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Stan Acres

RR#2

Kinburn, Ont.

KOA 2HO



NEWSLETTER

Carb Heat

Hot Air and Flying Rumours

Published by EAA Chapter 245 (Ottawa) P.O. Box 8412 Main Terminal, Ottawa, Ontario, Canada, K1G 3H8

MAY 1989

NEXT MEETING National Research Council -
100 Sussex Drive
19 May - 7:30 PM

TOPICS Aviation Engine Lubricants presented by
James Lavin of Kinburn.
Maintenance Procedures for Builders
and Owners -a presentation and video by
Glen Lockhart of Transport Canada.

At the June meeting at Carp the topics
will be- Oshkosh Night. A gala display of
videos and slides and a discussion of the
joys and procedures for flying into the
Big Show.

and
Awards Night-Presentation of plaques to
those intrepid members who have finished
their projects this year.

President - Doug Richardson	592-5080
Vice President - Roger Fowler	225-6070
Secretary - Andy Douma	591-3801
Treasurer - Deric Dods	692-6121
Editor - Ted Chambers	749-0268

Hangars - Dave Murray	592-8102
Aircraft Operations - Garry Fancy	836-2829
Special Events - Gord Standing	224-2879
Membership - Rodney Stead	836-1410
Publisher - Dick Moore	836-5554

EAA CHAPTER 245 MEETING

Date: Friday, 21 Apr 89
 Location: National Aviation Museum
 Attendance: 44
 Time: 1930 hrs

Before detailing the tour of the Museum, I should touch on the events which preceded it. When we booked the evening back in February, the Museum Public Relations Officer agreed to our request. He did warn, however, that under the new rules of financial self-sufficiency, things were different from what we were used to in the past. As everyone is aware, the Museum now charges \$3.50 admission. Evening tours are difficult to accommodate as it means arranging for staff to be on duty after hours. Also, the Museum had encountered difficulty with groups which were too large for adequate control and with groups in which certain individuals had mishandled the aircraft and slipped parts from the restoration shops into their pockets. Faced with these sobering facts, the success of our tour was somewhat in doubt. At one point, we even considered cancelling it.

What a blessing we didn't! As everyone who attended will confirm, the evening was a resounding success. We owe that success entirely to our two guides, Ed Patten and Tom Bradley. As Ed explained, they volunteered to lead the tour because they knew that we would want to experience the facilities from the point of view of builders, restorers and pilots. This role Ed and Tom fulfilled in spades! In the finest tradition of Neil Francis in past years, these two gentlemen entertained us with a fascinating string of facts and anecdotes that only lifelong aviators and aircraft builders could have gathered and appreciated.

As always, the aircraft exhibits were awe-inspiring, but for most of us, the tour really began when we crawled under and around those precious fuselages and wings intertwined in the crowded aircraft storage area. Moving further back into the restoration shops, we were treated to the sight of an ME 162 jet engine completely disassembled and the parts laid out on benches. I never knew that this engine had a tiny two-cylinder gasoline motor buried inside it for starting the main engine. The superb quality of the machining of the German ball bearings was incredible, especially when recalling that at that stage in the war, they were being bombed day and night by the Allies.

But the undisputed centerpiece of the entire tour had to be the beautiful Hawker Hind. There it was, immaculate and gleaming amid the workbenches and the power tools. Ed related its history from its undignified rescue from Afganistan in the back of a C130 Hercules to the engine runup that he did just recently. It's completely restored and airworthy, but as it is irreplaceable, the Museum has wisely decided never to allow it to be flown.

The evening ended with a spontaneous round of applause for the gift of three unforgettable hours that Ed and Tom so generously gave of their own time. For all of us, it confirmed that there is an intangible spirit which bonds people who love aircraft and aviation. That spirit was mirrored in the faces of our members as they listened to the stories that brought the exhibits to life in everyone's mind. And no one damaged an aircraft or shoved anything in his pocket. In a word, a superb evening. Thanks, Ed and Tom!

Secretary - [Name]
 Treasurer - [Name]
 Editor - [Name]

Flight Lines

by Olav Peterson, May, 1989.

