



Carb Heat

NEWSLETTER

Hot Air and Flying Rumours

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JANUARY 1990

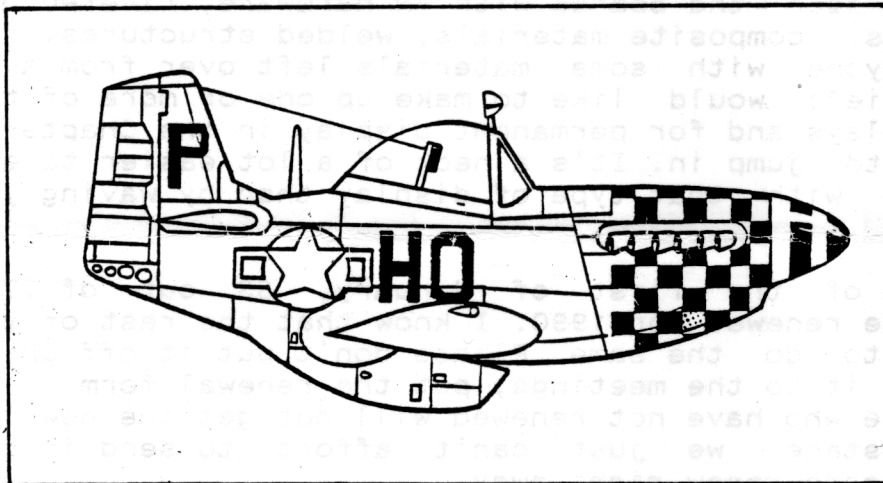
NEXT MEETING :

JANUARY 19 at NRC 100 Sussex Dr. 1930HRS

MEETING HIGHLIGHTS:

Future directions for EAA
DOT/FAA- Regulations

Guest Speaker — TED SLACK



PRESIDENT: Lars Eif 837-6680
VICE-PRESIDENT: Gary Palmer 596-2172
SECRETARY: Andy Douma 224-8493
TREASURER: Deric Dods 692-6121
EDITOR: James Oliff 256-4316

AIRCRAFT OPERATIONS: Dick Moore 836-5554
SPECIAL EVENTS: Gord Standing 224-2879
PUBLISHING: Dick Moore 836-5554
MEMBERSHIP: Rodney Stead 836-1410
ROW HANGERS:

President's Corner:

Happy New Year and Happy New Decade to everyone! If the 80's were interesting, I suspect that the 90's will probably bring even more change for sport aviation. We already know a bit about the upcoming changes in pilot licencing, air traffic control, and airworthiness regulations. I've no intention of getting into the idiotic "prediction" game that so many of the media people seem to thrive on, but without a doubt, we're going to see a lot of new aircraft designs at Oshkosh over the next decade. Maybe some of these new kits will even end up in our Chapter and be flying at Carp before the year 2000 ... who can tell?

For those who wondered why the bottom of each letter in my last column was missing, I would like to apologize right now for my dot matrix printer. It seems that pins number 8 and 9 of my print head decided to take a little rest. The photocopier obviously didn't think that these feeble dots were worthy of reproduction and ignored them. I promise to borrow a good (government-owned?) printer while mine is being fixed.

Our display of a partially built aircraft at the National Aviation Museum was very well received by both the museum staff and the visiting public. Thanks and a hearty "Well Done!" to those members who gave up some of their holiday time to represent the Chapter. Especially to Peter and Paula Patton who left me a list of constructive suggestions for improving the display for next year. The museum was not exactly bulging at the seams with people, it being Christmas and all, but it is important to remember that the museum is continually promoting General Aviation, particularly among the younger generation. By being there, we support not only the museum but our own sport as well.

Something which was missing from our display, was a set of boards showing what is involved in building or restoring an aircraft. You've all seen the boards with AN hardware, riveted aluminum parts, wooden parts, composite materials, welded structures, fabric covering, etc. If anyone with some materials left over from a project (Henri, Gord, Charlie?) would like to make up one or more of these boards for future displays and for permanent display in the Chapter hangar, please feel free to jump in. It's a heck of a lot easier to explain aircraft construction with that type of display than by waving your arms in the air!

