

REPORT NUMBER: SNCAP-CAL-07-01

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**MAZDA MOTOR CORPORATION
2007 MAZDA CX-7
SUV**

NHTSA NUMBER: M75401

**PREPARED BY:
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Test Date: July 13, 2006

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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Technical Report Documentation Page

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16. Abstract A 55/28 kph 90° Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2007 Mazda CX-7 SUV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on July 13, 2006. The impact velocity of the Moving Deformable Barrier (MDB) was 62.28 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 21°C. The target vehicle's maximum post test static crush was 270 mm at level 3. The test vehicle's occupant performance is as follows:					
		<u>DRIVER</u>		<u>PASS.</u>	
Left Upper Rib (LUR) Accel., g		36.6		40.4	
Left Lower Rib (LLR) Accel., g		33.2		40.5	
Lower Spine (T ₁₂) Accel., g		33.9		45.2	
Thoracic Trauma Index (TTI)		35		43	
Pelvis (PEV) Accel., g		62		47	
HIC		145.0		160.0	
The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					
17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection				18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5111 (NAD-52) 400 Seventh Street, S.W. Washington, D.C. 20590	
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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2007 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-22005. The purpose of this test was to evaluate side impact protection in a 2007 Mazda CX-7 SUV manufactured by Mazda Motor Corporation. The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated July 1997.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A model year 2007 Mazda CX-7 SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.28 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1863.5 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on July 13, 2006.

One (1) real-time motion picture camera and ten (10) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and Side Impact Dummies (SID/HIII's) can be found in Appendix A.

Two 50th percentile adult male SID/HIII's were placed in the driver (P1) and left rear passenger (P4) designated seating positions according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated July 1997. Each SID/HIII was instrumented in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y and Z axes primary and redundant)
- Upper Neck load cell (Fx, Fy, Fz, Mx, My, Mz)

The test vehicle was instrumented with twenty-one (21) structural accelerometers and the MDB was instrumented with five (5) accelerometers.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 270 mm at level 3, 1500 mm rearward of the left vertical impact point. The driver and passenger SID/HIII's, Serial Nos. 905 and 906 respectively, were calibrated just prior to this test.

Test data and observations are presented in this section of the report. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID/HIII's, vehicle, and MDB response data traces. Appendix C contains the SID/HIII's configuration and performance verification data. Appendix D contains the test equipment information.

The occupant data is summarized below:

ATD position	HIC(36)	T ₁	T ₂	TTI (G's)	Peak Pelvis (G's)
Driver	145.0	47.0	76.2	35	62
Passenger	160.0	51.1	79.0	43	47

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	NA	NA
Side Torso Airbag	Yes	Yes	NA	NA
Side Head/Torso Combination Airbag	NA	NA	NA	NA
Curtain Airbag	Yes	Yes	Yes	Yes

The test instrumentation data listed in Appendix B can be found on the NHTSA website:
www.nhtsa.dot.gov.

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	Mazda Motor Corporation	Driver Front Airbag	Yes
Model	CX-7	Driver Side Curtain Airbag	Yes
Body Style	SUV	Driver Side Torso Airbag	Yes
NHTSA No.	M75401	Driver Pretensioners	Yes
VIN	JM3ER29L170103739	Driver Load Limiters	Yes
Color	Blue	Driver Power Seats	No
Engine Disp.(L)	2.3	Rear Pass. Side Curtain Airbag	Yes
Engine Cylinders	4	Rear Pass. Side Torso Airbag	No
Engine Placement	Lateral	Rear Pass. Pretensioners	No
Transmission Type	Automatic	Rear Pass. Load Limiters	No
Transmission Speeds	6	Rear Pass. Power Seats	NA
Final Drive	Front	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	Yes
Power Steering	Yes	Traction Control	Yes
Power Brakes	Yes	Power Windows	Yes
Delivery Date	06/21/2006	Power Door Locks	Yes
Odometer Reading (km)	77	Automatic Door Locks (ADL)	No
Dealer	Northtown Mazda, 3900 Sheridan Dr., Amherst, NY 14226	Owner's Manual Details Instructions on Disabling ADLs	NA

DATA FROM CERTIFICATION LABEL

Manufactured By	Mazda Motor Corporation	GVWR (kg)	2168
		GAWR Front (kg)	1150
Date of Manufacture	04/06	GAWR Rear (kg)	1022

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				385
Cargo Wt. (RCLW) (kg)				44.8

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			Fully Loaded (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	497.5	346.0		540.5	444.5		531.5	440.5	
Right	kg	504.0	316.0		516.0	371.0		519.5	372.0	
Ratio	%	60.2	39.8		56.4	43.6		56.4	43.6	
Totals	kg	1001.5	662.0	1663.5	1056.5	815.5	1872.0	1051.0	812.5	1863.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1663.5
Weight of 2 P572E ATDs (81.2 kg each)	kg	162.4
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1870.7

* Actual As Tested Weight (ATW) will be TVTW -4.5/-9.1 kg

Weight of Ballast (including instrumentation package and cameras): 37.6 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	807	811	825	826
Fully Loaded	mm	791	805	792	803
As Tested	mm	795	805	795	805

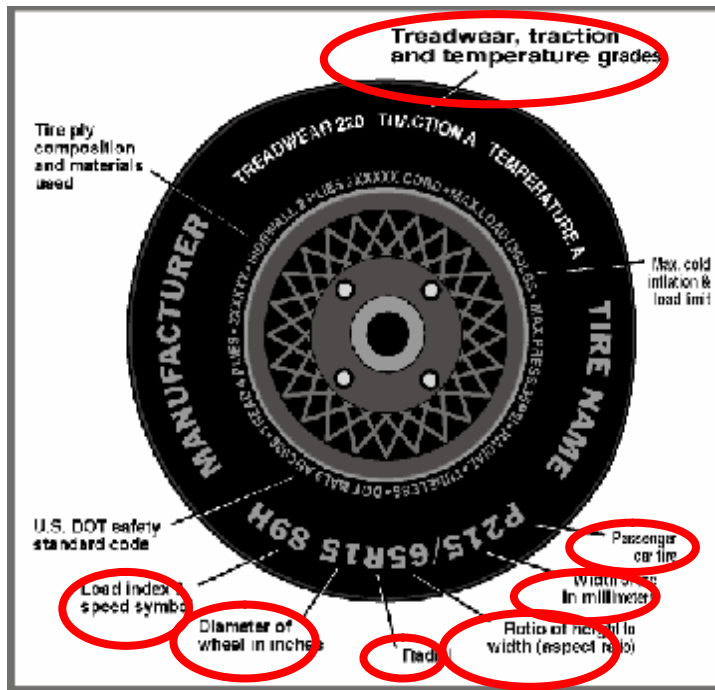
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2754
Target Impact Point Aft of Front Axle	mm	437
Actual Impact Point Aft of Front Axle	mm	432
As Tested CG (aft of front axle)	mm	1201

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P235/60R18	P235/60R18
Tire Size on Vehicle	P235/60R18 102H	P235/60R18 102H
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Eagle RS-A	Eagle RS-A
Tire Type	P	P
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	60	60
Radial	R	R
Wheel Diameter	18	18
Load Index & Speed Symbol	102H	102H
Treadwear	260	260
Traction Grade	A	A
Temperature Grade	A	A

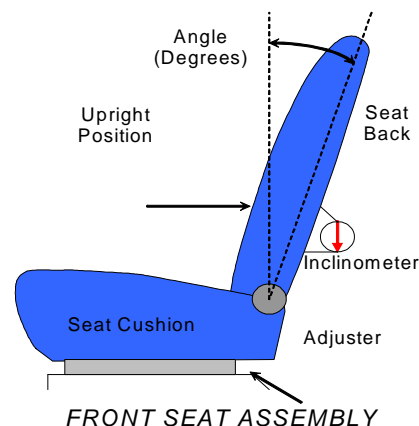
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle.

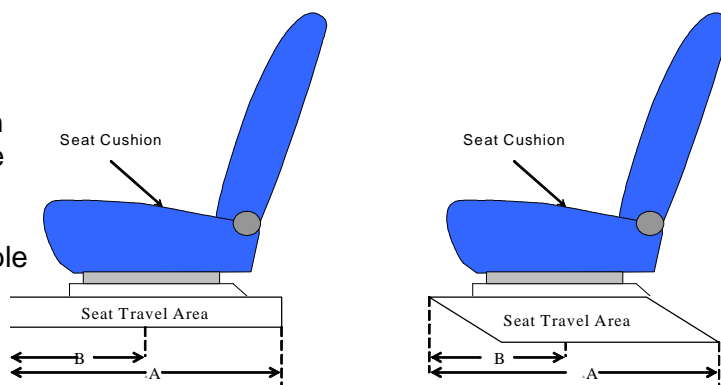


SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	Detent 7	Not Adjustable
Angle (deg. from forward-most locking position)	14.1	Not Adjustable
Alternative Measurements to Verify Test Position	NA	NA

SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.



SEAT FORE/AFT POSITION

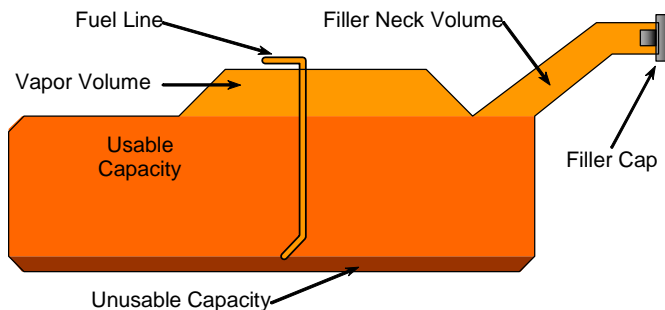
	Driver Seat	Rear Seat
Total Fore/Aft Travel (A) (mm)	314	Not Adjustable
Test Position (B) (mm)	157	Not Adjustable
Test Detent (forward-most detent defined as 0)	Detent 10	Not Adjustable
Total Number of Detents (including 0)	27	Not Adjustable

DATA SHEET NO. 3 (CONTINUED)
TEST VEHICLE INFORMATION

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006

FUEL SYSTEM INFORMATION

The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



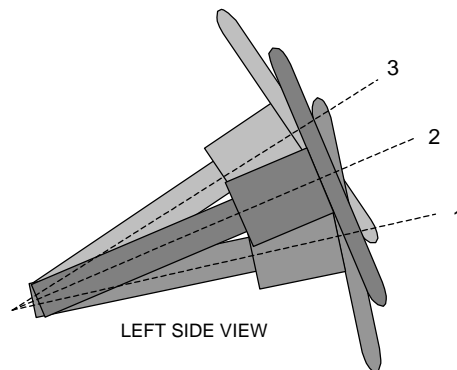
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	68.9
Usable Capacity of "Optional" Fuel Tank	NA
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	63.6

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITION

	Fore/Aft Position (mm)	Tilt (degrees)	Tilt (detent)
Lowermost Position No. 1	NA	21.1	NA
Geometric Center Position No. 2 *	NA	23.9	NA
Uppermost Position No. 3	NA	26.6	NA

DATA SHEET NO. 4**MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4120
Wheel base of Framework Carriage	2590
Tread of Framework Carriage (front & rear)	1875
C.G. Location aft of Front Axle	1104

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	409.5	281.5	
Right	kg	372.5	299.0	
Ratio	%	57.4	42.6	
Totals	kg	782.0	580.5	1362.5

MDB SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.28
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.28

POST TEST OBSERVATIONS**MDB LEFT EDGE IMPACT POINT DATA**

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	5 mm forward
Vertical Offset	mm	+/-20	11 mm below

DATA SHEET NO. 5

POST TEST OBSERVATIONS

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 905	SID/HIII / 906
Head Contact	Left side of head to side curtain airbag	Left side of head to side curtain airbag, back of head to head restraint
Upper Torso Contact	Left arm to door trim and side airbag	Left arm to door trim
Lower Torso Contact	Pelvis to door trim	Pelvis to door trim
Left Knee Contact	Left knee to door trim	Left knee to door trim
Right Knee Contact	Right knee to left knee	Right knee to left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Doors were unlocked	Doors were unlocked
Left Side Door Opening	Door remained closed and latched	Door remained closed and latched
Right Side Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Movement	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	None
Window Damage	None
Other Notable Effects	None

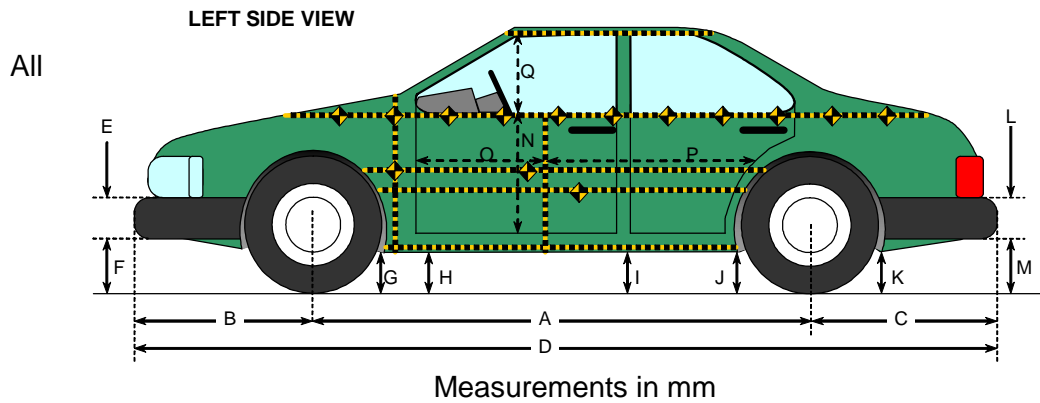
SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	NA	NA
Side Torso Airbag	Yes	Yes	NA	NA
Side Head/Torso Combination Airbag	NA	NA	NA	NA
Curtain Airbag	Yes	Yes	Yes	Yes

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

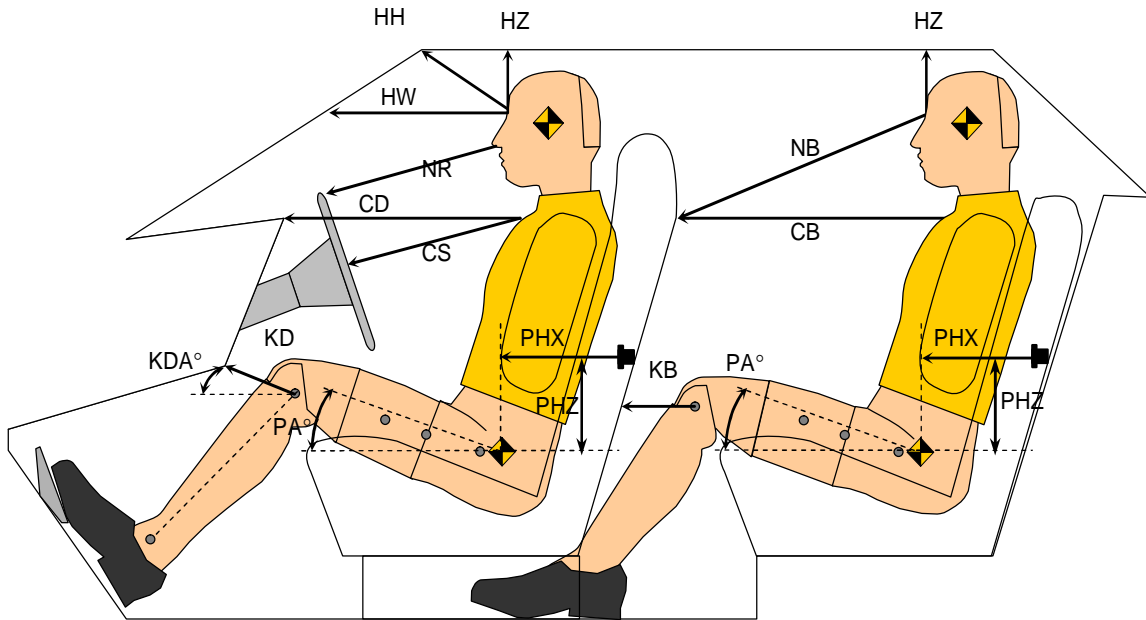


Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	2753	2754	2736	18
B	Front Axle to FSOV	983	984	989	-5
C	Rear Axle to RSOV	944	942	940	2
D	Total Length at Centerline	4680	4680	4665	15
E	Front Bumper Thickness	100	100	100	0
F	Front Bumper Bottom to Ground	549	544	500	44
G	Sill Height at Front Wheel Well	275	261	238	23
H	Sill Height at Front Door Leading Edge	279	263	247	16
I	Sill Height at "B" Pillar	282	260	249	11
J1	Sill Height at Rear Wheel Well	267	241	246	-5
J2	Pinch Weld Height at Rear Wheel Well	290	264	266	-2
K	Sill Height Aft of Rear Wheel Well	300	270	274	-4
L	Rear Bumper Thickness	100	100	100	0
M	Rear Bumper Bottom to Ground	483	451	485	-34
N	Sill Height to Window Bottom Sill	786	786	729	57
O	Front Door Leading Edge to Impact CL	767	767	759	8
P	Rear Door Trailing Edge to Impact CL	1262	1262	1208	54
Q	Front Window Opening	469	469	498	-29
R	Right Side Length	4438	4438	4437	1
S	Left Side Length	4438	4438	4413	25
T	Vehicle Width at "B" Post	1862	1862	1745	117

DATA SHEET NO. 7

SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006

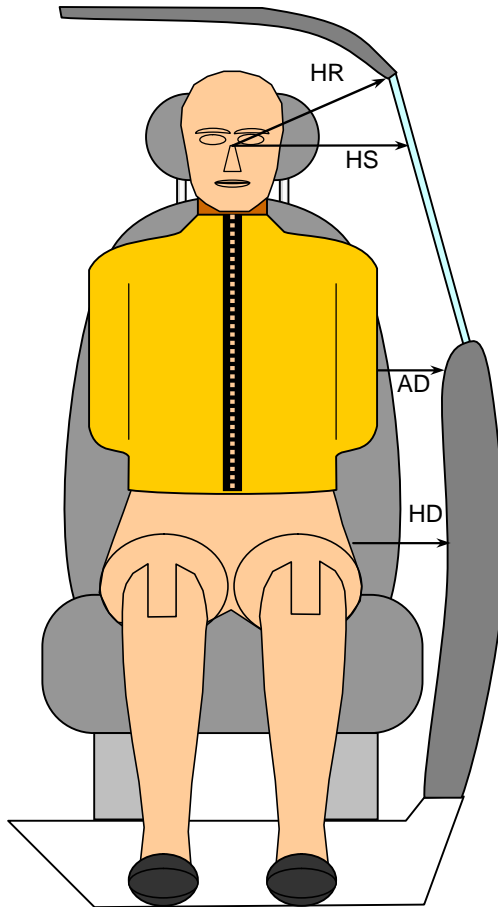


Driver Code	Pass. Code	Measurement Description	Driver S/N 905		Passenger S/N 906	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	390			
HW		Head to Windshield	765			
HZ	HZ	Head to Roof	188		215	
NR	NB	Nose to Rim/Nose to Seatback	431		624	
CD	CB	Chest to Dash or Seatback	526		567	
CS		Chest to Steering Wheel	300			
KDL	KBL	Left Knee to Dash or Seatback	154	32	238	35
KDR	KBR	Right Knee to Dash or Seatback	143	32	243	35
PA	PA	Pelvic Angle		23.5		24.0
PHX	PHX	H-Point to Striker (X-Axis)	230		176	
PHZ	PHZ	H-Point to Striker (Z-Axis)	114		210	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006



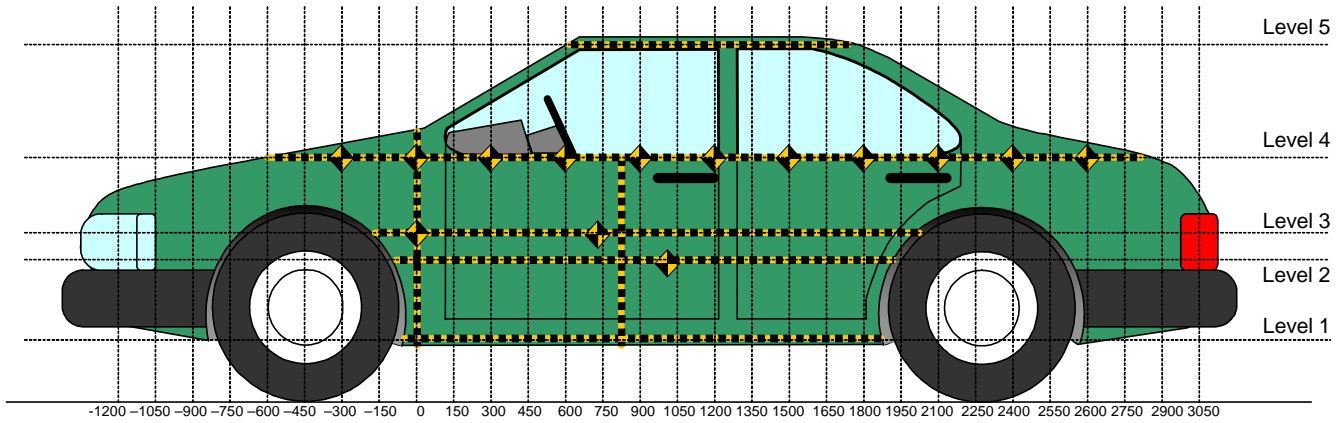
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 905	Passenger S/N 906
HR	Head to Side Header	mm	220	262
HS	Head to Side Window	mm	343	372
AD ₁	Arm to Door (at upper rib level)	mm	120	136
AD ₂	Arm to Door (at lower rib level)	mm	141	136
HD	H-Point to Door	mm	171	162

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
 Measurements along the vertical 750 mm.
 All measurements below in mm.

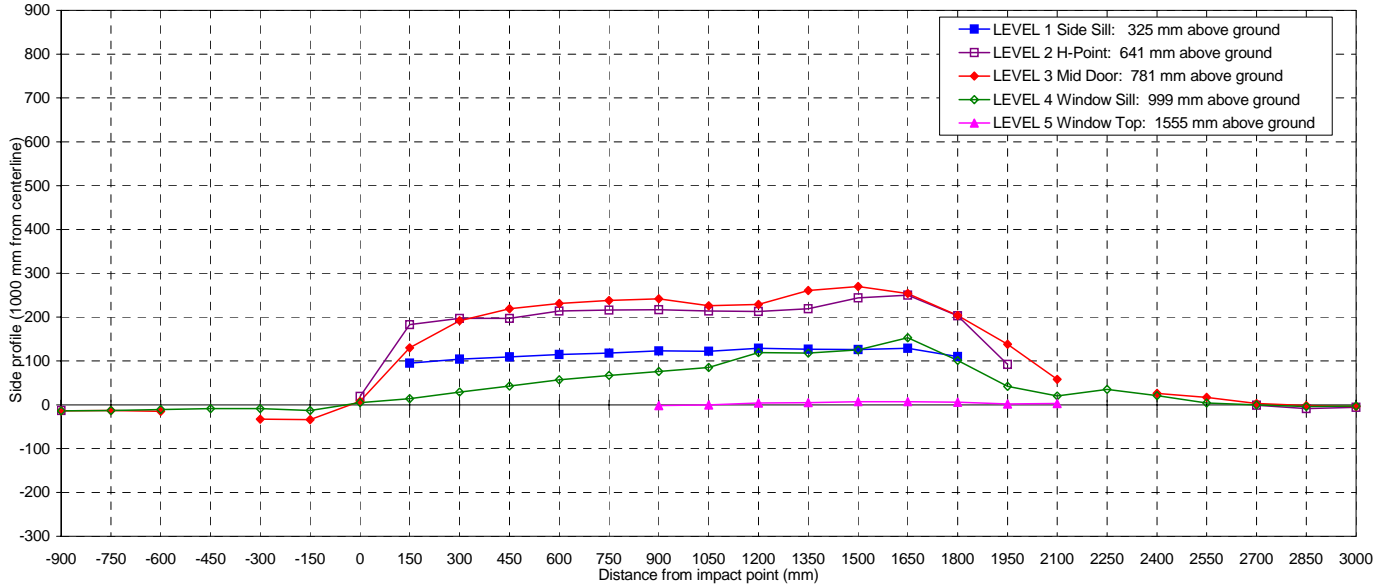
Level	Measurement Description	Maximum Exterior Static Crush	Height Above Ground	Distance From Impact
1	Sill Top	129	325	1200
2	Occupant H-Point	250	641	1650
3	Mid Door	270	781	1500
4	Window Sill	153	999	1650
5	Window	7	1555	1500
	Maximum Penetration	270		

DATA SHEET NO. 10

VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2007 Mazda CX-7
 Test Program: NCAP Side Impact

NHTSA No. M75401
 Test Date: July 13, 2006



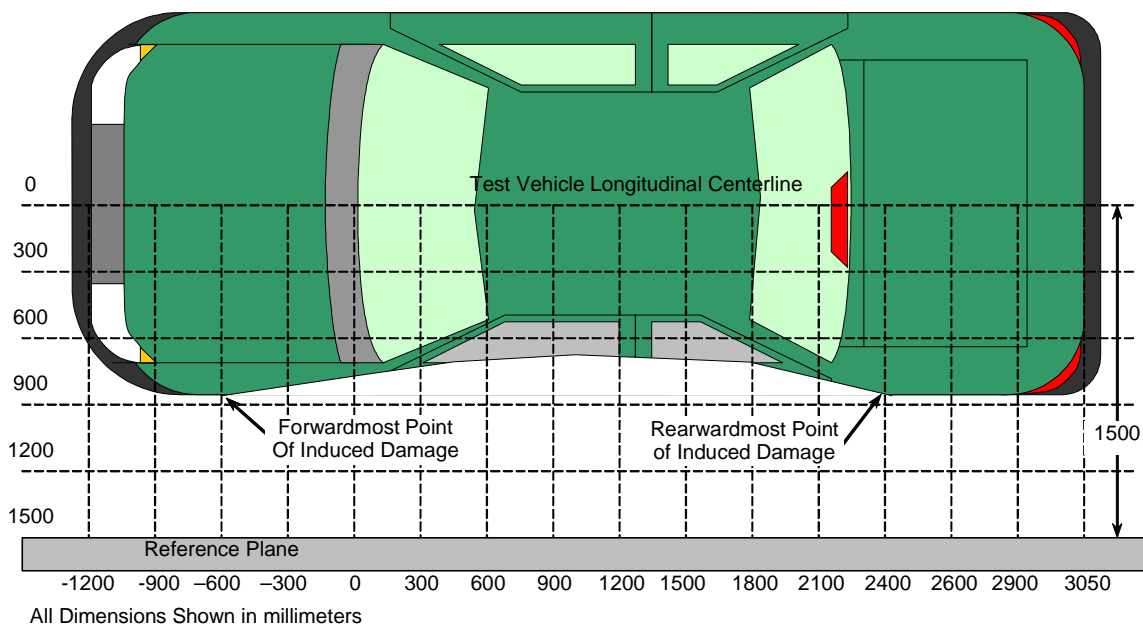
NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000
LEVEL 1 SIDE SILL	325	PRE	--	--	--	--	--	--	--	137	136	135	134	133	131	131	132	133	133	133	134	--	--	--	--	--	--	--	--
		POST	--	--	--	--	--	--	--	232	240	244	249	251	254	253	261	260	259	262	244	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95	104	109	115	118	123	122	129	127	126	129	110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	641	PRE	89	--	--	--	--	--	68	89	87	83	81	79	79	79	80	80	81	82	75	66	--	--	--	--	83	131	185
		POST	76	--	--	--	--	--	87	272	284	280	295	295	296	293	293	299	325	332	278	158	--	--	--	--	82	122	179
		CRUSH	-13	N/A	N/A	N/A	N/A	N/A	19	183	197	197	214	216	217	214	213	219	244	250	203	92	N/A	N/A	N/A	N/A	N/A	-1	-9
LEVEL 3 MID DOOR	781	PRE	116	78	63	--	62	67	84	86	80	76	73	71	70	70	70	71	73	75	77	67	62	--	64	71	102	140	231
		POST	102	65	48	--	29	33	92	216	272	295	304	309	312	296	299	332	343	329	281	205	120	--	90	88	105	138	227
		CRUSH	-14	-13	-15	N/A	-33	-34	8	130	192	219	231	238	242	226	229	261	270	254	204	138	58	N/A	26	17	3	-2	-4
LEVEL 4 WINDOW SILL	999	PRE	466	349	284	231	191	170	156	144	135	126	118	113	108	105	102	101	100	100	101	105	107	105	113	127	140	160	247
		POST	452	336	273	222	182	157	161	158	164	169	175	180	184	190	221	219	225	253	202	147	127	140	134	131	140	156	244
		CRUSH	-14	-13	-11	-9	-9	-13	5	14	29	43	57	67	76	85	119	118	125	153	101	42	20	35	21	4	0	-4	-3
LEVEL 5 WINDOW TOP	1555	PRE	--	--	--	--	--	--	--	--	--	--	--	--	387	370	366	369	372	380	392	406	427	--	--	--	--	--	--
		POST	--	--	--	--	--	--	--	--	--	--	--	--	385	370	370	374	379	387	398	408	430	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2	0	4	5	7	7	6	2	3	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006



