



## NEWSLETTER

# Carb Heat

Hot Air and Flying Rumours

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## FEBRUARY 1994

**NEXT MEETINGS: THURSDAY 17th FEBRUARY 1930 HRS**

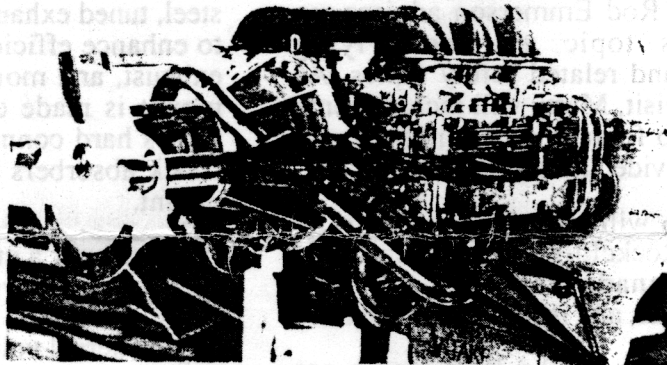
### BUSH THEATRE NATIONAL AVIATION MUSEUM

**PROGRAM:**

- BUSINESS
- ANNOUNCEMENTS

**FEATURE SPEAKER:**

**Phil Johnson - Subaru SVX Auto engine conversion  
for his Cozy four place.**



Subaru SVX installation

**PLEASE NOTE - '94 MEMBERSHIPS NOW DUE**

<b>President:</b>	<b>Gary Palmer</b>	<b>596-2172</b>	<b>Aircraft Ops:</b>	<b>Dick Moore</b>	<b>836-5554</b>
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<b>Treasurer:</b>	<b>George Elliott</b>	<b>592-8327</b>	<b>Classifieds:</b>	<b>Andy Douma</b>	<b>591-7622</b>
<b>Editor:</b>	<b>Andy Douma</b>	<b>591-7622</b>	<b>Publishing:</b>	<b>Dick Moore</b>	<b>836-5554</b>

**President's Corner**

Well, January was a record setting month in terms of frigid weather. I expect only inside projects saw much progress made, as most garages, even when insulated would be nigh unto impossible to heat to a reasonable working temperature.

However, the frigid weather hasn't kept a growing number of members from visiting our Carp clubhouse to enjoy the warmth of our new wood stove in the upstairs lounge while engaging in some healthy hangar flying.

Our re-scheduled speaker for the Feb. 17th meeting is **Phil Johnston**. Phil is building a Cozy 4 place and is planning to install a 6 cylinder **Subaru SVX** auto engine. The SVX is horizontally opposed, and rated at 230 HP. Phil will be focusing on his reasons for selecting the SVX engine, and the many design considerations involved in going the Auto conversion route. Phil will be supplementing his talk with both video and overheads; I know you will find it very interesting. I was fortunate to check out Phil's progress last week, and was very impressed not only with the engine, but also the quality of his installation, more on this later in the column.

The March 17th meeting will see our favourite F-18 instructor pilot, Marty Tate revisiting us. Rod Emmerson advises me that Marty's topic will be "Flying Discipline", and related safety topics. As with his last visit, Marty will include some exciting video footage from his F-18 and other military video library.

For April, we will have Bryce Fisher, an instructor at Rockcliffe, and I understand a Transport Canada inspector, discuss aviation weather, and related safety topics.

Membership fees for the 1994 season are now due, so bring your cheque books; Manfred will be ready and waiting. I am happy to report that more than half last years members have already renewed, and we continue to grow in size.

The flying season this year should be a very busy one, as Ottawa Flying Club have

invited us to participate once again in their fly day following an absence of a year or two.

Its time to start thinking of meeting topics for the spring season, so if you have some ideas or would like to volunteer, please give any member of the executive a call. I look forward to your input.

**Phil Johnston's Subaru SVX Installation:**

On Sunday January 30th, I spent the afternoon with Phil, and Nigel Field drooling over Phil's SVX engine.

The SVX is an impressive looking 6 cylinder beast, with all kinds of refinements. In addition to the dual overhead cams on each bank of 3 cylinders, this fully computer controlled engine uses two Oxygen sensors, one per side to individually control mixture.

Each plug has its own high tension coil directly mounted to the spark plug and securely bolted to the aluminum valve cover. This completely eliminates any possibility of cross-firing, while eliminating ignition noise better than any shielded ignition lead and keeping the hottest possible spark.

