



# **SKID LANDING GEAR DROP WEIGHT TEST AND SIMULATION OF HELICOPTER EMERGENCY LANDING**

Denisov J.A., Mikhailov S.A., Nedelko D.V., Shebotnev A.A.

Kazan Helicopters Joint Stock Company  
A.N. Tupolev Kazan State Technical University

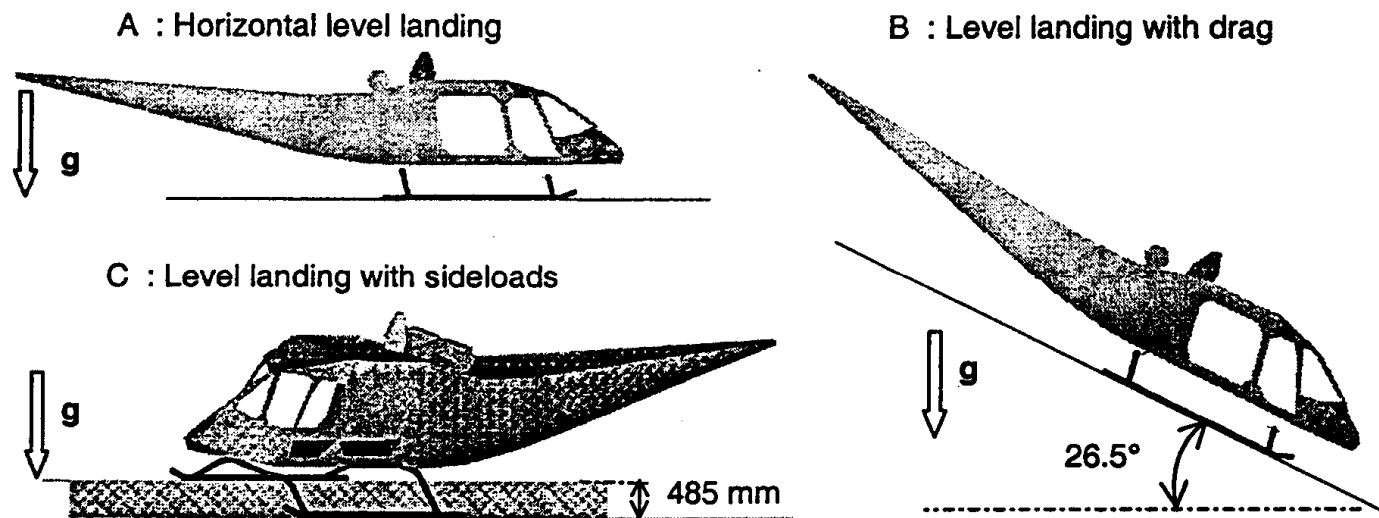
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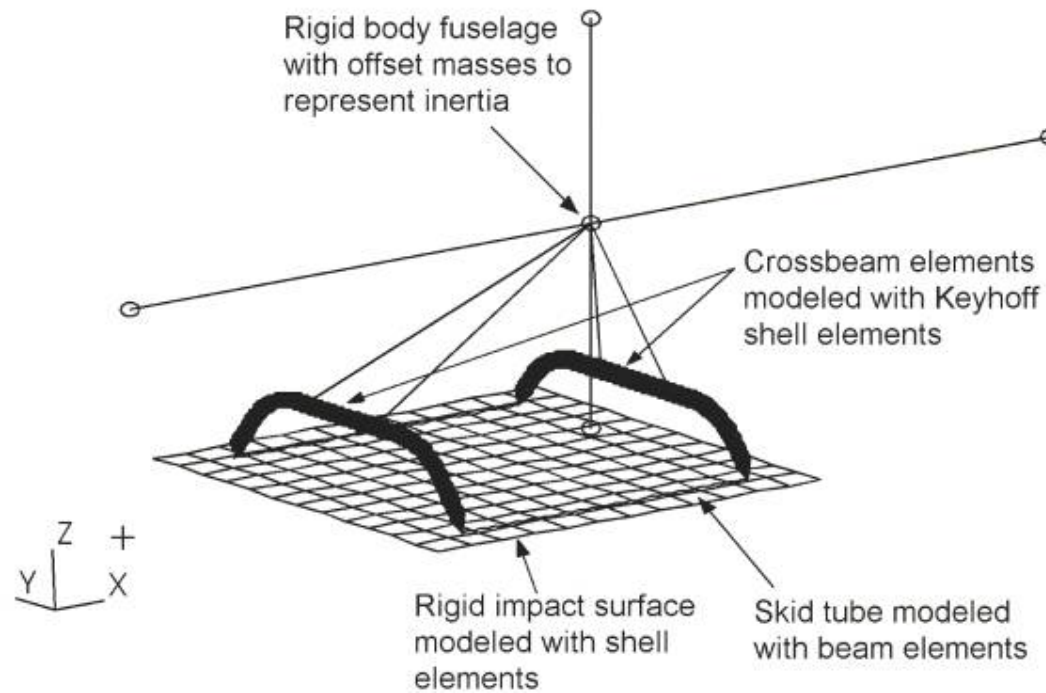


