

REPORT NUMBER: SNCAP-CAL-06-02

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**HYUNDAI MOTOR COMPANY
2006 HYUNDAI SONATA GL
4-DOOR SEDAN**

NHTSA NUMBER: M60507

**PREPARED BY:
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Test Date: August 23, 2005

FINAL REPORT

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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2006 Hyundai Sonata GL 4-Door Sedan 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 Transportation Sciences Center in Buffalo, New York, on August 23, 2005. The impact velocity of the Moving Deformable Barrier (MDB) was 62.44 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 350 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;">40.86</td> <td style="text-align: center;">54.67</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">47.41</td> <td style="text-align: center;">53.29</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">62.80</td> <td style="text-align: center;">42.95*</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">55</td> <td style="text-align: center;">49</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">75</td> <td style="text-align: center;">72</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">265.2</td> <td style="text-align: center;">472.0</td> </tr> </tbody> </table> * Primary Lower Spine (T₁₂) transducer failed during the test, redundant transducer was used for TTI calculation					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	40.86	54.67	Left Lower Rib (LLR) Accel., g	47.41	53.29	Lower Spine (T ₁₂) Accel., g	62.80	42.95*	Thoracic Trauma Index (TTI)	55	49	Pelvis (PEV) Accel., g	75	72	HIC	265.2	472.0
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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' 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 2006 Hyundai Sonata GL 4-Door Sedan manufactured by Hyundai Motor Company. 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 2006 Hyundai Sonata GL 4-Door Sedan 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 62.44 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 1707.0 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on August 23, 2005.

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-five (25) structural accelerometers and the MDB was instrumented with six (5) accelerometers.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 350 mm at level 2, 1350 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 summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. 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	265.2	43.6	68.0	55	75
Passenger	472.0	50.1	65.0	49	72

* Primary Lower Spine (T₁₂) transducer failed during the test, redundant transducer was used for TTI calculation

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	No	NA
Side Torso Airbag	Yes	Yes	No	NA
Side Head/Torso Combination Airbag	No	NA	No	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:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	Hyundai Motor Company	Driver Front Airbag	Yes
Model	Sonata GL	Driver Side Curtain Airbag	Yes
Body Style	4-Door Sedan	Driver Side Torso Airbag	Yes
NHTSA No.	M60507	Driver Pretensioners	Yes
VIN	KMHET46C26A078316	Driver Load Limiters	Yes
Color	Aquamarine	Driver Power Seats	No
Engine Disp. (L)	2.4	Rear Pass. Side Curtain Airbag	Yes
Engine Cylinders	4	Rear Pass. Side Torso Airbag	No
Engine Placement	Lateral	Rear Pass. Pretensioners	No
Transmission Type	Manual	Rear Pass. Load Limiters	No
Transmission Speeds	5	Rear Pass. Power Seats	NA
Final Drive	Front Wheel	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	Yes
Power Steering	Yes	Traction Control	No
Power Brakes	Yes	Power Windows	Yes
Delivery Date	07/26/2005	Power Door Locks	Yes
Odometer Reading (km)	148	Automatic Door Locks (ADL)	Yes
Dealer	Northtown Hyundai Amherst, NY 14226	Owner's Manual Details Instructions on Disabling ADLs	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company	GVWR (kg)	4299
Date of Manufacture	APR/23/2005	GAWR Front (kg)	2513
		GAWR Rear (kg)	2138

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				390
Cargo Wt. (RCLW) (kg)				49.8

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

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	455.0	455.0		508.0	458.5		502.5	459.5	
Right	kg	299.5	293.0		389.5	359.5		387.5	357.5	
Ratio	%	50.2	49.8		52.3	47.7		52.1	47.9	
Totals	kg	754.5	748.0	1502.5	897.5	818.0	1715.5	890.0	817.0	1707.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1502.5
Weight of 2 P572E ATDs (81.2 kg each)	kg	162.4
Rated Cargo/Luggage Weight (RCLW)	kg	49.8
Calculated Vehicle Target Weight (TVTW)	kg	1714.7

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

Weight of Ballast (including instrumentation package and cameras): 42.1 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	732	735	741	741
Fully Loaded	mm	715	690	734	704
As Tested	mm	718	691	734	706

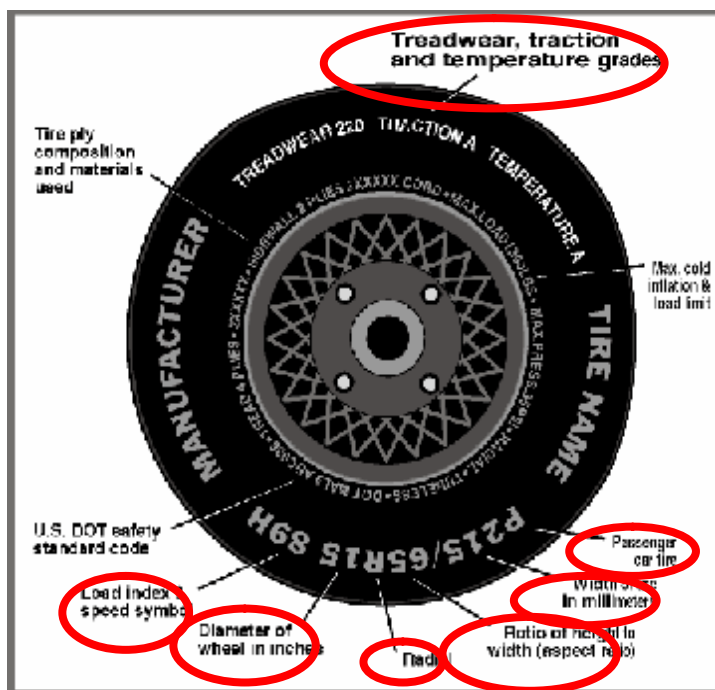
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2728
Target Impact Point Aft of Front Axle	mm	424
Actual Impact Point Aft of Front Axle	mm	1306

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	210	210
Recommended Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Manufacturer	Michelin	Michelin
Tire Name	Energy MXV4	Energy MXV4
Tire Type	P	P
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	60	60
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	94V	94V
Treadwear	440	440
Traction Grade	A	A
Temperature Grade	A	A

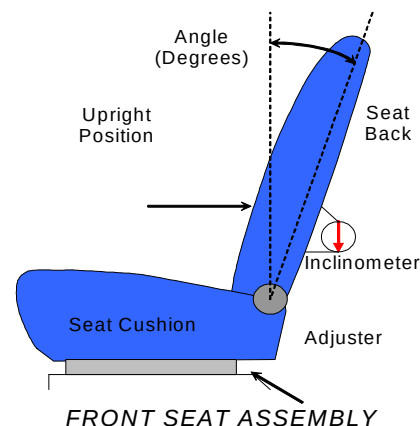
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

NORMAL DESIGN RIDING POSITION

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

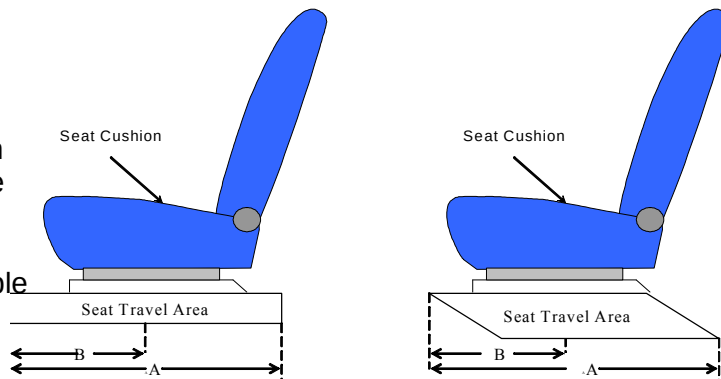


SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	Detent 11	NA
Angle (deg. from forward-most locking position)	NA	NA
Alternative Measurements to Verify Test Position	Head restraint post 10.8° back from vertical	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)	254	NA
Test Position (B) (mm)	127	NA
Test Detent (forward-most detent defined as 0)	12	NA
Total Number of Detents (including 0)	24	NA

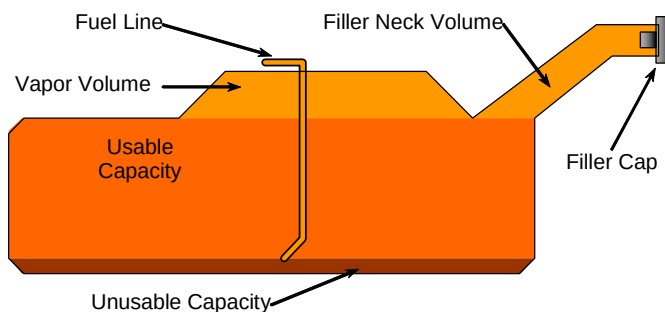
DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

Test Vehicle: 2006 Hyundai Sonata GL	NHTSA No. M60507
Test Program: NCAP Side Impact	Test Date: August 23, 2005

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.



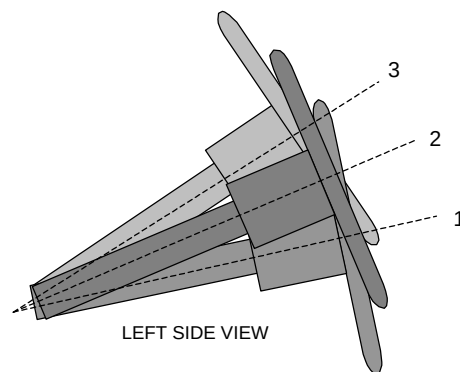
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	67
Usable Capacity of "Optional" Fuel Tank	NA
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	61.7

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	16.5	6
Geometric Center Position No. 2 *	NA	23.5	3
Uppermost Position No. 3	NA	30.5	0

* Placed in the manufacturer's nominal design position.

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

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

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	62.44
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.44

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

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	6 mm forward
Vertical Offset	mm	+/-20	9 mm below

DATA SHEET NO. 5
POST TEST OBSERVATIONS

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

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	Side curtain airbag	Side curtain airbag and C-pillar trim
Upper Torso Contact	Side torso airbag and upper door trim	Upper door trim
Lower Torso Contact	Lower door trim	Lower 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 visible separations or tears
Sill Separation	None
Windshield Damage	None
Window Damage	Left rear passenger window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT INFORMATION

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

DATA SHEET NO. 6

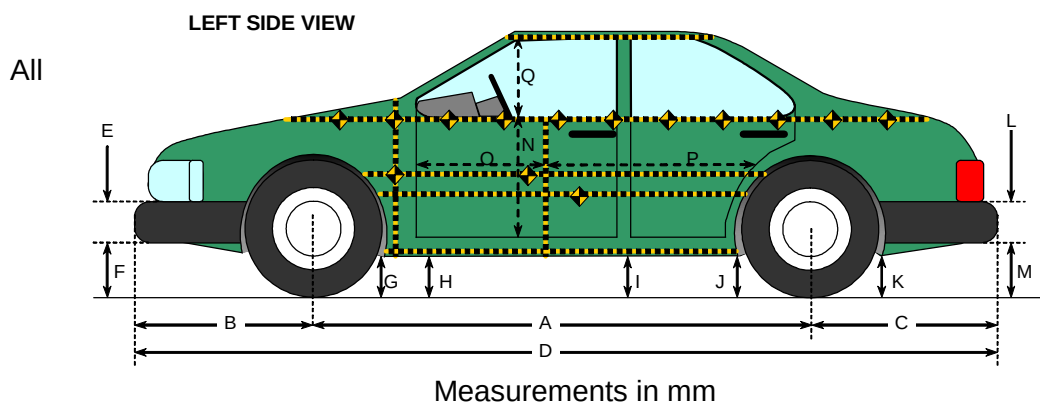
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005



Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	2725	2728	2687	41
B	Front Axle to FSOV	963	964	988	-24
C	Rear Axle to RSOV	1114	1110	1108	2
D	Total Length at Centerline	4802	4802	4783	19
E	Front Bumper Thickness	314	314	314	0
F	Front Bumper Bottom to Ground	254	250	256	-6
G	Sill Height at Front Wheel Well	195	177	201	-24
H	Sill Height at Front Door Leading Edge	214	193	204	-11
I	Sill Height at "B" Pillar	222	188	189	-1
J1	Sill Height at Rear Wheel Well	212	171	179	-8
J2	Pinch Weld Height at Rear Wheel Well	227	184	196	-12
K	Sill Height Aft of Rear Wheel Well	259	208	210	-2
L	Rear Bumper Thickness	329	329	329	0
M	Rear Bumper Bottom to Ground	343	293	282	11
N	Sill Height to Window Bottom Sill	676	676	618	58
O	Front Door Leading Edge to Impact CL	771	771	755	16
P	Rear Door Trailing Edge to Impact CL	1203	1203	1130	73
Q	Front Window Opening	434	434	428	6
R	Right Side Length	4670	4670	4669	1
S	Left Side Length	4670	4670	4638	32
T	Vehicle Width at "B" Post	1814	1814	1584	230

DATA SHEET NO. 7

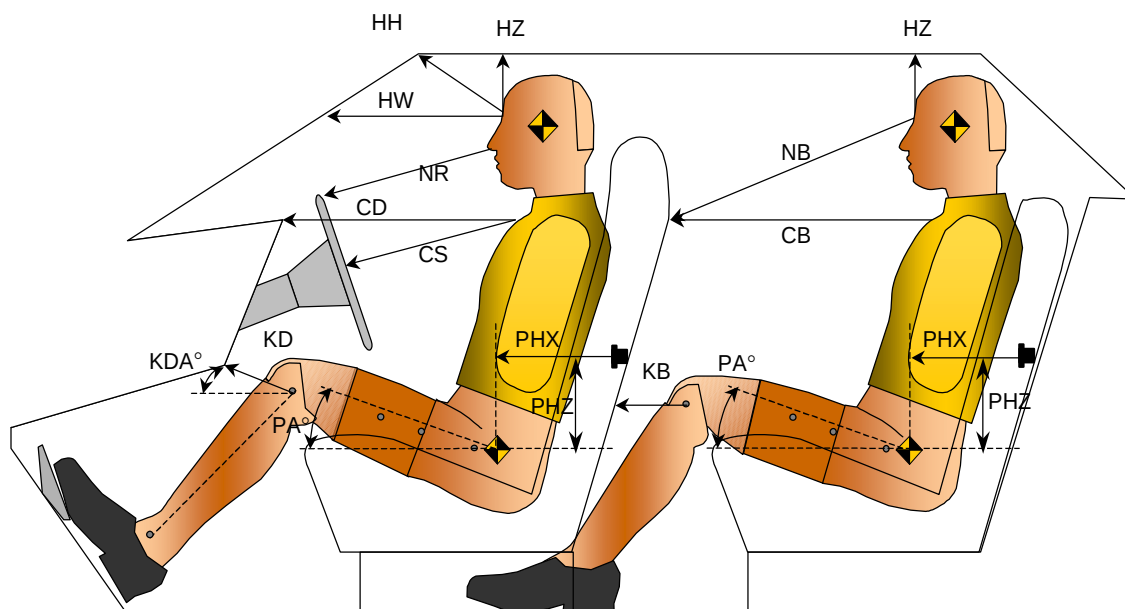
SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005

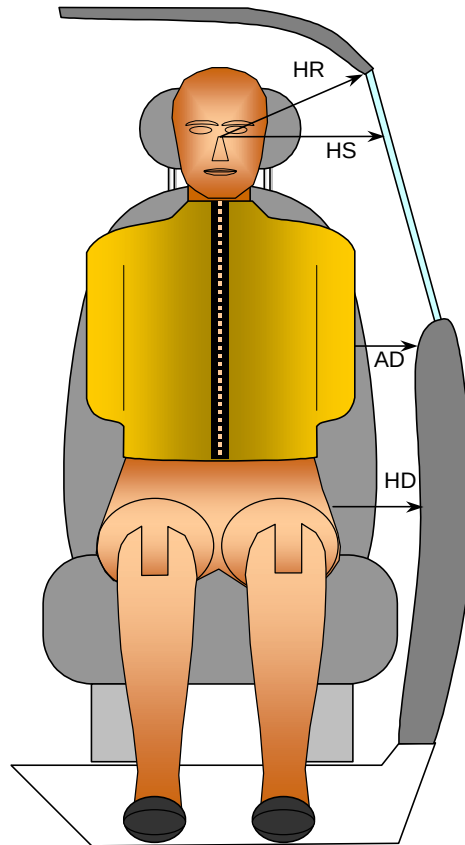


Driver Code	Pass. Code	Measurement Description	Driver S/N 905		Passenger S/N 906	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	376			
HW		Head to Windshield	665			
HZ	HZ	Head to Roof	176		158	
NR	NB	Nose to Rim/Nose to Seatback	485		653	
CD	CB	Chest to Dash or Seatback	574		599	
CS		Chest to Steering Wheel	324			
KDL	KBL	Left Knee to Dash or Seatback	179	34	260	23
KDR	KBR	Right Knee to Dash or Seatback	161	32	261	23
PA	PA	Pelvic Angle		24.3		23.2
PHX	PHX	H-Point to Striker (X-Axis)	213		218	
PHZ	PHZ	H-Point to Striker (Z-Axis)	227		224	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005



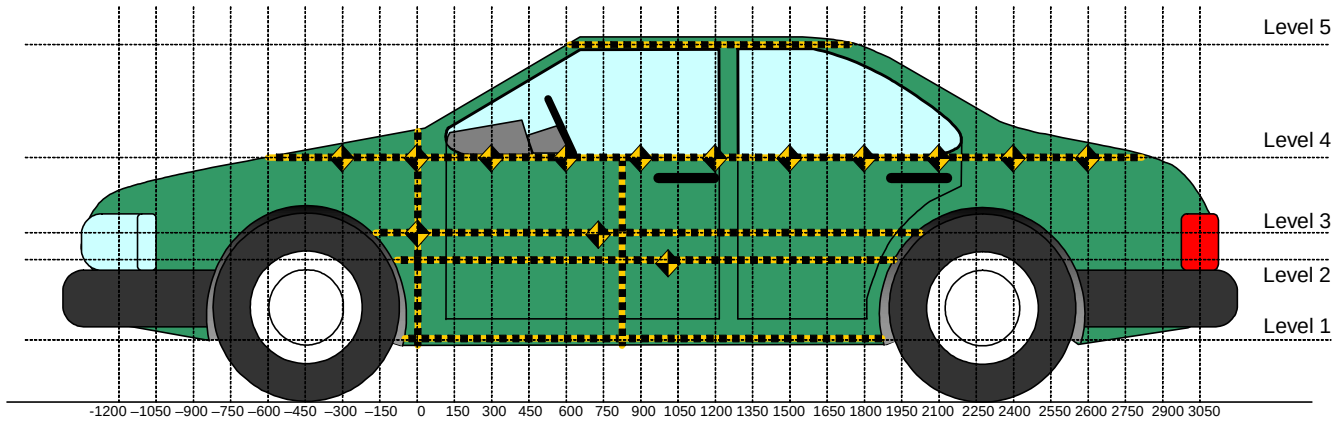
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 905	Passenger S/N 906
HR	Head to Side Header	mm	185	225
HS	Head to Side Window	mm	320	352
AD ₁	Arm to Door (at upper rib level)	mm	115	128
AD ₂	Arm to Door (at lower rib level)	mm	140	142
HD	H-Point to Door	mm	168	183

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005



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 Line
1	Sill Top	177	247	1200
2	Occupant H-Point	350	519	1350
3	Mid Door	311	632	1200
4	Window Sill	266	887	1500
5	Window	27	1414	1350
	Maximum Penetration	350		

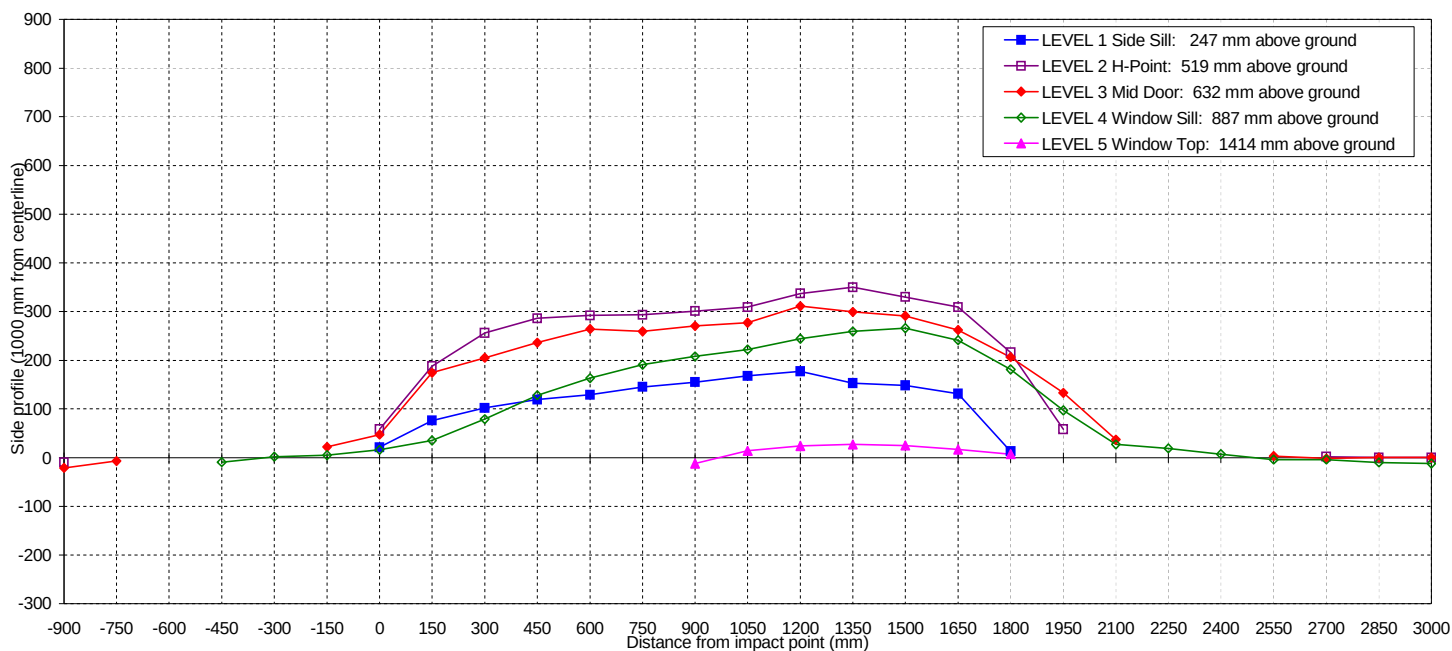
DATA SHEET NO. 10 **VEHICLE EXTERIOR CRUSH PROFILES**

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005



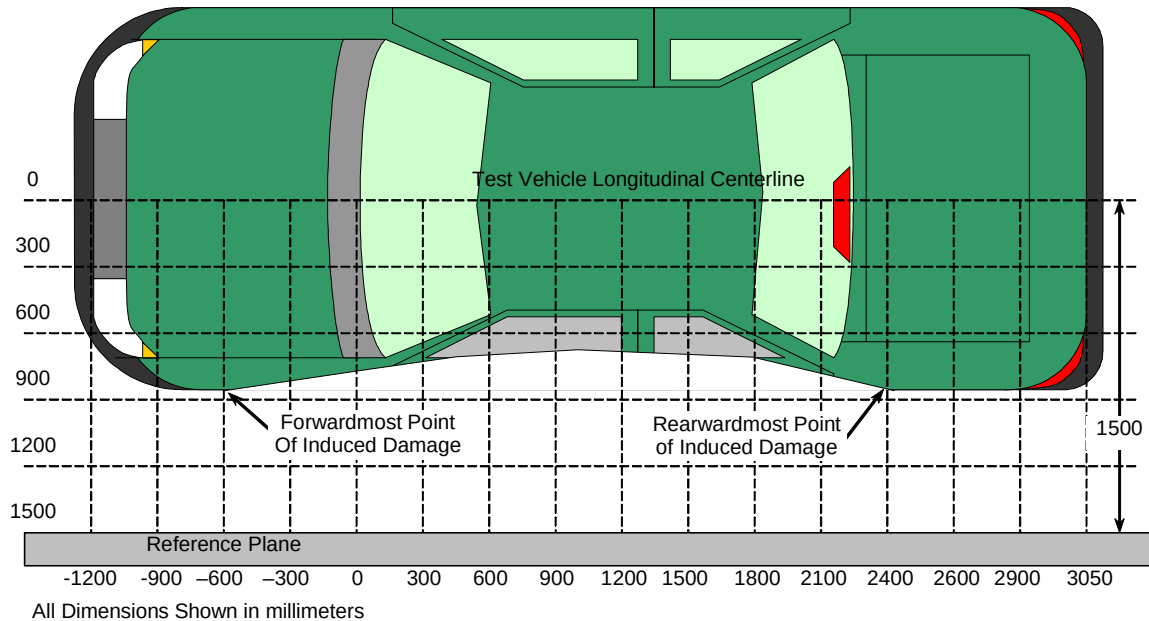
NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

			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	247	PRE	--	--	--	--	--	--	170	186	184	184	182	180	183	181	182	181	181	181	179	--	--	--	--	--	--	--	--	--
		POST	--	--	--	--	--	--	191	262	286	303	311	325	338	349	359	334	329	312	192	--	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	21	76	102	119	129	145	155	168	177	153	148	131	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	519	PRE	171	--	--	--	--	--	116	112	113	108	107	108	108	110	109	109	112	112	117	109	--	--	--	--	129	155	172	
		POST	161	--	--	--	--	--	174	300	369	394	399	401	409	419	446	459	442	421	333	167	--	--	--	--	131	155	172	
		CRUSH	-10	N/A	N/A	N/A	N/A	N/A	58	188	256	286	292	293	301	309	337	350	330	309	216	58	N/A	N/A	N/A	N/A	2	0	0	
LEVEL 3 MID DOOR	632	PRE	185	136	--	--	--	103	106	108	107	105	104	103	102	101	101	101	103	104	106	109	96	--	--	104	140	152	170	
		POST	164	129	--	--	--	125	153	282	312	341	368	362	372	378	412	400	394	366	312	242	133	--	--	107	138	152	170	
		CRUSH	-21	-7	N/A	N/A	N/A	22	47	174	205	236	264	259	270	277	311	299	291	262	206	133	37	N/A	N/A	3	-2	0	0	
LEVEL 4 WINDOW SILL	887	PRE	--	--	--	229	191	180	164	157	150	141	136	134	131	128	127	125	124	125	124	126	128	132	140	148	155	169	190	
		POST	--	--	--	220	193	185	180	192	229	269	299	325	339	350	371	384	390	366	305	223	155	151	147	144	151	159	178	
		CRUSH	N/A	N/A	N/A	-9	2	5	16	35	79	128	163	191	208	222	244	259	266	241	181	97	27	19	7	-4	-4	-10	-12	
LEVEL 5 WINDOW TOP	1414	PRE	--	--	--	--	--	--	--	--	--	--	--	--	459	408	406	407	408	411	424	--	--	--	--	--	--	--	--	
		POST	--	--	--	--	--	--	--	--	--	--	--	--	447	422	430	434	433	428	431	--	--	--	--	--	--	--	--	
		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	-12	14	24	27	25	17	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005



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)	2500	4	145	145	0
2	1930	3	109	251	142
3	1360	2	109	458	349
4	790	2	108	403	295
5	220	2	112	332	220
6 (LF)	-350	4	204	202	-2

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

DATA SHEET NO. 12

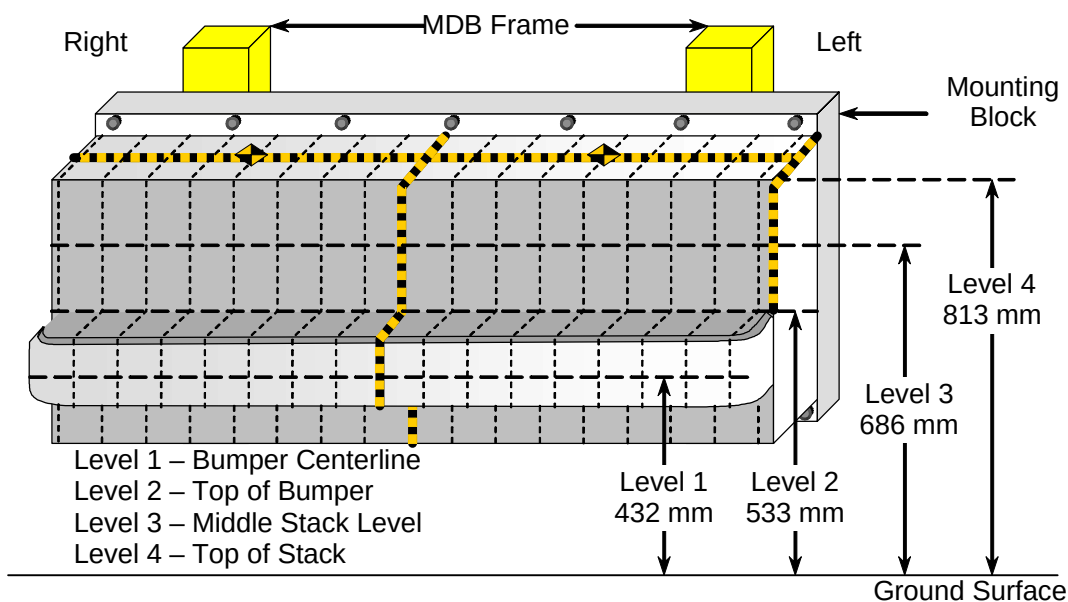
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005



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

			FOOT 1: All dimensions are in millimeters with a tolerance of ±5 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	699	647	620	621	628	652	664	656	642	631	637	642	654	675	702	732	800	
		CRUSH	80	28	1	2	9	33	45	37	23	12	18	23	35	56	83	113	181	
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	711	653	633	620	618	624	629	619	620	621	625	630	633	647	677	716	755	
		CRUSH	92	34	14	1	-1	5	10	0	1	2	6	11	14	28	58	97	136	
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	711	677	652	646	644	645	647	652	653	656	661	664	670	677	685	693	708	
		CRUSH	92	58	33	27	25	26	28	33	34	37	42	45	51	58	66	74	89	
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535	
		POST	552	523	523	531	544	558	563	567	571	573	576	582	588	594	601	620	654	
		CRUSH	17	4	5	13	26	40	45	49	53	55	58	64	70	76	83	101	119	

*Heights measured above ground level.