Phil has also built up his own stainless steel, tuned exhaust system which promises to enhance efficiency. The welding on the exhaust, and mount looks very good. The mount is made of 3/4", .049 4130 steel and is hard connected to the engine, with shock absorbers between the firewall and mount.

Phil has built a custom carbon fibre Intake Manifold that saves several pounds over the stock aluminum manifold while having a larger internal volume to allow the engine to breath better.

Phil made up a massive steel stand, and mock firewall to accurately locate the engine, just as recommended by Tony Bingellis.

All in all, I was very impressed, and expect that Phil will be flying in another two

**President's Corner**

years, as he has completed the canard, and wings, on the Cozy, and has much of the fuselage done.

At the end of this article I have included several pictures I have taken of Phil's engine installation. When looking at these, remember that the Cozy is a pusher configuration. Also note the compact size of the Lew Ross, planetary gear reduction drive.

As many of you know, I have been seriously considering upgrading my Lancair to the Subaru Legacy engine, the four cylinder engine that the SVX is derived from. This visit, and a following one to see Nigel Fields 1.8 litre EA81 Subaru conversion, have me convinced that is the way to go for me next winter. So if you know of anyone interested in a low time, Cermichrome Lycoming O-235, full firewall forward, let me know.

**Nigel Field's Subaru EA81 Conversion:**

Saturday, February 5th, saw Roger Fowler and I head out to Embrun to see Nigel's 118 HP 1.8 Litre Subaru conversion on his Vari-Eze. Nigel has the engine running, and there is no doubt in my mind that he will be ready to start flight testing when the Embrun strip is up to the task in May.

Nigel fired up the engine in his garage for us, and I must admit I have never seen any aircraft engine start as instantaneously at -10 C, without any preheat. The Dave Johnston belt drive is very quiet, and both Roger and I were surprised at the lack of ear shattering exhaust volume, even when Nigel blipped the throttle to reach 5,000 to 6,000 rpm. Nigel has most of the difficult work done on the conversion, and only needs to clean up the instrumentation and wiring, as well as build a new cowling, once temperatures reach epoxy friendly ranges.

The EA81 is such a compact installation that Nigel expects to see a significant reduction in drag due to a more streamlined cowl. Weight is about a wash, and of course fuel economy should be much

better, so Nigel should have increased range, as well as more useful payload.

Nigel has been busy machining a number of parts for Phil's installation as well as his own, on a neat new lathe. He has gone so far as to melt down some old Volkswagon heads to get aluminum stock for making up mounting pads for the conical style rubber engine mounts. His creativeness, never ceases to amaze me.

Nigel is using a slide valve pressure carburetor similar in concept to the Ellison, from Revmaster, and has milled out a small water jacket to attach to the side to avoid any possibility of icing.

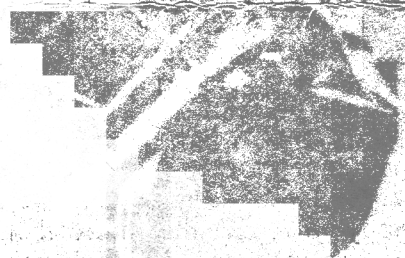
Nigel will also be paving the way locally from an approval point of view, and has been in contact with Gerry Germain to determine Transport Canada's requirements in terms of inspections and test flights. Hopefully, it won't be necessary to do a complete 25 hour test flight program, given the proven air frame.

Well, that's about all I can think to say about these two exciting projects. If Auto conversions get your creative juices flowing, don't miss the next meeting, Thursday February 17th at the Bush Theatre, National Aviation Museum.

See you there.