**Light multi-purpose helicopter ANSAT**

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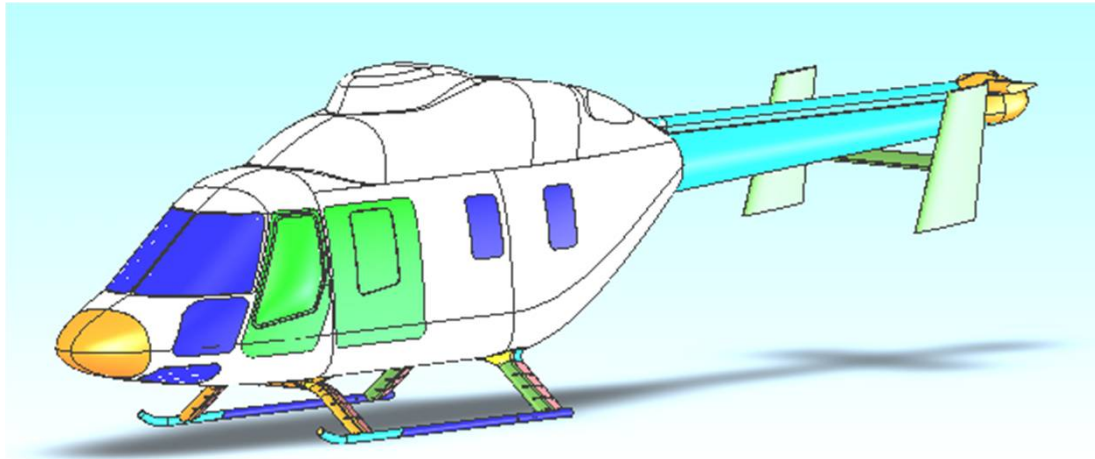
**Fig. 1. Skid landing gear drop weight test (Helicopter “Augusta”)**



