



**Transport Research Laboratory  
Impact Test Group**

**DYNAMIC RESTRAINT TEST REPORT**

**Customer:** Invacare (Scandinavian Mobility)

customer reference: PO3826

test vehicle: Spectra Plus

test number: 05LM01-2

test type: ISO/DIS 7176/19 (December 1999)

test speed: 48 km/h

test date: 5 June 2000

If you have any questions relating to this test please  
contact the Impact Test Group Manager:  
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Requirements of Section 5			Result
5.3.1.a	Was the horizontal movement of the:	(i) wheelchair (X wc) < 200mm?	Yes 175
		(ii) dummy knee (X knee) < 375mm?	Yes 354
		(iii) dummy head (X head) < 650mm?	Yes 462
5.3.1.d	Was the ratio of X knee/X wc > 1.1?		Yes 2.02
	(i)	Did the batteries move completely outside of the wheelchair footprint? <i>Note: Batteries unhooked from securement points but remained in place.</i>	No
	(ii)	Did the battery contact the back of the ATD legs?	No
5.3.2.a	(i)	Did the wheelchair remain in an upright position on the test platform?	Yes
	(ii)	Did the ATD remain in the wheelchair with its torso at an angle of less than 45 deg when viewed from any direction?	Yes
			Front = 42° Side = 6°
5.3.2.b	Did the wheelchair securement points show visible signs of material failure? <i>Note: Front left buckle unlocked during impact.</i>		No
5.3.2.c	For manual tiedowns: Did the securement points show any deformation or distortion to prevent manual disengagement and removal tiedown end fittings?		No
5.3.2.d	Did any components, fragments or accessories with a mass in excess of 100gm completely detach from the wheelchair?		No
5.3.2.e	Did any fragmented or separated component that may contact the occupant produce sharp edges with a radius less than 2mm?		No
5.3.2.f	Was the ATD removed from the wheelchair without the use of tools?		Yes
5.3.2.g	Was the wheelchair released from the tiedown system without the use of tools?		Yes
5.3.2.h	Was the decrease of the mean H-point height < 20%		Yes

**Conclusion:** The system met the requirements of Sections 5.3.1 and 5.3.2 and thus gave a satisfactory impact performance.

Pass/Fail:	PASS
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Analysed by:	<i>A. Araya</i>	Date:	20/06/00
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