EAA 33135

Composites are widely used in aircraft structures, (Engineering Digest, Feb. '89, p.14,18) both commercial and homebuilts, because of their high strength-to-weight ratio.

The problem with composites, as has been demonstrated by recent mishaps (Sea Hawker, GAN, Feb. '89 and Q-2, Sport Aviation, Jan. '89, p.42) is that they are very prone to manufacturing defects.

Basically, very little can go wrong with building, for instance, an all-metal Zenith: sheet aluminium comes ready-rolled, inspected and sold with a seal of approval. Of course, stress points can be built in, either inadvertently or through sloppy workmanship, which in time can precipitate into metal fatigue failure modes. Nevertheless, good metal working skills can be learned fairly easily and following a handful of rules, statistics have shown that a safe and strong a/c can be turned out by amateurs using fairly basic tools.

A composite on the other hand, requires meticulous craftsmanship because defects are not visible to the naked eye.

These days composites are not used just as streamlining fillers, but in all the load-bearing, structurally critical areas where a failure cannot be tolerated.

The large number of process variables involved invites the introduction of inadvertent flaws. Flaws such as voids, broken fibers, poorly cured resin, the amount of resin, moisture, delamination, fiber orientation, .. can easily creep into a "homebuilt" structure where the control over all the possible variables is not only difficult to achieve but quite often is not even understood.

A responsible, knowledgeable designer of composite aircraft makes use of the latest software tools available, such as finite element analysis, using a model which is based on thorough characterization of the composite.

The dynamic mechanical properties of the materials to deformation under external loads of tension, compression, shear, bending and torsion have been conducted on sample coupons to be used for generating the model.

Unless the home-builder has sufficient skills to duplicate these properties in his basement workshop, the finished product may bear little resemblance to the intended design strength.

Evidently, the Sea Hawker was signed off after an inspection by the appropriate authority; but what are the tools available to the inspectors? All the significant flaws of composite structures are not evident without sophisticated instrumentation.

Aerospace industry can afford to use expensive radiography or X-ray methods for inspection, computer tomography, acoustic emission through ultrasonics (Machine Design, Dec. '87, pp. 99-104), but what are the alternatives for the amateur?

It's too late to conclude after an autopsy on the twisted wreckage that the builder, in spite of exercising the outmost of his skills, was not able to prevent the fabrication of one or a few defects into his airframe, which were buried and invisible to the conventional methods of inspection.

.....

The hassels of winter flying -- all the effort required to prepare the aircraft for flight -- just doesn't seem to tip the balance in favor of seeing the snow white landscape for a few hours; the wear and tear on both the a/c and the pilot have proven excessive.

So the best thing to sooth the aviators relentless flying urges, we have discovered, is to meander over to the Skyview Restaurant at the Ottawa Flying Club and take in the sights and sounds of this active club at Uplands.

We are always amazed that there isn't a long line-up and hordes of eager people outside the door waiting patiently for their turn to be addmitted.

During VFR days a table by the window assures a glorious view of all the happy planes and people milling about which would even make the guy in the control tower turn green with envy.

And even when conditions are drab and the club planes are grounded, you can still follow the take-offs and landings of the commercial and military aircraft.

But there is more.

If you get there on a weekend morning before 11:30, the pretty cook will prepare a delectable breakfast plate of eggs, sausages and home fried potatoes; but an equally gastronomically delightful menu is yours to enjoy if you happen to sleep in.

And the price is right!

Why not fly or drive in and see for yourself.

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New high-temperature resins are being developed for engine components and mechanical parts (Machine Design, Oct.8,'87,pp.38-47) such as intake manifolds, rocker arm covers, and even internal engine components.

Especially of interest to homebuilders is the underhood applications of plastics: a 152lb engine developed by Polimotor Research, where the only metal parts are the cylinder liners, cams, crankshaft, bearings and fasteners.

The engine is rated at 318hp at 9200rpm and is about 200lb lighter than an equivalent all-metal design! Production was estimated to start within five years.

.....
How do you like that?! 80/87 Avgas at 75 cents a liter at Uplands to the transient pilot.