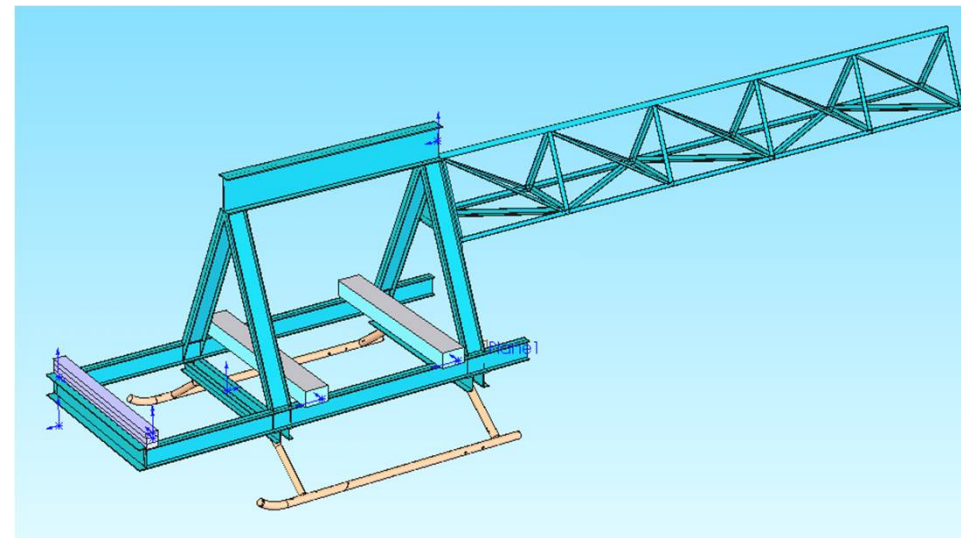
**Fig. 2. MSC/DYTRAN model of skid gear.**

**Table 1. Comparison of the results of analysis and preliminary skid landing gear drop tests**

<b>№</b>	<b>Parameters</b>	<b>Test</b>	<b>Analysis</b>
1	Maximum vertical load on leg: - forward crossbeam - aft crossbeam	1395 kgf 1897 kgf	1457 kgf 1941 kgf
2	Maximum vertical deflection of leg: - forward crossbeam - aft crossbeam	124 mm 100 mm	118 mm 96 mm
3	Unit of work: - forward crossbeam - aft crossbeam	95 kgf · m 104 kgf · m	91 kgf · m 98 kgf · m