TOP VIEW

DAMAGE PROFILE DISTANCES

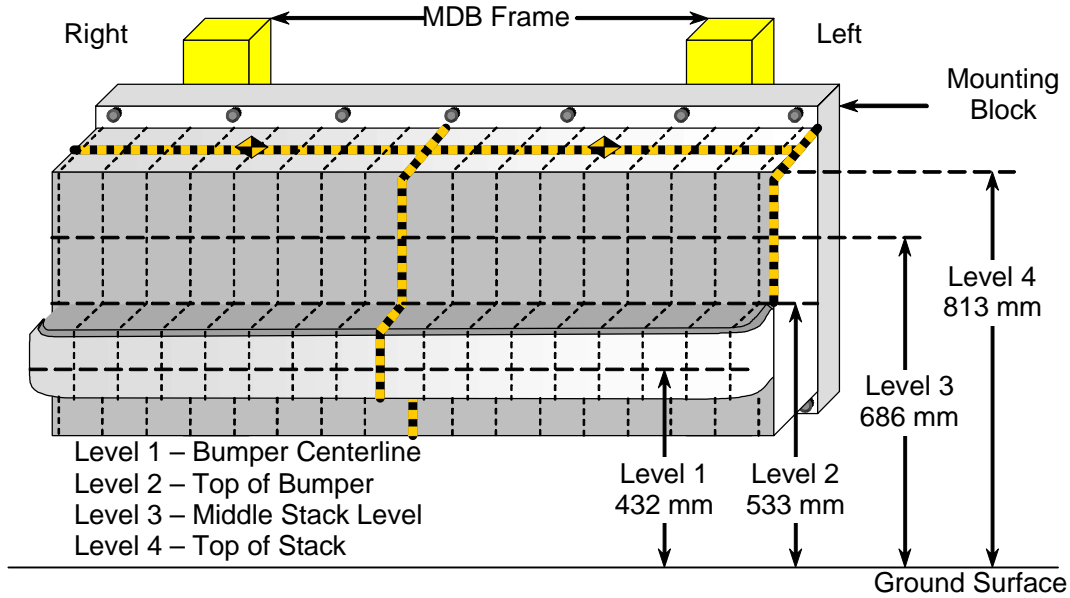
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1 (LR)	2720	781	107	109	2
2	2170	999	106	133	27
3	1620	781	75	332	257
4	1070	781	70	296	226
5	520	781	75	299	224
6 (LF)	-30	999	159	160	1

Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to vehicle body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006



NOTE: All dimensions are in millimeters with a tolerance of ±3 mm

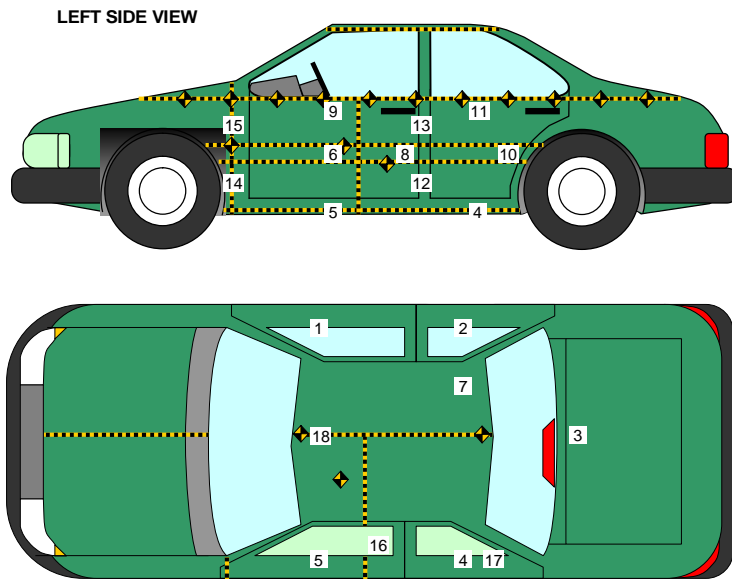
LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)									0	DISTANCE LEFT OF CENTER (mm)								
			800	700	600	500	400	300	200	100	100		200	300	400	500	600	700	800		
LEVEL 4 TOP STACK	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	676	656	641	635	650	679	694	670	655	656	664	672	680	683	691	727	772		
		CRUSH	57	37	22	16	31	60	75	51	36	37	45	53	61	64	72	108	153		
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	672	654	650	656	666	668	688	669	659	650	647	643	647	656	670	684	698		
		CRUSH	53	35	31	37	47	49	69	50	40	31	28	24	28	37	51	65	79		
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	758	751	746	742	738	735	729	725	719	718	717	715	714	713	711	715	737		
		CRUSH	139	132	127	123	119	116	110	106	100	99	98	96	95	94	92	96	118		
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535		
		POST	716	695	683	675	673	672	669	667	663	660	659	657	655	649	653	652	639		
		CRUSH	181	176	165	157	155	154	151	149	145	142	141	139	137	131	135	133	104		

*Heights measured above ground level.

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle:	2007 Mazda CX-7	NHTSA No.	M75401
Test Program:	NCAP Side Impact	Test Date:	July 13, 2006



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2845	668	-375
2	Right Sill at Rear Seat	1964	666	-352
3	Rear Floorpan Above Axle	1089	-13	-545
4	Left Sill at Rear Door	1923	-671	-385
5	Left Sill at Front Door	2875	-671	-377
6	Left Front Door C/L**	-	-	-
7	Rear Occupant Compartment	1959	-344	-338
8	Left Front Door Mid-Rear**	-	-	-
9	Left Front Door Upper C/L**	-	-	-
10	Left Rear Door Mid-Rear**	-	-	-
11	Left Rear Door Upper C/L**	-	-	-
12	Left Lower B-Post	2091	-695	-571
13	Left Middle B-Post	1993	-691	-1025
14	Left Lower A-Post	3161	-616	-659
15	Left Middle A-Post	3202	-670	-1128
16	Front Seat Track	2206	-559	-427
17	Rear Seat Track or Structure	1217	-503	-546
18	Vehicle CG	2512	2	-629

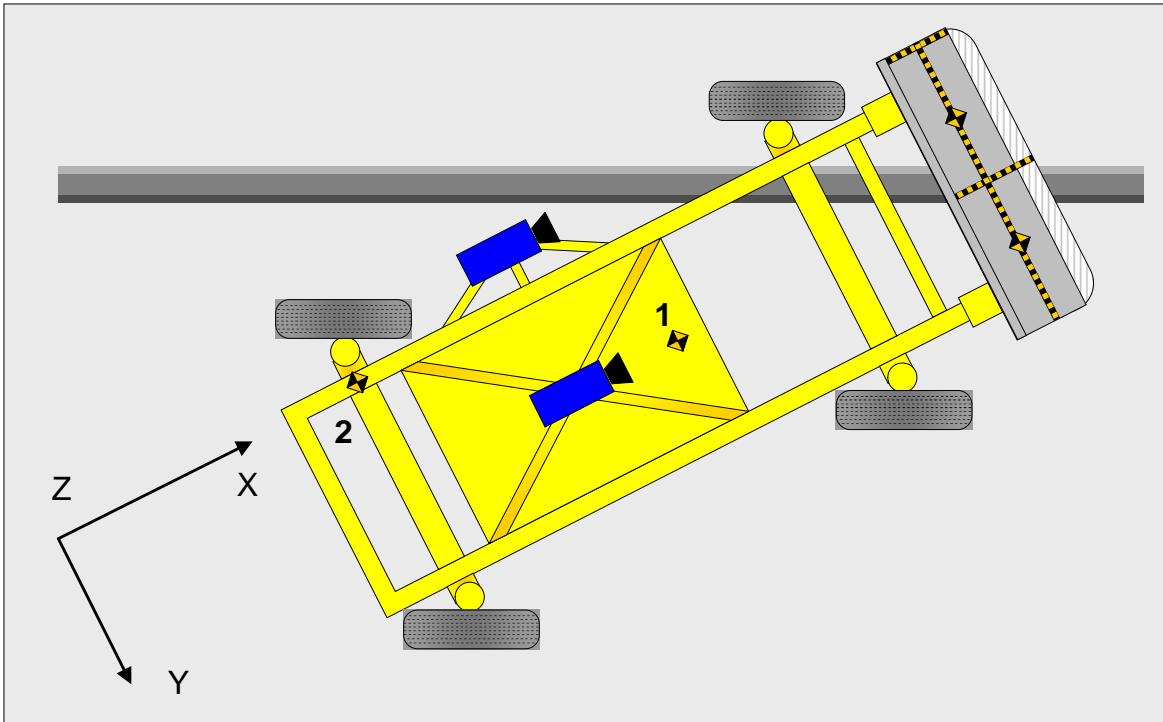
Reference Points X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

** Accelerometer was not requested by the COTR.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference Points X - MDB Rear Bumper (+ forward)
 Y - MDB Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 15**VEHICLE STRUCTURAL MEASUREMENTS**

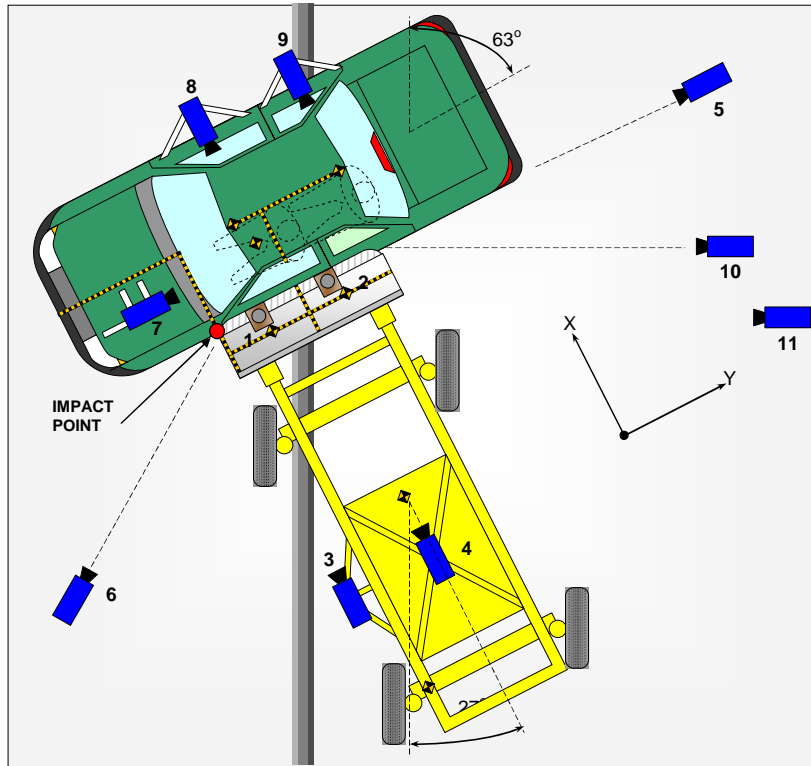
Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006

	Elements	Pre-Test (mm)
1	Total Length	4680
2	Total Width	1862
3	Bumper Top Height	649
4	Bumper Bottom Height	549
5	Longitudinal Member Top Height	630
6	Distance between Longitudinal Members	930
7	Longitudinal Member Width	75
8	Engine Top Height	680
9	Engine Bottom Height	220
10	Engine and gearbox width	900
11	Front bumper-engine distance	520
12	Front shock absorber fixing height	1020
13	Bonnet leading edge height	855
14	Front shock absorber fixing width	1200
15	Front bumper – front axle distance	983
16	Front axle – a pillar distance	480
17	A-pillar – B-pillar distance	1090
18	B-Pillar – rear axle distance	1770
19	B-pillar – C-pillar distance	702
20	Roof sill bottom height	1525
21	Roof sill top height	1605
22	Floor sill bottom height	282
23	Floor sill top height	460

DATA SHEET NO. 16

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2007 Mazda CX-7 NHTSA No. M75401
 Test Program: NCAP Side Impact Test Date: July 13, 2006



No.	Camera View	Location (mm)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Overall	72	812	-4880	-90	8	1000
2	Overhead Close-up	195	855	-4880	-90	28	1000
3	MDB Onboard, Impact Point Close-up	-1470	0	-847	0	13	1000
4	MDB Onboard, Centerline of Impact	-1140	838	-1587	-17	7.5	1000
5	Right Side, Ground Level, Overall	120	10530	-986	-2	50	1000
6	Left Side, Ground Level, Overall	-1950	-1740	-970	-4	24	1000
7	Vehicle Onboard Front SID/HIII, Front	495	-655	-1408	-7	25	1000
8	Vehicle Onboard Front SID/HIII, Side	1820	782	-1175	-8	12.5	1000
9	Vehicle Onboard Rear SID/HIII, Side	1758	1600	-1205	-10	12.5	1000
10	Secondary Impact Point	-4470	3425	-1104	-3	25	1000
11	Real Time Coverage						30

Reference Points X - Impact Line
 Y - MDB Left Edge Impact Point
 Z - Ground Plane

APPENDIX A
PHOTOGRAPHS

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A-43	Pre-Test Left Front Interior Trim	A-25
A-44	Post-Test Left Front Interior Trim	A-25
A-45	Pre-Test Left Rear Interior Trim	A-26
A-46	Post-Test Left Rear Interior Trim	A-26
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A-55	Impact Photo	A-31



Figure A-1: As Received Left Front $\frac{3}{4}$ View



Figure A-2: As Received Right Rear $\frac{3}{4}$ View

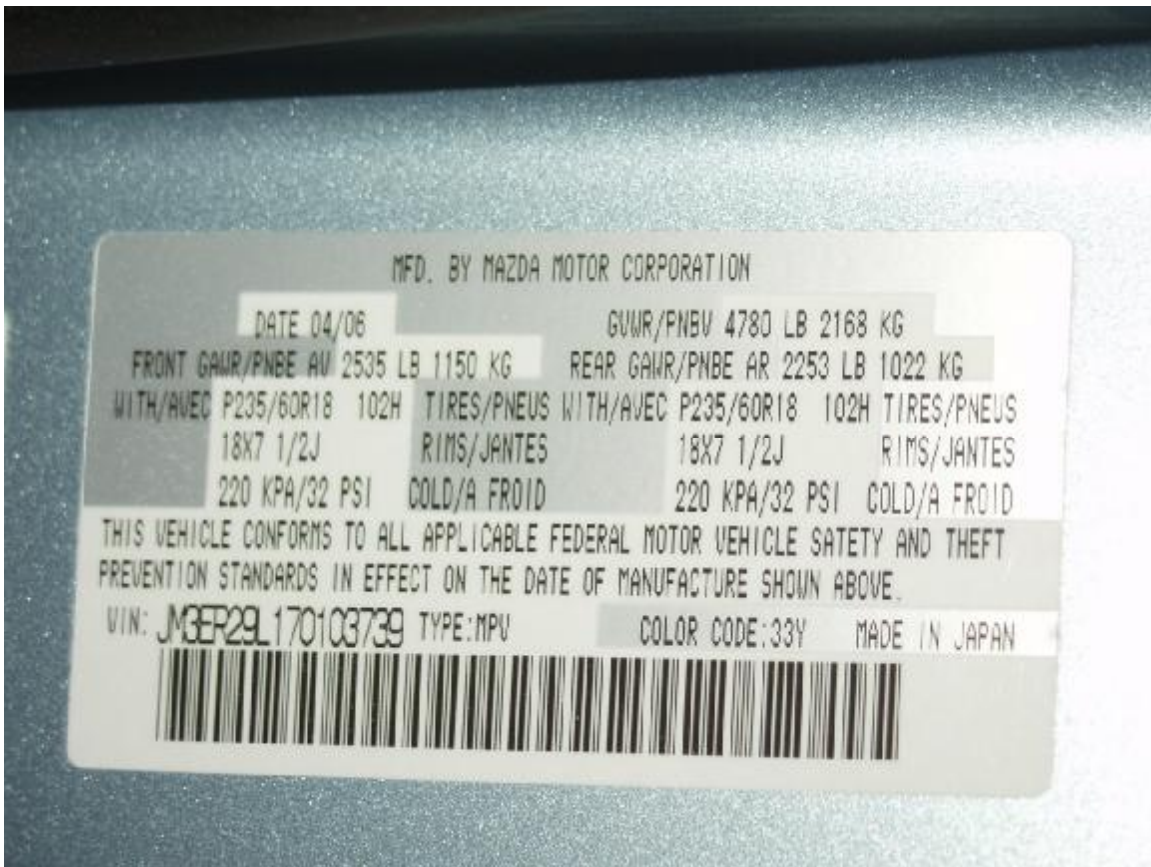


Figure A-3: Vehicle Certification Label



Figure A-4: Vehicle Tire Placard Label



Figure A-5: Pre-Test Front View



Figure A-6: Post-Test Front View



Figure A-7: Pre-Test Left Front $\frac{3}{4}$ View



Figure A-8: Post-Test Left Front $\frac{3}{4}$ View



Figure A-9: Pre-Test Left Side View



Figure A-10: Post-Test Left Side View



Figure A-11: Pre-Test Left Rear $\frac{3}{4}$ View



Figure A-12: Post-Test Left Rear $\frac{3}{4}$ View



Figure A-13: Pre-Test Rear View



Figure A-14: Post-Test Rear View



Figure A-15: Pre-Test Right Rear $\frac{3}{4}$ View

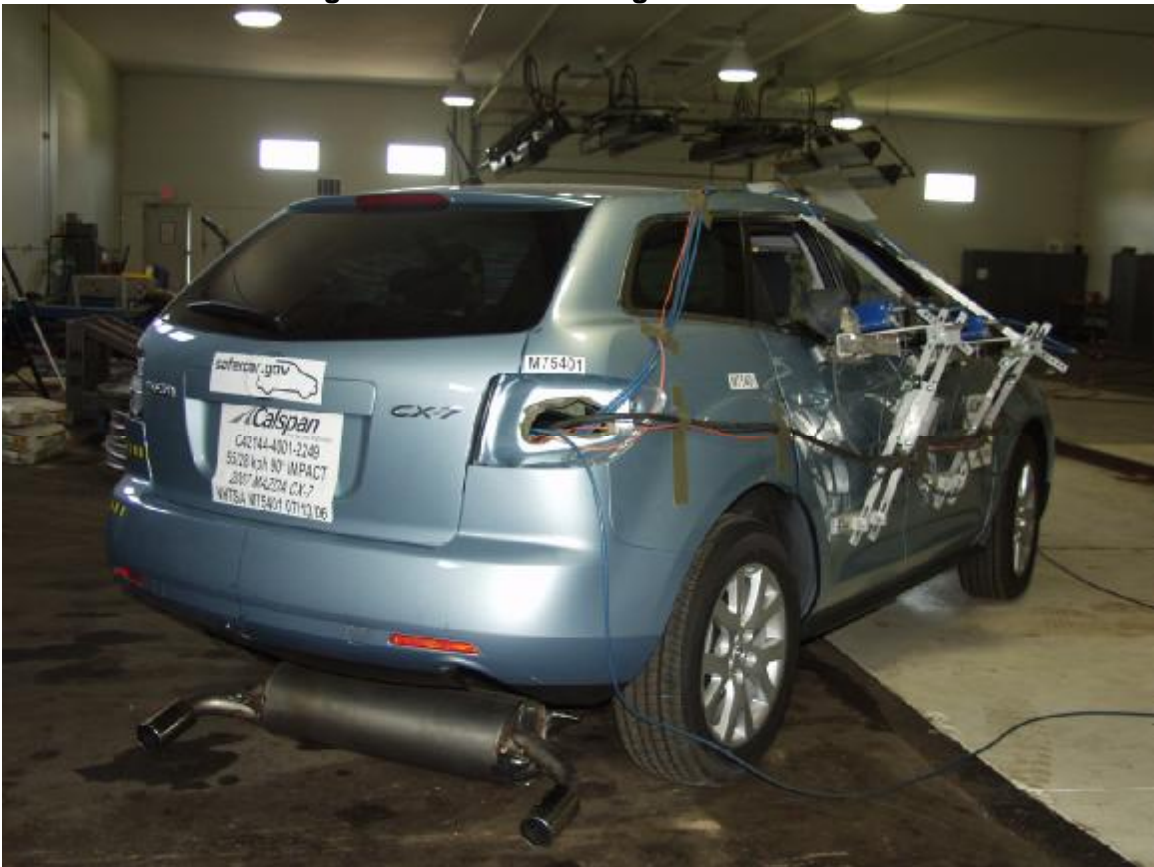


Figure A-16: Post-Test Right Rear $\frac{3}{4}$ View



Figure A-17: Pre-Test Right Side View



Figure A-18: Post-Test Right Side View



Figure A-19: Pre-Test Right Front $\frac{3}{4}$ View



Figure A-20: Post-Test Right Front $\frac{3}{4}$ View



Figure A-21: Pre-Test Frontal View of MDB Impactor Face



Figure A-22: Post-Test Frontal View of MDB Impactor Face



Figure A-23: Pre-Test Left Side View of MDB Impactor Face



Figure A-24: Post-Test Left Side View of MDB Impactor Face



Figure A-25: Pre-Test Right Side View of MDB Impactor Face



Figure A-26: Post-Test Right Side View of MDB Impactor Face



Figure A-27: Pre-Test Top View of MDB Impactor Face



Figure A-28: Post-Test Top View of MDB Impactor Face



Figure A-29: Pre-Test Left Side View of Aligned MDB and Vehicle



Figure A-30: Pre-Test Right Side View of Aligned MDB and Vehicle



Figure A-31: Pre-Test Overhead View of Aligned MDB and Vehicle

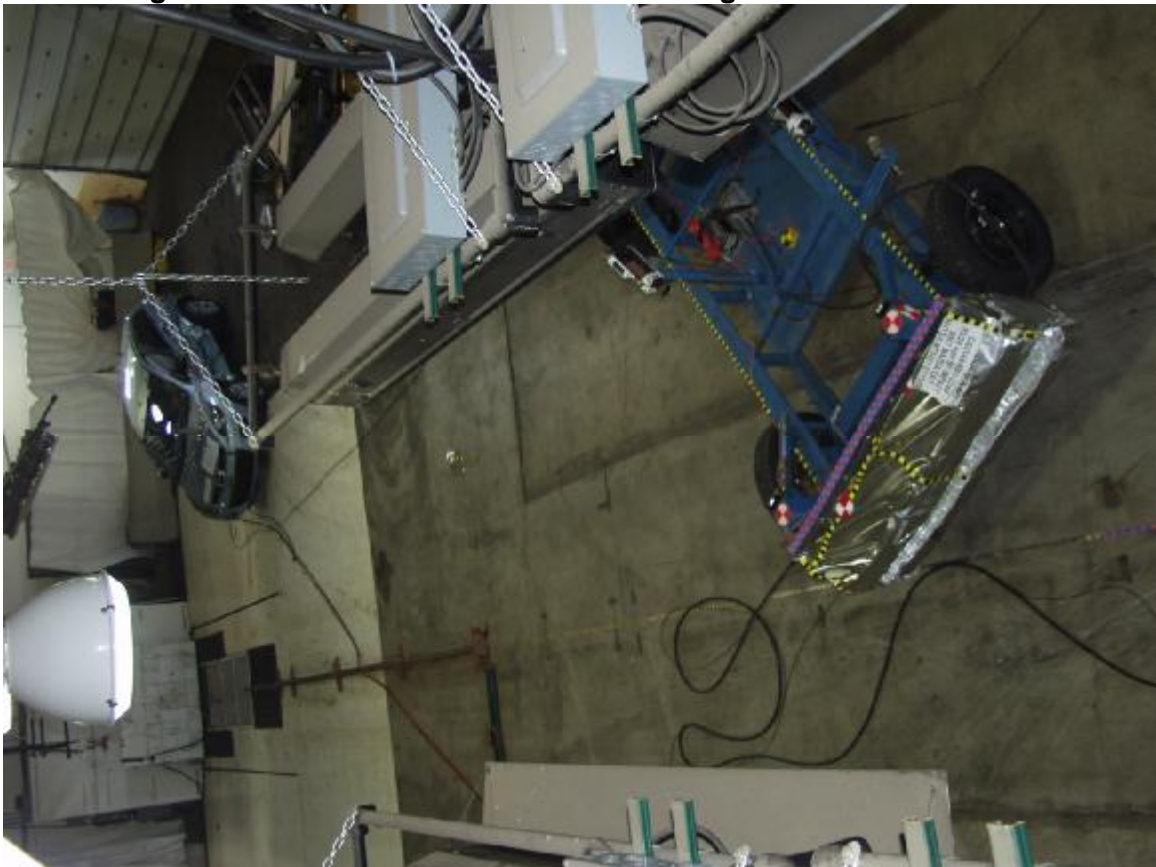


Figure A-32: Post-Test Overhead View of MDB and Vehicle



Figure A-33: Pre-Test Close-Up View of Impact Point Target



Figure A-34: Post-Test Close-Up View of Impact Point Target



Figure A-35: Pre-Test Right Occupant Compartment View of Driver



Figure A-36: Post-Test Right Occupant Compartment View of Driver



Figure A-37: Pre-Test Right Occupant Compartment View of Passenger



Figure A-38: Post-Test Right Occupant Compartment View of Passenger



Figure A-39: Pre-Test Left Occupant Compartment View of Driver



Figure A-40: Post-Test Left Occupant Compartment View of Driver



Figure A-41: Pre-Test Left Occupant Compartment View of Passenger



Figure A-42: Post-Test Left Occupant Compartment View of Passenger



Figure A-43: Pre-Test Left Front Interior Trim



Figure A-44: Post-Test Left Front Interior Trim



Figure A-45: Pre-Test Left Rear Interior Trim



Figure A-46: Post-Test Left Rear Interior Trim



Figure A-47: Pre-Test Left Front ¾ View of Left Side Doors



Figure A-48: Post-Test Left Front ¾ View of Left Side Doors



Figure A-49: Pre-Test Left Rear $\frac{3}{4}$ View of Left Side Doors



Figure A-50: Post-Test Left Rear $\frac{3}{4}$ View of Left Side Doors



Figure A-51: Rollover 90 Degrees



Figure A-52: Rollover 180 Degrees



Figure A-53: Rollover 270 Degrees



Figure A-54: Rollover 360 Degrees



Figure A-55: Impact Photo

APPENDIX B
SID/HIII, VEHICLE AND MDB RESPONSE DATA
(SAE sign convention)

DATA CHANNEL FILTER CLASS SUMMARY

Data Type	SAE Filter Class
Dummy Head Accelerations	CFC 1000
Rib Accelerations	FIR 100
Spine Accelerations	FIR 100
Pelvis Accelerations	FIR 100

DATA CHANNEL TITLE KEY

Prefix	Suffix
V1 = Vehicle 1 (Moving Barrier)	Ax = Acceleration, X-direction
V2 = Vehicle 2 (Test Vehicle)	Ay = Acceleration, Y-direction
P1 = Left Front Seating Position (Driver)	Az = Acceleration, Z-direction
P4 = Left Second Row Seating Position (Passenger)	Fx = Force, X-direction
A1-A18 = Accelerometer Location Number	Fy = Force, Y-direction
	Fz = Force, Z-direction
	Mx = Moment about X
	My = Moment about Y
	Mz = Moment about Z

TABLE OF DATA PLOTS

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V2P1 Head Ax [g, CFC_1000]	B-5
2	V2P1 Head Ay [g, CFC_1000]	B-5
3	V2P1 Head Az [g, CFC_1000]	B-5
4	V2P1 Head Ar [g, CFC_1000]	B-5
5	V1P1 Upper Rib Ay [g, FIR_100]	B-6
6	V1P1 Lower Rib Ay [g, FIR_100]	B-6
7	V1P1 Lower Spine Ay [g, FIR_100]	B-6
8	V1P1 Pelvic Ay [g, FIR_100]	B-6
9	V2P4 Head Ax [g, CFC_1000]	B-7
10	V2P4 Head Ay [g, CFC_1000]	B-7
11	V2P4 Head Az [g, CFC_1000]	B-7
12	V2P4 Head Ar [g, CFC_1000]	B-7
13	V1P4 Upper Rib Ay [g, FIR_100]	B-8
14	V1P4 Lower Rib Ay [g, FIR_100]	B-8
15	V1P4 Lower Spine Ay [g, FIR_100]	B-8
16	V1P4 Pelvic Ay [g, FIR_100]	B-8

The following dummy, vehicle and load cell response data can be found in the research and development section of the NHTSA website at: www.nhtsa.dot.gov