DATA SHEET NO. 13

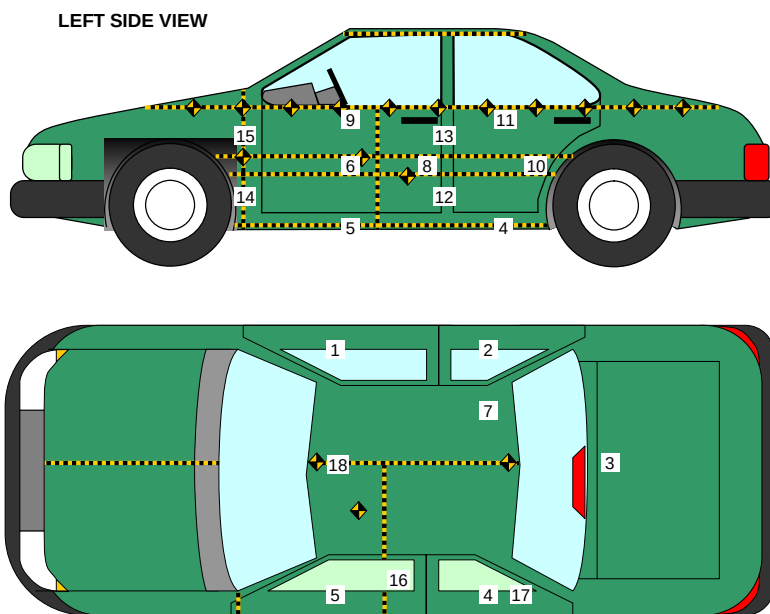
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005



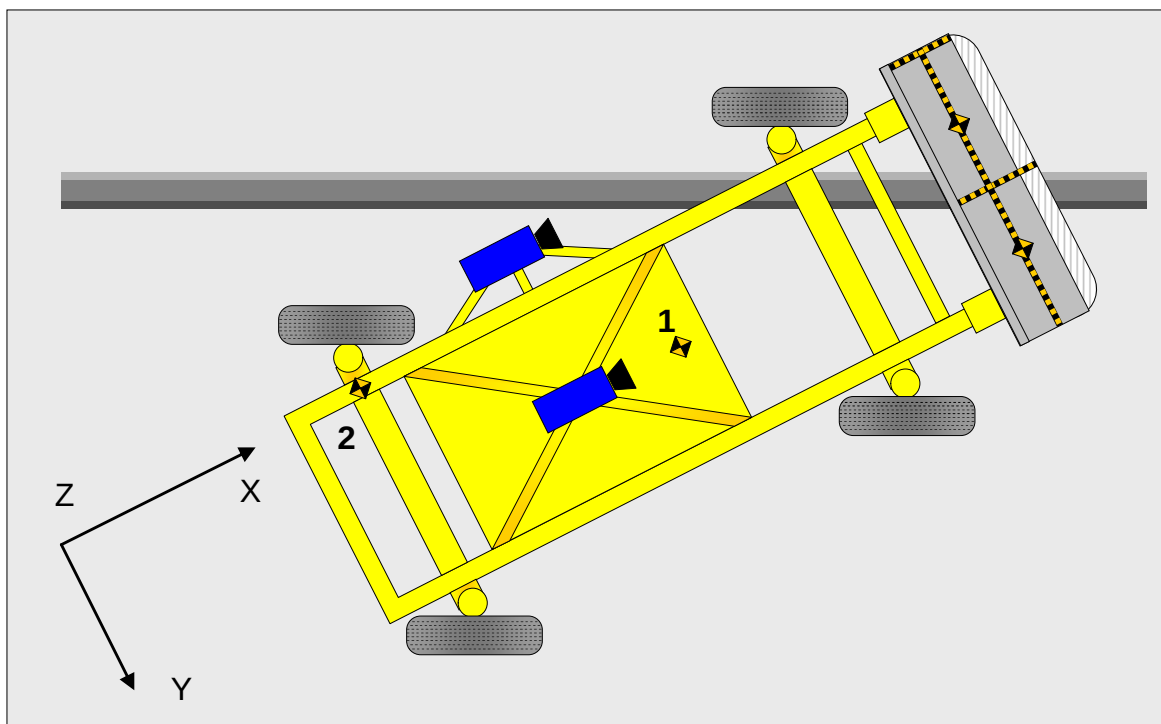
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2858	704	-239
2	Right Sill at Rear Seat	2012	694	-196
3	Rear Floorpan Above Axle	1094	-74	-461
4	Left Sill at Rear Door	2071	-688	-210
5	Left Sill at Front Door	2853	-681	-255
6	Left Front Door C/L	2783	-756	-716
7	Rear Occupant Compartment	2174	454	-172
8	Left Front Door Mid-Rear	2555	-748	-723
9	Left Front Door Upper C/L	2791	-734	-906
10	Left Rear Door Mid-Rear	1804	-737	-672
11	Left Rear Door Upper C/L	1808	-727	-962
12	Left Lower B-Post	2276	-691	-354
13	Left Middle B-Post	2195	-688	-832
14	Left Lower A-Post	3303	-649	-486
15	Left Middle A-Post	3201	-682	-972
16	Front Seat Track	2364	-603	-229
17	Rear Seat Track or Structure	1285	-494	-649
18	Vehicle CG	2642	7	-385

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

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005



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:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

	Elements	Pre-Test (mm)
1	Total Length	4802
2	Total Width	1814
3	Bumper Top Height	568
4	Bumper Bottom Height	254
5	Longitudinal Member Top Height	NA
6	Distance between Longitudinal Members	NA
7	Longitudinal Member Width	NA
8	Engine Top Height	NA
9	Engine Bottom Height	NA
10	Engine and gearbox width	NA
11	Front bumper-engine distance	NA
12	Front shock absorber fixing height	NA
13	Bonnet leading edge height	NA
14	Front shock absorber fixing width	NA
15	Front bumper – front axle distance	NA
16	Front axle – a pillar distance	NA
17	A-pillar – B-pillar distance	NA
18	B-Pillar – rear axle distance	NA
19	B-pillar – C-pillar distance	NA
20	Roof sill bottom height	NA
21	Roof sill top height	NA
22	Floor sill bottom height	222
23	Floor sill top height	NA

DATA SHEET NO. 16

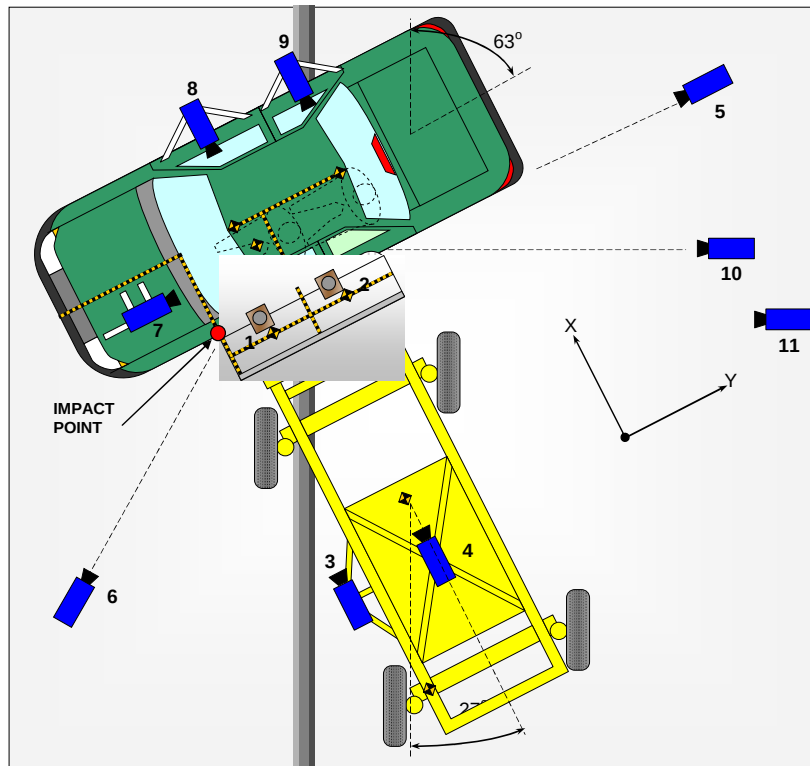
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2006 Hyundai Sonata GL

NHTSA No. M60507

Test Program: NCAP Side Impact

Test Date: August 23, 2005



No.	Camera View	Location (mm)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Close-up	72	812	-4880	-90	8	1000
2	Overhead Overall	195	855	-4880	-90	28	500
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	50	9150	-1070	-3	25	500
6	Left Side, Ground Level, Overall	-2100	-2140	-1010	-5	28	1000
7	Vehicle Onboard Front SID/HIII, Front	455	-2128	-1270	-9	25	1000
8	Vehicle Onboard Front SID/HIII, Side	1700	828	-1100	-11	12.5	1000
9	Vehicle Onboard Rear SID/HIII, Side	1705	1670	-1120	-13	12.5	1000
10	Secondary Impact Point	-3830	2944	-1050	-2	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

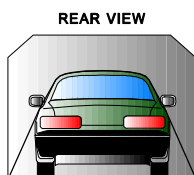
Test Vehicle:	2006 Hyundai Sonata GL	NHTSA No.	M60507
Test Program:	NCAP Side Impact	Test Date:	August 23, 2005

FUEL SYSTEM INTEGRITY POST IMPACT DATA

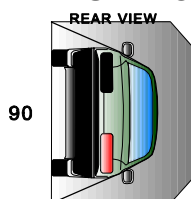
Time Interval	FMVSS 301 Maximum Allowable Spillage	Spillage (g)
Impact Until Motion Ceases	28 g	0
First Five Minutes Following Impact	142 g	0
Next 25 Minutes	28 g / 1 minute	0

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

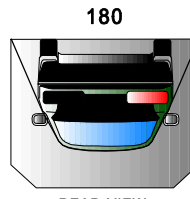
STATIC ROLLOVER DATA



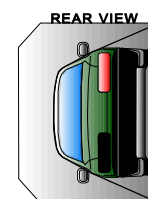
0/360



90



180



270

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	6	seconds	5	minutes	6	minutes	6	seconds	7	minutes
90° - 180°	1	minutes	4	seconds	5	minutes	6	minutes	4	seconds	7	minutes
180°-270°	1	minutes	2	seconds	5	minutes	6	minutes	2	seconds	7	minutes
270°-360°	1	minutes	15	seconds	5	minutes	6	minutes	15	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	-
90° - 180°	0	0	0	-
180°-270°	0	0	0	-
270°-360°	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-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
A-47	Pre-Test Left Front $\frac{3}{4}$ View of Left Side Doors	A-27
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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

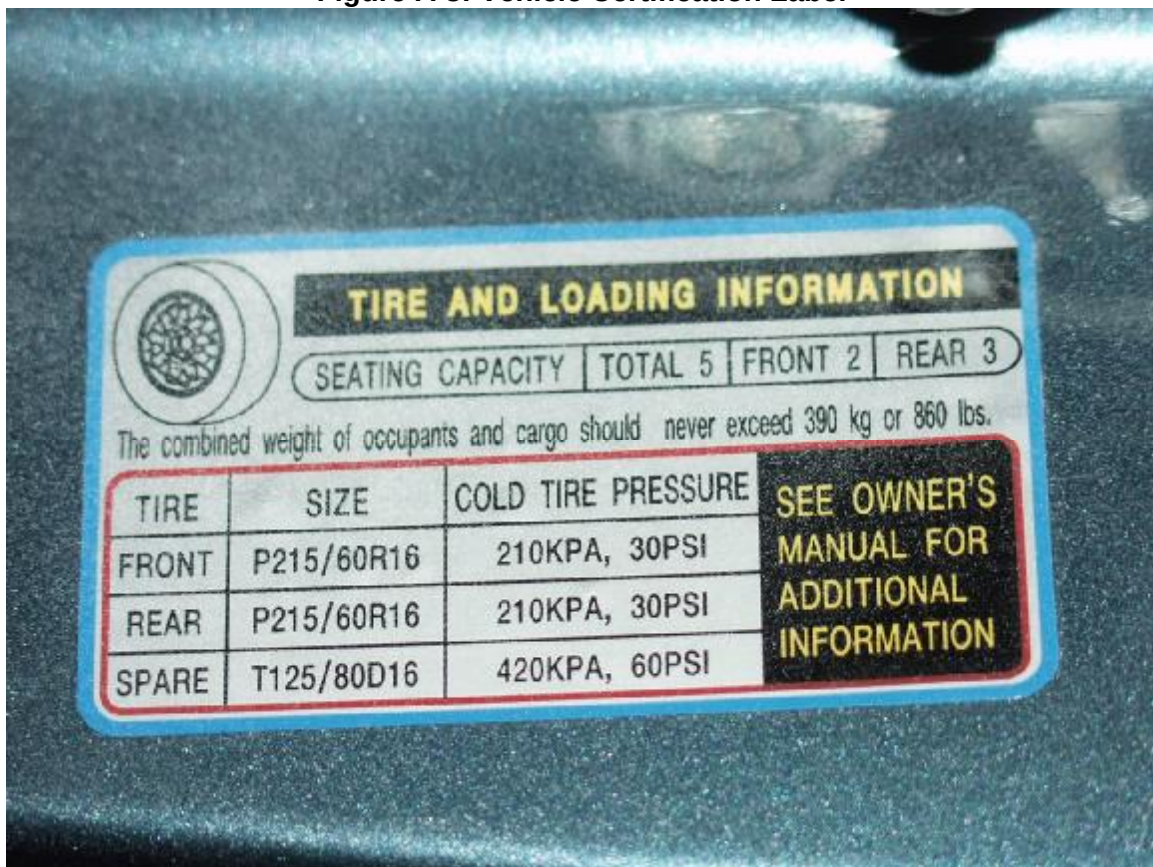


Figure A-4: Vehicle Tire Placard Label



Figure A-5: Pre-Test Front View

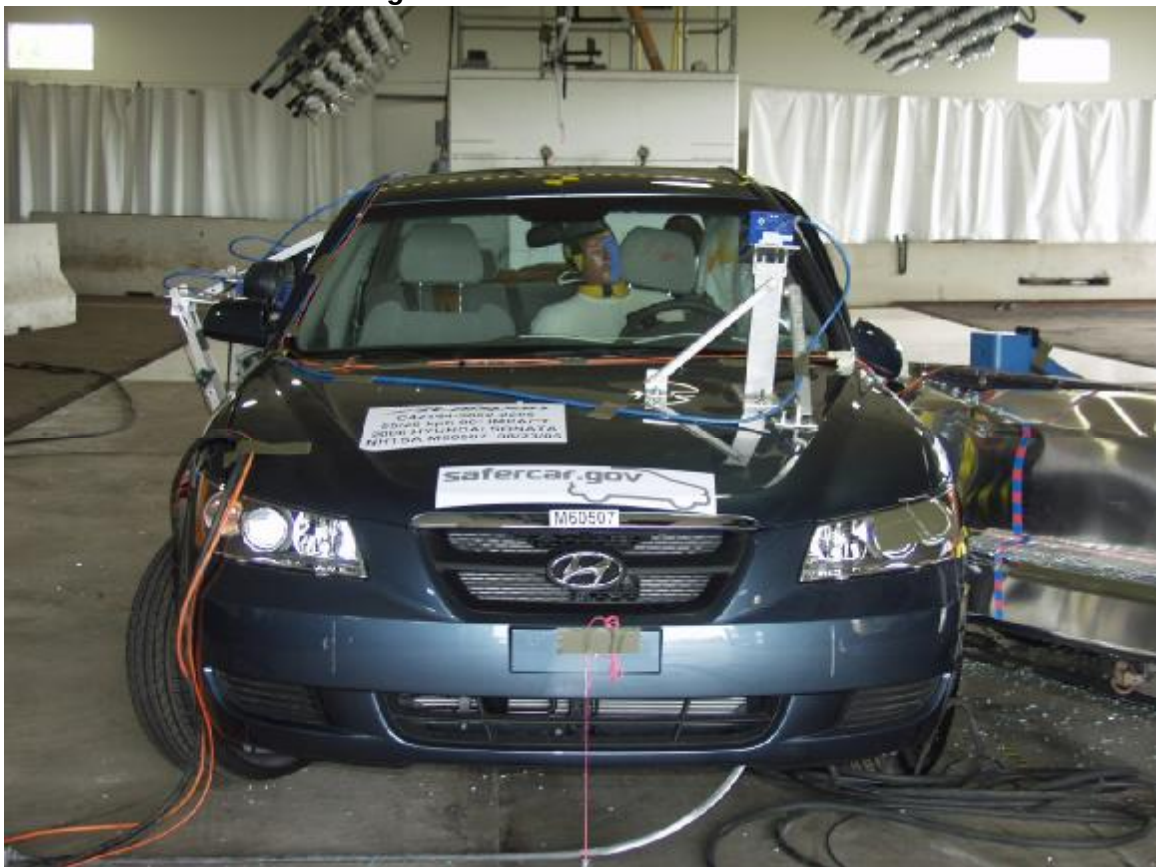


Figure A-6: Post-Test Front View



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

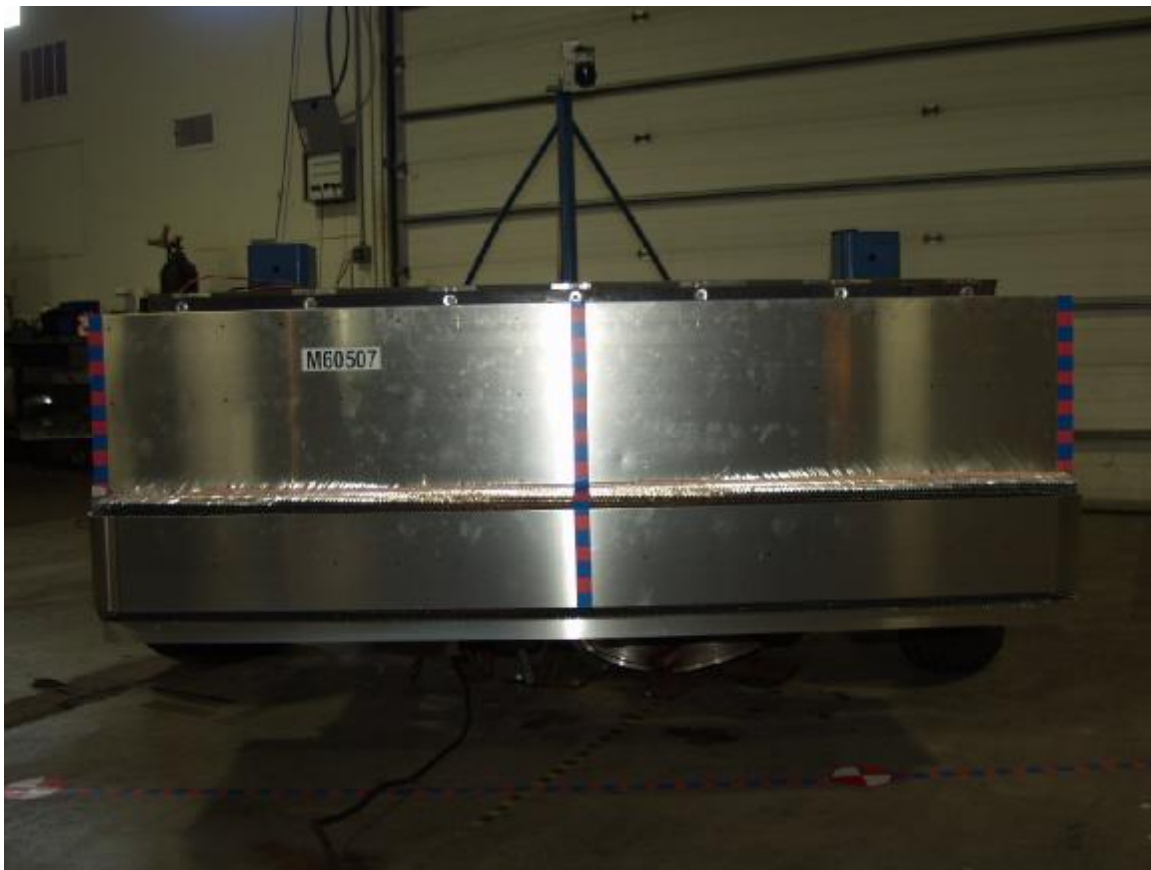


Figure A-21: Pre-Test Frontal View of MDB Impactor Face



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

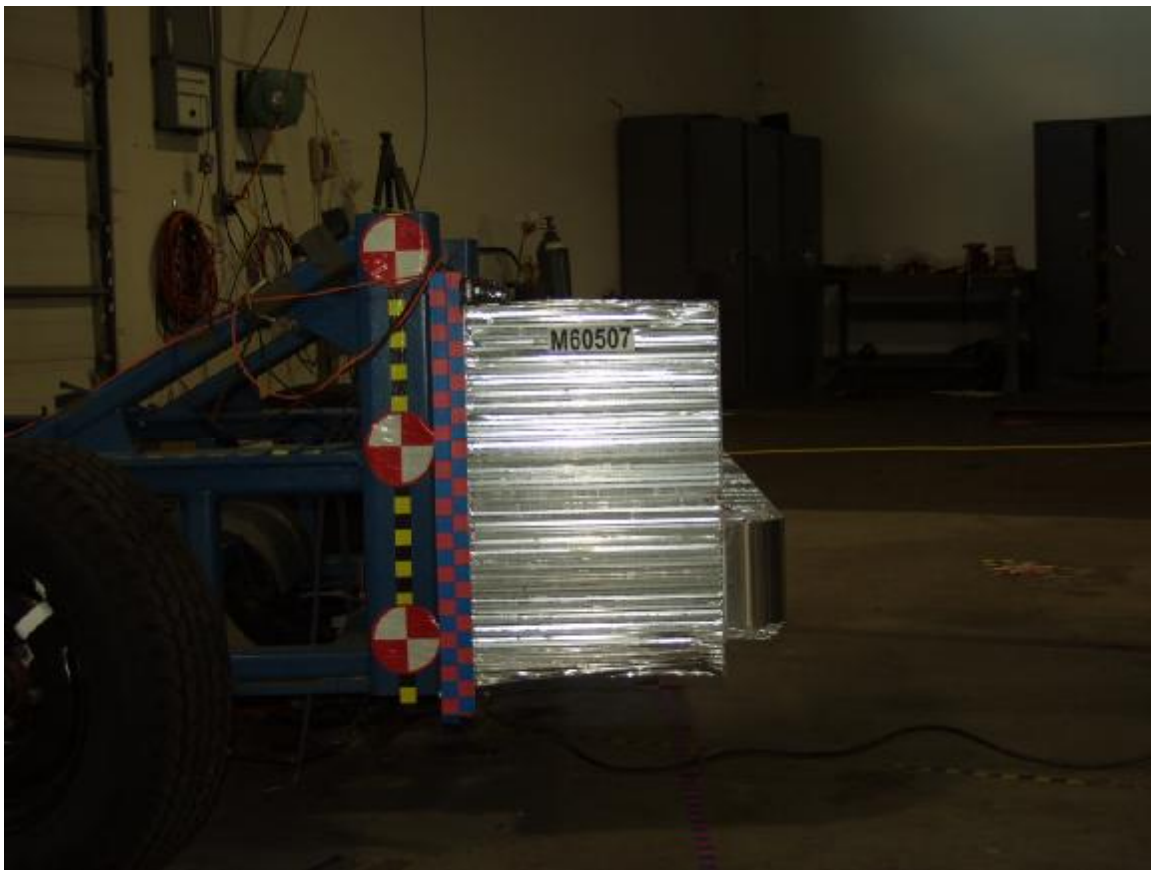


Figure A-25: Pre-Test Right Side View of MDB Impactor Face



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

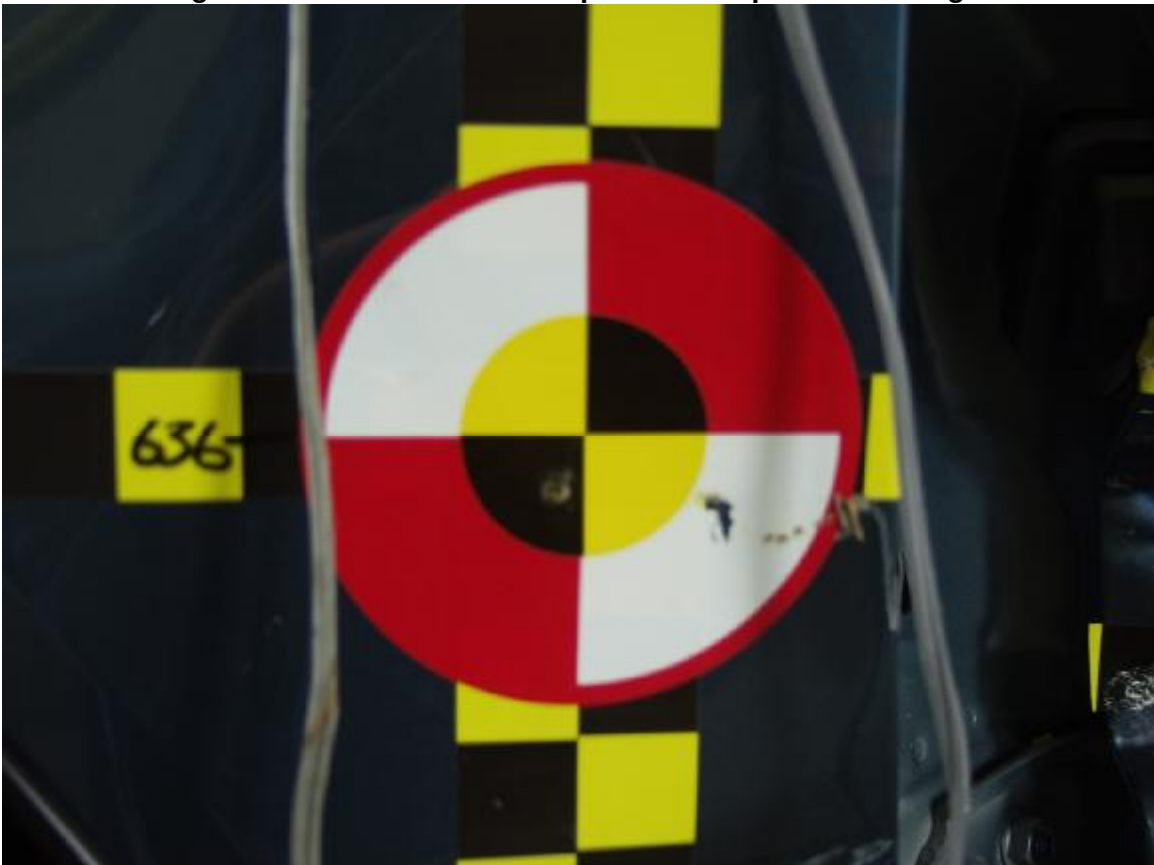


Figure A-34: Post-Test Close-Up View of Impact Point Target



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

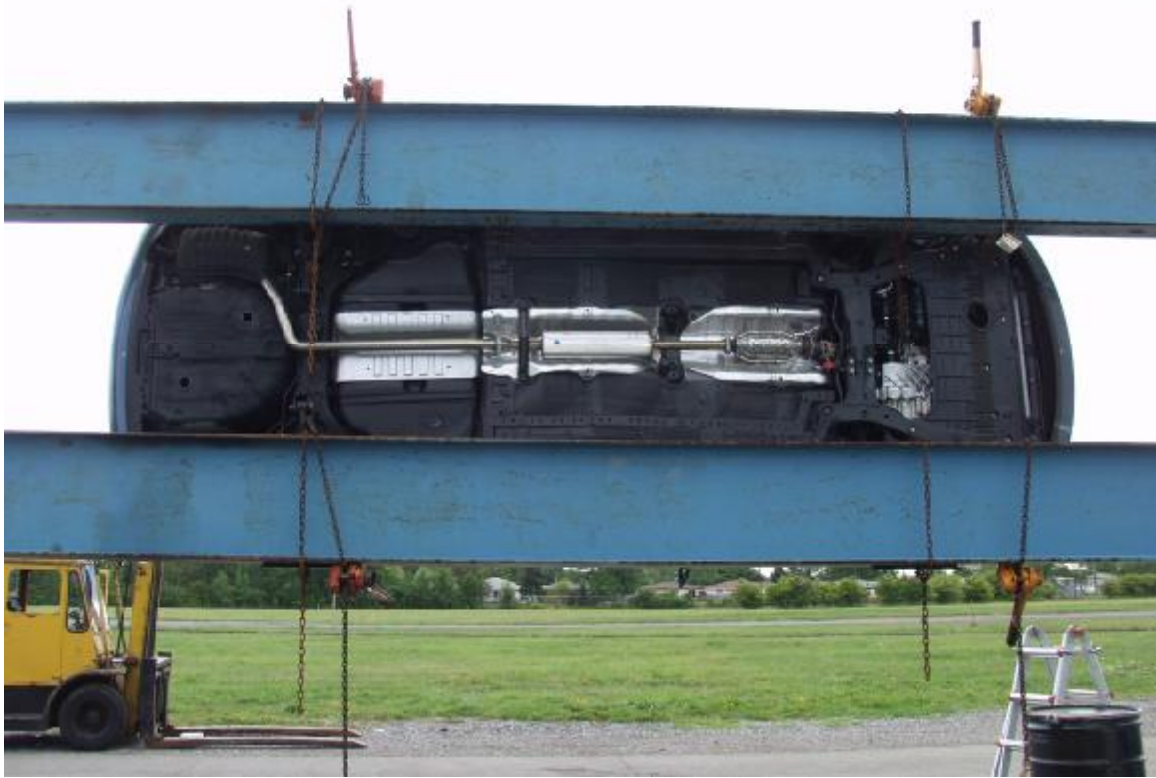


Figure A-51: Rollover 90 Degrees



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

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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

