

REPORT NUMBER: SNCAP-CAL-10-5

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**MITSUBISHI MOTORS CORPORATION
2010 MITSUBISHI OUTLANDER 2.4 ES
4-DOOR SUV**

NHTSA NUMBER: MA5601

**PREPARED BY:
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Test Date: January 21, 2010

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE SE, ROOM W43-410
WASHINGTON, D.C. 20590**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-09-D-00126.

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Date: February 16, 2010

Technical Report Documentation Page

1. Report No. SNCAP-CAL-10-5	2. Government Accession No.	3. Recipient's Catalog No.																						
4. Title and Subtitle Final Report of New Car Assessment Program 2010 Mitsubishi Outlander 2.4 ES 4-Door SUV NHTSA No.: MA5601		5. Report Date January 21, 2010																						
		6. Performing Organization Code CAL																						
7. Author(s) Vincent M. Paolini, Project Engineer		8. Performing Organization Report No. tr2429																						
9. Performing Organization Name and Address Calspan Corporation Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225		10. Work Unit No.																						
		11. Contract or Grant No. DTNH22-09-D-00126																						
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Rulemaking, Office of Crashworthiness Standards Mail Code: NVS-111 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		13. Type of Report and Period Covered: <i>Final Report</i> January 2010																						
		14. Sponsoring Agency Code NVS-111																						
15. Supplementary Notes																								
16. Abstract A 55/28 kph 90° Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2010 Mitsubishi Outlander 2.4 ES 4-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on January 21, 2010. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck side (driver side) of the vehicle was 21.7°C. The target vehicle's maximum post test static crush was 208 mm at level 3. 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;">23.62</td> <td style="text-align: center;">36.80</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">29.61</td> <td style="text-align: center;">38.51</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">25.26</td> <td style="text-align: center;">43.14</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">27</td> <td style="text-align: center;">41</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">39</td> <td style="text-align: center;">51</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">104.2 §</td> <td style="text-align: center;">445.6</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event. § The Primary Head Z accelerometer contained invalid data thus the HIC calculation was found by the Resultant of the Primary Head X and Y accelerometer and the Redundant Head Z accelerometer.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	23.62	36.80	Left Lower Rib (LLR) Accel., g	29.61	38.51	Lower Spine (T ₁₂) Accel., g	25.26	43.14	Thoracic Trauma Index (TTI)	27	41	Pelvis (PEV) Accel., g	39	51	HIC	104.2 §	445.6
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17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave. SE Washington, D.C. 20590																						
19. Security Class. (of this report) Unclassified	20. Security Class. (of this page) Unclassified	21. No. of Pages 121	22. Price																					

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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2010 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00126. The purpose of this test was to evaluate side impact protection in a 2010 Mitsubishi Outlander 2.4 ES 4-Door SUV manufactured by Mitubishi Motors Corporation. The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A model year 2010 Mitsubishi Outlander 2.4 ES 4-Door SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.1 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 1715.5 kg and the test weight of the MDB was 1362.5 kg. The test was conducted at the Calspan Corporation Transportation Sciences Center on January 21, 2010.

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/HIIIs) 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 November 2002. Each SID/HIII was instrumented in the following locations:

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

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

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 208 mm at level 3, 750 mm rearward of the left vertical impact point. The driver and passenger SID/HIII's, Serial Nos. 905 and 906 respectively, were calibrated just prior to this test.

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

The occupant data is summarized below:

ATD position	HIC(36)	T ₁	T ₂	TTI (G's)	Peak Pelvis (G's)
Driver	104.2 §	42.7	78.7	27	39
Passenger	445.6	50.5	60.0	41	51

§ The Primary Head Z accelerometer contained invalid data thus the HIC calculation was found by the Resultant of the Primary Head X and Y accelerometer and the Redundant Head Z accelerometer.

SUPPLEMENTAL RESTRAINT INFORMATION

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

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

DATA SHEET NO. 1**GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

TEST VEHICLE INFORMATION AND VEHICLE OPTIONS

Make	Mitusbishi Motors Corporation	Driver Front Airbag	Yes
Model	Outlander 2.4 ES	Driver Side Curtain Airbag	Yes
Body Style	4-Door SUV	Driver Side Torso Airbag	Yes
NHTSA No.	MA5601	Driver Pretensioners	Yes
VIN	JA4AS2AW5AZ001326	Driver Load Limiters	Yes
Color	Silver	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	Automatic	Rear Pass. Load Limiters	No
Transmission Speeds	CVT	Rear Pass. Power Seats	No
Final Drive	Front	Tilt Wheel	Yes
Air Conditioning	Yes	Anti-lock Brakes	Yes
Power Steering	Yes	Traction Control	Yes
Power Brakes	Yes	Power Windows	Yes
Delivery Date	12/18/09	Power Door Locks	Yes
Odometer Reading (km)	58	Automatic Door Locks (ADL)	No
Dealer	Brandon Mitsubishi Tampa, FL	Owner's Manual Details Instructions on Disabling ADLs	NA