**Fig. 3. Helicopter ANSAT**



**Fig. 4. Full-scale mock-up of a helicopter**



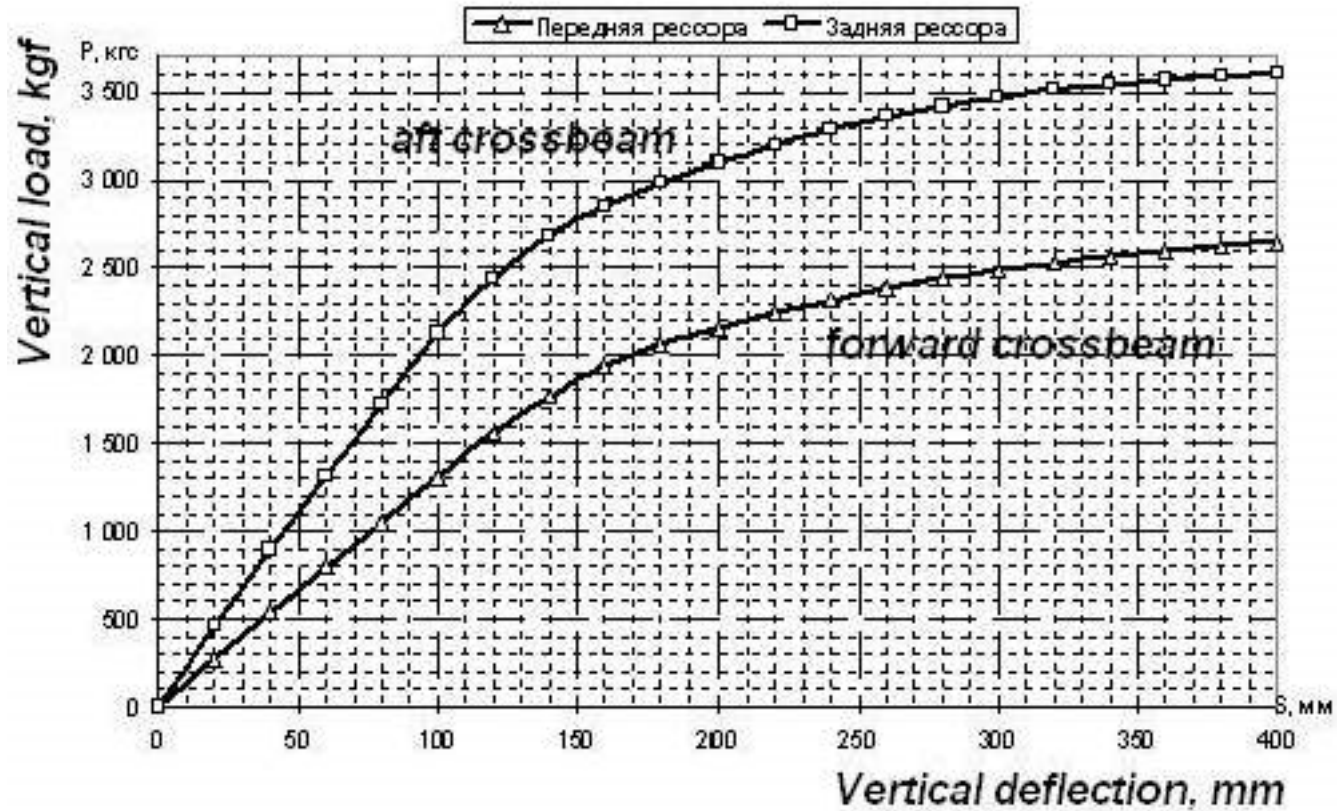
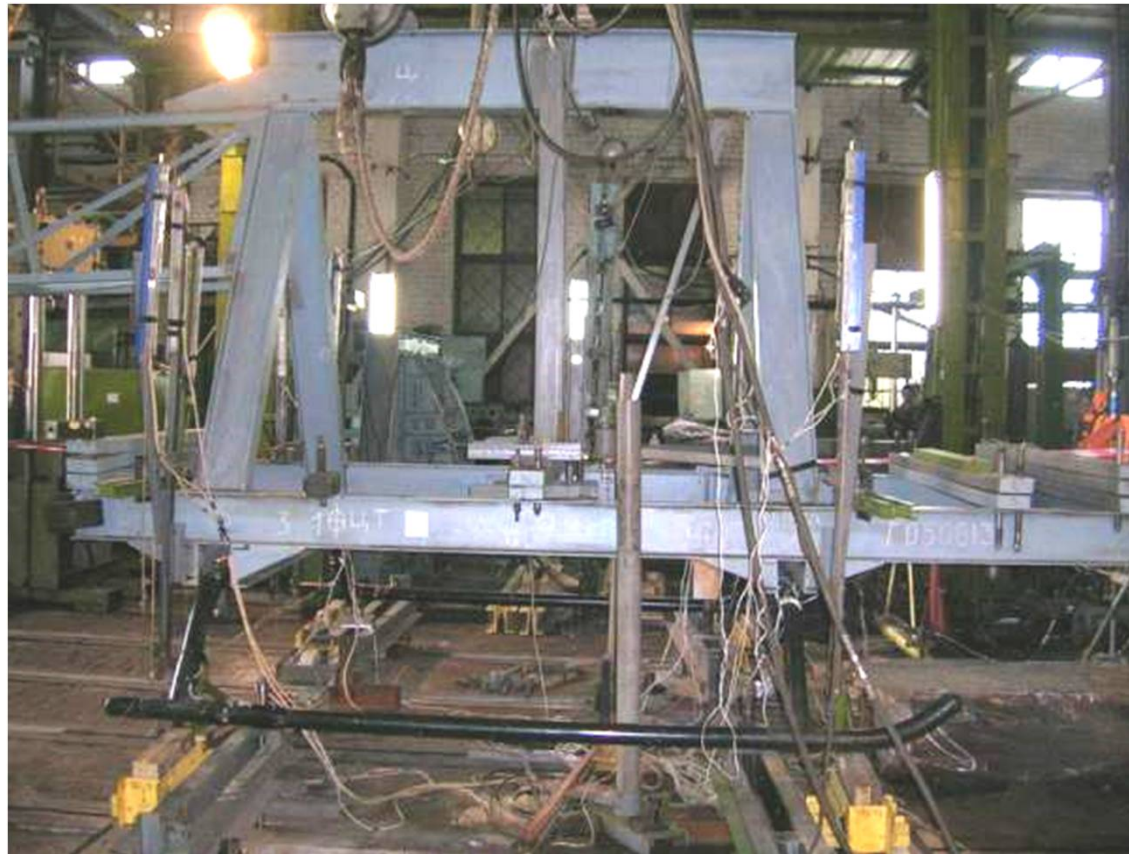