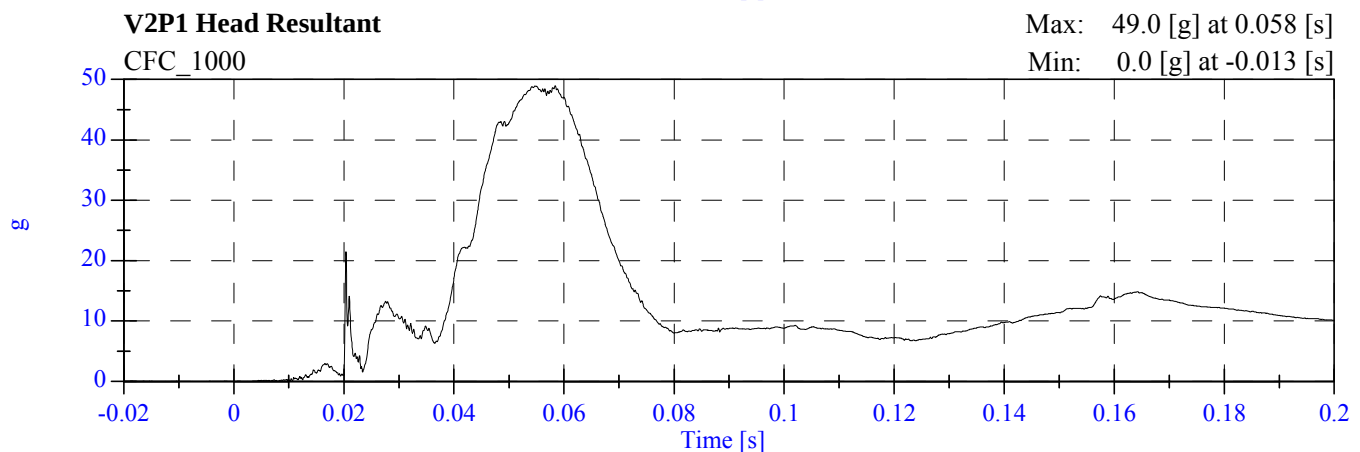
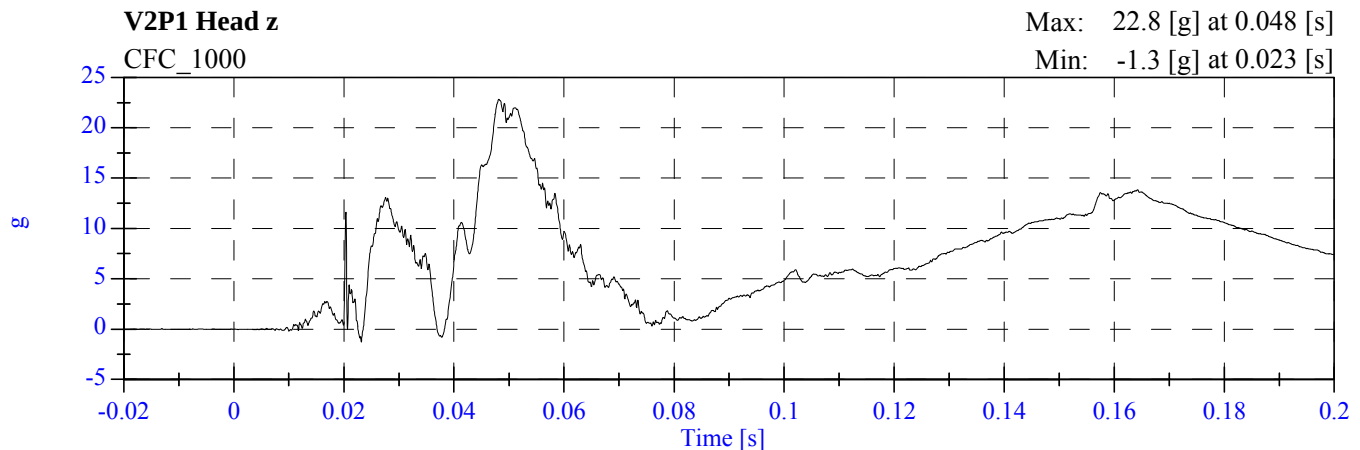
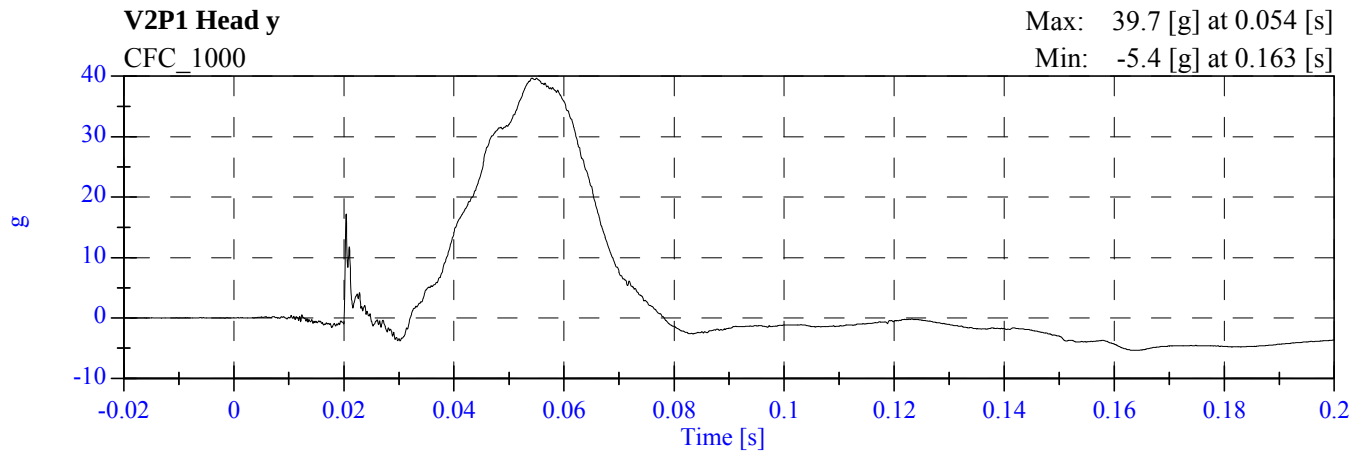
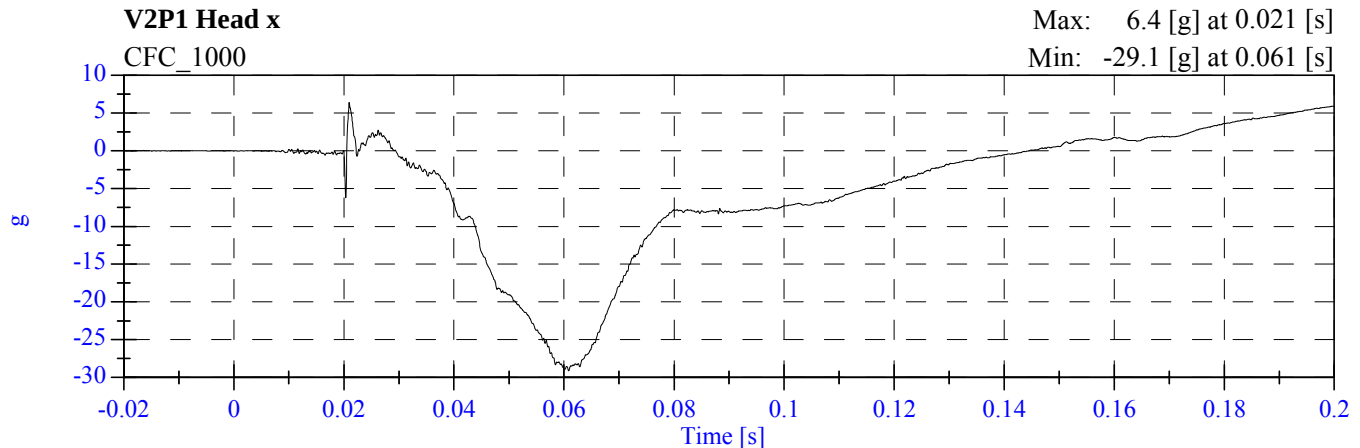
V2P1 Head Ax	V2A1 Right Front Sill Ax
V2P1 Head Ay	V2A1 Right Front Sill Ay
V2P1 Head Az	V2A1 Right Front Sill Az
V2P1 Upper Neck Fx	V2A2 Right Rear Sill Ax
V2P1 Upper Neck Fy	V2A2 Right Rear Sill Ay
V2P1 Upper Neck Fz	V2A2 Right Rear Sill Az
V2P1 Upper Neck Mx	V2A3 Rear Floorpan Ax
V2P1 Upper Neck My	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

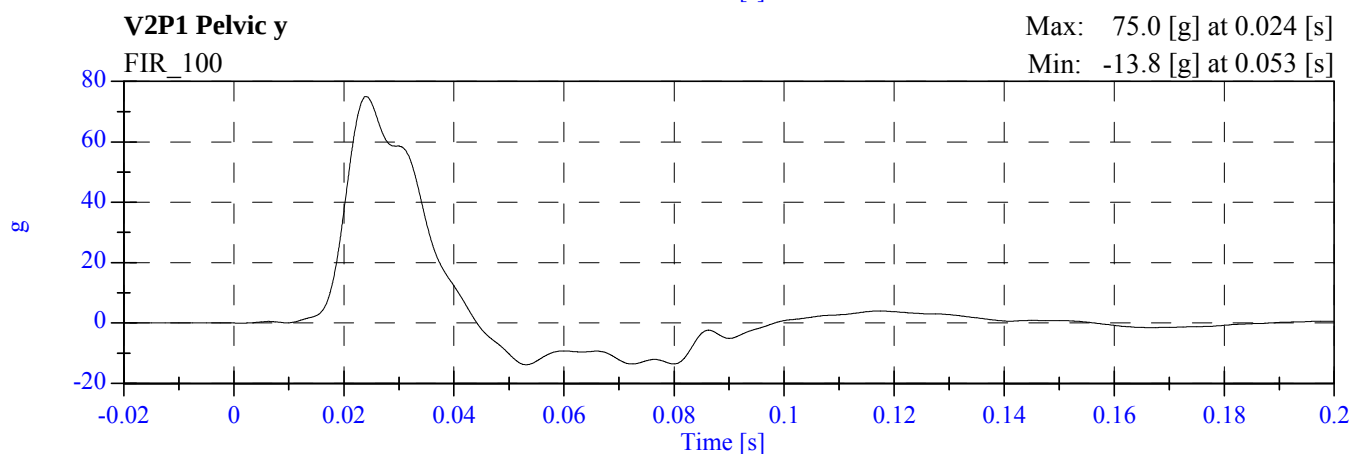
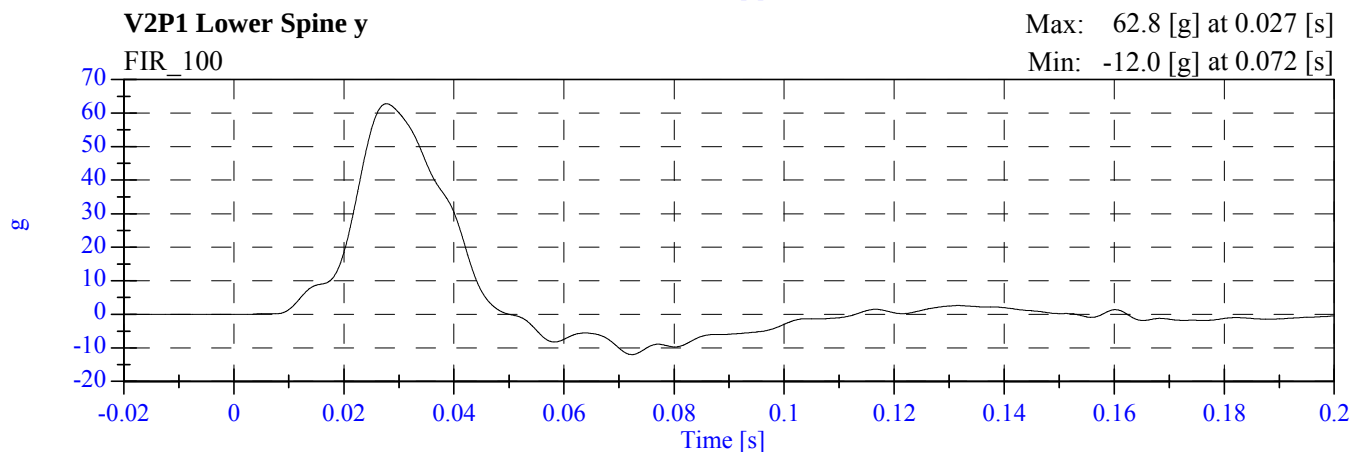
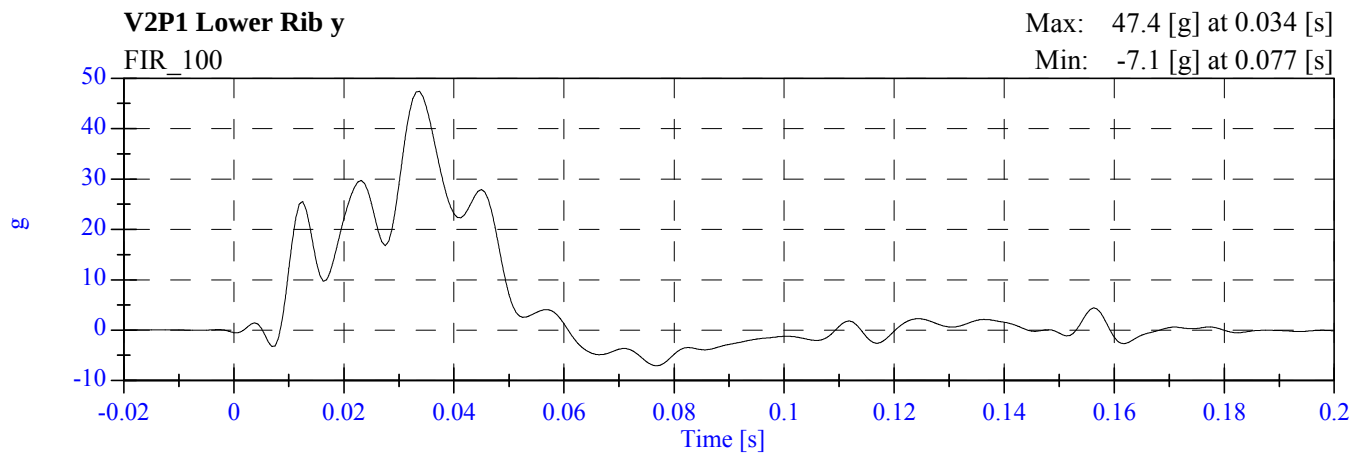
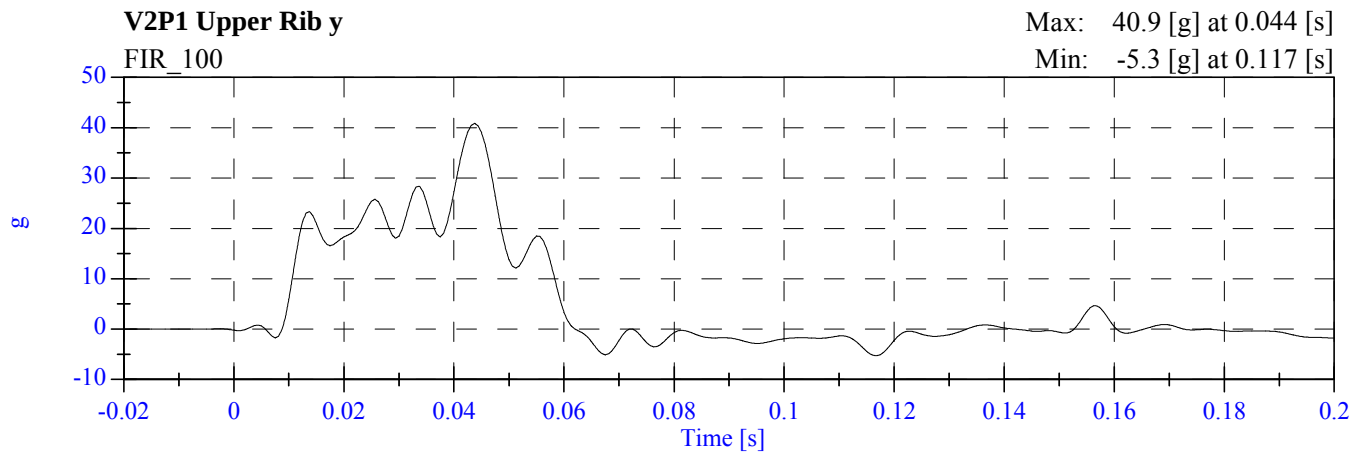
The following data anomalies occurred:

- 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

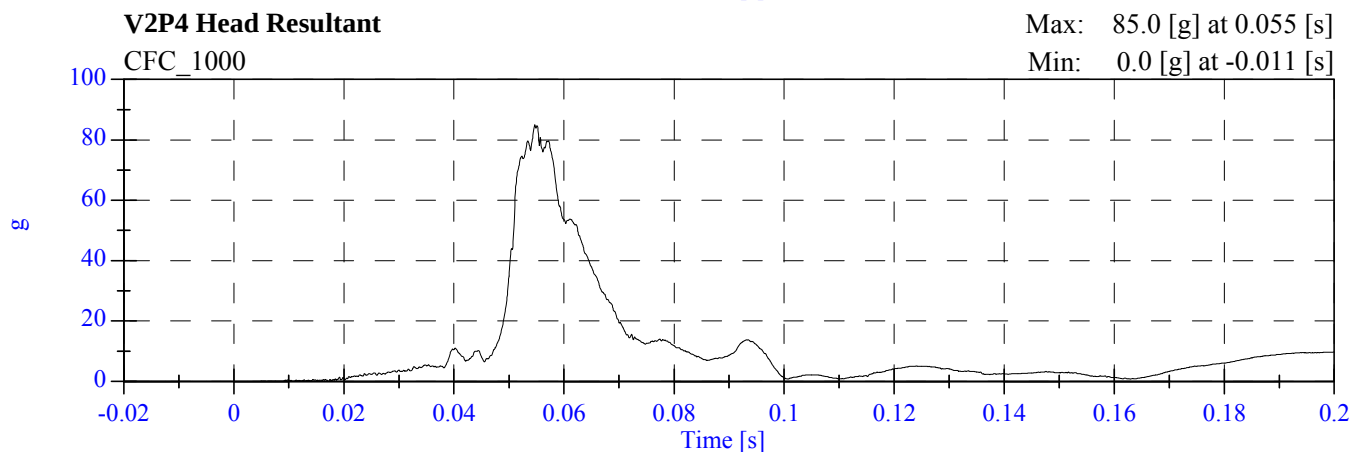
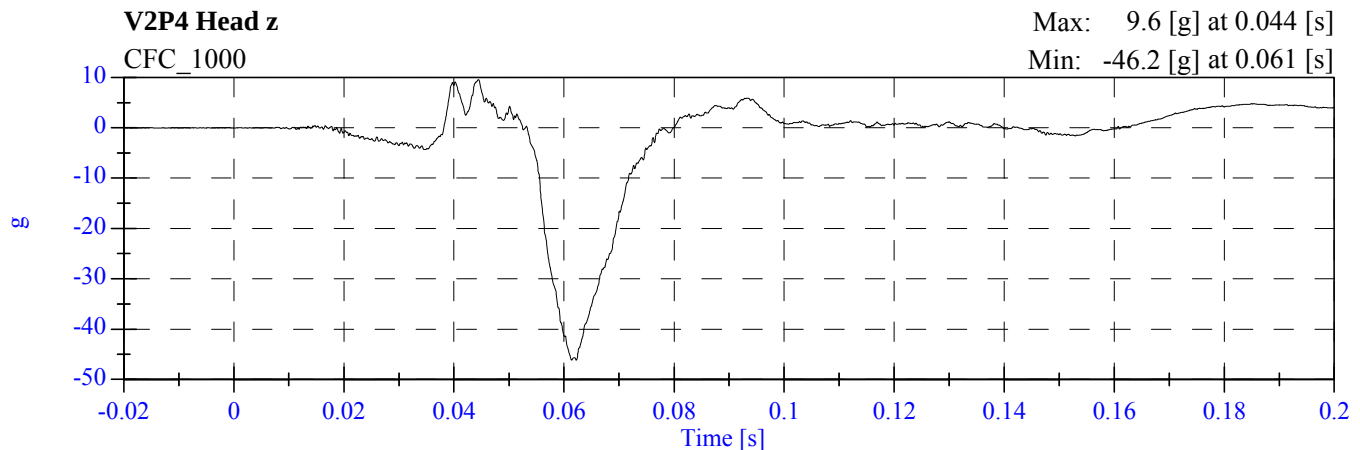
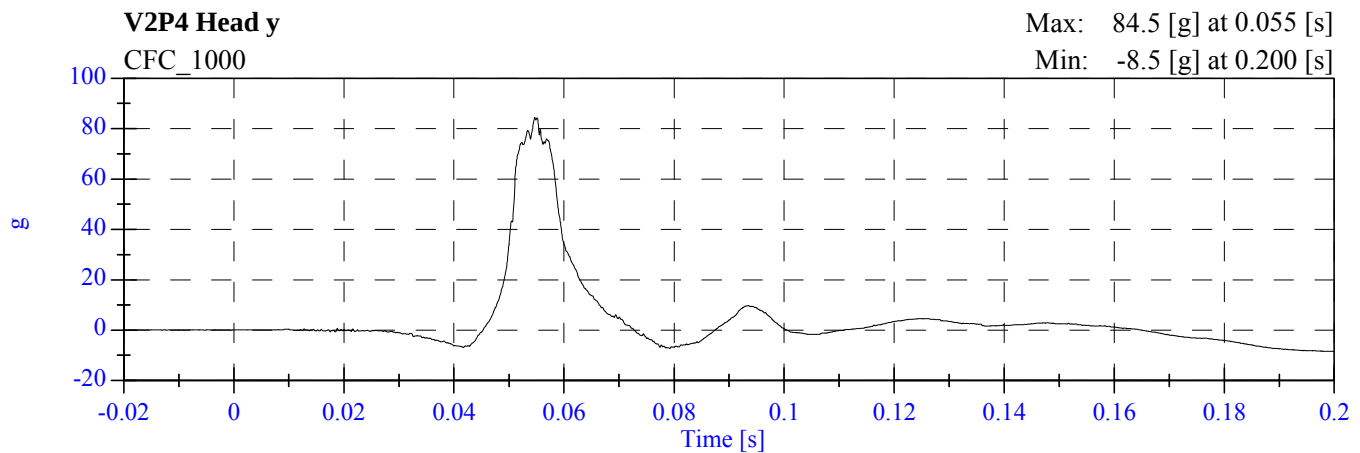
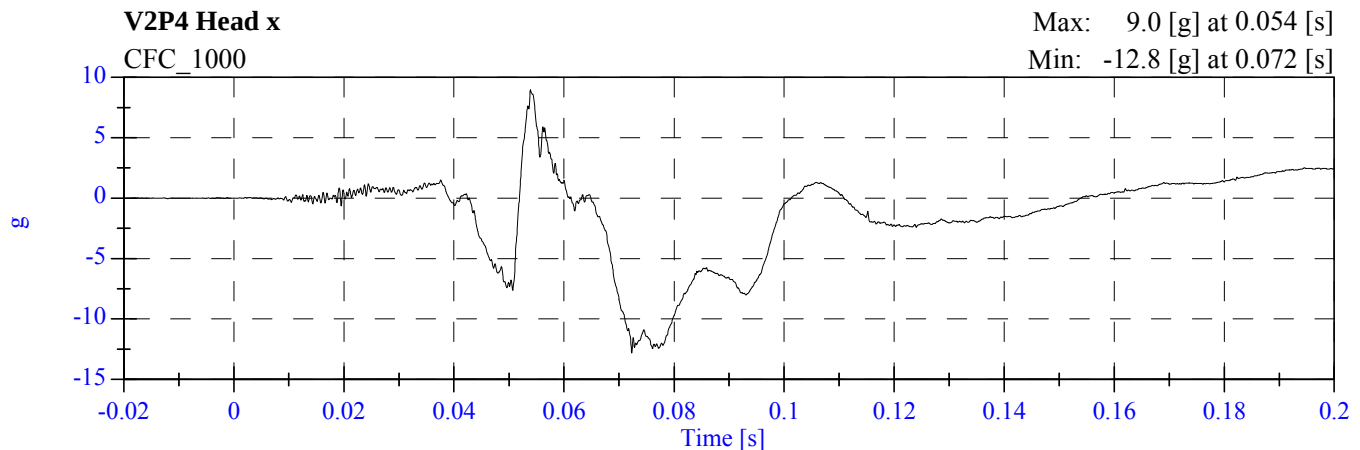
2006 SNCAP Test 2 - 2006 Hyundai Sonata M60507 - August 23, 2005