V2P1 Head Ax	V2A1 Right Front Sill Ax
V2P1 Head Ay	V2A1 Right Front Sill Ay
V2P1 Head Az	V2A1 Right Front Sill Az
V2P1 Upper Neck Fx	V2A2 Right Rear Sill Ax
V2P1 Upper Neck Fy	V2A2 Right Rear Sill Ay
V2P1 Upper Neck Fz	V2A2 Right Rear Sill Az
V2P1 Upper Neck Mx	V2A3 Rear Floorpan Ax
V2P1 Upper Neck My	V2A3 Rear Floorpan Ay
V2P1 Upper Neck Mz	V2A3 Rear Floorpan Az
V2P1 Upper Rib Ay	V2A4 Left Rear Sill Ay
V2P1 Upper Rib Redundant Ay	V2A5 Left Front Sill Ay
V2P1 Lower Rib Ay	V2A7 Right Rear Compartment Ay
V2P1 Lower Rib Redundant Ay	V2A12 Left Lower B Post Ay
V2P1 Lower Spine Ay	V2A13 Left Mid B Post Ay
V2P1 Lower Spine Redundant Ay	V2A14 Left Lower A Post Ay
V2P1 Pelvic Ay	V2A15 Left Mid A Post Ay
V2P1 Pelvic Redundant Ay	V2A16 Front Seat Track Ay
V2P4 Head Ax	V2A17 Rear Seat Track Ay
V2P4 Head Ay	V2A18 Target CG Ax
V2P4 Head Az	V2A18 Target CG Ay
V2P4 Upper Neck Fx	V2A18 Target CG Az
V2P4 Upper Neck Fy	V1 Moving Barrier CG Ax
V2P4 Upper Neck Fz	V1 Moving Barrier CG Ay
V2P4 Upper Neck Mx	V1 Moving Barrier CG Az
V2P4 Upper Neck My	V1 Moving Barrier Left Rail Ax
V2P4 Upper Neck Mz	V1 Moving Barrier Left Rail Ay
V2P4 Upper Rib Ay	
V2P4 Upper Rib Redundant Ay	
V2P4 Lower Rib Ay	
V2P4 Lower Rib Redundant Ay	
V2P4 Lower Spine Ay	
V2P4 Lower Spine Redundant Ay	
V2P4 Pelvic Ay	
V2P4 Pelvic Redundant Ay	

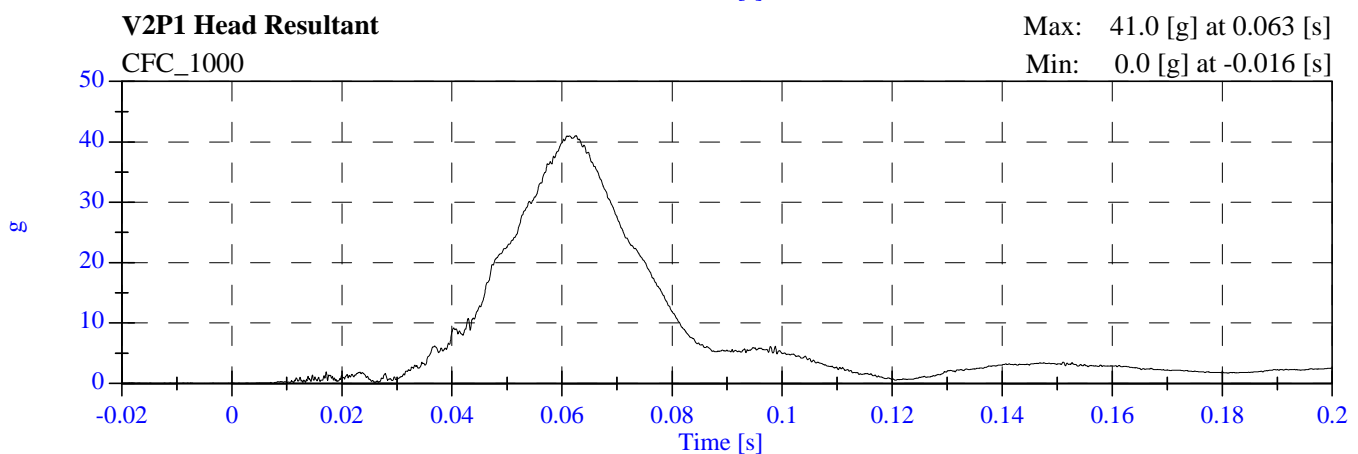
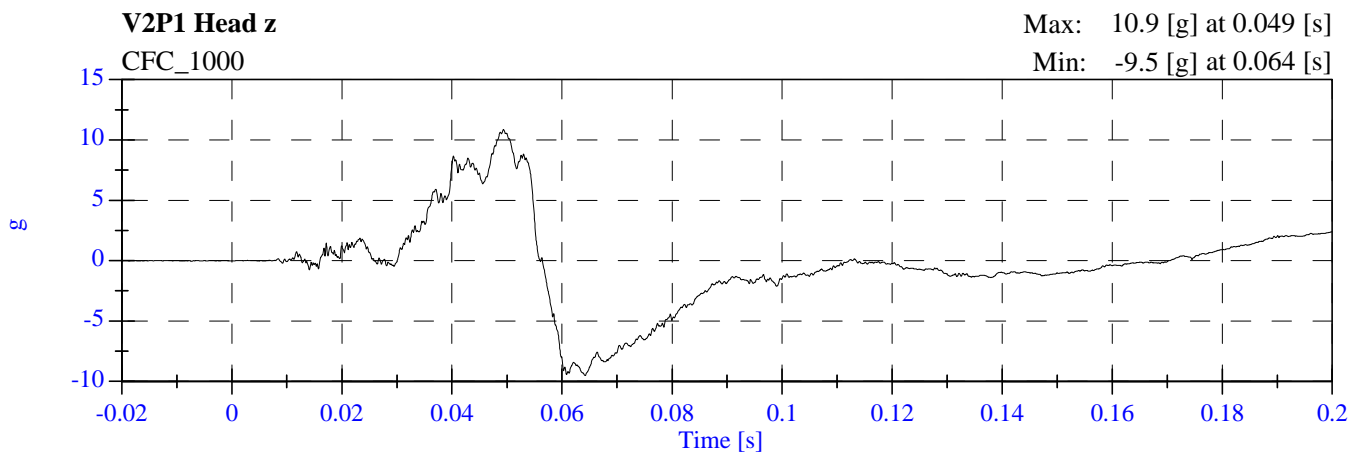
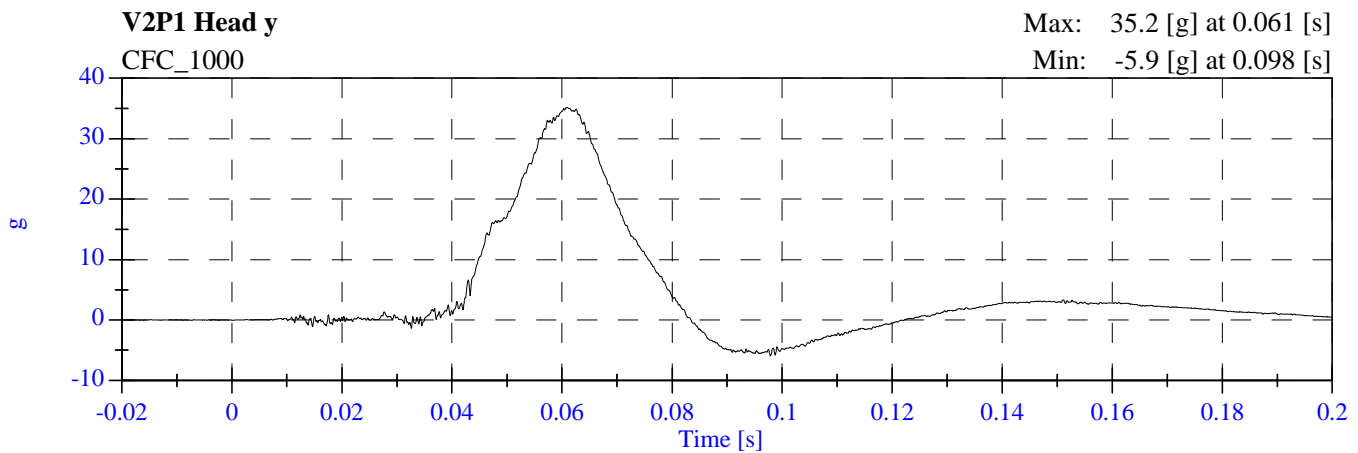
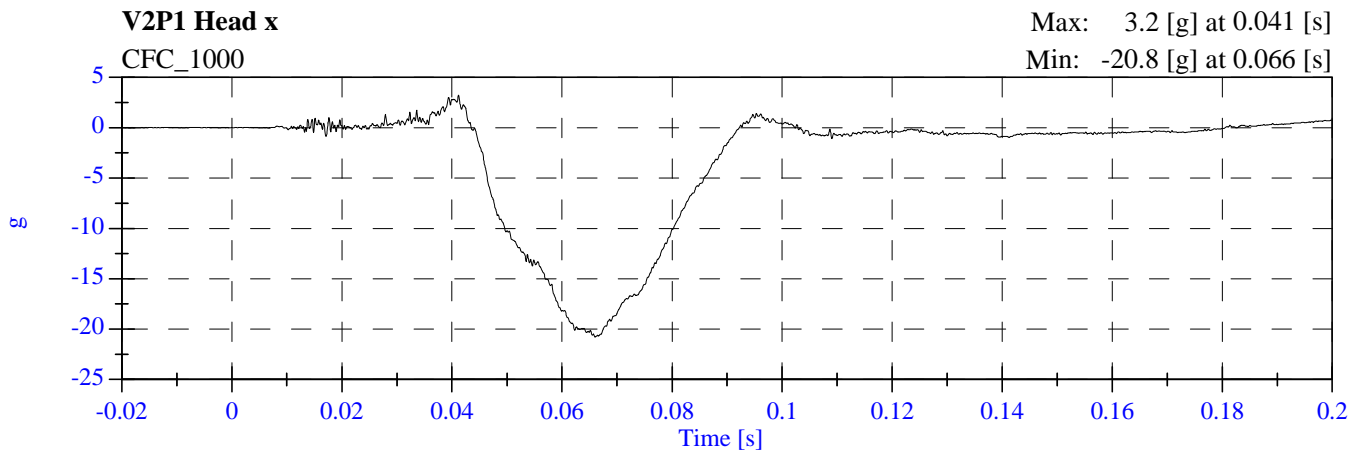
TEST NOTES

The following data anomalies occurred:

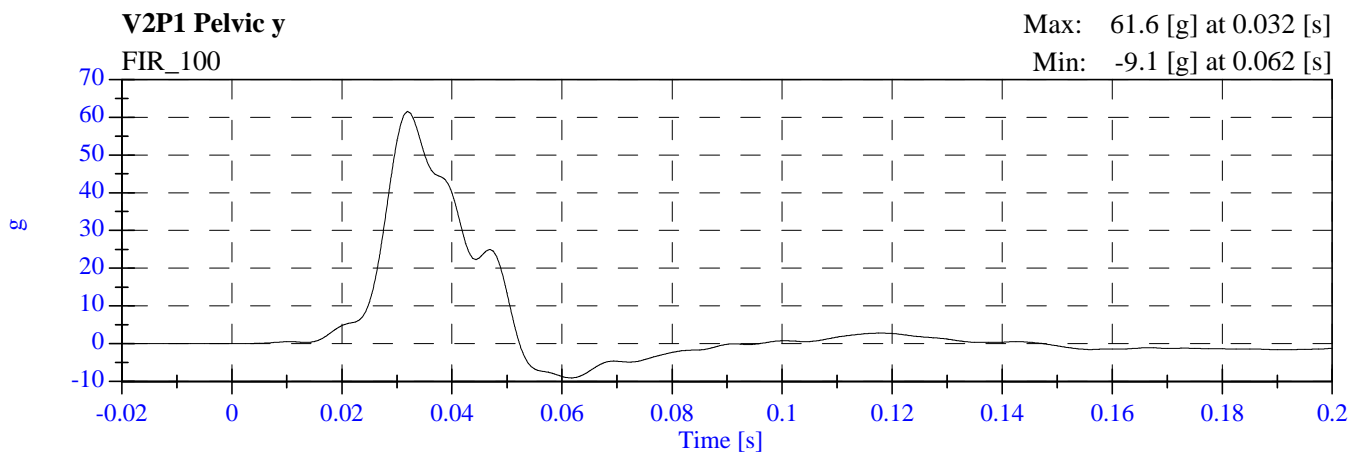
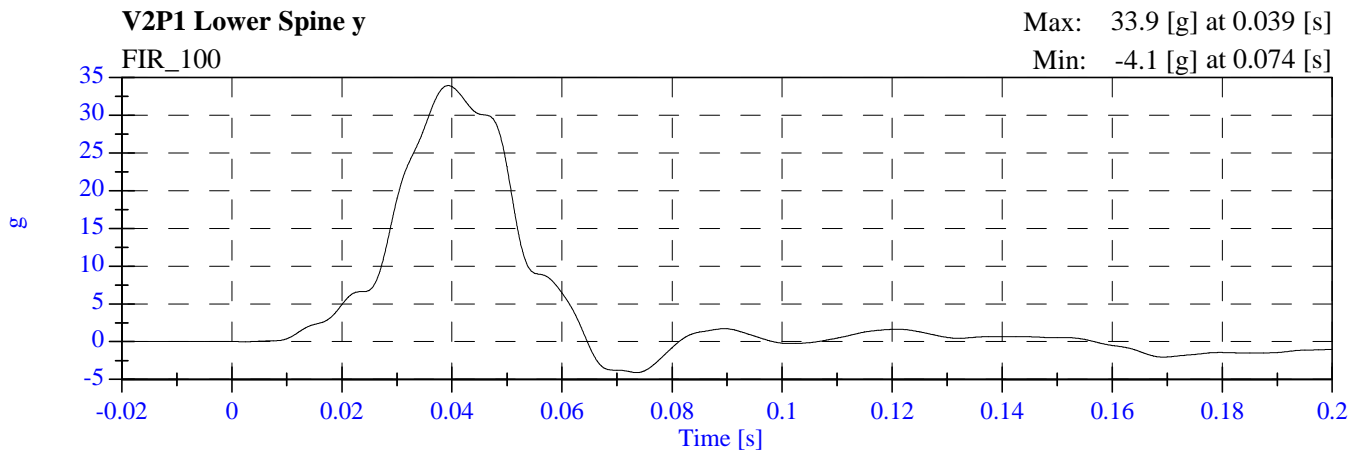
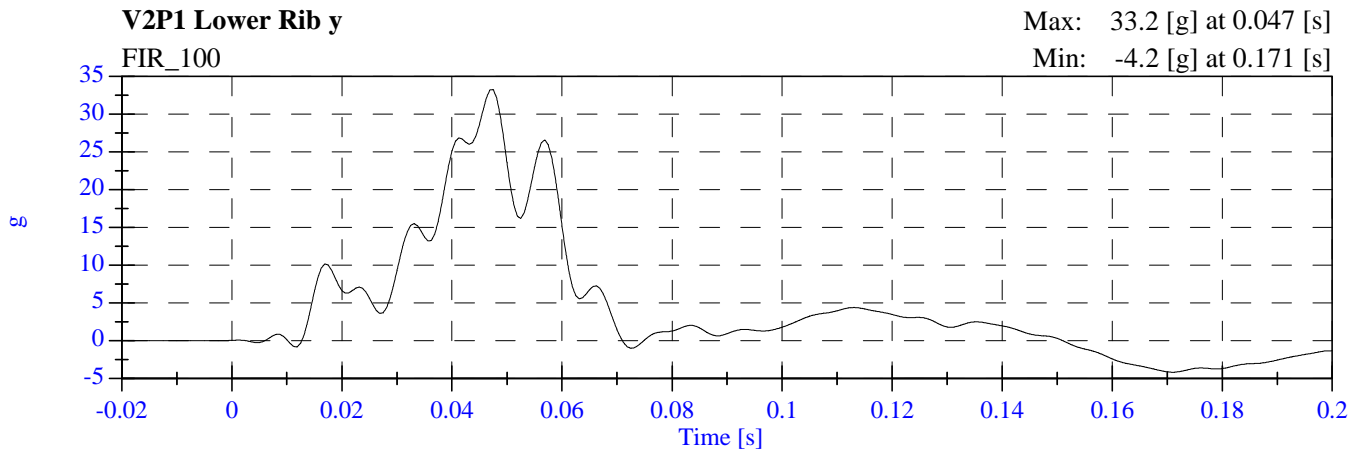
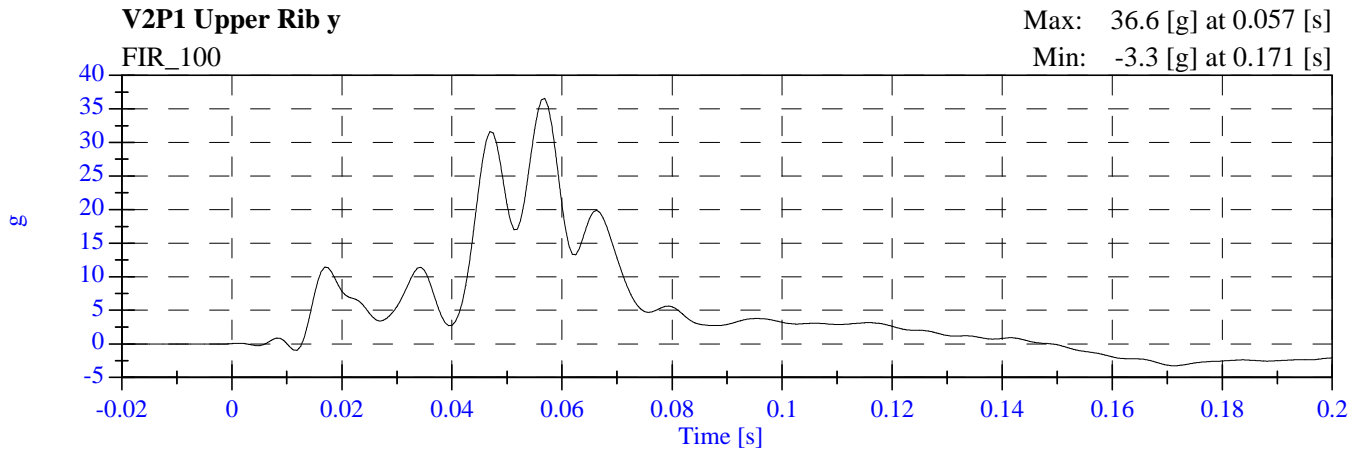
V2P1 Pelvic Ay: Questionable data from 36 to 47 ms.

V2P1 Pelvic Redundant Ay: Questionable data from 36 to 47 ms.

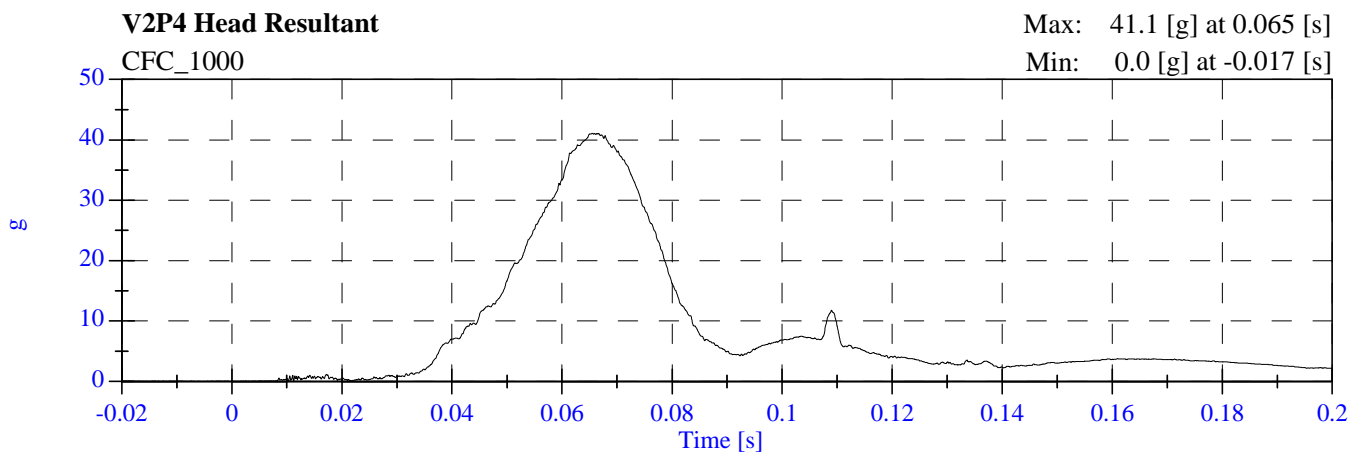
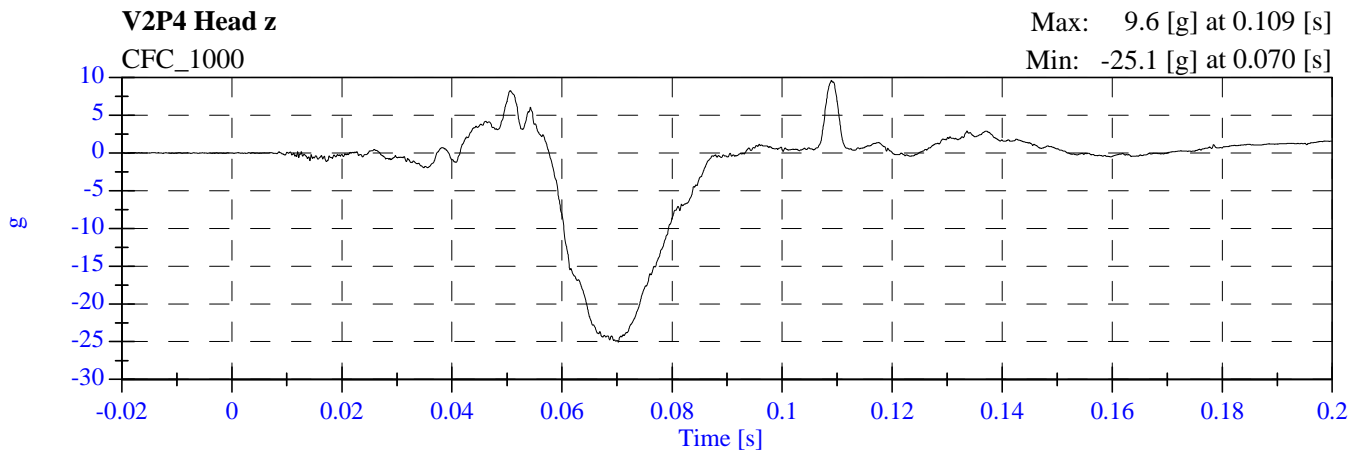
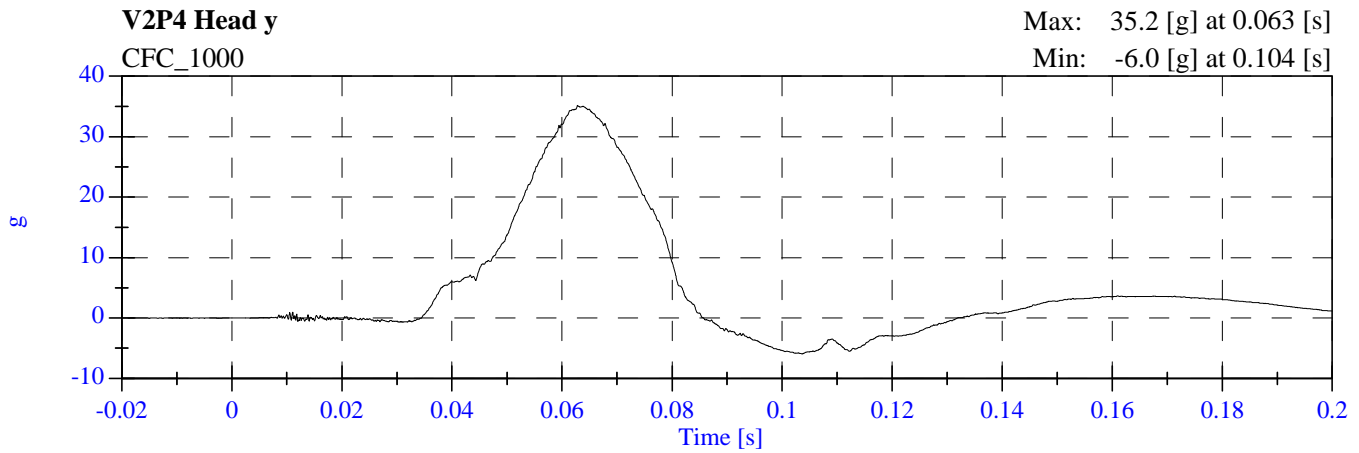
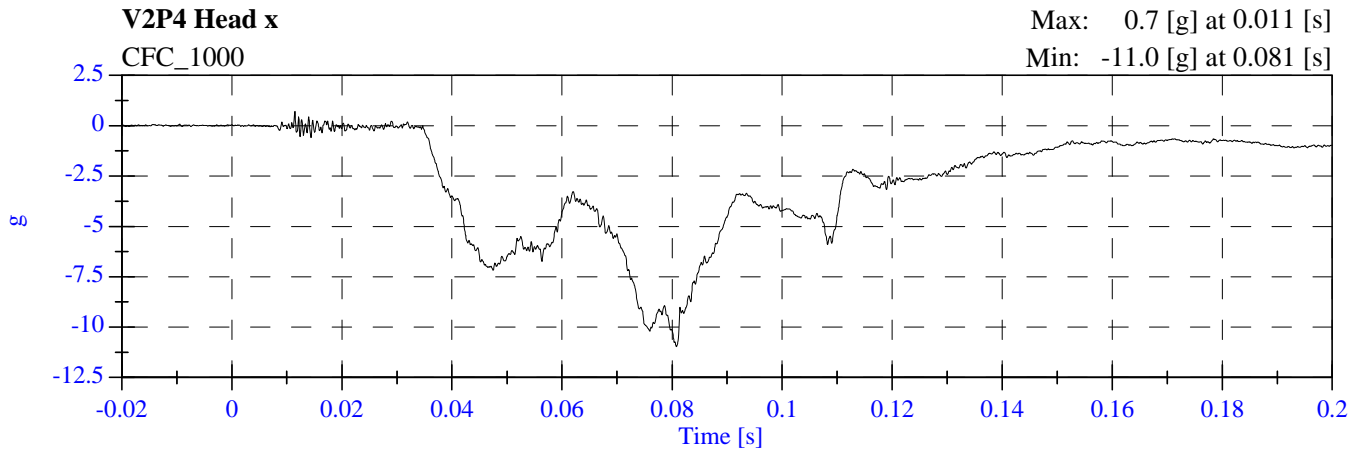
SNCAP Test 1 - 2007 Mazda CX-7 M75401 - July 13, 2006



