to see these), I walk into the hangar and am discouraged to find that the storm has blown snowdrifts under the door of the building—a good ten feet into the hangar. Hurriedly, I put my components in place and begin shovelling in earnest for it is now 12:30 p.m.

12:45 p.m.—I am still shovelling like mad and thinking of going to the row hangar where I keep the fuselage when I suddenly spot Réal Lepage (accompanied by Art Wherrey) wading through the drifts towards me. Treble rats!!! They are early, and to add to my worries, Keith Davidson, whose Zenith is to get its final inspection, has still not arrived.

1:00 p.m.—After the introductions, the two inspectors set about examining my wings. This is most unnerving because for the first ten minutes, they say absolutely nothing. The only sounds, aside from knocks and taps, are an occasional mumble or hushed "Look at this."

At this point, Keith arrives. The four of us head towards the row hangars. As I open the door, I hope that the snow has not fallen on my fuselage for Réal will hardly be impressed by sloppy storage. My luck holds because none of the blown snow has come even near my plane.

The rest of the inspection continues in eerie and nerve-wracking silence. Finally, they produce their verdict: a dozen bolts of the wrong length and a flagged seatbelt and shoulder harness to replace. I made it! Yahoo!!

Réal's parting words restore a little calm to this tense moment: "Cover at your own leisure." Considering how the day has begun, both Keith and I are quite pleased with the way it ends.

Luc Martin p.c.g.

[pre-cover graduate]

Minutes of Feb. 15 Meeting Held at NRC'S Research Laboratory, Uplands

Knowing how eager his troops were to get started on the tour, President Lars compressed the business meeting to a record-setting 107 secs: next meeting is at the McNabb Community Centre on March 21; the next executive meeting is as per the published schedule; and Garry Fancy's donated snowblower now works fine, thanks to Master Mechanic Henri Beaudoin. Stan Kereliuk warmly welcomed us and Mac Sinclair, Head of Flight Research, briefed us on the history of the newly re-named Institute for Aerospace Research (formerly the National Aeronautical Establishment). Murray Morgan talked about flight mechanics and the research being conducted by the Bell 205A helicopter in such areas as in-flight simulation of aircraft (not necessarily helicopters), in-flight investigation of control system character-

istics, and cockpit systems development (such as side-arm controllers). Next, **John Aitken** outlined some of the micro g research conducted in the T-33 he pilots. A lighter moment occurred in a clip showing tadpoles blithely disproving a professor's theory that the "Looping Behaviour of Xenopus Tadpoles" would be affected by micro g conditions. After other footage on droplet patterns in aerial spraying and both good and bad software helicopter flight programs, we began the tour. Broken into small groups, we first visited the fascinating Flight Recorder Playback Centre. There looked at black boxes and learned how the tapes are decoded. Particularly interesting was a video software program which precisely reconstructs a given incident/accident. In one incident—where a jet overran the runway—we viewed the landing and roll out from various angles. The pilot landed much longer than he claimed and wavered around the centre line. In fact, the Centre proved so interesting that we had to be politely pushed out by another group.

Next stop was the Convair 580, a "multi-purpose flying laboratory." This twin-engine turbo supports such research as: aeromagnetics for geophysical exploration and defence; spotlight radar for ship target classification; advanced navigation studies; atmospheric environmental studies—the Canadian Atlantic Storms Project.

From endurance and payload we moved to the speed and performance of the T-33 jet. By flying precise parabolas, a pilot can produce nearly 30 secs. of near zero gravity conditions. The aircraft is also capable, however, of accurate three axis gust measurement, of recording angles of attack and sideslip, and of measuring precisely aircraft motion relative to control input.

While the T-33 sported some computer goodies, the Bell 205A seemed to have many more. Highly modified, this chopper with its fly-by-wire technology allows in-flight evaluation of software flight programs (not restricted to helicopters), investigation of control system characteristics, etc. Our group got so engrossed in this project that we barely examined either the twin Otter or the twin Beech aircraft. A recently-acquired Falcon 20 is being modified elsewhere for its role as an airborne research platform.

It seemed that we had hardly begun and yet our watches agreed that we had to leave. Our visit deepened our understanding of some of the undertakings of the IAR and increased our respect for the obvious professionalism of these men. We were also reminded, however, that while these dedicated people fly very sophisticated machinery to exacting standards, they were also pilots whose enthusiasm for their work was apparent in their warm and patient treatment of fellow aviators. I, for one, am already looking forward to our next visit.

Your on-the-spot reporter,

Roger Fowler

[P.S. My last month's minutes didn't clear the military censors in time for the Jan. Newsletter so they are included here.]

Read at your own risk !

The information contained herein may be filled with inaccuracies, halftruths, misinformation and downright fibbing.

CLASSIFIED SECTION

AIRCRAFT FOR SALE:

Two-Place Lazair. KFM engines, less than 10 hours TT. \$3900 negotiable. Contact owner through George Reid 749-0792.

PROJECTS AND PLANS FOR SALE:

Everyone interested in Group Building or Group Ownership of Amateur-Built Aircraft, please contact Peter Patton at 731-2269.

Zenith CH701 Project. Plans, wing fittings, spars and ribs cut. Some sheet metal, rivets and tools. Asking \$1000. Peter Plaunt, Carp, Ont. (613)839-2283.

KR-2 restoration project. No time to finish. Revmaster 2100 cc. New wings and canopy. Valued at \$11,000. Will sell for HALF or reasonable offer. Contact Mike Proulx (819) 827-1930.

Baby Great Lakes Project: Fuselage 90% complete; all ribs and spars; Continental C-85; MacCauley metal prop; all instruments. \$6500. James Oliff 724-6123.

Zenith CH 250, 75% complete, trike gear. Signed off by DOT, ready to finish closing. Wings and tail nearly complete. Includes gear, cowling and fairings. Reduced to

\$5500! Will consider trade for CH 701. Call Jim Robinson at 830-4317.

Davis D2A plans. Call Russ Robinson. 831-2485.

PARTS FOR SALE

Contact Mike Sacoutis at 729-3774 for the following parts:

- Propellers - 0 time constant speed
 - Wood pusher prop.
 - Zenair wood 68x46

Hanlon Wilson mufflers, Mooney Parts: Complete retract gear with 6.00x6 main wheels, 5.00x5 nose wheel. Also seats, fuel tanks, gauges, gyros, and control surface pushrods.

Airpath magnetic compass, 0 SOH 1987, base mount. \$100. Alex Fulton, 234-6753.

Brakes and wheels, Rosenhan. Suitable for Vari-Eze, Davis, etc. Offers welcome. Eric Taada 749-4264.

Vari-Eze landing gear legs. New. Contact Peter Plaunt, Carp, Ont. (613)839-2283.

Classified Editor: Lars Elf 837-6680.

Carb Heat March 1991.

Complete 1800 cc. Subaru engine conversion. 1.69:1 belt reduction. 86 hrs on unit. FFW (as removed from Karatoo). Includes 3 blade ground adjustable prop. 2 g.p.h at 3800 rpm and 0 oil/ 86 hrs! **\$2500**
Contact Hal Cummings, Massey, Ont., POP 1P0 (705) 865-2840 or Roger Fowler (613) 225-6070