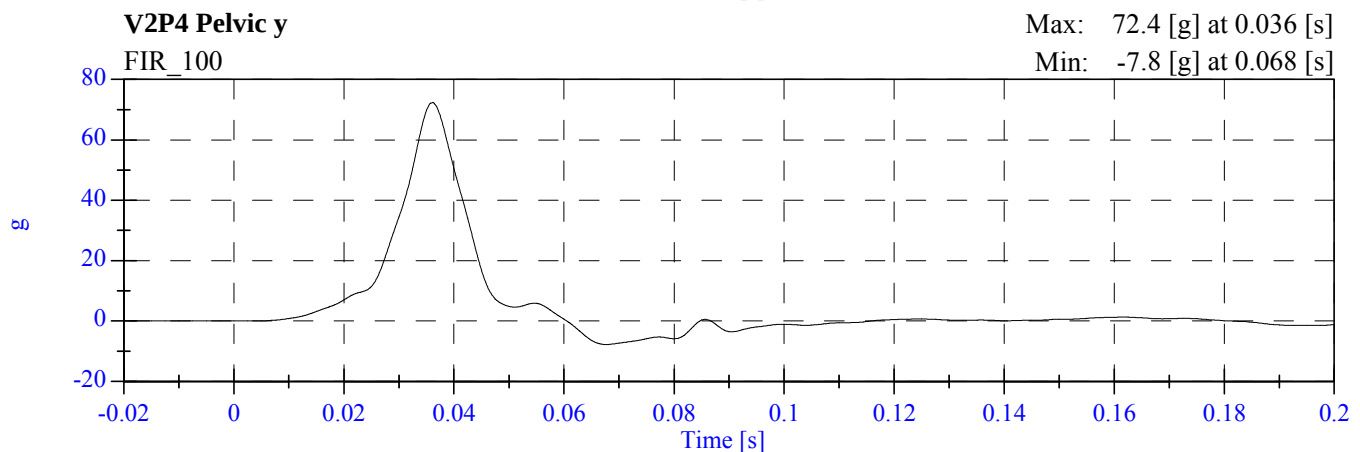
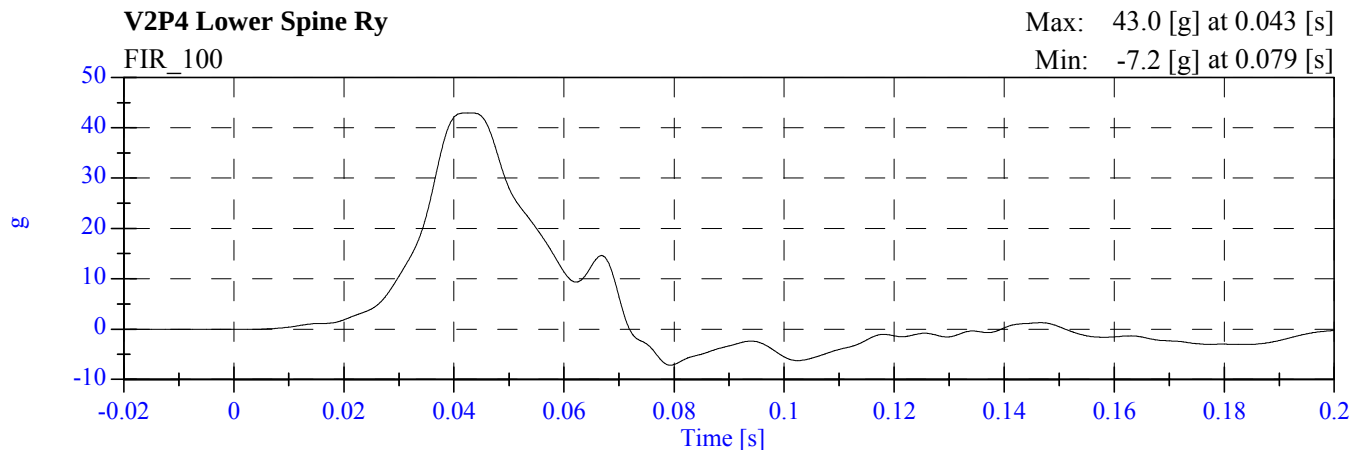
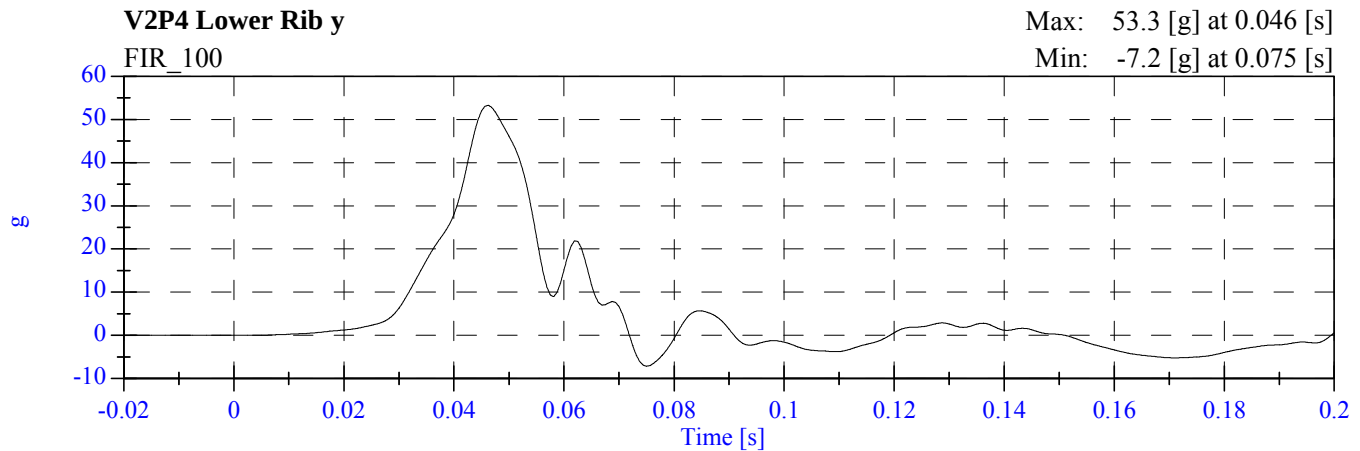
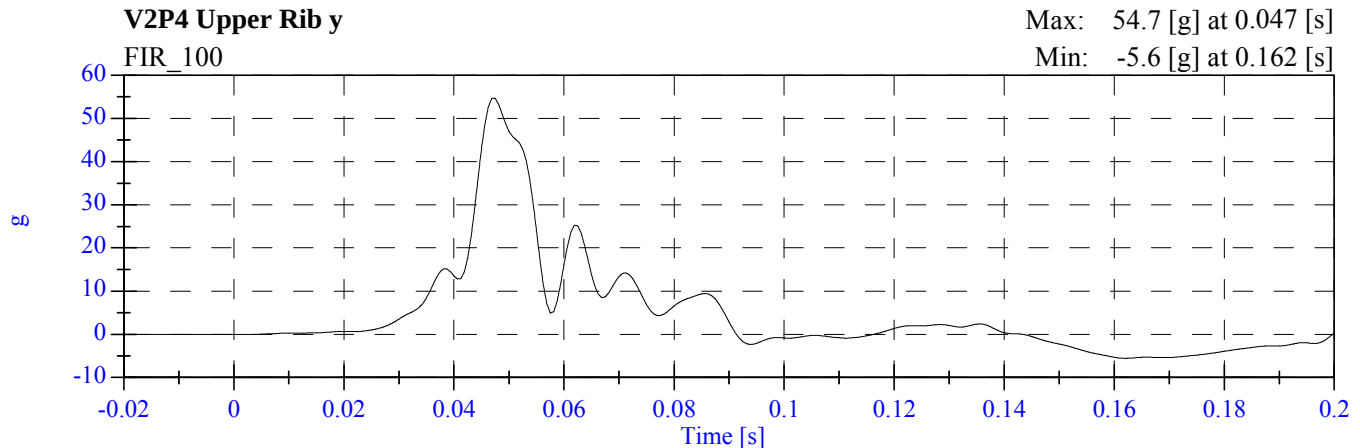
2006 SNCAP Test 2 - 2006 Hyundai Sonata M60507 - August 23, 2005



2006 SNCAP Test 2 - 2006 Hyundai Sonata M60507 - August 23, 2005



2006 SNCAP Test 2 - 2006 Hyundai Sonata M60507 - August 23, 2005



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 08/15/2005; 08/12/2005

Sequential Test Number:

1.2; 1.2

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	907	907	907	907
RH- Rib Height (mm)	501 - 521	518	518	516	516
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	241	241	239	239
KV- Knee Pivot from Back Line (mm)	511 - 526	521	521	516	516
SW- Knee Pivot to Floor (mm)	490 - 505	493	493	493	493
HW- Hip Width (mm)	356 - 391	366	366	381	381
THORAX IMPACTS					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	37.0	37.0	40.0	37.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32	4.28	4.32	4.32
UPPER RIB (g's)	37 - 46	38.49	38.28	42.30	44.55
LOWER RIB (g's)	37 - 46	38.08	37.70	42.16	44.12
LOWER SPINE (g's)	15 - 22	20.98	19.28	20.46	21.34
PELVIS IMPACT					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	37.0	37.0	40.0	37.0
PROBE SPEED (m/s)	4.27 - 4.33	4.27	4.27	4.31	4.28
PELVIS (g's)	40 - 60	46.22	44.93	43.06	41.44

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: 08/15/2005	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: 08/15/2005 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	907
RH- Rib Height (mm)	502 – 520	518
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	366

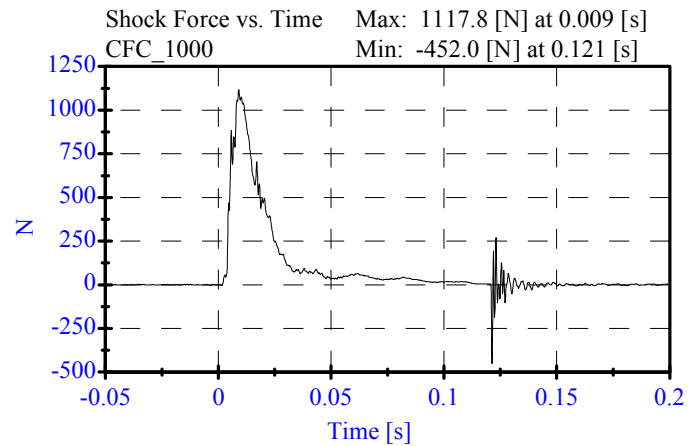
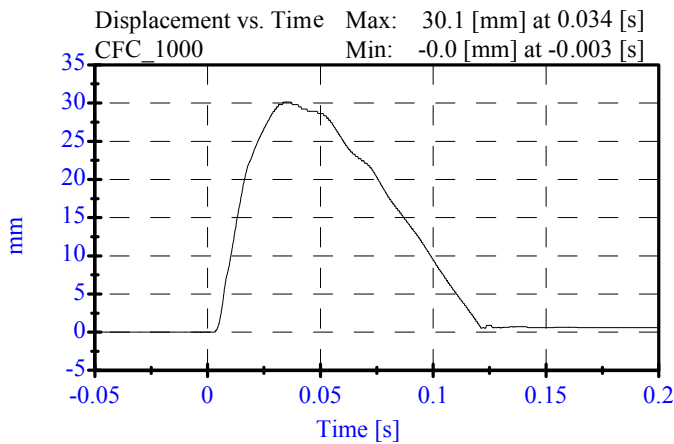
REMARKS: None

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

ATD Serial No: 905
Date: 08-01-05

Sequential Test Number: 1 File: 905SL 08-01-05
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
Displacement:	30.00-35.00 mm	30.15 mm	Passed
Maximum Force:	836.00-1125.00 N	1117.76 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	905		
Damper Setting:	5		

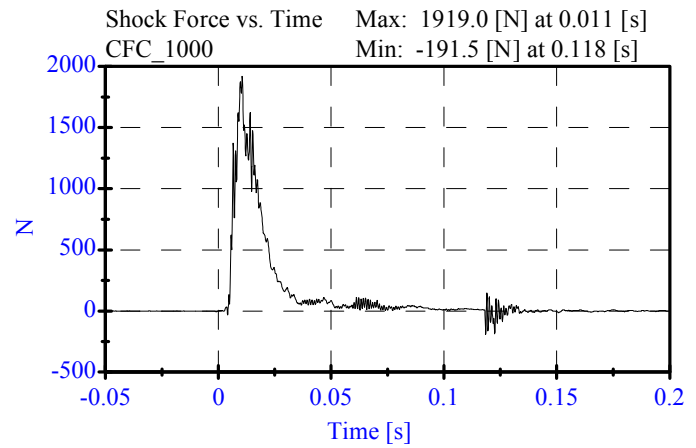
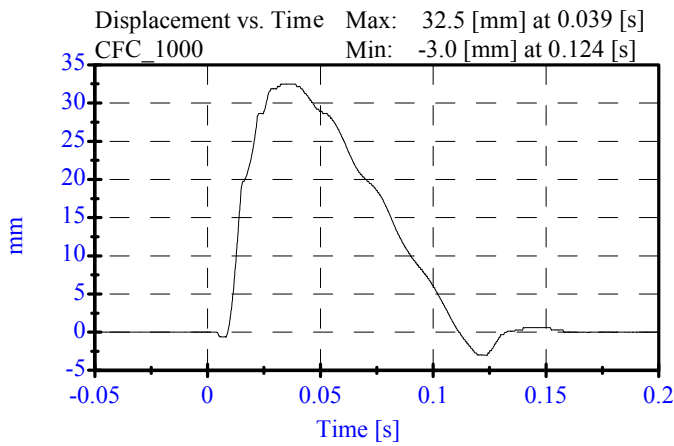


Shock Impact (4.27 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-01-05

Sequential Test Number: 1 File: 905SM1 08-01-05
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
Displacement:	32.00-37.00 mm	32.50 mm	Passed
Maximum Force:	1730.00-2099.00 N	1918.95 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	905		
Damper Setting:	5		

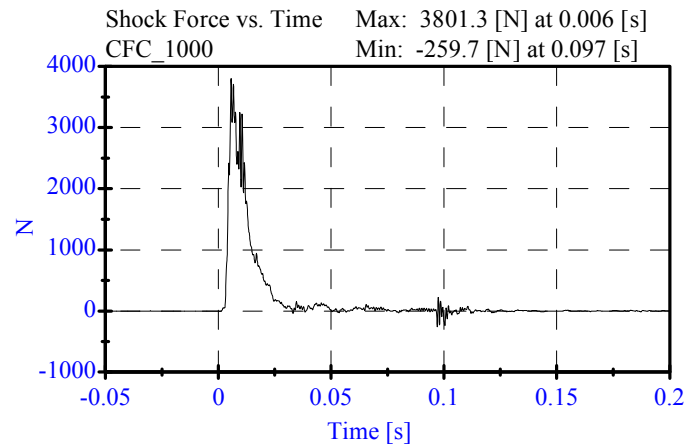
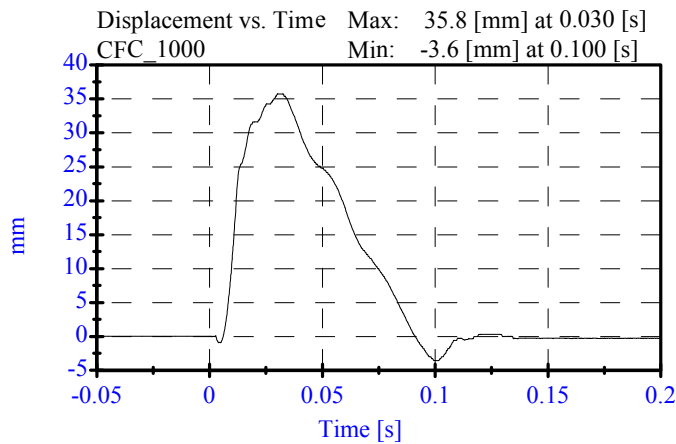


Shock Impact (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-01-05

Sequential Test Number: 1 File: 905SH1 08-01-05
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
Displacement:	33.00-40.00 mm	35.75 mm	Passed
Maximum Force:	3741.00-4448.00 N	3801.26 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	905		
Damper Setting:	5		

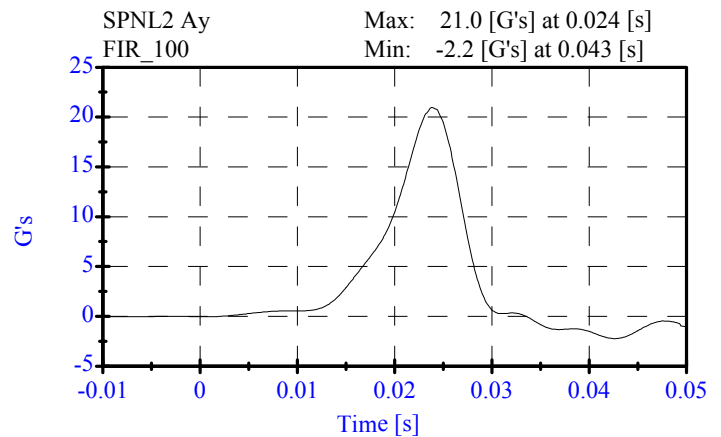
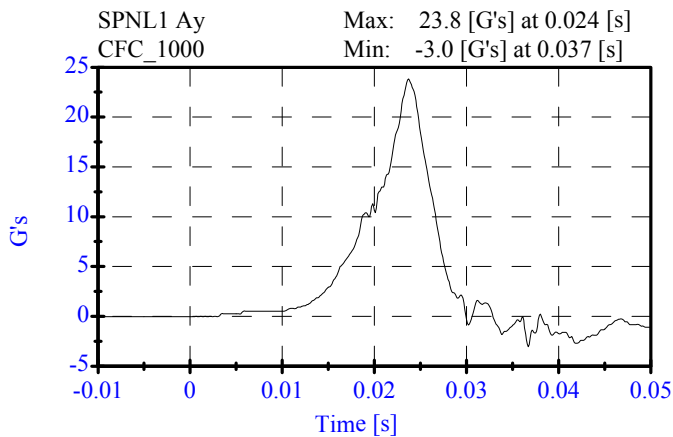
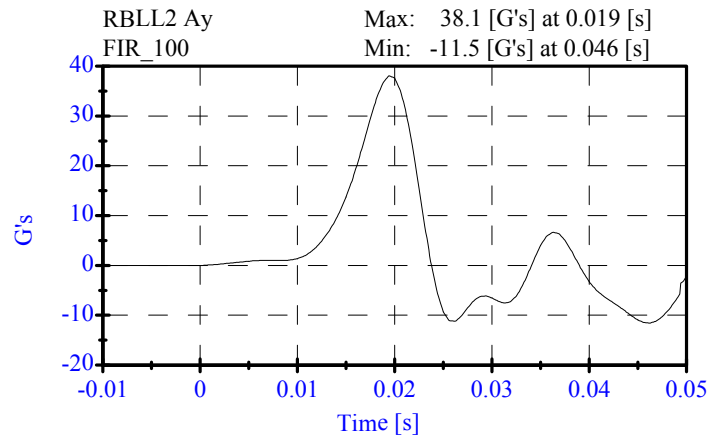
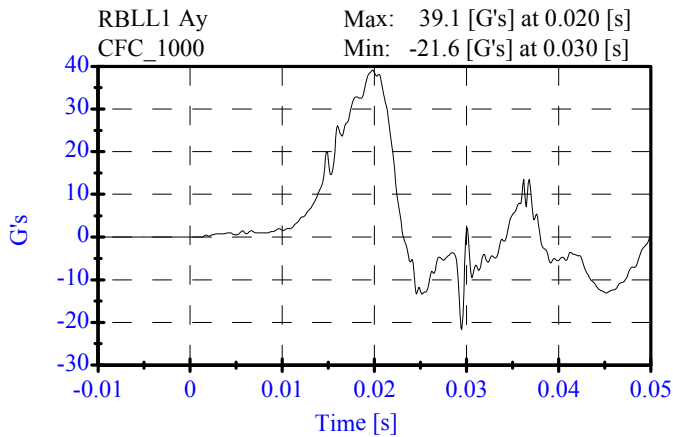
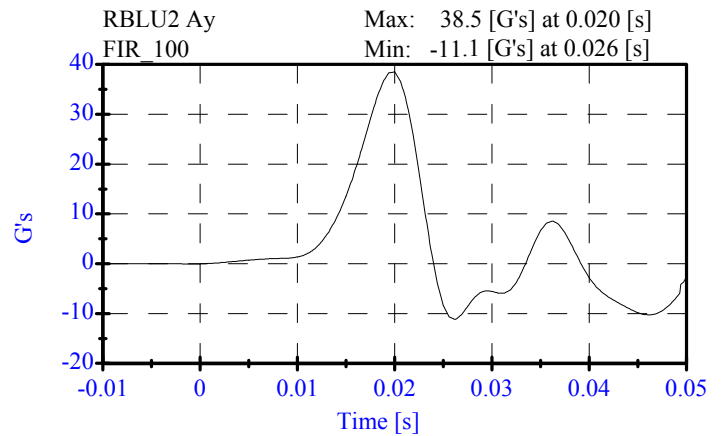
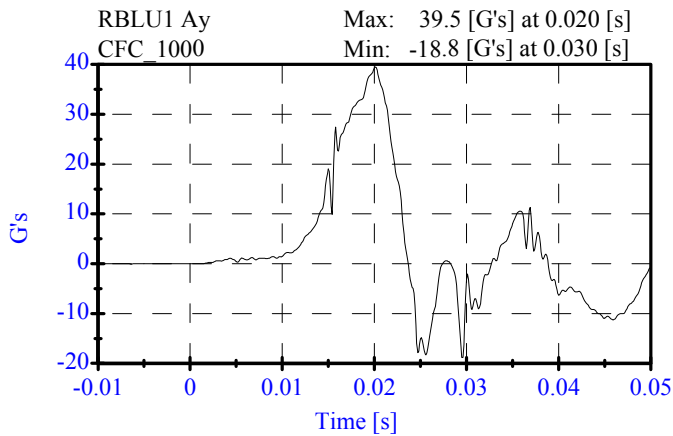


Thorax Impact
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-15-05

Sequential Test Number: 1 File: 905T1 08-15-05
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	38.49 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.08 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.98 G's	Passed



Pelvic Impact

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

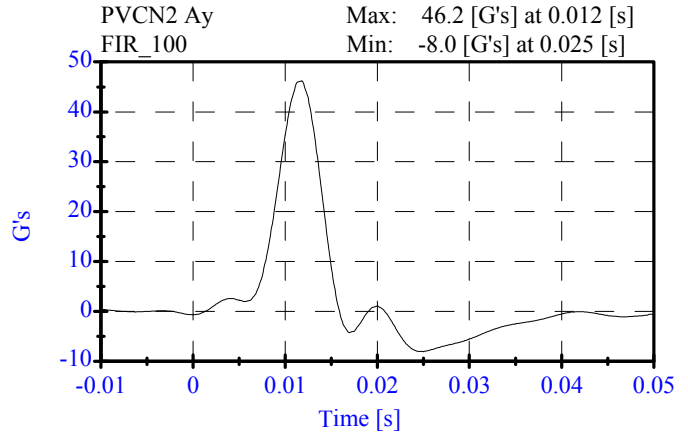
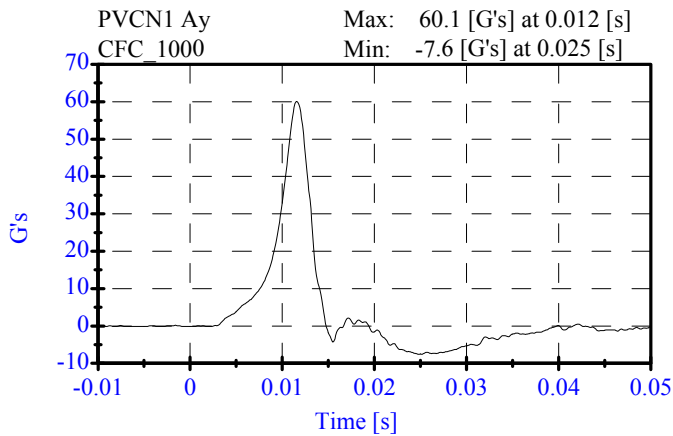
ATD Serial No: 905

Date: 08-15-05

Sequential Test Number: 1 File: 905P 08-15-05

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	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	46.22 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



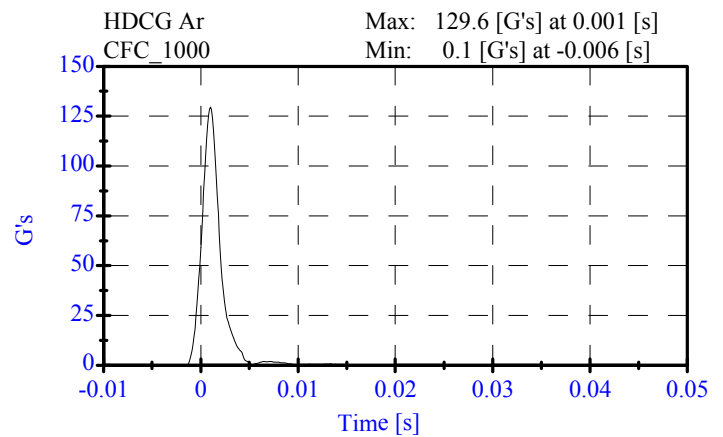
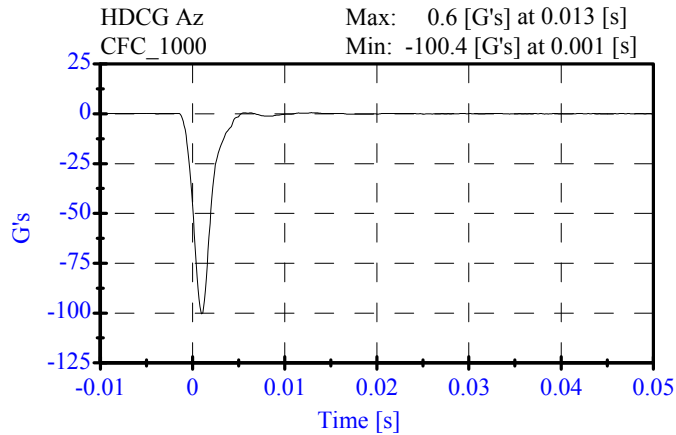
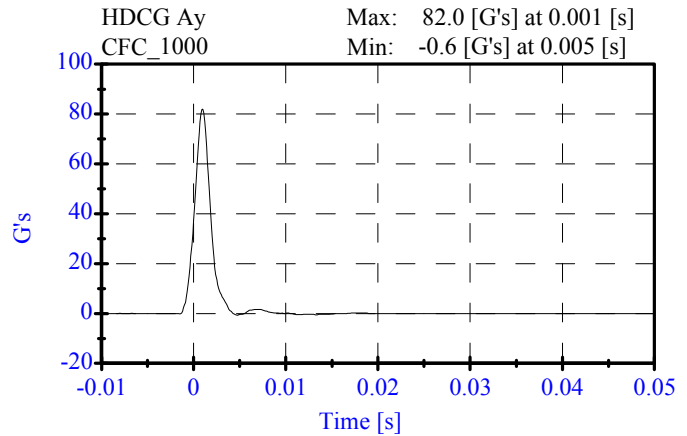
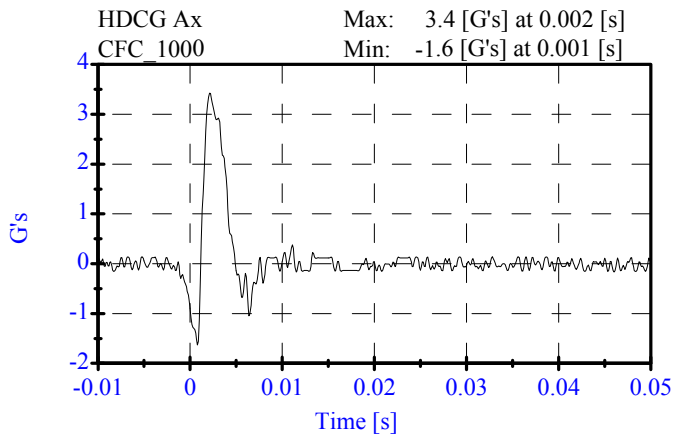
Head Drop PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-11-05

Sequential Test Number: 1 File: 905H1 08-10-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	66.0-78.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	129.60 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	3.42 Gs	Passed
Curve PerCent NonModal:	< 15%	1.45 %	Passed



Neck Test
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

Date: 08-11-05

Sequential Test Number: 1 File: 905N 08-11-05

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	69.0-72.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Impact Velocity:	22.60-23.40 ft/s	22.95 ft/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	6.40- 8.40 ft/s	6.60 ft/s	Passed
Delta V at 20 ms:	13.50-16.70 ft/s	13.72 ft/s	Passed
Delta V at 30 ms:	18.80-23.00 ft/s	20.19 ft/s	Passed
Delta V between 40-70 ms:	20.60-25.10 ft/s	25.08 ft/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	71.00 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.30 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	646.10-778.90 in-lbf	725.86 in-lbf	Passed
Occipital Moment Decay:	49.0-64.0 ms	56.60 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.30 ms	Passed

Neck Test
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

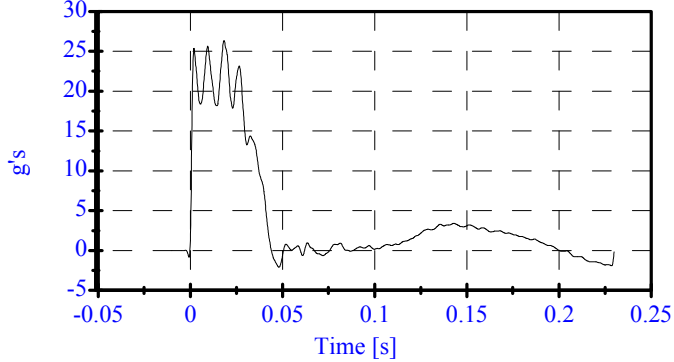
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Date: 08-11-05

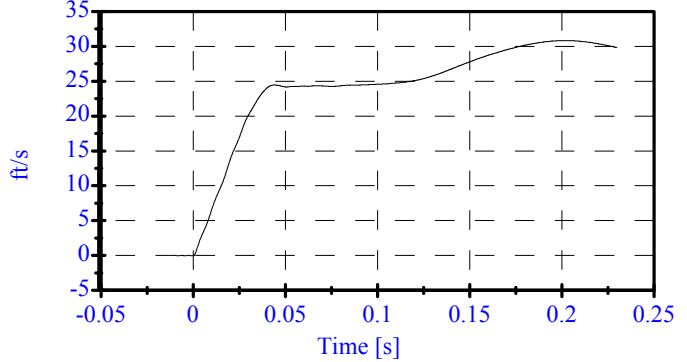
Sequential Test Number: 1 File: 905N 08-11-05

Laboratory Technician: B. Swiecicki

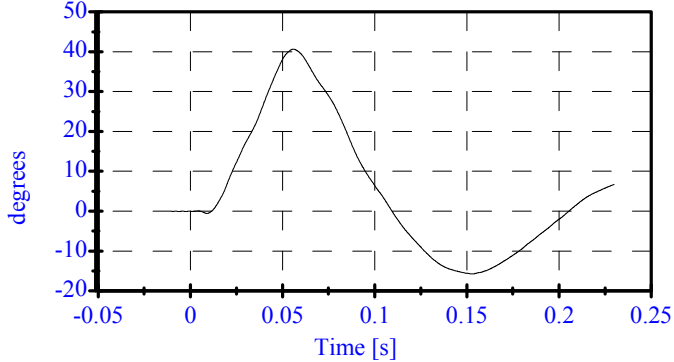
Pend Ax
CFC_180
Max: 26.4 [g's] at 0.018 [s]
Min: -2.1 [g's] at 0.048 [s]



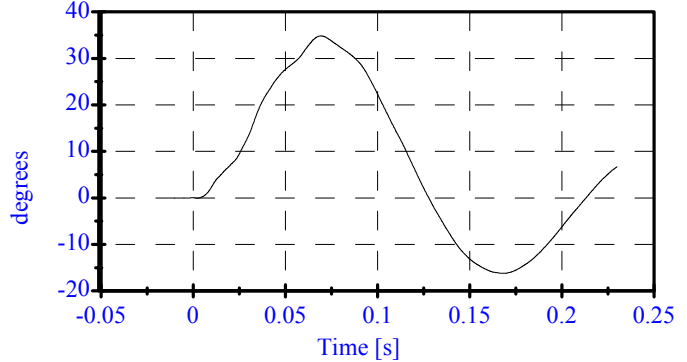
Pend Vx
CFC_180
Max: 30.8 [ft/s] at 0.200 [s]
Min: -0.0 [ft/s] at -0.000 [s]



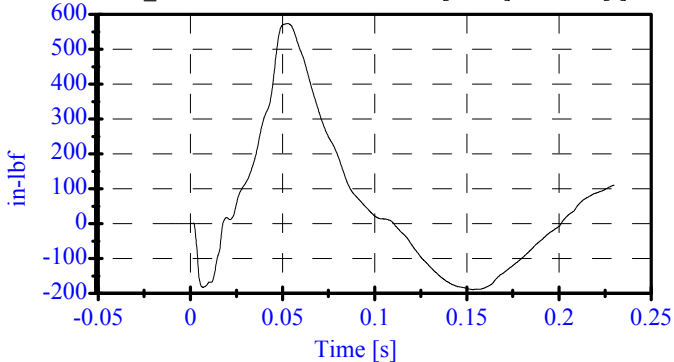
Head Rot
CFC_180
Max: 40.7 [degrees] at 0.056 [s]
Min: -15.7 [degrees] at 0.153 [s]



