

REPORT NUMBER: SNCAP-CAL-07-07

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**GENERAL MOTORS CORP.
2007 SATURN OUTLOOK
4-DOOR SUV**

NHTSA NUMBER: M70107

**PREPARED BY:
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Test Date: February 2, 2007

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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OFFICE OF CRASHWORTHINESS STANDARDS
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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 Saturn Outlook 4-door 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 February 2, 2007. The impact velocity of the Moving Deformable Barrier (MDB) was 61.80 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 21.1°C. The target vehicle's maximum post test static crush was 222 mm at level 2. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">16.10</td> <td style="text-align: center;">22.15</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">22.54</td> <td style="text-align: center;">26.27</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">28.92</td> <td style="text-align: center;">26.60</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">26</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">38</td> <td style="text-align: center;">37</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">46.3</td> <td style="text-align: center;">55.2</td> </tr> </tbody> </table> 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.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	16.10	22.15	Left Lower Rib (LLR) Accel., g	22.54	26.27	Lower Spine (T ₁₂) Accel., g	28.92	26.60	Thoracic Trauma Index (TTI)	26	26	Pelvis (PEV) Accel., g	38	37	HIC	46.3	55.2
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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' 2006 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 Saturn Outlook 4-door SUV manufactured by General Motors Corp.. 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 Saturn Outlook 4-door 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 61.80 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 2487 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on February 2, 2007.

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/HIIs) can be found in Appendix A.

Two 50th percentile adult male SID/HII'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/HII 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 222 mm at level 2, 1500 mm rearward of the left vertical impact point. The driver and passenger SID/HII's, Serial Nos. 906 and 905 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/HII's, vehicle, and MDB response data traces. Appendix C contains the SID/HII'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	46.3	45.5	81.4	26	38
Passenger	55.2	54.5	90.5	26	37

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 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	General Motors Corp.	Driver Front Airbag	Yes
Model	Outlook	Driver Side Curtain Airbag	Yes
Body Style	4-door SUV	Driver Side Torso Airbag	Yes
NHTSA No.	M70107	Driver Pretensioners	Yes
VIN	5GZEV13707J100964	Driver Load Limiters	Yes
Color	White	Driver Power Seats	Yes
Engine Disp.(L)	3.6	Rear Pass. Side Curtain Airbag	Yes
Engine Cylinders	6	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	4 Wheel	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	Yes
Power Steering	Yes	Traction Control	Yes
Power Brakes	Yes	Power Windows	Yes
Delivery Date	1/12/07	Power Door Locks	Yes
Odometer Reading (km)	66	Automatic Door Locks (ADL)	Yes/
Dealer	Lansing Delta Township Assembly	Owner's Manual Details Instructions on Disabling ADLs	No

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corp.	GVWR (kg)	2903
Date of Manufacture	11/06	GAWR Front (kg)	1450
		GAWR Rear (kg)	1600

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench		
Number Of Occupants	2	3	3	8
Capacity Wt. (VCW) (kg)				659
Cargo Wt. (RCLW) (kg)				114.7

DATA SHEET NO. 1 (continued)**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

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	625.0	613.0		676.5	616.0		679	591	
Right	kg	485.0	495.0		609.0	594.0		636	581	
Ratio	%	50.0	50.0		51.5	48.5		52.9	47.1	
Totals	kg	1110.0	1108.0	2218.0	1285.5	1210.0	2495.5	1315.0	1172.0	2487.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2218
Weight of 2 P572E ATDs (81.2 kg each)	kg	162.4
Rated Cargo/Luggage Weight (RCLW)	kg	114.7
Calculated Vehicle Target Weight (TVTW)	kg	2495.1

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

Weight of Ballast (including instrumentation package and cameras): 106.6 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	867	906	867	906
Fully Loaded	mm	862	883	858	876
As Tested	mm	862	885	865	889

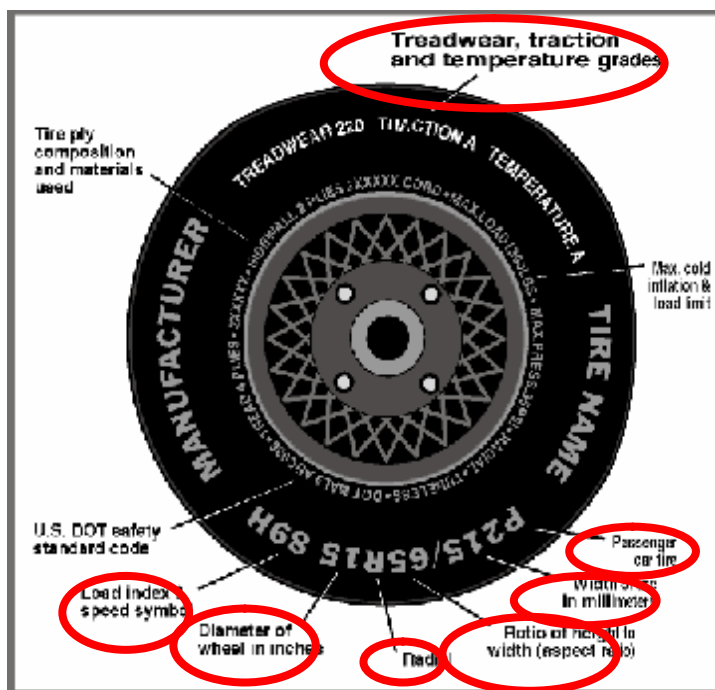
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	3022
Target Impact Point Aft of Front Axle	mm	571
Actual Impact Point Aft of Front Axle	mm	559
As Tested CG (aft of front axle)	mm	1424

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	240	240
Recommended Tire Size	P255/65R18	P255/65R18
Tire Size on Vehicle	P255/65R18	P255/65R18
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Fortera	Fortera
Tire Type	Passenger	Passenger
Tire Width (mm)	255	255
Ratio of Height to Width (aspect ratio)	65	65
Radial	R	R
Wheel Diameter	18	18
Load Index & Speed Symbol	109S	109S
Treadwear	540	540
Traction Grade	A	A
Temperature Grade	B	B

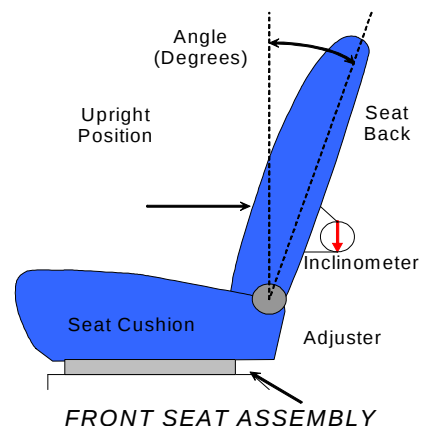
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

NORMAL DESIGN RIDING POSITION

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

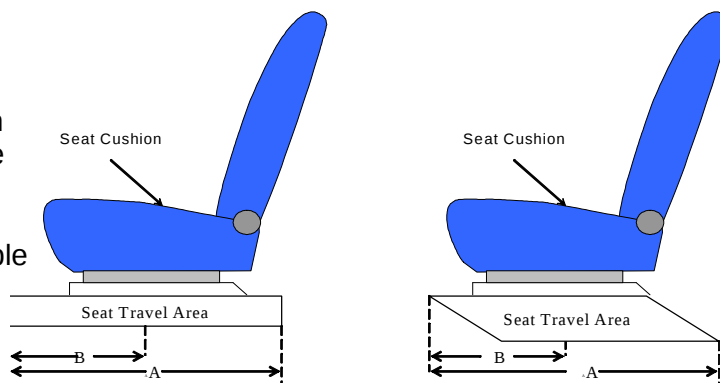


SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	Detent 6	Detent 0
Angle (deg. from forward-most locking position)	3.0	17
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)	280	240
Test Position (B) (mm)	140	120
Test Detent (forward-most detent defined as 0)	Electric Seat	5
Total Number of Detents (including 0)	Electric Seat	9

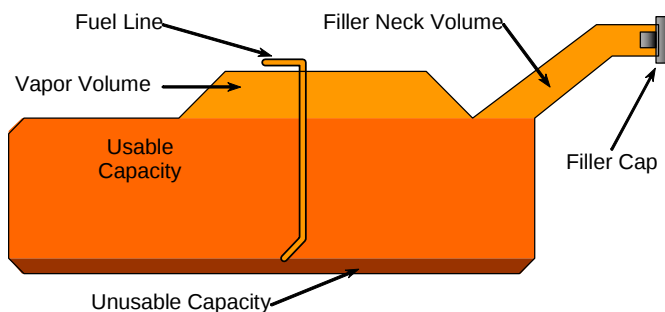
DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

Test Vehicle: <u>2007 Saturn Outlook</u> Test Program: <u>NCAP Side Impact</u>	NHTSA No. <u>M70107</u> Test Date: <u>February 2, 2007</u>
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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.



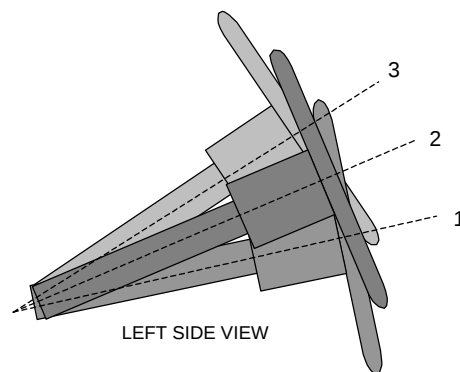
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	82.1
Usable Capacity of "Optional" Fuel Tank	0
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	76.5

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	65.8	NA
Geometric Center Position No. 2 *	NA	68.6	NA
Uppermost Position No. 3	NA	71.4	NA

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

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

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	61.8
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	61.8

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

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	12mm forward
Vertical Offset	mm	+/-20	2 mm below

DATA SHEET NO. 5
POST TEST OBSERVATIONS

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID/HIII / 906	SID/HIII / 905
Head Contact	Curtain Airbag	Curtain Airbag
Upper Torso Contact	Torso Side Bag	Door Trim
Lower Torso Contact	Door Trim	Door Trim
Left Knee Contact	Door Trim	Door Trim
Right Knee Contact	Left Knee	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	Left Rear Passenger Window Broke
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

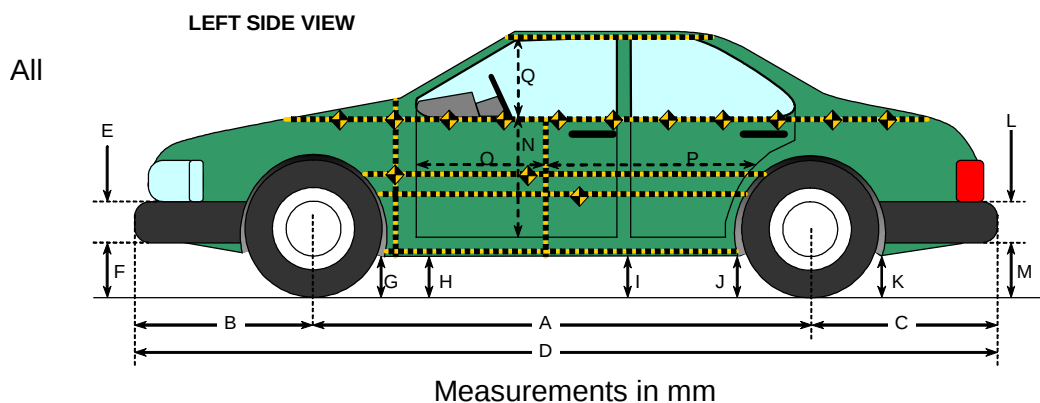
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007



Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	3023	3022	3021	1
B	Front Axle to FSOV	975	975	971	4
C	Rear Axle to RSOV	1103	1104	1105	-1
D	Total Length at Centerline	5101	5101	5097	4
E	Front Bumper Thickness	154	154	156	-2
F	Front Bumper Bottom to Ground	486	486	479	7
G	Sill Height at Front Wheel Well	293	281	283	-2
H	Sill Height at Front Door Leading Edge	299	285	295	-10
I	Sill Height at "B" Pillar	320	300	315	-15
J1	Sill Height at Rear Wheel Well	342	316	335	-19
J2	Pinch Weld Height at Rear Wheel Well	340	314	332	-18
K	Sill Height Aft of Rear Wheel Well	365	332	357	-25
L	Rear Bumper Thickness	157	157	153	4
M	Rear Bumper Bottom to Ground	513	481	502	-21
N	Sill Height to Window Bottom Sill	814	814	753	61
O	Front Door Leading Edge to Impact CL	853	853	823	30
P	Rear Door Trailing Edge to Impact CL	1227	1227	1165	62
Q	Front Window Opening	488	488	516	-28
R	Right Side Length	4916	4916	4915	1
S	Left Side Length	4915	4915	4912	3
T	Vehicle Width at "B" Post	1961	1961	1803	158

DATA SHEET NO. 7

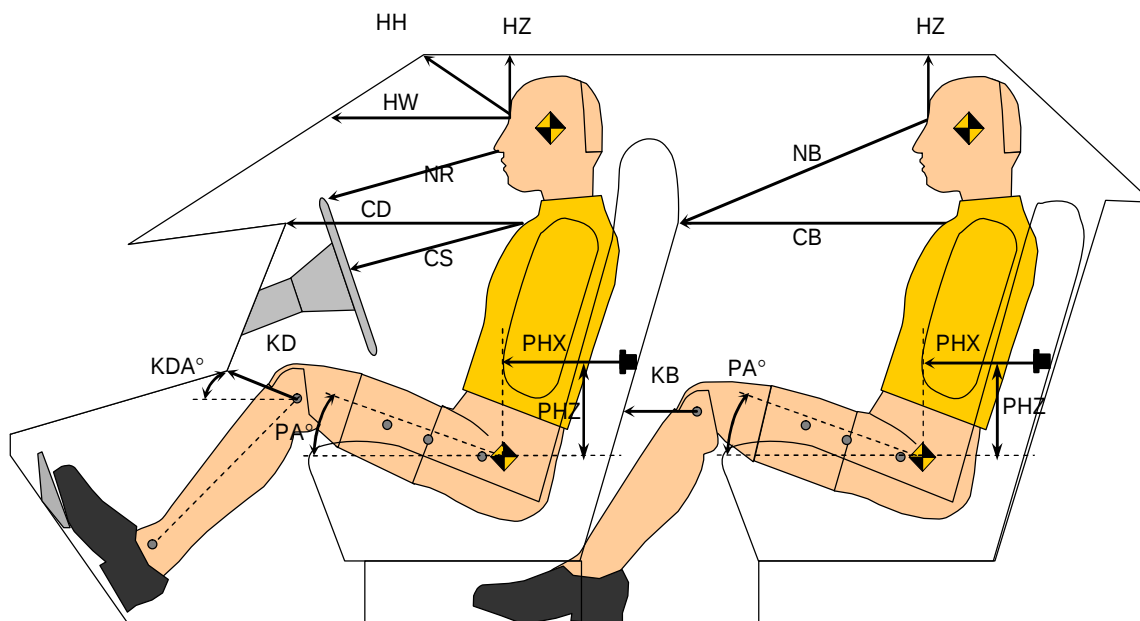
SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007

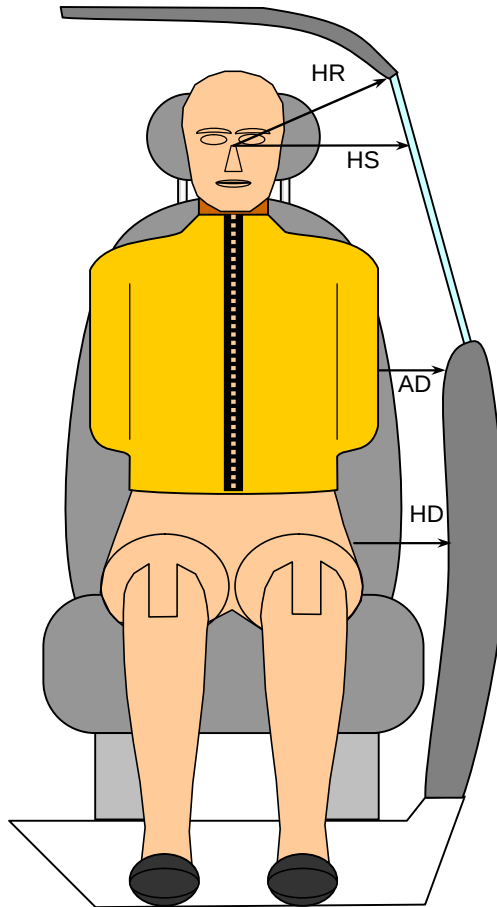


Driver Code	Pass. Code	Measurement Description	Driver S/N 906		Passenger S/N 905	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	526			
HW		Head to Windshield	785			
HZ	HZ	Head to Roof	241		204	
NR	NB	Nose to Rim/Nose to Seatback	445		569	
CD	CB	Chest to Dash or Seatback	621		518	
CS		Chest to Steering Wheel	300			
KDL	KBL	Left Knee to Dash or Seatback	218	27	216	19
KDR	KBR	Right Knee to Dash or Seatback	209	26	218	19
PA	PA	Pelvic Angle		23.4		24.6
PHX	PHX	H-Point to Striker (X-Axis)	194		236	
PHZ	PHZ	H-Point to Striker (Z-Axis)	58		106	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007



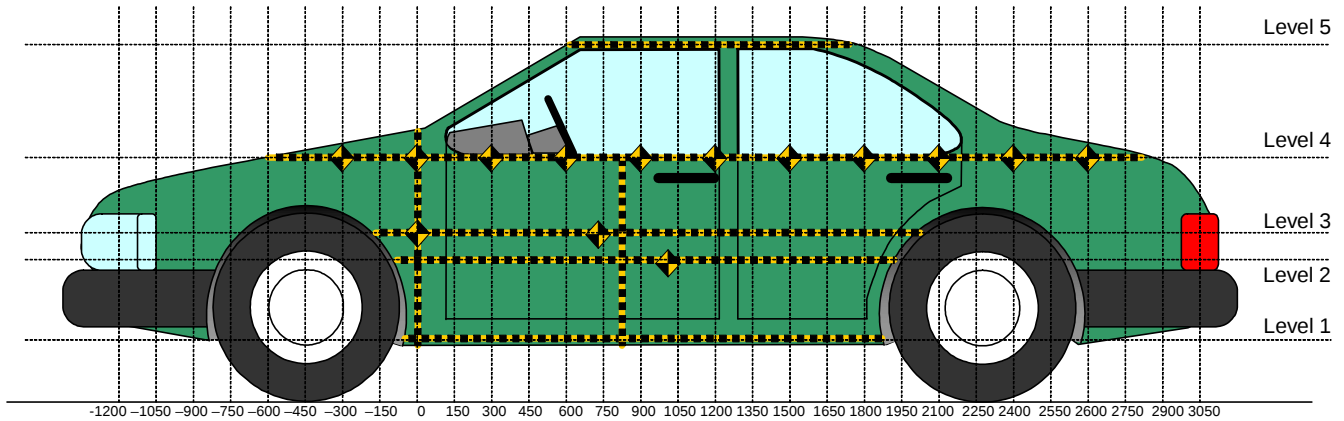
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 906	Passenger S/N 905
HR	Head to Side Header	mm	241	215
HS	Head to Side Window	mm	354	356
AD ₁	Arm to Door (at upper rib level)	mm	151	132
AD ₂	Arm to Door (at lower rib level)	mm	134	142
HD	H-Point to Door	mm	166	156

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007



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	16	259	1200
2	Occupant H-Point	222	127	1500
3	Mid Door	185	242	900
4	Window Sill	66	482	1200
5	Window	4	1093	1200
	Maximum Penetration	222		

DATA SHEET NO. 10

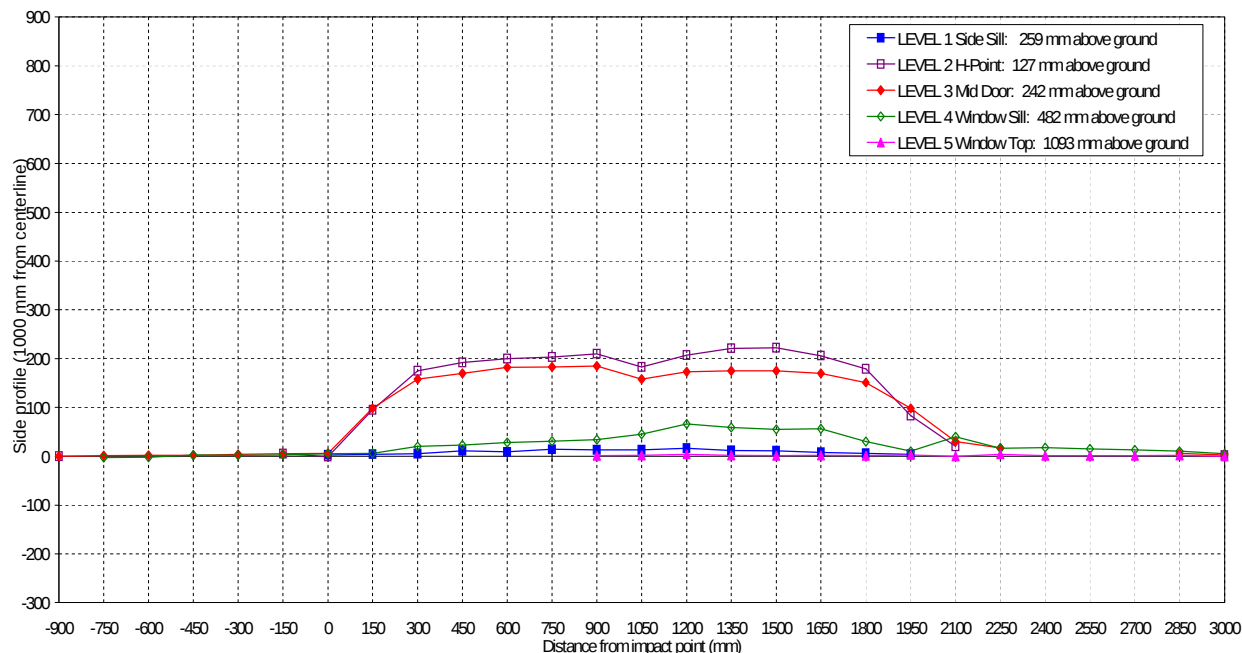
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007



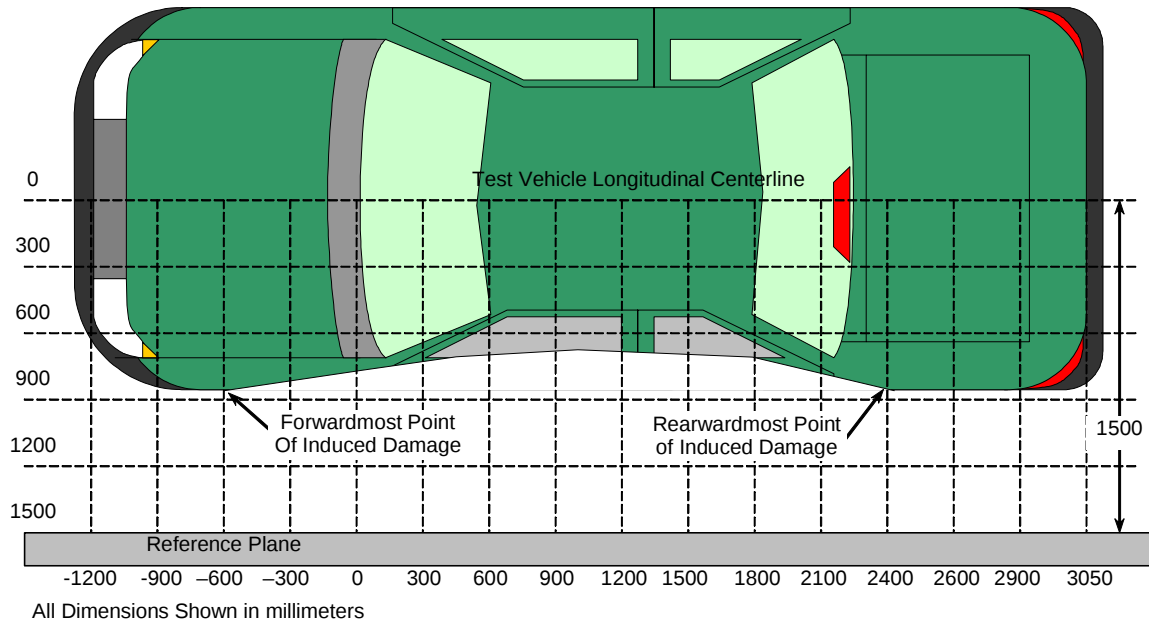
NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

			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	259	PRE	-	-	-	-	-	-	81	122	129	128	130	131	135	138	138	142	145	150	151	113	-	-	-	-	-	-	-	
		POST	-	-	-	-	-	-	84	126	134	139	139	145	148	151	154	154	156	158	157	117	-	-	-	-	-	-	-	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	3	4	5	11	9	14	13	13	16	12	11	8	6	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LEVEL 2 H POINT	127	PRE	35	-	-	-	-	14	31	35	34	31	29	28	27	28	29	29	30	33	39	40	20	-	-	-	-	-	60	
		POST	35	-	-	-	-	19	30	130	209	223	229	231	237	211	236	250	252	239	218	123	40	-	-	-	-	-	62	
		CRUSH	0	N/A	N/A	N/A	N/A	5	-1	95	175	192	200	203	210	183	207	221	222	206	179	83	20	N/A	N/A	N/A	N/A	N/A	2	
LEVEL 3 MID DOOR	242	PRE	56	19	8	3	4	14	32	31	30	29	27	27	27	27	30	31	32	34	37	38	18	8	-	-	-	24	77	
		POST	56	20	10	5	8	19	38	129	188	199	209	210	212	185	203	206	207	204	188	136	48	25	-	-	-	30	80	
		CRUSH	0	1	2	2	4	5	6	98	158	170	182	183	185	158	173	175	175	170	151	98	30	17	N/A	N/A	N/A	6	3	
LEVEL 4 WINDOW SILL	482	PRE	-	265	190	124	102	92	84	75	68	64	58	56	53	51	51	50	49	49	49	27	54	62	65	69	81	92	105	
		POST	-	262	188	127	104	95	89	81	88	87	86	87	87	96	117	109	104	105	79	37	94	78	83	84	94	102	110	
		CRUSH	N/A	-3	-2	3	2	3	5	6	20	23	28	31	34	45	66	59	55	56	30	10	40	16	18	15	13	10	5	
LEVEL 5 WINDOW TOP	1093	PRE	-	-	-	-	-	-	-	-	-	-	-	-	359	353	351	350	352	352	354	357	360	363	370	376	385	398	444	
		POST	-	-	-	-	-	-	-	-	-	-	-	-	-	360	355	355	352	353	354	355	360	3						

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007



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)	3000	482	105	110	5
2	2400	482	65	83	18
3	1800	127	39	218	179
4	1200	127	29	236	207
5	600	127	29	229	200
6 (LF)	0	242	32	38	6

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

DATA SHEET NO. 12

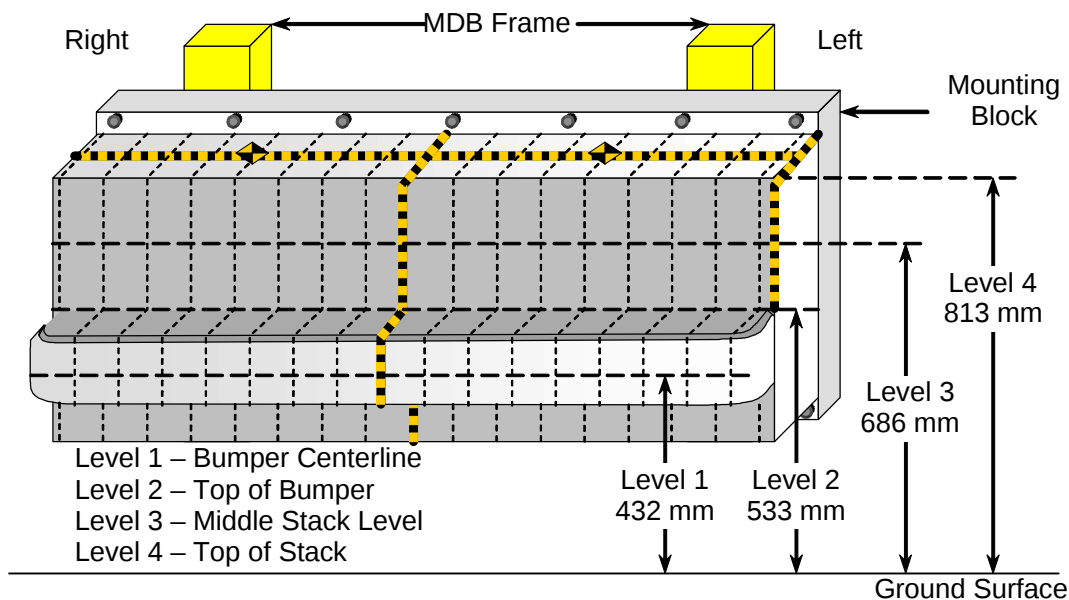
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007



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

			NOTE: All dimensions are in millimeters with a tolerance of ±0.25 mm																		
			DISTANCE RIGHT OF CENTER (mm)										DISTANCE LEFT OF CENTER (mm)								
LEVEL	HEIGHT AT CL (mm)*		800	700	600	500	400	300	200	100	0	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	732	712	693	681	674	670	677	698	687	670	673	684	691	702	707	722	756		
		CRUSH	113	93	74	62	55	51	58	79	68	51	54	65	72	83	88	103	137		
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	730	717	715	711	705	712	736	728	696	682	685	685	682	680	682	692	746		
		CRUSH	111	98	96	92	86	93	117	109	77	63	66	66	63	61	63	73	127		
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	821	807	807	804	793	789	798	794	787	783	771	775	768	765	760	755	749		
		CRUSH	202	188	188	185	174	170	179	175	168	164	152	156	149	146	141	136	130		
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535		
		POST	805	797	795	790	785	782	776	776	769	767	762	755	752	748	741	739	748		
		CRUSH	270	278	277	272	267	264	258	258	251	249	244	237	234	230	223	220	213		

*Heights measured above ground level.

