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Crash test according to ISO-7176-19 and ISO-10542

(One appendix)

Assignment

Crash testing of wheelchair and locking device according to ISO-7176-19 and ISO-10542.

Test object

Wheelchair	Rea Assist
Locking system	UNWIN-WWR/ATF/K/R & WWR/HD/ATF/K/R.
Dummy	Hybrid III dummy, mass 76.3 kg

Date of arrival

The test objects arrived at SP on 12 June 2003. The test objects have been selected by the client without SP's assistance. The test results showed in this report refer only to the tested objects.

Date of testing

The test was performed on 12 June 2003.

Measuring

The deceleration was measured by two accelerometers mounted on the trolley. The test was filmed with a high-velocity camera (1000 frames a second). The measurement uncertainty when determining the deceleration was better than $\pm 5\%$ ($g = 9.81 \text{ m/s}^2$).

Results

Test

Velocity: 49.7km/h

Retardation distance: 640 mm

Retardation pulse according to acceleration curves in appendix.

Locking device with wheelchair model Rea Assist and Hybrid III crash test dummy.

The locking device withstands the test without remarks. The seat back of the wheelchair was bent back 5° at the rebound of the dummy. The movement of the dummy is approved according to specification in ISO-7176-19. No other fractures or apparent deformations were noted on the wheelchair or anchorage points. The system fulfils the requirements according to ISO-10542 and ISO-7176-19.

Movements of dummy	Result
Knee	270 mm
Head frontal	300 mm
Head rear	300 mm



Before test



After test

SP Swedish National Testing and Research Institute
Building Technology and Mechanics – Transport and Vehicle Technology



Lars-Göran Nilsson
Technical Manager



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Technical Officer

Appendices

Appendix Retardation pulses



Invacare
Reassist 76 kg HIII
Frontal

030612-4

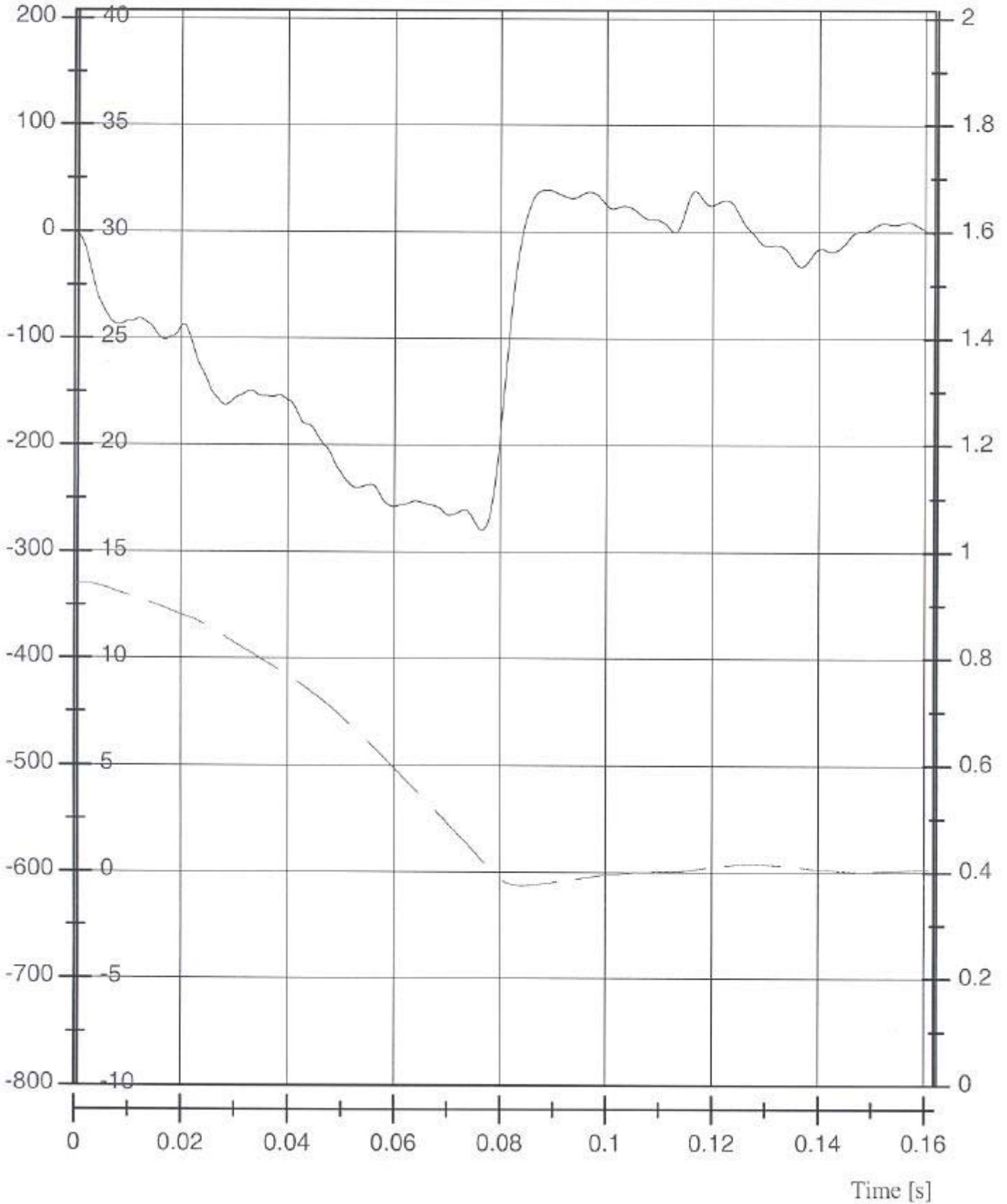
	max	min	
Acc:	39	-279	[m/s ²]
Veloc.:	13.8	-0.7	[m/s]
Deform.:	6.29	0.00	[m]

Acc. [m/s²]

Vel. [m/s]

Sledge acc. leftside CFC 60

Def. [m]





Invacare

Reassist 76 kg HIII

Frontal

030612-4

	max	min	
Acc:	84	-260	[m/s ²]
Veloc.:	13.9	-0.1	[m/s]
Deform.:	7.31	0.00	[m]

Acc. [m/s²]

Vel. [m/s]

Sledge acc. rightside CFC 60

Def. [m]

