



**AIR
MAIL**

Dear Lorin:

Thank you for sending me the information about the Hatz, this was exactly what I was looking for. My question about a structural analysis was not motivated by a distrust in the design but by a requirement we have here in Switzerland. We must provide one to the Swiss Airworthiness Agency. I am an aeronautical engineer and can do one, but I would be happy to get anything that has already been done.

Unfortunately I won't be in Oklahoma in June but I am looking forward to seeing many CB-1's in Oshkosh this summer and meeting with builders.

Please include me on your mailing list and send last years issues. Thank you.

Jürg Müller
Zürich, Switzerland



We understand your requirement for the stress analysis and would like to point out to our State Side builders that we really don't have the obstacles that some of our overseas compatriots do. Please note the following letter and look for the results of the stress analysis on the Handy Andy pages. A warm welcome to our first Swiss member. Hatz!

Dear Lorin:

I have enjoyed receiving your newsletter, both for the encouragement that comes from hearing of the progress of other builders and, for the ideas and information that are shared.

Now for some information to share. Together with a friend, a retired Boeing chief engineer, I have been working on a stress analysis of the Hatz and the results are interesting and reassuring. We chose to limit our study to the wing structure and have defined the loads in the wing spars, flying and landing wires, N struts, cabane struts & fuselage attach fittings under positive and negative load conditions.

Overall, we found the Hatz be a structurally sound design. We do not, at this time, plan a detailed analysis of the fuselage or tail structure. The use of 3/4" tubing all the way to the tailpost for the longerons is a good idea and advocated by Richard Lauzon. We have also decided to use front and rear brace wires on the stabilizers.

We hope that this information will be helpful

and interesting to other builders. Thank you again for providing a forum for the exchange of ideas.

Paul Uhlig, M.D.
Wichita, Ks.

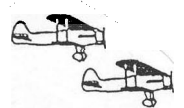
We thank you on behalf of all Hatz Nutz for the findings of your stress analysis. To our knowledge this is the first time such data has been seen in print and is a welcomed addition to the limited information published. A Grand Hatz Tip To Both!

Mr. Wilkinson:

Thanks for the information on the difficulty of locating, and cost, of a radial engine for the Hatz. I just have a weakness for round engined biplanes. I have read about 150hp Lycoming installations, does this require any modification to the fuselage? I note that you are installing a LOM 332A engine in your CB-1. The inline engine would also make for a nostalgic cowling. Could you send me information on the LOM?

I have enclosed payment for membership and back issues through 1993. Thanks especially for the tips and how-to articles and letters.

Russ Lassetter
Marietta, Ga.



Yes, we discovered that a round engine can make a very flat wallet. If money was not a problem, the 145 or 165 Warner would have been our choice and a polished ground adjustable Ham-standard as well!

Dear Lorry:

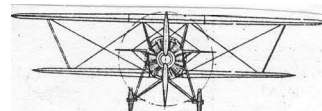
Once again I enjoyed the last newsletter. I received the March issue on the 1st of March! How do you do that?

My "Hatz Under The Roof" is standing on her gear and getting bigger and bigger. I am working on the fiberglass J-3 nose cowl (from Wag-Aero) re-doing the upper section to fit with the aluminum sheet around the cockpits.

Although the flat 0-200 is not streamlined like a 4 in-line inverted, it looks very nice! Looking forward to the June newsletter.

Michel Pallier
Paris, France

The "Hole in the Wall" aircraft works must work two shifts, at least. You are making great progress on your Hatz. I hope that you have heard from other European Hatz Nutz. Stay Hatzy!



HANDY ANDY



HINTS DEPT.

STRESS ANALYSIS

The following tables present the basic results which should be used only as approximate values and do not account for possible asymmetric loading which might occur during maneuvering. The limits used for these calculations were +5 and -3 G's with a safety factor of 1.5 and thus calculated ultimate loads at +7.5 and -4.5 G's using a gross weight of 1450 pounds.

T = tension, C = compression Data in lbs.

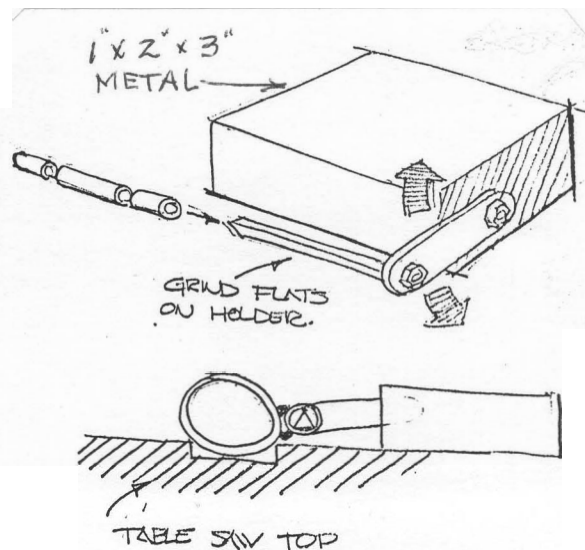
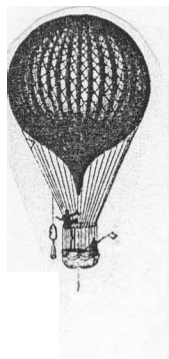
	+7.5 G	-4.5 G
Cabane Struts		
Front	240 T	210 C
Middle	540 T	400 C
Rear	410 T	2130 C
N Struts		
Front	85 C	600 C
Middle	890 C	600 C
Rear	490 C	370 T
Top Wing		
Front Spar	1945 C	140 T
Rear Spar	2650 C	150 T
Bottom Wing		
Front Spar	240 C	2405 C
Rear Spar	110 C	90 T
Center Section		
Front Spar	2270 C	300 T
Rear Spar	2805 C	1955 T
Flying Wires		
Front	2310 T	---
Rear (2)	3500 T	---
Landing Wires		
Front	---	235 T
Rear	---	2505 T

wood should probably be used in the top wings with the best of the best reserved for the rear spars of the center section and the top wings.

All loads appear to be within the strength limits of the spars, spar fittings, attaching bolts and the flying and landing wires called for in the plans. Over all we have been very pleased to find that the Hatz CB-1 appears to be a sound design from a structural standpoint.

Paul N. Uhlig, M.D.
Wichita, Kansas

We want to thank Dr. Paul and his engineer friend for this study. It should instill confidence and reassure all Hatz CB-1 builders of the integrity of the design. The careful selection of aircraft quality materials and fittings as well as careful fabrication of all parts and assemblies using standard aircraft practices will insure a safe and good flying Hatz.



Calculations indicate that the greatest loads during positive G's are on the rear spars of the top wings and center section and the paired rear flying wires. The front spars of the top wings, center section and the front flying wire also carry significant loads. The cabane and N strut loads are relatively light as are the loads on the lower wing spars.

With negative G's the greatest loads are on the rear landing wires, front spars of the bottom wings, the rear spar of the center section and the rear cabane struts.

An interesting observation is that the rear spars of the top wings carry higher loads than the larger front spars and the loads carried in the lower wing spars are relatively light. Therefore, the best

The above fixture was used by Will Fetherolf of Boise, Id. to align and hold the hinge bushings on the tail feathers while welding. The work was held in place on the top of his table saw.

We noticed a warning placard on the front panel of Bill Doyle's S/N-206 advising "Solo From Rear Seat Only." We have seen similar placards on only a few CB-1's. We think that it is a good idea.



Embarrassment has rarely been fatal.

Anon