Gary



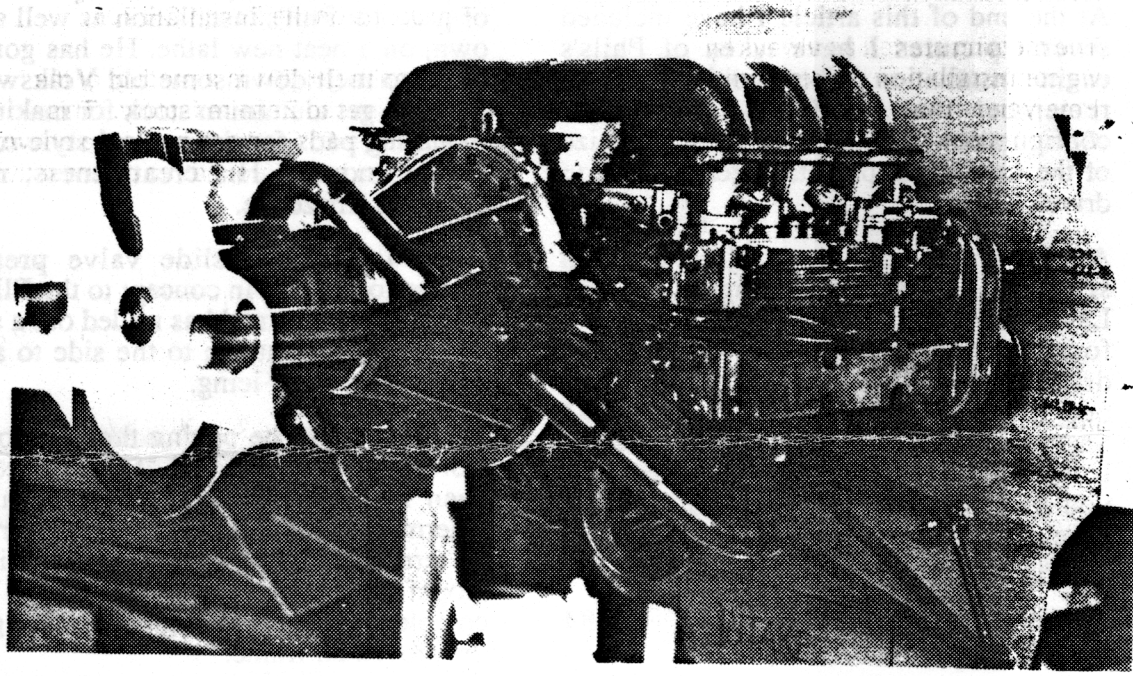
President's Corner

year, he has completed his first year in the Corvair, and has had a very successful one.

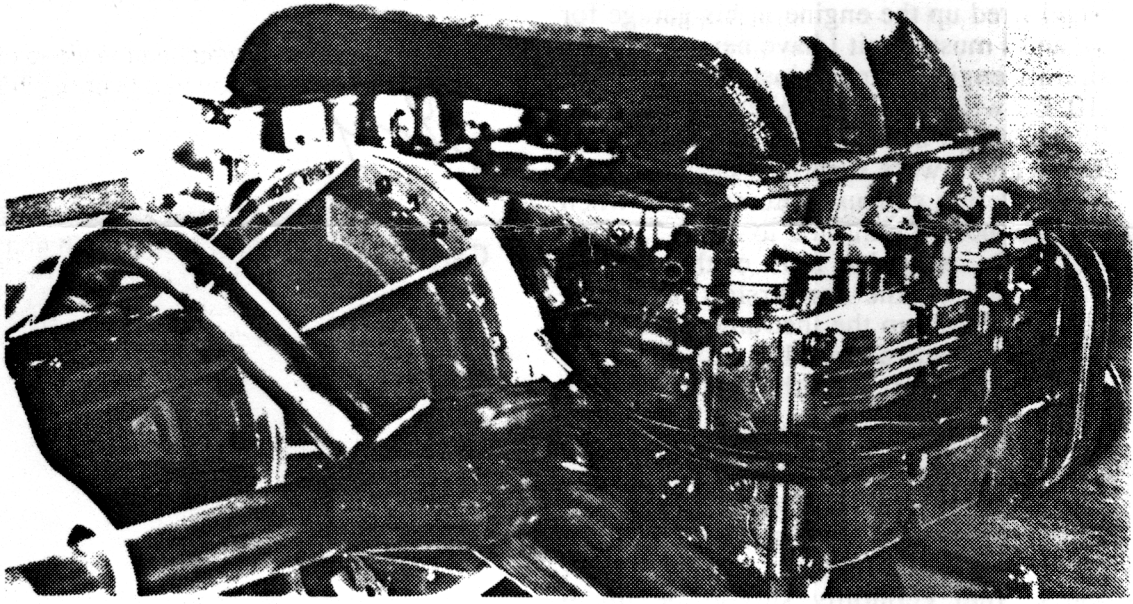
of this year's racing season, I have been very fortunate to have a number of new members joining the club, and I have been able to help them get started in the Corvair world.

side pressure, I have been able to help them get started in the Corvair world, and I have been able to help them get started in the Corvair world.

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**January Meeting Notes**

The meeting started as always by welcoming the new guests. Among us were Pete Vandermeer, Bill Murray, Roy Pender, Gordon Kirkham and Tom Smith.

Nigel Field is hard at work on his Subaru engined Long Eze, according to a rumour he is almost ready to fly.

We distributed service difficulty report forms from CATC to be use when difficulties are encountered on amateur built aircrafts.