That's 52% more than no-lead car-gas.

At the rate of 7 gallons per hour and 100 hours per season of flying I'll be paying 300% more for gas than I do for all other annual a/c expenses. A 52% possible saving in fuel cost certainly would make flying less painful.

So why is DOT dragging its feet and stalling in taking the decision to accept no-lead car-gas as a suitable and safe fuel for air-planes with low-compression engines?

Also Teledyne Continental Motors warns that automotive fuels are definitely not approved (Service Bulletin, M87-12) and all guarantees would become void; say goodbye to any warranty claims rights if you plan to use it!

Avco Lycoming Flyer, issue 45, July '87, also warns of voided warranty if un-authorized, car fuel has been used; Lycoming claims it's unsafe.

It is not clear to me whose interests they are trying to protect. It isn't as if they were in cahoots with the oil companies, because when it becomes any less lucrative for the refineries to distill 80/87 octane, they will simply turn the taps off and where would that leave the engine manufacturers.

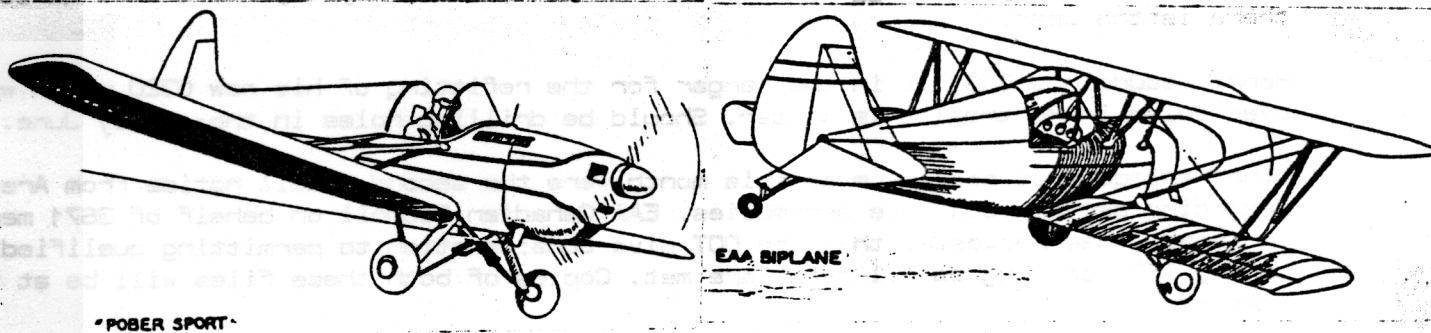
EAA has conducted extremely exhaustive and scientific studies and extensive evidence is available about the safe use of car-gas in a/c. Americans have already compiled significant number of flying hours on car fuel with the support from FAA, enough to convert any sceptic.

Yet the leading engine manufacturers on this continent persist in expressing doubt but themselves have conducted no conclusive studies independently which would either refute or support EAA's findings.

However, when aviation gas stops flowing, I can imagine that the engine business could be dealt a mortal blow.

The DOT is sitting on the fence and appears to remain prone to inaction, probably waiting until the attitude of the engine builders and the aviation insurance industry changes.

What else is new? This will be just another case of "decision through crisis"! Don't expect a sudden change of heart, in spite of an overwhelmingly positive evidence presented by EAA that car-gas is good -- until chaos points the way.



A reminder that at the end of this year the production of mode-C transponders in U.S. will cease and 1991 will be the last year permitted for installing the altitude-encoding capability to a mode-A transponder.

Thereafter the only mode that you will be allowed to slide into the radio stack of your airplane is of the "S" variety - with more bells and whistles and costing considerably more.

The mode-C implementation date for Toronto and Vancouver TCA's is July '89 (Transport Canada NOTAM, April 6/89).

In the future your cross-country effectiveness can be reduced drastically without this gadget.

