STATICAL TEST REPORT No. 1020

Element	Storch HS Jabiru fuselage
Purpose	fuselage strength
According to	LTF UL 331
Date:	15/12/03

Supervisor	Aldo Cattano
Executor	M. Stafuzza, G. Stafuzza, D. delle Vedove, S. Franceschini
Witness	Mr. Brian Franken

As per LTF UL 331 fuselage is sustained on wing under 4 g and as per LTF UL 303 this factor has to be multiplied by 1.5 :
Load applied on engine mount= 66 x 4 g x S.F.= 66*4*1.5=396 kg
The calculation of gust load factor is performed as follows (LTF UL 341):
N=1+-(0.5*k*?$_o$ *U*V*a)/(m*g/S) where:
a= lift rise of the wing in the radian measure=4.41
g= ground acceleration in m/s^2=9.81;
S= wing area in m^2=41.1;
l_m= middle wing chord in m =1.34;
?$_o$= air density at sea level = 1.225 kg/m^3;
m= airplane weight in kg=472.5;
k= corrective factor = 0.88*mi/(5.3 + mi)=0.6 where mi=(2m/S)/(?$_o$ *lm*a)=11.35 is the relative airplane-weight density;
For the following values of gust speed (U) and airspeed (V):
Vc=44.44 m/s, Vd=57.5 m/s;
Uc=15 m/s; Ud = 7.5 m/s;
We obtain the values of gust load factor in the table:

positive n_c		3,679469
negative n_c		-1,67947
positive n_d		2,733282
negative n_d		-0,73328

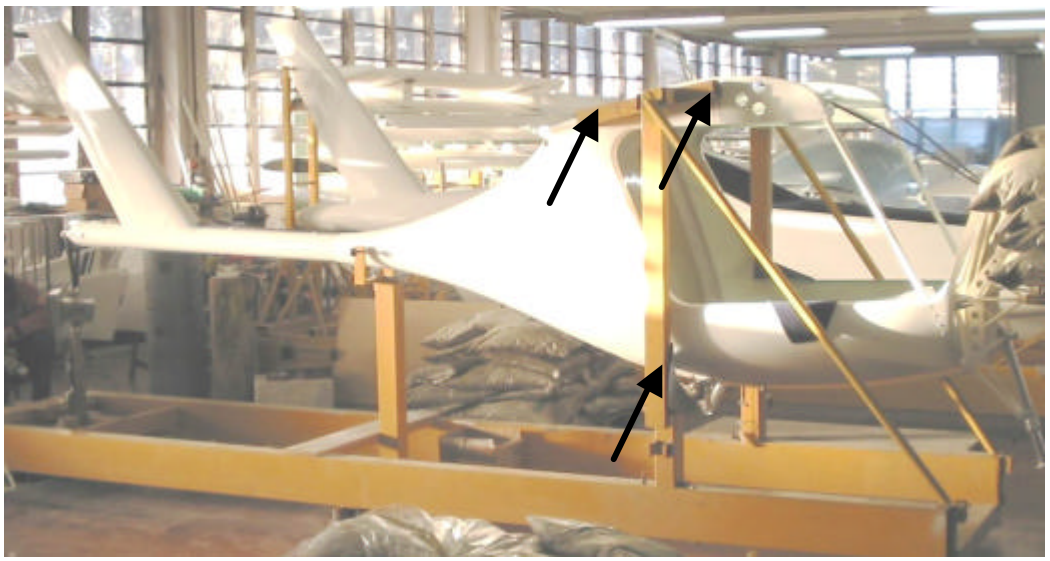
Since the values of positive nc and positive nd are not larger then n2=4 we use n=4 as g load factor as in LTF UL 337
Load applied on pilots seats= Max. Pilots weight is: 170 kg (as shown in LTF UL23) x 4 x 1.5 = 1020 kg

Stabilator load:

Lhk=Lmax*1.5=max(La,Ld)*1.5=145*1.5=217.5kg. where La and Ld are the maneuver speed and dive speed respectivly. as shown in the table below:

description	unit	value		
Mtow	kg	472,5	daec	
wing weight	kg	56	measured	
airplane empty weight	kg	275	measured	
max pilot weight	kg	170	daec	
parachute weight	kg	15	measured	
mtow - max pilot	kg	287,5		
fuel weight	kg	12,5		
load on semi wing	kg	202		
positive g-factor		4		
negative g-factor		2		
dust g-limit				
safety factor		1,5		
stabilator angle				corresponding C_L
max upward deflection		12		0,92
max downward deflection		17		1,36
1/3 max upward deflection		4,0		0,31
1/3 max downward deflection		5,7		0,45
? 0 Air density at sea level. ?	kg*sec^2/m^4	0,125		
S Wing area.	m^2	1,715	measured	
Va	m/sec	38,3	daec	
Vd	m/sec	57,5	daec	
g gravity	m/s^2	9,81		
La=0,5*C_L*V^2*S*? 0	kg	145		
Ld=0,5*C_L*V^2*S*? 0	kg	110		
Lmax	kg	145		

Load is applied on seats, parachute place, tail and engine mount.
Fuselage is constrained at wing attachment points, as shown by arrows in picture:



Load applied with sand bag of 30 kg.:

Lhk=	13 * 30=	385 kg
Fengine=	14 * 30=	420 kg
Fpilots =	34 * 30 =	1020 kg

We left load for approximately 1 min.
We did not observe any abnormal deformation during the test and any permanent deformation after.

Result: **positive**

Signature of responsible person
Mr. Aldo Cattano