As of the first of January, 33 out of 77 members of our Chapter have renewed for 1990. I know that the rest of you had the best intentions to do the same. Please don't put it off any longer. If you can't make it to the meetings, put the renewal form in the mail. After March, those who have not renewed will not get the newsletter. With the cost of postage, we just can't afford to send it out without your money, so please renew right away.

That's enough for now. 'See you at the meeting!

Lars Eif

MEMBERSHIP RENEWAL FORM	MEMBERSHIP RENEWAL FORM
PUBLISHED BY THE NATIONAL AVIATION MUSEUM	PUBLISHED BY THE NATIONAL AVIATION MUSEUM
SPECIAL EVENTS	SPECIAL EVENTS
AIRCRAFT OPERATIONS	AIRCRAFT OPERATIONS

MINUTES OF NOV. 17 MEETING HELD AT 100 SUSSEX DRIVE

President Lars Eif called the meeting to order at 8:00 sharp. After welcoming our guests, he reported briefly on the first **Show and Tell** held at **John Richards'** house. The six-member group who attended spent two and a half hours admiring John's fine workmanship on his all-metal **Zenith 300**. Mrs. Richards laid on the coffee and doughnuts and the evening was clearly a solid success. The **next session** is planned for **Gary Palmer's** on **Feb. 2** when his composite **Lancair** (recently painted) will be on display. (Please indicate at the January meeting if you plan to go to Gary's or else phone him to check that there will be room.) The **third** and final construction **method--rag and tube--**will be exemplified by **Lars' own Steen Skybolt** sometime later this year.



The business portion of the meeting dealt with changes to membership fees. Eric Taada moved (seconded by Roger Fowler) that the following membership rates be adopted: **Associate Member \$30; Subscription Member \$30; Full Member \$55, Initiation Fee \$200** (a one-time fee payable upon becoming a Full Member). Motion carried.



Ed Atraghji then waxed eloquent on the joys of electricity for our hangars at Carp. He has convinced the hydro honchos of the feasibility of water-cooled cables strategically placed in a water culvert and now merely needs some 700 ft. of AW6 cable. (To Ed's inviting picture of effortless drilling, sanding, painting, battery charging, etc., I would add the sheer bliss of a heated seat for us intrepid winter aviators who risk gender loss while flight-planning in our frost-bound biffy !)

Our present energy requirements severely strain our tired and tiring generator and something will have to be done shortly. A diesel generator, despite the anticipated difficulty of winter operation, might be an alternative and is also being investigated. We need something in the order of 10kw, so see Ed with your bright ideas.

FEATURE PRESENTATION

Garry Fancy introduced **George Comino**, our feature speaker, who entertained and instructed us on the subject of **"Flutter without Formulas."** With his Ph.D. in Aeronautical Engineering and preliminary design work on Boeing's 757 and 767 models as well as a stint with Air Italia, George was certainly well-qualified to discuss the topic. More importantly from our non-professional viewpoint, he consistently drew on familiar objects such as fishing poles, swings, ladders, etc., to simplify what everyone quickly recognized as an extremely

complex subject. Even George's pared-down model of the components of flutter was enough to show the range and bewildering complexity of forces and counter-forces which combine with such deadly violence and intensity during flutter. Typical of George's down-to-earth and witty presentation was his summation in the guise of a "Recipe for Flutter Soup."

INGREDIENTS: elasticity; inertia (mass will do); aerodynamics.

METHOD: mix elasticity and inertia to obtain interacting vibrational nodes (at least two). Turn on the speed. Add aerodynamic stiffness to mechanical stiffness. Let frequencies change til coalescence. Add a sprinkle of aerodynamic or structural damping. Add inertia coupling as necessary. VOILA!