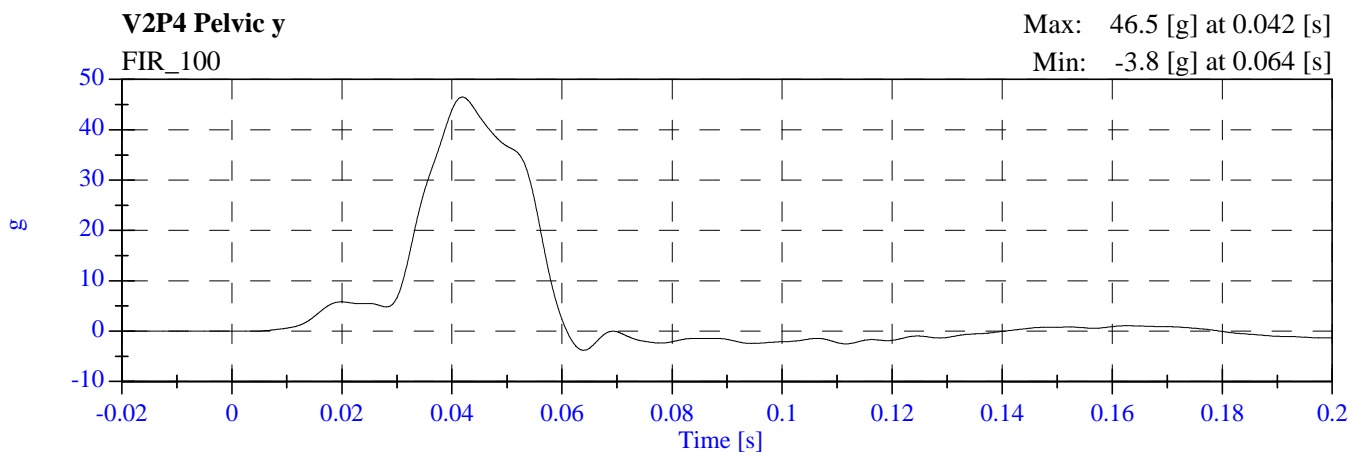
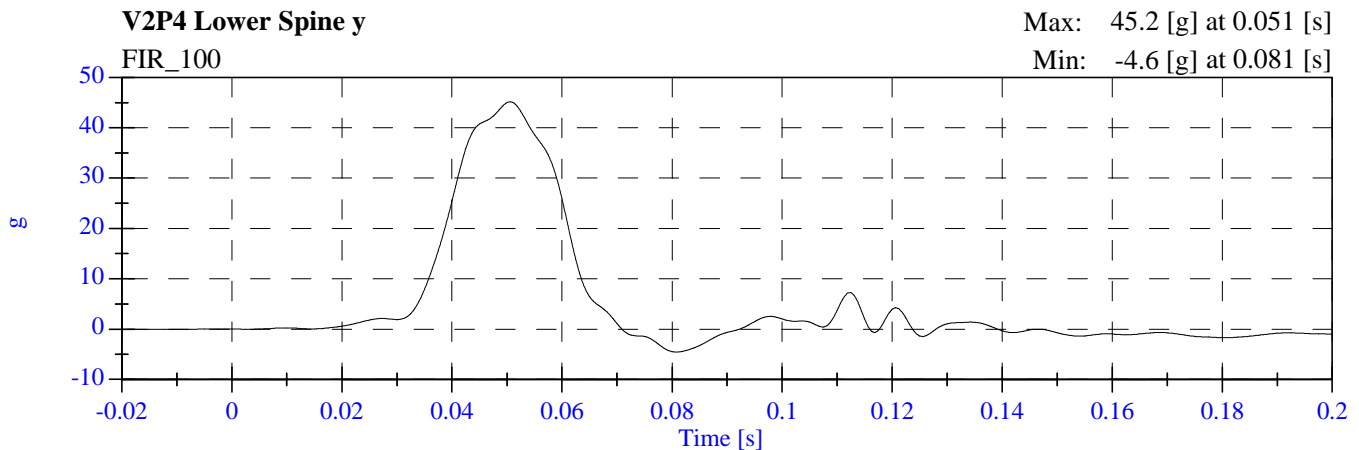
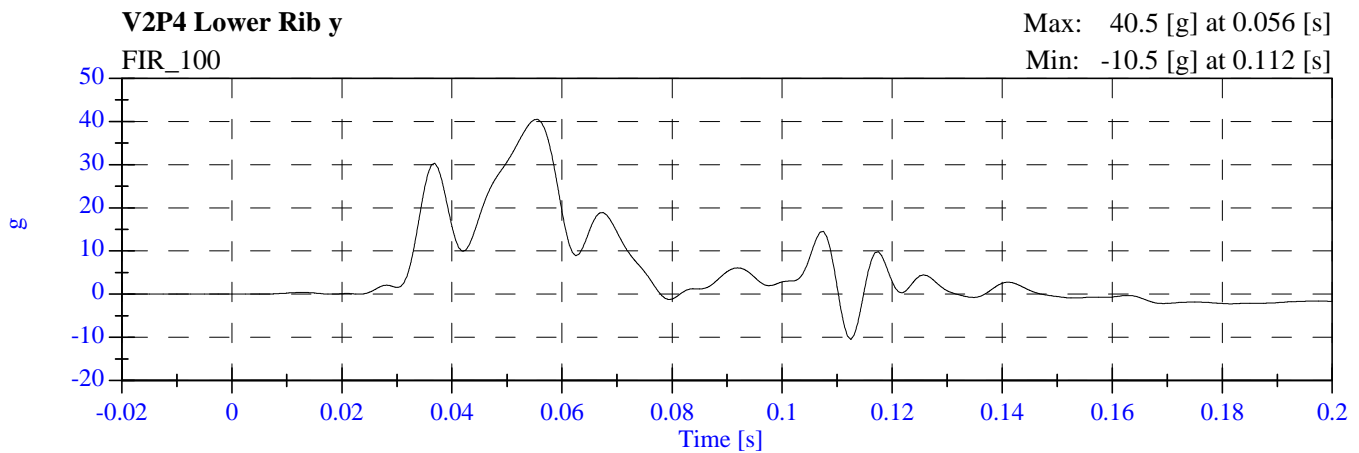
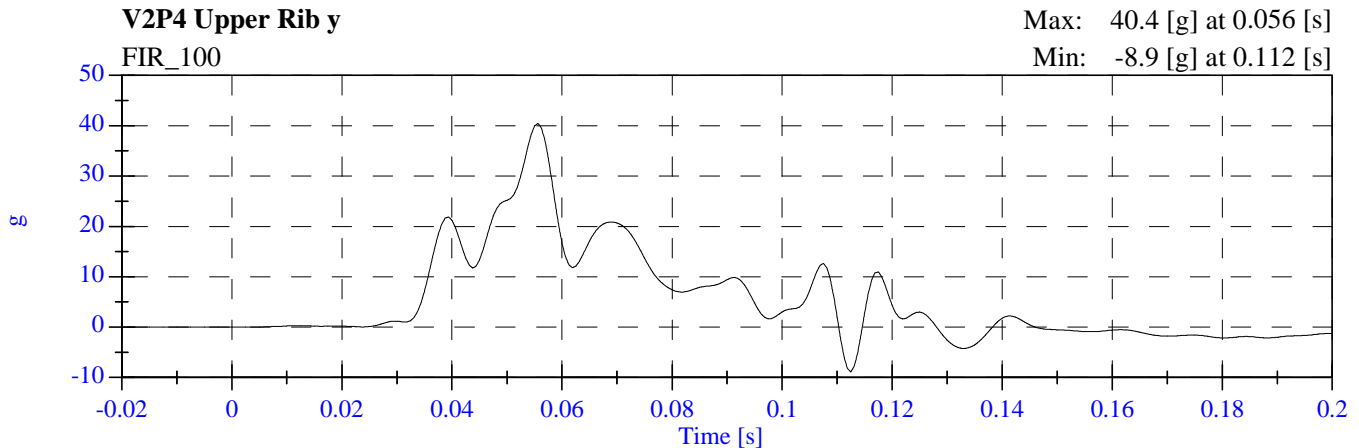
SNCAP Test 1 - 2007 Mazda CX-7 M75401 - July 13, 2006



SNCAP Test 1 - 2007 Mazda CX-7 M75401 - July 13, 2006



SNCAP Test 1 - 2007 Mazda CX-7 M75401 - July 13, 2006



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: April 3, 2006; April 3, 2006

Sequential Test Number:

1.5; 1.4

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 NO.: 905		SID H3 NO.: 906	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	904	905	907	907
RH- Rib Height (mm)	501 - 521	516	516	516	516
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	241	241	241	241
KV- Knee Pivot from Back Line (mm)	511 - 526	521	521	518	518
SW- Knee Pivot to Floor (mm)	490 - 505	493	493	493	493
HW- Hip Width (mm)	356 - 391	371	372	381	381
THORAX IMPACTS					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	31.0	50.0	31.0	50.0
PROBE SPEED (m/s)	4.27 - 4.33	4.27	4.33	4.32	4.31
UPPER RIB (g's)	37 - 46	39.70	43.78	45.02	42.07
LOWER RIB (g's)	37 - 46	38.07	43.50	44.08	40.80
LOWER SPINE (g's)	15 - 22	20.97	21.95	21.93	21.01
PELVIS IMPACT					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	31.0	50.0	31.0	50.0
PROBE SPEED (m/s)	4.27 - 4.33	4.30	4.32	4.31	4.29
PELVIS (g's)	40 - 60	42.98	44.51	42.22	51.96

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 905

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
Date: April 3, 2006 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
Date: April 3, 2006 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	904
RH- Rib Height (mm)	502 – 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	241
KH- Knee Pivot from Back Line (mm)	511 – 526	521
KV- Knee Pivot to Floor (mm)	490 – 505	493
HW- Hip Width (mm)	356 - 391	371

REMARKS: None

Shock Impact (3.05 m/s)

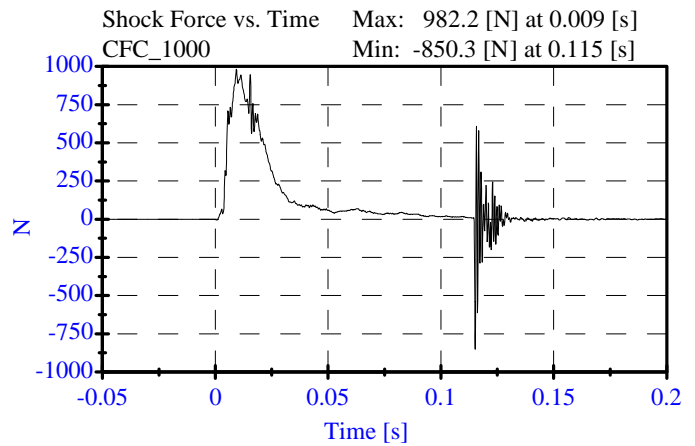
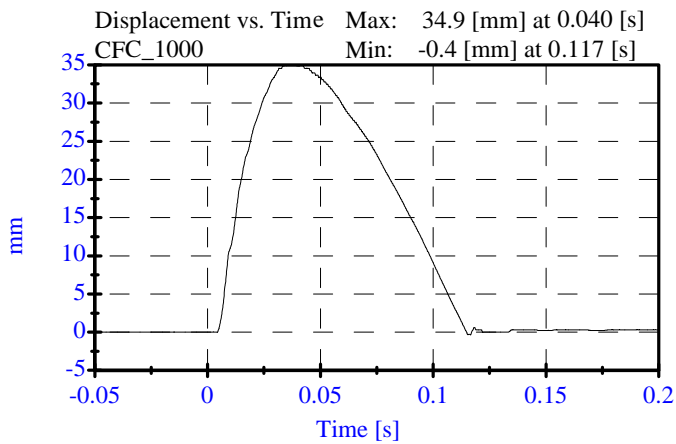
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: January 2, 2006

Sequential Test Number: 1 File: 905SL 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	30.00-35.00 mm	34.87 mm	Passed
Maximum Force:	836.00-1125.00 N	982.25 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	905		
Damper Setting:	5		



Shock Impact (4.27 m/s)

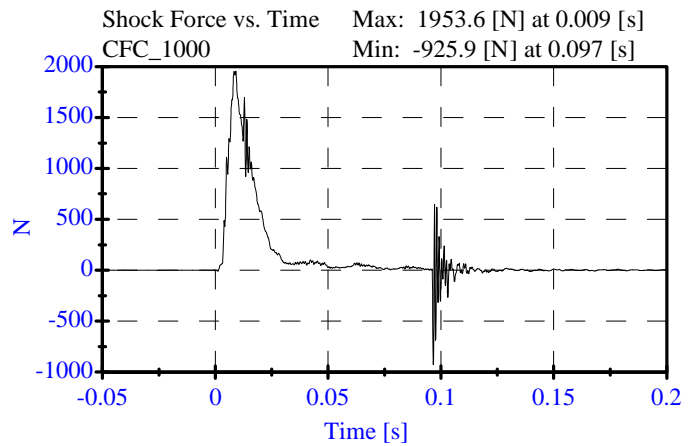
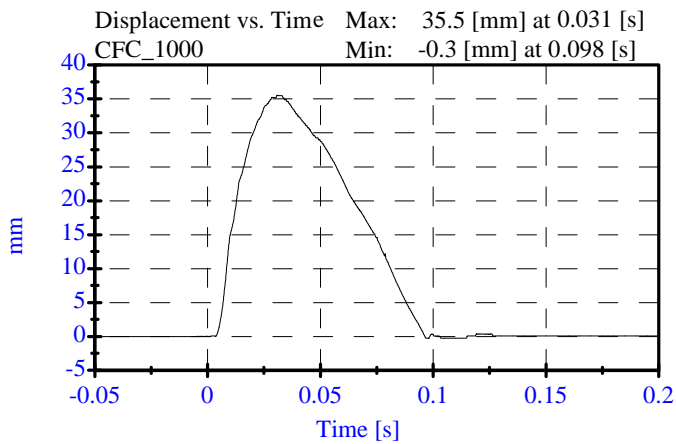
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: January 2, 2006

Sequential Test Number: 1 File: 905SM 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	32.00-37.00 mm	35.53 mm	Passed
Maximum Force:	1730.00-2099.00 N	1953.64 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	905		
Damper Setting:	5		



Shock Impact (6.10 m/s)

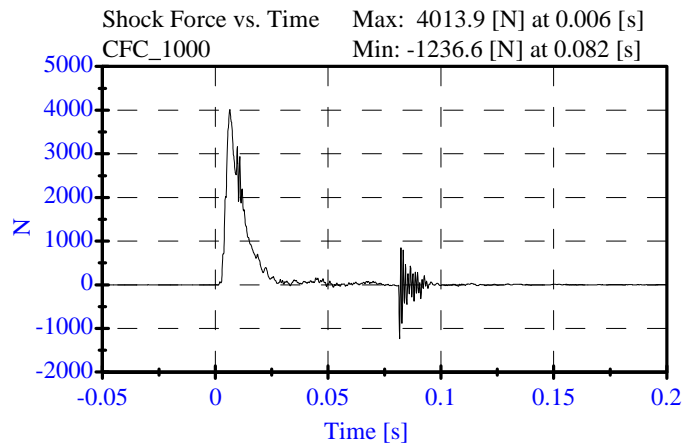
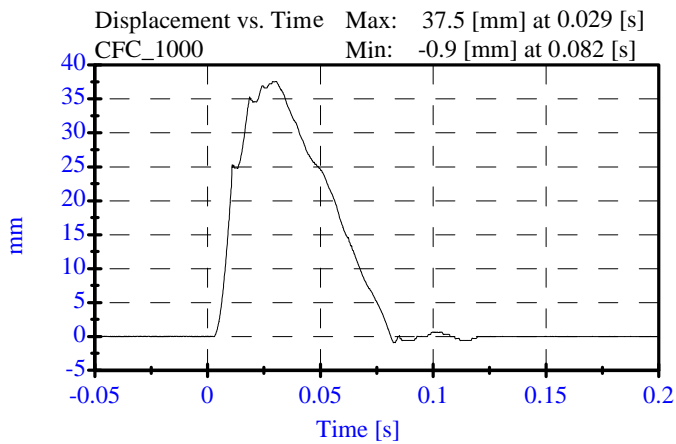
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: January 2, 2006

Sequential Test Number: 1 File: 905SH 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	33.00-40.00 mm	37.54 mm	Passed
Maximum Force:	3741.00-4448.00 N	4013.86 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	905		
Damper Setting:	5		

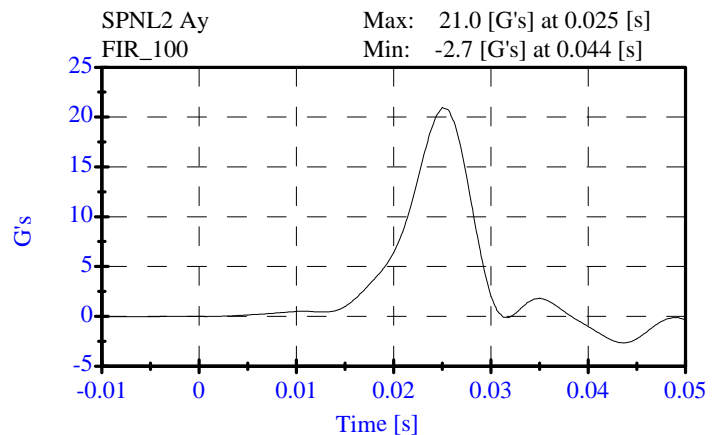
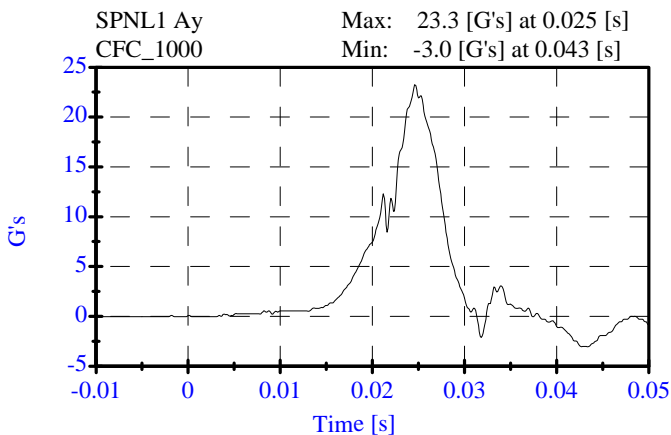
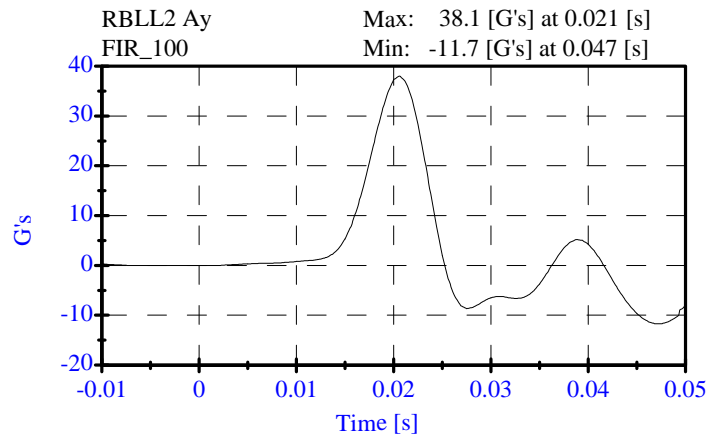
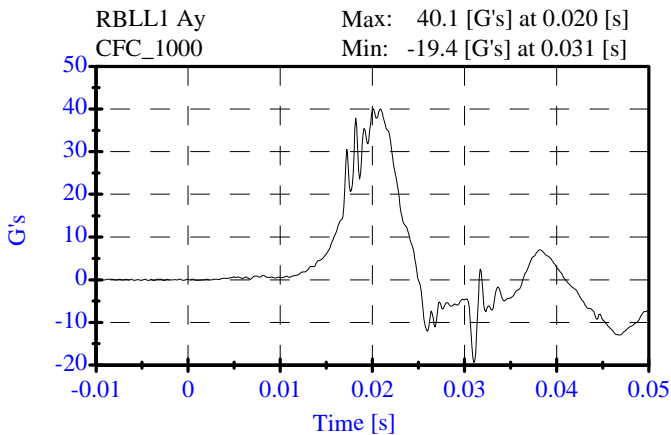
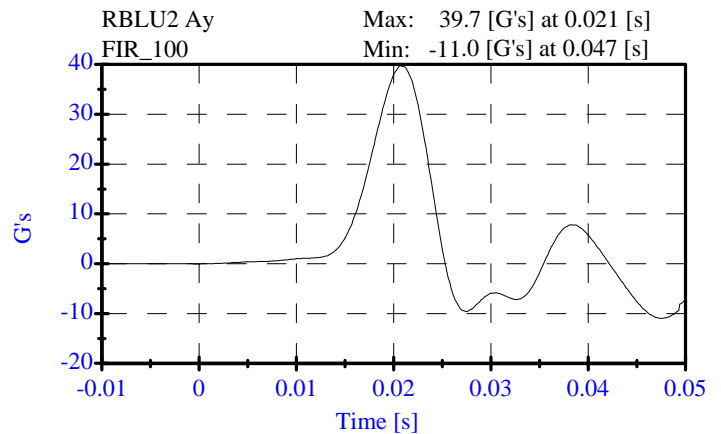
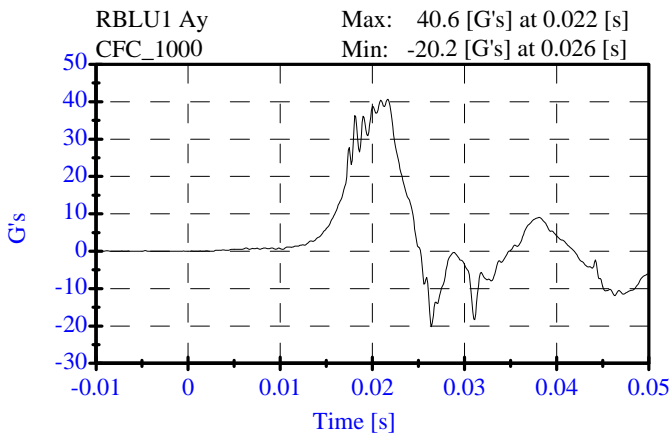


Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
 Date: March 31, 2006

Sequential Test Number: 1 File: 905T 03-31-06
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	39.70 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.07 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.97 G's	Passed



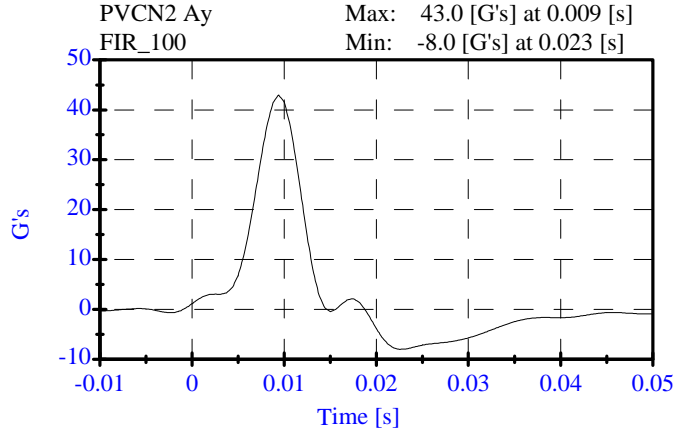
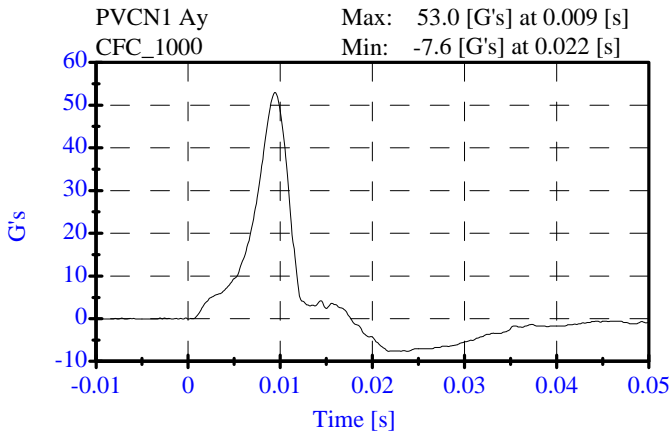
**Pelvis Impact
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: March 31, 2006

Sequential Test Number: 1 File: 905P1 03-31-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	42.98 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.5 ms	Passed



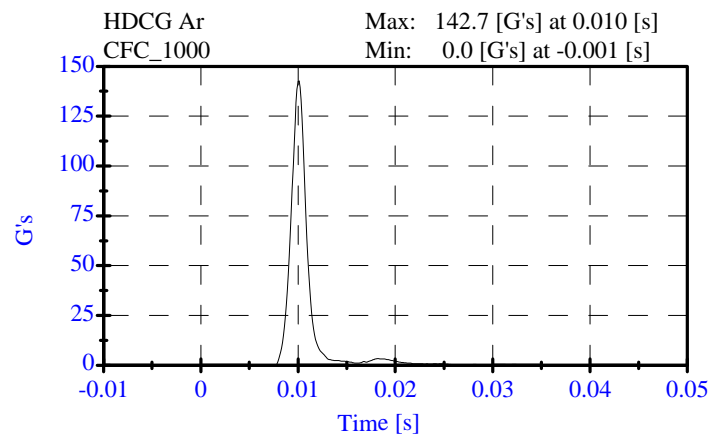
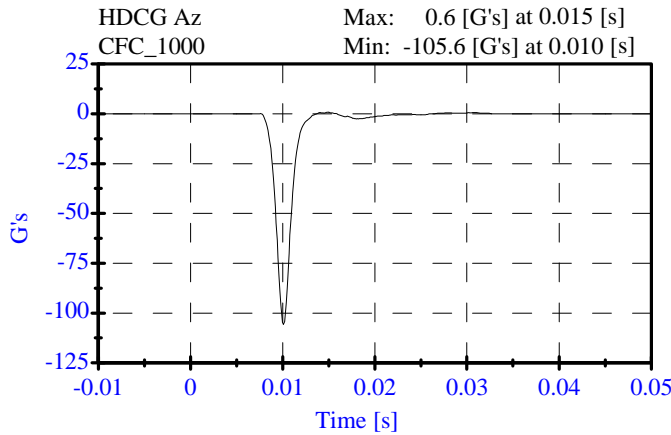
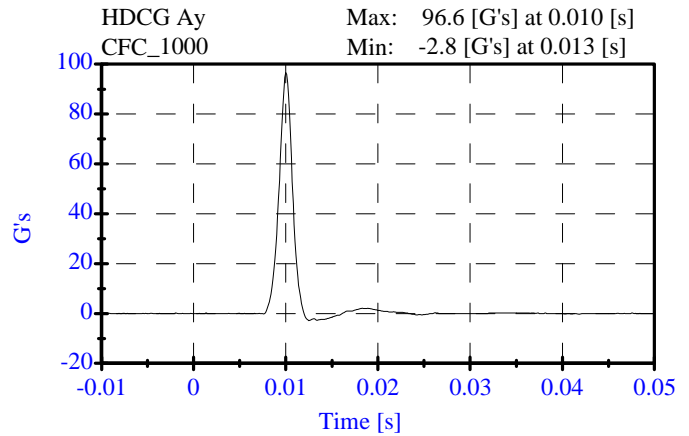
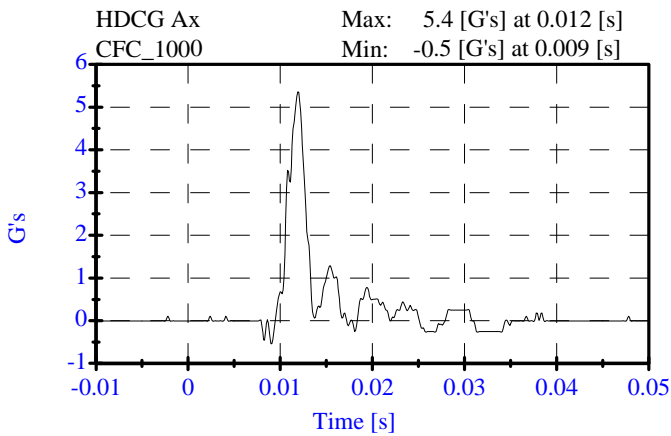
**Head Drop
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: March 28, 2006

Sequential Test Number: 1 File: 905H 03-28-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	142.68 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	5.36 Gs	Passed
Curve PerCent NonModal:	< 15%	2.35 %	Passed



**Neck Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: March 29, 2006

Sequential Test Number: 1 File: 905N 03-29-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.31 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.83 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.94 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.53 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	71.11 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	58.80 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.42 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	10.00 ms	Passed

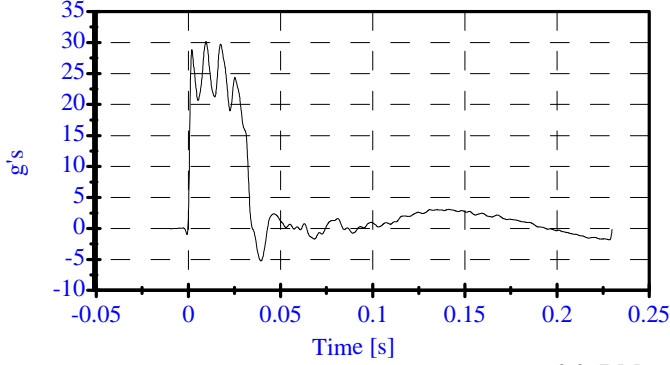
**Neck Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

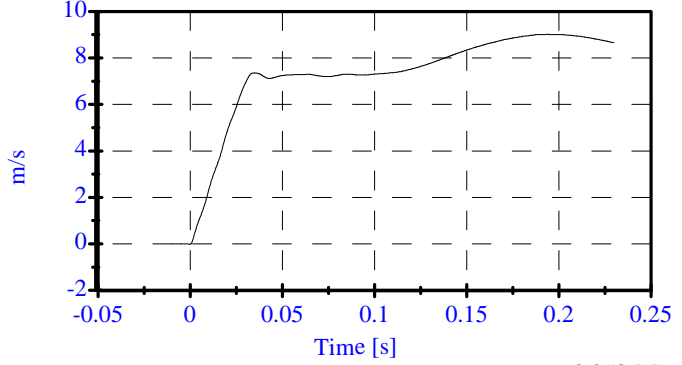
ATD Serial No: 905
Date: March 29, 2006

Sequential Test Number: 1 File: 905N 03-29-06
Laboratory Technician: B. Swiecicki

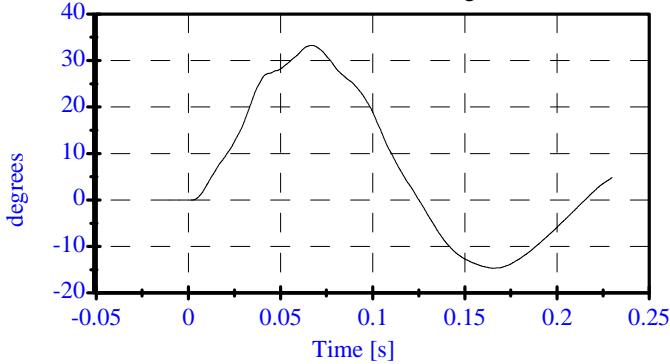
Pend Ax CFC_180 Max: 30.2 [g/s] at 0.010 [s]
Min: -5.2 [g/s] at 0.039 [s]



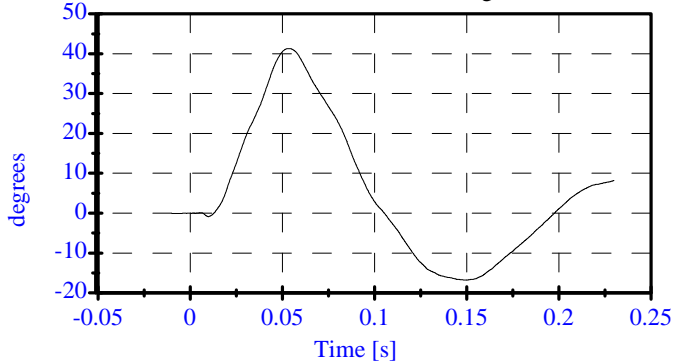
Pend Vx CFC_180 Max: 9.0 [m/s] at 0.194 [s]
Min: -0.0 [m/s] at -0.000 [s]