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

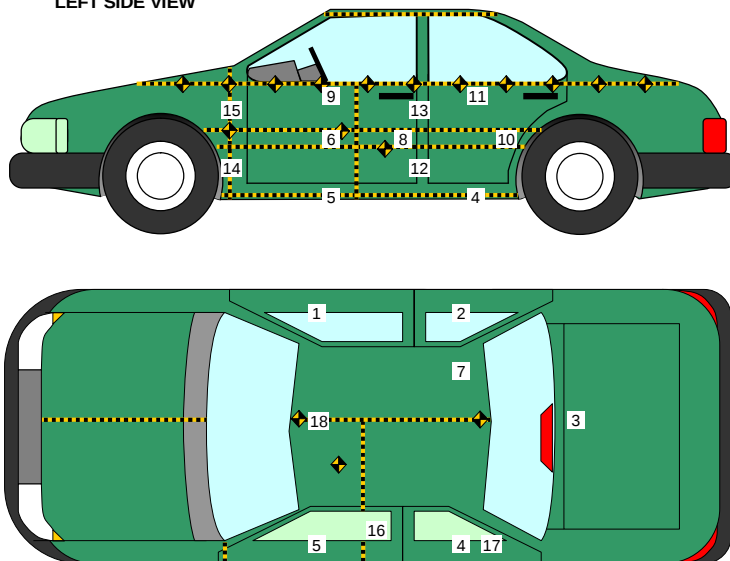
Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007

LEFT SIDE VIEW



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	3266	706	-164
2	Right Sill at Rear Seat	2336	663	-141
3	Rear Floorpan Above Axle	854	27	19
4	Left Sill at Rear Door	2338	-657	-149
5	Left Sill at Front Door	3240	-740	-174
6	Left Front Door C/L **	-	-	-
7	Rear Occupant Compartment	2411	513	-130
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	2541	-729	121
13	Left Middle B-Post	2496	-716	591
14	Left Lower A-Post	3548	-710	-23
15	Left Middle A-Post	3580	-703	616
16	Front Seat Track	2603	-587	-84
17	Rear Seat Track or Structure	1689	-598	-66
18	Vehicle CG	2965	12	122

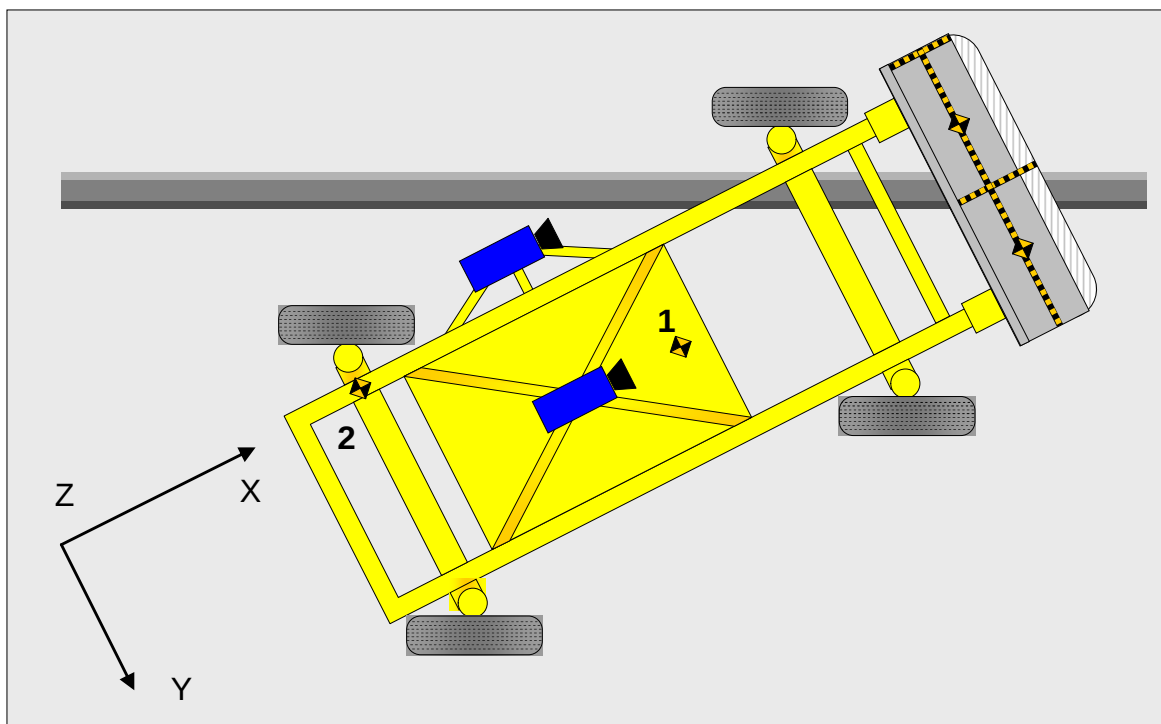
Reference Points X - Test Vehicle Rear Bumper (+ forward)
Y - Test Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

** Accelerometer was not requested by the COTR.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007



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 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

	Elements	Pre-Test (mm)
1	Total Length	5101
2	Total Width	1961
3	Bumper Top Height	41
4	Bumper Bottom Height	-133
5	Longitudinal Member Top Height	44
6	Distance between Longitudinal Members	1050
7	Longitudinal Member Width	78
8	Engine Top Height	477
9	Engine Bottom Height	-392
10	Engine and gearbox width	791
11	Front bumper-engine distance	550
12	Front shock absorber fixing height	424
13	Bonnet leading edge height	349
14	Front shock absorber fixing width	1328
15	Front bumper – front axle distance	974
16	Front axle – a pillar distance	627
17	A-pillar – B-pillar distance	693
18	B-Pillar – rear axle distance	1704
19	B-pillar – C-pillar distance	1242
20	Roof sill bottom height	1059
21	Roof sill top height	1143
22	Floor sill bottom height	-261
23	Floor sill top height	-138

DATA SHEET NO. 16

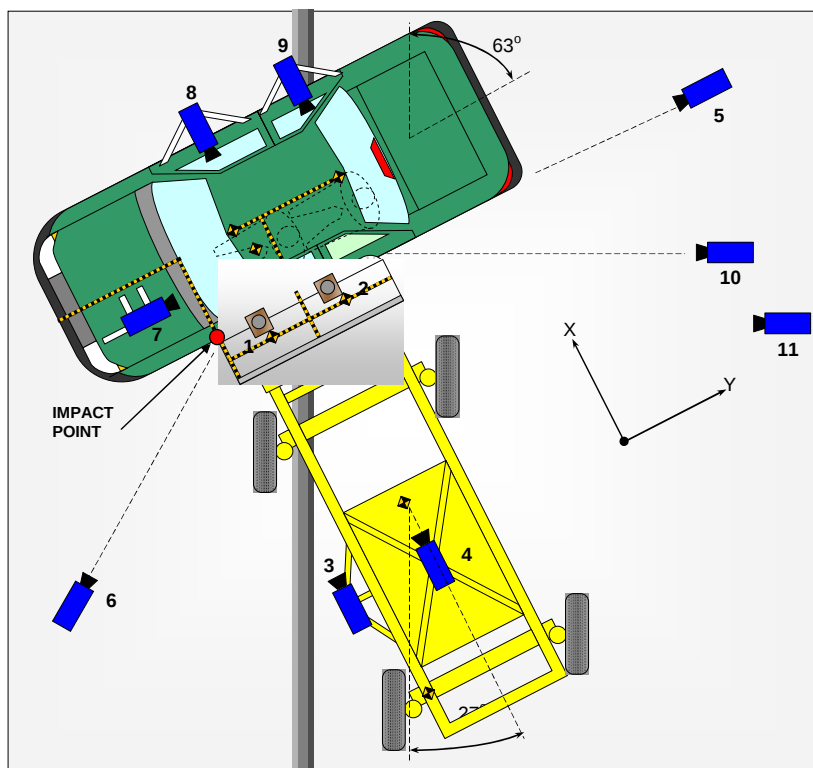
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2007 Saturn Outlook

NHTSA No. M70107

Test Program: NCAP Side Impact

Test Date: February 2, 2007



No.	Camera View	Location (mm)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Overall	72	812	-4880	-90	8	500
2	Overhead Close-up	195	855	-4880	-90	28	1000
3	MDB Onboard, Impact Point Close-up	-1470	0	-847	0	13	500
4	MDB Onboard, Centerline of Impact	-1140	838	-1587	-17	7.5	500
5	Right Side, Ground Level, Overall	0	11190	-1061	-1.9	50	1000
6	Left Side, Ground Level, Overall	-2433	-1849	-906	-1.2	28	1000
7	Vehicle Onboard Front SID/HIII, Front	457	-459	-1498	-10	25	1000
8	Vehicle Onboard Front SID/HIII, Side	1802	632	-1231	-5.6	12.5	1000
9	Vehicle Onboard Rear SID/HIII, Side	1802	1563	-1291	-2.9	12.5	1000
10	Secondary Impact Point	-4873	3112	-961	-1.1	25	500
11	Real Time Coverage						30

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

DATA SHEET NO. 17
SUMMARY OF FMVSS 301 DATA

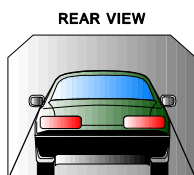
Test Vehicle:	2007 Saturn Outlook	NHTSA No.	M70107
Test Program:	NCAP Side Impact	Test Date:	February 2, 2007

FUEL SYSTEM INTEGRITY POST IMPACT DATA

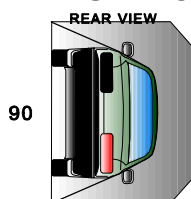
Time Interval	FMVSS 301 Maximum Allowable Spillage	Spillage (g)
Impact Until Motion Ceases	28 g	0
First Five Minutes Following Impact	142 g	0
Next 25 Minutes	28 g / 1 minute	0

Spillage Location(s)	None
----------------------	------

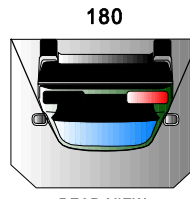
STATIC ROLLOVER DATA



0/360

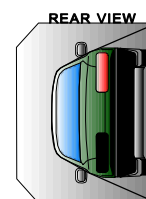


90



180

REAR VIEW



270

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes
90° - 180°	1	minutes	10	seconds	5	minutes	6	minutes	10	seconds	7	minutes
180°-270°	1	minutes	14	seconds	5	minutes	6	minutes	14	seconds	7	minutes
270°-360°	1	minutes	09	seconds	5	minutes	6	minutes	9	seconds	7	minutes

Rollover Stage	Spillage (g)			
	First 5 min. from onset of rotation	6 th min.	7 th min.	8 th min. (if required)
0° - 90°	0	0	0	0
90° - 180°	0	0	0	0
180°-270°	0	0	0	0
270°-360°	0	0	0	0
FMVSS 301 Maximum Allowable (for each 90° stage)	142	28	28	28

Rollover Stage	Spillage Location(s)
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

APPENDIX A
PHOTOGRAPHS

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A-4	Vehicle Tire Placard Label	A-5
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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 $\frac{3}{4}$ View of Left Side Doors

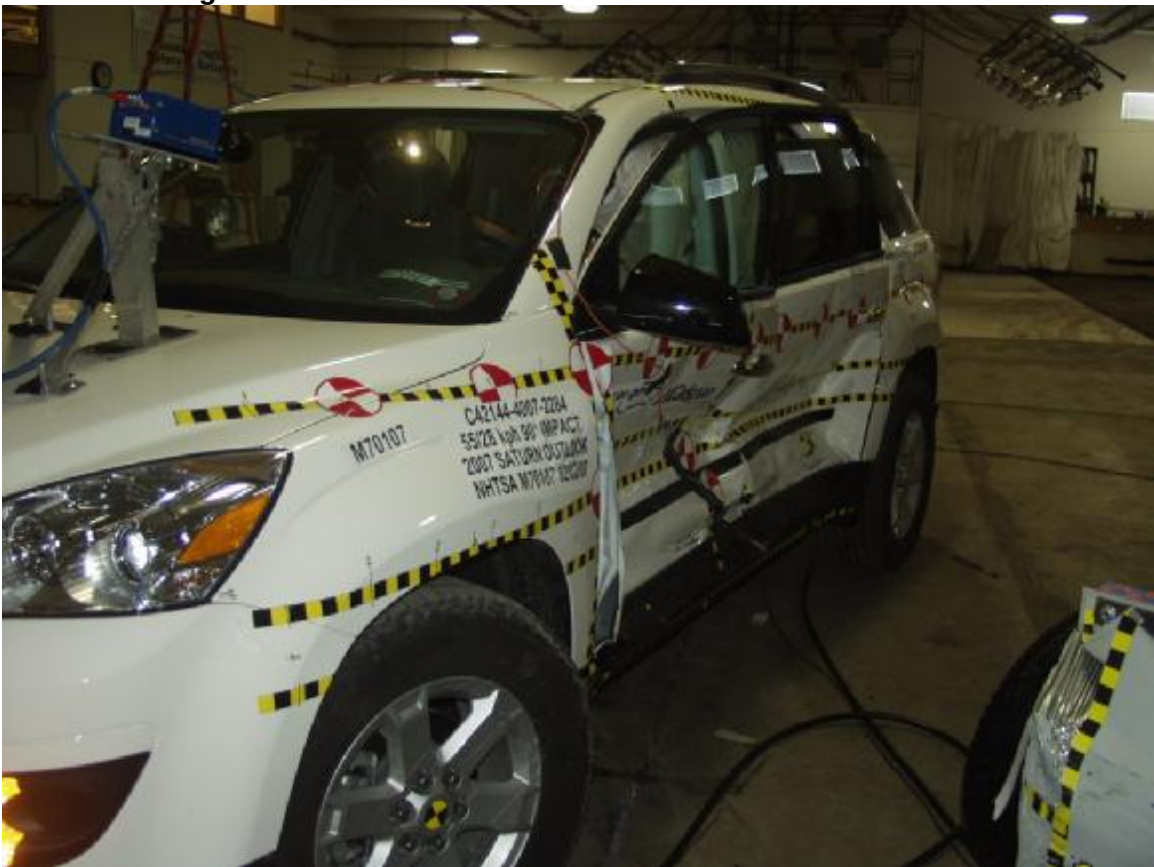


Figure A-48: Post-Test Left Front $\frac{3}{4}$ View of Left Side Doors



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	V2A6 Left Front Door C/L Ay
V2P1 Lower Rib Redundant Ay	V2A7 Right Rear Compartment Ay
V2P1 Lower Spine Ay	V2A8 Left Front Door Midrear Ay
V2P1 Lower Spine Redundant Ay	V2A9 Left Front Door Upper C/L Ay
V2P1 Pelvic Ay	V2A10 Left Rear Door Midrear Ay
V2P1 Pelvic Redundant Ay	V2A11 Left Rear Door Upper C/L Ay
V2P4 Head Ax	V2A12 Left Lower B Post Ay
V2P4 Head Ay	V2A13 Left Mid B Post Ay
V2P4 Head Az	V2A14 Left Lower A Post Ay
V2P4 Upper Neck Fx	V2A15 Left Mid A Post Ay
V2P4 Upper Neck Fy	V2A16 Front Seat Track Ay
V2P4 Upper Neck Fz	V2A17 Rear Seat Track Ay
V2P4 Upper Neck Mx	V2A18 Target CG Ax
V2P4 Upper Neck My	V2A18 Target CG Ay
V2P4 Upper Neck Mz	V2A18 Target CG Az
V2P4 Upper Rib Ay	V1 Moving Barrier CG Ax
V2P4 Upper Rib Redundant Ay	V1 Moving Barrier CG Ay
V2P4 Lower Rib Ay	V1 Moving Barrier CG Az
V2P4 Lower Rib Redundant Ay	V1 Moving Barrier Left Rail Ax
V2P4 Lower Spine Ay	V1 Moving Barrier Left Rail Ay
V2P4 Lower Spine Redundant Ay	
V2P4 Pelvic Ay	
V2P4 Pelvic Redundant Ay	

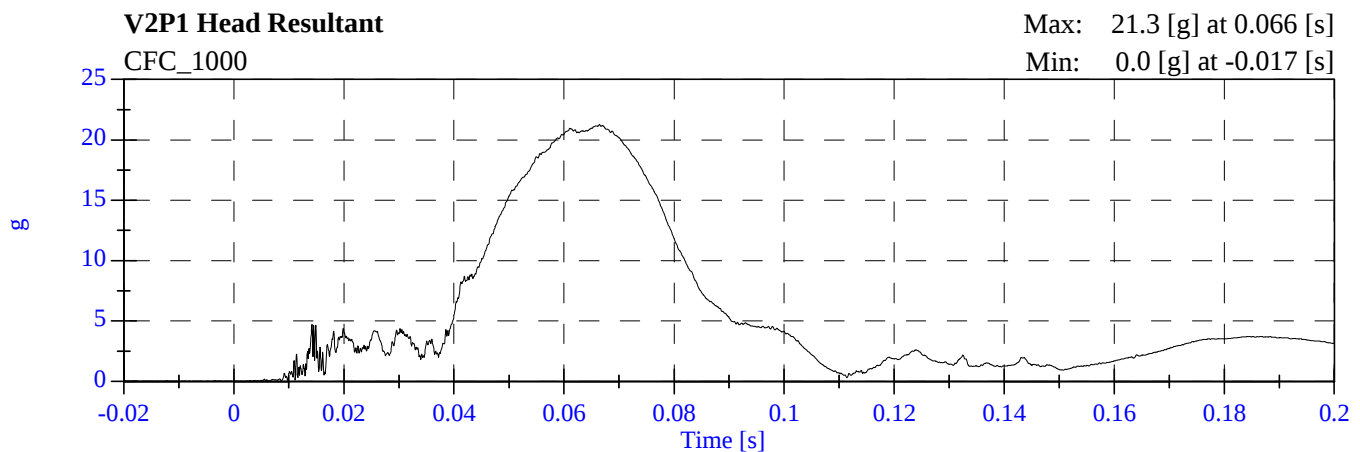
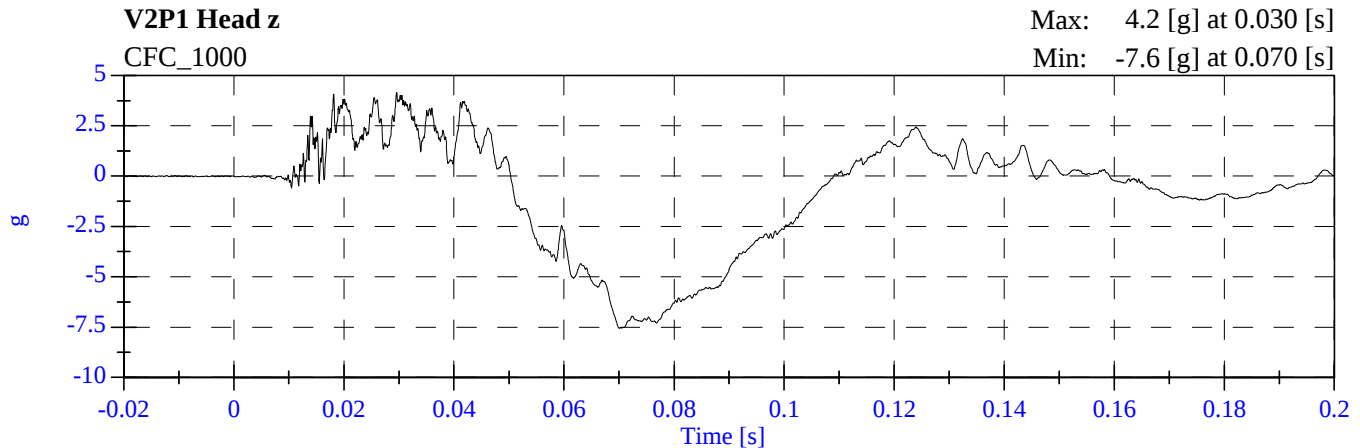
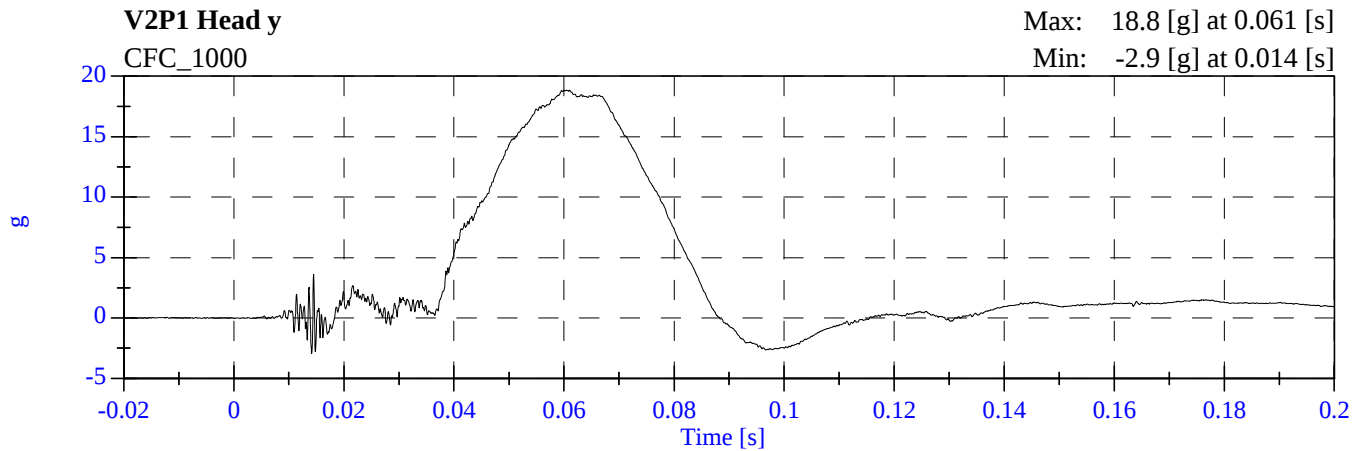
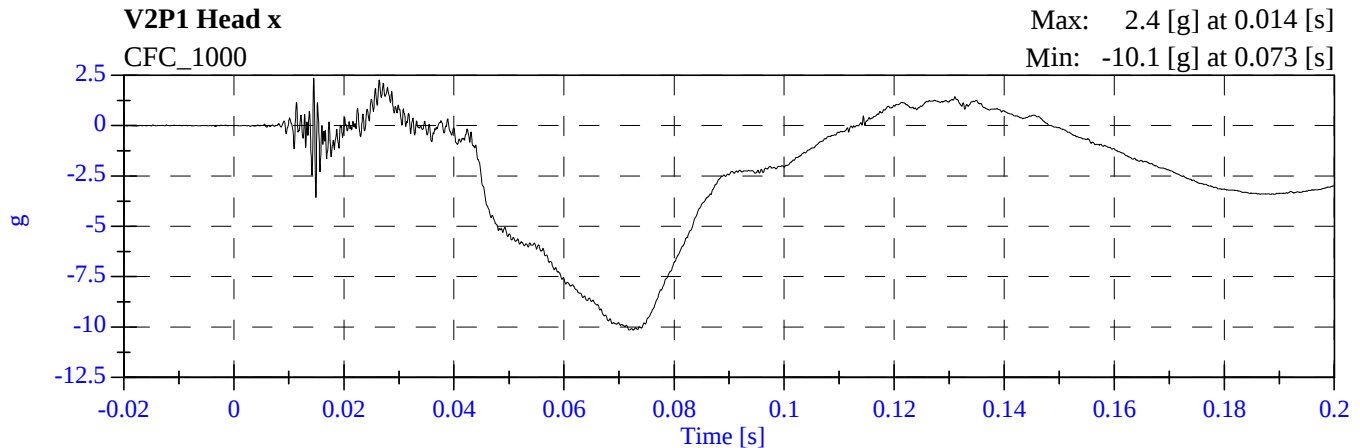
TEST NOTES

The following data anomalies occurred:

V2P1 Upper Neck Fz	Spikes in Data
V2P1 Upper Neck Mz	Spikes in Data
V2P4 Lower Spine Ay	Questionable Data
V2A1 Right Front Sill Ay	Channel opened at 66 ms