Fluorescent lights have been purchased by the chapter for installation in our hangar but they are still sitting in the box as we speak.

Art Meister extraordinaire, James Oliff, has departed for the sunny climate of Disney Studios in California. We wish you well James and hope that you enjoy working in Los Angeles. And Thanks for all the cartoons in our past issues.

Our stove is all paid for and is burning merrily away on weekends, come out and enjoy a cup of coffee with the rest of us.

Our intrepid VP Rod Emmerson is working on a Young Eagles' program with the air cadets. They will send us some likely candidates looking for an introduction to small aircraft.

Some of our executive and the Ragwing executives had a meeting on merging the two groups this weekend. More on this at a later date.

**Feature Presentation-**

Ray Jones on the Zenith CH 701:

The Zenith CH 701 is a product of the Midland based Zenaire factory. This remarkable STOL machine (video shown to prove this) has a ground run of under five seconds.

Ray bought the 85% kit and proceeded to assemble it (with the help of some friends) in a little over a year working at home and at Westaire.

The airframe is easy to build it requires no special tools and the plans and manuals are fair. The photo manual however is poor.

Assembly time is minimal and comes in at the 100 plus hour mark.

Some of the options Ray installed are extra tanks, skis, and floats.

The 701 is powered by a Rotax 912 engine and has given Ray no trouble so far.

The Maiden flight was in the summer of 93. Ray then went to floats in August, then to skis on the 29th of December. (An all around go everywhere aircraft.)

After Ray spoke we watched the video of his aircraft on the snow covered river behind his home.

After Ray's informative presentation and questions from the audience we proceeded to demolish some cookies and coffee and share some knowledge.

Luc Martin

## **EAA Chapter 245 Library**

**1 February 1994**

### **Airworthiness Manuals:**

- Airworthiness Manual Chapter 549  
Amateur built Aircraft, Transport  
Canada
- Airworthiness Manual Chapter 571  
Maintenance of Aeronautical products  
Transport Canada.

-Aircraft Operating Instructions -  
General, 1970, MoT.

-Amateur Built Aircraft Flight Testing  
Handbook, FAA Circular AC-90-89.

### **Reference Books:**

- Amateur Built Aircraft Reference  
Manual 1990 (Revised),  
Wm. E. Laundry, Canadian Aerosport  
Technical Committee.
- Choosing Your Homebuilt, The one  
you'll finish and Fly, 1991, by Ken  
Armstrong.

### **Catalogues:**

- Aircraft Spruce and Specialty  
1992-93.
- Univair
- Grass Roots Aviation, Oshawa
- Starrett Tools #28

- EAA Designee Newsletters,  
loose leaf binder
- EAA Building Tips,  
loose leaf binder, collected articles  
from 1974 to 1991.
- Formation Flying,  
chapter excerpted from CF flight  
training manual.

### **Technical Manuals:**

- Continental C-Series Engine  
Overhaul
- Carburetor information and  
overhaul
- Magneto information and overhaul

### **Miscellaneous books & pocket books:**

- Firefox, 1978, Craig Thomas  
Johnathon Livingston Seagull, 1973,  
Richard Bach
- Space Liner, 1981, Report on the  
Columbia's Voyage
- World of Aircraft, 1978, David Monday
- Zero to Airtime, 1974, Patrick Watson
- Weatherways, 1968, DoT

### **Video Tapes:**

- Basic Aircraft Welding and  
Woodworking 1990 donated by  
Garry Fancy EAA 245
- Information on Zenair CH701 & CH600
- Kitfox
- EAA Fly-in

**The Above Books, Manuals,  
Tapes may be borrowed by  
phoning ----  
Andy Douma at 591-7622.**

# CLASSIFIEDS

8 February 1994

## AIRCRAFT FOR SALE:

Zenith CH250TD taildragger, aerobatic waiver from DOT, 8G+-. 30 hours TT Lycoming O-320, 160hp. Quality built with solid rivets.

**Jim Robinson (613) 830-4317**  
**Tim Robinson (613) 824-5044.**

Aeronca Chief 65LA Very Rare, sandblasted, epoxied frame, new wood, tail feathers covered, Offers

**Mike Sacoutis (613) 729-3774**

## PROJECTS FOR SALE:

!!! NEWCOMERS !!! Looking to start or finish a project? These partial to nearly completed projects **will save you years of building time and barrels of money.**

RV-4 Empennage Kit. With plans, dimpling and rivetting tools, jig materials, etc Invested to date - \$1600.00. Will sell for \$1200.00.