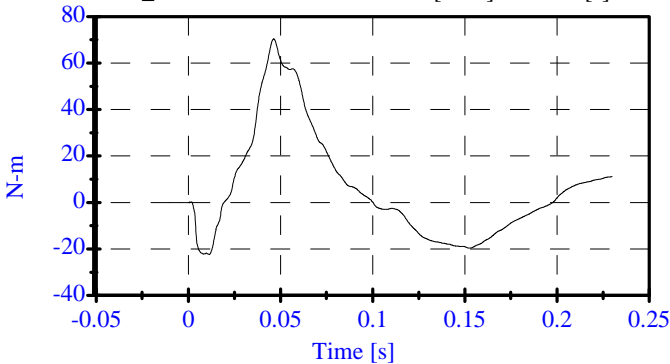
Head Rot CFC_180 Max: 33.2 [degrees] at 0.067 [s]
Min: -14.7 [degrees] at 0.165 [s]



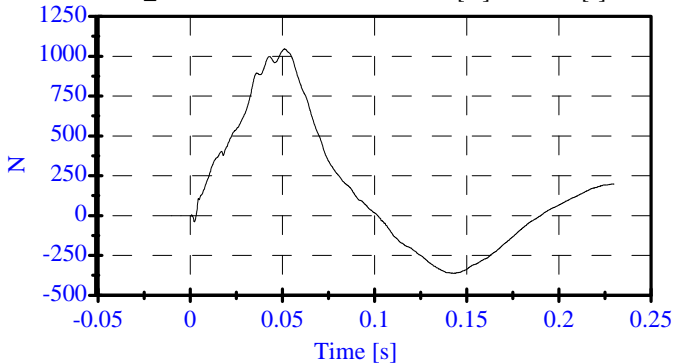
Arm Rot CFC_180 Max: 41.3 [degrees] at 0.053 [s]
Min: -16.7 [degrees] at 0.150 [s]



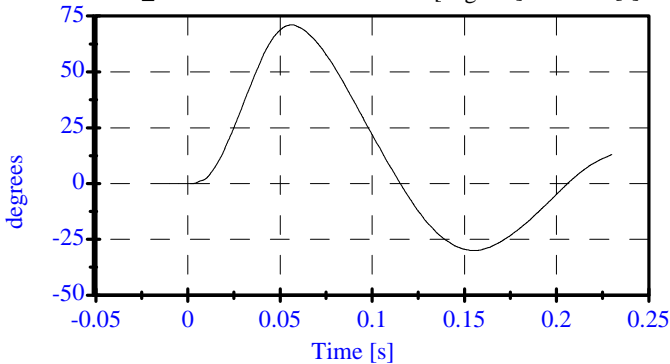
Neck Mx CFC_600 Max: 70.3 [N-m] at 0.046 [s]
Min: -22.4 [N-m] at 0.011 [s]



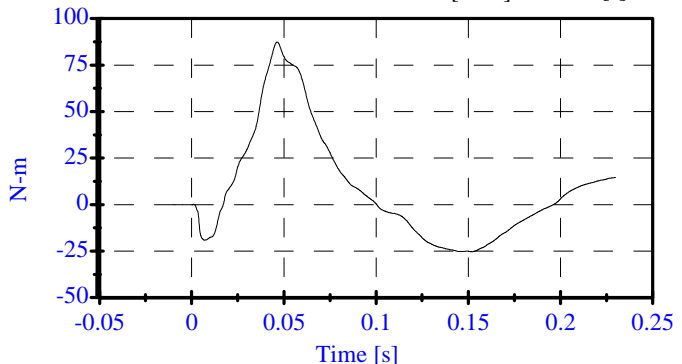
Neck Fy CFC_1000 Max: 1047.1 [N] at 0.051 [s]
Min: -361.2 [N] at 0.143 [s]



Tot Rot CFC_180 Max: 71.1 [degrees] at 0.056 [s]
Min: -30.0 [degrees] at 0.155 [s]



MOCX Max: 87.4 [N-m] at 0.046 [s]
Min: -25.3 [N-m] at 0.152 [s]



Abdomen Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

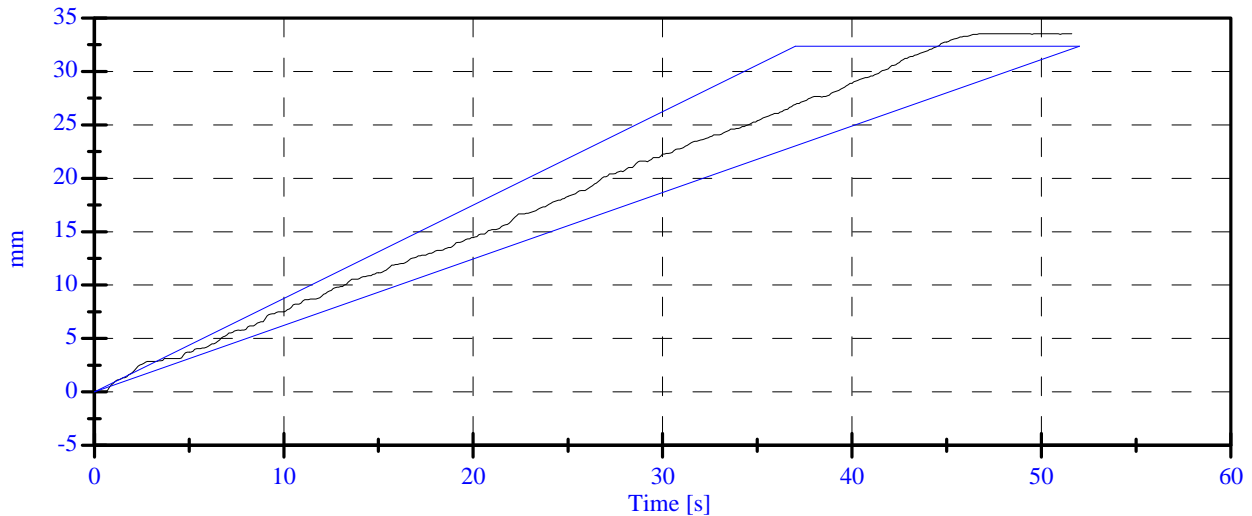
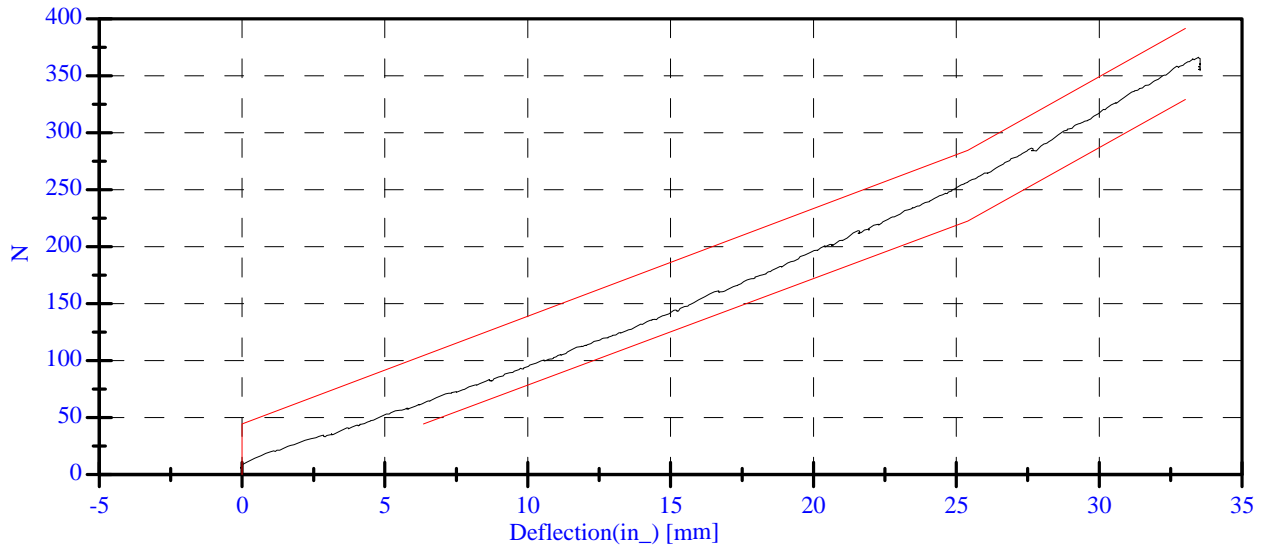
Date: April 3, 2006

Sequential Test Number: 1 File: 905ab 04-03-06

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	121.87 N	Passed
Force at 19.05 mm :	162.98-220.99 N	185.66 N	Passed
Force at 25.40 mm :	221.97-280.02 N	256.35 N	Passed
Force at 33.02 mm :	324.99-391.00 N	361.47 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

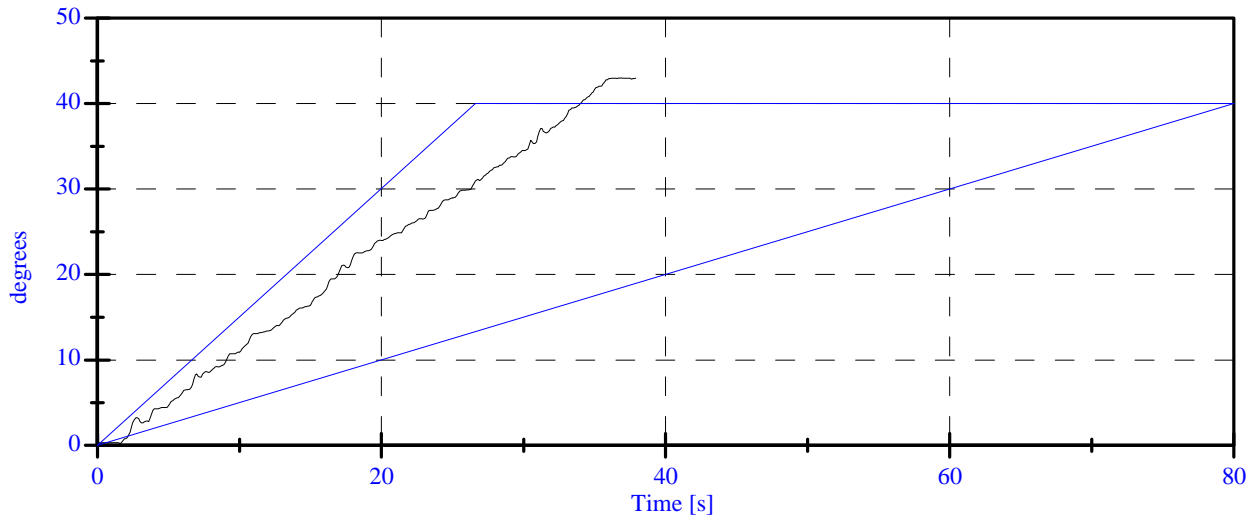
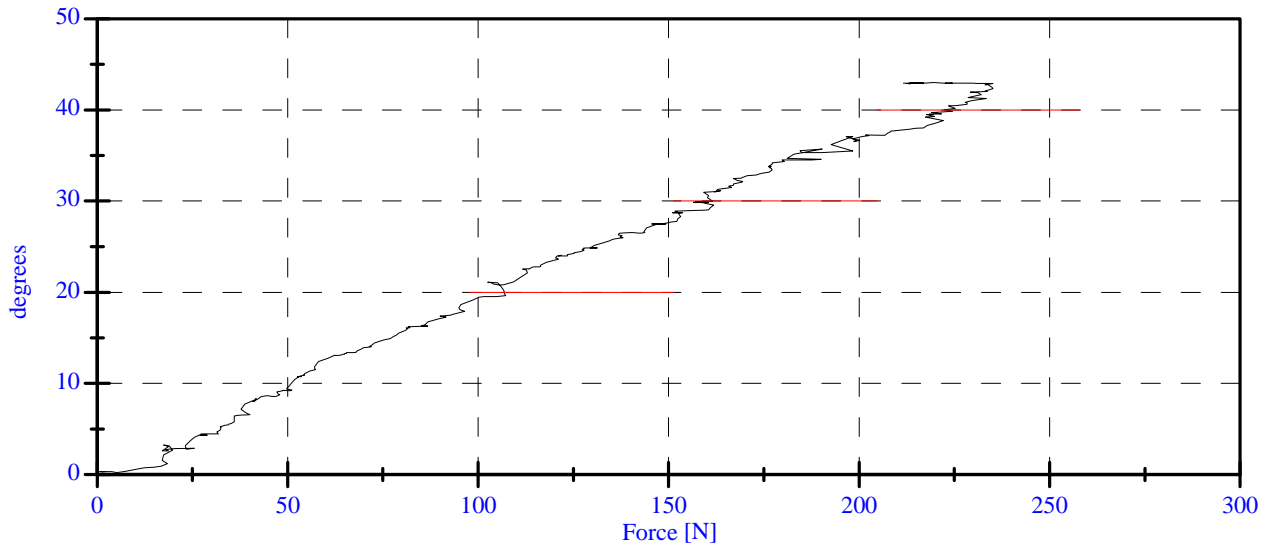
Date: April 3, 2006

Sequential Test Number: 1 File: 905sp 04-03-06

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	5.10 N	Passed
Force at 20 Deg:	97.86-151.24 N	106.95 N	Passed
Force at 30 Deg:	151.24-204.62 N	161.53 N	Passed
Force at 40 Deg:	204.62-258.00 N	222.38 N	Passed
Return Angle	12 Deg Max	3.69 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
 Date: April 3, 2006 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 906

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 1
Date: April 3, 2006 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 1
Date: April 3, 2006 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	907
RH- Rib Height (mm)	502 - 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	241
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	381

REMARKS: None

Shock Impact (3.05 m/s)

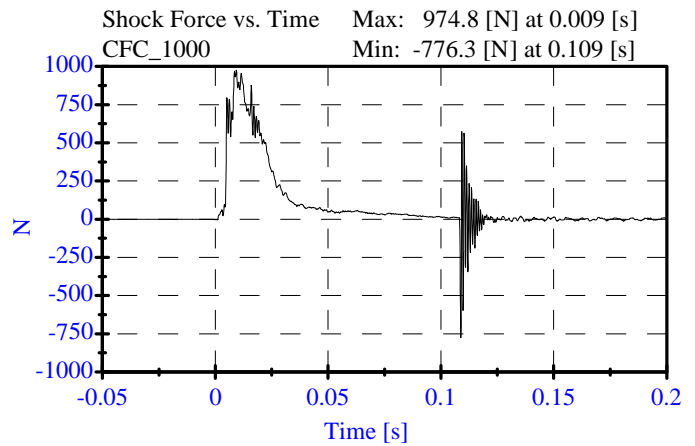
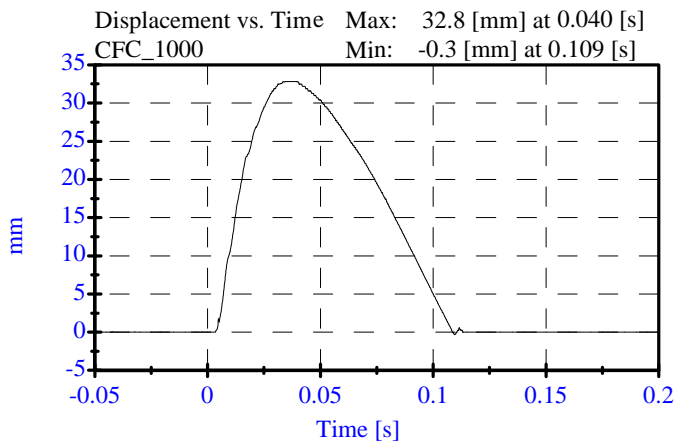
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: January 2, 2006

Sequential Test Number: 1 File: 906SL 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	30.00-35.00 mm	32.81 mm	Passed
Maximum Force:	836.00-1125.00 N	974.84 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Impact (4.27 m/s)

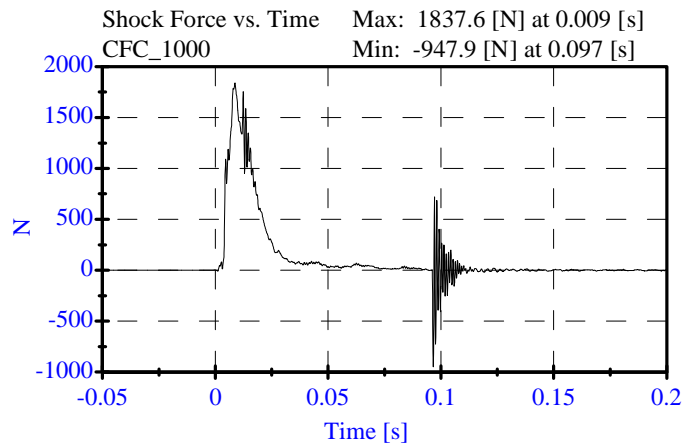
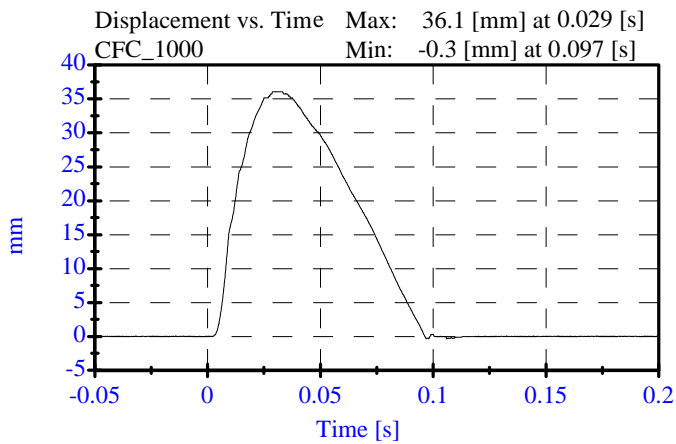
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: January 2, 2006

Sequential Test Number: 1 File: 906M 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	32.00-37.00 mm	36.07 mm	Passed
Maximum Force:	1730.00-2099.00 N	1837.62 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Impact (6.10 m/s)

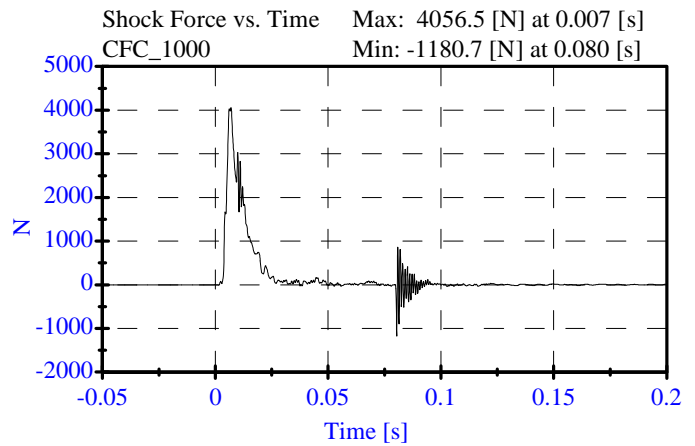
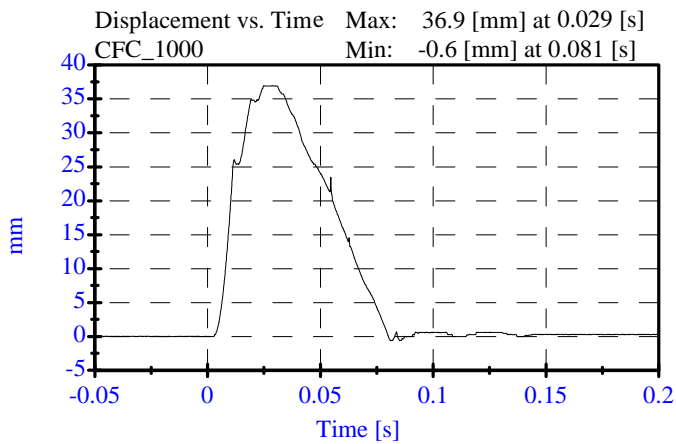
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: January 2, 2006

Sequential Test Number: 1 File: 906SH 01-02-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	33.00-40.00 mm	36.93 mm	Passed
Maximum Force:	3741.00-4448.00 N	4056.45 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	906		
Damper Setting:	5		



Thorax Impact

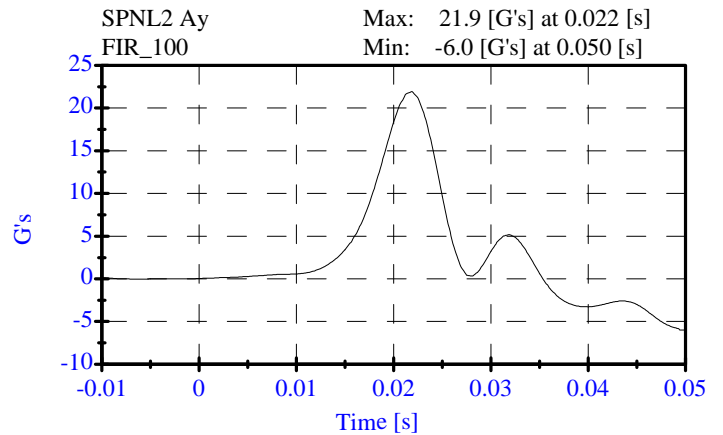
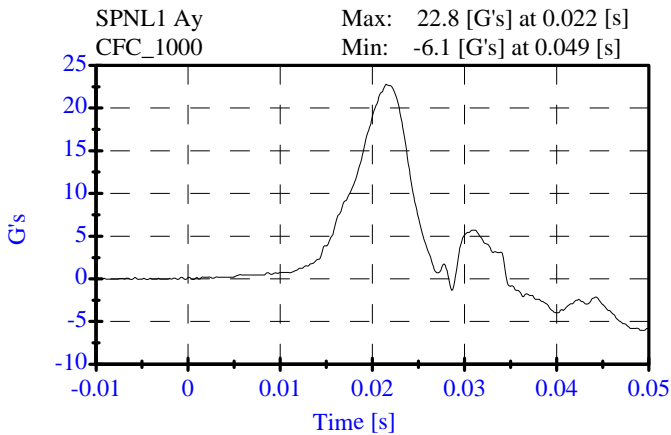
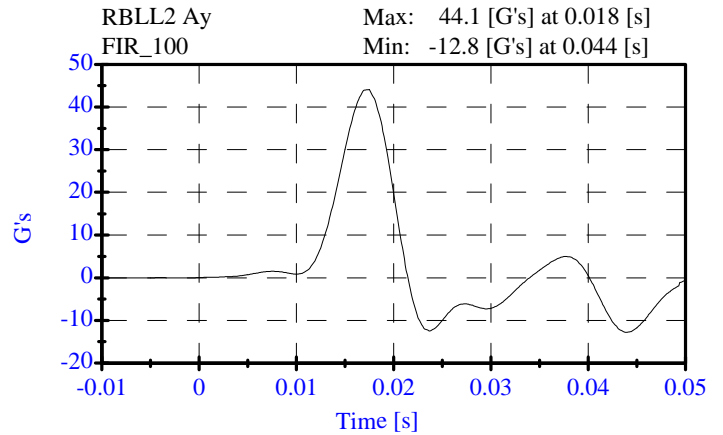
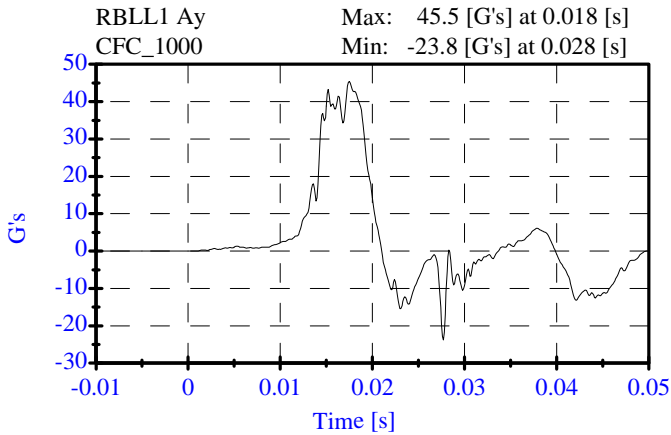
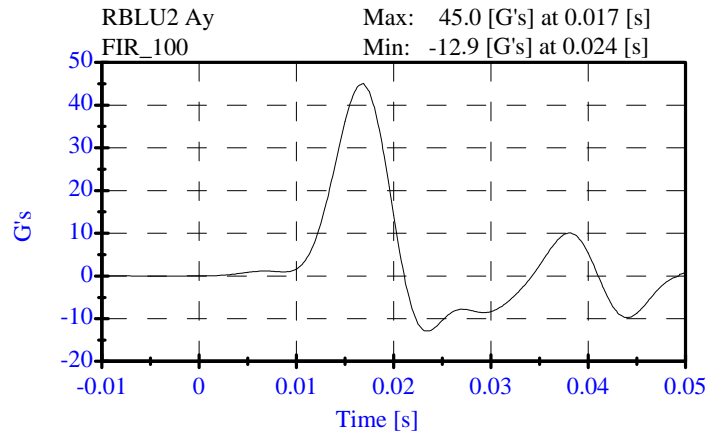
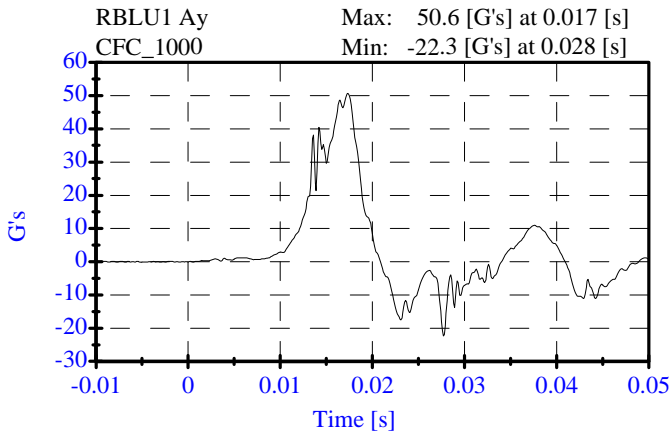
Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: March 31, 2006

Sequential Test Number: 1 File: 906T 03-31-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	45.02 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	44.08 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.93 G's	Passed



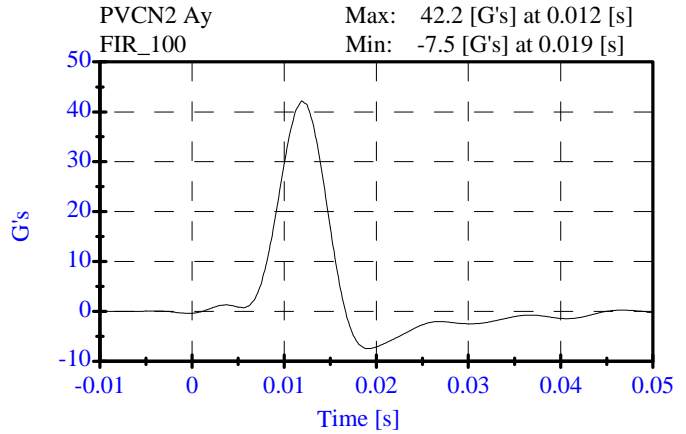
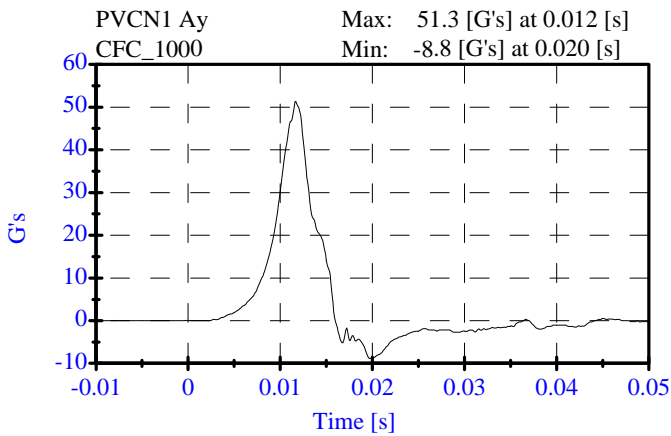
**Pelvic Impact
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: March 31, 2006

Sequential Test Number: 1 File: 906P 03-31-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	42.22 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.6 ms	Passed