Since this is the kind of soup pilots definitely want to avoid, George also suggested some counter ingredients, as it were. Building light and strong is a good starting point, as is sticking to proven designs. Another good precaution is mass balancing of components such as ailerons and elevators. To be effective, however, this balancing must not occur at a nodal point. The outboard tip of elevators and ailerons, for example, is a good location. Minimizing play in control linkages and stabilizing long push/pull tubes will also help. Constant vigilance and caution are also important, particularly with high-performance aircraft, but also with the "low and slow" types because the phenomenon has also been encountered at speeds below 70 m.p.h. While the "Bent/Broken Prop Group" and the "Two-Cycle Forced-Landing Gang" have a large and flourishing membership, the "Flutter Club" does not. **Get it right the first time, because there may not be a second!**

Roger Fowler,
Recording Secretary.

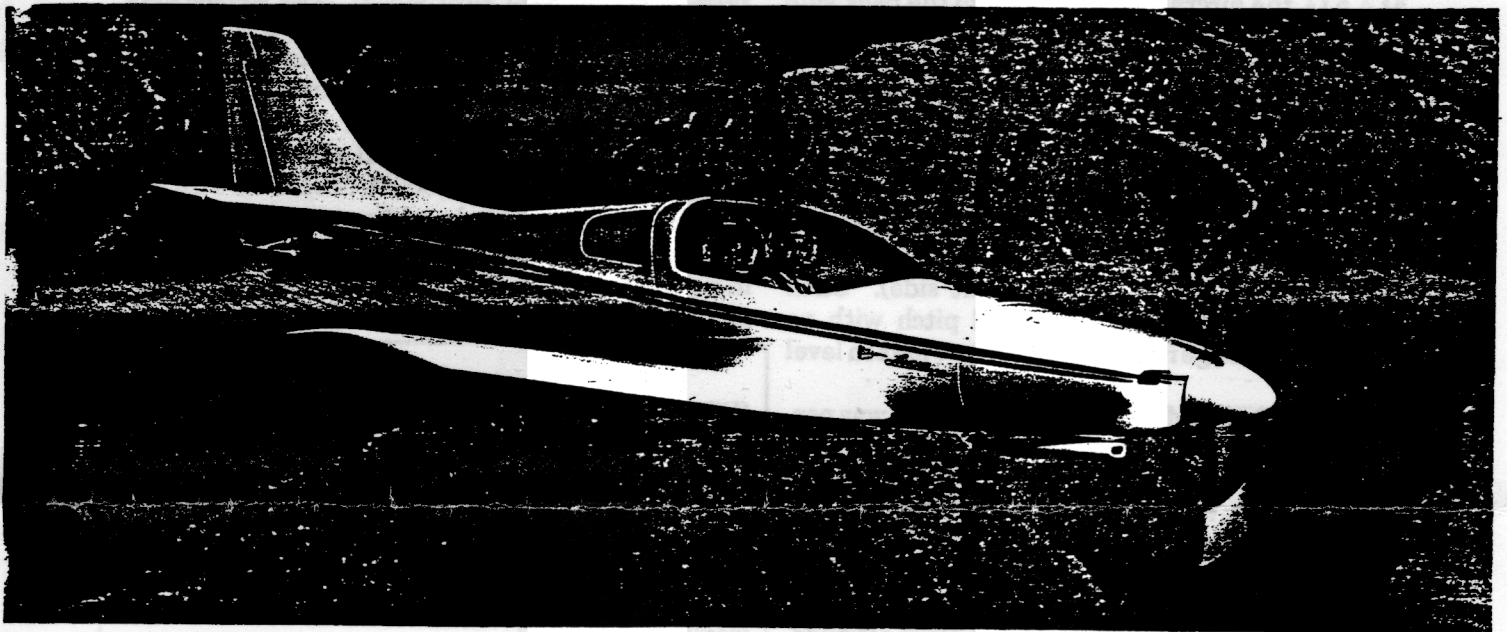
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LANCAIR 320 FLIGHT TEST REPORT