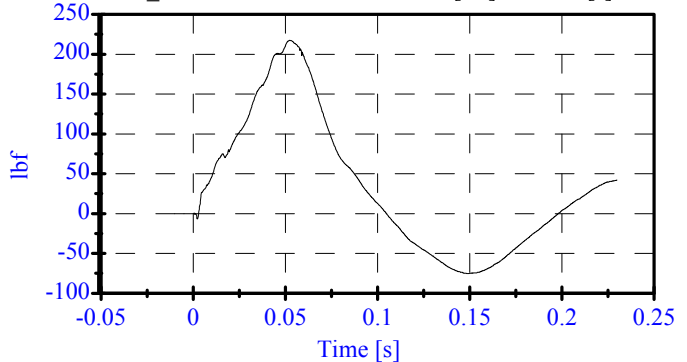
Arm Rot
CFC_180
Max: 34.9 [degrees] at 0.069 [s]
Min: -16.2 [degrees] at 0.169 [s]



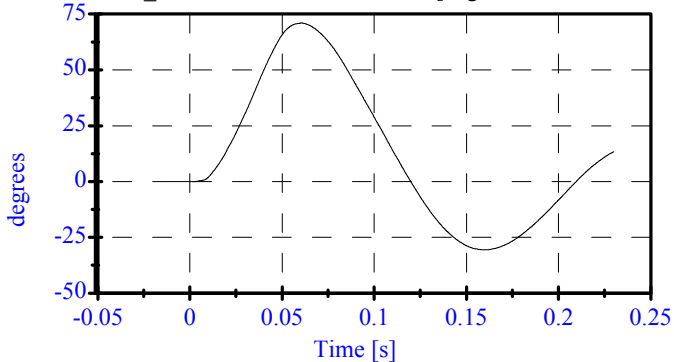
Neck Mx
CFC_600
Max: 573.6 [in-lbf] at 0.053 [s]
Min: -189.2 [in-lbf] at 0.154 [s]



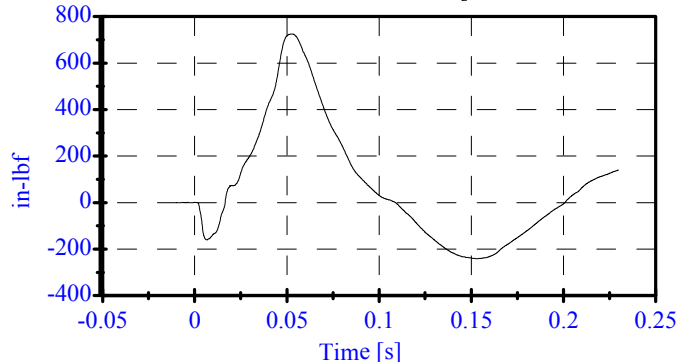
Neck Fy
CFC_1000
Max: 217.7 [lbf] at 0.052 [s]
Min: -75.2 [lbf] at 0.149 [s]



Tot Rot
CFC_180
Max: 71.0 [degrees] at 0.061 [s]
Min: -30.5 [degrees] at 0.161 [s]



Mocx
Max: 725.9 [in-lbf] at 0.052 [s]
Min: -241.1 [in-lbf] at 0.153 [s]



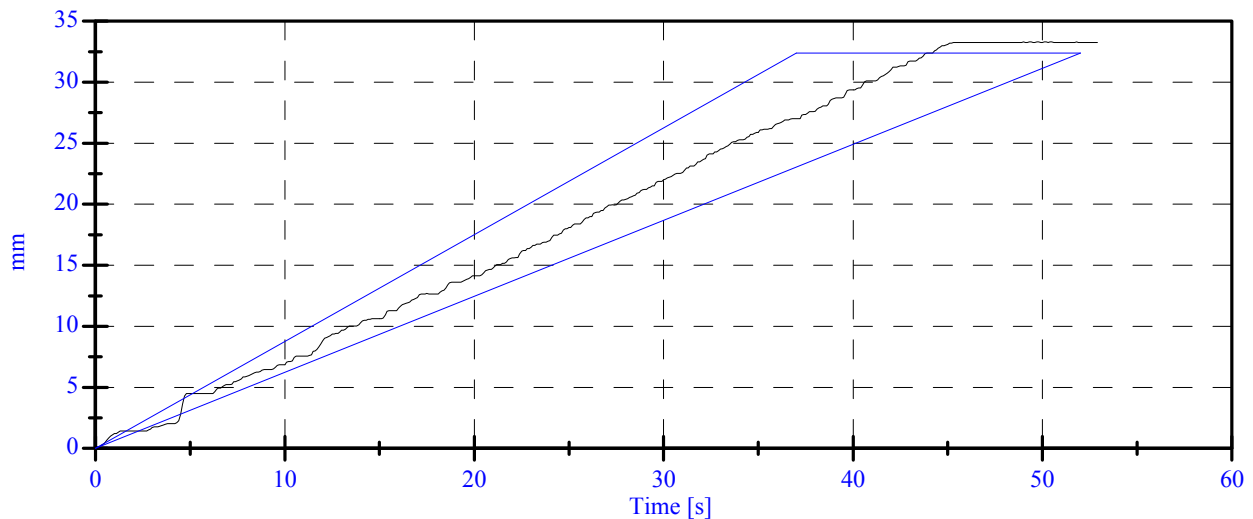
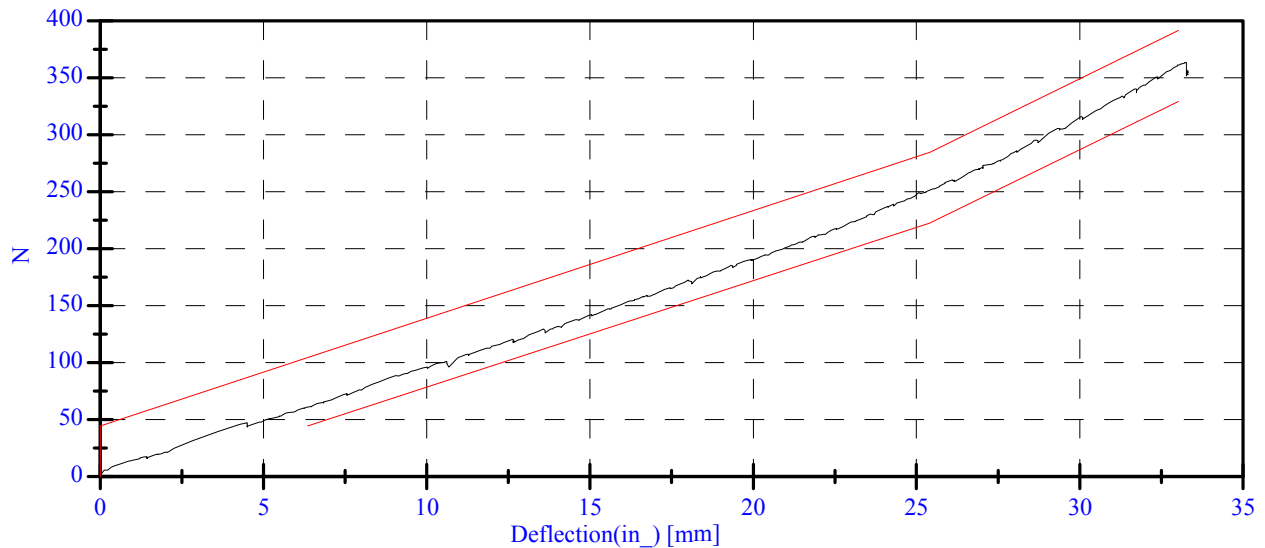
Abdomen Test
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-15-05

Sequential Test Number: 1 File: 905Ab 08-15-05
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
Force at 12.95 mm :	104.00-162.00 N	121.50 N	Passed
Force at 19.05 mm :	162.98-220.99 N	180.23 N	Passed
Force at 25.40 mm :	221.97-280.02 N	250.55 N	Passed
Force at 33.02 mm :	324.99-391.00 N	361.11 N	Passed

ABDOMINAL COMPRESSION TEST



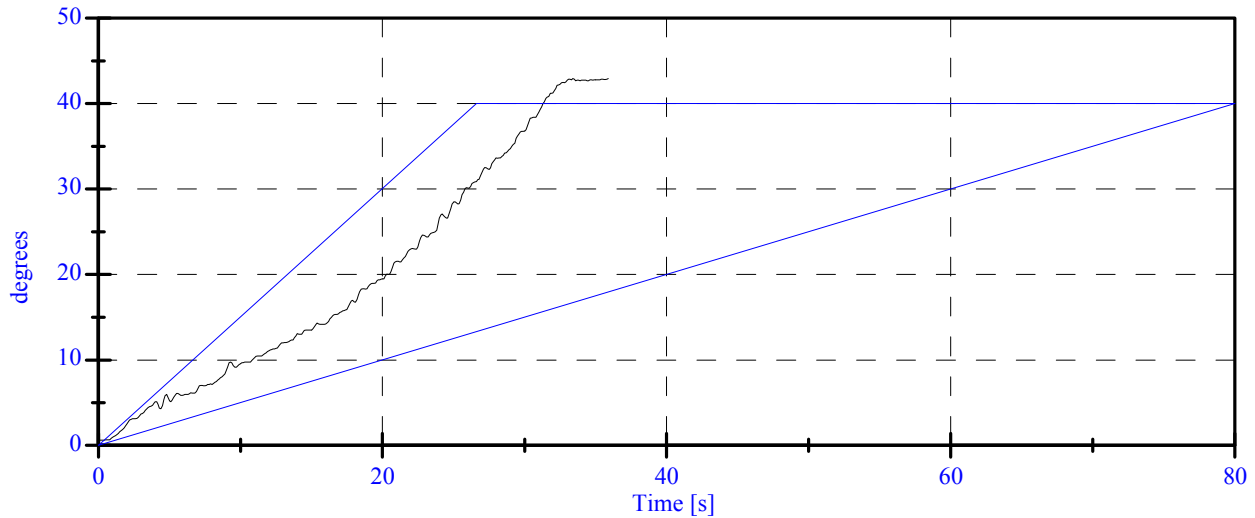
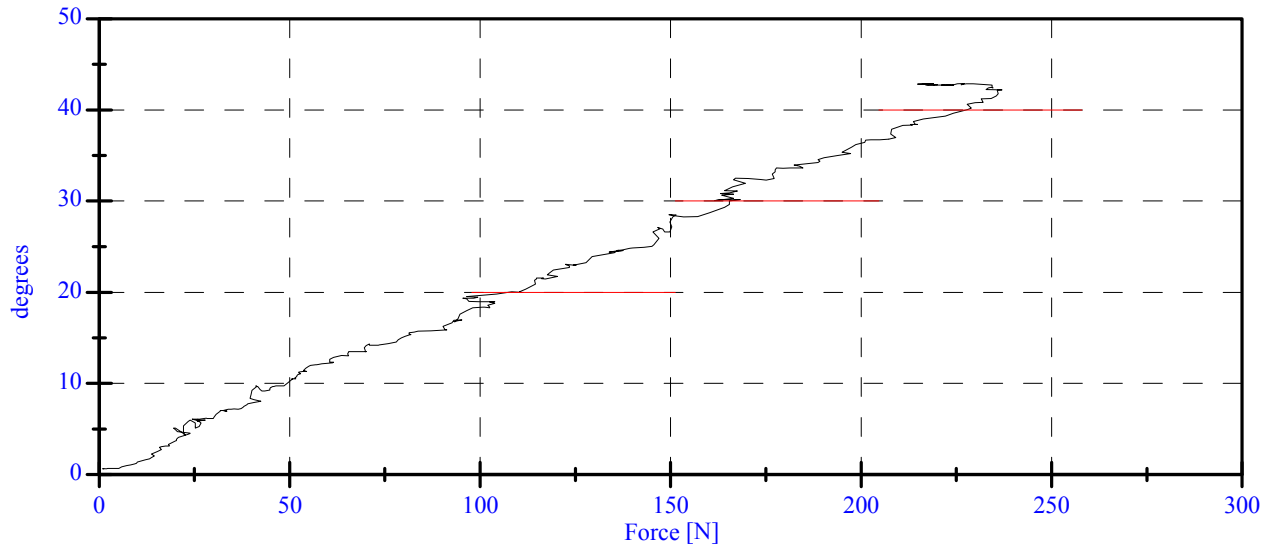
**Lumbar Spine
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905
Date: 08-15-05

Sequential Test Number: 1 File: 905Spine 08-15-05
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 %	36.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.18 N	Passed
Force at 20 Deg:	97.86-151.24 N	110.86 N	Passed
Force at 30 Deg:	151.24-204.62 N	165.45 N	Passed
Force at 40 Deg:	204.62-258.00 N	227.86 N	Passed
Return Angle	12 Deg Max	2.98 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: 08/15/2005 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: 08/15/2005	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: 08/15/2005	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	239
KH- Knee Pivot from Back Line (mm)	511 - 526	516
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	381

REMARKS: None

Shock Impact - Low (3.05 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

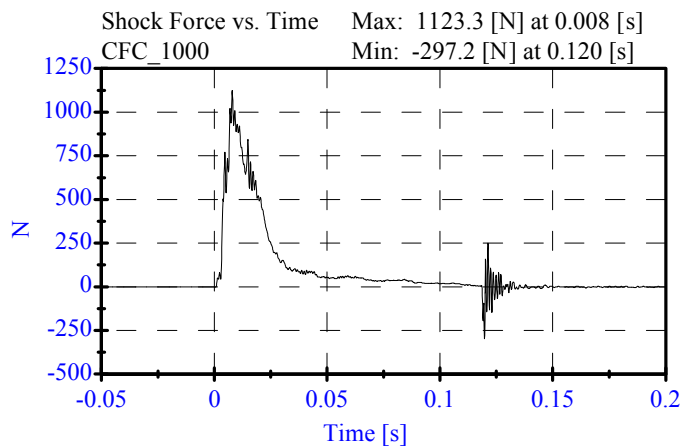
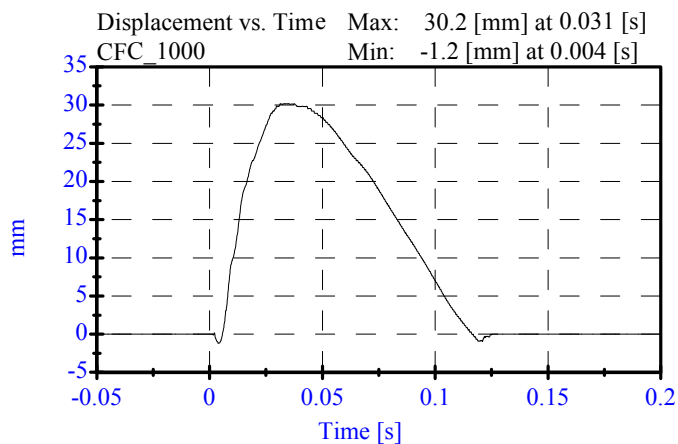
ATD Serial No: 906

Date: 07-29-05

Sequential Test Number: 1 File: 906SL 07-29-05

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
Displacement:	30.00-35.00 mm	30.17 mm	Passed
Maximum Force:	836.00-1125.00 N	1123.31 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Impact - Med (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

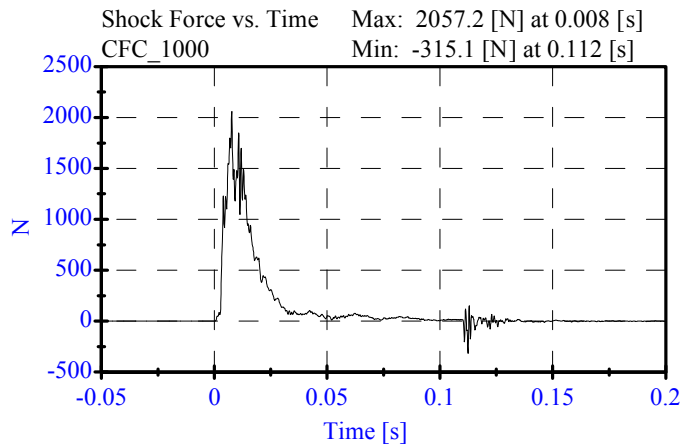
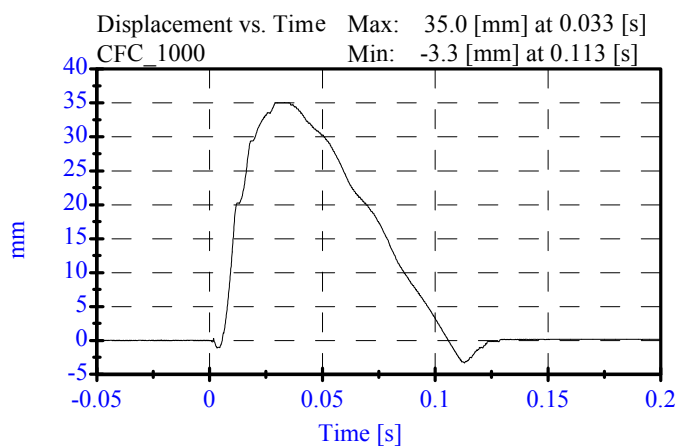
ATD Serial No: 906

Date: 07-29-05

Sequential Test Number: 1 File: 906SM1 07-29-05

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
Displacement:	32.00-37.00 mm	35.03 mm	Passed
Maximum Force:	1730.00-2099.00 N	2057.25 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

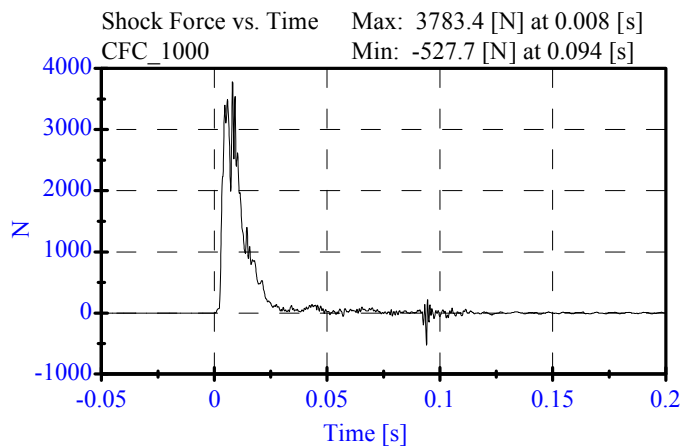
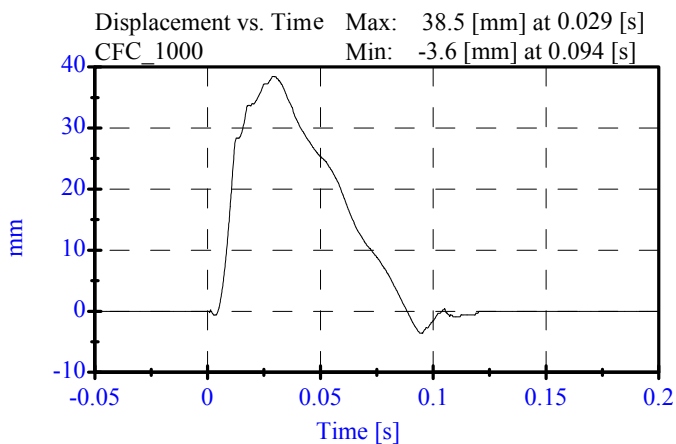
ATD Serial No: 906

Date: 07-29-05

Sequential Test Number: 1 File: 906SH 07-29-05

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
Displacement:	33.00-40.00 mm	38.46 mm	Passed
Maximum Force:	3741.00-4448.00 N	3783.39 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	906		
Damper Setting:	5		

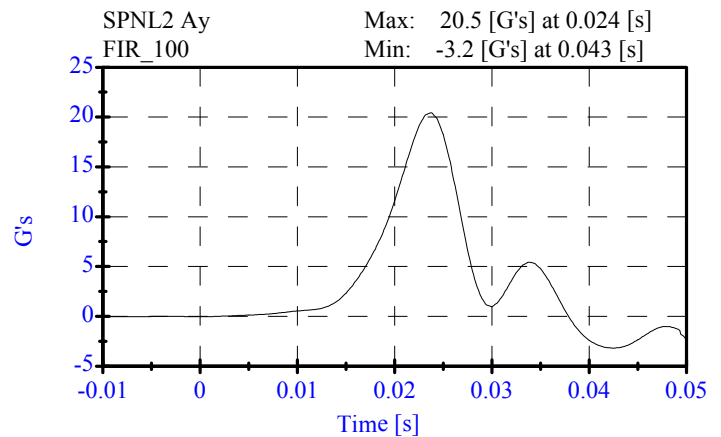
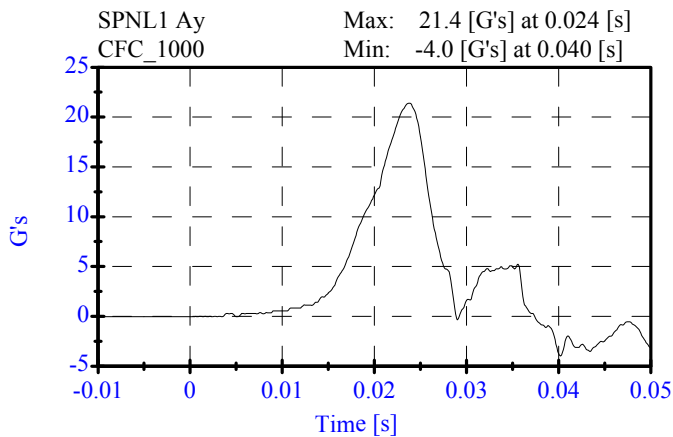
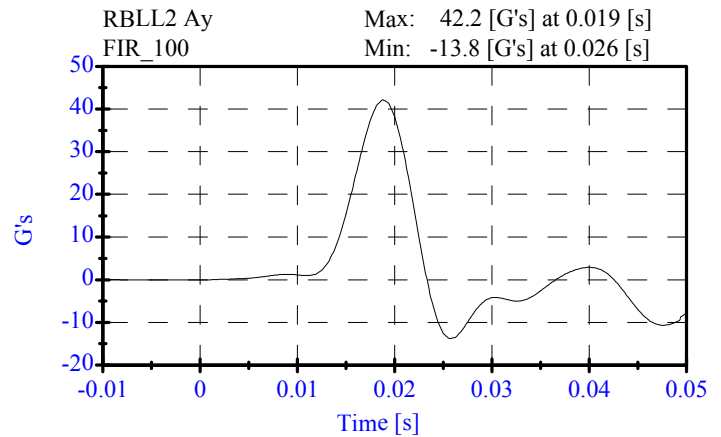
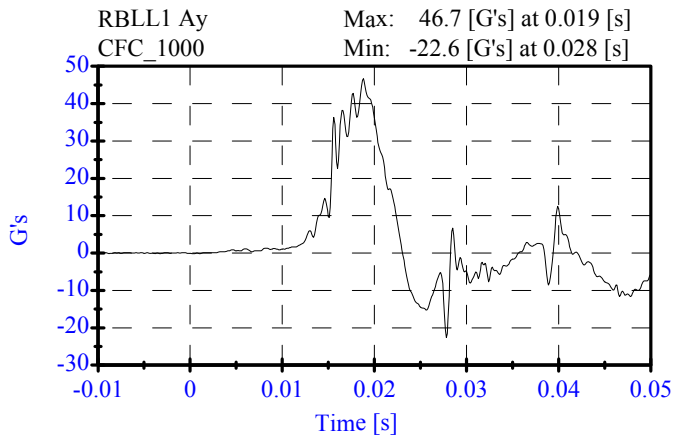
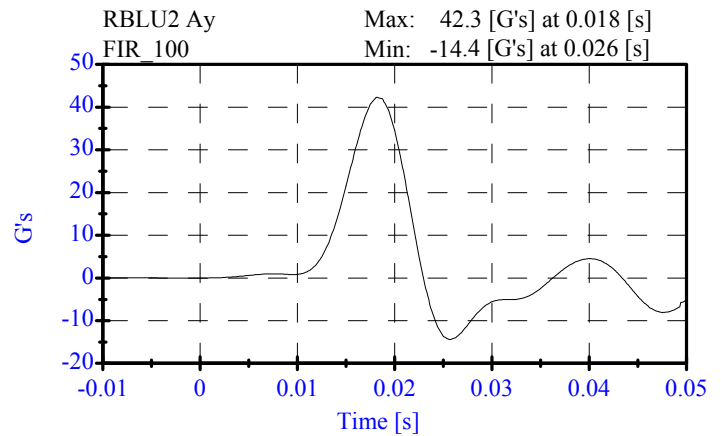
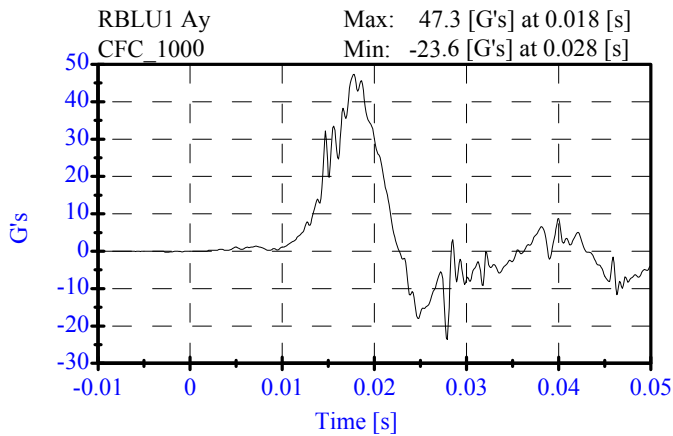


Thorax Impact
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-12-05

Sequential Test Number: 1 File: 906T1 08-12-05
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 %	40.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	42.30 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.16 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.46 G's	Passed



Pelvic Impact

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

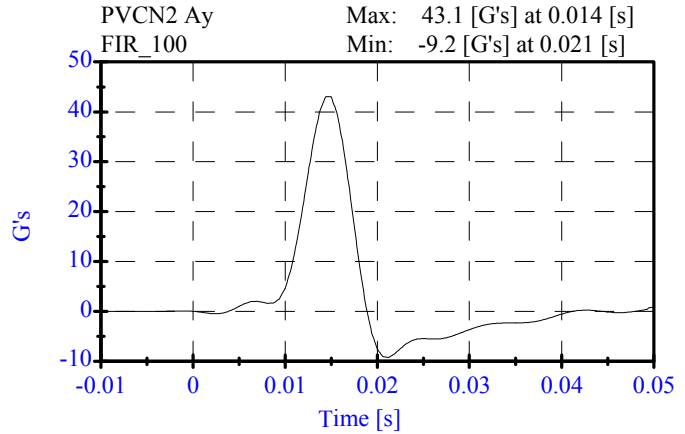
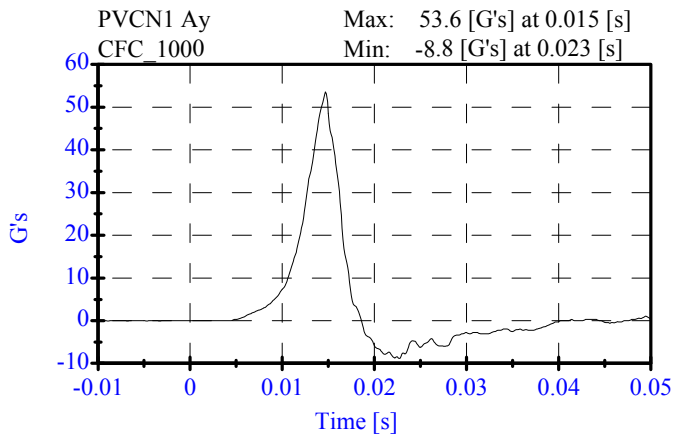
ATD Serial No: 906

Date: 08-12-05

Sequential Test Number: 1 File: 906P 08-12-05

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 %	40.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	43.06 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.5 ms	Passed