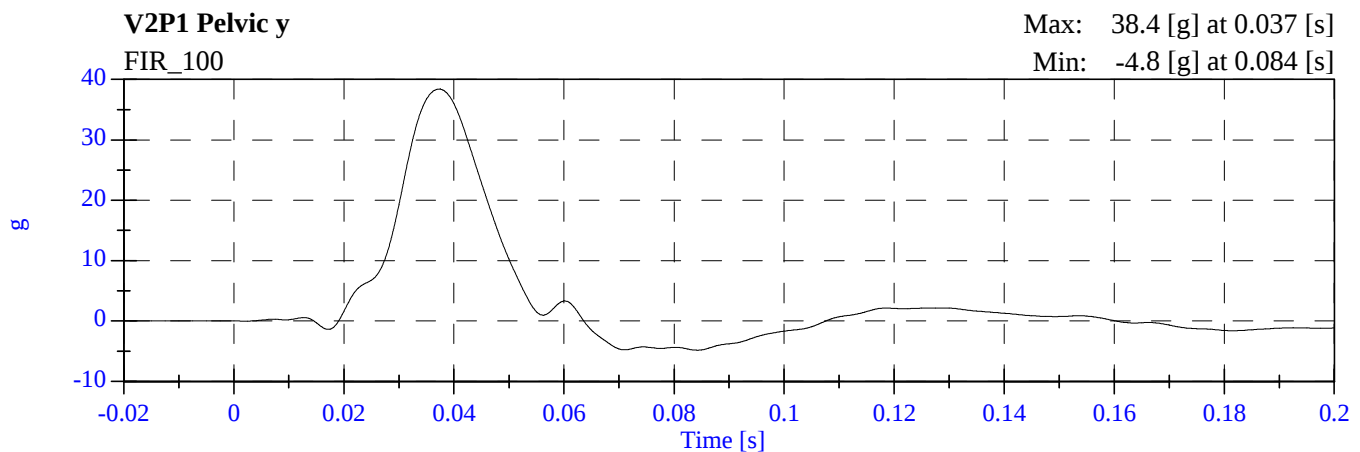
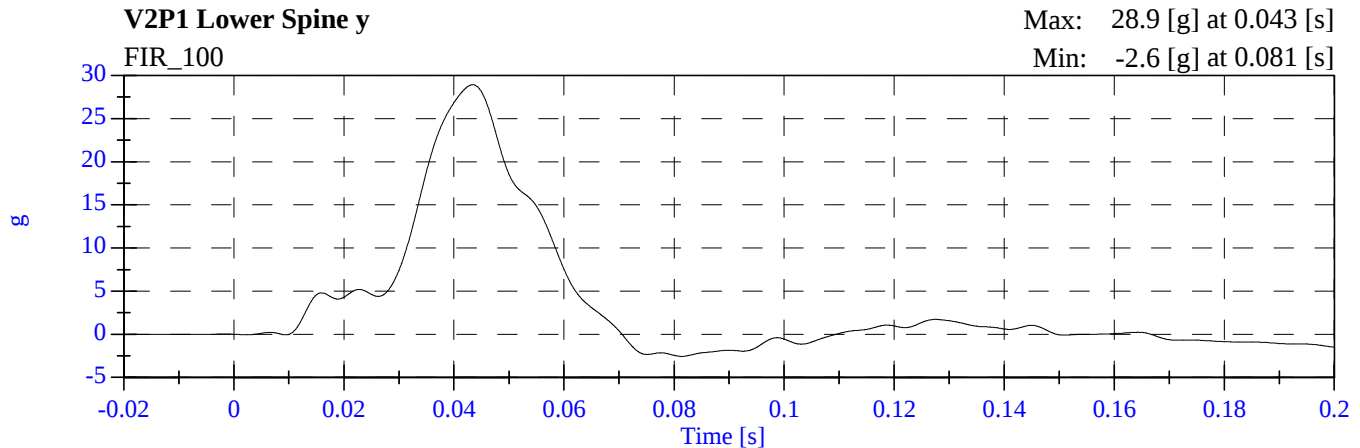
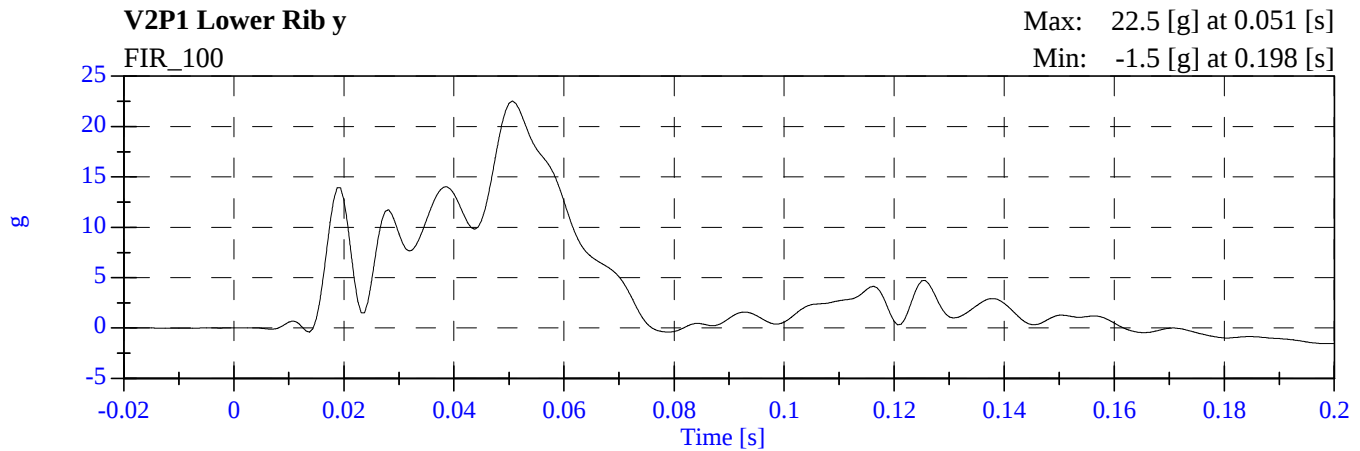
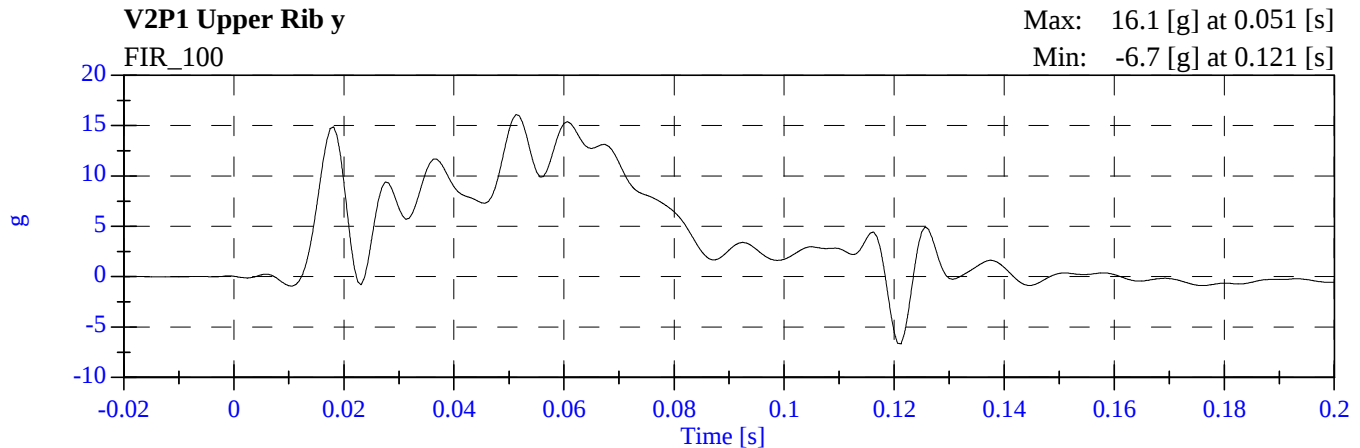
2007 SNCAP Test 7 2007 Saturn Outlook

M70107 - February 02, 2007



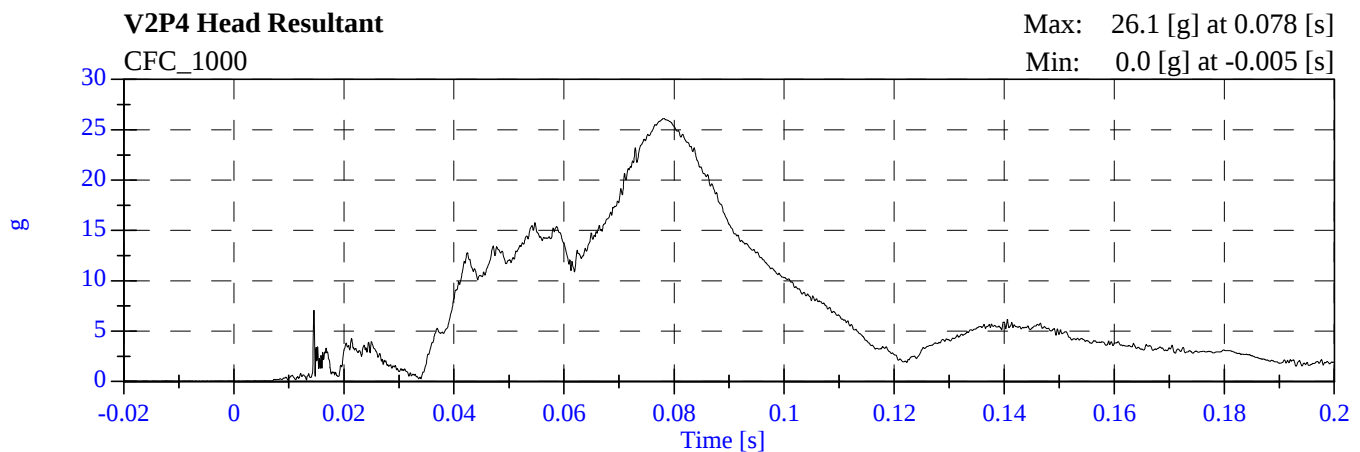
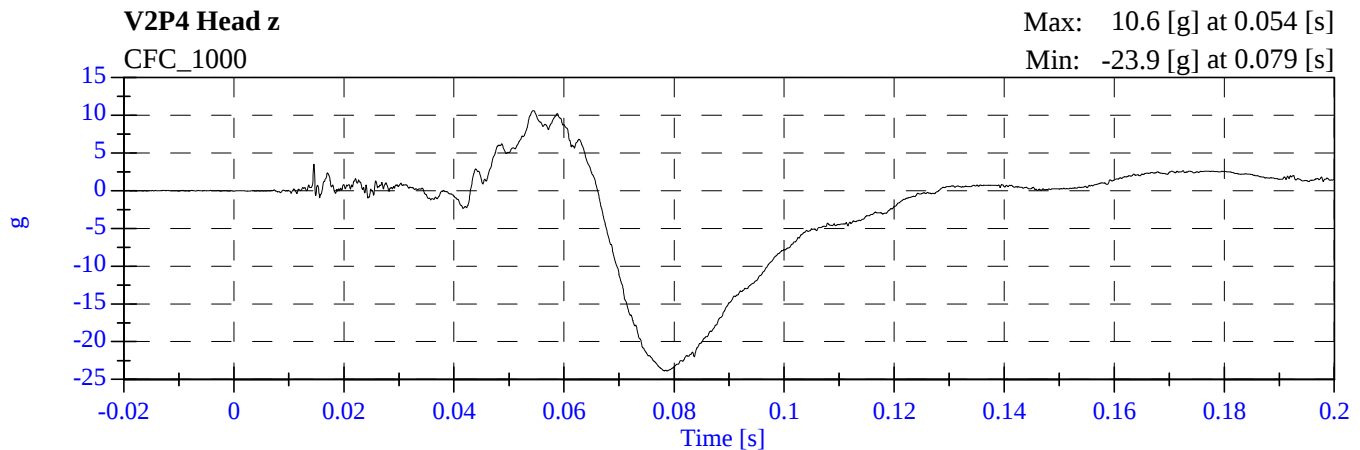
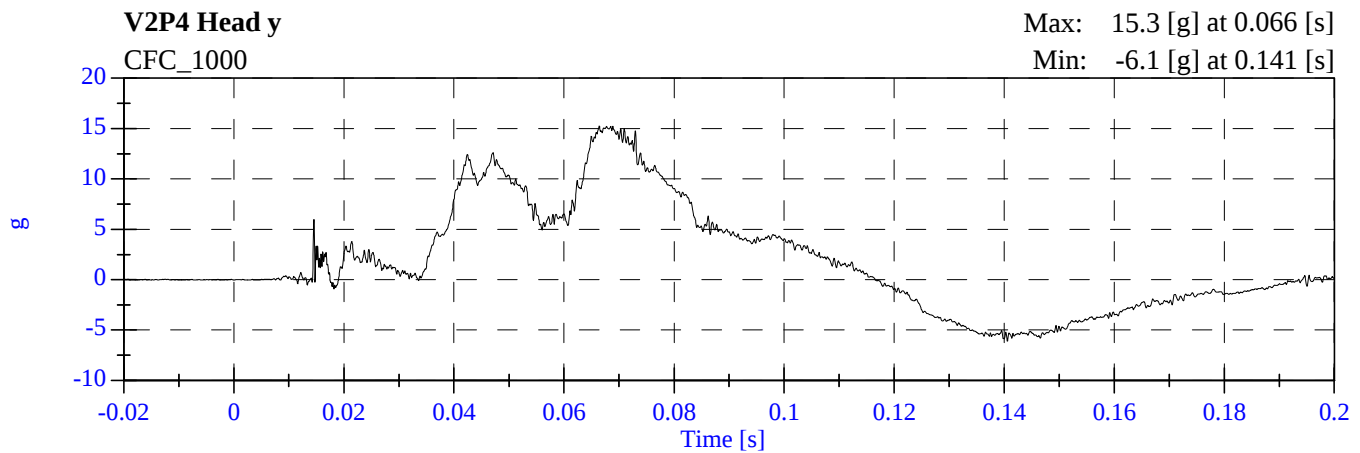
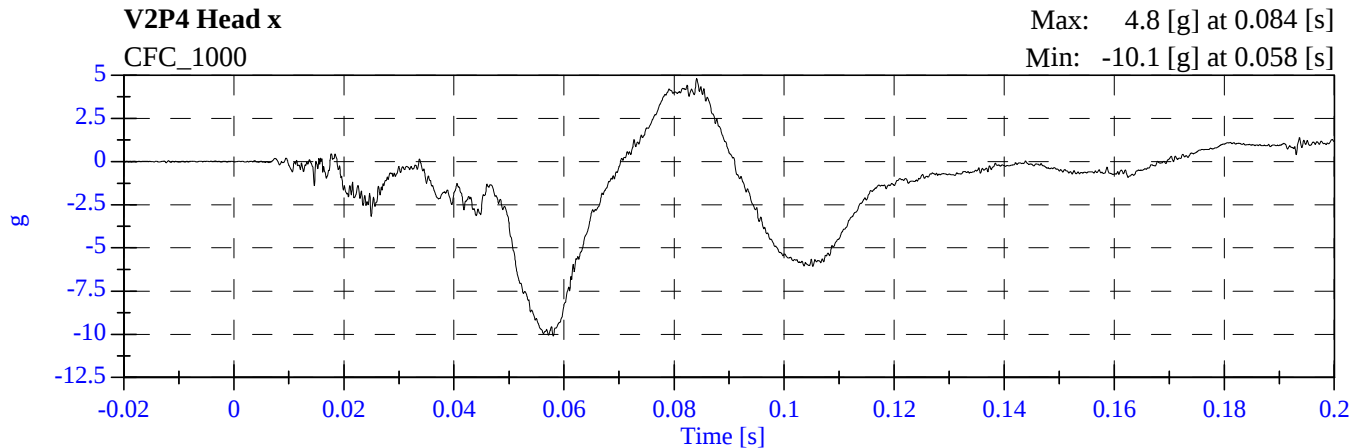
2007 SNCAP Test 7 2007 Saturn Outlook

M70107 - February 02, 2007



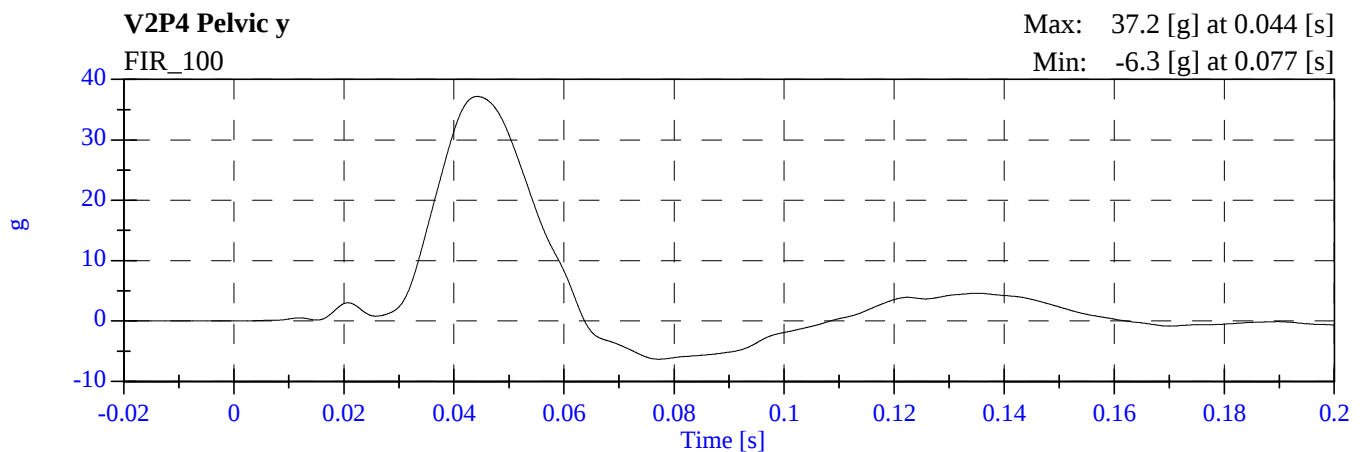
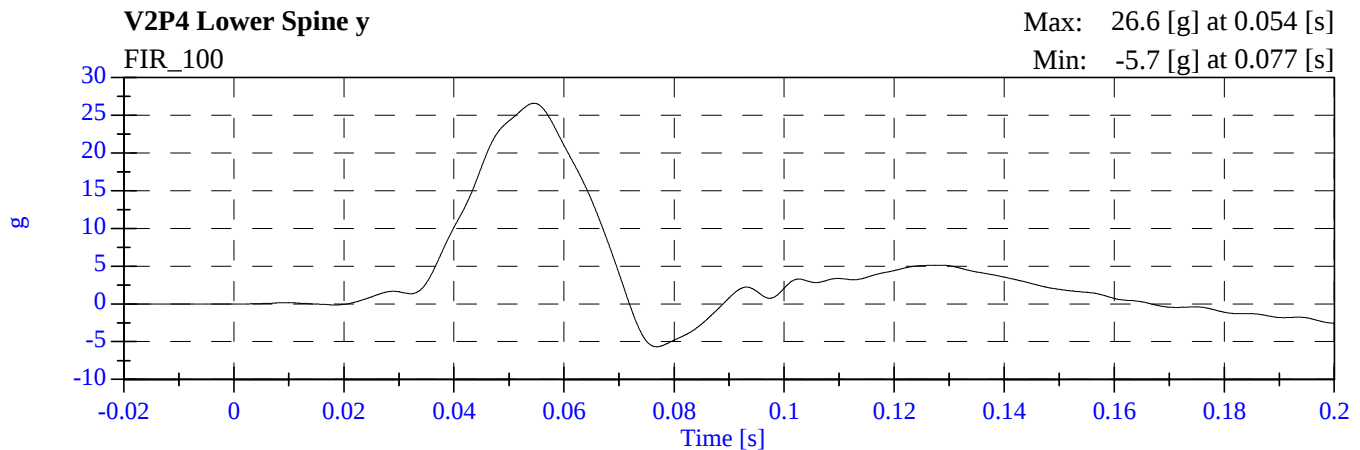
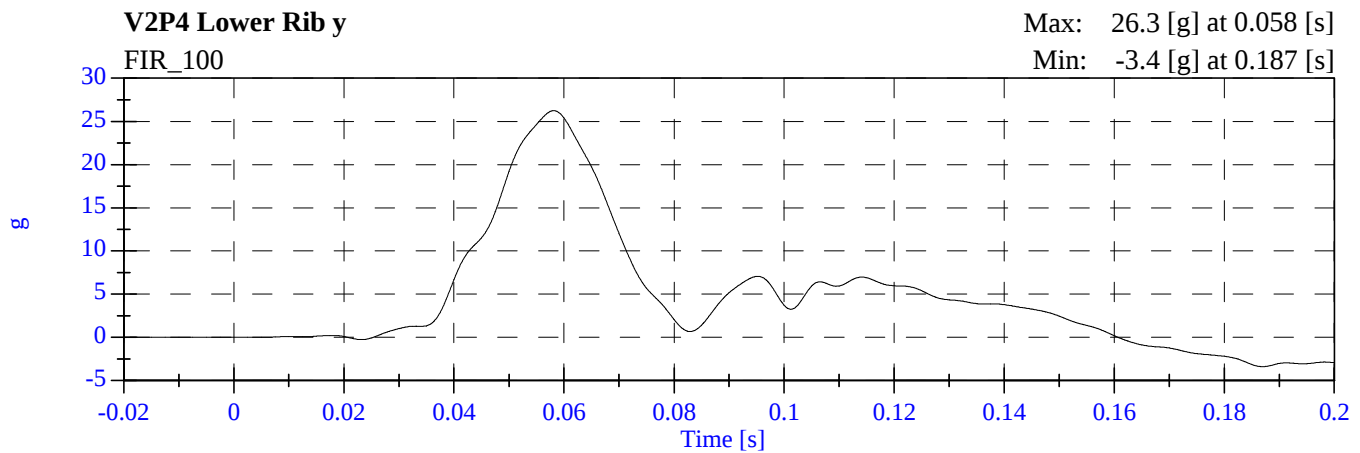
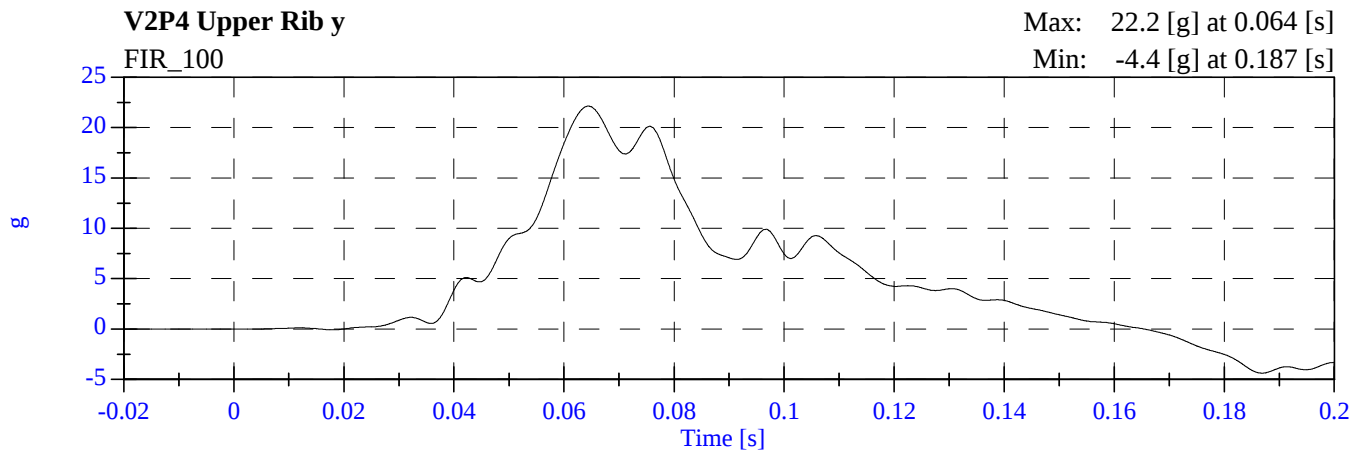
2007 SNCAP Test 7 2007 Saturn Outlook

M70107 - February 02, 2007



2007 SNCAP Test 7 2007 Saturn Outlook

M70107 - February 02, 2007



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 2/12/07 Sequential Test Number: 3 & 4
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 NO.: 906		SID H3 NO.: 905	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	905	905	902	902
RH- Rib Height (mm)	501 - 521	513	513	508	508
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	238	238	241	241
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	521	521
SW- Knee Pivot to Floor (mm)	490 - 505	492	492	493	493
HW- Hip Width (mm)	356 - 391	383	383	378	378
THORAX IMPACTS					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	35	31	37	33
PROBE SPEED (m/s)	4.27 - 4.33	4.31	4.32	4.32	4.31
UPPER RIB (g's)	37 - 46	42.66	37.71	38.05	43.88
LOWER RIB (g's)	37 - 46	41.67	37.72	37.90	42.41
LOWER SPINE (g's)	15 - 22	20.29	17.82	18.92	21.00
PELVIS IMPACT					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	35	33	37	33
PROBE SPEED (m/s)	4.27 - 4.33	4.29	4.33	4.32	4.29
PELVIS (g's)	40 - 60	43.05	47.15	40.52	40.77

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: 3
Date: 12/14/06 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: 3
Date: 12/14/06	Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	905
RH- Rib Height (mm)	502 – 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	238
KH- Knee Pivot from Back Line (mm)	511 – 526	518
KV- Knee Pivot to Floor (mm)	490 – 505	492
HW- Hip Width (mm)	356 - 391	383

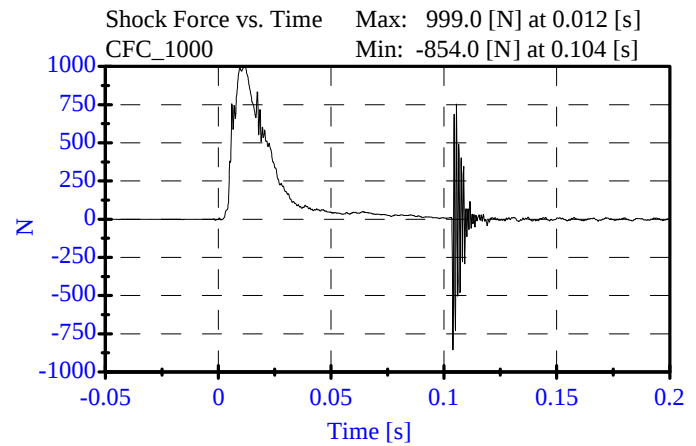
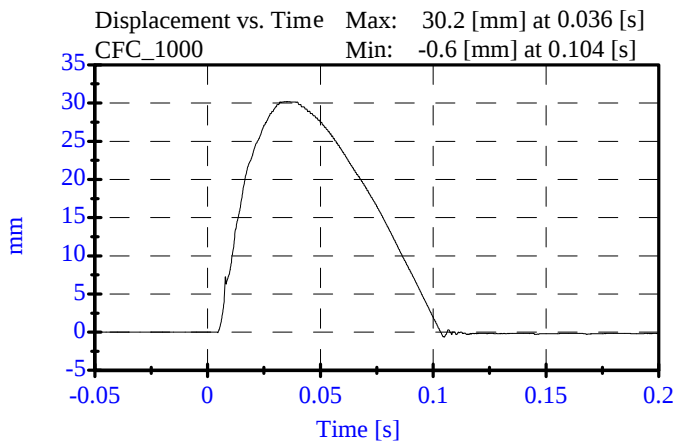
REMARKS: None