By James E. Brown III
Major, United States Air Force
Experimental Test Pilot,
Edwards Air Force Base, CA

The following is an impartial evaluation by one of the many U.S. Air Force test pilots that has visited our Santa Paula facility. Being this close to Edwards AFB and other bases as well, we seem to draw a high number of their test pilots and it's very interesting to see how they evaluate our aerial Ferrari. Here are some of the more interesting parts of one report that is on file:

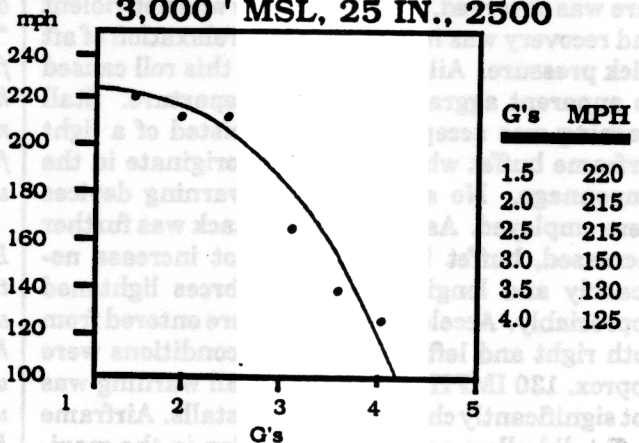
TAKEOFF The takeoff was performed by the demonstration pilot, (Pat Gonsoulin) as a result, no conclusions can be drawn as to stick forces, deflections and rotation rates. It was observed that the pilot had a fairly light (3 finger) grip on the control stick which would allude to light stick forces for rotation. Acceleration was good for a small aircraft. Rotation speed was briefed as 70 IMPH, 75 was observed in this case. The aircraft became immediately airborne.

CLIMB Saw tooth climbs were performed from 2,000 to 3,000 ft. MSL. The first, at 130 indicated

took 44 seconds which yielded a 1,360 FPM rate. The second at 80 indicated took 37 seconds and yielded a 1,620 FPM rate. (*ed note: The plane was 75 lbs below gross wt, @ 5,000 ft. density altitude.*) The 80 mph climb deck angle was approx. 12° and forward visibility was restricted.

TURN PERFORMANCE A turn performance evaluation was accomplished at 3,000 ft MSL, 25 inches manifold pressure and 2500 RPM. Vm was 220 IMPH. The following were the sustained speeds for elevated G loadings:

SUSTAINED TURN PERFORMANCE 3,000 ' MSL, 25 IN., 2500



(Continued from pg. 5, col. 3)

At 4.5 G, the aircraft had dropped to the back side of the power curve and continued to decelerate toward an accelerated stall condition.

7. FLYING QUALITIES The overall flying qualities of the Lancair 320 were impressive. The harmony between roll and pitch control was well mechanized and not objectionable in the least. No assessment for yaw control can be made due to the lack of rudder pedals (on the right side). Stick forces were light in both roll and pitch with no significant change from slow speed to Vmax in level flight.

A. DYNAMICS A dynamics block was performed at 220 IMPH at 3,000 ft. MSL.

1.) SHORT PERIOD The short period response was of a relatively high frequency for a light aircraft with a deadbeat stick free response.

2.) PHUGOID The phugoid was excited by a 10 knot slow down and return to level attitude. The phugoid was lightly damped with a period of approx. 31 seconds.

3.) ROLL MODE The roll mode was evaluated by bank to bank rolls with full deflection step aileron inputs. Roll response was crisp with approx 5° adverse yaw observed as a result of the inputs.

4.) DUTCH ROLL The Dutch Roll was excited by a step release from steady heading sideslips. The Dutch Roll was moderately damped (4 overshoots) with a period of approx. 2 seconds.