Fig. 5. Static diagram

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**Fig. 6. Full-scale mock-up of a helicopter**



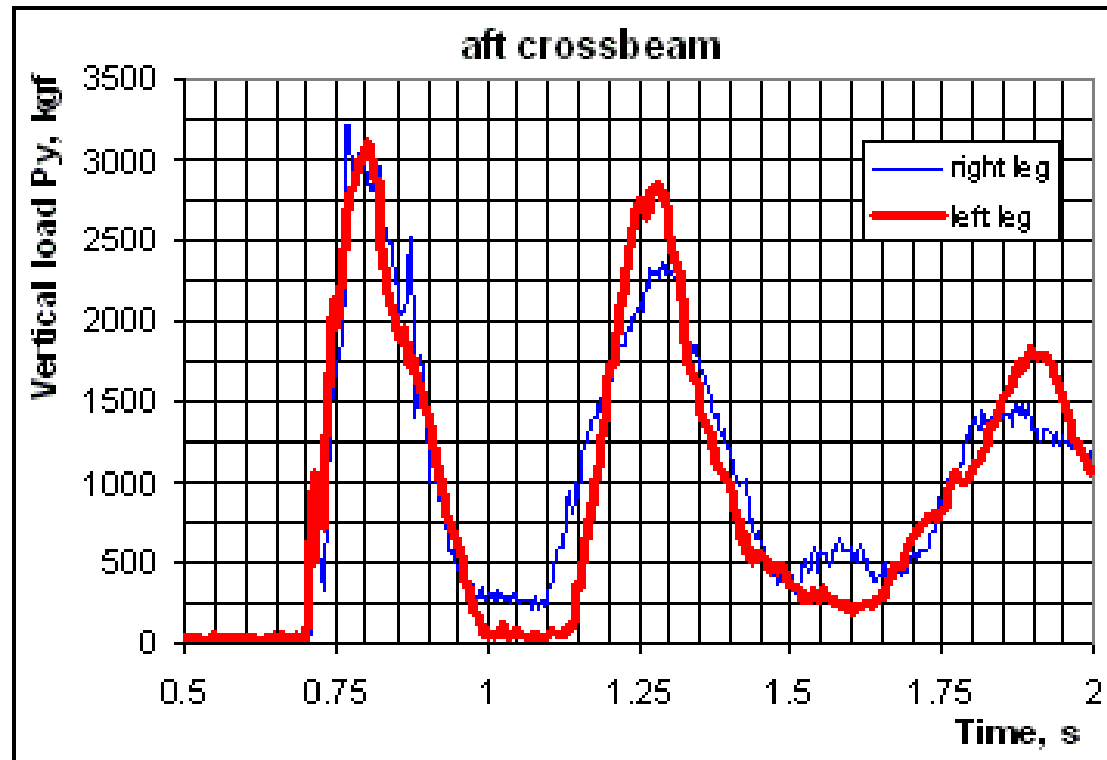


Fig. 7. Vertical load time history

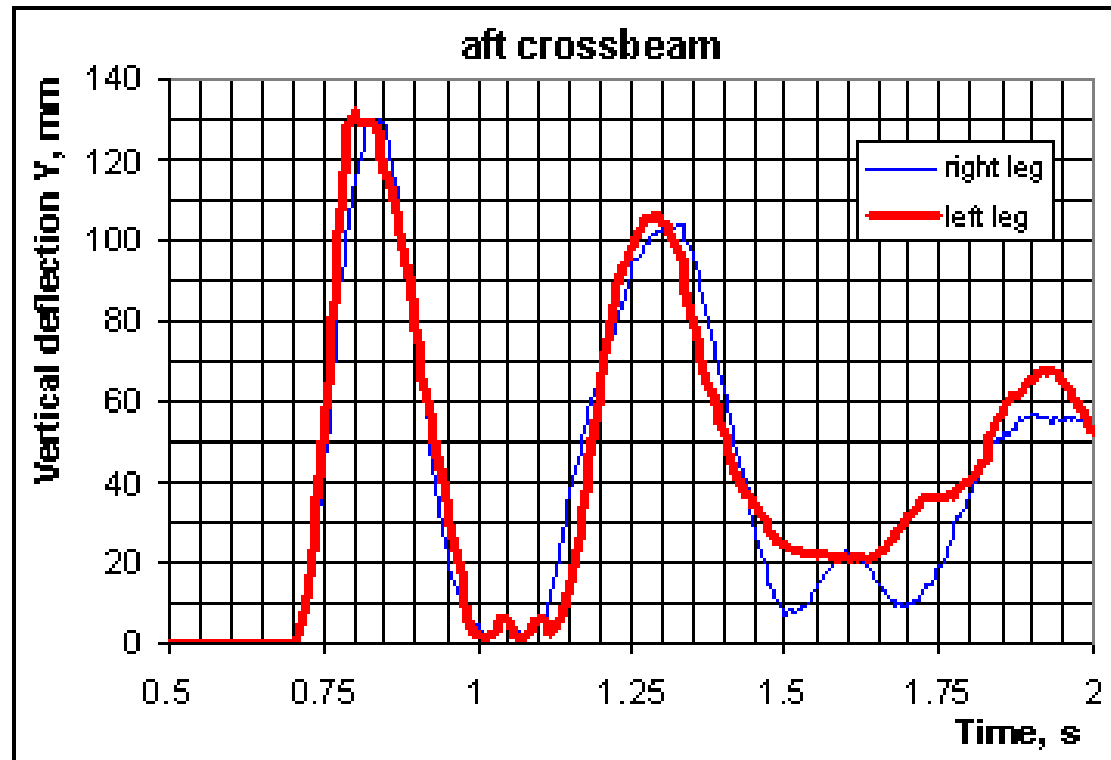