Shock Impact Low (3.05 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 12-13-06

Sequential Test Number: 1 File: 906SL 12-13-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	30.00-35.00 mm	30.18 mm	Passed
Maximum Force:	836.00-1125.00 N	998.98 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Impact Medium (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

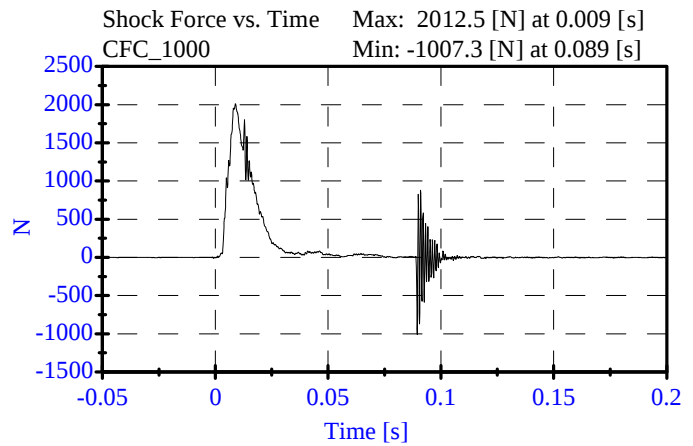
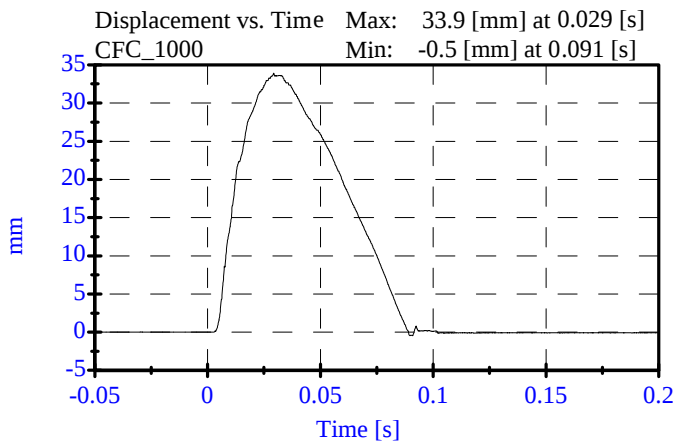
ATD Serial No: 906

Date: 12-13-06

Sequential Test Number: 1 File: 906SM 12-13-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	32.00-37.00 mm	33.91 mm	Passed
Maximum Force:	1730.00-2099.00 N	2012.54 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Impact High (6.10 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

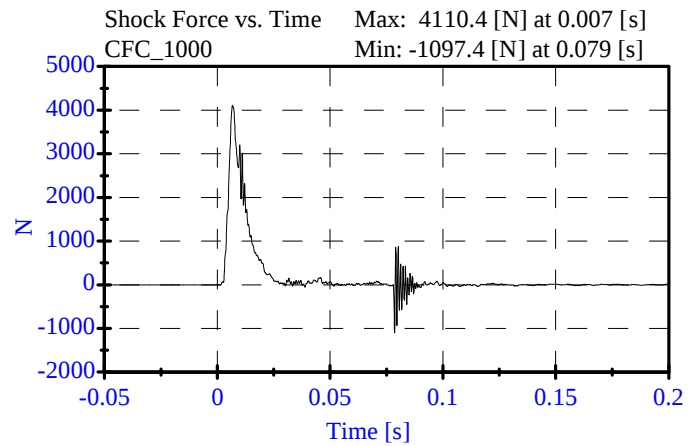
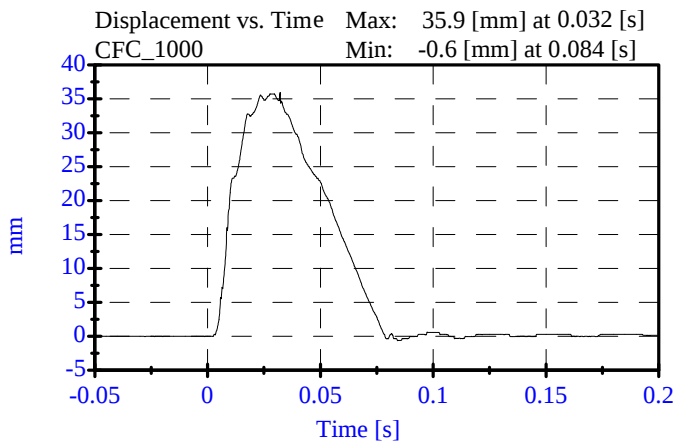
ATD Serial No: 906

Date: 12-13-06

Sequential Test Number: 1 File: 906SH 12-13-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	33.00-40.00 mm	35.95 mm	Passed
Maximum Force:	3741.00-4448.00 N	4110.43 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	906		
Damper Setting:	5		

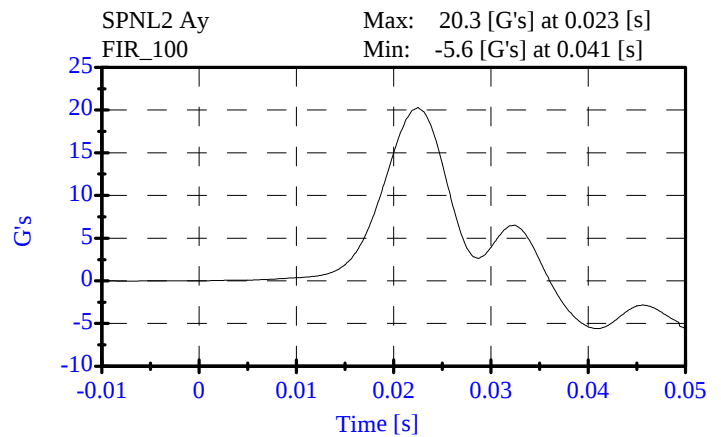
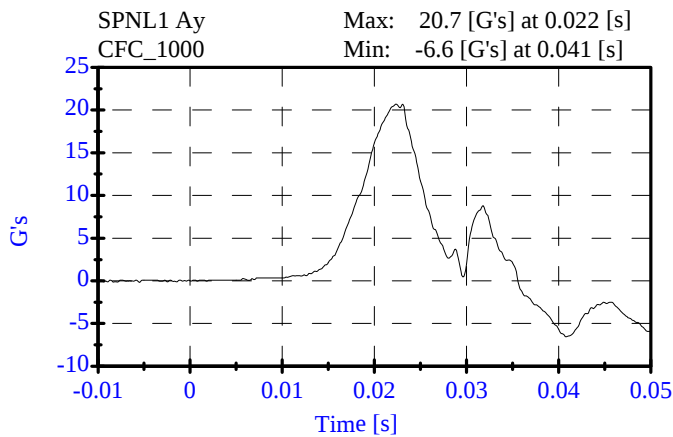
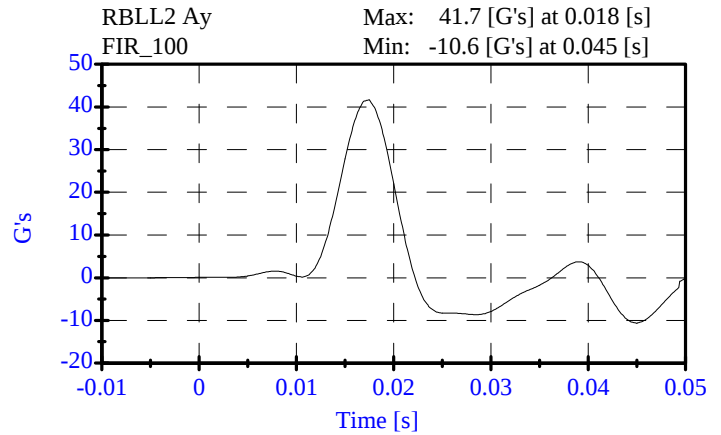
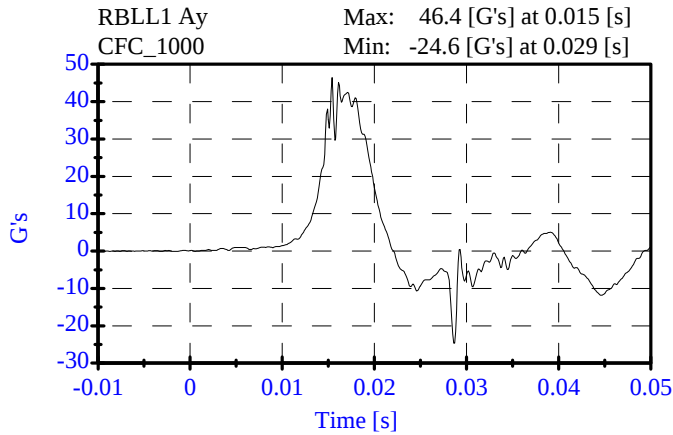
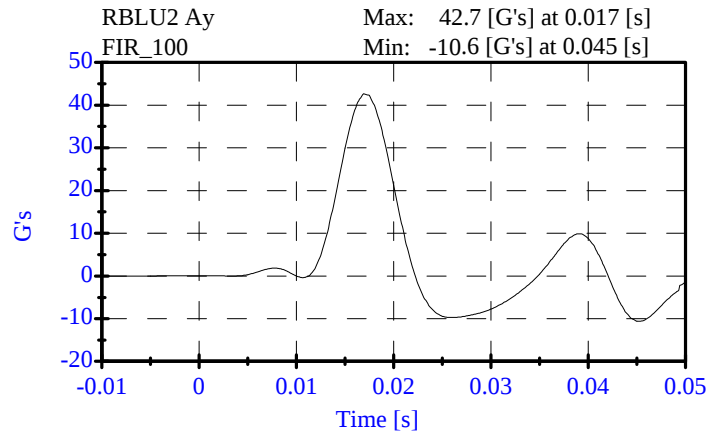
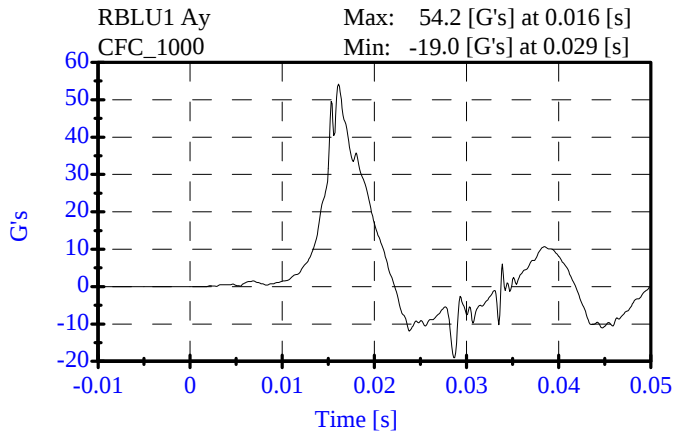


Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 12-14-06

Sequential Test Number: 1 File: 906T 12-14-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	42.66 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	41.67 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.29 G's	Passed



Pelvic Impact

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

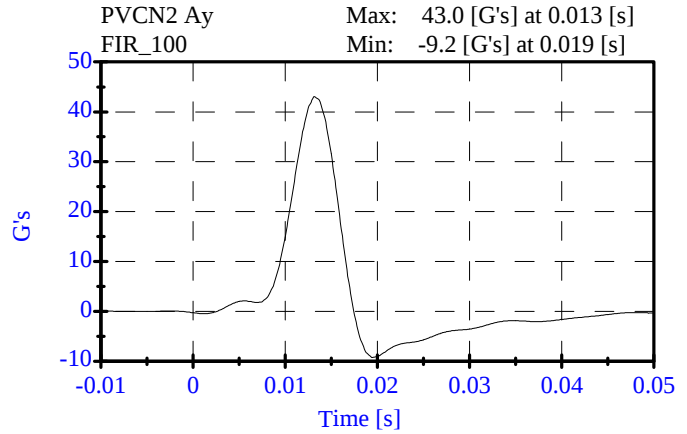
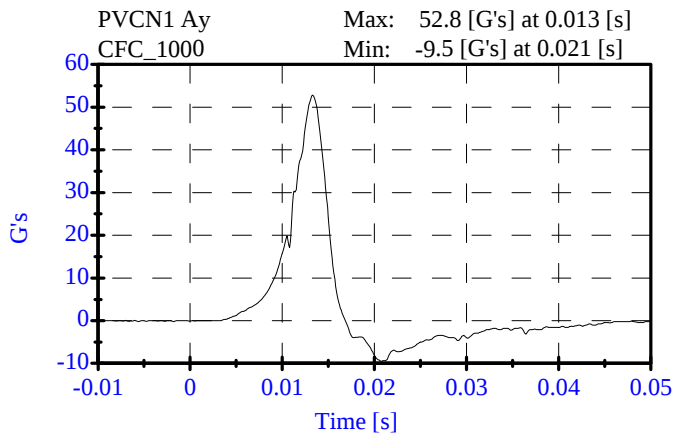
ATD Serial No: 906

Date: 12-14-06

Sequential Test Number: 1 File: 906P 12-14-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	43.05 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



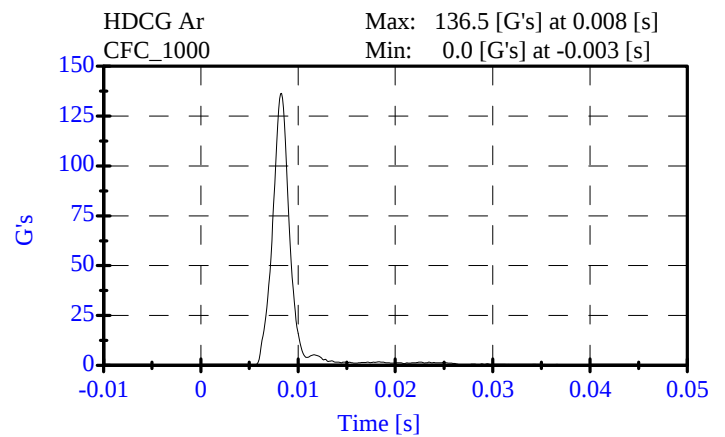
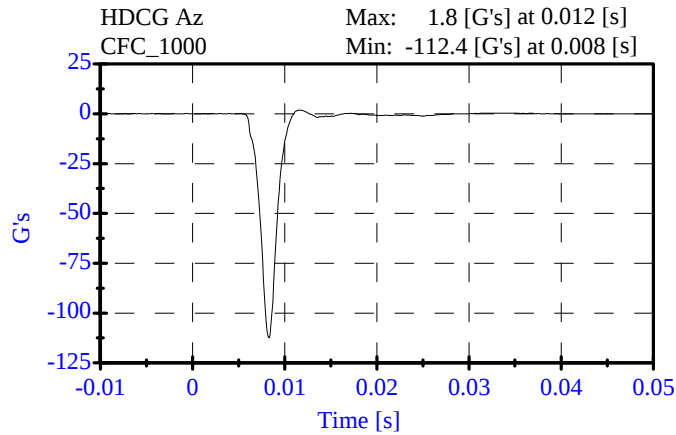
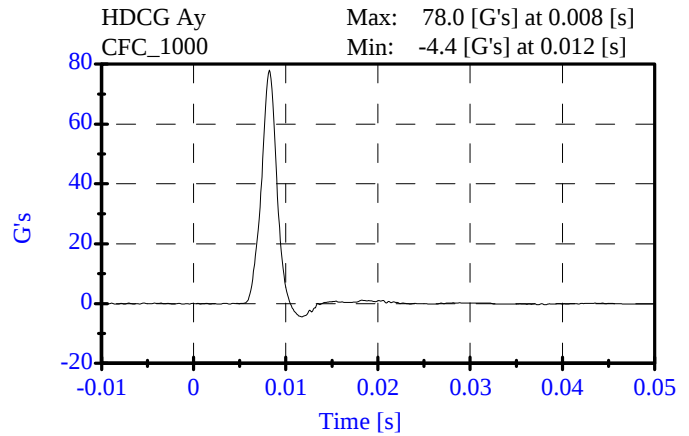
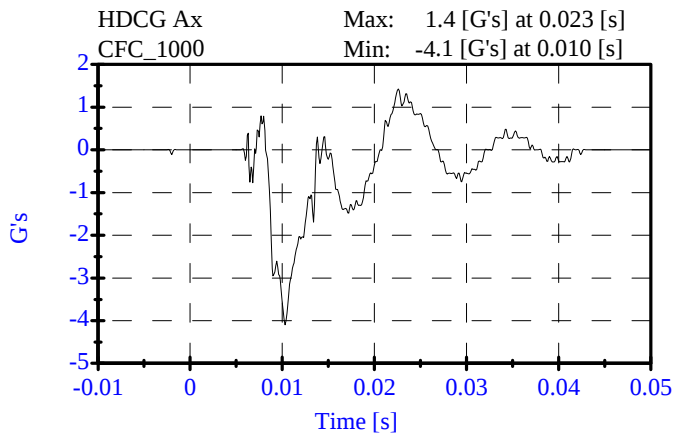
Head Drop Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 12-11-06

Sequential Test Number: 1 File: 906H1 12-11-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	136.47 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	1.43 Gs	Passed
Curve PerCent NonModal:	< 15%	3.83 %	Passed



Neck Test**Pre-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906

Date: 12-12-06

Sequential Test Number: 1 File: 906N 12-12-06

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 %	31.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.01 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.15 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.37 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.32 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.08 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.10 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.10 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	83.86 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	55.40 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.00 ms	Passed

Neck Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

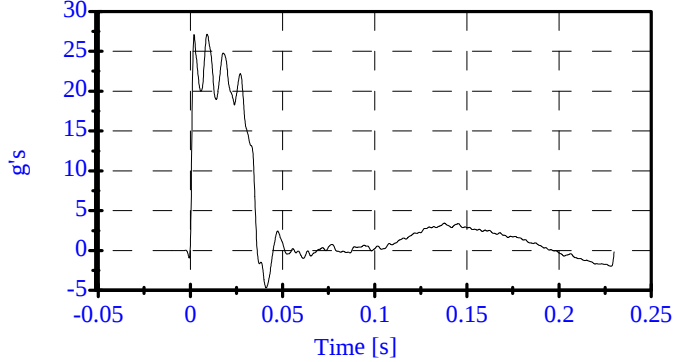
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Date: 12-12-06

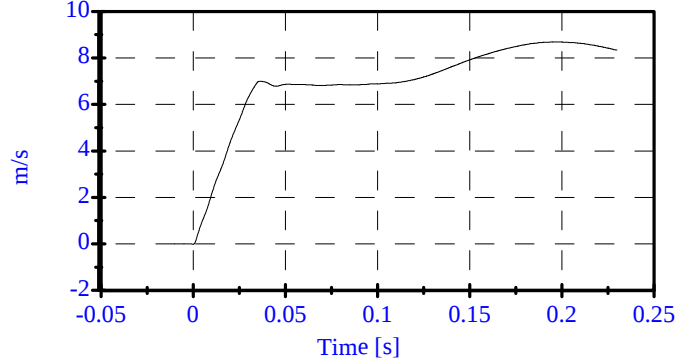
Sequential Test Number: 1 File: 906N 12-12-06

Laboratory Technician: B. Swiecicki

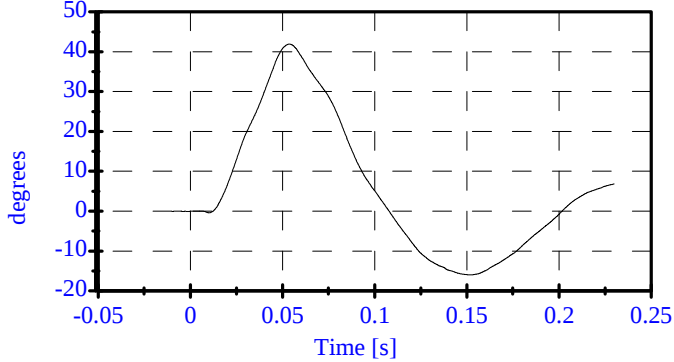
Pend Ax
CFC_180
Max: 27.1 [g's] at 0.009 [s]
Min: -4.7 [g's] at 0.041 [s]



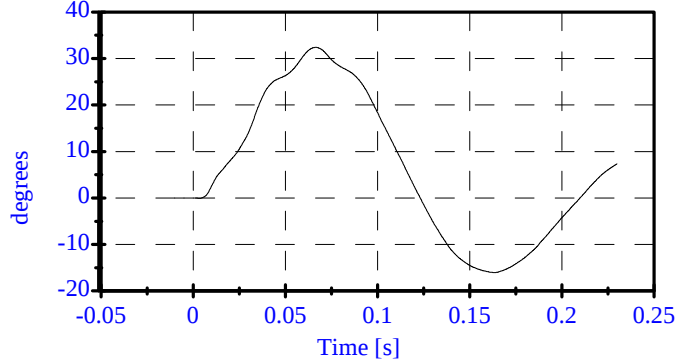
Pend Vx
CFC_180
Max: 8.7 [m/s] at 0.197 [s]
Min: -0.0 [m/s] at -0.000 [s]



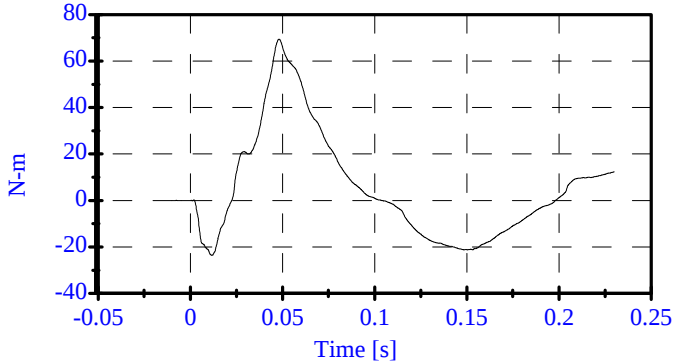
Head Rot
CFC_180
Max: 41.9 [degrees] at 0.054 [s]
Min: -15.9 [degrees] at 0.152 [s]



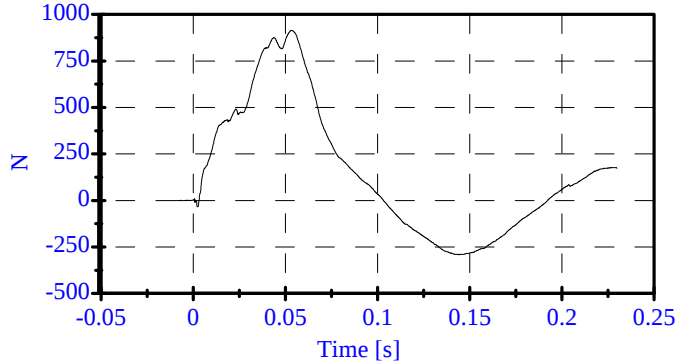
Arm Rot
CFC_180
Max: 32.4 [degrees] at 0.067 [s]
Min: -16.0 [degrees] at 0.163 [s]



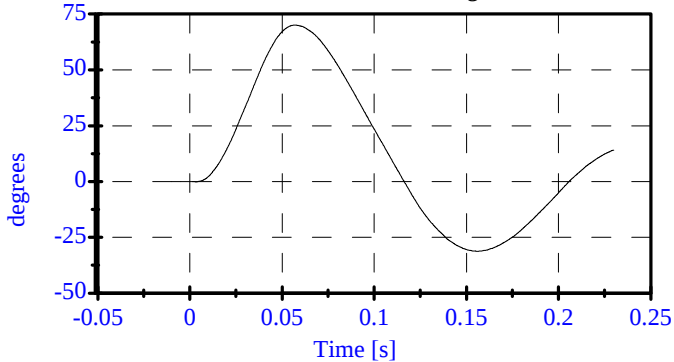
Neck Mx
CFC_600
Max: 69.4 [N-m] at 0.048 [s]
Min: -23.6 [N-m] at 0.012 [s]



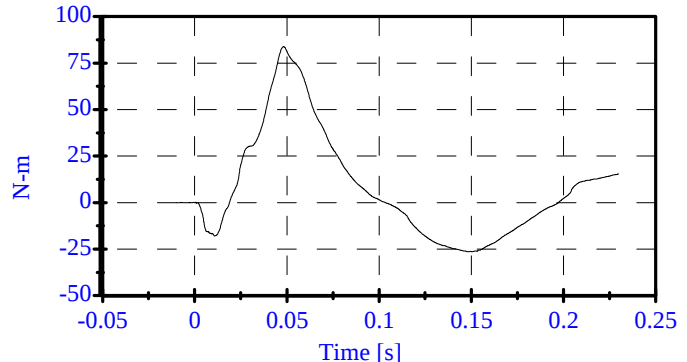
Neck Fy
CFC_1000
Max: 914.7 [N] at 0.053 [s]
Min: -291.9 [N] at 0.144 [s]



Tot Rot
CFC_180
Max: 70.1 [degrees] at 0.057 [s]
Min: -31.2 [degrees] at 0.156 [s]



MOCX
Max: 83.9 [N-m] at 0.048 [s]
Min: -26.3 [N-m] at 0.148 [s]