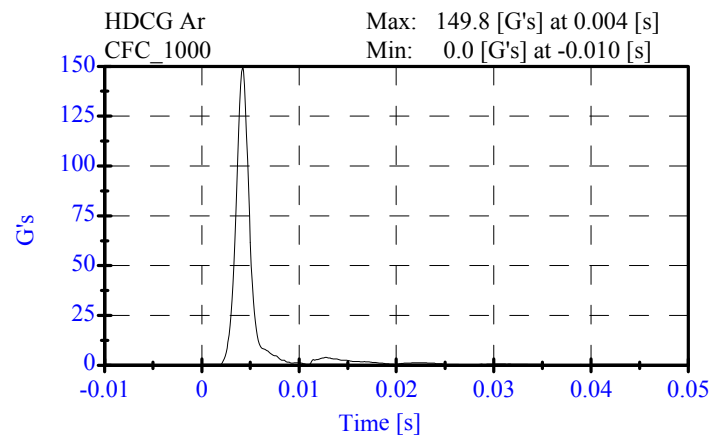
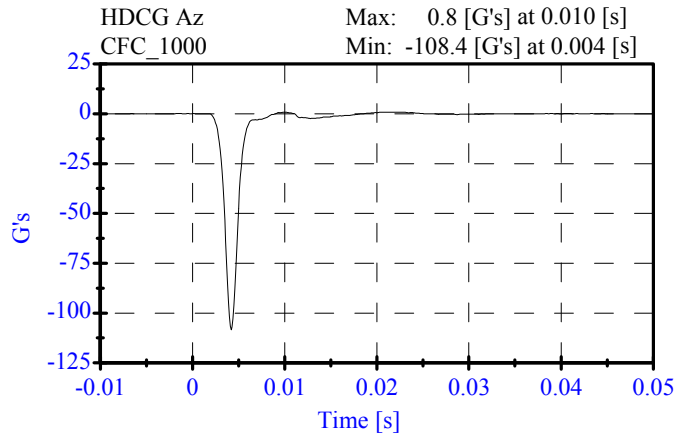
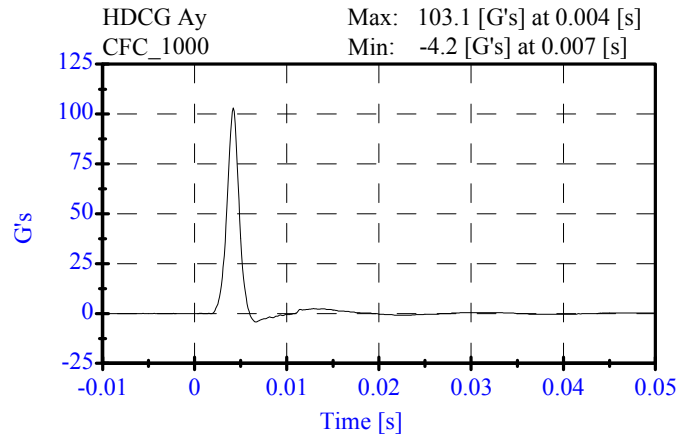
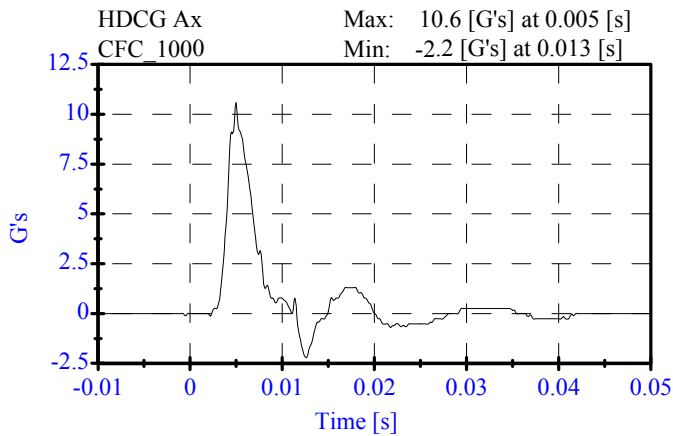
Head Drop PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-11-05

Sequential Test Number: 1 File: 906H1 08-10-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	66.0-78.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	149.81 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	10.57 Gs	Passed
Curve PerCent NonModal:	< 15%	3.25 %	Passed



Neck Test**PRE TEST****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906

Date: 08-11-05

Sequential Test Number: 1 File: 906N 08-11-05

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	69.0-72.0 F	70.0 F	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Impact Velocity:	22.60-23.40 ft/s	22.95 ft/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	6.40- 8.40 ft/s	6.56 ft/s	Passed
Delta V at 20 ms:	13.50-16.70 ft/s	13.72 ft/s	Passed
Delta V at 30 ms:	18.80-23.00 ft/s	20.14 ft/s	Passed
Delta V between 40-70 ms:	20.60-25.10 ft/s	24.69 ft/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.38 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.70 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	646.10-778.90 in-lbf	706.80 in-lbf	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.20 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	7.90 ms	Passed

Neck Test
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

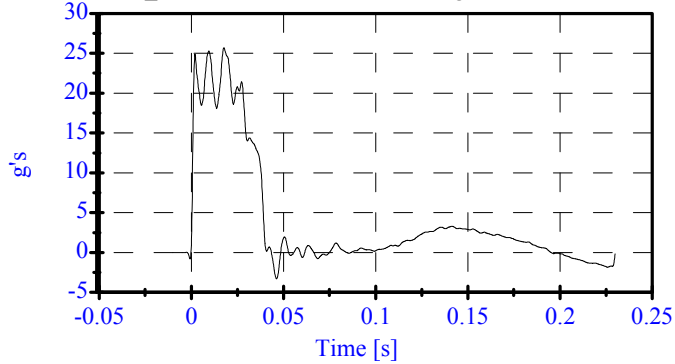
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Date: 08-11-05

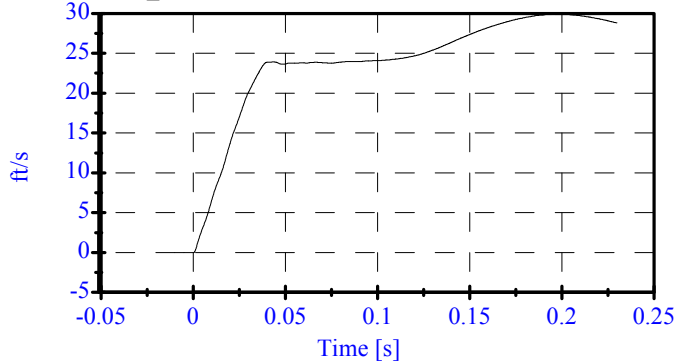
Sequential Test Number: 1 File: 906N 08-11-05

Laboratory Technician: B. Swiecicki

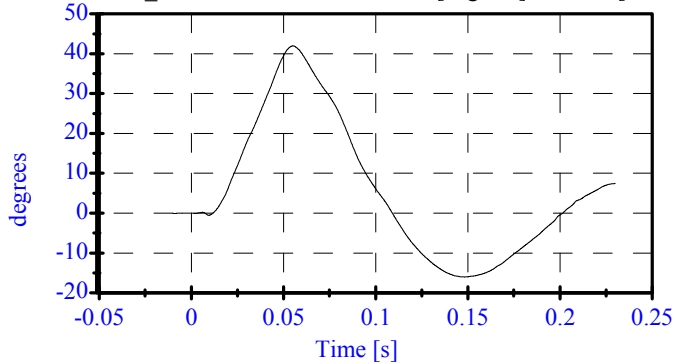
Pend Ax
CFC_180
Max: 25.7 [g's] at 0.018 [s]
Min: -3.3 [g's] at 0.046 [s]



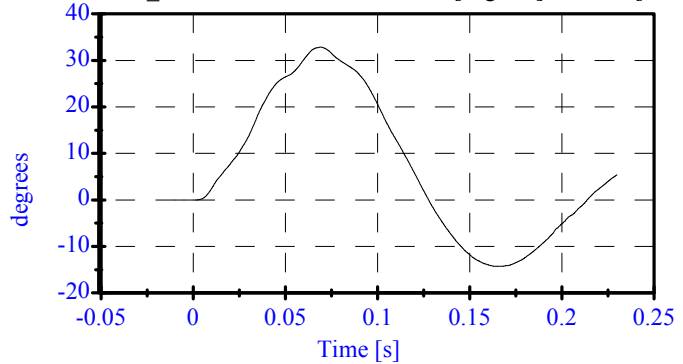
Pend Vx
CFC_180
Max: 29.9 [ft/s] at 0.195 [s]
Min: -0.0 [ft/s] at -0.000 [s]



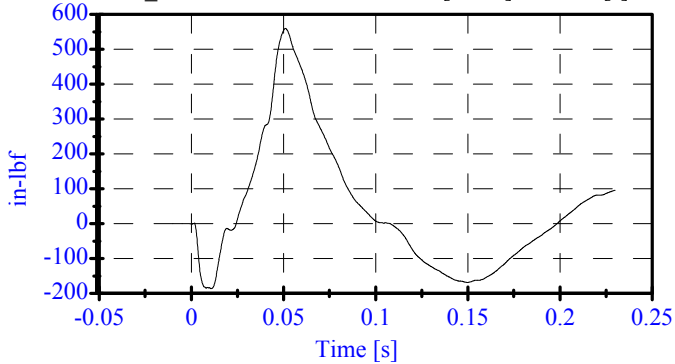
Head Rot
CFC_180
Max: 42.0 [degrees] at 0.055 [s]
Min: -16.0 [degrees] at 0.148 [s]



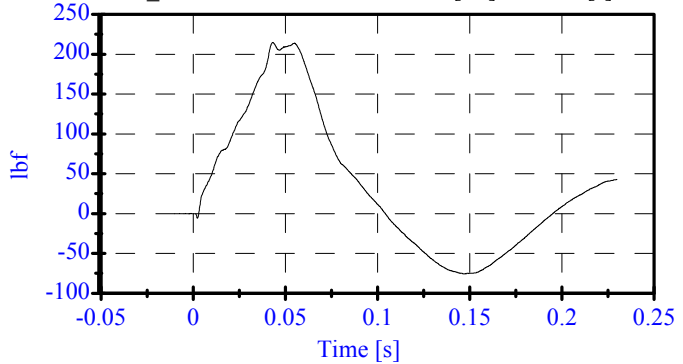
Arm Rot
CFC_180
Max: 32.9 [degrees] at 0.069 [s]
Min: -14.3 [degrees] at 0.165 [s]



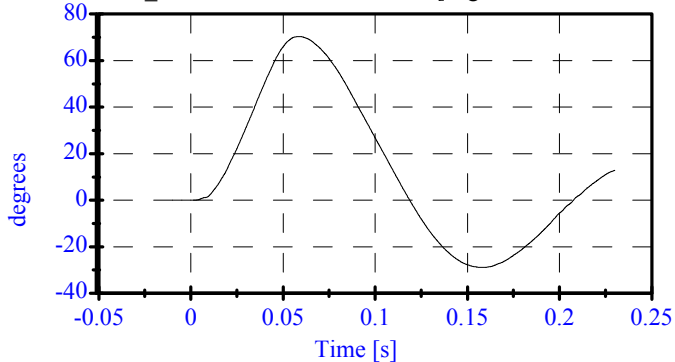
Neck Mx
CFC_600
Max: 559.7 [in-lbf] at 0.051 [s]
Min: -186.7 [in-lbf] at 0.011 [s]



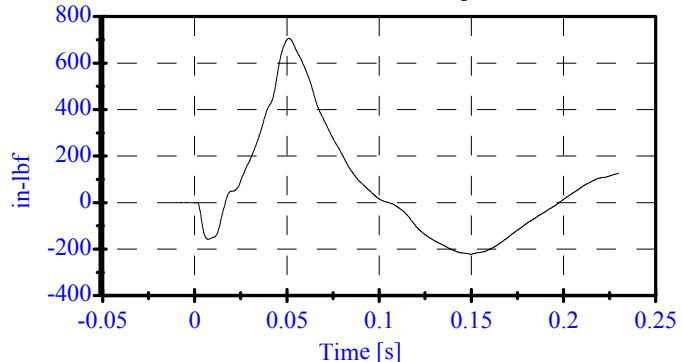
Neck Fy
CFC_1000
Max: 214.8 [lbf] at 0.043 [s]
Min: -75.5 [lbf] at 0.147 [s]



Tot Rot
CFC_180
Max: 70.4 [degrees] at 0.059 [s]
Min: -28.9 [degrees] at 0.158 [s]



Mocx
Max: 706.8 [in-lbf] at 0.051 [s]
Min: -221.2 [in-lbf] at 0.150 [s]



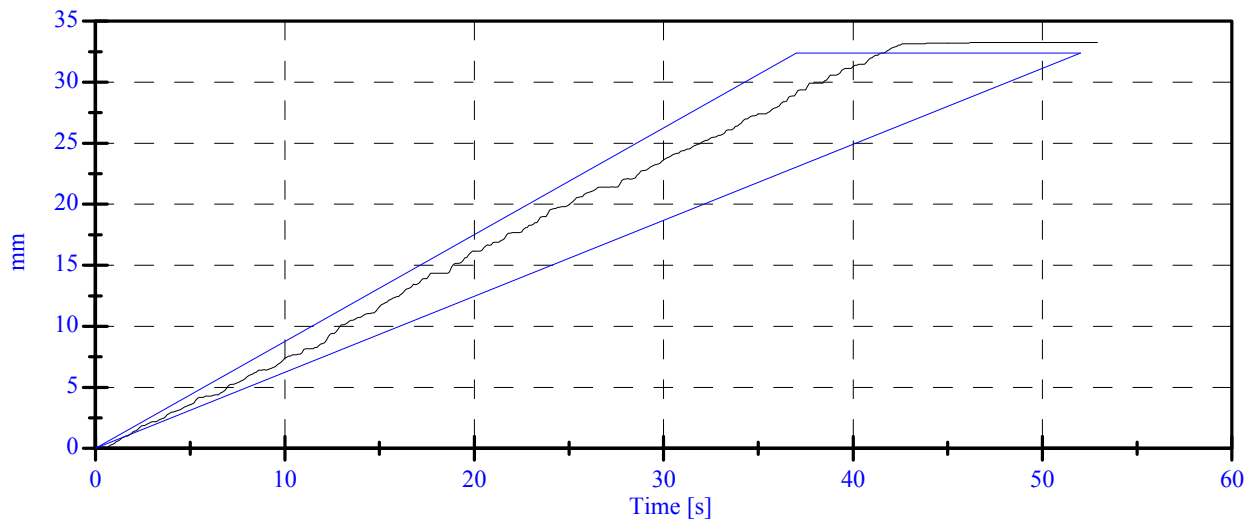
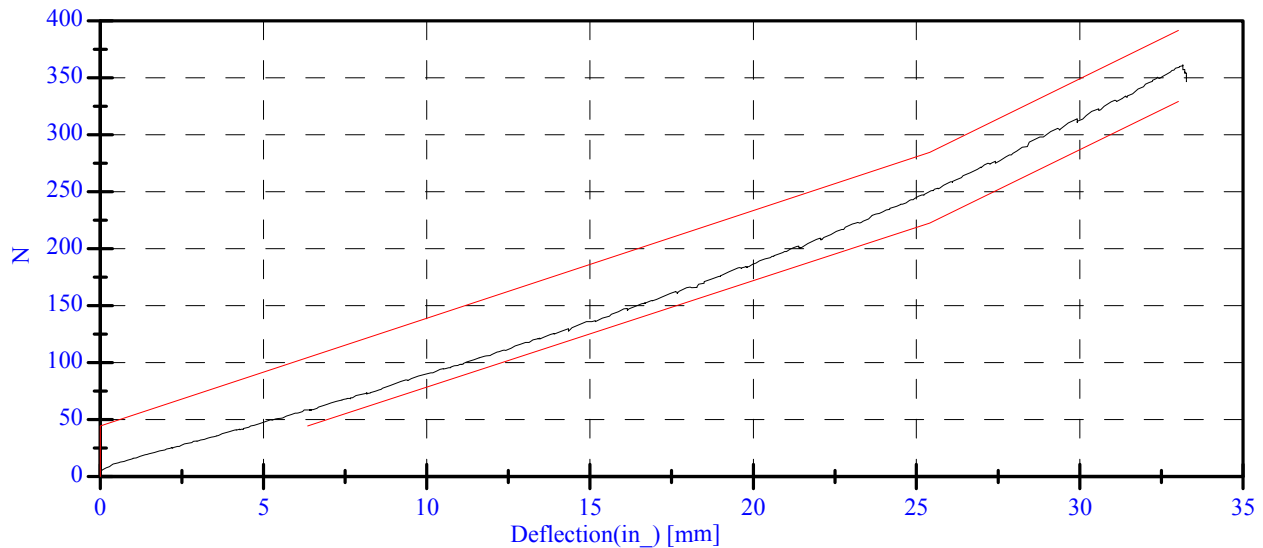
Abdomen Test
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-15-05

Sequential Test Number: 1 File: 906Ab 08-15-05
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
Force at 12.95 mm :	104.00-162.00 N	117.88 N	Passed
Force at 19.05 mm :	162.98-220.99 N	175.88 N	Passed
Force at 25.40 mm :	221.97-280.02 N	250.91 N	Passed
Force at 33.02 mm :	324.99-391.00 N	359.29 N	Passed

ABDOMINAL COMPRESSION TEST



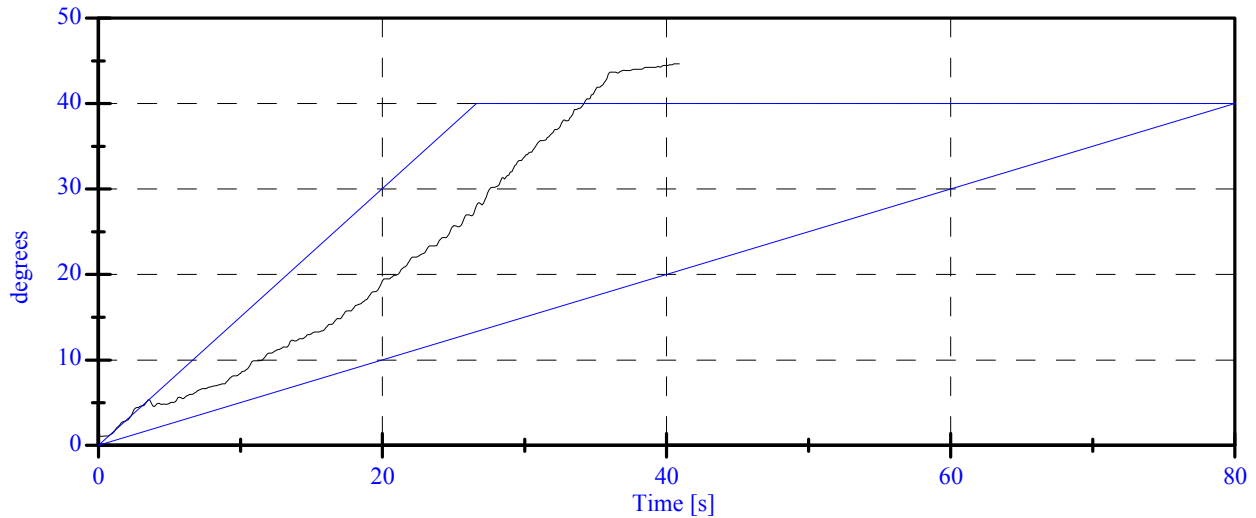
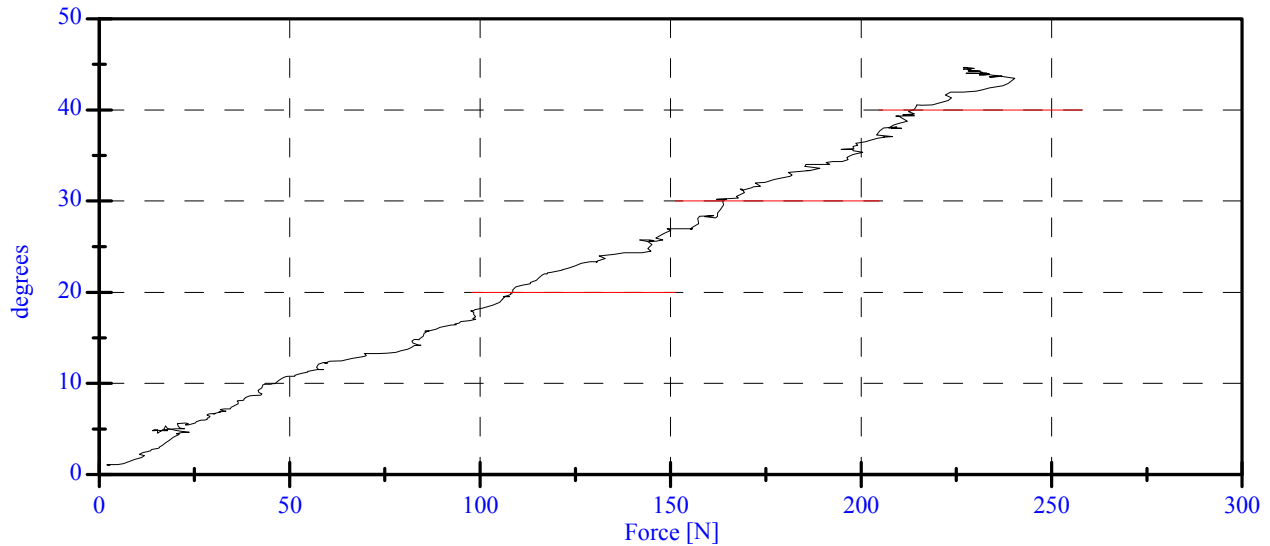
**Lumbar Spine
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906
Date: 08-15-05

Sequential Test Number: 1 File: 906Spine 08-15-05
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 %	36.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.96 N	Passed
Force at 20 Deg:	97.86-151.24 N	108.51 N	Passed
Force at 30 Deg	151.24-204.62 N	163.62 N	Passed
Force at 40 Deg	204.62-258.00 N	214.02 N	Passed
Return Angle	12 Deg Max	3.60 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: 08/15/2005 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: 08/31/2005 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: 08/31/2005 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	907
RH- Rib Height (mm)	502 - 520	518
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	366

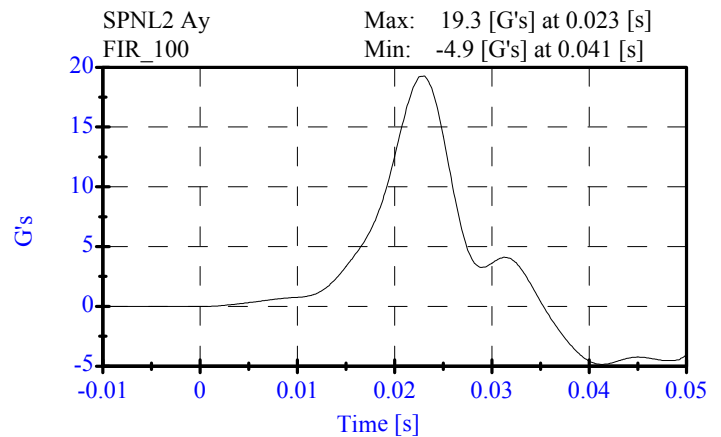
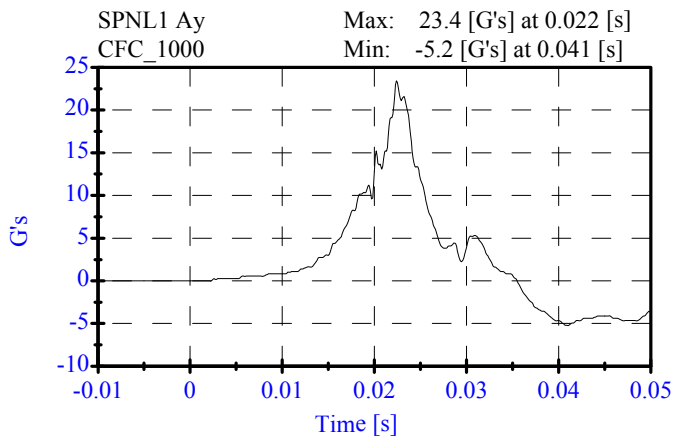
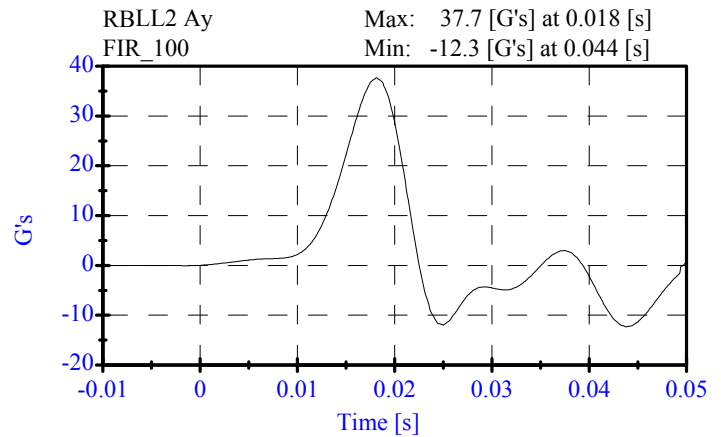
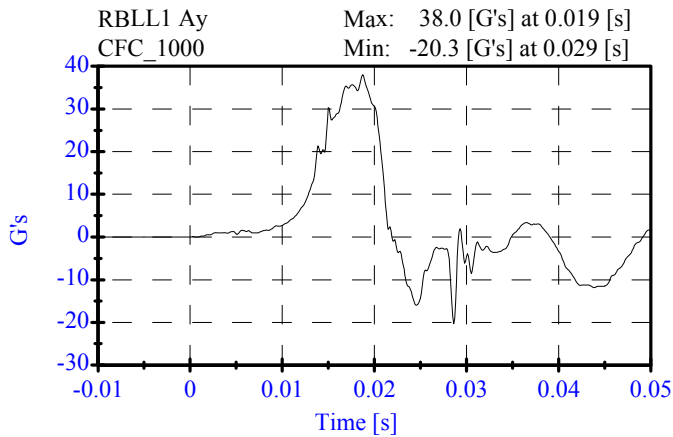
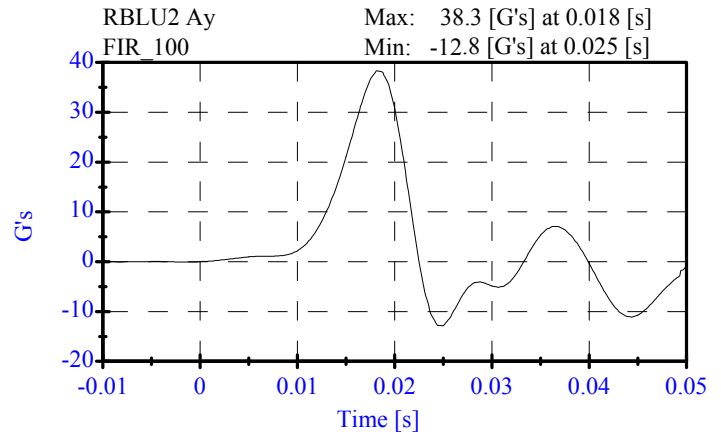
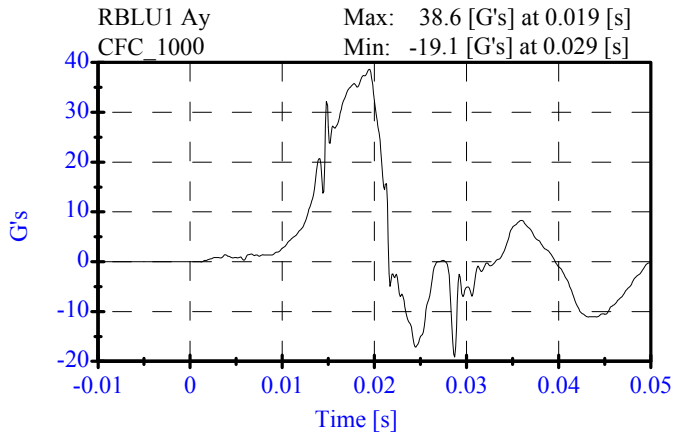
REMARKS: None

Thorax Impact
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-30-05

Sequential Test Number: 1 File: 905T 08-30-05
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	4.28 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	38.28 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	37.70 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.28 G's	Passed



Pelvic Impact

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

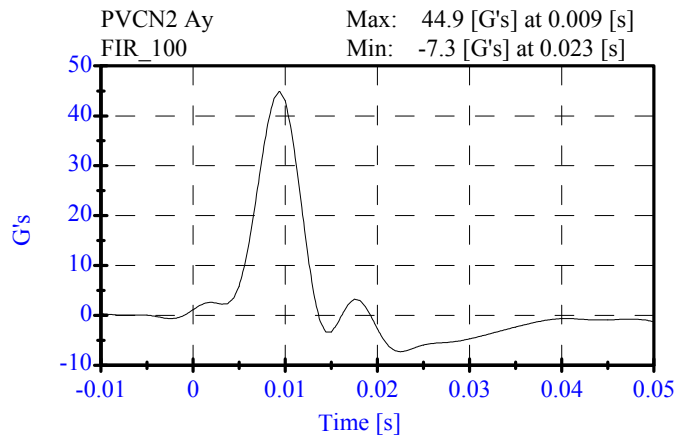
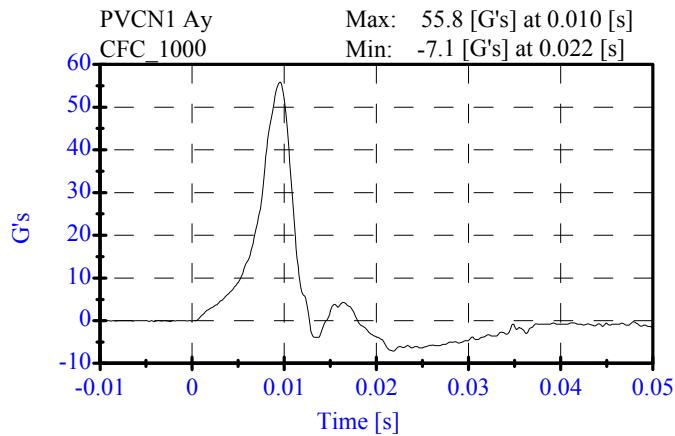
ATD Serial No: 905

Date: 08-30-05

Sequential Test Number: 1 File: 905P 08-30-05

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	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	44.93 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