Fig. 8. Vertical deflection time history

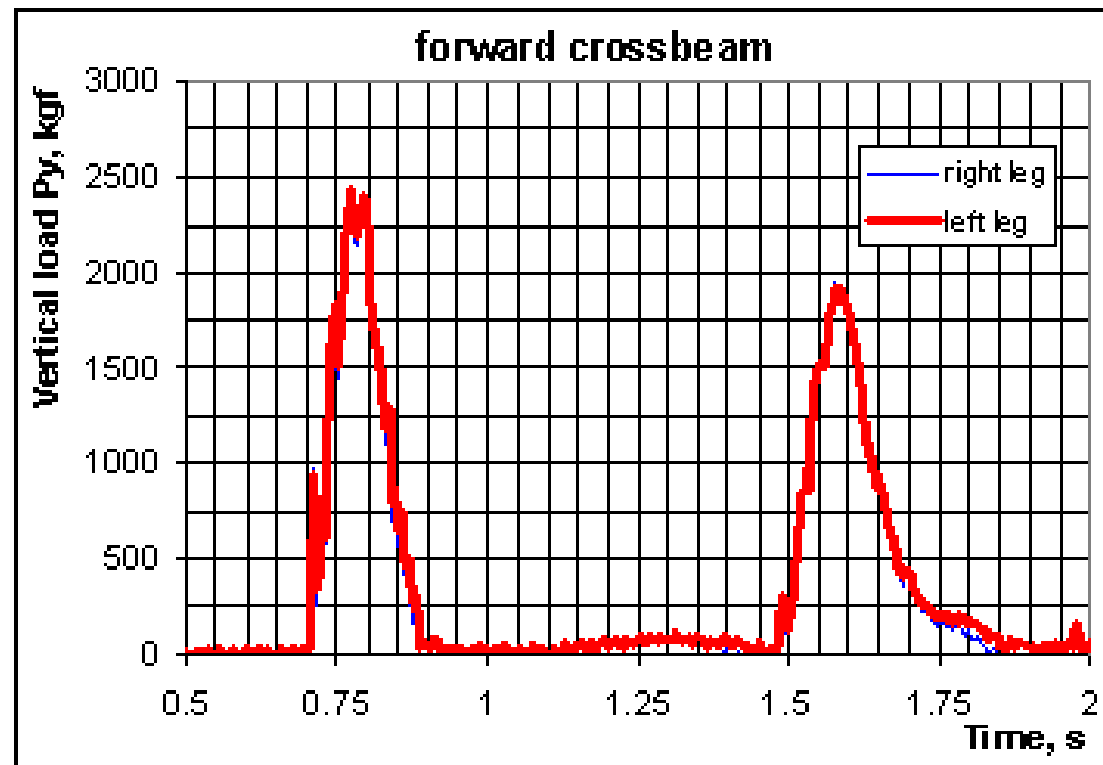
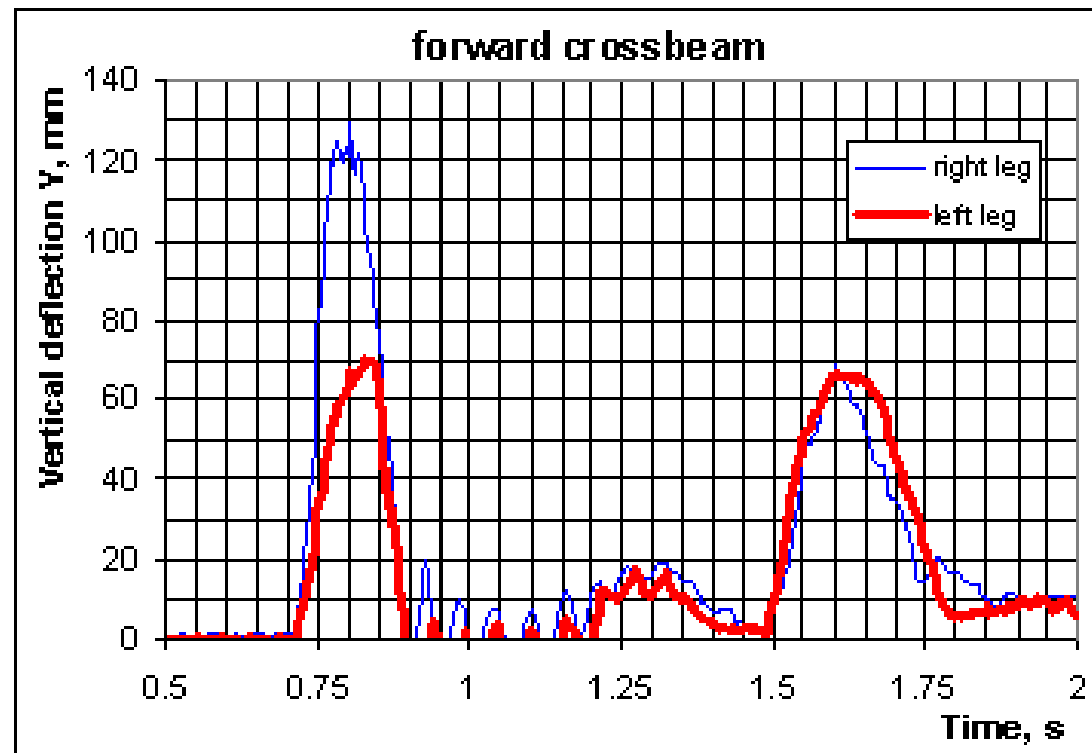