Abdomen Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

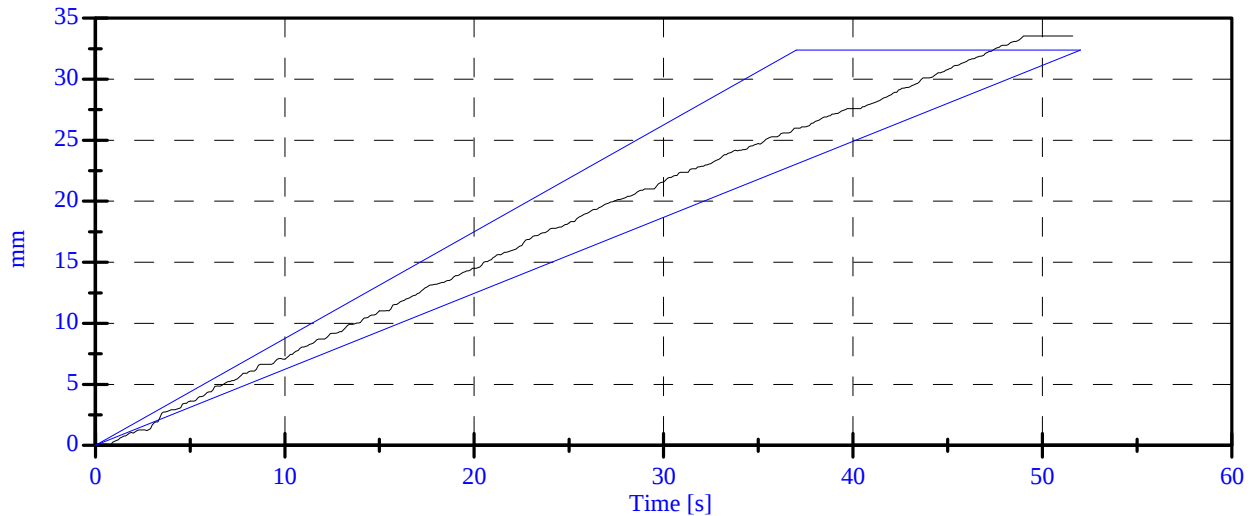
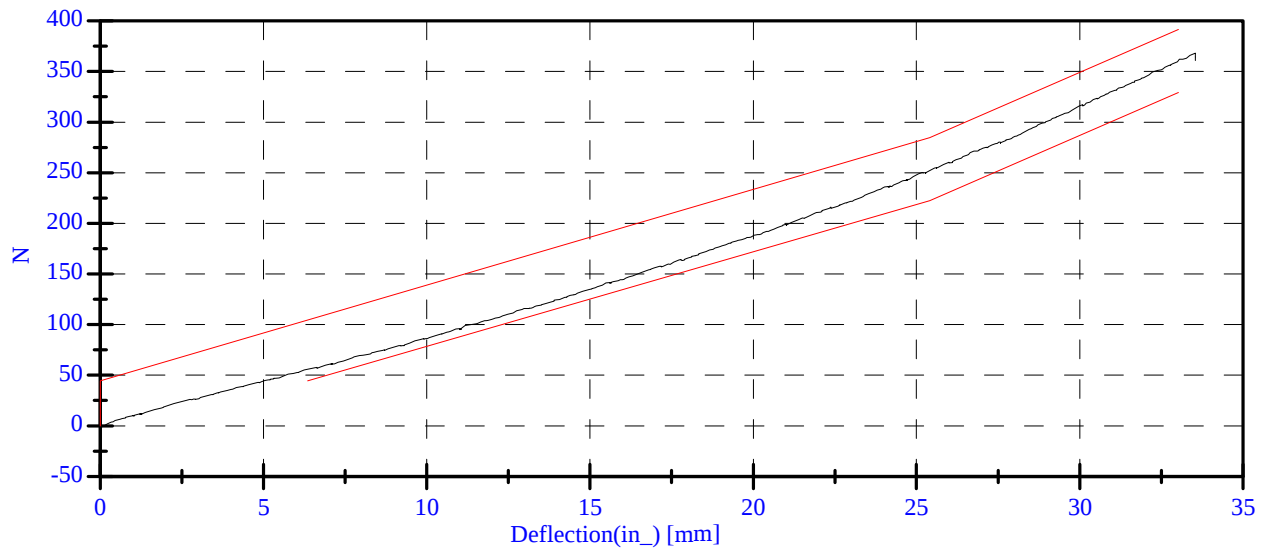
Date: 12-14-06

Sequential Test Number: 1 File: 906AB 12-14-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	116.07 N	Passed
Force at 19.05 mm :	162.98-220.99 N	177.69 N	Passed
Force at 25.40 mm :	221.97-280.02 N	252.00 N	Passed
Force at 33.02 mm :	324.99-391.00 N	361.83 N	Passed

ABDOMINAL COMPRESSION TEST



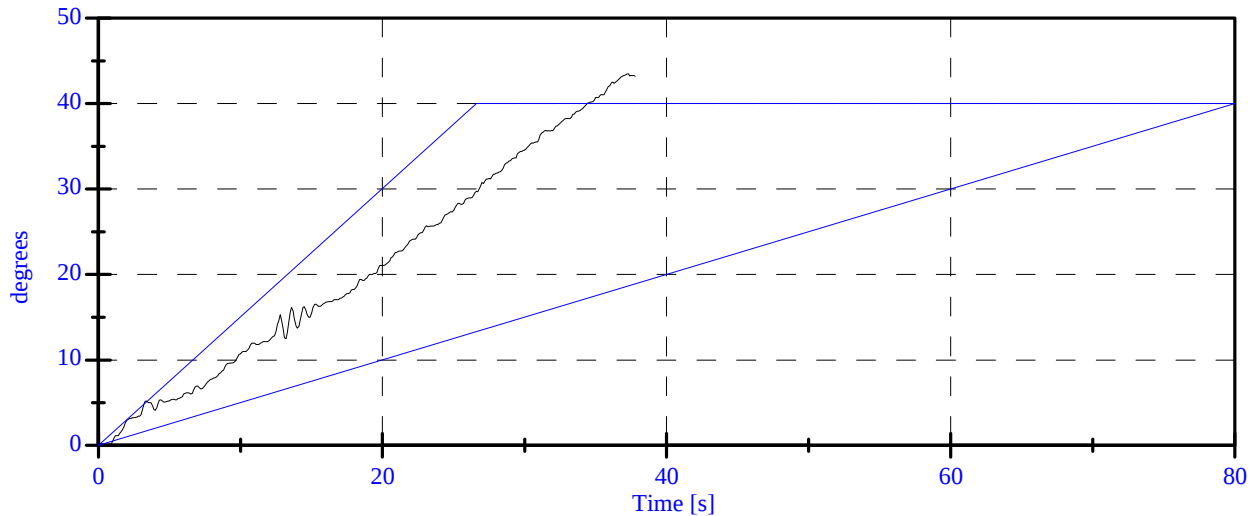
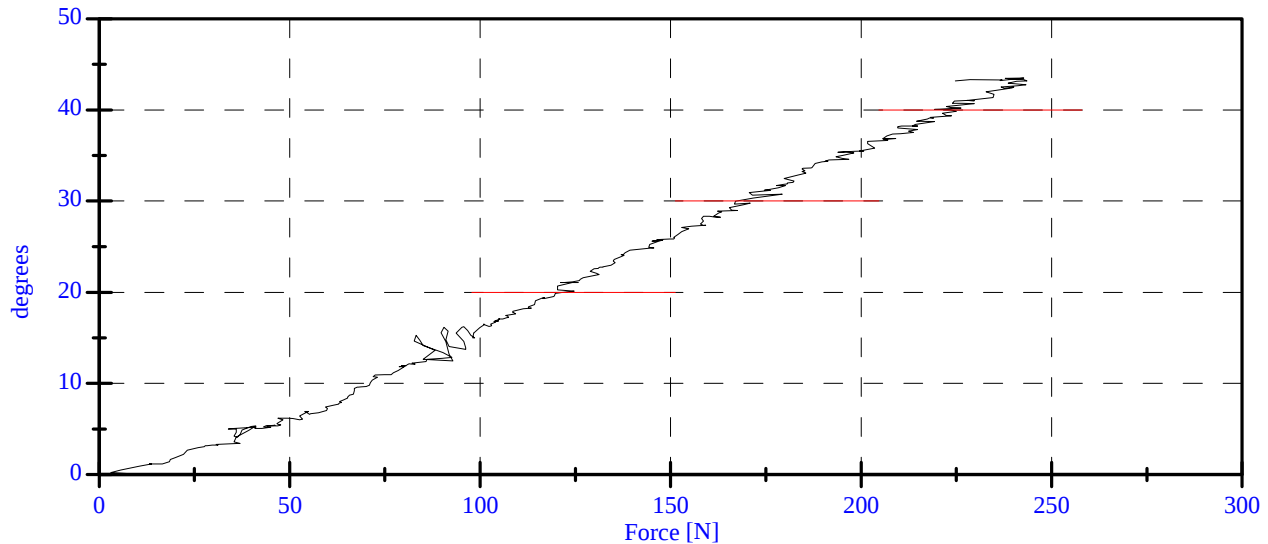
**Lumbar Spine
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906
Date: 12-14-06

Sequential Test Number: 1 File: 906SP 12-14-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	0.13 N	Passed
Force at 20 Deg:	97.86-151.24 N	121.57 N	Passed
Force at 30 Deg	151.24-204.62 N	167.01 N	Passed
Force at 40 Deg	204.62-258.00 N	223.42 N	Passed
Return Angle	12 Deg Max	0.27 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 3
Date: 12/14/06 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.: 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: 3
Date: 12/14/06	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: 3
Date: 12/14/06 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	905
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	238
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	492
HW- Hip Width (mm)	356 - 391	383

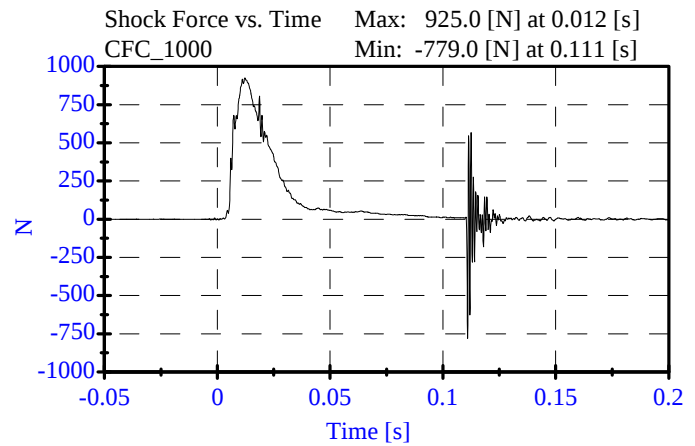
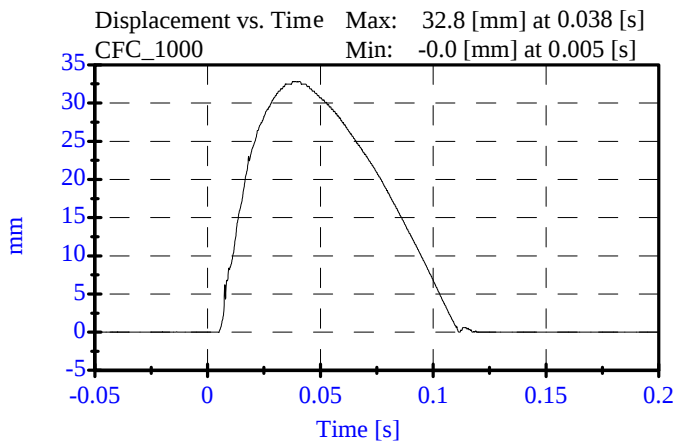
REMARKS: None

Shock Impact Low (3.05 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-13-06

Sequential Test Number: 1 File: 905SL 12-13-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
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	924.95 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	905		
Damper Setting:	5		



Shock Impact Medium (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

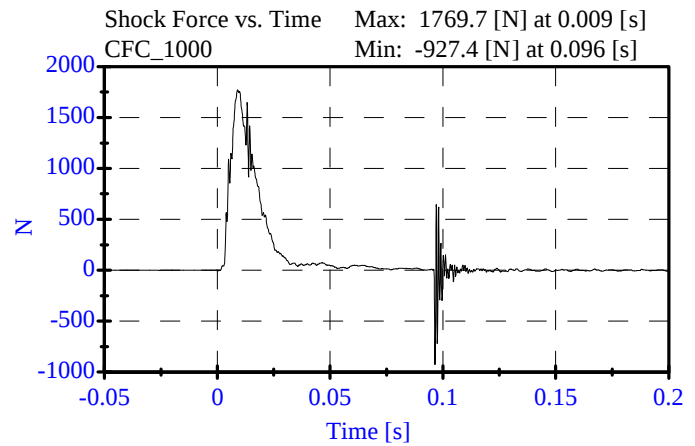
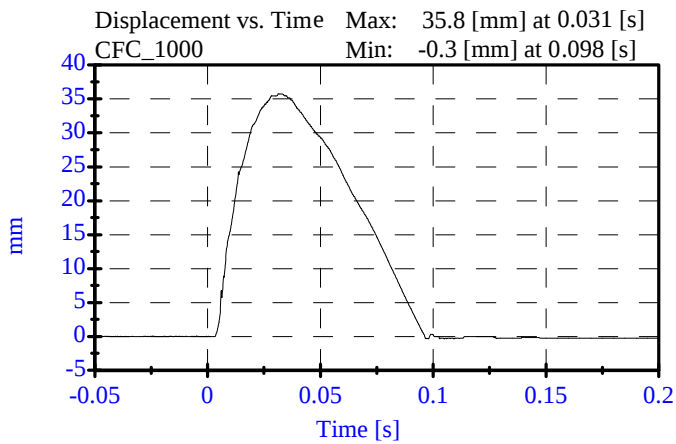
ATD Serial No: 905

Date: 12-13-06

Sequential Test Number: 1 File: 905SM 12-13-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	32.00-37.00 mm	35.77 mm	Passed
Maximum Force:	1730.00-2099.00 N	1769.71 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	905		
Damper Setting:	5		



Shock Impact High (6.10 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

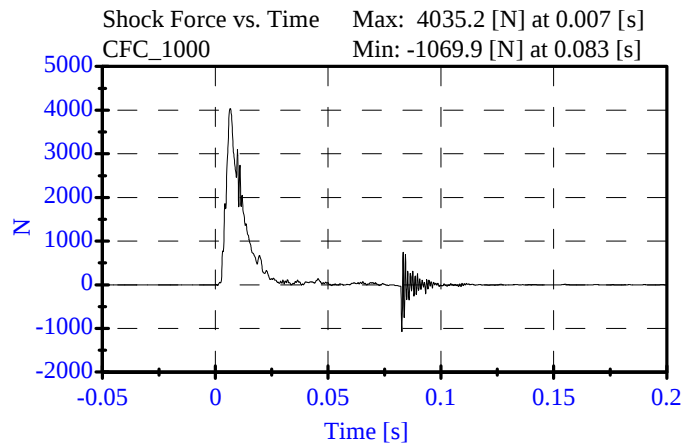
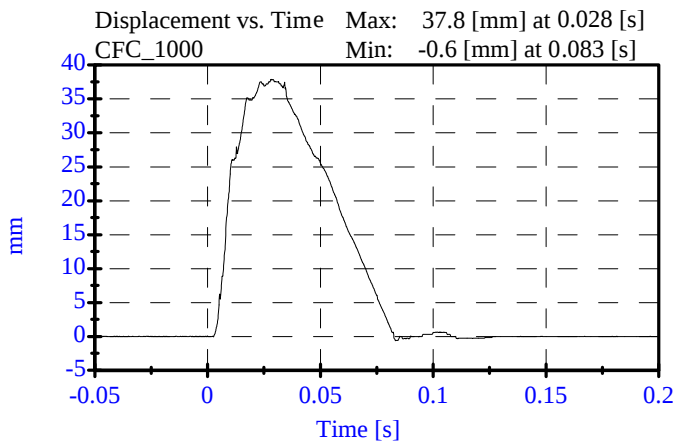
ATD Serial No: 905

Date: 12-13-06

Sequential Test Number: 1 File: 905SH 12-13-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	33.00-40.00 mm	37.84 mm	Passed
Maximum Force:	3741.00-4448.00 N	4035.21 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	905		
Damper Setting:	5		

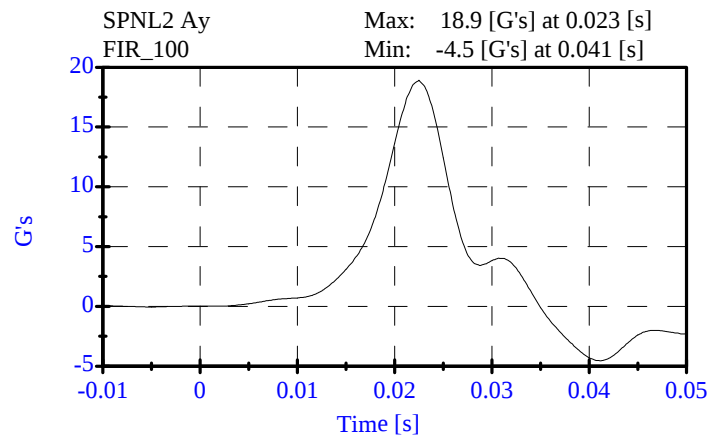
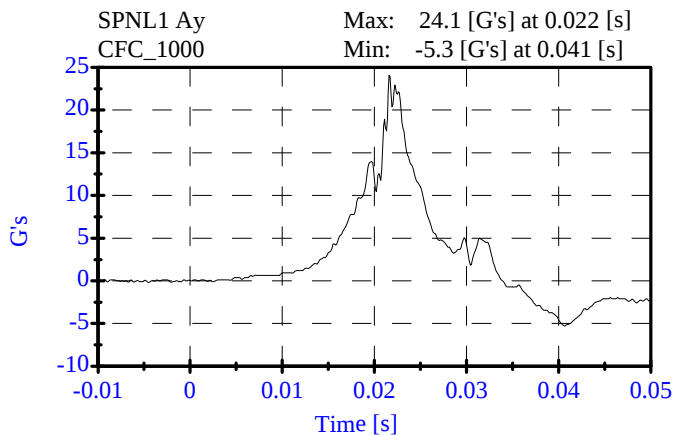
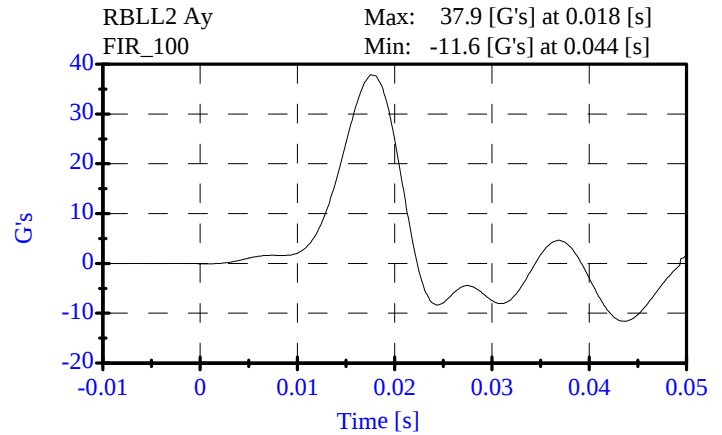
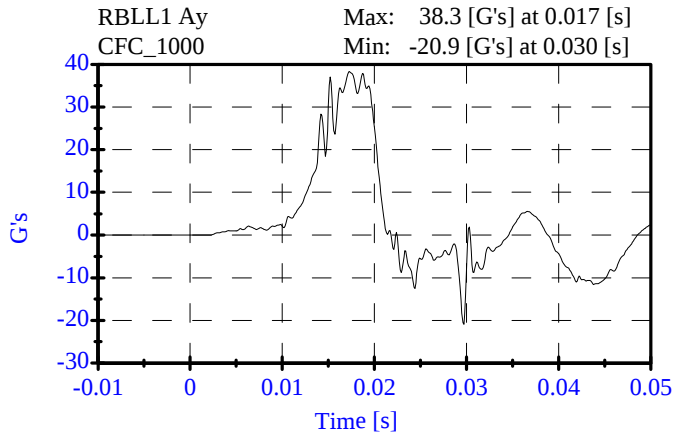
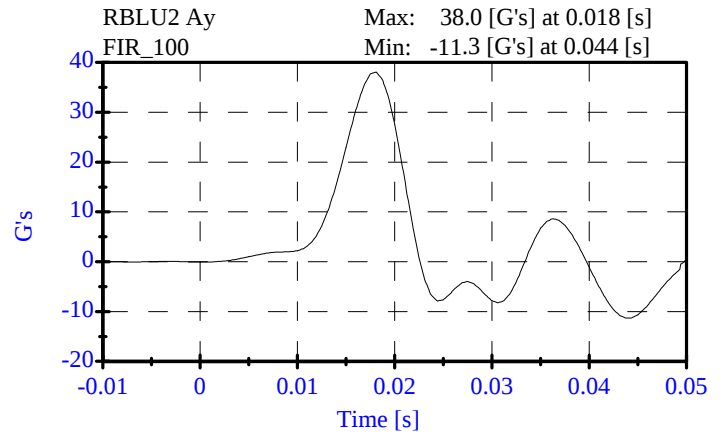
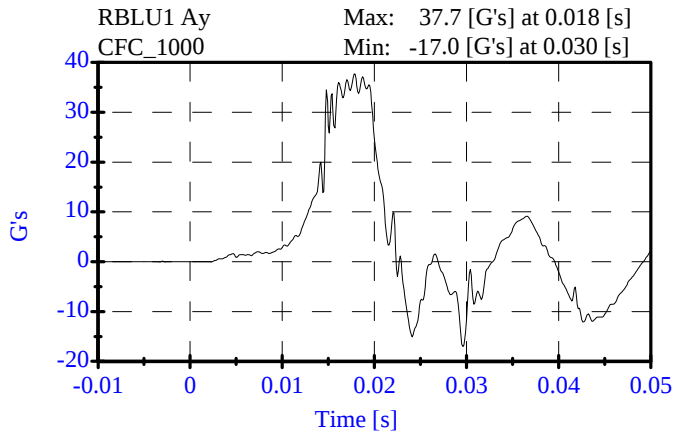


Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-14-06

Sequential Test Number: 1 File: 905T 12-14-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	38.05 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	37.90 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	18.92 G's	Passed



Pelvic Impact

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

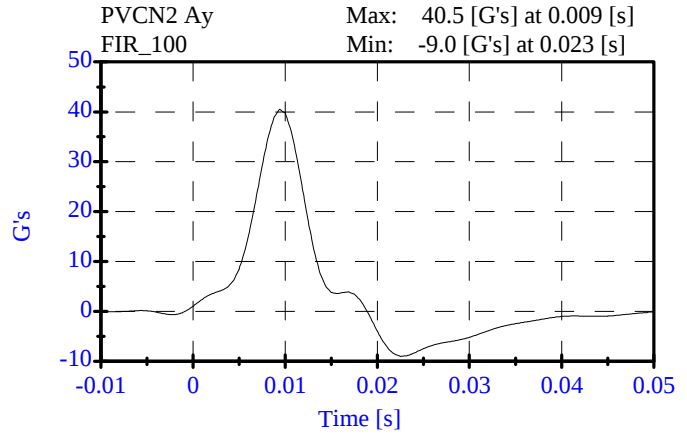
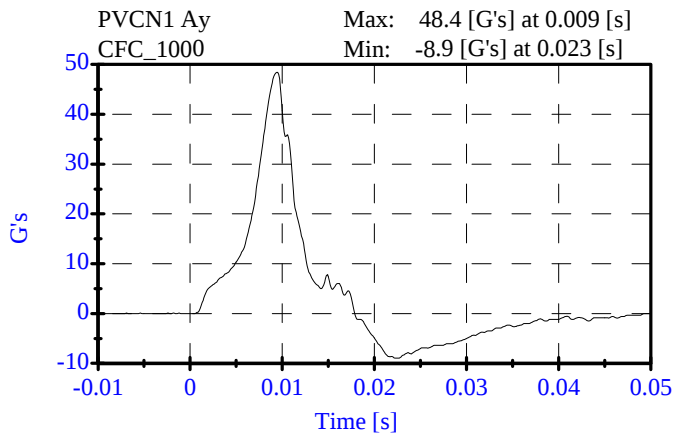
ATD Serial No: 905

Date: 12-14-06

Sequential Test Number: 1 File: 905P 12-14-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	40.52 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.8 ms	Passed



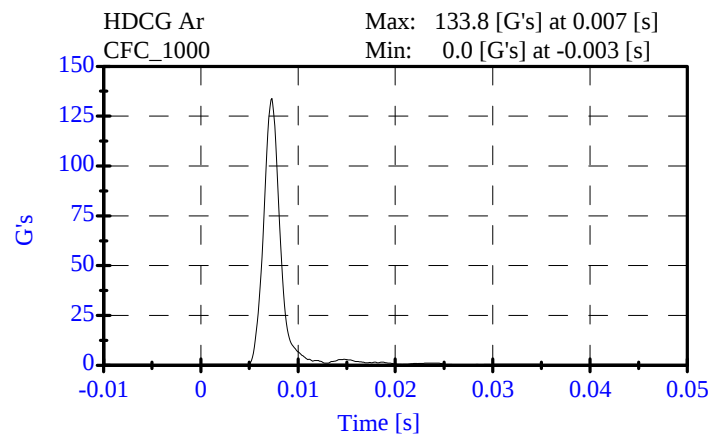
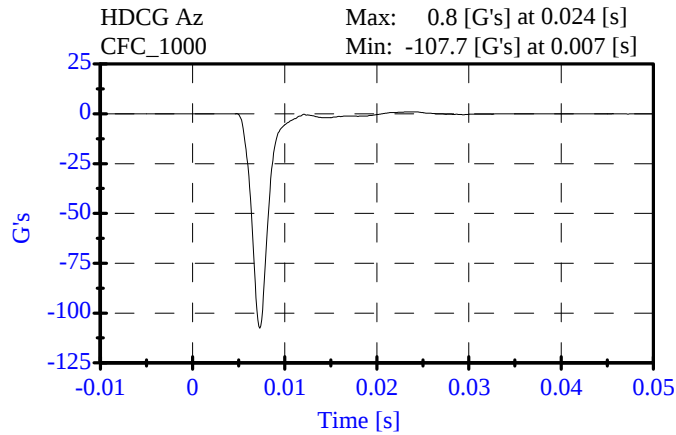
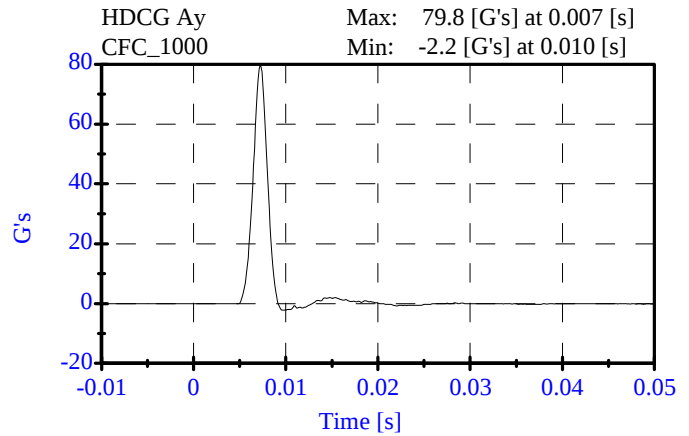
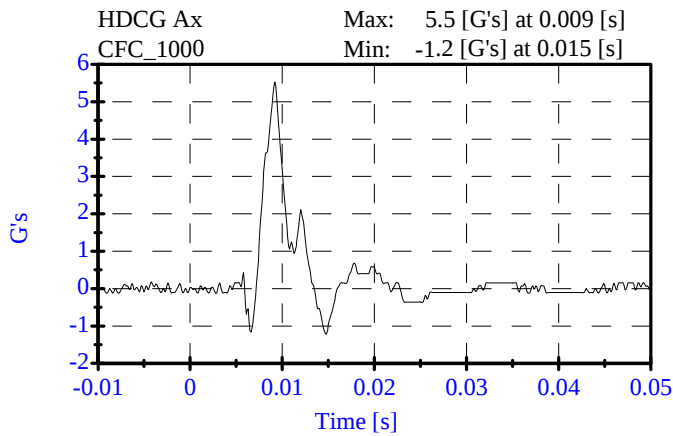
Head Drop **Pre-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-11-06

Sequential Test Number: 1 File: 905H 12-11-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	133.82 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	5.53 Gs	Passed
Curve PerCent NonModal:	< 15%	2.27 %	Passed



Neck Test**Pre-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905

Date: 12-12-06

Sequential Test Number: 1 File: 905N 12-12-06

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 %	31.00 %	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	2.01 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.22 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.11 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	6.96 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	68.39 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	60.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.66 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	55.30 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.80 ms	Passed

Neck Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

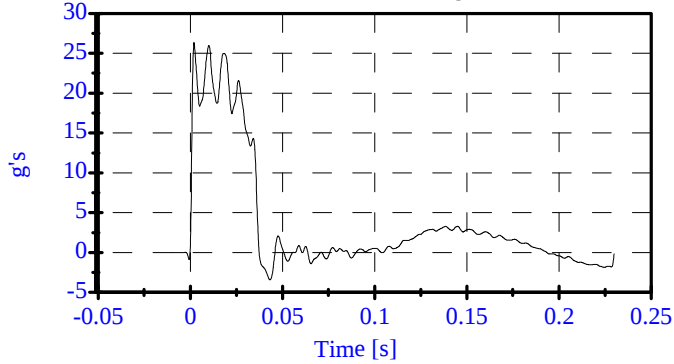
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Date: 12-12-06