DATA FROM CERTIFICATION LABEL

Manufactured By	Mitusbishi Motors Corporation	GVWR (kg)	2070
Date of Manufacture	10/09	GAWR Front (kg)	1090
		GAWR Rear (kg)	1050

VEHICLE CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				375.0
Cargo Wt. (RCLW) (kg)				34.8

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

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

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	433.5	339.5		479.0	435.0		473.0	429.5	
Right	kg	431.0	322.0		439.0	373.0		431.0	382.0	
Ratio	%	56.7	43.3		53.2	46.8		52.7	47.3	
Totals	kg	864.5	661.5	1526.0	918.0	808.0	1726.0	904.0	811.5	1715.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1526.0
Weight of 2 P572E ATDs (81.2 kg each)	kg	162.4
Rated Cargo/Luggage Weight (RCLW)	kg	34.8
Calculated Vehicle Target Weight (TVTW)	kg	1723.2

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

Weight of Ballast (including instrumentation package and cameras): 27.1 kg

TEST VEHICLE ATTITUDES

	Units	LF	RF	LR	RR
As Delivered	mm	807	812	790	794
Fully Loaded	mm	793	807	761	774
As Tested	mm	797	809	760	774

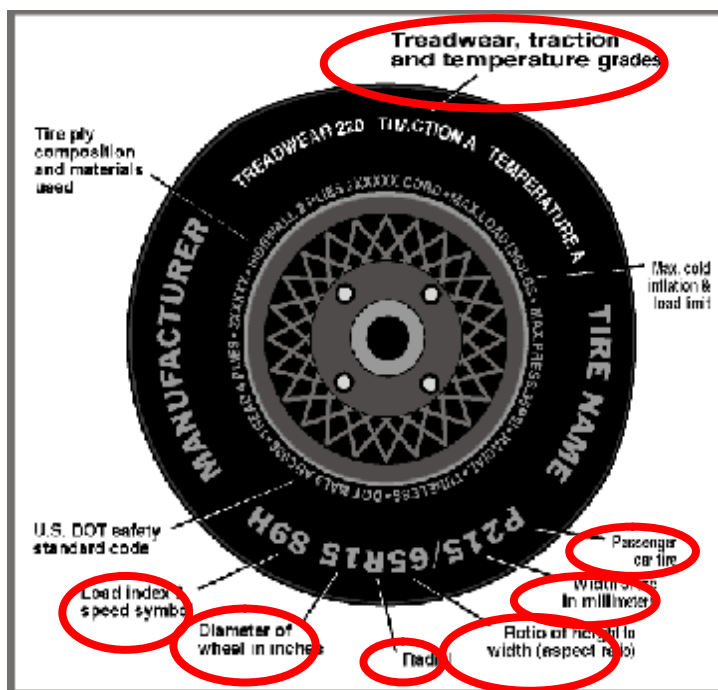
TEST VEHICLE VERTICAL IMPACT LINE AND CG

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2671
Target Impact Point Aft of Front Axle	mm	396
Actual Impact Point Aft of Front Axle	mm	400
As Tested CG (aft of front axle)	mm	1263

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P215/70R16	P215/70R16
Tire Size on Vehicle	P215/70R16 99H	P215/70R16 99H
Tire Manufacturer	Yokohama	Yokohama
Tire Name	Geolander G033	Geolander G033
Tire Type	Passenger	Passenger
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	70	70
Radial	Yes	Yes
Wheel Diameter	16	16
Load Index & Speed Symbol	99H	99H
Treadwear	200	200
Traction Grade	B	B
Temperature Grade	A	A