WHAT'S UP

Went out to the airport a few days ago to do some work on the Zenith, and ended up watching a couple of homebuilders at work. Both were quite intent on finishing their project as soon as they could, by observing the pace that had been set, I didn't dare doubt it. Cheap was a word used frequently by both so I assumed that the cost was at least within their budget goals. While hard to believe at the time, there were no plans available for this mount, but it not being the first of the run, it was evident that the task could and indeed would be constructed again. Visiting another day, this couple had moved the location for final assembly to what I guess was a more suitable location with a slightly less exposed view of the hangar. I was confused by the seating arrangement but it boasted of more than two. That, I concluded meant they were big on family, had a big family, or were planing one. They sure enjoyed flying this couple, as they spent about equal time in the air searching for parts, as they did installing them. Never did get a formal invitation to look the project over though they were over numerous to investigate mine. That upset me as they did not have that clearance from me. Now they are friends with someone else, and I watch from afar. Lately, I hear myself chuckle and say " Never did like that Starling family."

On the human side of things, most all of the wintered aircraft have returned to Carp and once again become active. Space in front of the maintenance hangar could get tight again, but the third lot as you may recall, was fully serviced last fall with about 400 feet of cable. For more information on tie-downs call Dick Moore 836-5554. The generator is still apart but looked good internally and no major parts were required. As for the exterior, a little work was necessary due to wear and tear, mainly on the exhaust. Should be working by the next meeting.

As for booking hangar space this season, I remind you that there is a booking board on the hangar wall in sight for all to see and use. To be far to all, book space only as you require and be accurate as you can. Space is limited and was originally for the final assembly and rigging of the homebuilts, but everybody has a shot at it if there is the space.

Henri Beaudoin's CUBY is in the hangar for the refitting of his new O320 which was overhauled in Montreal this winter. Should be drilling holes in the sky by June.

Other things that past my eyes this month were the second recall notice from Areoquip regarding certain 601 hose assemblies. EAA Canadian Council on behalf of 3671 members in Canada, has requested that the DOT give consideration to permitting qualified a/c to fly IFR. so long as all needs are met. Copies of both these files will be at the next meeting.

Due to EAA's petition to the FAA a few years ago, a NPRM has been issued detailing the plan to create the "PRIMARY AIRCRAFT CATEGORY". EAAers sticking together for common causes can indeed work.

Doug

Canada's first fighter: shot down by bad timing

By Jim Robb
Citizen staff writer

Fifty years ago today, the first fighter aircraft designed and built in Canada roared down a snow-covered runway in Fort William, Ont., soaring gracefully into the cold air on its maiden flight.

The FDB-1 was obsolete before it left the ground.

Designed by Michael Gregor and produced by Canadian Car and Foundry Company Ltd., only one Gregor fighter was ever built.

The Gregor, which was designed to serve also as a dive bomber, preceded by two decades the Avro Arrow, whose fall in 1959 ended dreams of a Canadian military aviation industry.

Like the Arrow, the FDB-1 had a short, inglorious life.

From the rapid aircraft development in the late '30s evolved an era of high-speed, single-wing fighters like the Hawker Hurricane and Messerschmitt 109. The FDB-1 harked back to the biplane



On day of its maiden flight, test pilot George Adye taxis the only Gregor ever built — National Aviation Museum photo

era of the early '30s — a graceful relic.

"Although its flying characteristics proved excellent, no serious consideration was given to production for service," said Fred Shortt, curator of the National Aviation Museum.

Theories differ as to why Canadian Car produced the fighter at a time when the biplane era was ending.

It's been suggested by aviation historians that while Gregor believed in the superiority of the design, the company simply saw the plane as an opportunity to demonstrate its aircraft production capabilities.

The Royal Canadian Air Force wasn't interested in the biplane. Mexico was. But in 1940, Canadian Car couldn't get an export permit in the tight security of wartime Canada.

Shortt said Gregor was convinced biplanes could outmanoeuvre and outperform the faster single-wing fighters that were taking over in major air forces of the world.

The FDB-1 was small by today's standards — its wingspan was just 8.4 metres and the fuselage measured 6.6 metres.

Powered with an 825-horsepower, air-cooled radial engine, the FDB-1 was designed for a maximum speed of 483 kilometres per hour and was designed to reach 9,600 metres.