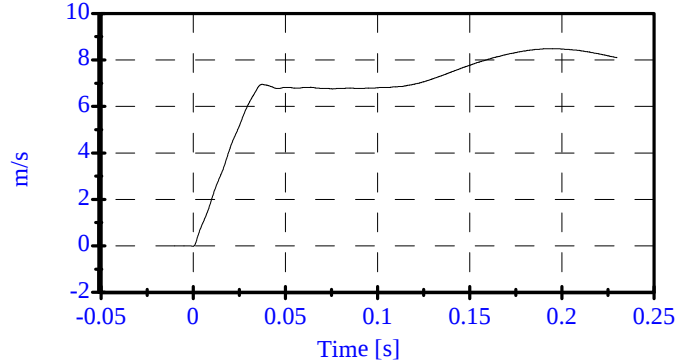
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Laboratory Technician: B. Swiecicki

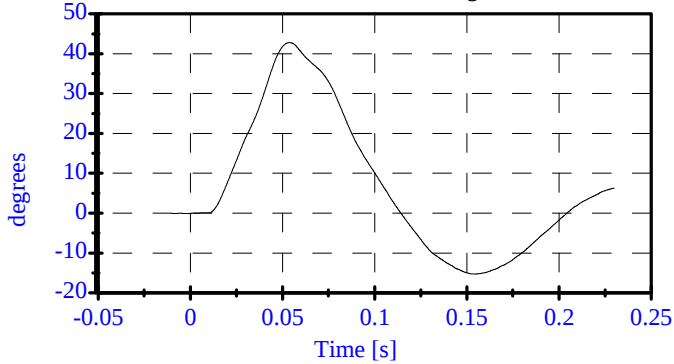
Pend Ax
CFC_180
Max: 26.3 [g's] at 0.002 [s]
Min: -3.4 [g's] at 0.043 [s]



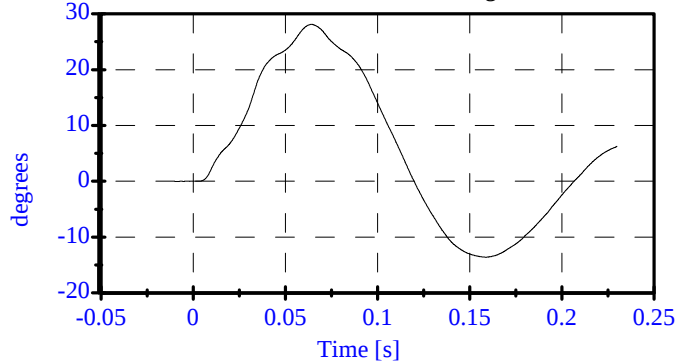
Pend Vx
CFC_180
Max: 8.5 [m/s] at 0.194 [s]
Min: -0.0 [m/s] at -0.000 [s]



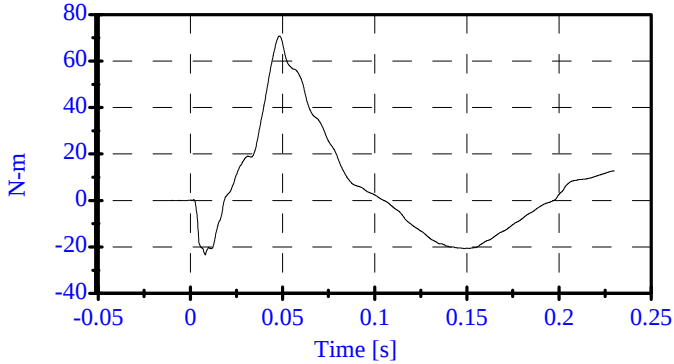
Head Rot
CFC_180
Max: 42.8 [degrees] at 0.054 [s]
Min: -15.2 [degrees] at 0.154 [s]



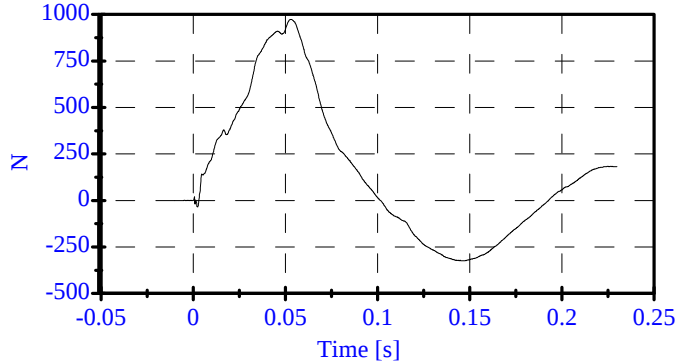
Arm Rot
CFC_180
Max: 28.1 [degrees] at 0.064 [s]
Min: -13.6 [degrees] at 0.159 [s]



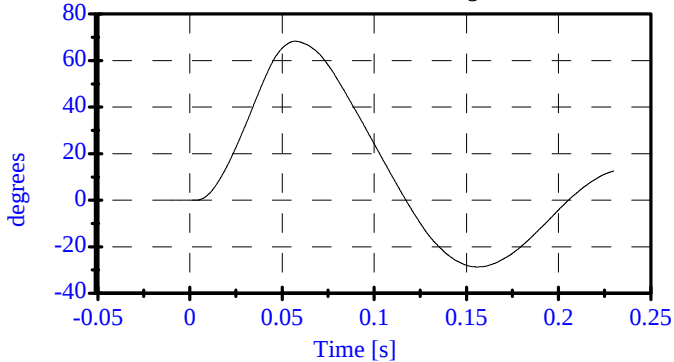
Neck Mx
CFC_600
Max: 70.7 [N-m] at 0.048 [s]
Min: -23.4 [N-m] at 0.008 [s]



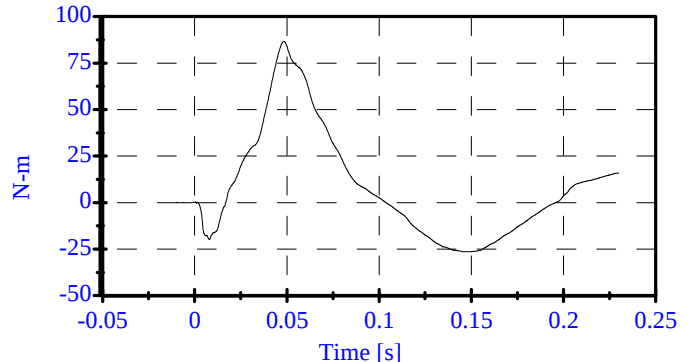
Neck Fy
CFC_1000
Max: 973.7 [N] at 0.053 [s]
Min: -324.9 [N] at 0.147 [s]



Tot Rot
CFC_180
Max: 68.4 [degrees] at 0.057 [s]
Min: -28.7 [degrees] at 0.156 [s]



MOCX
Max: 86.7 [N-m] at 0.048 [s]
Min: -26.4 [N-m] at 0.149 [s]



Abdomen Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

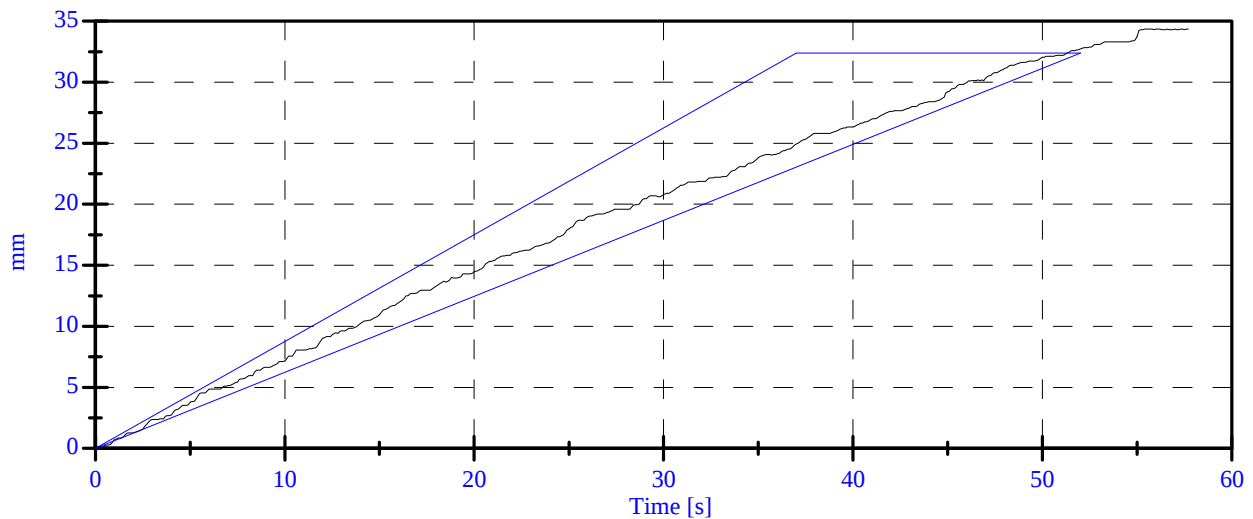
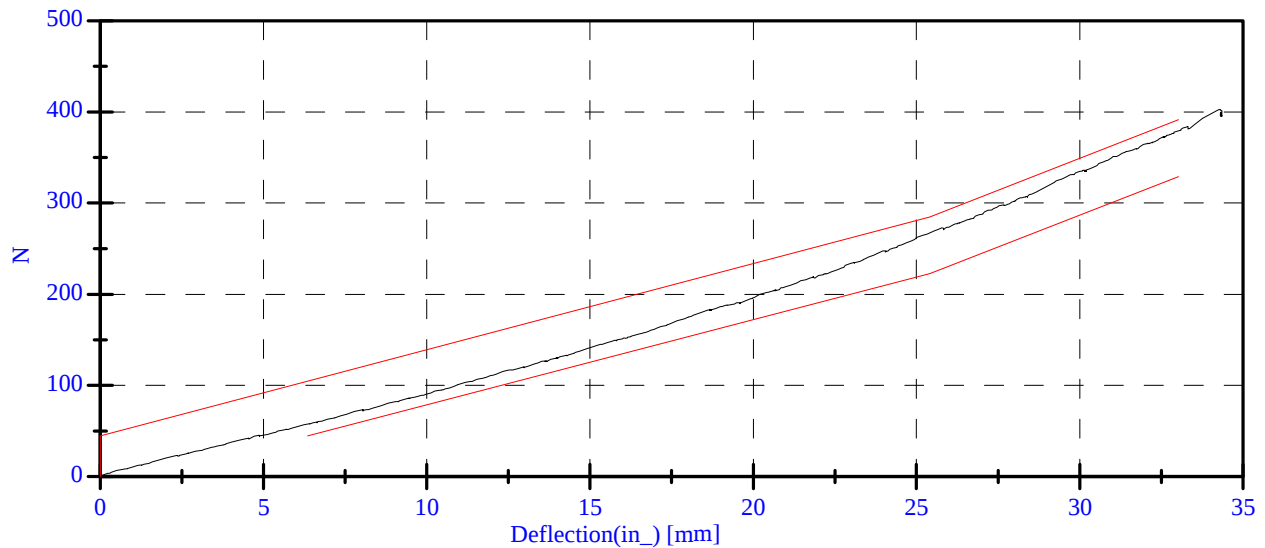
Date: 12-14-06

Sequential Test Number: 1 File: 905AB 12-14-06

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	120.42 N	Passed
Force at 19.05 mm :	162.98-220.99 N	186.39 N	Passed
Force at 25.40 mm :	221.97-280.02 N	267.95 N	Passed
Force at 33.02 mm :	324.99-391.00 N	379.59 N	Passed

ABDOMINAL COMPRESSION TEST



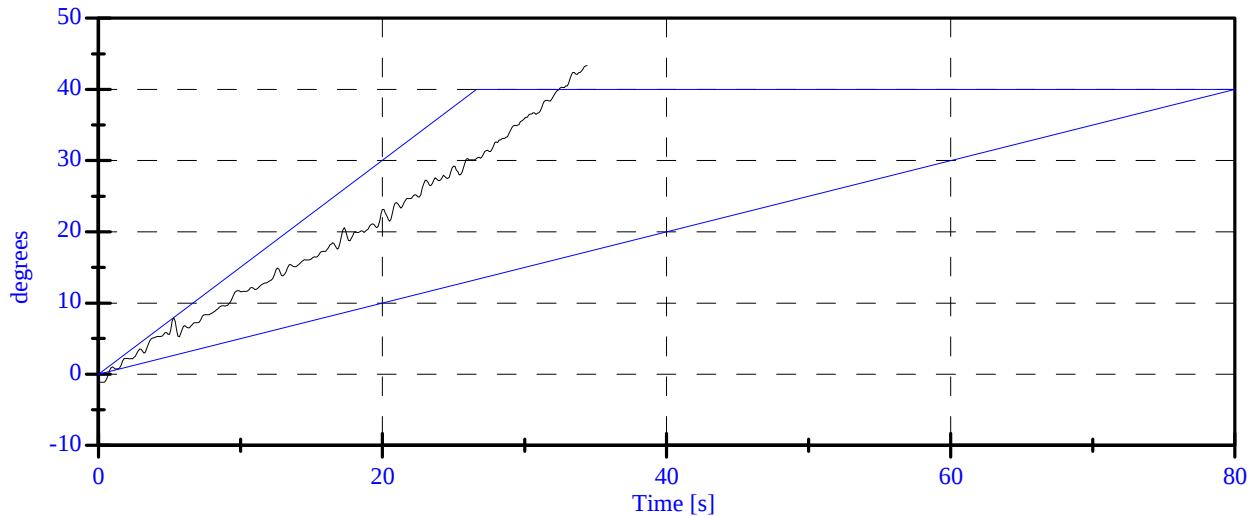
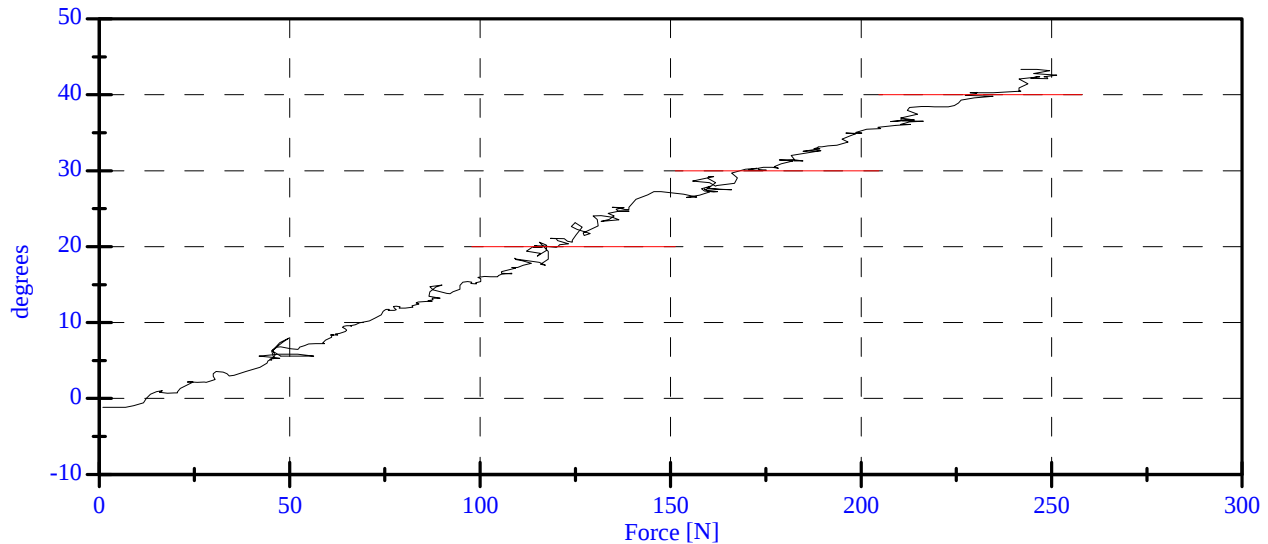
**Lumbar Spine
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905
Date: 12-14-06

Sequential Test Number: 1 File: 905SP 12-14-06
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	12.41 N	Passed
Force at 20 Deg:	97.86-151.24 N	115.30 N	Passed
Force at 30 Deg:	151.24-204.62 N	170.93 N	Passed
Force at 40 Deg:	204.62-258.00 N	227.34 N	Passed
Return Angle	12 Deg Max	2.13 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 3
 Date: 12/14/06 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: 4
Date: 2/12/07	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: 4
Date: 2/12/07	Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	905
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	238
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	492
HW- Hip Width (mm)	356 - 391	383

REMARKS: None

Thorax Impact **Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

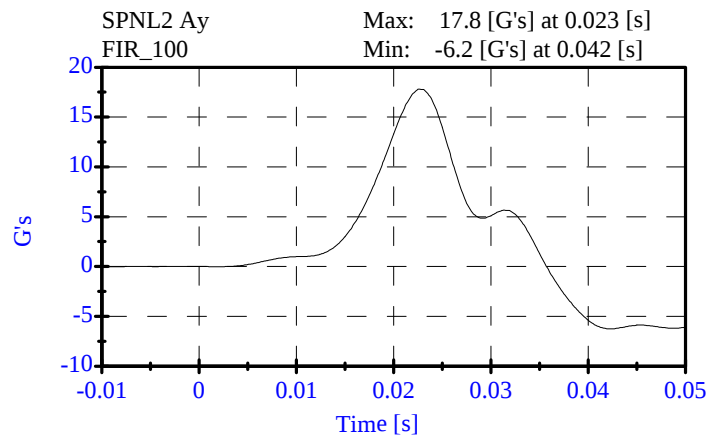
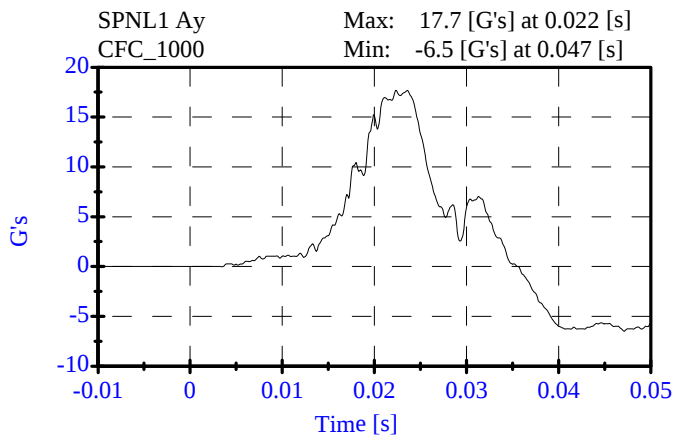
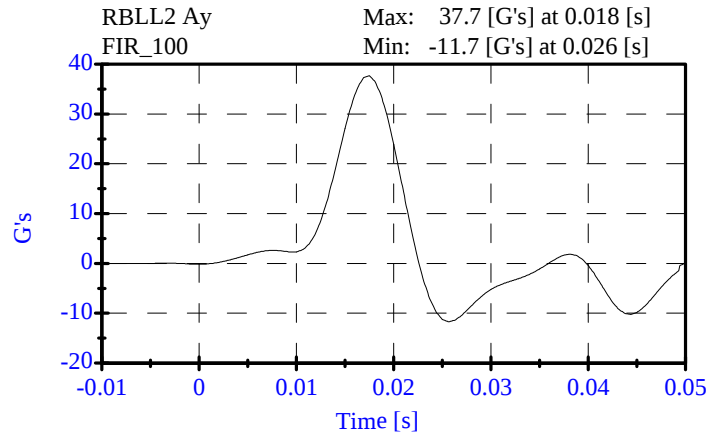
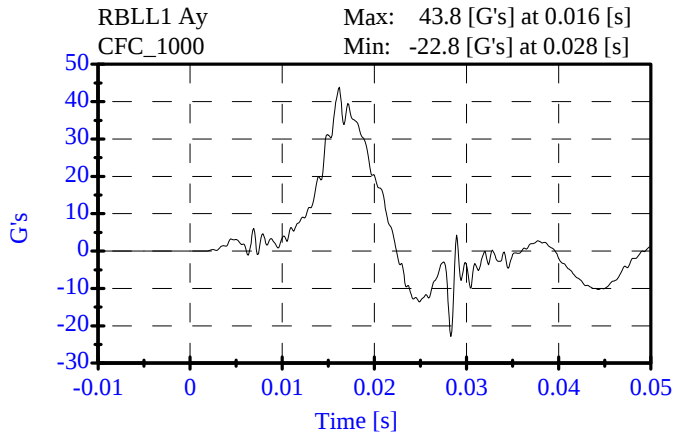
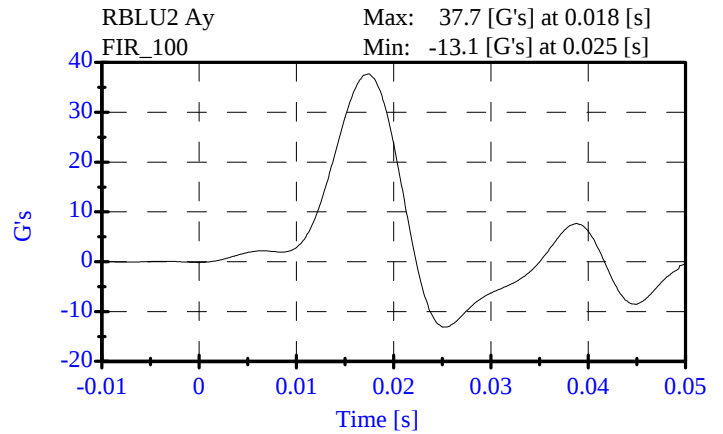
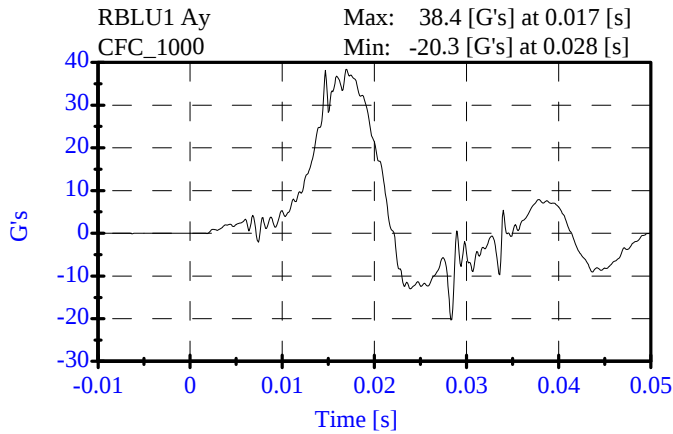
ATD Serial No: 906

Date: 02-09-07

Sequential Test Number: 1 File: 906T1 02-09-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
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	37.71 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	37.72 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	17.82 G's	Passed



Pelvic Impact

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

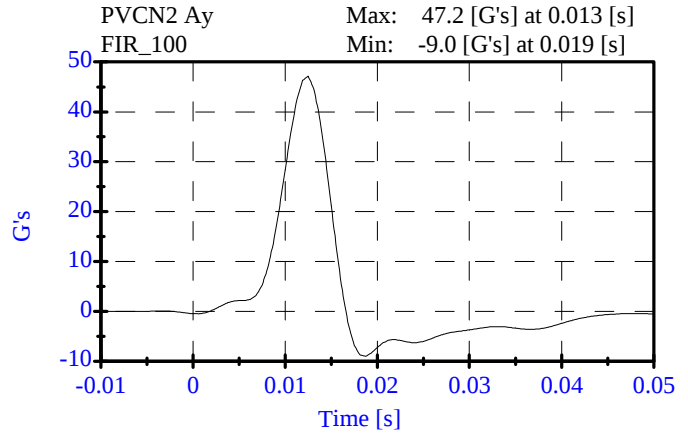
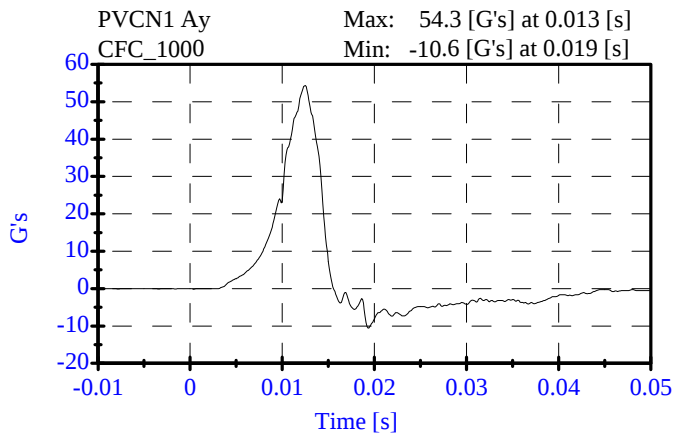
ATD Serial No: 906

Date: 02-12-07

Sequential Test Number: 1 File: 906P 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.33 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	47.15 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.8 ms	Passed



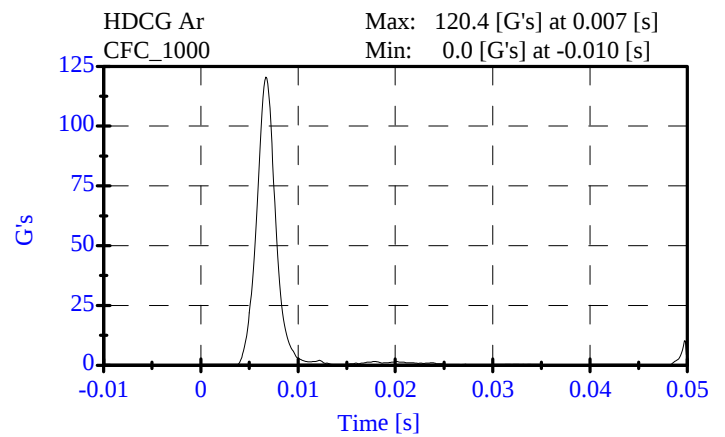
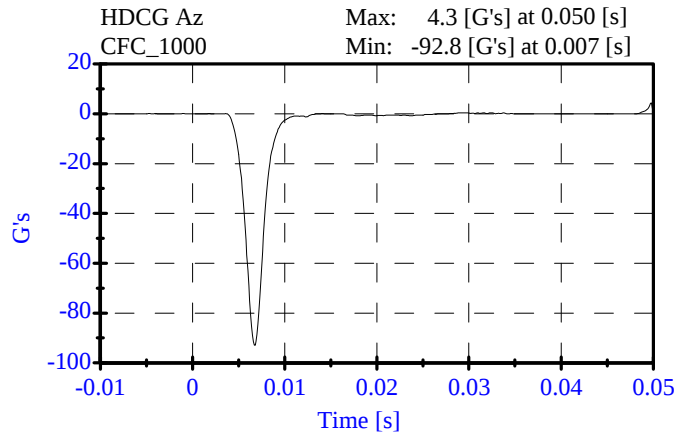
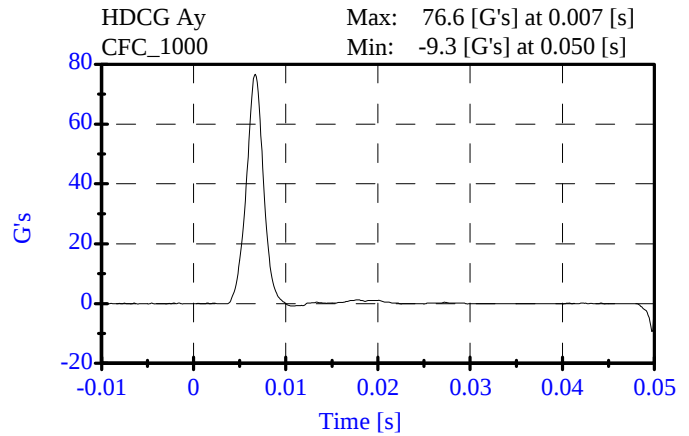
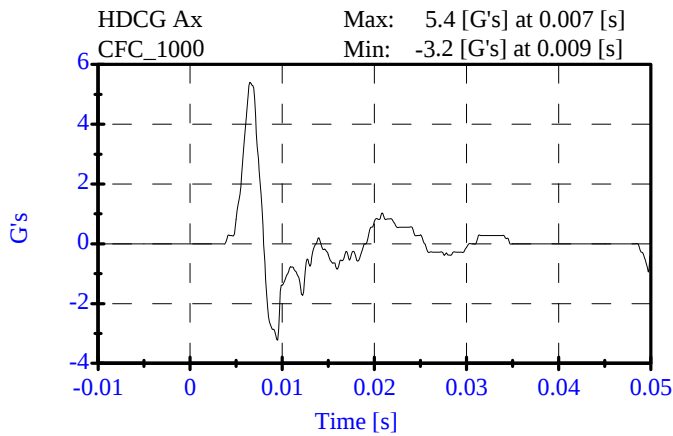
Head Drop **Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 02-08-07