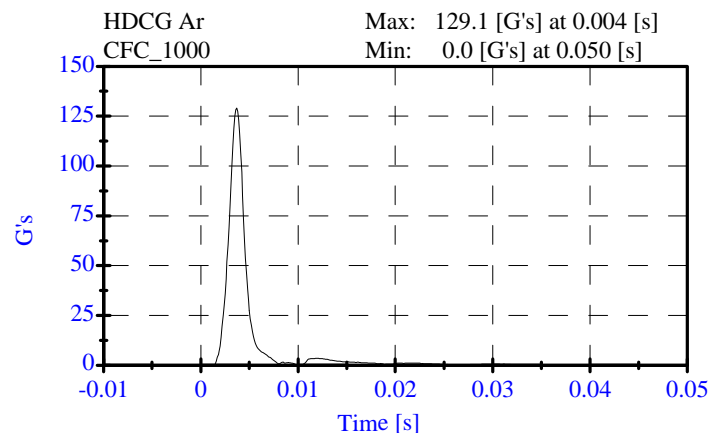
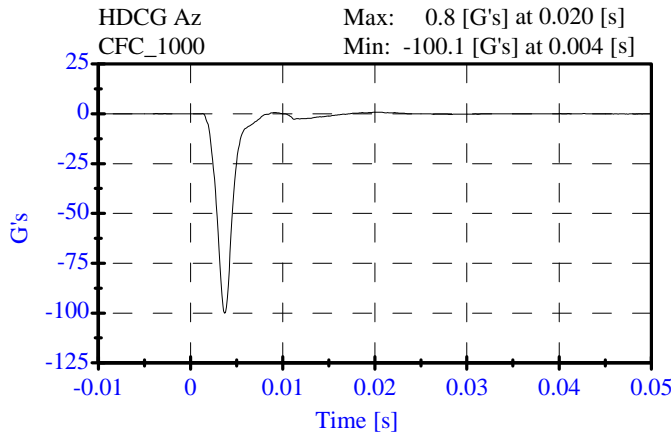
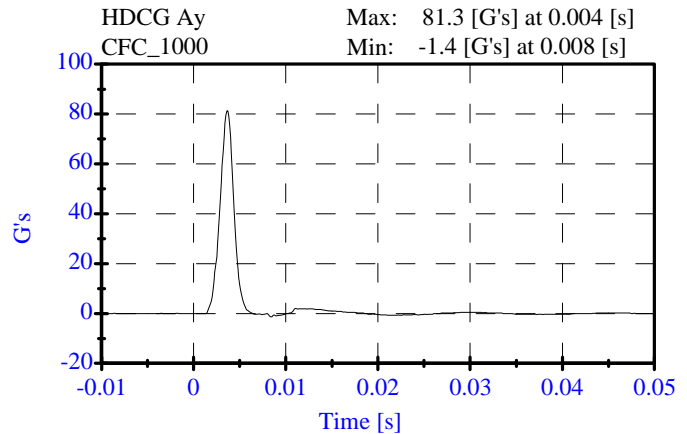
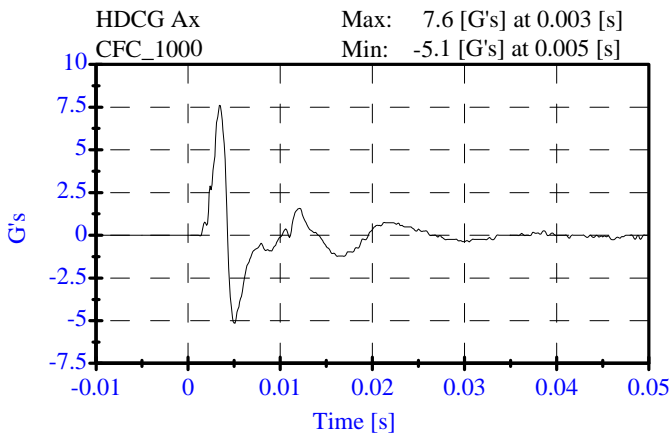
**Head Drop
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: March 28, 2006

Sequential Test Number: 1 File: 906H2 03-28-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	129.10 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	7.60 Gs	Passed
Curve PerCent NonModal:	< 15%	2.75 %	Passed



**Neck Test
Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: March 30, 2006

Sequential Test Number: 1 File: 906N2 03-30-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.08 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.38 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.43 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.51 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	69.03 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	58.20 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	83.40 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	51.90 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.60 ms	Passed

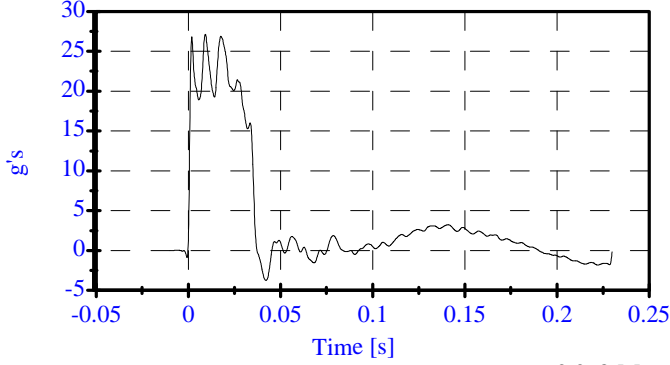
Neck Test
Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

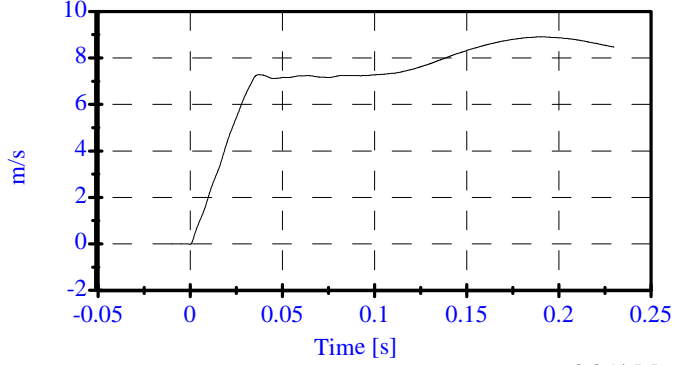
ATD Serial No: 906
Date: March 30, 2006

Sequential Test Number: 1 File: 906N2 03-30-06
Laboratory Technician: B. Swiecicki

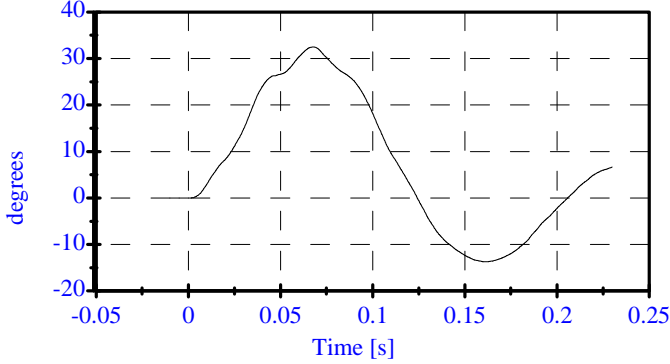
Pend Ax
CFC_180 Max: 27.1 [g/s] at 0.009 [s]
Min: -3.7 [g/s] at 0.042 [s]



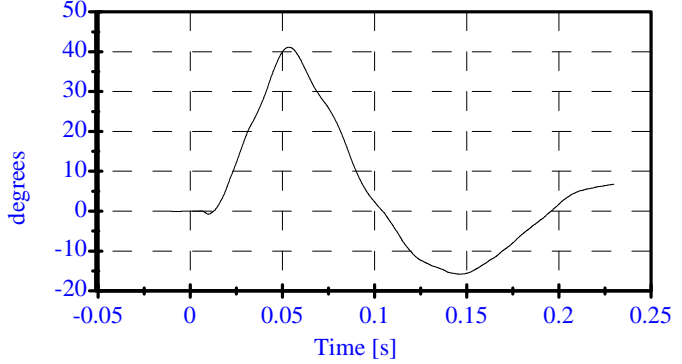
Pend Vx
CFC_180 Max: 8.9 [m/s] at 0.190 [s]
Min: -0.0 [m/s] at -0.000 [s]



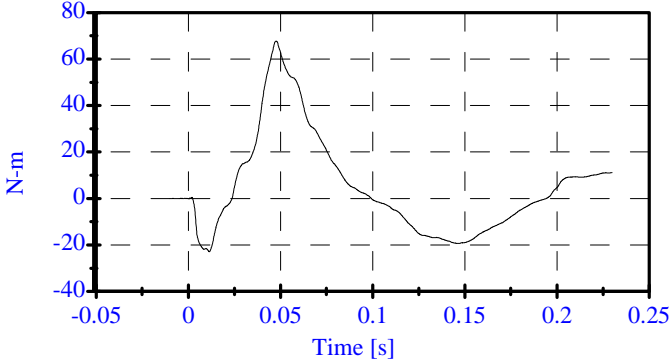
Head Rot
CFC_180 Max: 32.5 [degrees] at 0.068 [s]
Min: -13.7 [degrees] at 0.161 [s]



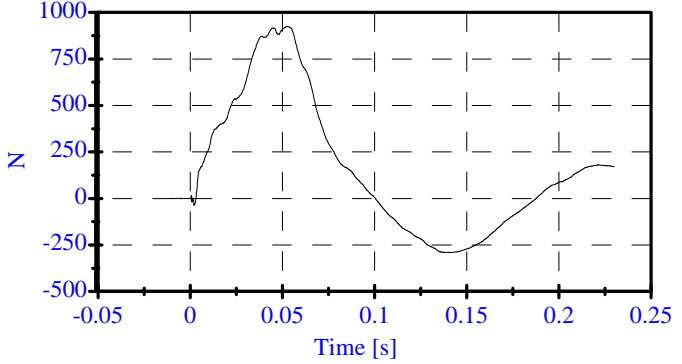
Arm Rot
CFC_180 Max: 41.2 [degrees] at 0.054 [s]
Min: -15.8 [degrees] at 0.146 [s]



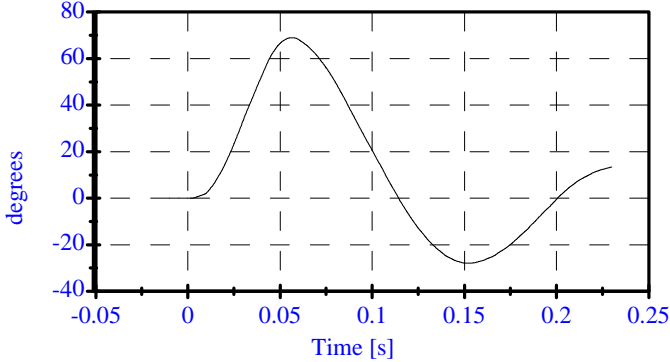
Neck Mx
CFC_600 Max: 67.7 [N-m] at 0.048 [s]
Min: -22.9 [N-m] at 0.011 [s]



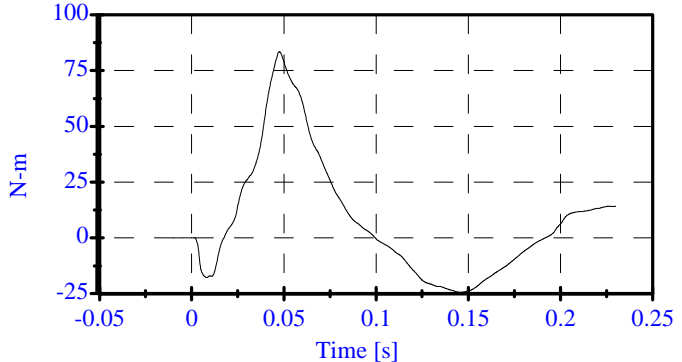
Neck Fy
CFC_1000 Max: 924.5 [N] at 0.052 [s]
Min: -291.3 [N] at 0.141 [s]



Tot Rot
CFC_180 Max: 69.0 [degrees] at 0.056 [s]
Min: -28.0 [degrees] at 0.152 [s]



MOCX
Max: 83.4 [N-m] at 0.048 [s]
Min: -24.4 [N-m] at 0.145 [s]



Abdomen Test

Pre-Test

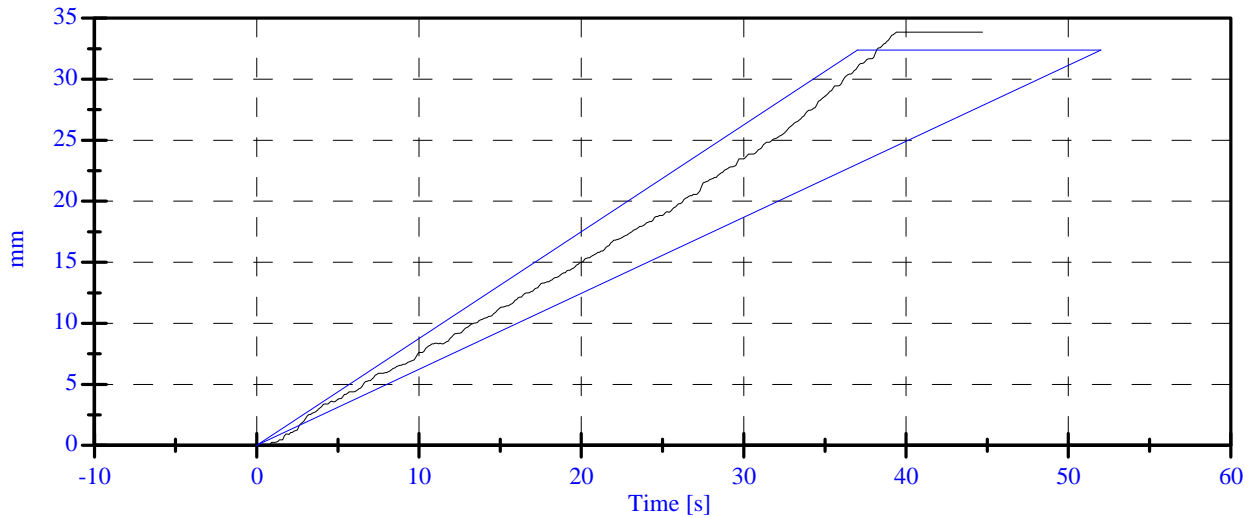
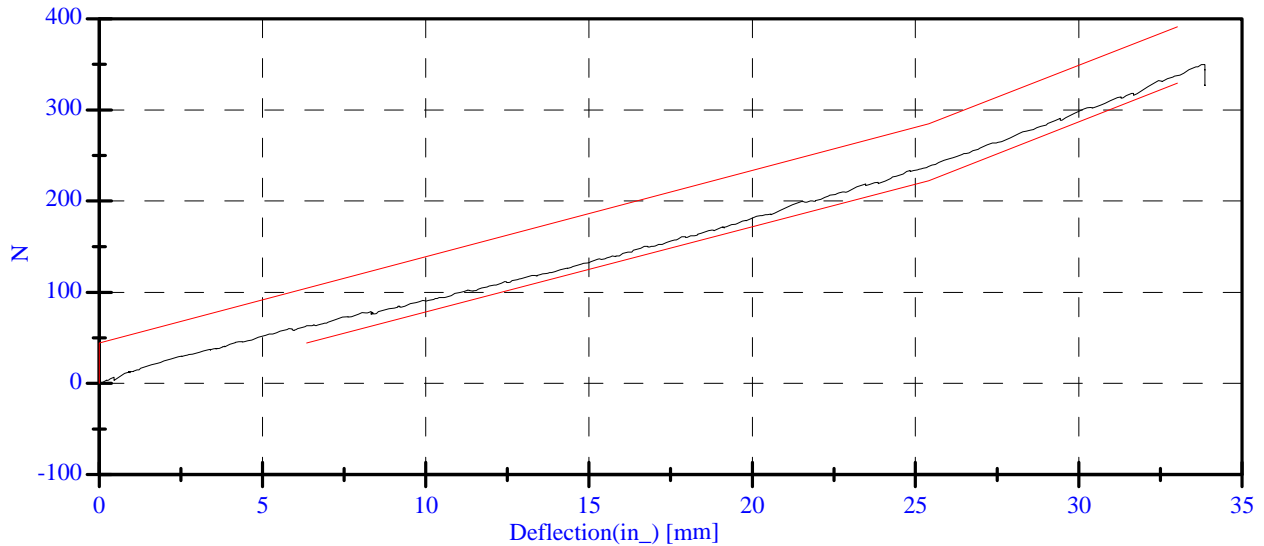
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: April 3, 2006

Sequential Test Number: 1 File: 906ab 04-03-06
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	114.98 N	Passed
Force at 19.05 mm :	162.98-220.99 N	171.89 N	Passed
Force at 25.40 mm :	221.97-280.02 N	237.86 N	Passed
Force at 33.02 mm :	324.99-391.00 N	338.27 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

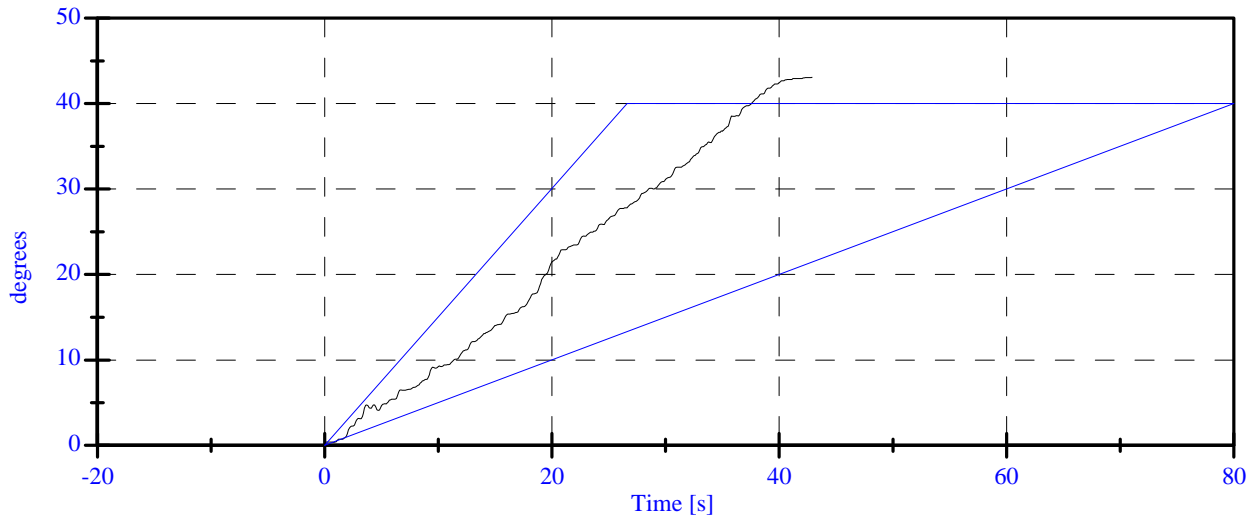
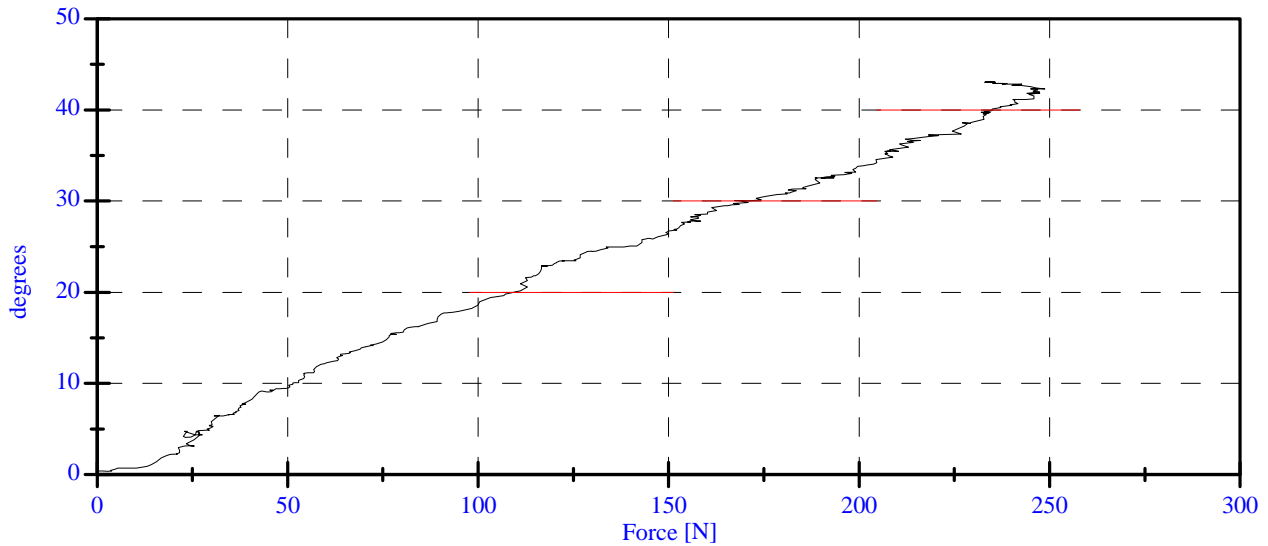
Date: April 3, 3006

Sequential Test Number: 1 File: 906sp 04-03-06

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	2.75 N	Passed
Force at 20 Deg:	97.86-151.24 N	109.82 N	Passed
Force at 30 Deg:	151.24-204.62 N	168.84 N	Passed
Force at 40 Deg:	204.62-258.00 N	234.91 N	Passed
Return Angle	12 Deg Max	1.86 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 1
 Date: April 3, 2006 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 905

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
Date: July 27, 2006 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
Date: July 27, 2006 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	905
RH- Rib Height (mm)	502 - 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	241
KH- Knee Pivot from Back Line (mm)	511 - 526	521
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	372

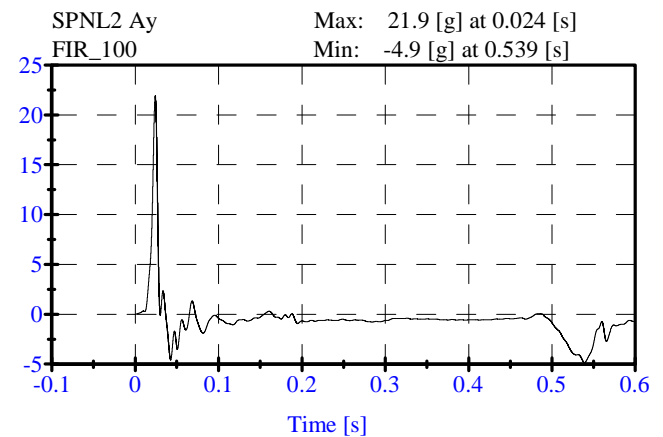
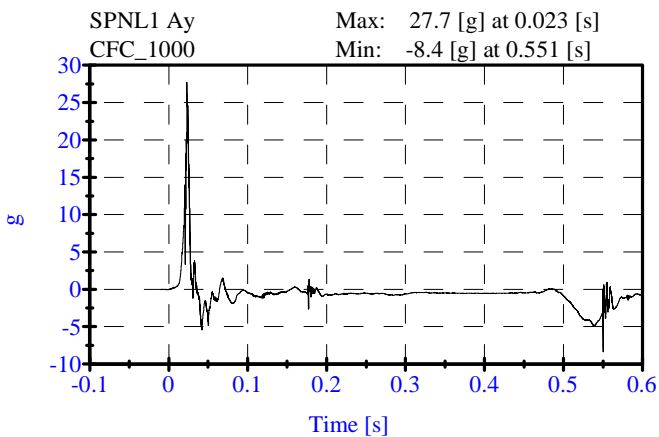
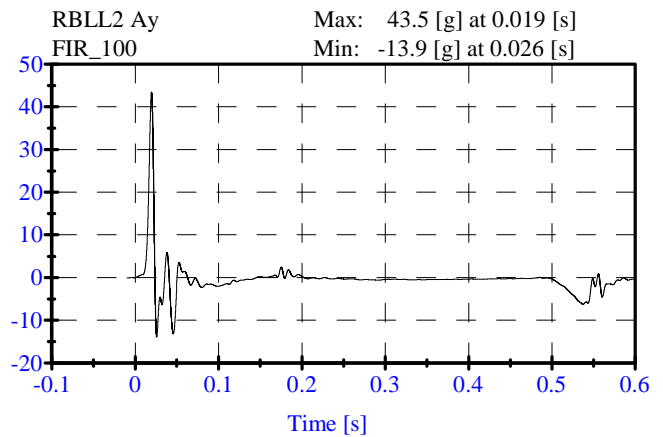
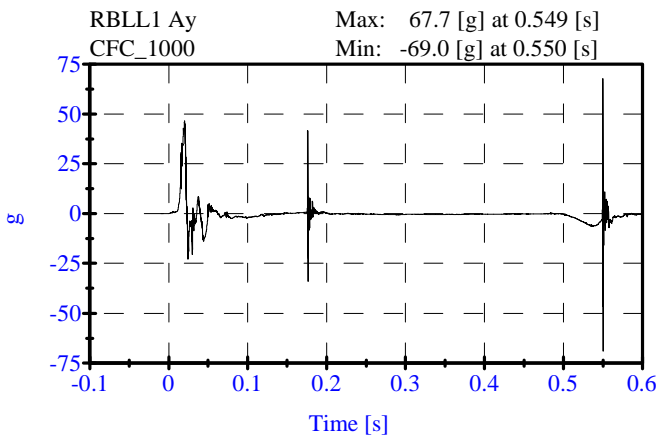
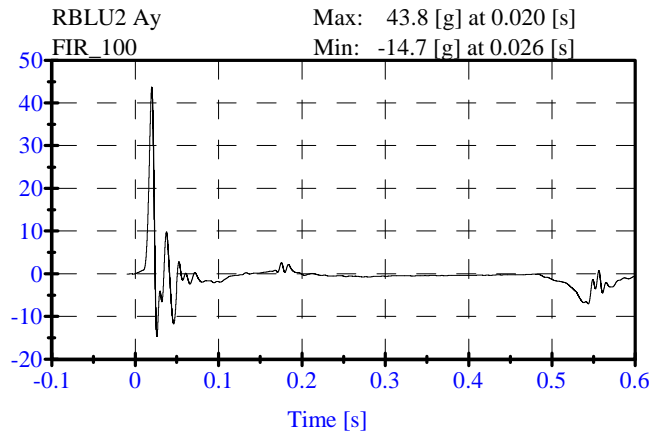
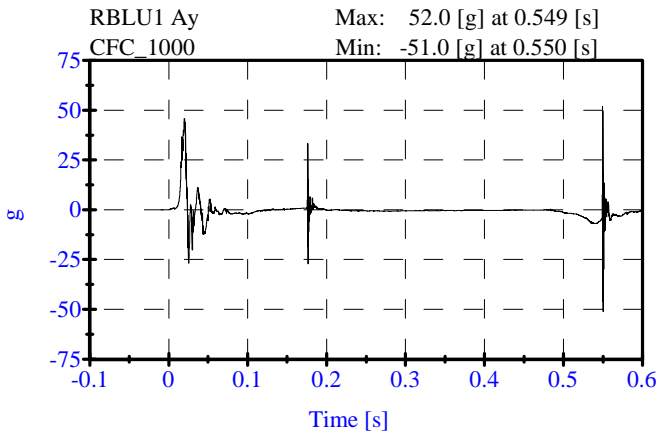
REMARKS: None

SID Thorax Test S/N:905
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
 Date: July 27, 2006

Sequential Test Number: 1 File: 905T
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.33 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 g	43.78 g	Passed
Lower Rib Acceleration:	37.00-46.00 g	43.50 g	Passed
Lower Spine Acceleration:	15.00-22.00 g	21.95 g	Passed



SID Pelvis Test S/N:905

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

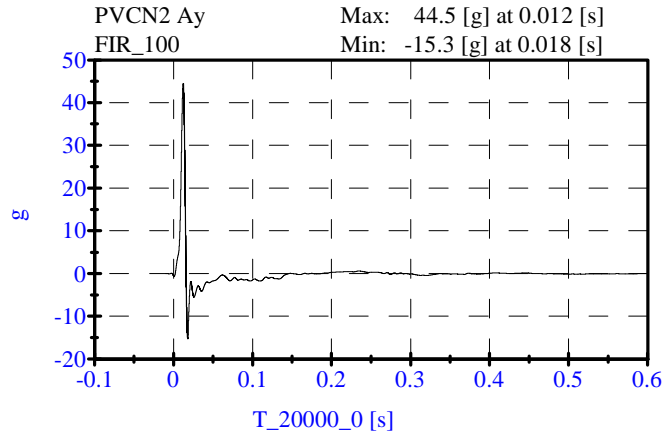
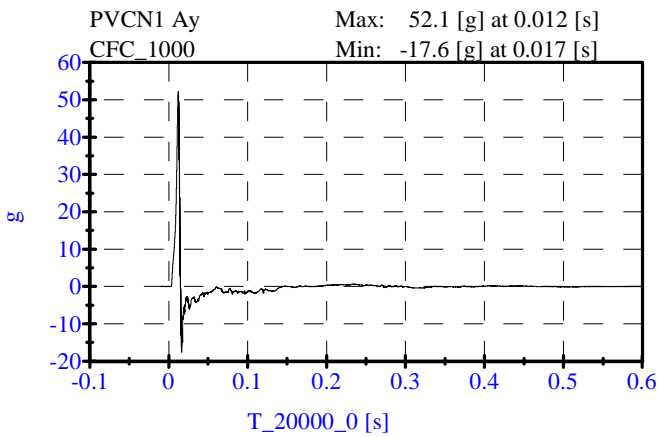
ATD Serial No: 905

Date: July 27, 2006

Sequential Test Number: 1 File: 905T

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 g	44.51 g	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



