



DYNAMIC RESTRAINT TEST REPORT

Customer:
Invacare

Test Unit:
Invacare Harrier Extra Heavy Duty

Test Number:
17NM02

Test Type:
ISO/FDIS 7176-19:2001

Test Speed:
43.80 kph. (ΔV 47.78)

Test Date:
16/01/03

If you have any questions relating to this test please
contact the Technical Services Group Manager:

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DYNAMIC RESTRAINT TEST FACILITY

TEST REPORT

Test No: 17NM02
Date: 16/01/03

Client: Invacare
Run No: TO1951

Test To be Conducted

Pulse Specification	ISO/FDIS 7176/19-1	
Wheelchair	<i>Model:</i>	Harrier Extra Heavy Duty
	<i>Mass:</i>	86.8 kg
Wheelchair Tiedown	<i>Manufacturer:</i>	Koller
	<i>Model:</i>	Supermax 140 KFP0052/K
	<i>Angle front</i>	45.0°
	<i>Angle back</i>	25.0°
Occupant Restraint	<i>Manufacturer</i>	Koller KFP0037
	<i>Model:</i>	Constant Force 3 Point Double Vertical
Test Dummy	Hybrid 2	
Sled Transducer	Endevco Uniaxial Type 7232	<i>Serial number:</i> CV78(left) EE25(right)
Photography	Redlake 1000 F/sec + Photron HS Video	

Test Data

Sled	Change in Velocity	47.78	km/h
	Stopping Distance	489	mm
	Peak Deceleration	21.99	g
	Angle of dummy after impact	<45°	

The results for this test formatted as defined in Sections 7.1 Test Report and in accordance with ISO/FDIS 7176/19-1 discussion document dated July 2001.

Section	Details	Tick [✓] if correct
5.2.1	During the test	
(a)	Excursion limits	
	Wheelchair point P \leq 200 mm [X_{WC}]	136.79
	ATD knee \leq 375 mm [X_{Knee}]	326.31
	ATD front of head \leq 650 mm	421.04
(b)	The ratio of $X_{Knee} : X_{WC} \geq 1.1?$	2.38
(c)	ATD rear of head \leq 400 mm	378.94
(d)	The batteries did not move completely outside of the wheelchair footprint or move into the wheel chair user's space?	✓
5.2.2	After the test	
(a)	The wheelchair remained in an upright position on the test platform?	✓
	The ATD remained in the wheelchair, with its torso at an angle of $<45^\circ$ from the vertical, when viewed from any direction?	✓
(b)	There were no visible signs of material failure on the wheelchair securing points?	✓
(c)	There were no components, fragments or accessories with a mass $>100g$ that completely detached from the wheelchair?	✓
(d)	There were no fragmented or separated component, that may contact the occupant, produced with sharp edges of a radius $<2mm$?	✓
(e)	There were no visible signs of failure on primary load carrying components of the WC.	✓
(f)	There were no signs of failure on the locking mechanisms of seat adjusters of the WC.	N/A
(g)	The ATD was removed from the wheelchair without the use of tools?	✓
(h)	The wheelchair was released from the tie-down system without the use of tools?	✓
(i)	The decrease of the mean H-point height $\leq 20\%$	✓

Analysed by:	<i>Chris Walker</i>	Date:	16 January 2003
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Pass/Fail	PASS
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