**Alex Clanner 736-0555**

## PLANS:

PLANS for Davis DA2A.

**Russ Robinson 831-4317.**

## PARTS FOR SALE:

Magneto, Bendix, S4RN21, Impulse coupled, zero time. \$250.00

Rosenhan wheels and brakes 4.10X3.50X5, master cylinder. \$250.00  
Prop Spinner 5 inch skull cap. \$10.00

**Eric Taada 749-4264**

Vari Eze landing gear legs. New.  
**Peter Plaunt (613) 839-2283.**

## PROPELLERS:

Harzell constant speed - HC82VL-1D1 to fit O-320 plus governor and vernier control, zero timed. OFFERS.

**Mike Sacoutis (613) 729-3774.**

Propeller, three bladed, gound adjustable, wooden blades, metal hub with spinner. Fits VW hub \$250.00.

**Tim Robinson (613) 824-5044 evenings.**

Propellers, VW 48/30 & 60/38, wood plus adapter for 1600cc VW engine.

**Jacques Pilon (613) 446-4175**

## ENGINES:

O-300A 1750 SMOH, O-300C 1200 SMOH, HIO360 5Hrs since overhaul.

**Mike Sacoutis (613) 729-3774.**

Engines, VW 1600 cc, Continental 2 cylinder ground power unit 30 HP.

**Jacques Pilon (613) 446-4175**

## RADIOS:

Genave 100, \$250.00

**Andy Douma 591-7622**

## Aircraft supplies:

Steel, Aluminum, Plastic, Wood and Hardware. Available from - Grass Roots Aviation 648 Adelaide Ave West, Oshawa, Ontario (905) 434-4651

**INSTRUMENTS:**

Guages,            Altimeter \$50.00.  
                           Airspeed indicator  
                           \$50.00  
                           Mach meter \$75.00  
Autopilot, Federal, new, 2-axis, STC included for  
 installation in C-172 A.B.C., \$250.00.

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**Tim Robinson (613)824-5044** evenings.

Fuel selector valves.  
 Parking brake valve.  
 Accelerometer (G-meter) 2 1/4 inch.

Randolph butyrate dope in unopened gallon  
 containers; 1 gallons clear; 1 gallon Juneau  
 white; 1 gallon Piper Lockhaven yellow (Maule  
 yellow); 1 gallon insignia blue.

- 2 large oil coolers (~8x9")
- 1 hydraulic pump
- 1 vacuum pump
- 1 Lycoming dual accessory case adapter for  
 above pumps.
- Spinner, pointed, 11" base.
- piston rings for Continental E-185-3.

**Cylinders**, four, Lycoming IO/HIO-360, wide  
 deck, fresh chrome.

Propeller, Hartzell HC82XL-2C constant speed  
 plus governor for 320 - 360 Lycoming engines.

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**Garry Fancy (613) 836-2829**

Flight controls from Piper Tomahawk: hanging  
 rudder pedals with brake cylinders, control wheel  
 yoke assembly.

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**Garry Fancy (613) 836-2829**

**Seats for C172** - Complete set of seats for 1963  
 C172. Will fit other models. New blue  
 upholstery. \$300.00

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Jim Robinson 830-4317

Silica Gel packettes. Keeps the moisture out of  
 engines in winter storage. \$3.00 each.

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Irving Slone 722-0359

**WANTED:**

**Wanted:** Bendix Impulse Magneto S4RN-21,  
 Part number 10-51360-28 with drive gear. To fit  
 an A65 Continental.

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Call Irving Slone 722-0359

**Wanted:** Back issues of Sport Aviation for the  
 National Aviation Museum's collection.

1965 April V14/4            1983 March V32/3  
 1987 Nov. V36/11        1989 Jan. V38/1  
 1992 Feb. - Oct. V41/2-10

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**George Skinner 749-9582**

**OTHER:**

**Electric motors**, 1/4 to 1/2 hp, no reasonable  
 offer refused.

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Roger Fowler 225-6070

The "Canadian Amateur Built Aircraft Registry" is  
 now available from CASTC.  
 A registered version of shareware will soon be  
 available for \$30.00

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**Ted Slack at 226-8373.**

**CHAPTER CRESTS:**  
 Sew-on, \$6.50 each.

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Luc 744-5347

**PLEASE NOTE:**  
**ADS DEADLINE IS THE 5TH OF THE  
 MONTH**

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**PLACE YOUR ADS BY PHONING ANDY AT  
 591-7622  
 Classifieds Editor**