In RCAF tests in 1939 it reached a maximum speed of 420 km-h.

Shortt termed it "a really hot ship," but the radial engine and the upper wing configuration reduced visibility during take-off.

"It was well known for taking out flare pots and lights along the edge of the runway," said Shortt.

Gregor, born in Russia in 1888, designed the Russia-B, first successful Russian-designed aircraft.

He was a test pilot in Paris, an exhibition flyer, then he returned to Russia in 1914, becoming chief engineer for First Russian Aircraft Corp.

Gregor emigrated to the United States following the Bolshevik Revolution and worked for a number of aircraft companies. He was brought to Canada in a talent search by Canadian Car and Foundry.

The company, intent on acquiring aircraft production and assembly contracts from Britain and the United States, was importing expertise to help it gear up, said Shortt.

Canadian Car was successful in getting the aircraft contracts it was after. It produced some 1,400 Hawker Hurricanes for the Royal Air Force during the Second World War.

Gregor returned to the United States in 1940.

The FDB-1's career ended in flames. It was destroyed in a 1945 fire at Cartierville Airport, outside Montreal, after five years in storage.

1964 Beech Musketeer, 165 hp Cont IO 346, 2080 TT, 1040 SMOH. Narco Comm 11A, Terra 720 ch H/C, Genave ADF, Mkr Bca Sec, 4 ch v/a IC, strobe, 4 ch EGT. Asking \$17,900. Gary Palmer (613)596-2172.

Piper Pawnee, 150 hp, \$17,000.

Mike Sacoutis 729-3774.

Minicoupe project, partially completed. Unable to continue due to discontinued kits. All offers considered. Call Richard Taylor 596-6913 after 7 pm.

Davis D2A plans. Call Russ Robinson. 331-2485.

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

CLASSIFIED SECTION

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

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

Hanon 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.

Forged VW crankshaft and propeller hub. For details, call Richard Taylor at 596-6913 after 7 pm.

WANTED: One set of Cleveland wheels and brakes 5.00x5. James Oliff. Work 722-9115, Home 596-1949.

CLUB NEEDS

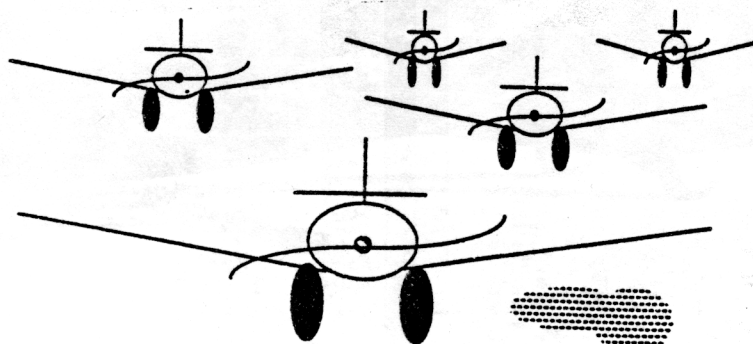
Hot Plate for top of 4-burner stove. Needed for Fly-in Breakfast
Platform weigh scale like type to weigh farm animals. We have one, need a second one.

Gas-powered snowblower needed.

KIT SHOP

Ch 245 shirts with logo. Available in white, light blue, dark blue. Golf shirts \$16. See Andy Douma or call 225-1559.

Classified Editor: Lars Bif 837-6580.



CARP AIR-FORCE

K.F.C.
You Are Invited

to the

Annual Fly-In Breakfast

Sunday, 28th May, 1989



Open at 8:00 a.m.

KINGSTON - F.S. 122.5
K.F.C. 122.8

Aeroquip
A TRIJOVA Company

**RECALL
NOTICE**

AEROQUIP has recalled its 601 hose assemblies with certain cure dates (1Q84 through 3Q87) This also applies to 601 type bulk hose (white label FSCM50556 in red print.

Several club aircraft have been completed during this time frame. ALL hoses should be inspected, and if they cannot be otherwise identified, should be suspect.

If you haven't received a recall notice, call Doug Ted or Andy for details