SID HYIII Head Drop Test S/N:905

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

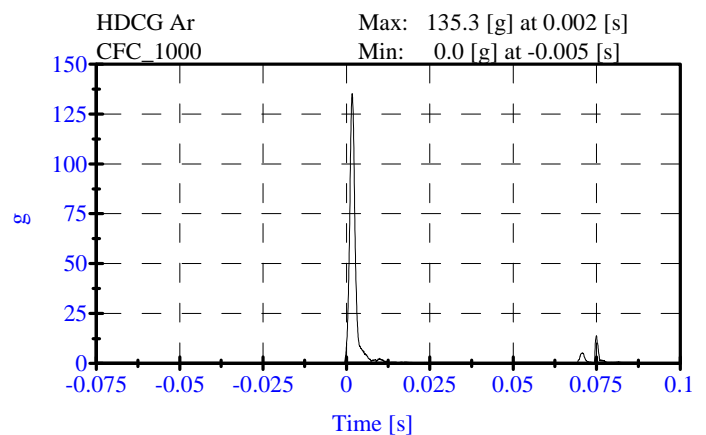
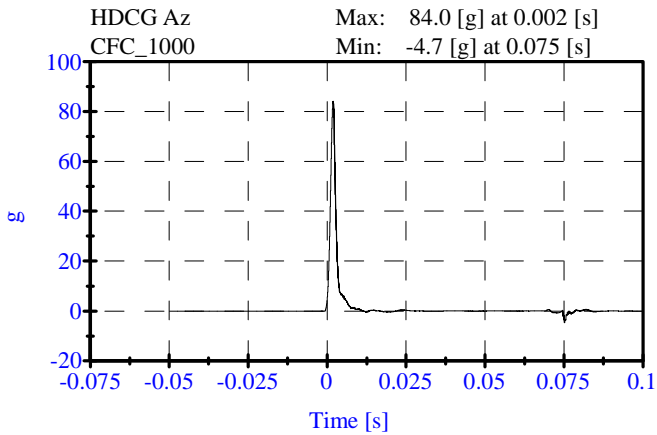
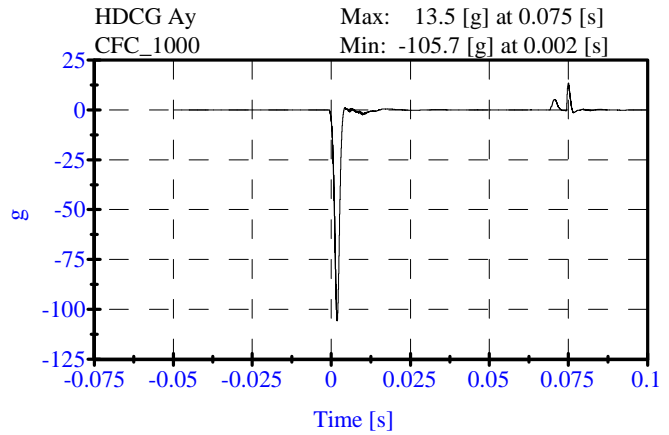
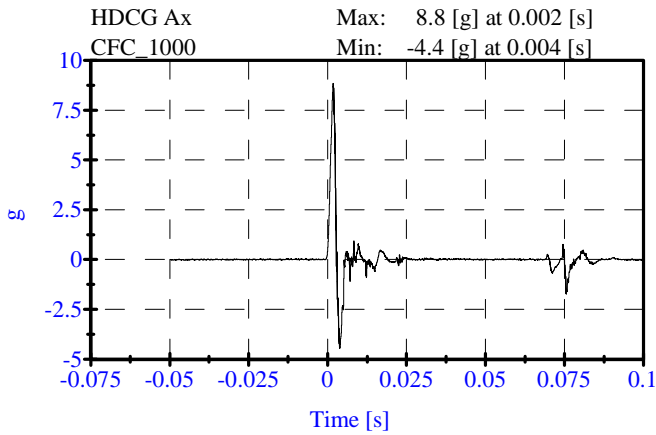
ATD Serial No: 905

Date: July 26, 2006

Sequential Test Number: 1 File: 905H

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	135.31 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	8.85 Gs	Passed
Curve PerCent NonModal:	< 15%	10.31 %	Passed



SID Head Neck Test S/N:905**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905

Sequential Test Number: 1 File: 905N

Date: July 27, 2006

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.36 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.89 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.94 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.34 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.61 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	61.95 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.97 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	56.20 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.15 ms	Passed

SID Head Neck Test S/N:905

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

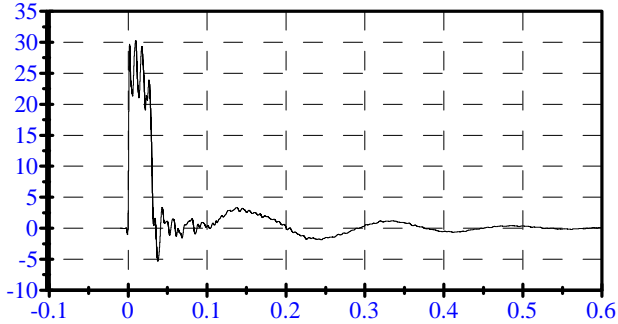
ATD Serial No: 905

Date: July 27, 2006

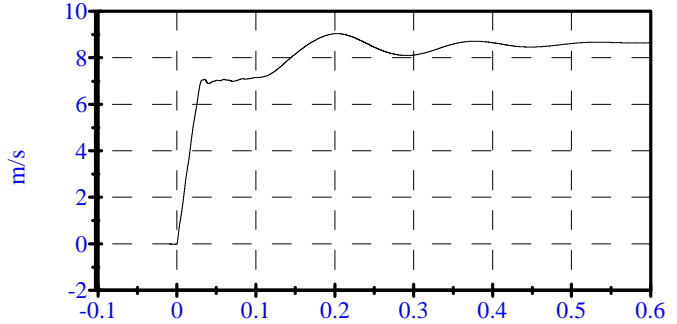
Sequential Test Number: 1 File: 905N

Laboratory Technician: B. Swiecicki

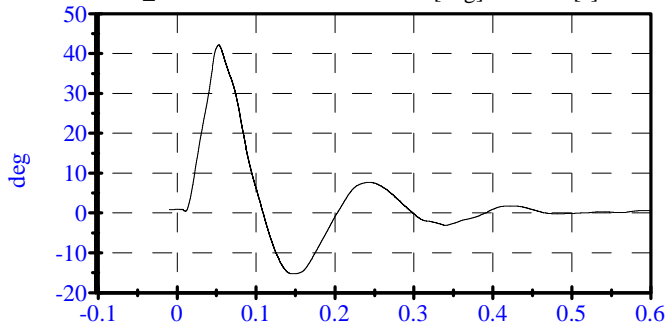
Pend Ax Max: 30.3 [] at 0.010 [s]
CFC_180 Min: -5.3 [] at 0.038 [s]



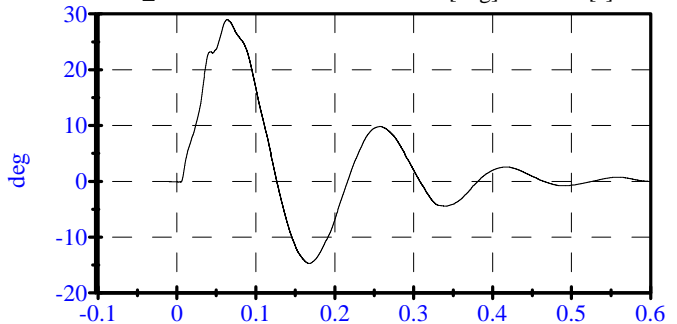
Pend Vx Max: 9.0 [m/s] at 0.200 [s]
CFC_180 Min: -0.0 [m/s] at -0.000 [s]



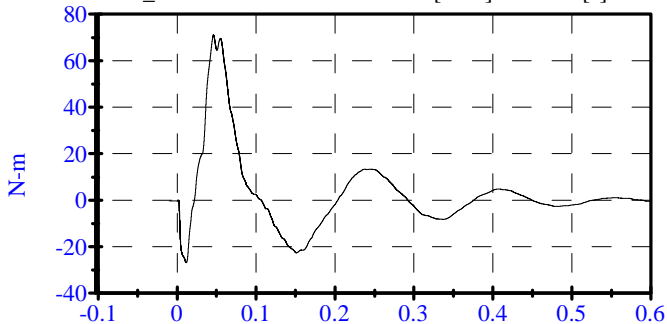
Head Rot Max: 42.3 [deg] at 0.053 [s]
CFC_180 Min: -15.2 [deg] at 0.148 [s]



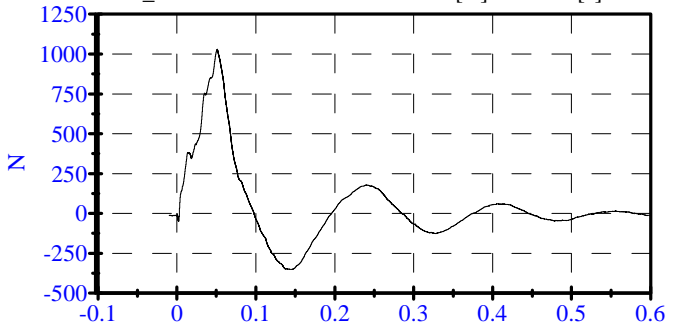
Arm Rot Max: 29.0 [deg] at 0.064 [s]
CFC_180 Min: -14.7 [deg] at 0.168 [s]



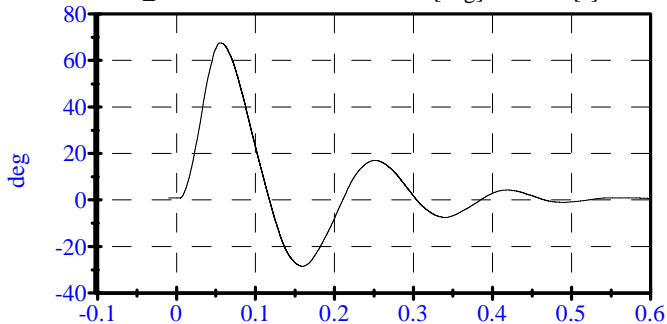
Neck Mx Max: 71.2 [N-m] at 0.046 [s]
CFC_600 Min: -26.9 [N-m] at 0.012 [s]



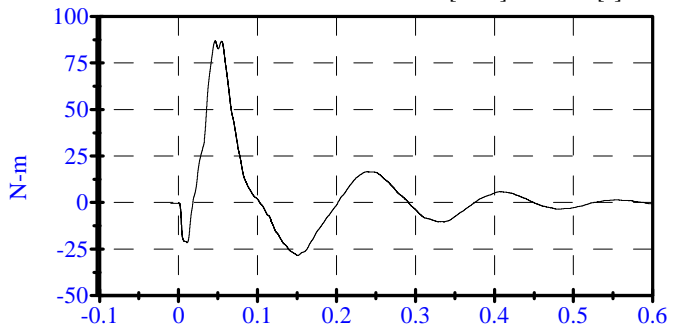
Neck Fy Max: 1031.3 [N] at 0.051 [s]
CFC_1000 Min: -350.8 [N] at 0.146 [s]



Tot Rot Max: 67.6 [deg] at 0.056 [s]
CFC_180 Min: -28.5 [deg] at 0.160 [s]



MOCX Max: 87.0 [N-m] at 0.047 [s]
Min: -28.5 [N-m] at 0.151 [s]



Sid Abdominal Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

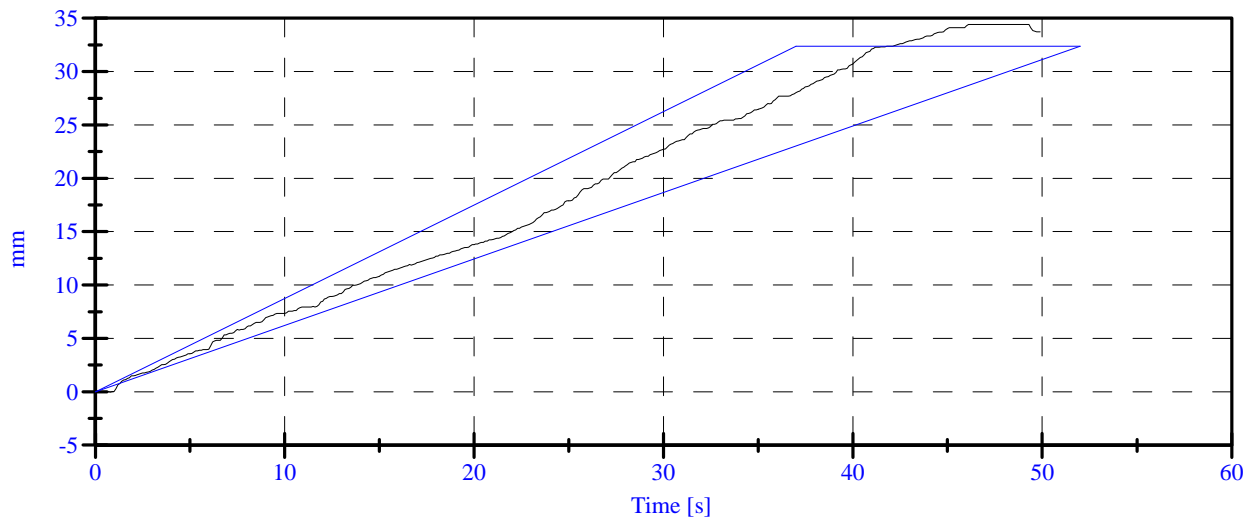
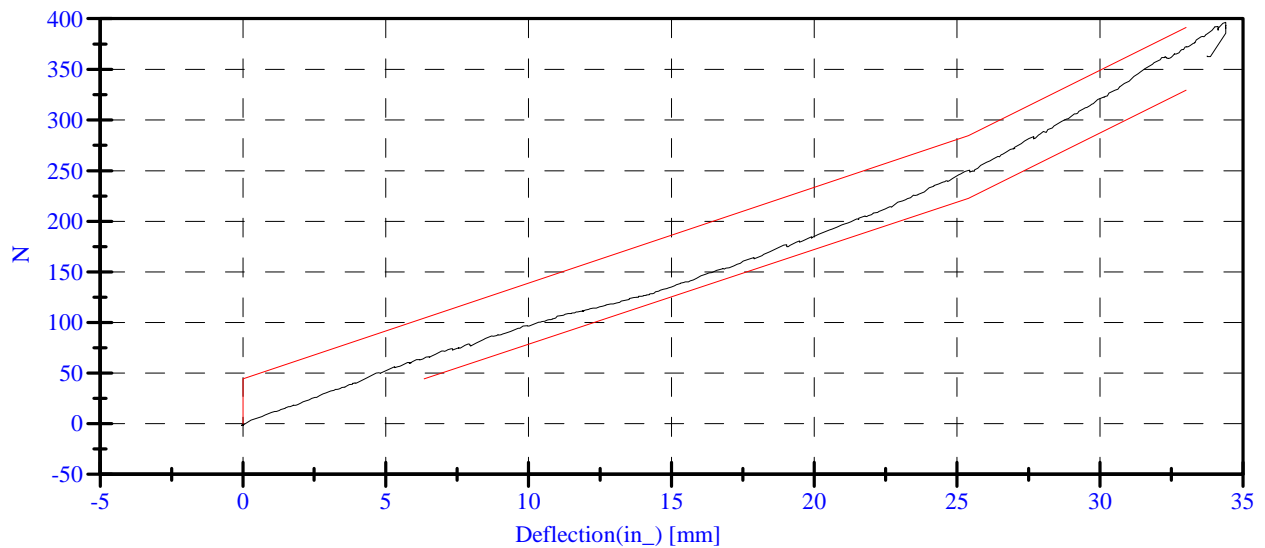
Date: 7-26-2006

Sequential Test Number: 1 File: SID 905 Abdominal test 1

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	118.60 N	Passed
Force at 19.05 mm :	162.98-220.99 N	176.96 N	Passed
Force at 25.40 mm :	221.97-280.02 N	250.19 N	Passed
Force at 33.02 mm :	324.99-391.00 N	372.34 N	Passed

ABDOMINAL COMPRESSION TEST



SID Lumbar Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

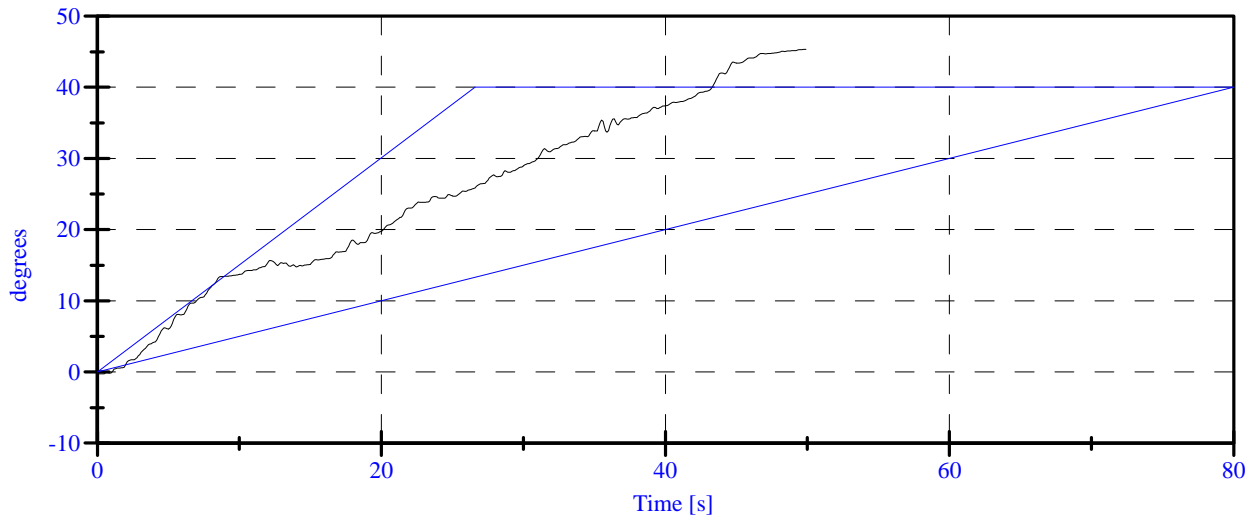
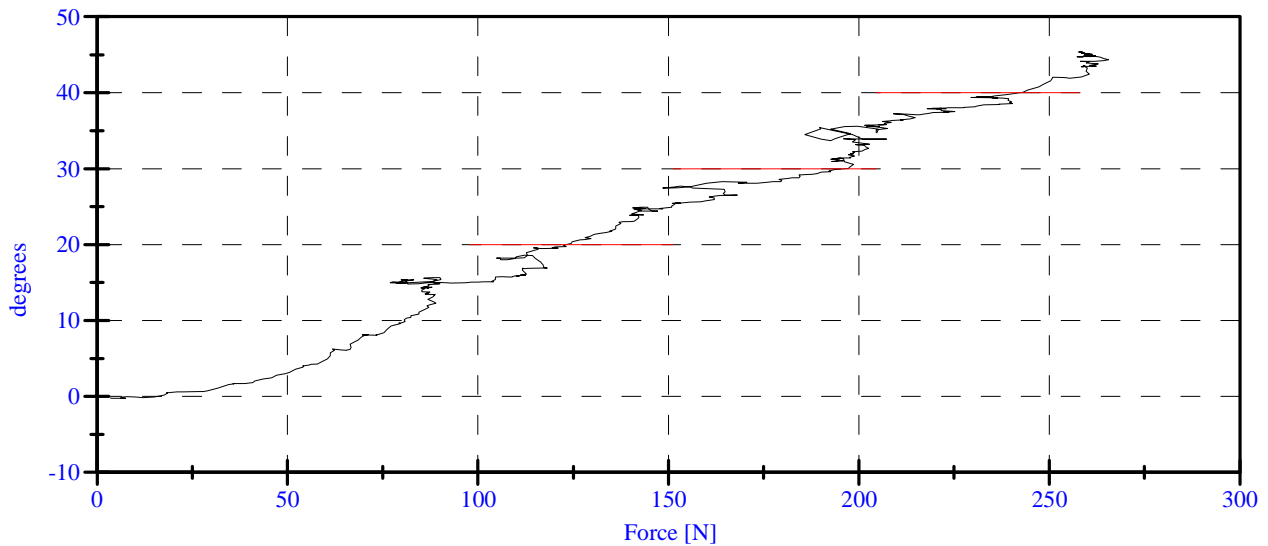
Date: 7-25-2006

Sequential Test Number: 1 File: Lumbar Spine test 3 sn 905

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	7.97 N	Passed
Force at 20 Deg:	97.86-151.24 N	122.36 N	Passed
Force at 30 Deg:	151.24-204.62 N	197.31 N	Passed
Force at 40 Deg:	204.62-258.00 N	243.01 N	Passed
Return Angle	12 Deg Max	5.33 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 1
 Date: July 27, 2006 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 906

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 1
Date: July 27, 2006 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 1
Date: July 27, 2006 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	907
RH- Rib Height (mm)	502 - 520	516
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	241
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	381

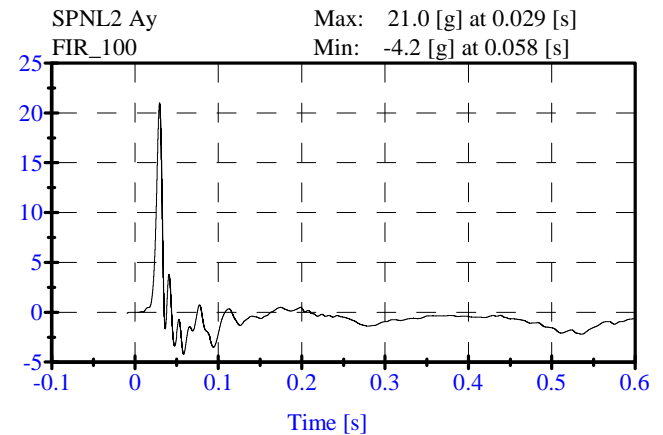
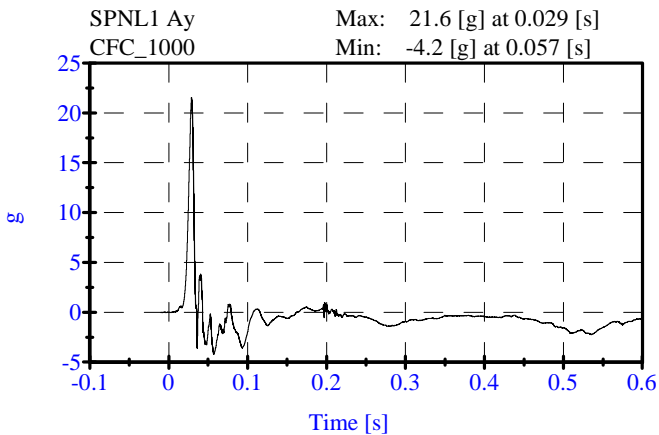
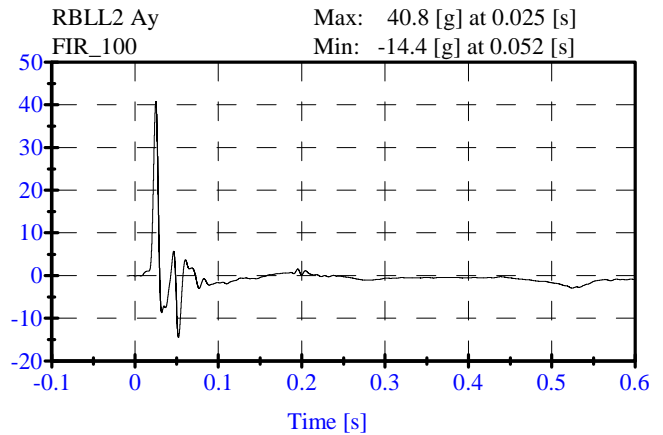
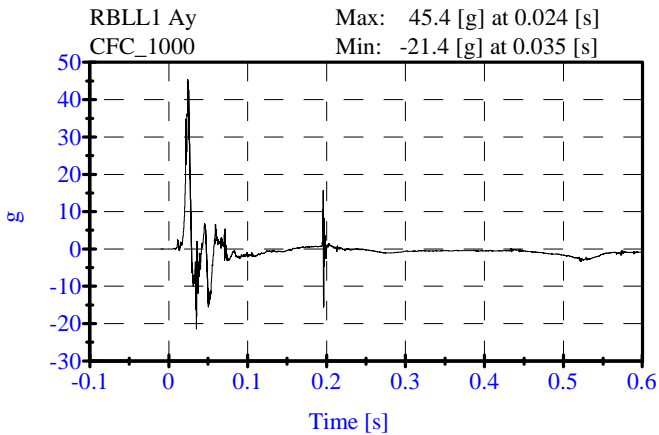
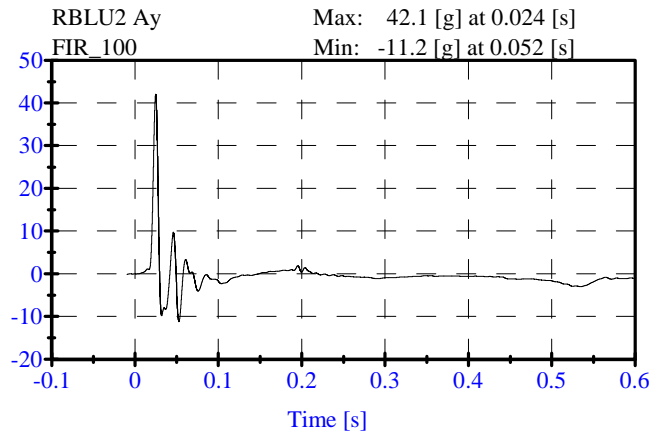
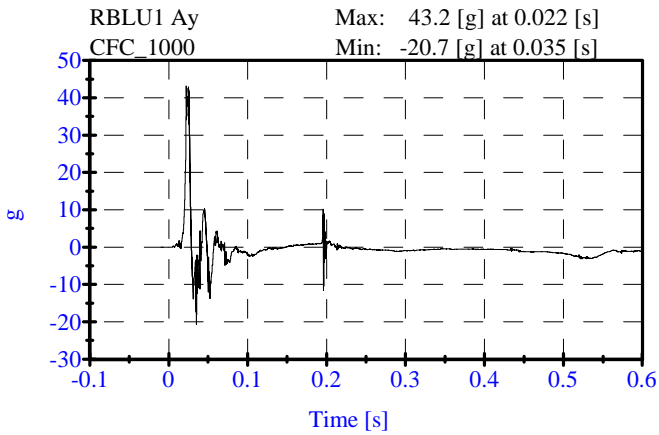
REMARKS: None

SID Thorax Test S/N:906
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
 Date: July 27, 2006

Sequential Test Number: 1 File: 906T
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 g	42.07 g	Passed
Lower Rib Acceleration:	37.00-46.00 g	40.80 g	Passed
Lower Spine Acceleration:	15.00-22.00 g	21.01 g	Passed



SID Pelvic Test S/N:906

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

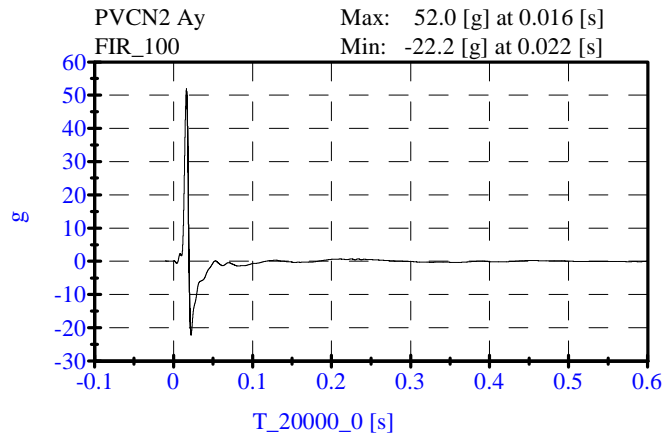
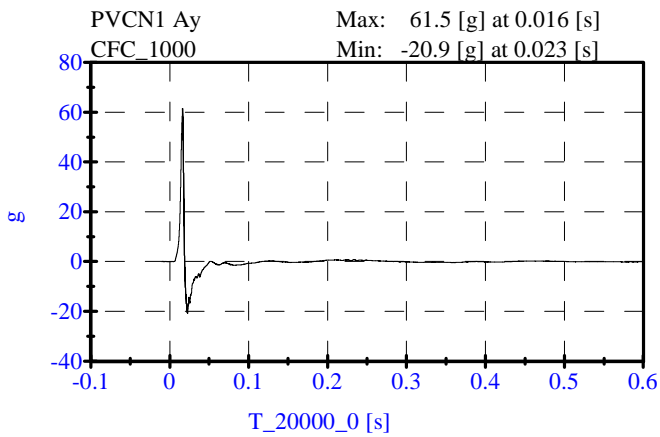
ATD Serial No: 906

Date: July 27, 2006

Sequential Test Number: 1 File: 906P

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 g	51.96 g	Passed
Time Above 20 Gs	3.0-7.0 ms	5.6 ms	Passed