All dynamic responses were easily damped with the pilot in the loop and exaggerated inputs had to be made in order to excite the modes.

B.) SLOW FLIGHT Slow flight was performed at 90 IMPH. All control responses were in the correct sense and pitch control was positive in both directions. At the stall, a right rolling departure was observed. This departure was not violent and recovery was immediate with relaxation of aft stick pressure. Aileron to counter this roll caused no apparent aggravation to the departure. Stall warning was acceptable and consisted of a light airframe buffet which seemed to originate in the empennage. No artificial stall warning devices were employed. As the angle of attack was further increased, buffet intensity did not increase noticeably and longitudinal stick forces lightened appreciably. Accelerated stalls were entered from both right and left turns. Entry conditions were approx. 130 IMPH and 3+ G's. Stall warning was not significantly changed from 1 G stalls. Airframe buffet did allow prolonged operation in the maximum Cl with a sufficient margin to prevent inad-

vertent accelerated stall entry. The accelerated stall was indicated by a G break and the before mentioned rolling departure. The departure rolled right on both the left and right hand entries.

8.) GLIDE During RTB a descent was performed from 4,000 ft. to 2,000 ft. MSL at 100 IMPH. The throttle was closed and the propeller allowed to windmill. The descent took 2+00 which resulted in a rate of -1,000 FPM, a still air flight path of -6.5° and L/D of 8.8.

(ED. NOTE: We're pretty pleased with this test pilot report and thankfully, that's how they all seem to come out. Oh, it's not absolutely perfect, no aircraft is and if you read a story about some #@^! kit plane that is... well, I bet they've also got some property in Florida that they'd like to sell you as well! We do have a couple of applicable notes that I believe are worth mentioning:*

CLIMB: The company 320 was flown at a weight near gross and with our typical Southern California hot weather (28°C reported @ 2500 ft), climbs were being evaluated at a density altitude of over 5,000 ft. thus our stated gross weight climb rates at sea level of 1640 FPM are extremely realistic if not even a bit conservative.]

GLIDE: The glide ratio was evaluated during a worst case scenario with the constant speed prop wind milling in flat pitch mode. While such a test has tremendous merit, the best glide would be achieved with either a fully stopped prop or with the prop in the coarse pitch mode. The coarse (or high) pitch mode can only be maintained provided you have enough prop rotation to keep the oil pressure up since that is what puts the prop into that coarse pitch setting. However, a 9:1 glide ain't too shabby for a worst case.

And a final note goes to good old Pat Gonsoulin, one of our two trusty demo pilots. He is basically a "straight and level" kind of guy so he came back from this above test flight feeling a bit wrung out having to ride out 5 G maneuvers repeatedly. Or maybe he should feel fortunate, the last test pilot from Edwards AFB was bouncin'us for 6.5 G's while searching for accelerated stall behavior!

Pat, by the way, was quite impressed with Major Brown's ability to handle the plane. He said that the Major was flying with his left hand on the stick while his head was buried in the cockpit as he used his right hand to jot notes on the knee pad which was on his left knee! Picture that? Pat said, "even with all of that, he flew the plane better than I could have without all those distractions!"

MEMBERSHIP APPLICATION

NEW: ___ RENEWAL: ___ DATE: _____

EAA NUMBER: _____ . EXPIRY DATE: _____

>>See Annual dues nota<<

NAME: _____ PHONE: _____ H
ADDRESS: _____ B
_____ ext _____
_____ PC _____

AIRCRAFT & REGISTRATION: _____
(or aircraft of interest) _____

OTHER AVIATION AFFILIATIONS: RAAC: _____
Other: _____

() **ANNUAL DUES:** January 1st to December 31st. (Prorated after March 31st for new members/subscribers).

>>> **Note:** Associate and Full Chapter members must also be members of the EAA parent body based in Oshkosh, Wisconsin - \$30.00US.<<<

() **Associate Member:** \$28.00 Entitles one to the newsletter plus Chapter lounge privileges.