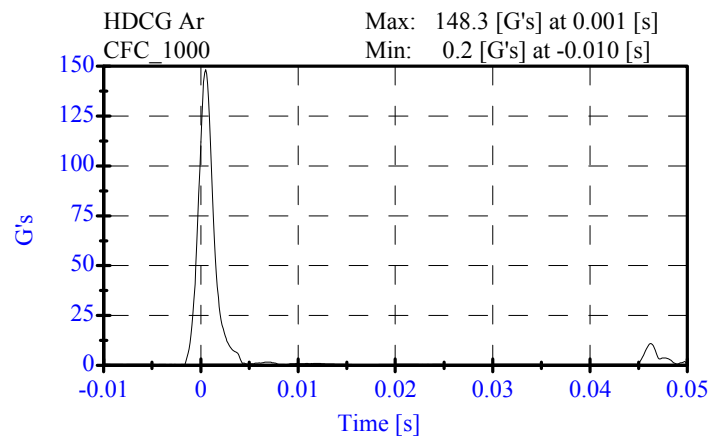
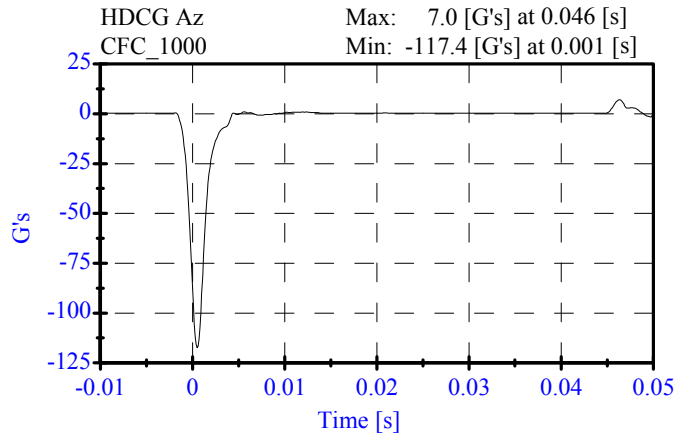
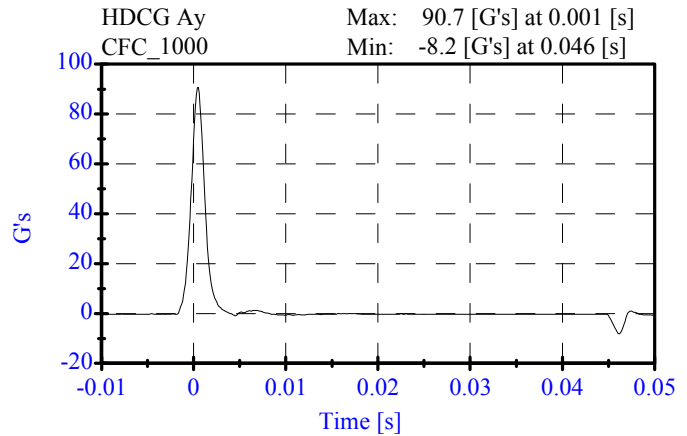
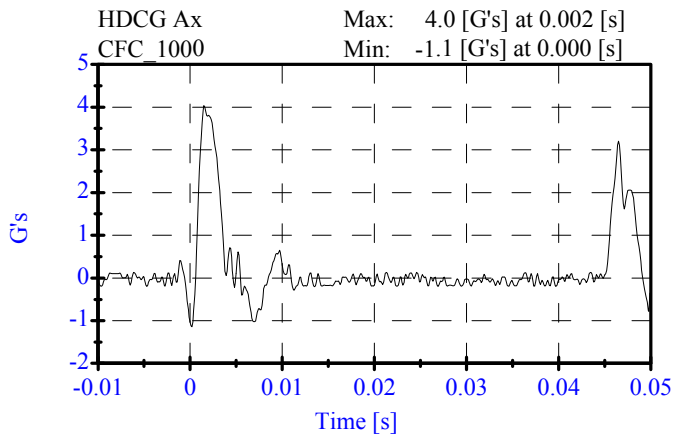
Head Drop POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 08-26-05

Sequential Test Number: 1 File: 905H1 08-26-05
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 %	39.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	148.33 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	4.03 Gs	Passed
Curve PerCent NonModal:	< 15%	7.36 %	Passed



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

ATD Serial No: 905

Date: 08-28-05

Sequential Test Number: 1 File: 905N 08-29-05

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	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.06 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	6.37 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.54 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.03 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.20 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	83.89 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	57.50 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	10.10 ms	Passed

Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

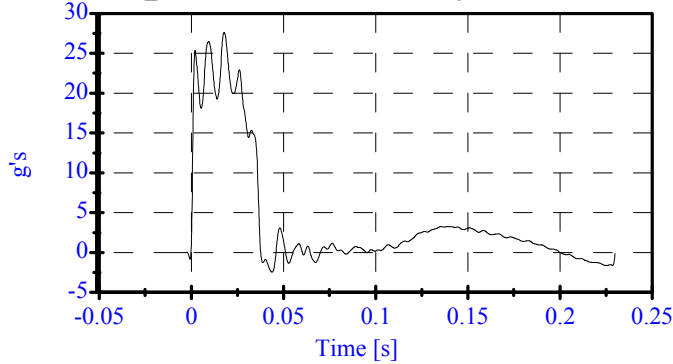
ATD Serial No: 905

Date: 08-28-05

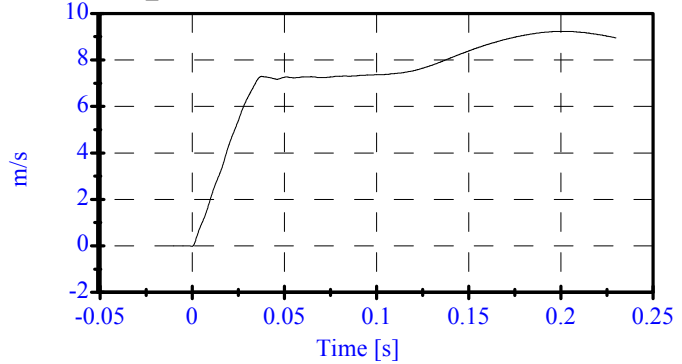
Sequential Test Number: 1 File: 905N 08-29-05

Laboratory Technician: B. Swiecicki

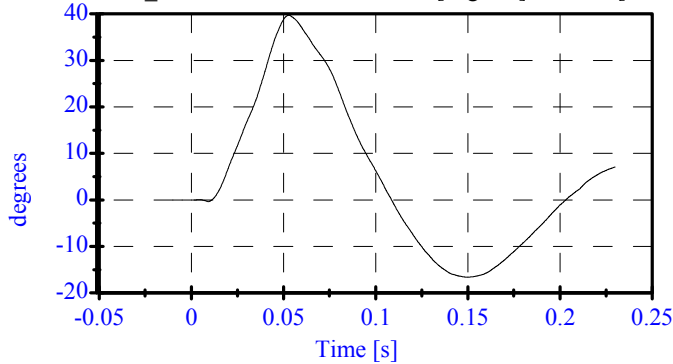
Pend Ax
CFC_180
Max: 27.6 [g's] at 0.018 [s]
Min: -2.4 [g's] at 0.044 [s]



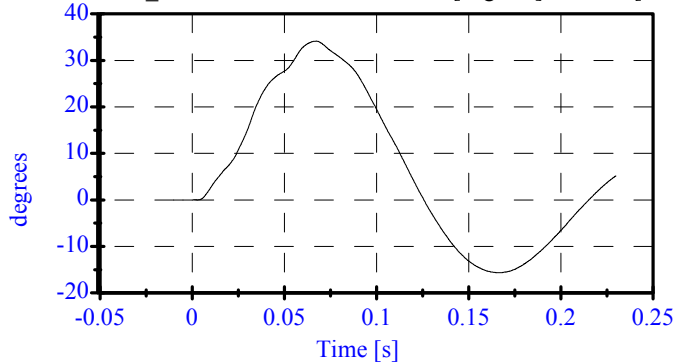
Pend Vx
CFC_180
Max: 9.2 [m/s] at 0.200 [s]
Min: -0.0 [m/s] at -0.000 [s]



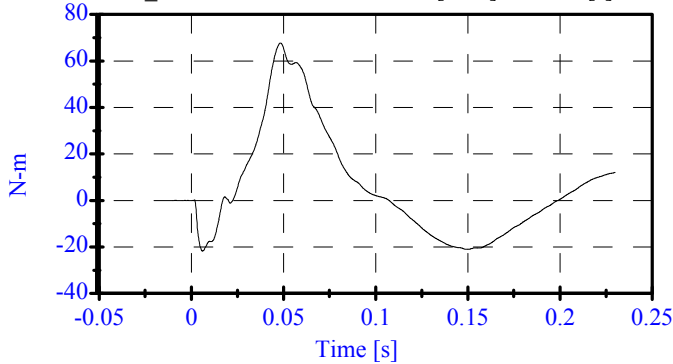
Head Rot
CFC_180
Max: 39.7 [degrees] at 0.053 [s]
Min: -16.6 [degrees] at 0.150 [s]



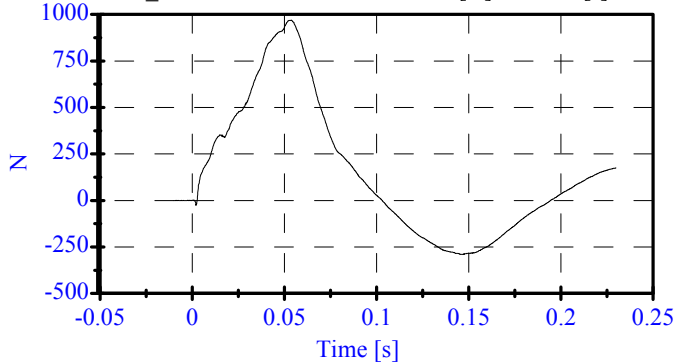
Arm Rot
CFC_180
Max: 34.2 [degrees] at 0.067 [s]
Min: -15.6 [degrees] at 0.167 [s]



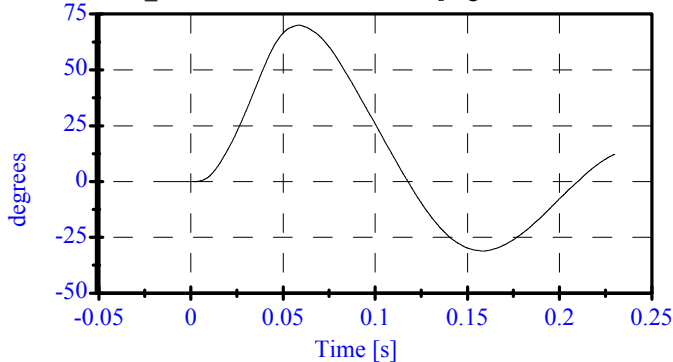
Neck Mx
CFC_600
Max: 67.7 [N-m] at 0.048 [s]
Min: -21.9 [N-m] at 0.006 [s]



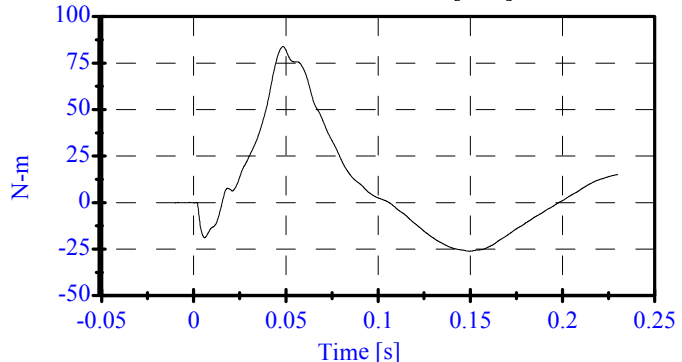
Neck Fy
CFC_1000
Max: 969.7 [N] at 0.054 [s]
Min: -290.4 [N] at 0.146 [s]



Tot Rot
CFC_180
Max: 70.0 [degrees] at 0.059 [s]
Min: -31.1 [degrees] at 0.159 [s]



MOCX
Max: 83.9 [N-m] at 0.049 [s]
Min: -26.1 [N-m] at 0.149 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

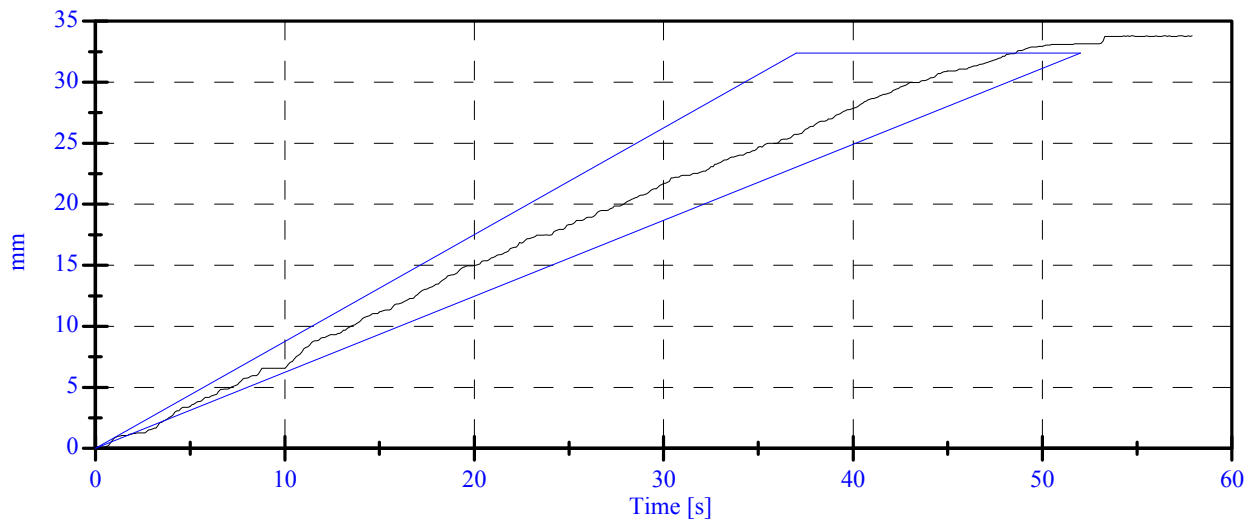
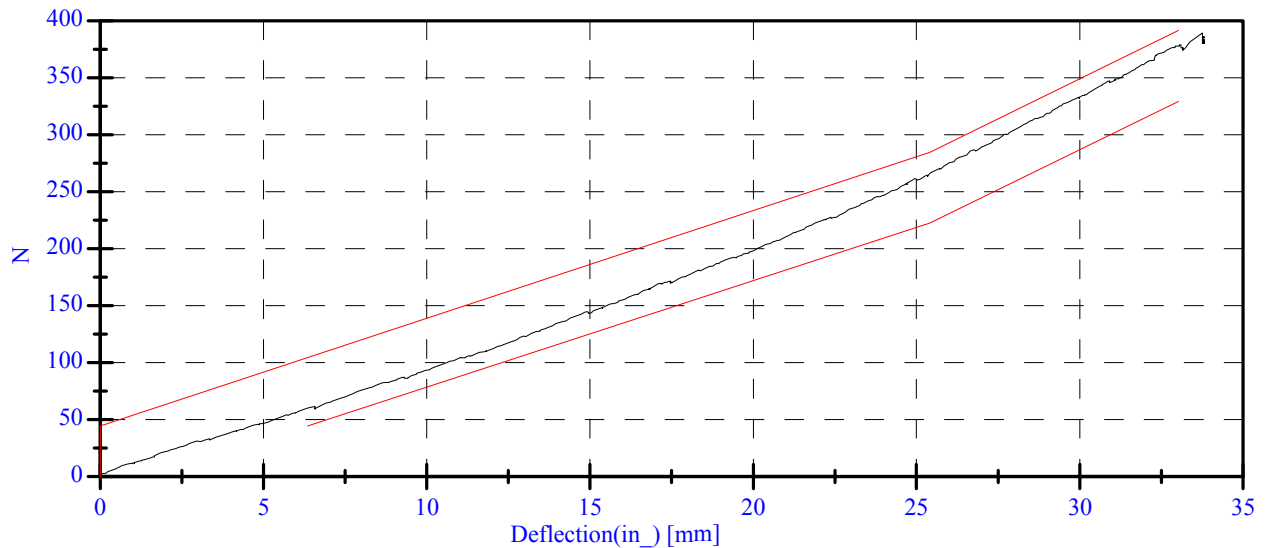
Date: 08-31-05

Sequential Test Number: 1 File: 905ab 08-31-05

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	123.32 N	Passed
Force at 19.05 mm :	162.98-220.99 N	188.20 N	Passed
Force at 25.40 mm :	221.97-280.02 N	265.41 N	Passed
Force at 33.02 mm :	324.99-391.00 N	377.78 N	Passed

ABDOMINAL COMPRESSION TEST



Spine test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

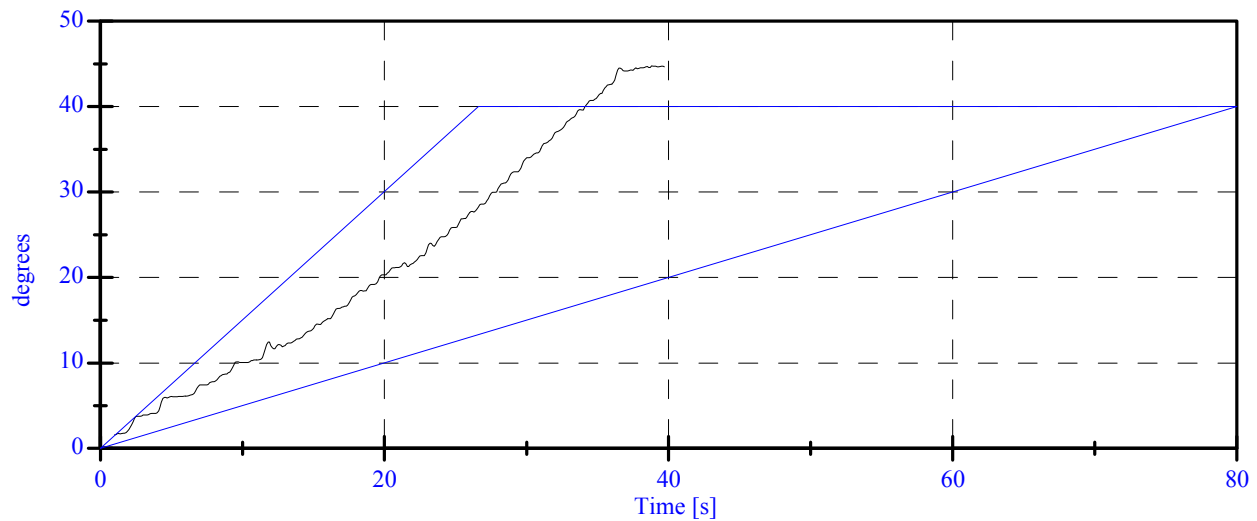
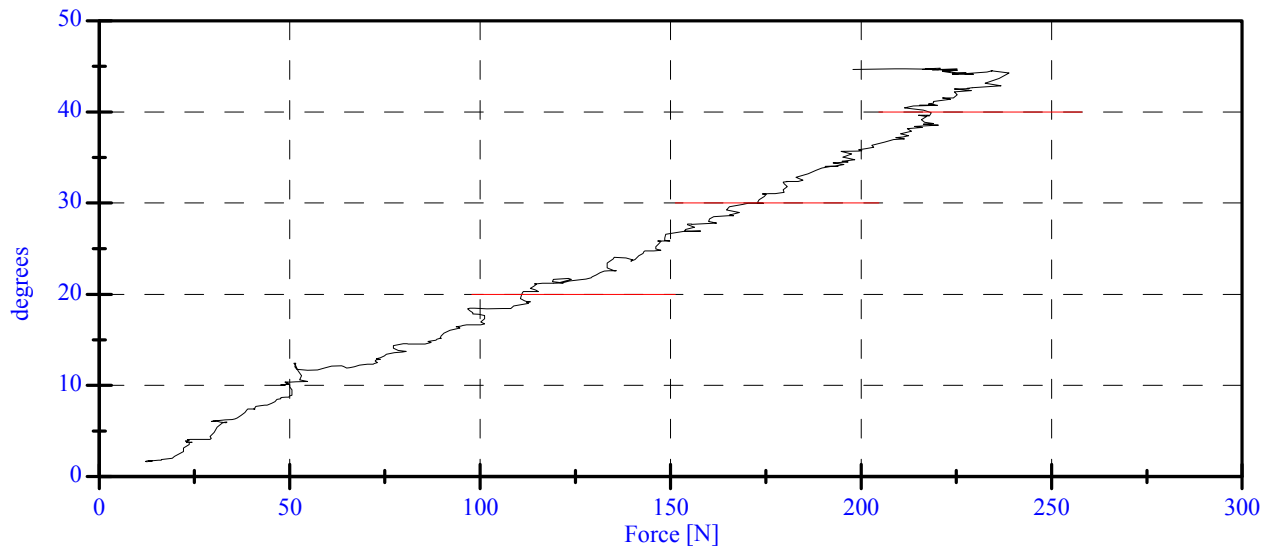
Date: 08-31-05

Sequential Test Number: 1 File: 905S 08-31-05

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	12.67 N	Passed
Force at 20 Deg:	97.86-151.24 N	110.86 N	Passed
Force at 30 Deg:	151.24-204.62 N	170.41 N	Passed
Force at 40 Deg:	204.62-258.00 N	218.46 N	Passed
Return Angle	12 Deg Max	4.62 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: 08/31/2005 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: 08/31/2005	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: 08/31/2005 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	239
KH- Knee Pivot from Back Line (mm)	511 - 526	516
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	381

REMARKS: None

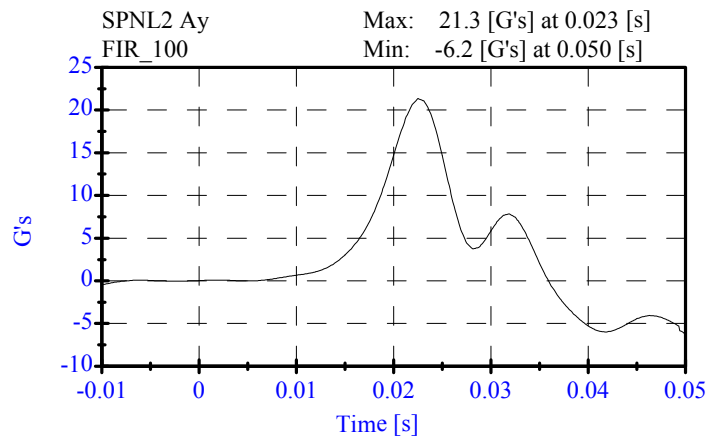
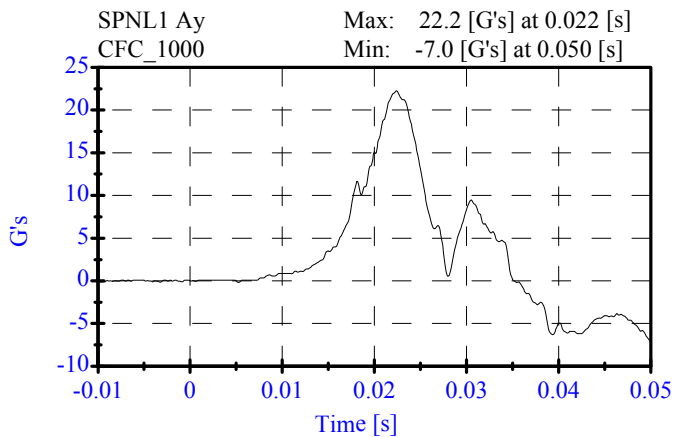
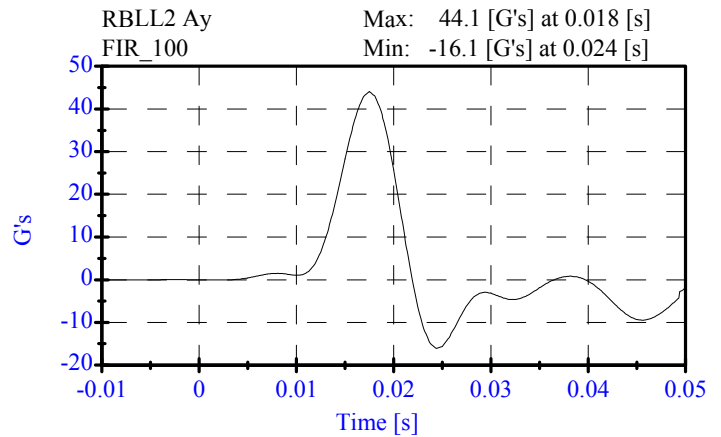
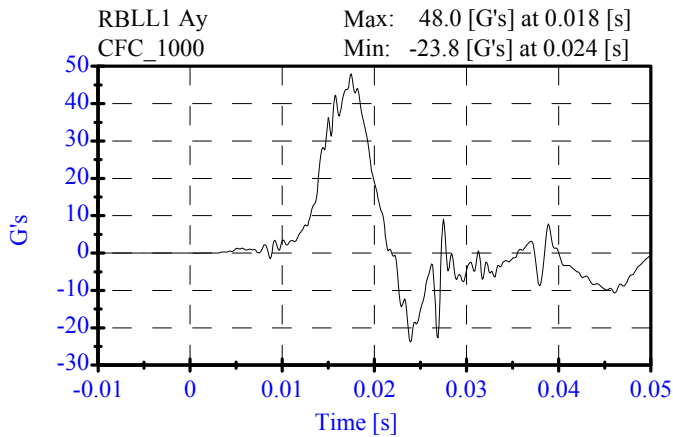
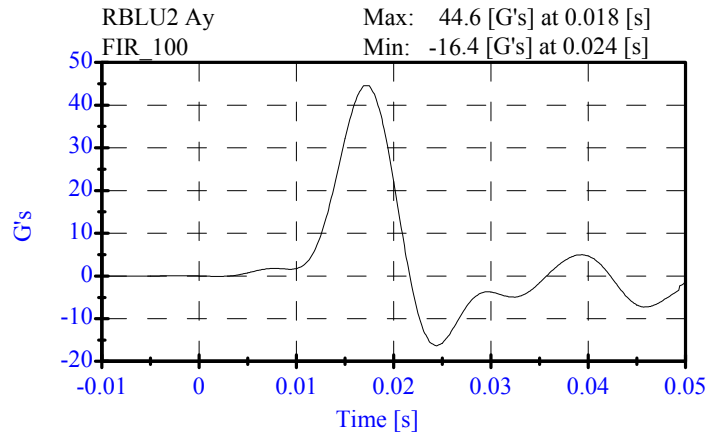
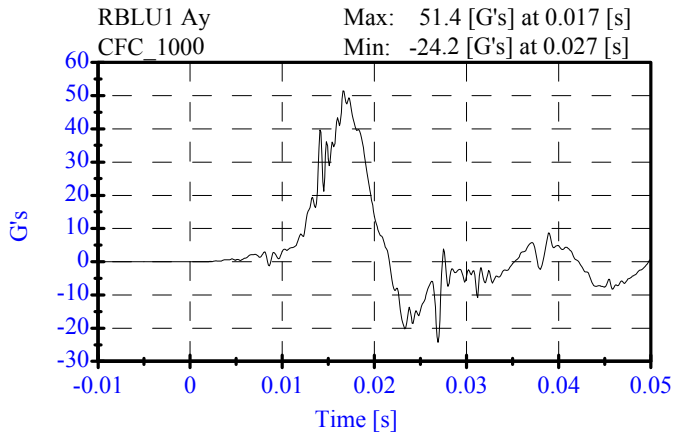
**Thorax Impact
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-30-05

Sequential Test Number: 1 File: 906T 08-30-05
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	44.55 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	44.12 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.34 G's	Passed



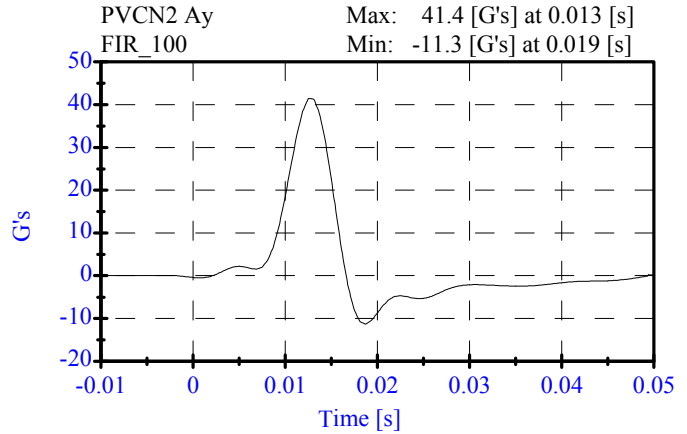
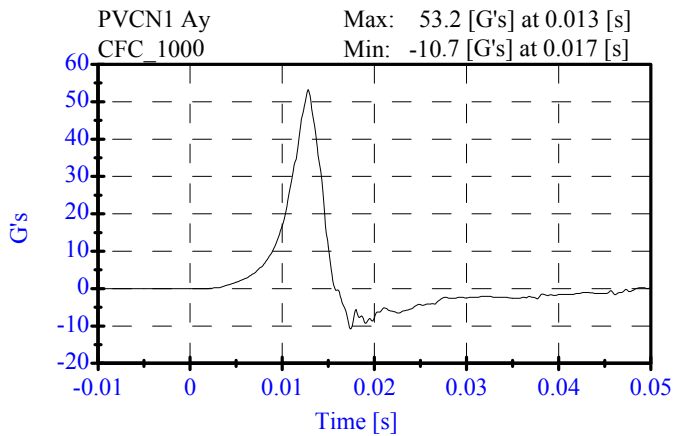
**Pelvic Impact
Post-Test**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-30-05

Sequential Test Number: 1 File: 906P 08-30-05
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
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	41.44 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.0 ms	Passed