SID HYIII Head Drop Test S/N:906

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

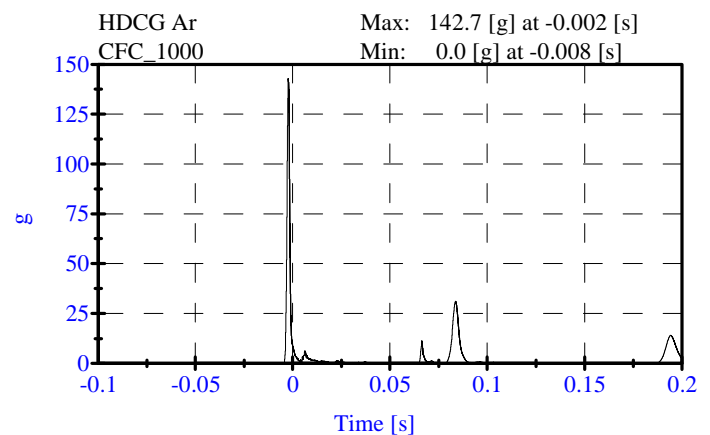
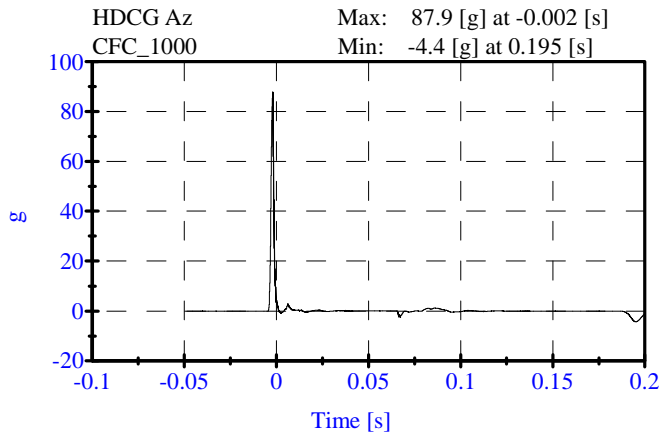
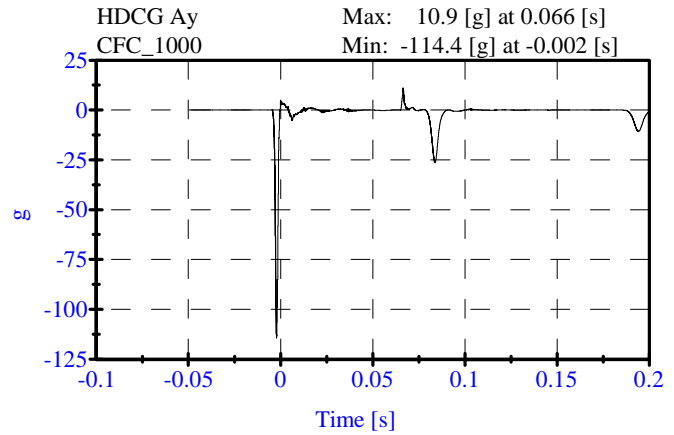
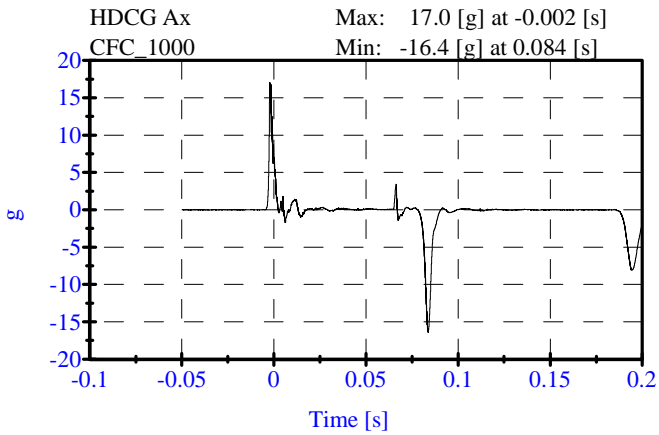
ATD Serial No: 906

Date: July 27, 2006

Sequential Test Number: 1 File: 906H

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	142.74 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	17.00 Gs	Failed
Curve PerCent NonModal:	< 15%	21.77 %	Failed



SID Head Neck Test S/N:906**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906

Sequential Test Number: 1 File: 906N

Date: July 27, 2006

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.33 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.76 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.80 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.61 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	69.70 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	61.90 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.39 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.70 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	12.45 ms	Passed

SID Head Neck Test S/N:906

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

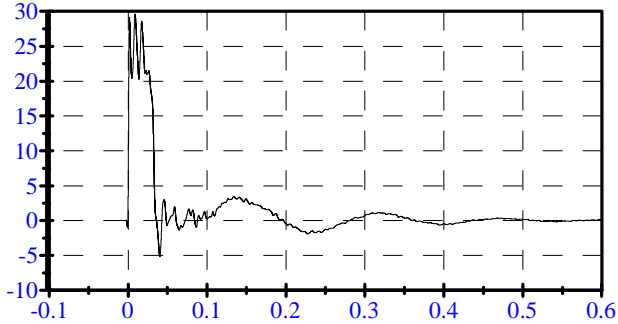
ATD Serial No: 906

Date: July 27, 2006

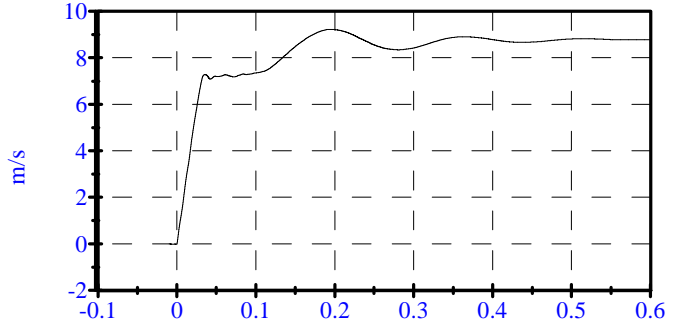
Sequential Test Number: 1 File: 906N

Laboratory Technician: B. Swiecicki

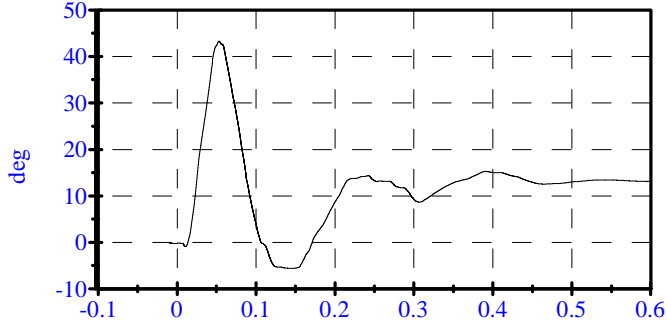
Pend Ax
CFC_180
Max: 29.6 [] at 0.009 [s]
Min: -5.2 [] at 0.040 [s]



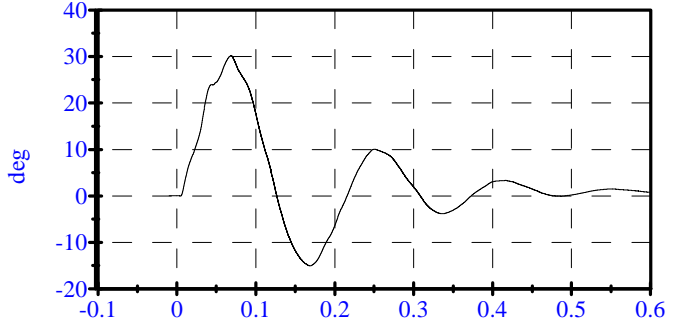
Pend Vx
CFC_180
Max: 9.2 [m/s] at 0.197 [s]
Min: -0.0 [m/s] at -0.000 [s]



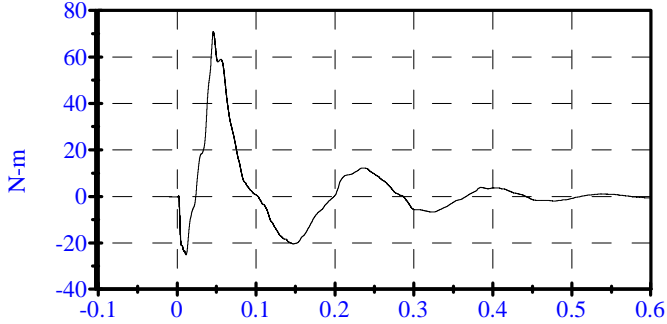
Head Rot
CFC_180
Max: 43.3 [deg] at 0.053 [s]
Min: -5.6 [deg] at 0.144 [s]



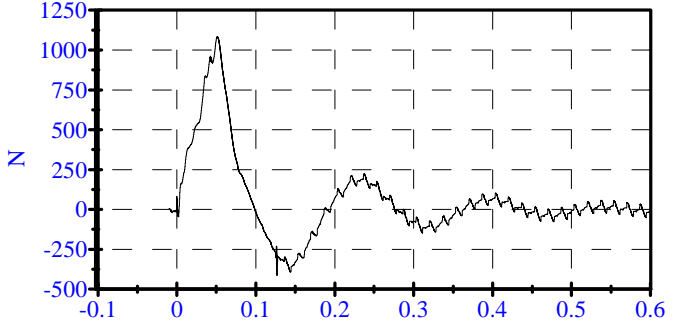
Arm Rot
CFC_180
Max: 30.1 [deg] at 0.069 [s]
Min: -15.1 [deg] at 0.169 [s]



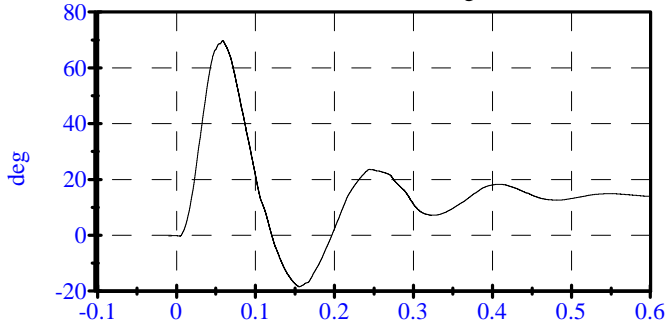
Neck Mx
CFC_600
Max: 70.9 [N-m] at 0.046 [s]
Min: -25.1 [N-m] at 0.012 [s]



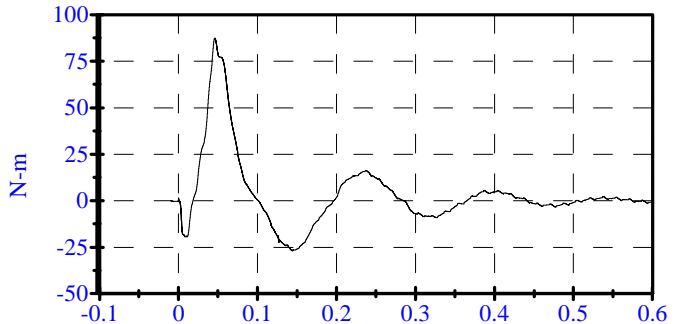
Neck Fy
CFC_1000
Max: 1084.9 [N] at 0.051 [s]
Min: -412.9 [N] at 0.127 [s]



Tot Rot
CFC_180
Max: 69.7 [deg] at 0.059 [s]
Min: -18.5 [deg] at 0.155 [s]



MOCX
Max: 87.4 [N-m] at 0.046 [s]
Min: -27.0 [N-m] at 0.144 [s]



Sid Abdominal Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

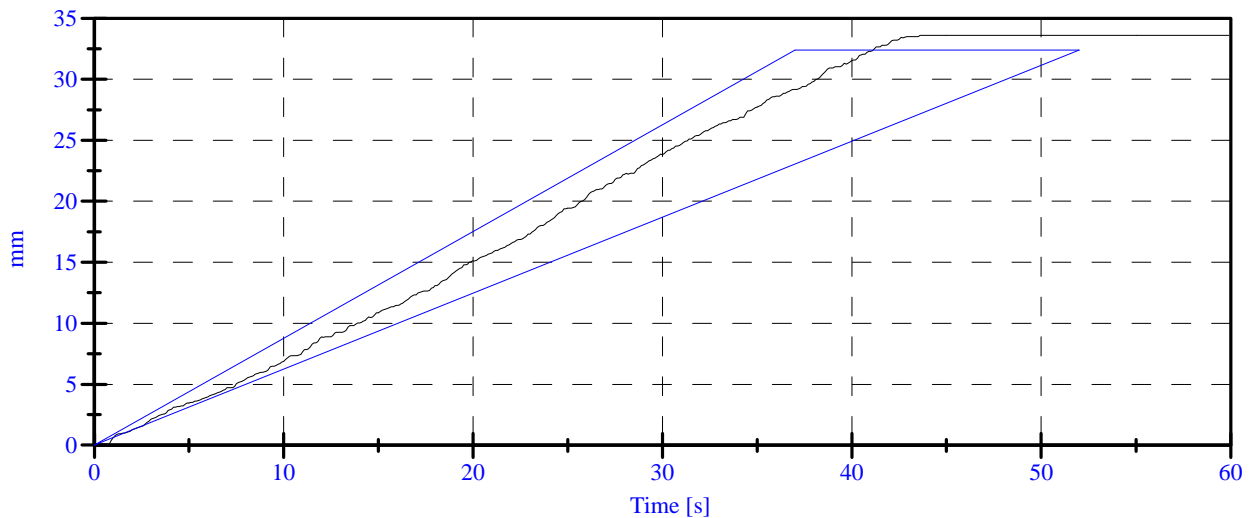
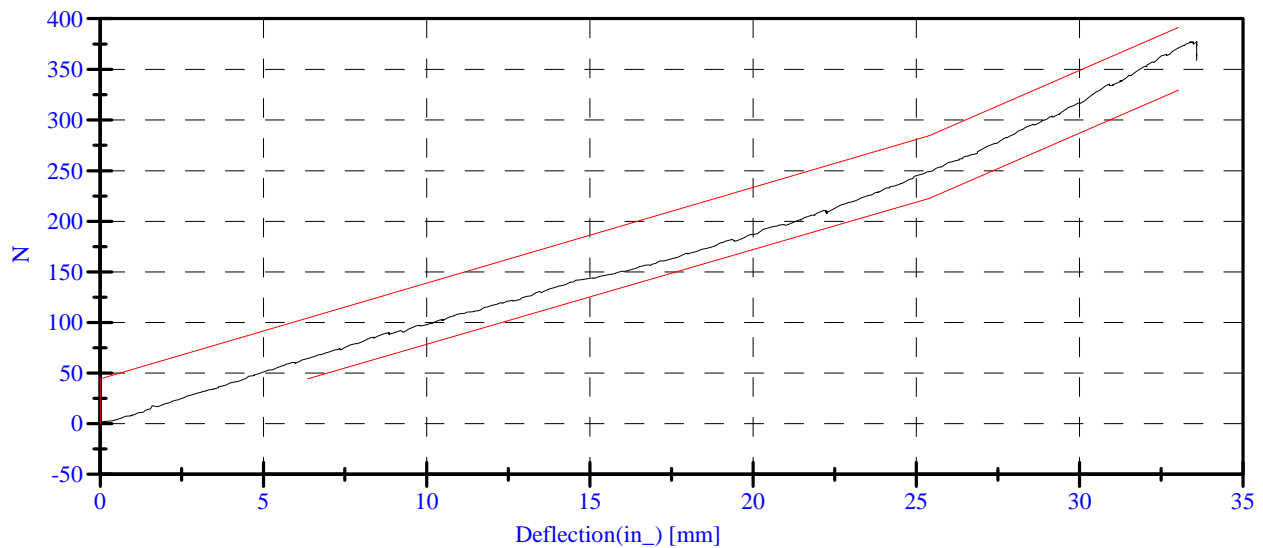
Date: 7-26-2006

Sequential Test Number: 1 File: SID 906 Abdominal test 1

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	124.40 N	Passed
Force at 19.05 mm :	162.98-220.99 N	179.50 N	Passed
Force at 25.40 mm :	221.97-280.02 N	249.10 N	Passed
Force at 33.02 mm :	324.99-391.00 N	370.53 N	Passed

ABDOMINAL COMPRESSION TEST



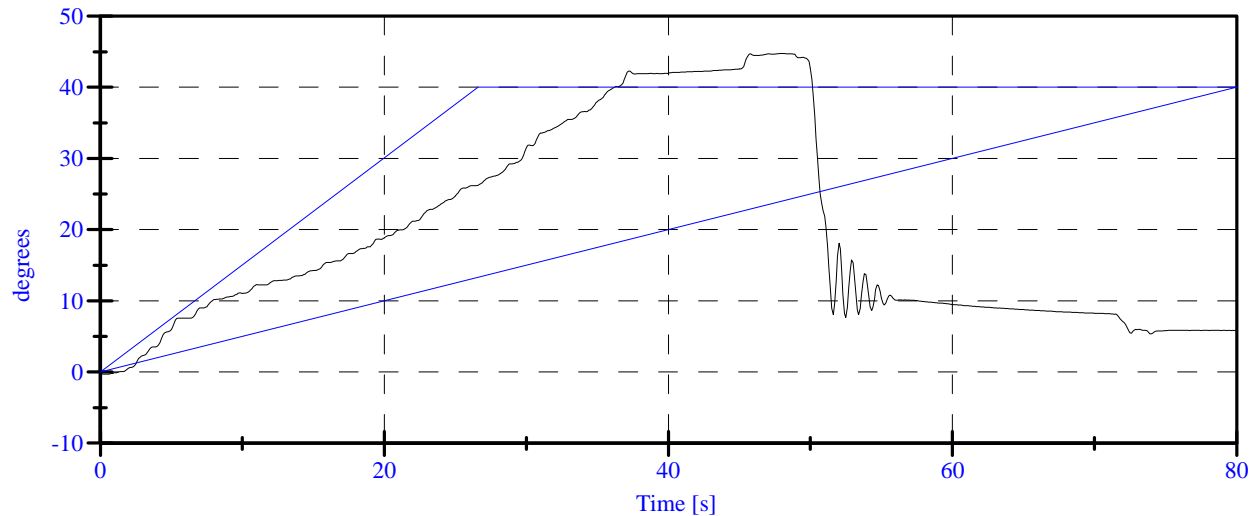
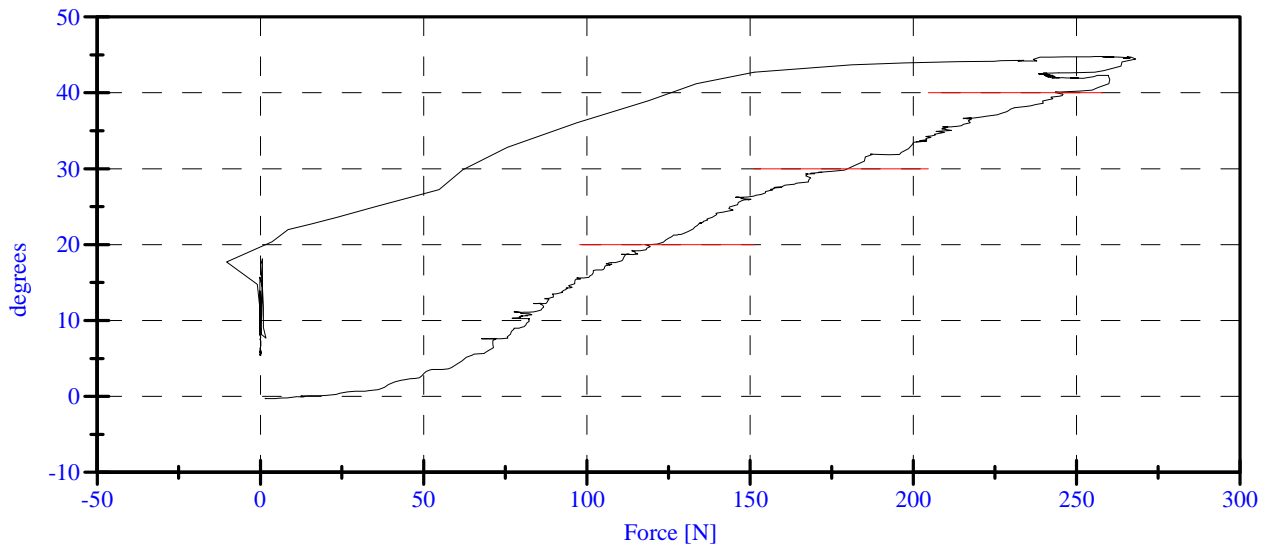
SID 906 Lumbar Spine Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
 Date: July 24, 2006

Sequential Test Number: 1 File: Lumbar Spine test 1 sn 906
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	50.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	12.41 N	Passed
Force at 20 Deg:	97.86-151.24 N	117.92 N	Passed
Force at 30 Deg:	151.24-204.62 N	179.81 N	Passed
Force at 40 Deg:	204.62-258.00 N	243.53 N	Passed
Return Angle	12 Deg Max	5.86 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

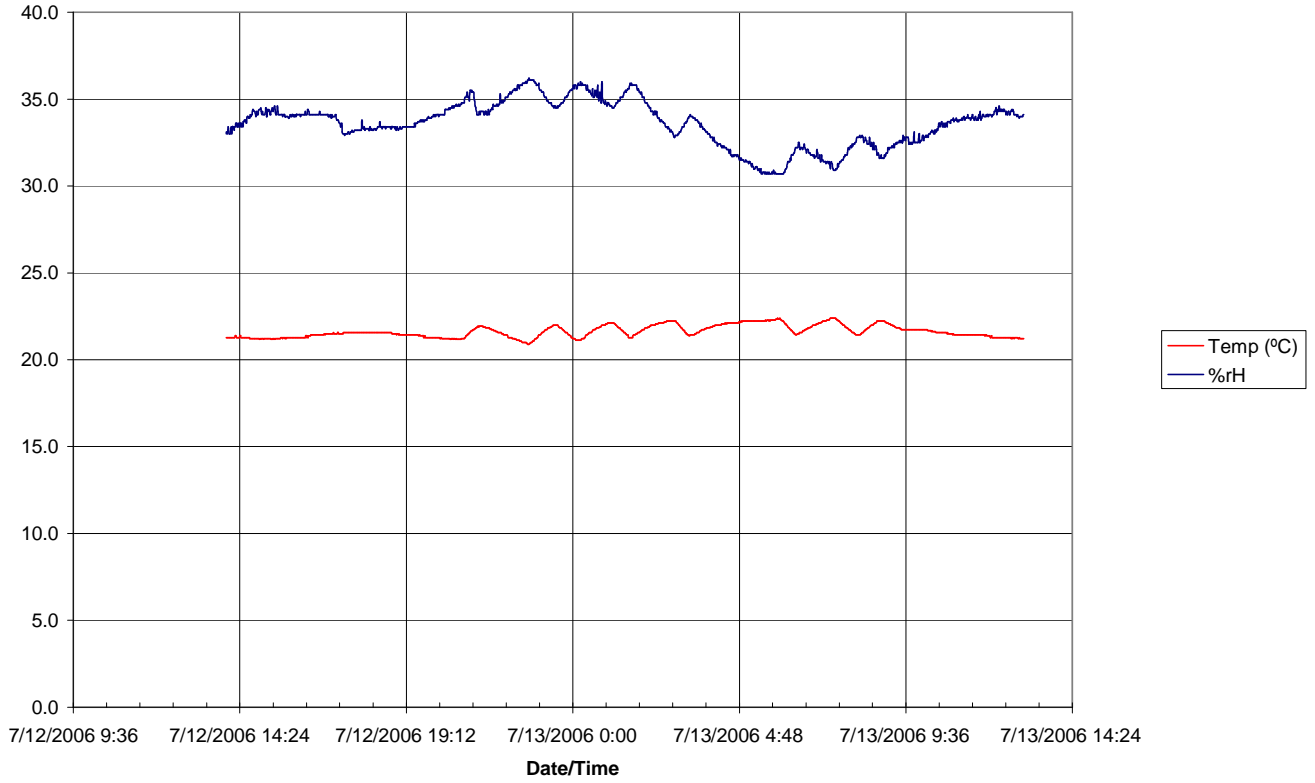
SID H3 Serial No.: 906 Sequential Test Number: 1
 Date: July 27, 2006 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE

Mazda CX-7 M75401 Environmental Conditions



APPENDIX D
TEST EQUIPMENT AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID/HIII INSTRUMENTATION

FRONT SID/HIII NO.: 905			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P21373	ENDEVCO	7/5/2006
HEAD AY	AC-P23128	ENDEVCO	7/5/2006
HEAD AZ	AC-P21297	ENDEVCO	7/5/2006
UPPER NECK FX	LC-1626FX	DENTON	7/6/2006
UPPER NECK FY	LC-1626FY	DENTON	7/6/2006
UPPER NECK FZ	LC-1626FZ	DENTON	7/6/2006
UPPER NECK MX	LC-1626MX	DENTON	7/6/2006
UPPER NECK MY	LC-1626MY	DENTON	7/6/2006
UPPER NECK MZ	LC-1626MZ	DENTON	7/6/2006
UPPER RIB	AC-P15736	ENDEVCO	7/5/2006
LOWER RIB	AC-P16289	ENDEVCO	7/5/2006
LOWER SPINE	AC-P16761	ENDEVCO	7/5/2006
PELVIS	AC-P23960	ENDEVCO	7/5/2006
UPPER RIB REDUNDANT	AC-P16593	ENDEVCO	7/5/2006
LOWER RIB REDUNDANT	AC-P23142	ENDEVCO	7/5/2006
LOWER SPINE REDUNDANT	AC-P21516	ENDEVCO	7/5/2006
PELVIS REDUNDANT	AC-P32221	ENDEVCO	7/5/2006

REAR SID/HIII NO.: 906			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P23788	ENDEVCO	7/6/2006
HEAD AY	AC-P21393	ENDEVCO	7/6/2006
HEAD AZ	AC-P16845	ENDEVCO	7/6/2006
UPPER NECK FX	LC-798FX	DENTON	7/6/2006
UPPER NECK FY	LC-798FY	DENTON	7/6/2006
UPPER NECK FZ	LC-798FZ	DENTON	7/6/2006
UPPER NECK MX	LC-798MX	DENTON	7/6/2006
UPPER NECK MY	LC-798MY	DENTON	7/6/2006
UPPER NECK MZ	LC-798MZ	DENTON	7/6/2006
UPPER RIB	AC-P16862	ENDEVCO	7/6/2006
LOWER RIB	AC-P16866	ENDEVCO	7/6/2006
LOWER SPINE	AC-P16645	ENDEVCO	7/6/2006
PELVIS	AC-P23139	ENDEVCO	7/6/2006
UPPER RIB REDUNDANT	AC-P23156	ENDEVCO	7/6/2006
LOWER RIB REDUNDANT	AC-P16656	ENDEVCO	7/6/2006
LOWER SPINE REDUNDANT	AC-P19343	ENDEVCO	7/6/2006
PELVIS REDUNDANT	AC-P17539	ENDEVCO	7/6/2006

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	AC-P23134	ENDEVCO	6/30/2006
RIGHT FRONT SILL (Y)	AC-P17535	ENDEVCO	6/30/2006
RIGHT FRONT SILL (Z)	AC-P18792	ENDEVCO	6/30/2006
RIGHT REAR SILL (X)	AC-P23976	ENDEVCO	7/6/2006
RIGHT REAR SILL (Y)	AC-P18718	ENDEVCO	7/5/2006
RIGHT REAR SILL (Z)	AC-P18628	ENDEVCO	7/6/2006
REAR FLOORPAN ABOVE AXLE (X)	AC-J31020	ENDEVCO	7/5/2006
REAR FLOORPAN ABOVE AXLE (Y)	AC-J31101	ENDEVCO	7/5/2006
REAR FLOORPAN ABOVE AXLE (Z)	AC-J31059	ENDEVCO	7/5/2006
LEFT REAR SILL (Y)	AC-P19374	ENDEVCO	7/5/2006
LEFT FRONT SILL (Y)	AC-P23155	ENDEVCO	6/30/2006
LEFT FRONT DOOR CENTERLINE (Y)	-	-	-
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-8086-047	ICS	7/10/2006
MID REAR OF LEFT FRONT DOOR (Y)	-	-	-
LEFT FRONT DOOR UPPER C/L (Y)	-	-	-
MID REAR OF LEFT REAR DOOR (Y)	-	-	-
LEFT REAR DOOR UPPER C/L (Y)	-	-	-
LOWER LEFT B- PILLAR (Y)	AC-P19219	ENDEVCO	7/5/2006
MIDDLE LEFT B-PILLAR (Y)	AC-P13323	ENDEVCO	7/5/2006
LOWER LEFT A-PILLAR (Y)	AC-P16616	ENDEVCO	7/5/2006
UPPER LEFT A-PILLAR (Y)	AC-P23136	ENDEVCO	7/5/2006
FRONT SEAT TRACK (Y)	AC-P16843	ENDEVCO	7/5/2006
REAR SEAT TRACK (Y)	AC-P23137	ENDEVCO	7/5/2006
VEHICLE CG (X)	AC-P19111	ENDEVCO	7/7/2006
VEHICLE CG (Y)	AC-P23161	ENDEVCO	1/19/2006
VEHICLE CG (Z)	AC-P24011	ENDEVCO	7/7/2006
MDB CG (X)	AC-C16433	ENDEVCO	6/27/2006
MDB CG (Y)	AC-C16416	ENDEVCO	6/27/2006
MDB CG (Z)	AC-C16499	ENDEVCO	6/27/2006
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	6/27/2006
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	6/27/2006

REMARKS: None