Sequential Test Number: 1 File: 906HD2 02-08-07
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	120.43 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	5.39 Gs	Passed
Curve PerCent NonModal:	< 15%	8.53 %	Passed



Neck Test**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906

Date: 02-09-07

Sequential Test Number: 1 File: 906Neck 02-08-07

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 %	31.00 %	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	2.13 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.36 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.34 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.08 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	67.58 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.30 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	85.00 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	55.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.90 ms	Passed

Neck Test
Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

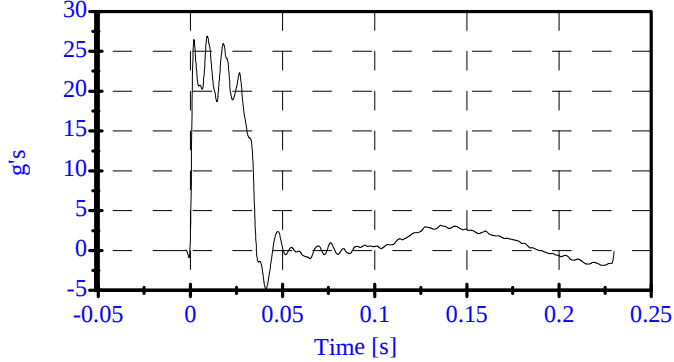
ATD Serial No: 906

Date: 02-09-07

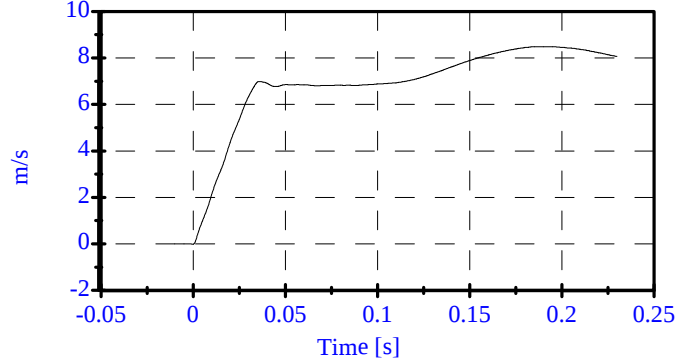
Sequential Test Number: 1 File: 906Neck 02-08-07

Laboratory Technician: B. Swiecicki

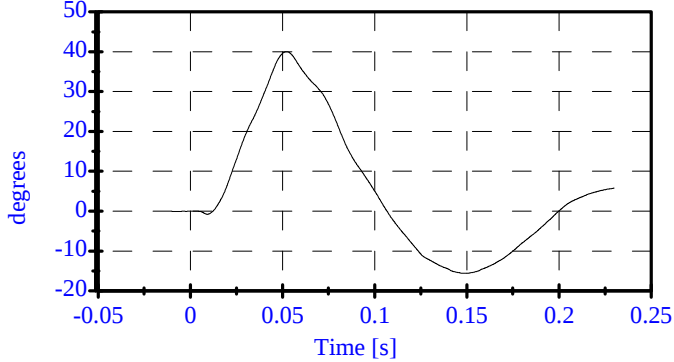
Pend Ax
CFC_180
Max: 26.9 [g's] at 0.009 [s]
Min: -4.8 [g's] at 0.041 [s]



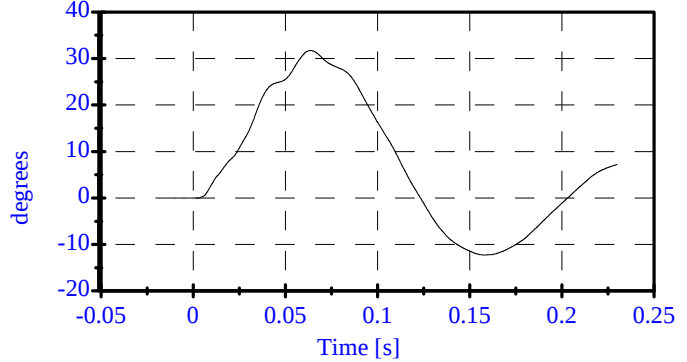
Pend Vx
CFC_180
Max: 8.5 [m/s] at 0.189 [s]
Min: -0.0 [m/s] at -0.000 [s]



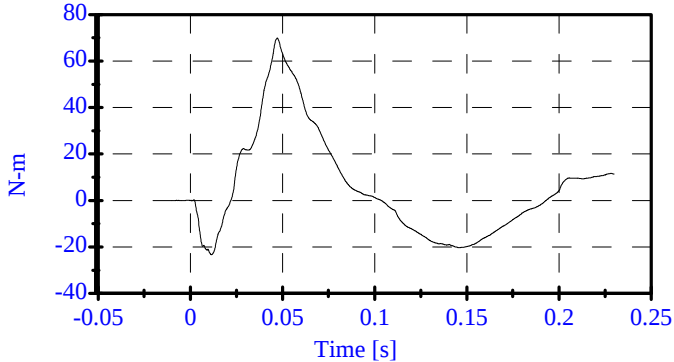
Head Rot
CFC_180
Max: 40.0 [degrees] at 0.052 [s]
Min: -15.6 [degrees] at 0.149 [s]



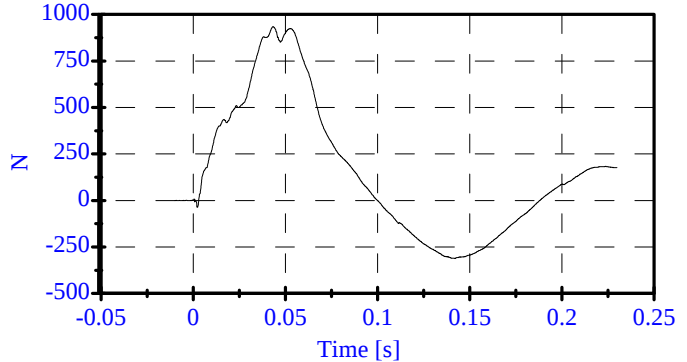
Arm Rot
CFC_180
Max: 31.7 [degrees] at 0.064 [s]
Min: -12.3 [degrees] at 0.158 [s]



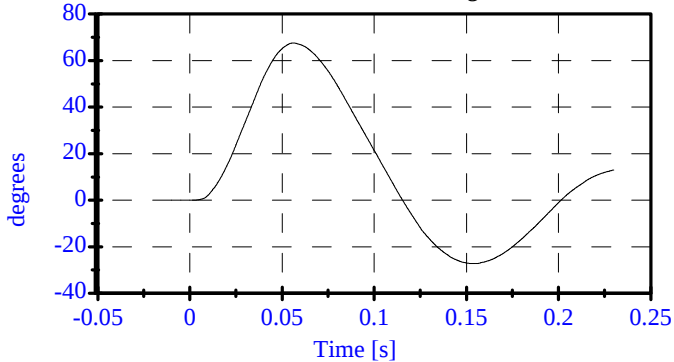
Neck Mx
CFC_600
Max: 69.9 [N-m] at 0.047 [s]
Min: -23.4 [N-m] at 0.012 [s]



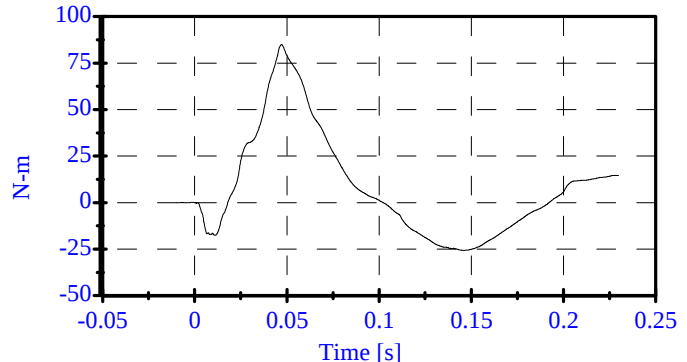
Neck Fy
CFC_1000
Max: 934.8 [N] at 0.043 [s]
Min: -312.0 [N] at 0.142 [s]



Tot Rot
CFC_180
Max: 67.6 [degrees] at 0.056 [s]
Min: -27.3 [degrees] at 0.154 [s]



MOCX
Max: 85.0 [N-m] at 0.047 [s]
Min: -25.7 [N-m] at 0.145 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

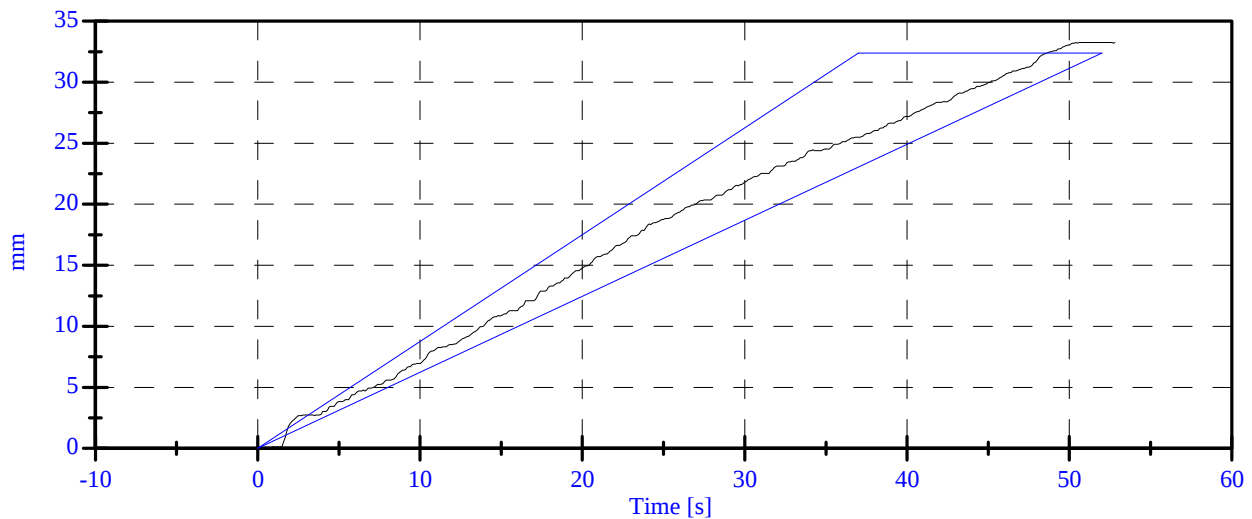
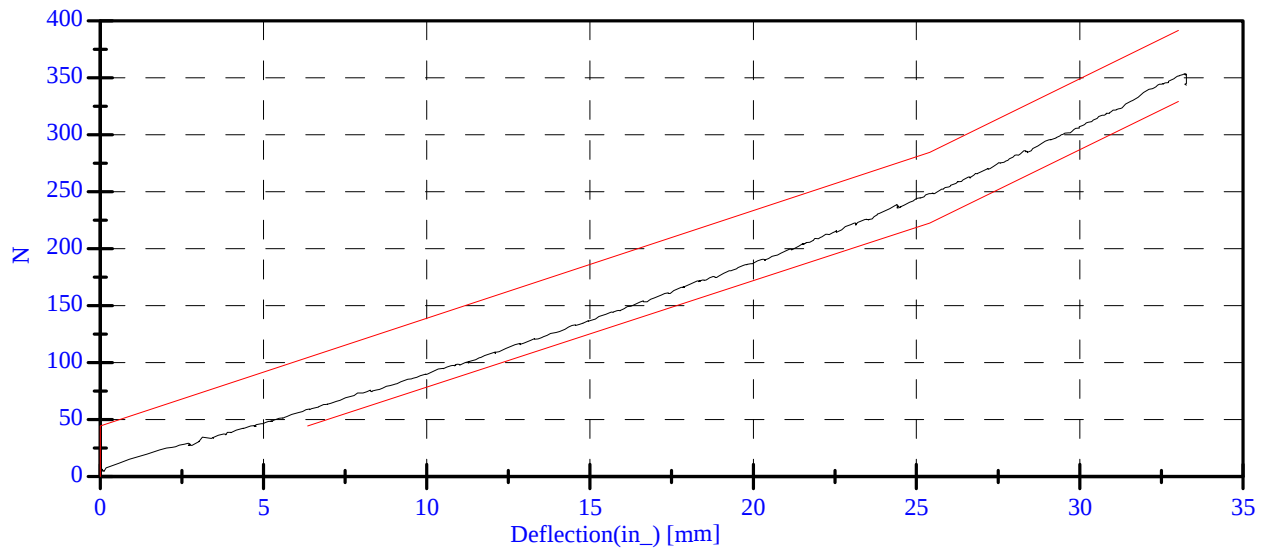
Date: 02-12-07

Sequential Test Number: 1 File: 906 Ab 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	117.15 N	Passed
Force at 19.05 mm :	162.98-220.99 N	178.41 N	Passed
Force at 25.40 mm :	221.97-280.02 N	248.37 N	Passed
Force at 33.02 mm :	324.99-391.00 N	351.68 N	Passed

ABDOMINAL COMPRESSION TEST



Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

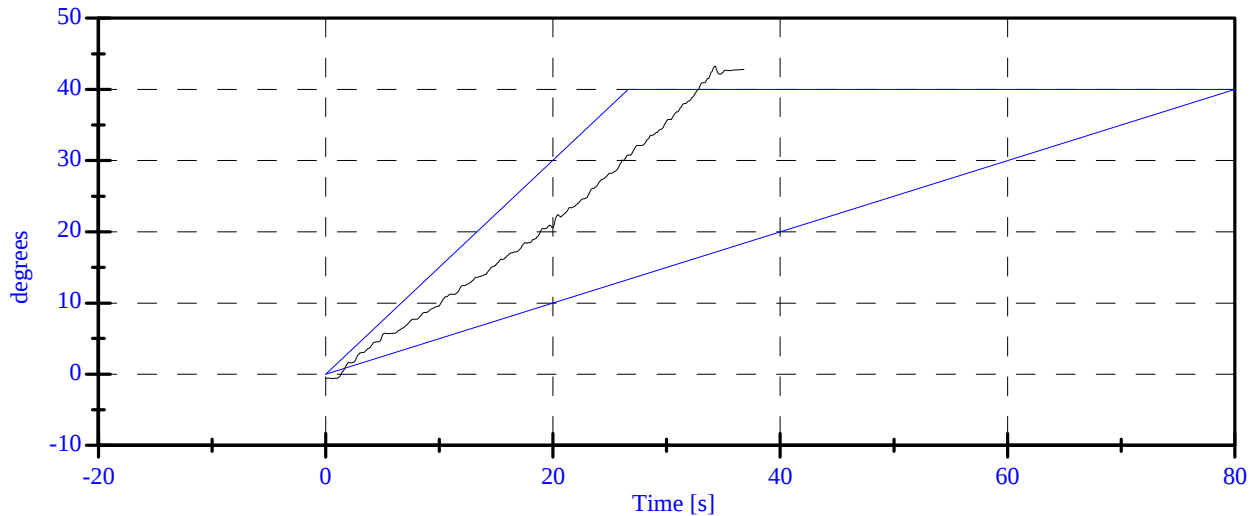
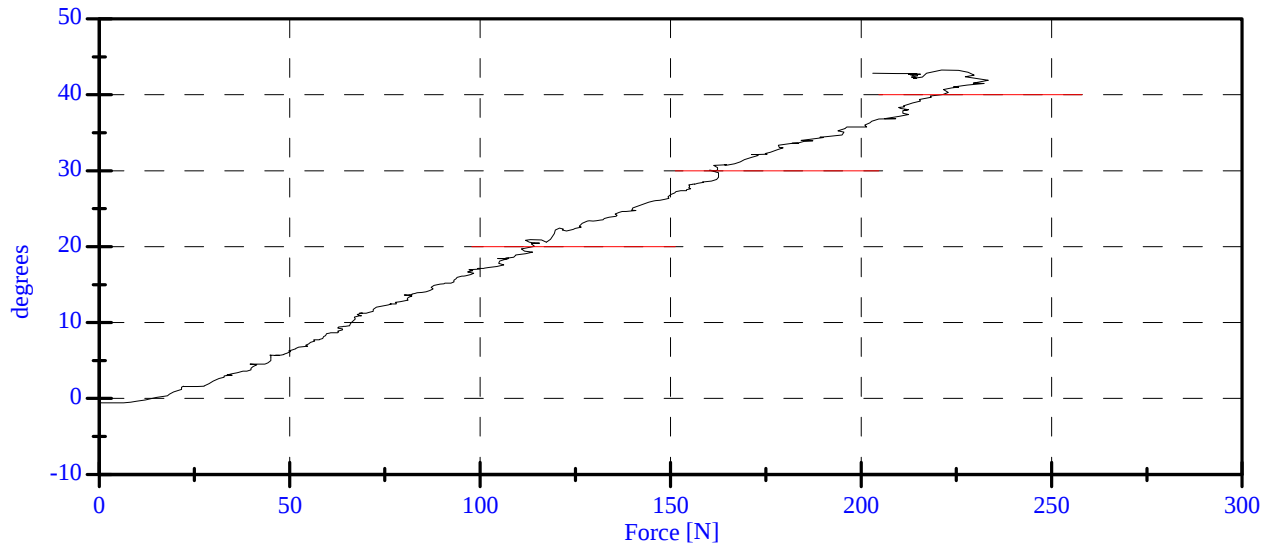
Date: 02-12-07

Sequential Test Number: 1 File: 906 Spine 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	15.02 N	Passed
Force at 20 Deg:	97.86-151.24 N	114.26 N	Passed
Force at 30 Deg	151.24-204.62 N	161.79 N	Passed
Force at 40 Deg	204.62-258.00 N	221.33 N	Passed
Return Angle	12 Deg Max	1.33 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 906 Sequential Test Number: 4
 Date: 2/12/07 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: 4
Date: 2/12/07	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: 4
Date: 2/12/07 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	905
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	238
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	492
HW- Hip Width (mm)	356 - 391	383

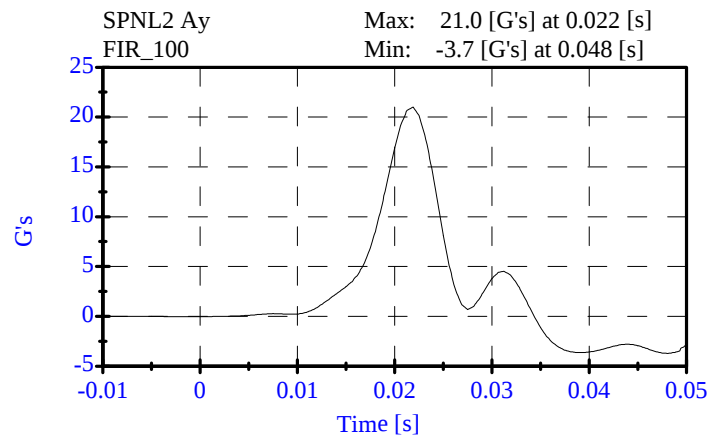
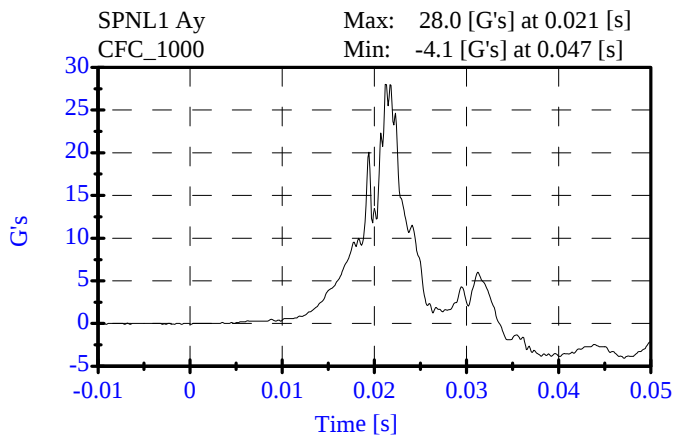
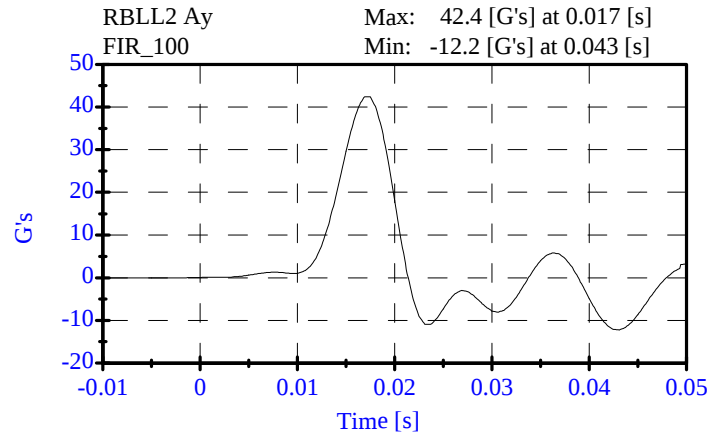
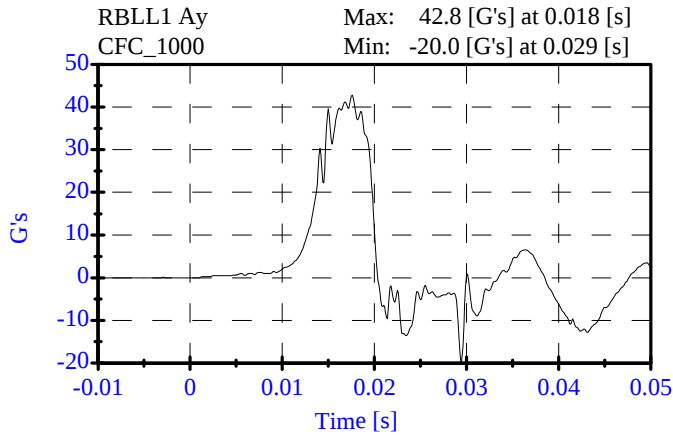
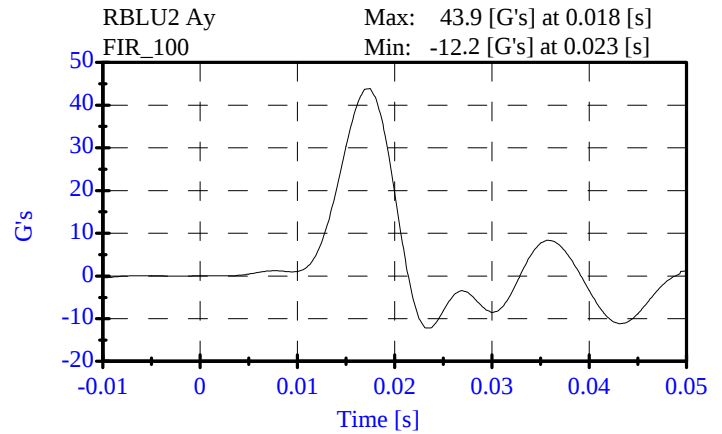
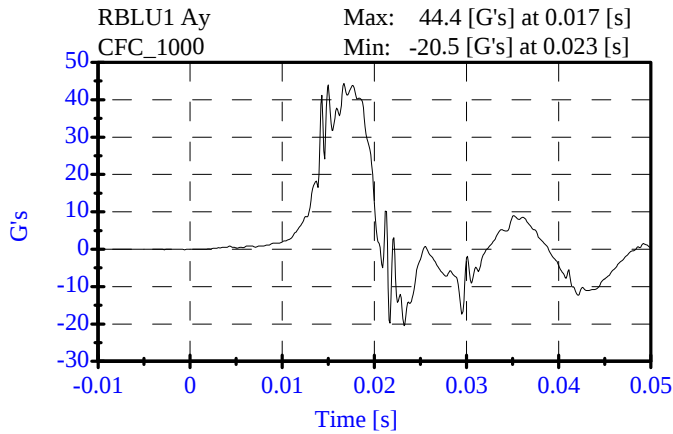
REMARKS: None

Thorax Impact
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 02-12-07

Sequential Test Number: 1 File: 905T 02-12-07
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	43.88 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.41 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.00 G's	Passed



Pelvic Impact

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

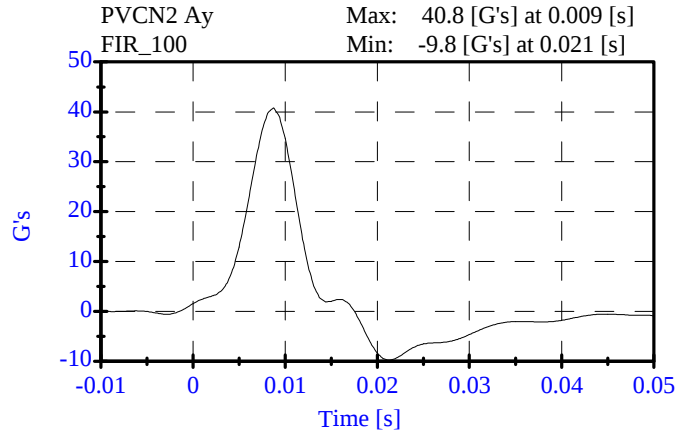
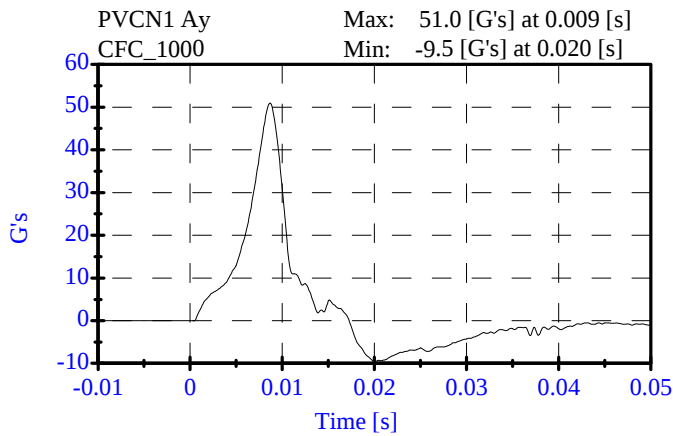
ATD Serial No: 905