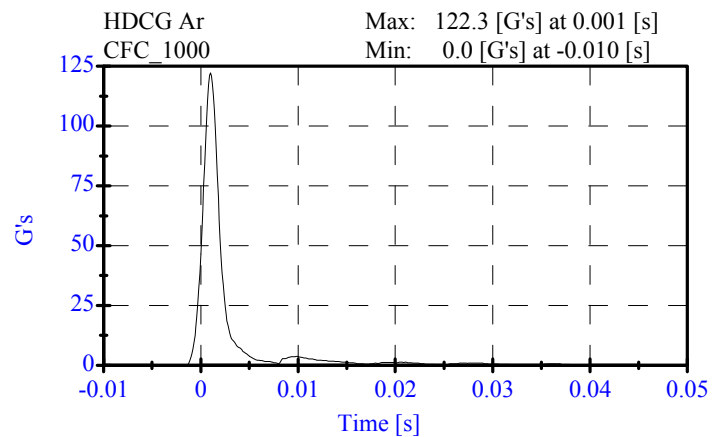
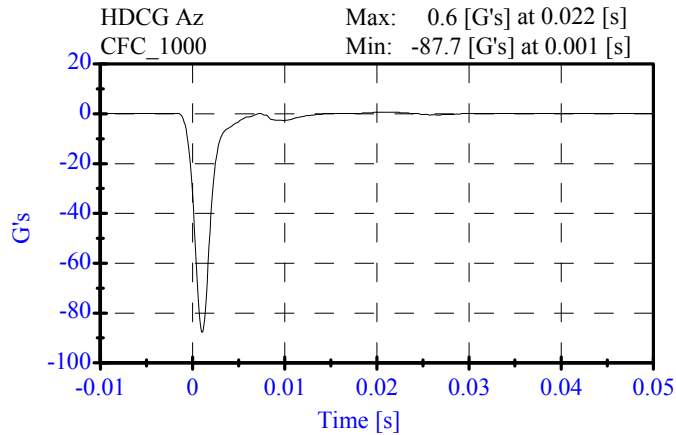
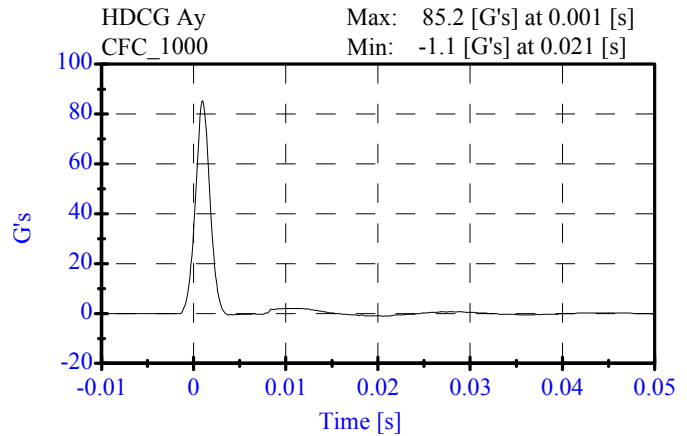
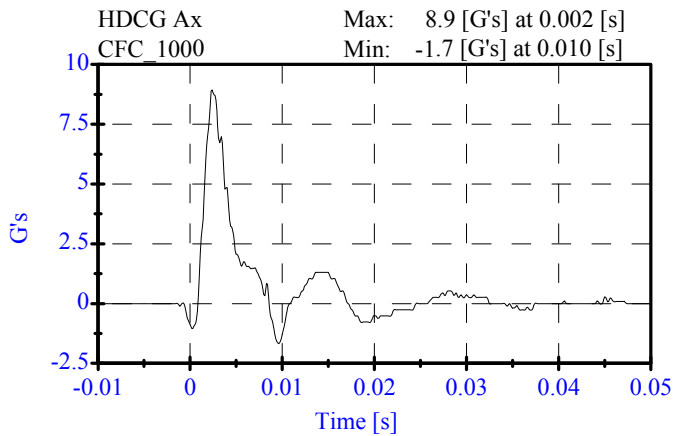
Head Drop POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 08-28-05

Sequential Test Number: 1 File: 906H1 08-26-05
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 %	39.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	122.30 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	8.93 Gs	Passed
Curve PerCent NonModal:	< 15%	3.07 %	Passed



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

ATD Serial No: 906

Date: 08-29-05

Sequential Test Number: 1 File: 906N 08-29-05

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	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.03 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.27 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.24 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.62 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.24 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	82.43 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	7.30 ms	Passed

Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

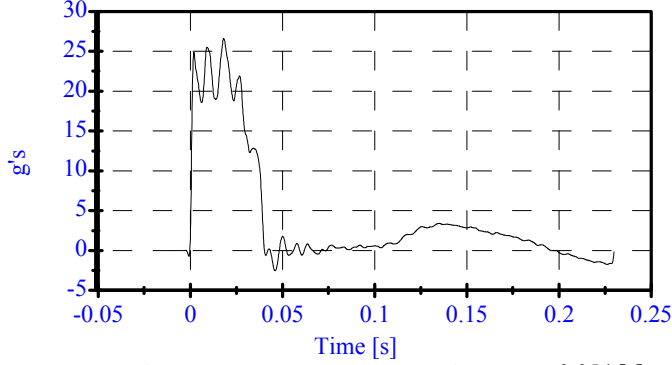
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Date: 08-29-05

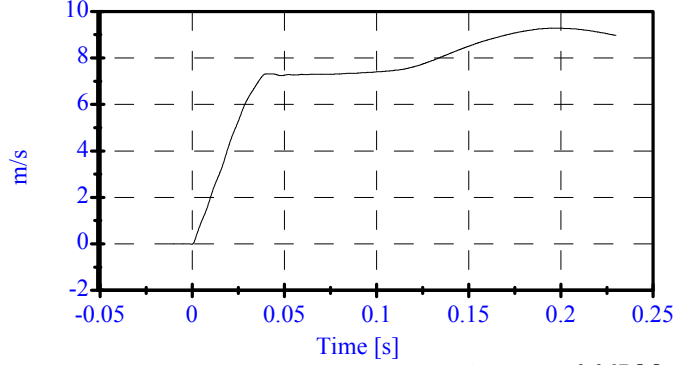
Sequential Test Number: 1 File: 906N 08-29-05

Laboratory Technician: B. Swiecicki

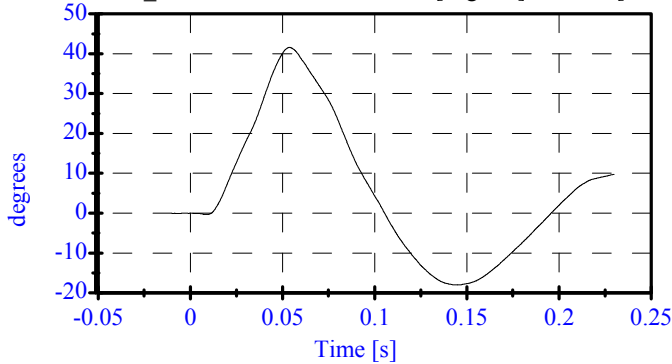
Pend Ax
CFC_180
Max: 26.6 [g's] at 0.018 [s]
Min: -2.5 [g's] at 0.046 [s]



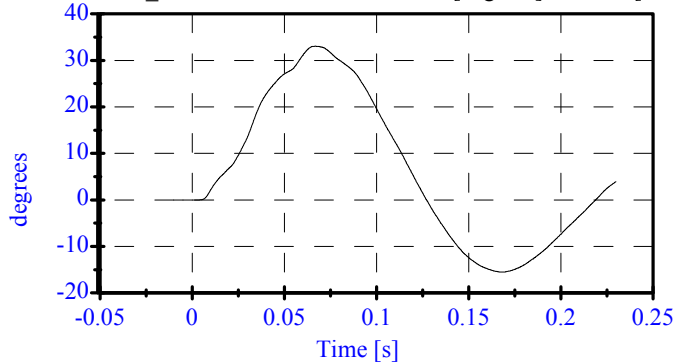
Pend Vx
CFC_180
Max: 9.3 [m/s] at 0.196 [s]
Min: -0.0 [m/s] at -0.000 [s]



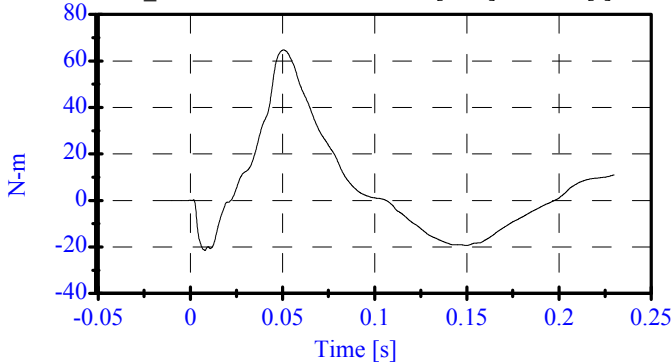
Head Rot
CFC_180
Max: 41.6 [degrees] at 0.054 [s]
Min: -18.0 [degrees] at 0.145 [s]



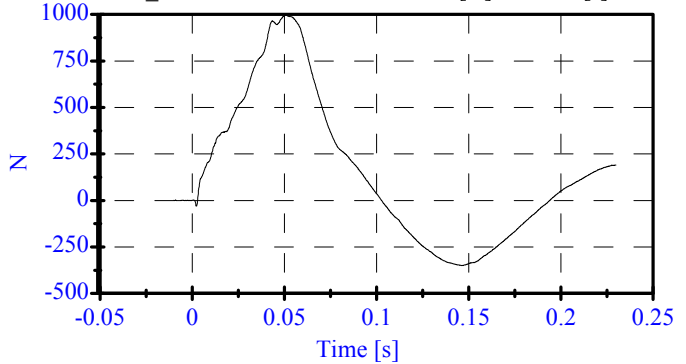
Arm Rot
CFC_180
Max: 33.1 [degrees] at 0.067 [s]
Min: -15.5 [degrees] at 0.168 [s]



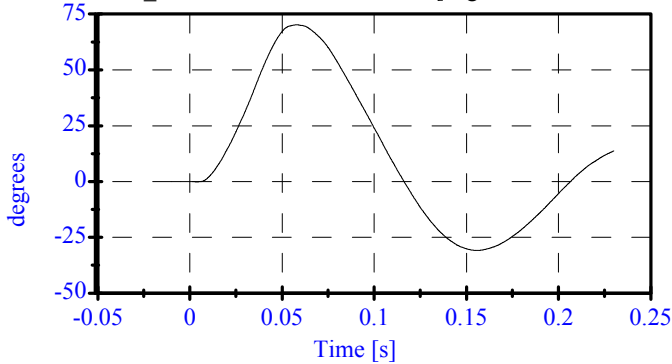
Neck Mx
CFC_600
Max: 64.7 [N-m] at 0.051 [s]
Min: -21.5 [N-m] at 0.008 [s]



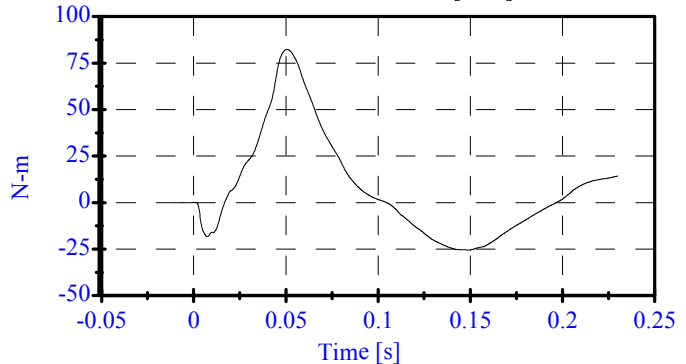
Neck Fy
CFC_1000
Max: 996.0 [N] at 0.051 [s]
Min: -350.0 [N] at 0.146 [s]



Tot Rot
CFC_180
Max: 70.2 [degrees] at 0.058 [s]
Min: -30.8 [degrees] at 0.156 [s]



MOCX
Max: 82.4 [N-m] at 0.051 [s]
Min: -25.4 [N-m] at 0.149 [s]



Abdomen Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

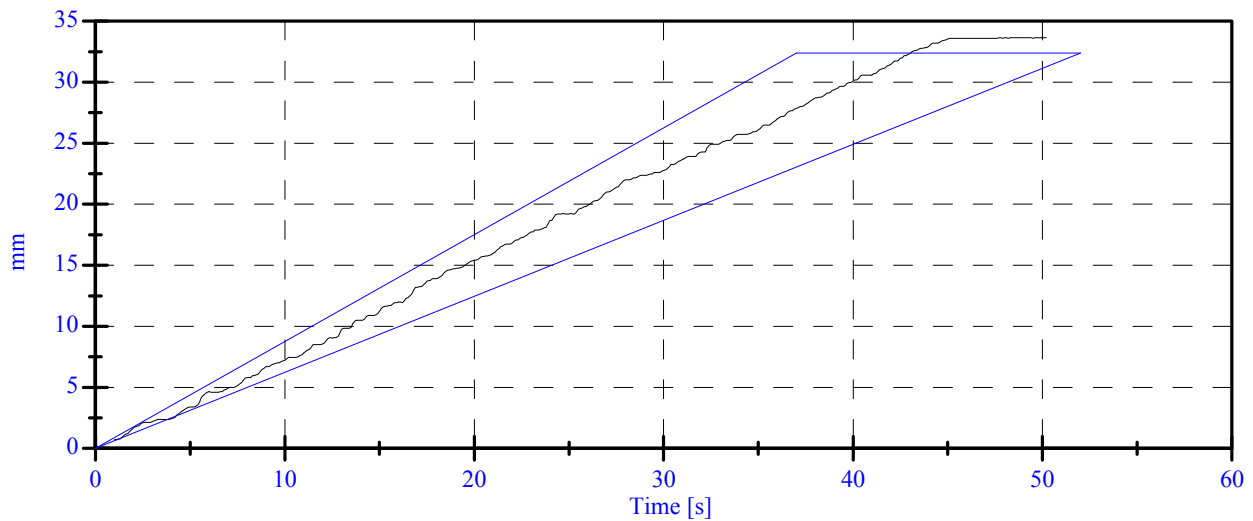
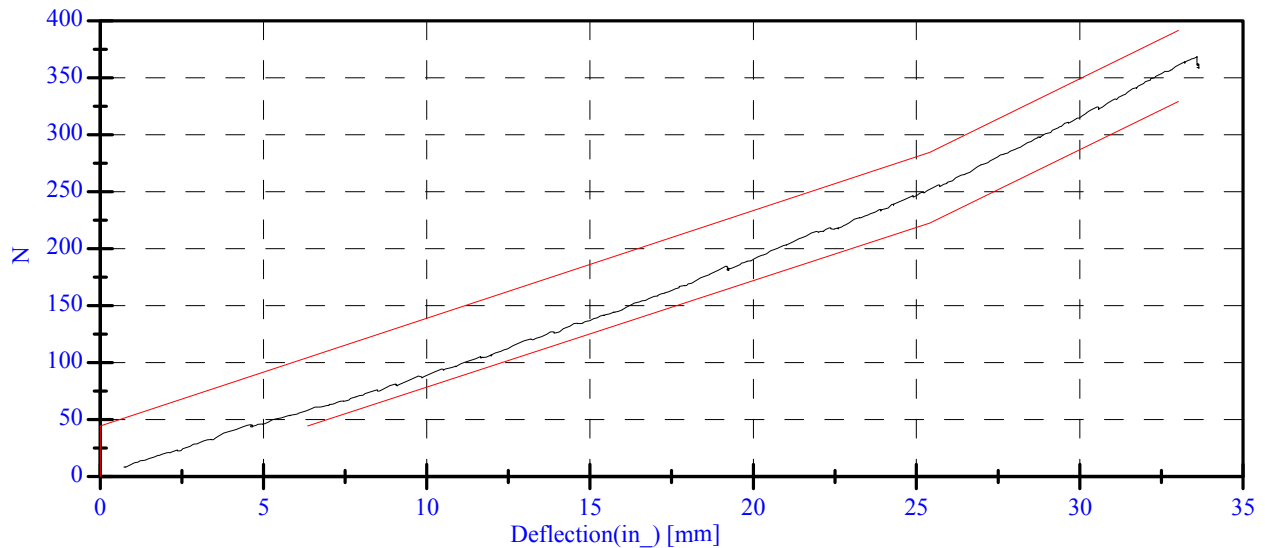
Date: 08-31-05

Sequential Test Number: 1 File: 906ab 08-31-05

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	118.97 N	Passed
Force at 19.05 mm :	162.98-220.99 N	184.58 N	Passed
Force at 25.40 mm :	221.97-280.02 N	251.27 N	Passed
Force at 33.02 mm :	324.99-391.00 N	362.56 N	Passed

ABDOMINAL COMPRESSION TEST



Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

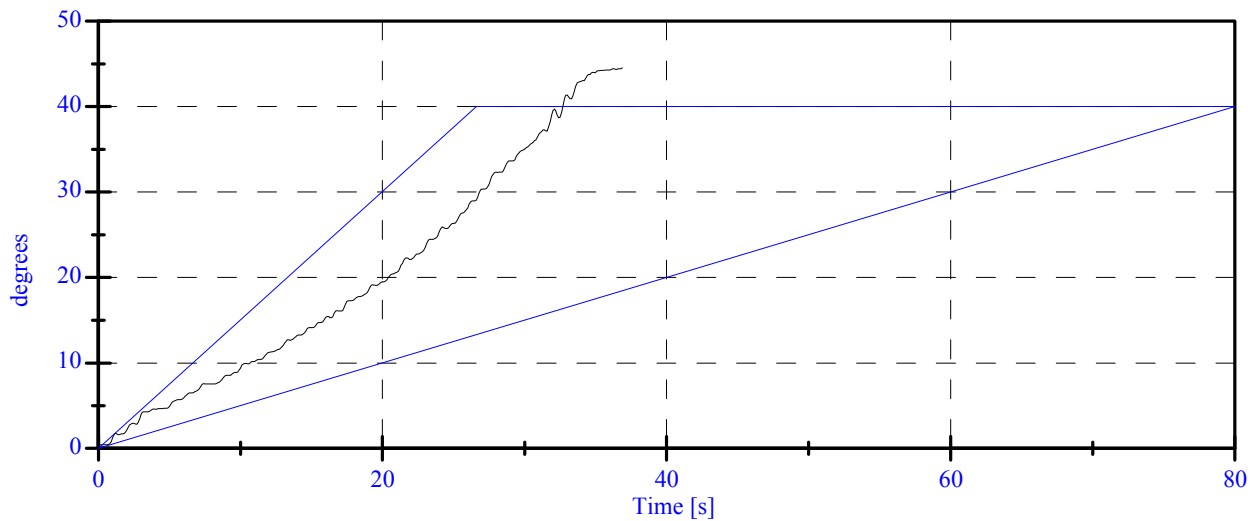
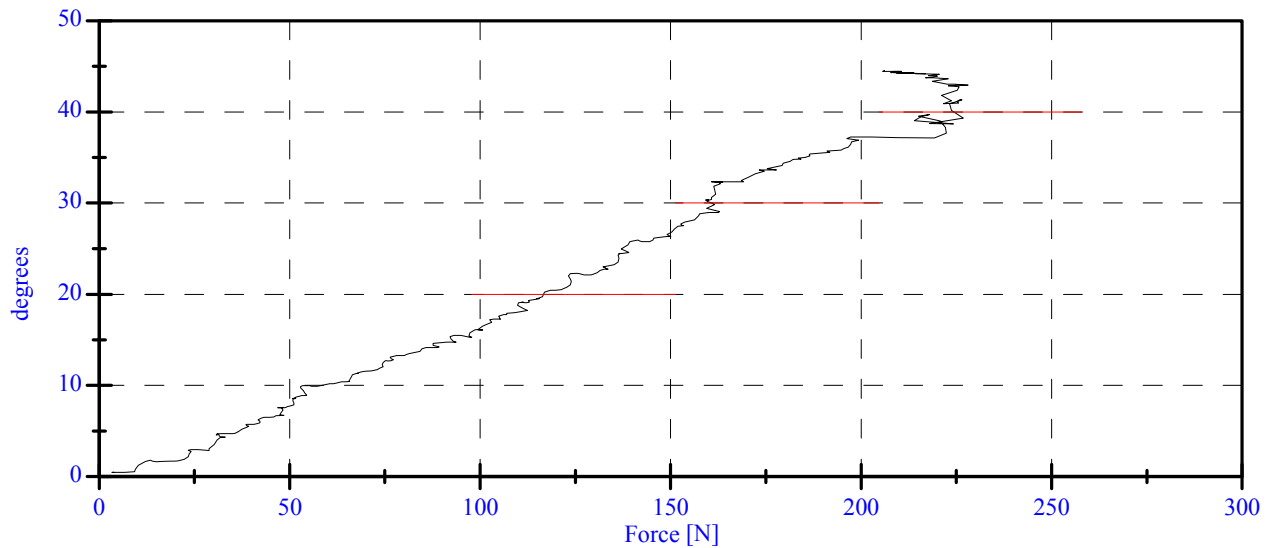
Date: 08-31-05

Sequential Test Number: 1 File: 906S 08-31-05

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	3.27 N	Passed
Force at 20 Deg:	97.86-151.24 N	116.61 N	Passed
Force at 30 Deg	151.24-204.62 N	161.53 N	Passed
Force at 40 Deg	204.62-258.00 N	223.68 N	Passed
Return Angle	12 Deg Max	4.44 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

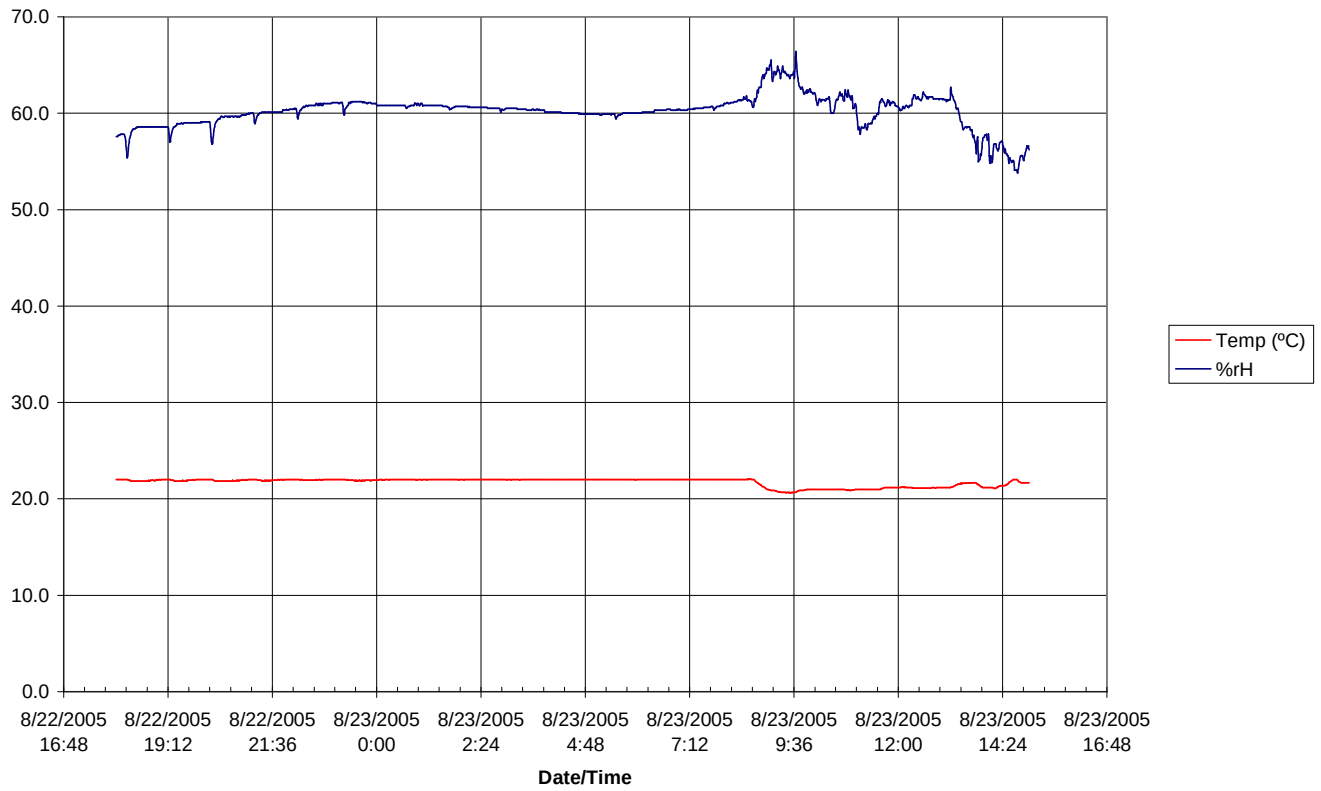
SID H3 Serial No.: 906 Sequential Test Number: 1
Date: 08/31/2005 Laboratory Technician: B. Swiecicki

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

Hyundai Sonata M50607 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-P19212	ENDEVCO	7/15/2005
HEAD AY	AC-P35812	ENDEVCO	7/15/2005
HEAD AZ	AC-P18739	ENDEVCO	7/15/2005
UPPER NECK FX	LC-1626FX	DENTON	6/25/2005
UPPER NECK FY	LC-1626FY	DENTON	6/25/2005
UPPER NECK FZ	LC-1626FZ	DENTON	6/25/2005
UPPER NECK MX	LC-1626MX	DENTON	6/25/2005
UPPER NECK MY	LC-1626MY	DENTON	6/25/2005
UPPER NECK MZ	LC-1626MZ	DENTON	6/25/2005
UPPER RIB	AC-04J04I01-R02	ENTRAN	7/14/2005
LOWER RIB	AC-J19868	ENDEVCO	7/13/2005
LOWER SPINE	AC-03E03E20-N16	ENTRAN	7/15/2005
PELVIS	AC-04J04I20-Z11	ENTRAN	7/14/2005
UPPER RIB REDUNDANT	AC-J19868	ENDEVCO	7/13/2005
LOWER RIB REDUNDANT	AC-03E03E20-N16	ENTRAN	7/15/2005
LOWER SPINE REDUNDANT	AC-04J04I20-Z11	ENTRAN	7/14/2005
PELVIS REDUNDANT	AC-03F03F09-N10	ENTRAN	7/15/2005

	REAR SID/HIII NO.: 906		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P22943	ENDEVCO	7/18/2005
HEAD AY	AC-P17236	ENDEVCO	7/11/2005
HEAD AZ	AC-P16597	ENDEVCO	7/11/2005
UPPER NECK FX	LC-135FX	DENTON	5/31/2005
UPPER NECK FY	LC-135FY	DENTON	5/31/2005
UPPER NECK FZ	LC-135FZ	DENTON	5/31/2005
UPPER NECK MX	LC-135MX	DENTON	5/31/2005
UPPER NECK MY	LC-135MY	DENTON	5/31/2005
UPPER NECK MZ	LC-135MZ	DENTON	5/31/2005
UPPER RIB	AC-P16616	ENDEVCO	7/18/2005
LOWER RIB	AC-AJ7F7	ENDEVCO	7/14/2005
LOWER SPINE	AC-J18736	ENDEVCO	7/15/2005
PELVIS	AC-ACCT1	ENDEVCO	7/14/2005
UPPER RIB REDUNDANT	AC-AJ7F7	ENDEVCO	7/14/2005
LOWER RIB REDUNDANT	AC-J18736	ENDEVCO	7/15/2005
LOWER SPINE REDUNDANT	AC-ACCT1	ENDEVCO	7/14/2005
PELVIS REDUNDANT	AC-J27072	ENDEVCO	7/14/2005

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-J32838	ENDEVCO	7/18/2005
RIGHT FRONT SILL (Y)	AC-J32143	ENDEVCO	7/18/2005
RIGHT FRONT SILL (Z)	AC-P23358	ENDEVCO	7/18/2005
RIGHT REAR SILL (X)	AC-J30491	ENDEVCO	7/18/2005
RIGHT REAR SILL (Y)	AC-J33071	ENDEVCO	7/18/2005
RIGHT REAR SILL (Z)	AC-J31011	ENDEVCO	7/18/2005
REAR FLOORPAN ABOVE AXLE (X)	AC-P23976	ENDEVCO	7/18/2005
REAR FLOORPAN ABOVE AXLE (Y)	AC-P18628	ENDEVCO	7/18/2005
REAR FLOORPAN ABOVE AXLE (Z)	AC-P18545	ENDEVCO	7/18/2005
LEFT REAR SILL (Y)	AC-P19217	ENDEVCO	7/18/2005
LEFT FRONT SILL (Y)	AC-P19374	ENDEVCO	6/20/2005
LEFT FRONT DOOR CENTERLINE (Y)	AC-P23136	ENDEVCO	7/18/2005
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-9440-039	GS SENSORS	2/28/2005
MID REAR OF LEFT FRONT DOOR (Y)	AC-P32224	ENDEVCO	4/14/2005
LEFT FRONT DOOR UPPER C/L (Y)	AC-P35789	ENDEVCO	7/18/2005
MID REAR OF LEFT REAR DOOR (Y)	AC-P32204	ENDEVCO	4/14/2005
LEFT REAR DOOR UPPER C/L (Y)	AC-P16628	ENDEVCO	4/14/2005
LOWER LEFT B- PILLAR (Y)	AC-P19253	ENDEVCO	7/8/2005
MIDDLE LEFT B-PILLAR (Y)	AC-P13323	ENDEVCO	7/14/2005
LOWER LEFT A-PILLAR (Y)	AC-P21399	ENDEVCO	7/18/2005
UPPER LEFT A-PILLAR (Y)	AC-P18718	ENDEVCO	7/18/2005
FRONT SEAT TRACK (Y)	AC-P23155	ENDEVCO	7/19/2005
REAR SEAT TRACK (Y)	AC-P18728	ENDEVCO	7/19/2005
VEHICLE CG (X)	AC-P23161	ENDEVCO	7/18/2005
VEHICLE CG (Y)	AC-P19111	ENDEVCO	7/18/2005
VEHICLE CG (Z)	AC-P24011	ENDEVCO	7/18/2005
MDB CG (X)	AC-C16433	ENDEVCO	3/31/2005
MDB CG (Y)	AC-C16416	ENDEVCO	3/31/2005
MDB CG (Z)	AC-C16499	ENDEVCO	3/31/2005
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	3/31/2005
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	3/31/2005

REMARKS: None