() **Full Member:** \$50.00 plus a "one time only" initiation fee of \$150.00. This entitles the member to full hangar, workshop and tie-down privileges. (Tie-downs are billed extra at \$20.00 per month).

() **Newsletter subscriber:** \$30.00. No requirement for parent body membership. Entitles the subscriber to the Chapter Newsletter.

* NOTE ! NEW RATES WILL APPLY AFTER JANUARY 30 !

Make cheque payable to: EAA Chapter 245 - Ottawa
Mail to : Box 8412 Main Terminal, Ottawa, Ont. K1G 3H8

OFFICE USE:

EAA NUMBER: _____ . EXPIRY DATE: _____ .

MEMSTAT: _____ . RECEIPT ISSUED: _____ .

CARD ISSUED: _____ . \$ TRANSFERRED: _____ .

Piel Emeraude C-FUCW, 125 hp, 260 hrs.
Bubble canopy. Always hangared.
\$12,000. Bob Comber, Holland Center
(519) 749-3467.

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.
831-2485.

BABY GREAT LAKES PROJECT
fuselage 90% complete
all ribs and spars
Continental C-85
mcauly metal prop
all instruments
6500.00 JAMES OLIFF

CLASSIFIED SECTION

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

Child's seat for C150, aircraft type,
\$150 or offer. Jim Robinson 830-4317.

For Rent: Hangar space for one aircraft
at Carp. \$100 per month. EAA members
only. Call 832-2691.

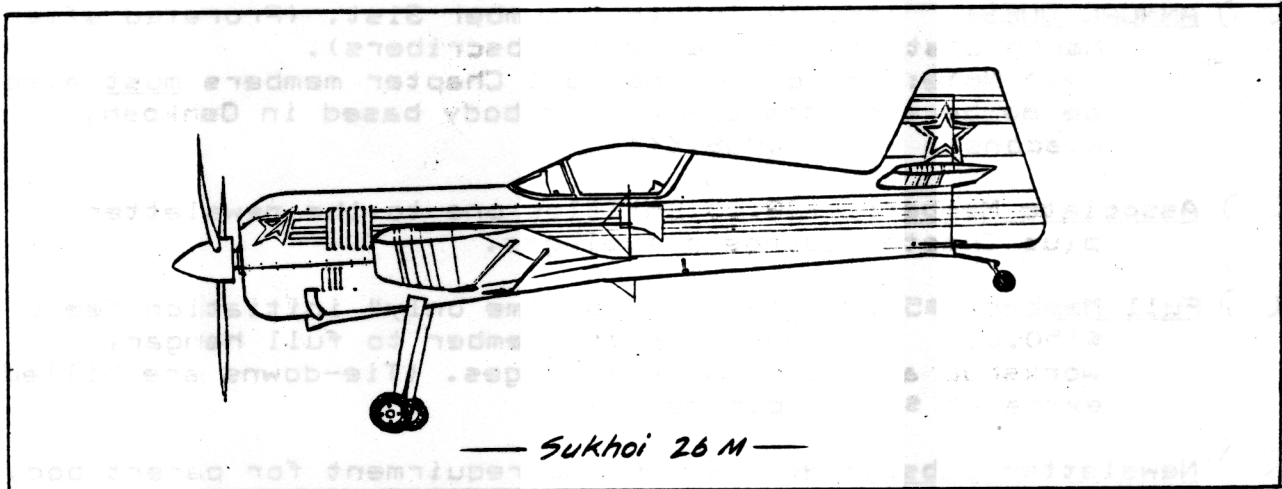
Brakes and wheels. Rosenhan. Suitable
for Vari-Eze, Davis, etc. Offers
welcome. Eric Taada 749-4264.

CLUB NEEDS

Platform weigh scale like type to weigh
feed sacks. We have one, need a second
one.

Gas-powered snowblower needed.

Classified Editor: Lars Eif 837-6680.



— Sukhoi 26 M —