Date: 02-12-07

Sequential Test Number: 1 File: 905P2 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	40.77 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.6 ms	Passed



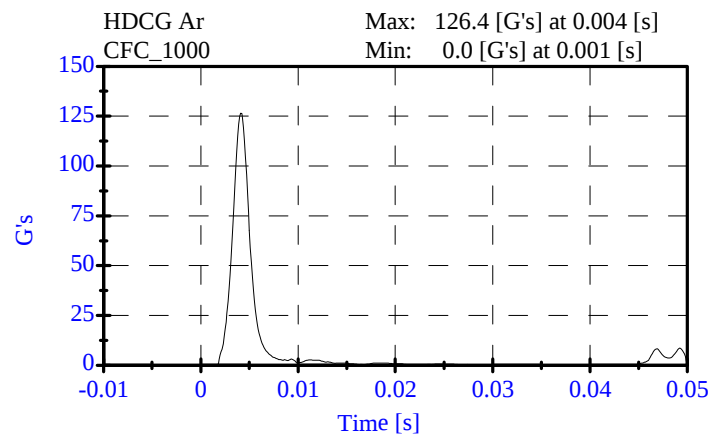
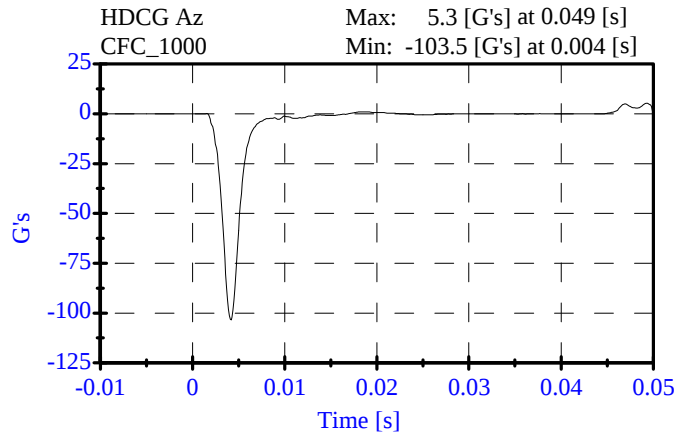
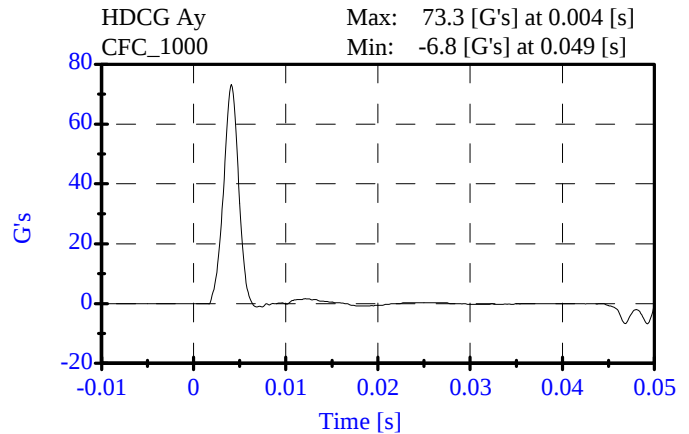
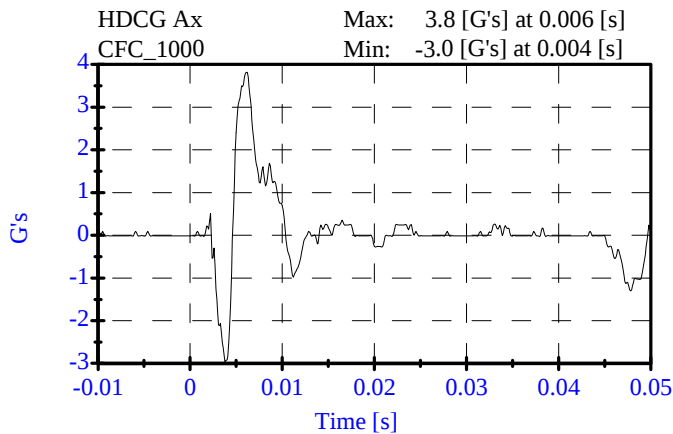
Head Drop Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 02-08-07

Sequential Test Number: 1 File: 905HD 02-08-07
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	126.44 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	3.82 Gs	Passed
Curve PerCent NonModal:	< 15%	6.81 %	Passed



Neck Test**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905

Date: 02-08-07

Sequential Test Number: 1 File: 905Neck 02-08-07

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 %	31.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.98 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.01 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.20 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.03 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.04 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	68.45 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	60.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.50 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.80 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.20 ms	Passed

Neck Test
Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

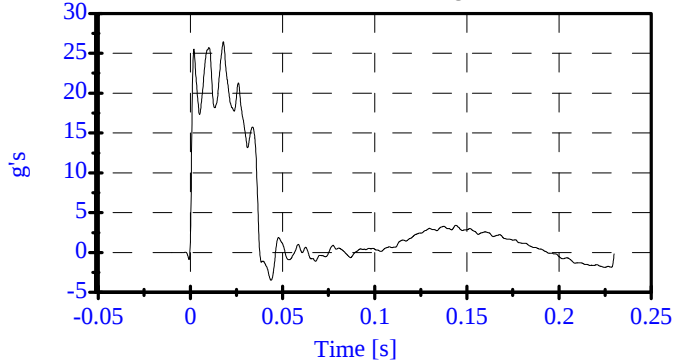
ATD Serial No: 905

Date: 02-08-07

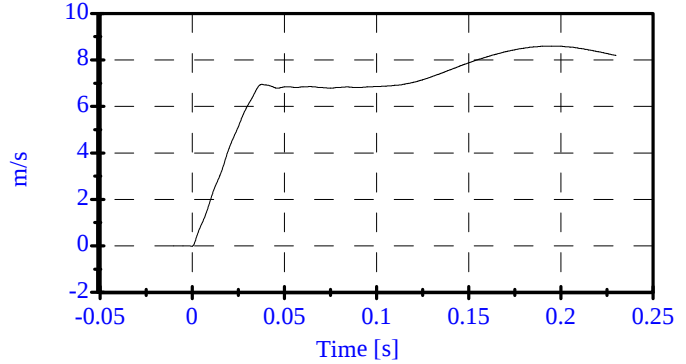
Sequential Test Number: 1 File: 905Neck 02-08-07

Laboratory Technician: B. Swiecicki

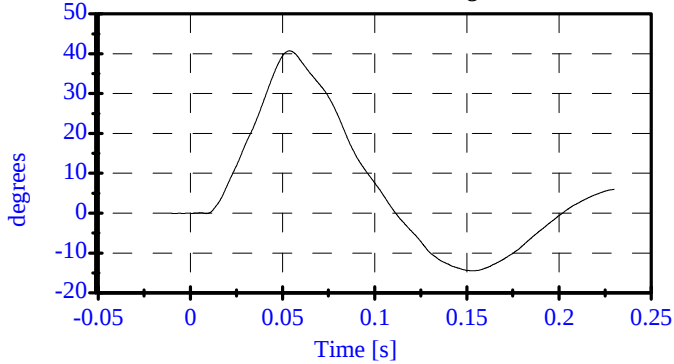
Pend Ax
CFC_180
Max: 26.5 [g's] at 0.018 [s]
Min: -3.5 [g's] at 0.044 [s]



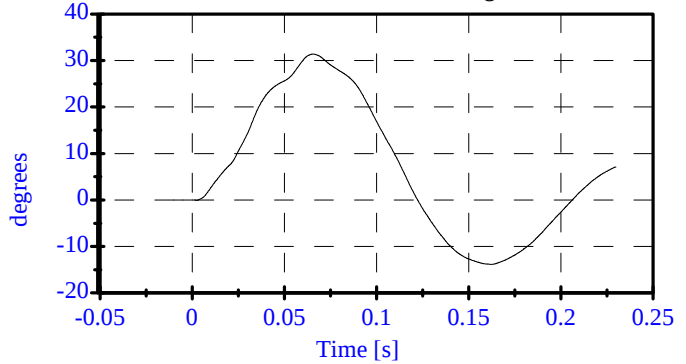
Pend Vx
CFC_180
Max: 8.6 [m/s] at 0.194 [s]
Min: -0.0 [m/s] at -0.000 [s]



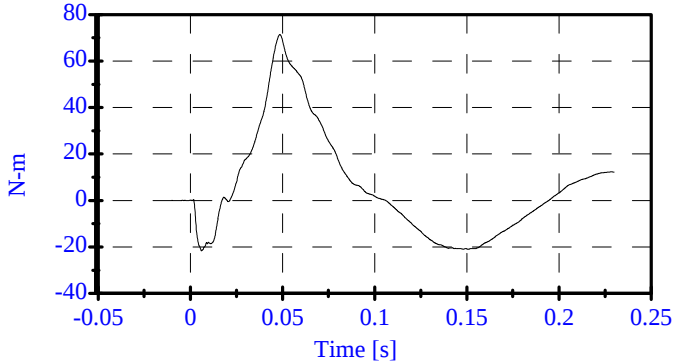
Head Rot
CFC_180
Max: 40.8 [degrees] at 0.054 [s]
Min: -14.4 [degrees] at 0.153 [s]



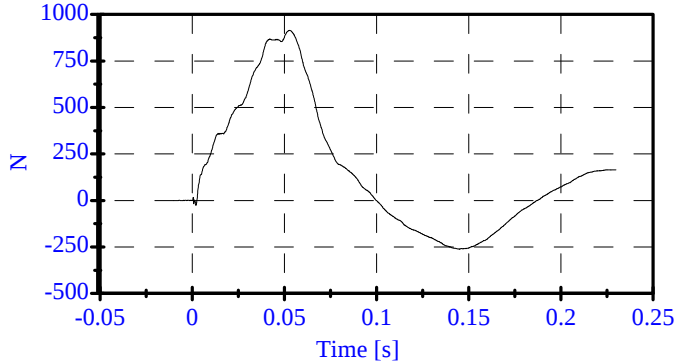
Arm Rot
CFC_180
Max: 31.4 [degrees] at 0.066 [s]
Min: -13.9 [degrees] at 0.162 [s]



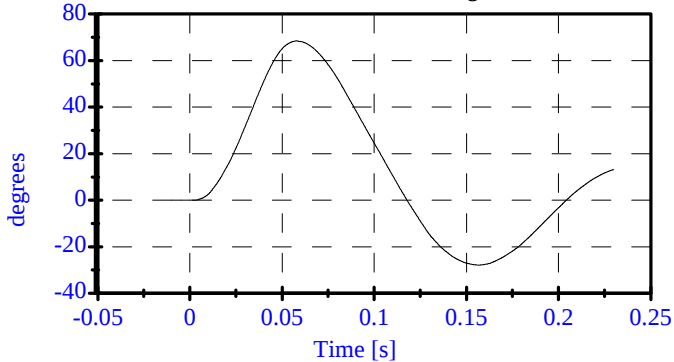
Neck Mx
CFC_600
Max: 71.3 [N-m] at 0.049 [s]
Min: -21.7 [N-m] at 0.006 [s]



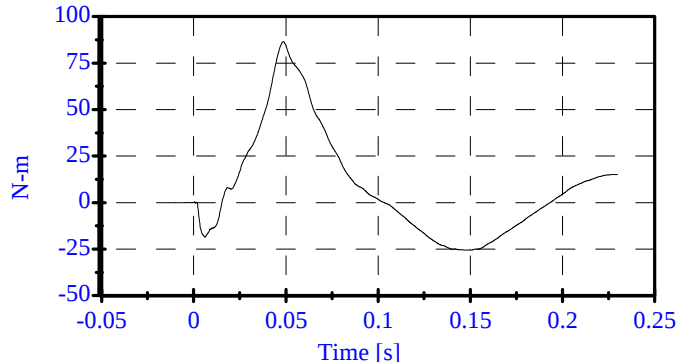
Neck Fy
CFC_1000
Max: 913.7 [N] at 0.053 [s]
Min: -261.1 [N] at 0.145 [s]



Tot Rot
CFC_180
Max: 68.4 [degrees] at 0.058 [s]
Min: -27.9 [degrees] at 0.157 [s]



MOCX
Max: 86.5 [N-m] at 0.049 [s]
Min: -25.5 [N-m] at 0.148 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

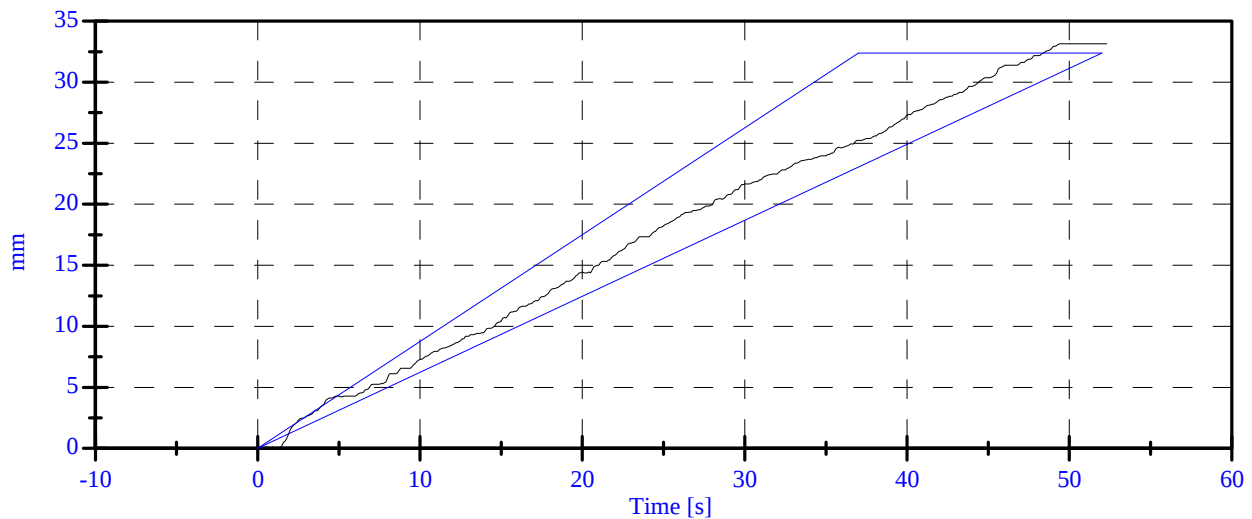
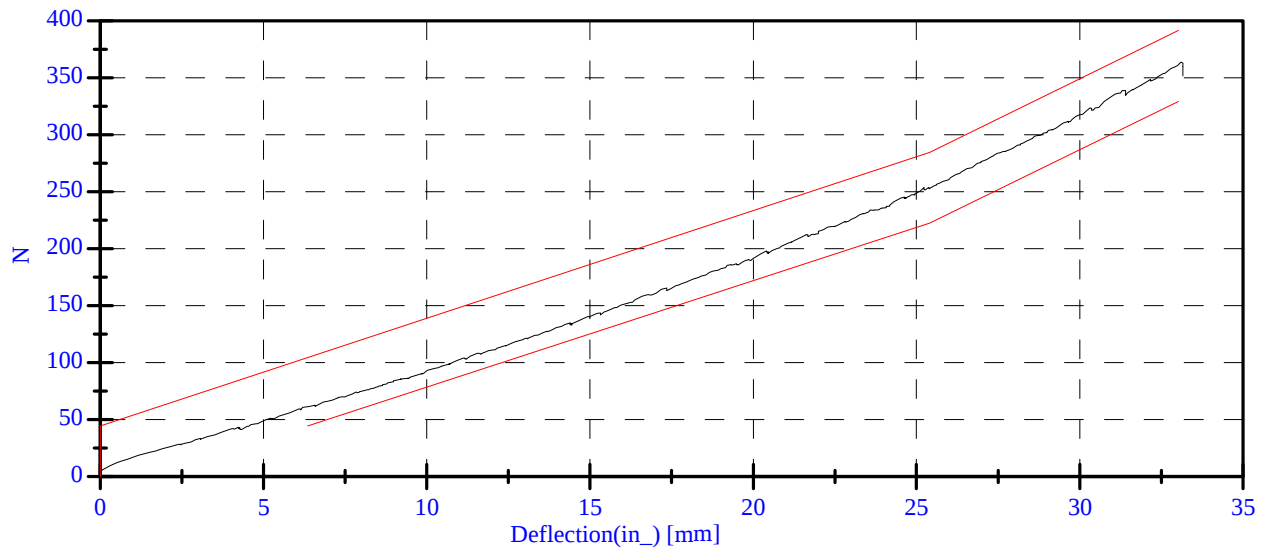
Date: 02-12-07

Sequential Test Number: 1 File: 905 Ab 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	120.05 N	Passed
Force at 19.05 mm :	162.98-220.99 N	182.40 N	Passed
Force at 25.40 mm :	221.97-280.02 N	253.45 N	Passed
Force at 33.02 mm :	324.99-391.00 N	360.74 N	Passed

ABDOMINAL COMPRESSION TEST



Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

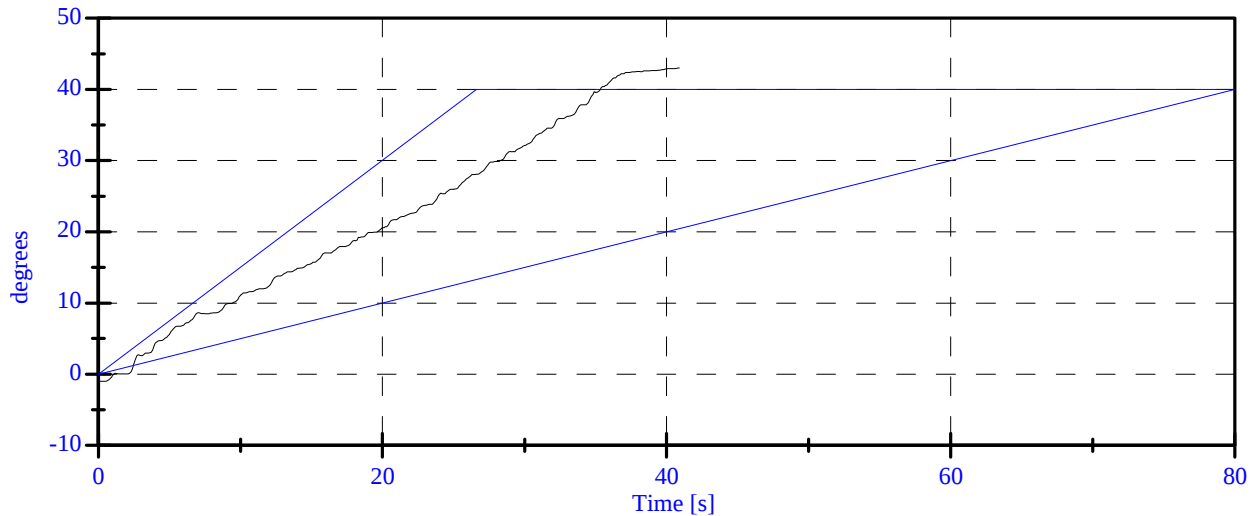
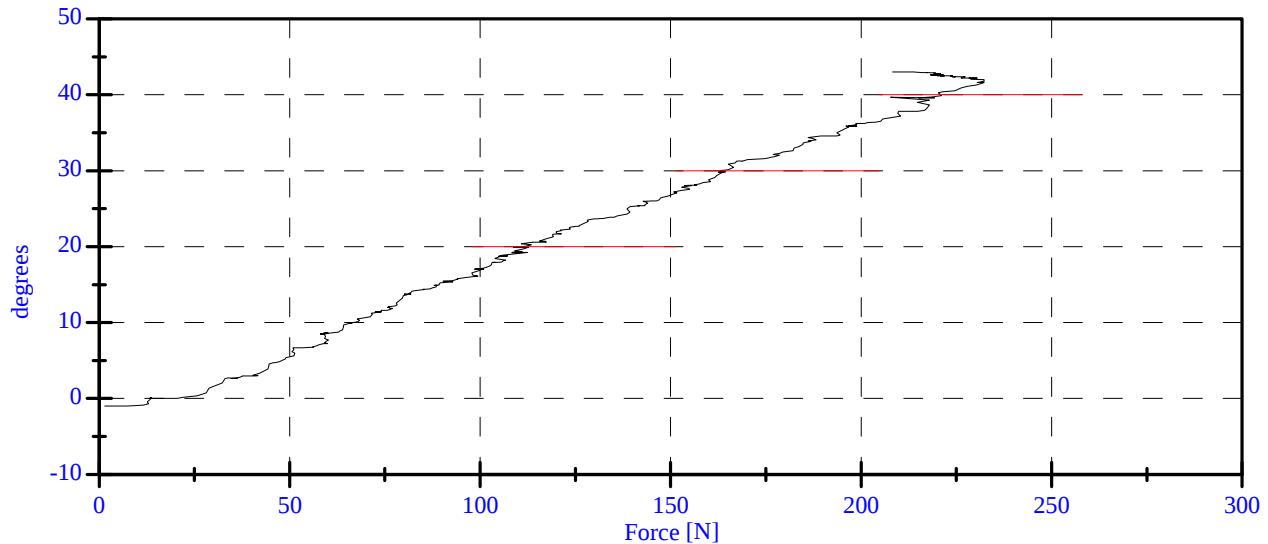
Date: 02-12-07

Sequential Test Number: 1 File: 905 Spine 02-12-07

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	13.71 N	Passed
Force at 20 Deg:	97.86-151.24 N	111.65 N	Passed
Force at 30 Deg:	151.24-204.62 N	163.10 N	Passed
Force at 40 Deg:	204.62-258.00 N	221.07 N	Passed
Return Angle	12 Deg Max	4.57 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 905 Sequential Test Number: 4
 Date: 2/12/07 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

APPENDIX D

TEST EQUIPMENT AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID/HIII INSTRUMENTATION

	FRONT SID/HIII NO.: 906		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P35764	ENDEVCO	24-Jan-07
HEAD AY	AC-P39736	ENDEVCO	24-Jan-07
HEAD AZ	AC-P39729	ENDEVCO	24-Jan-07
UPPER NECK FX	LC-798Fx	DENTON	06-Jul-06
UPPER NECK FY	LC-798Fy	DENTON	06-Jul-06
UPPER NECK FZ	LC-798Fz	DENTON	06-Jul-06
UPPER NECK MX	LC-798Mx	DENTON	06-Jul-06
UPPER NECK MY	LC-798My	DENTON	06-Jul-06
UPPER NECK MZ	LC-798Mz	DENTON	06-Jul-06
UPPER RIB	AC-P39575	ENDEVCO	16-Jan-07
LOWER RIB	AC-P16866	ENDEVCO	24-Jan-07
LOWER SPINE	AC-P16645	ENDEVCO	24-Jan-07
PELVIS	AC-P23139	ENDEVCO	24-Jan-07
UPPER RIB REDUNDANT	AC-P15526	ENDEVCO	16-Jan-07
LOWER RIB REDUNDANT	AC-P16656	ENDEVCO	24-Jan-07
LOWER SPINE REDUNDANT	AC-P19343	ENDEVCO	24-Jan-07
PELVIS REDUNDANT	AC-P17539	ENDEVCO	25-Jan-07

	REAR SID/HIII NO.: 905		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P21373	ENDEVCO	25-Jan-07
HEAD AY	AC-P23128	ENDEVCO	25-Jan-07
HEAD AZ	AC-P21297	ENDEVCO	25-Jan-07
UPPER NECK FX	LC-1626Fx	DENTON	06-Jul-06
UPPER NECK FY	LC-1626Fy	DENTON	06-Jul-06
UPPER NECK FZ	LC-1626Fz	DENTON	06-Jul-06
UPPER NECK MX	LC-1626Mx	DENTON	06-Jul-06
UPPER NECK MY	LC-1626My	DENTON	06-Jul-06
UPPER NECK MZ	LC-1626Mz	DENTON	06-Jul-06
UPPER RIB	AC-P15736	ENDEVCO	26-Jan-07
LOWER RIB	AC-P16289	ENDEVCO	26-Jan-07
LOWER SPINE	AC-P16761	ENDEVCO	26-Jan-07
PELVIS	AC-P35804	ENDEVCO	16-Jan-07
UPPER RIB REDUNDANT	AC-P16593	ENDEVCO	26-Jan-07
LOWER RIB REDUNDANT	AC-P23142	ENDEVCO	26-Jan-07
LOWER SPINE REDUNDANT	AC-P21516	ENDEVCO	26-Jan-07
PELVIS REDUNDANT	AC-P32221	ENDEVCO	26-Jan-07

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-P18948	ENDEVCO	15-Jan-07
RIGHT FRONT SILL (Y)	AC-P17563	ENDEVCO	15-Jan-07
RIGHT FRONT SILL (Z)	AC-P14965	ENDEVCO	15-Jan-07
RIGHT REAR SILL (X)	AC-P18785	ENDEVCO	15-Jan-07
RIGHT REAR SILL (Y)	AC-P23926	ENDEVCO	15-Jan-07
RIGHT REAR SILL (Z)	AC-P32218	ENDEVCO	15-Jan-07
REAR FLOORPAN ABOVE AXLE (X)	AC-P23993	ENDEVCO	15-Jan-07
REAR FLOORPAN ABOVE AXLE (Y)	AC-P23939	ENDEVCO	15-Jan-07
REAR FLOORPAN ABOVE AXLE (Z)	AC-P23999	ENDEVCO	15-Jan-07
LEFT REAR SILL (Y)	AC-P23303	ENDEVCO	16-Jan-07
LEFT FRONT SILL (Y)	AC-P17242	ENDEVCO	16-Jan-07
LEFT FRONT DOOR CENTERLINE (Y)	-	-	-
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-P23976	ENDEVCO	16-Jan-07
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-P23155	ENDEVCO	16-Jan-07
MIDDLE LEFT B-PILLAR (Y)	AC-P21441	ENDEVCO	16-Jan-07
LOWER LEFT A-PILLAR (Y)	AC-P18728	ENDEVCO	16-Jan-07
UPPER LEFT A-PILLAR (Y)	AC-P16832	ENDEVCO	16-Jan-07
FRONT SEAT TRACK (Y)	AC-P35758	ENDEVCO	16-Jan-07
REAR SEAT TRACK (Y)	AC-P19255	ENDEVCO	16-Jan-07
VEHICLE CG (X)	AC-J31059	ENDEVCO	15-Jan-07
VEHICLE CG (Y)	AC-J31101	ENDEVCO	15-Jan-07
VEHICLE CG (Z)	AC-P23174	ENDEVCO	15-Jan-07
MDB CG (X)	AC-C15007	ENDEVCO	1/26/2007
MDB CG (Y)	AC-C16416	ENDEVCO	1/26/2007
MDB CG (Z)	AC-C16499	ENDEVCO	1/26/2007
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	1/26/2007
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	1/26/2007

REMARKS: None