Fig. 9. Vertical load time history



**Fig. 10. Vertical deflection time history**

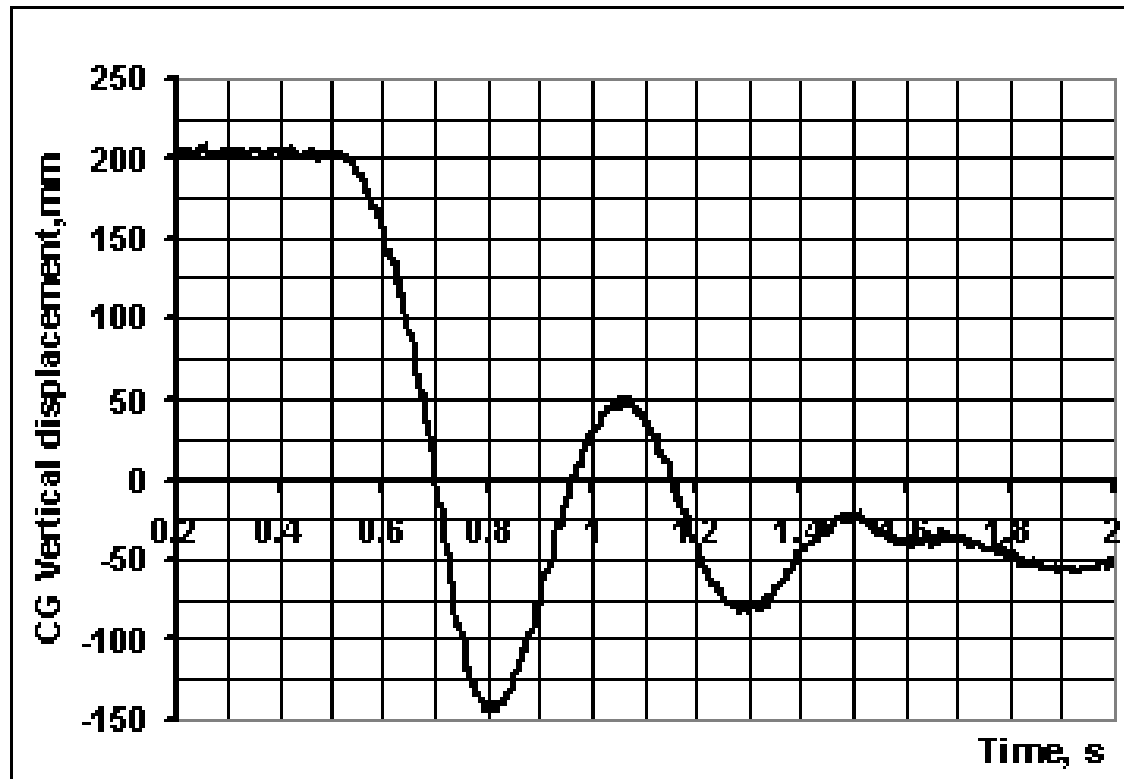


Fig. 11. CG vertical displacement time history



**Table 2. Limit energy absorption drop test results**

<b>№</b>	<b>Parameters</b>	<b>Test</b>	<b>Analysis</b>
1	Maximum vertical load on leg:		
	- forward crossbeam	2436 kgf	2312 kgf
	- aft crossbeam	3202 kgf	3124 kgf
2	Maximum vertical deflection of leg:		
	- forward crossbeam	129 mm	134 mm
	- aft crossbeam	133 mm	141 mm

**Table 3. Reserve energy absorption drop test results**

<b>№</b>	<b>Parameters</b>	<b>Test</b>	<b>Analysis</b>
1	Maximum vertical load on leg:		
	- forward crossbeam	2235 kgf	2210 kgf
	- aft crossbeam	2801 kgf	2880 kgf
2	Maximum vertical deflection of leg:		
	- forward crossbeam	158 mm	169 mm
	- aft crossbeam	157 mm	165 mm

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**Thank You!**