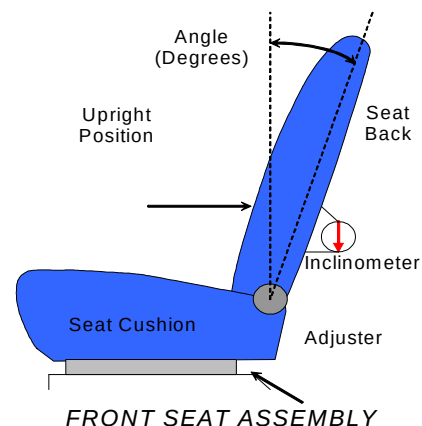
DATA SHEET NO. 3

TEST VEHICLE INFORMATION

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

NORMAL DESIGN RIDING POSITION

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

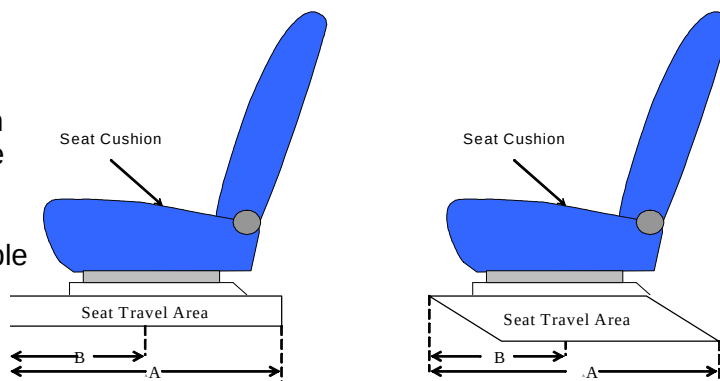


SEAT BACK POSITION

	Driver Seat	Rear Seat
Test Detent (forward-most detent defined as 0)	4	4
Angle (deg. from forward-most locking position)	-1.1	12.7
Alternative Measurements to Verify Test Position	Measurement angle was from head restraint post	Measurement angle was from head restraint post

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)	260	Not Applicable
Test Position (B) (mm)	137	Not Applicable
Test Detent (forward-most detent defined as 0)	9	Not Applicable
Total Number of Detents (including 0)	22	Not Applicable

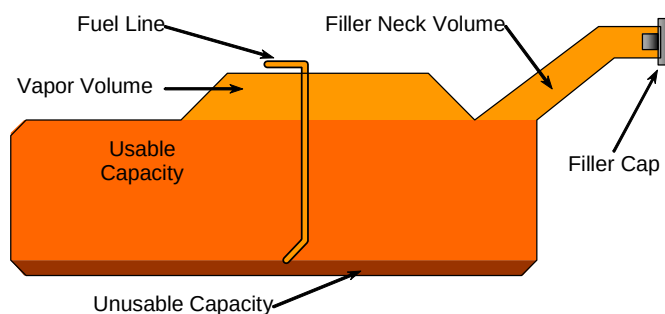
DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

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.



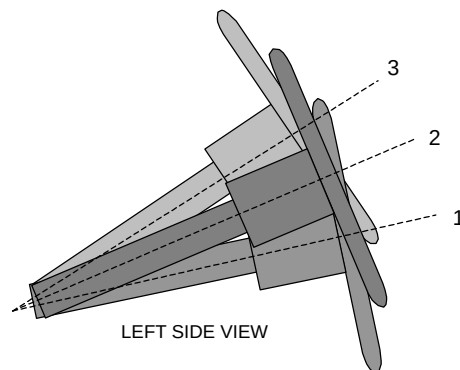
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard" Fuel Tank	62.8
Usable Capacity of "Optional" Fuel Tank	N/A
Stoddard Used For Test (92%-94% of Fuel Tank Usable Capacity)	58.4

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	N/A	23.3	N/A
Geometric Center Position No. 2 *	N/A	25.9	N/A
Uppermost Position No. 3	N/A	28.5	N/A

* Test position

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

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

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	62.1
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.1
Impact angle with respect to impactor	°	88.5° to 91.5°	89.5

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

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	4 mm rearward
Vertical Offset	mm	+/-20	5 mm above

DATA SHEET NO. 5**POST TEST OBSERVATIONS**

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

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 of Head – Side Curtain Airbag	Side of Head – Side Curtain Airbag
Upper Torso Contact	Seat Torso Airbag	Rear Left Door
Lower Torso Contact	Seat Torso Airbag	Rear Left Door - Armrest
Left Knee Contact	No Contact	Rear Left Door
Right Knee Contact	No Contact	No Contact

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. Jammed shut	Door remained closed and latched. Jammed shut
Right Side Door Opening	Door remained closed and latched; Door opened without tools	Door remained closed and latched; Door opened without tools
Seat Movement	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	None
Window Damage	Front and Rear left side windows shattered
Other Notable Effects	None

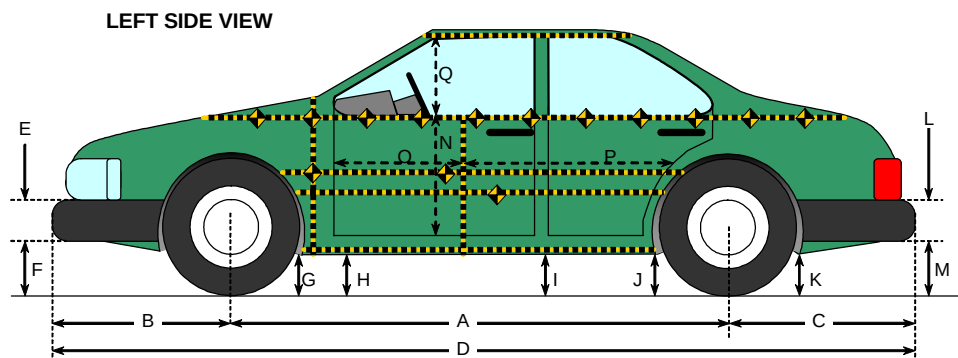
SUPPLEMENTAL RESTRAINT INFORMATION

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

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



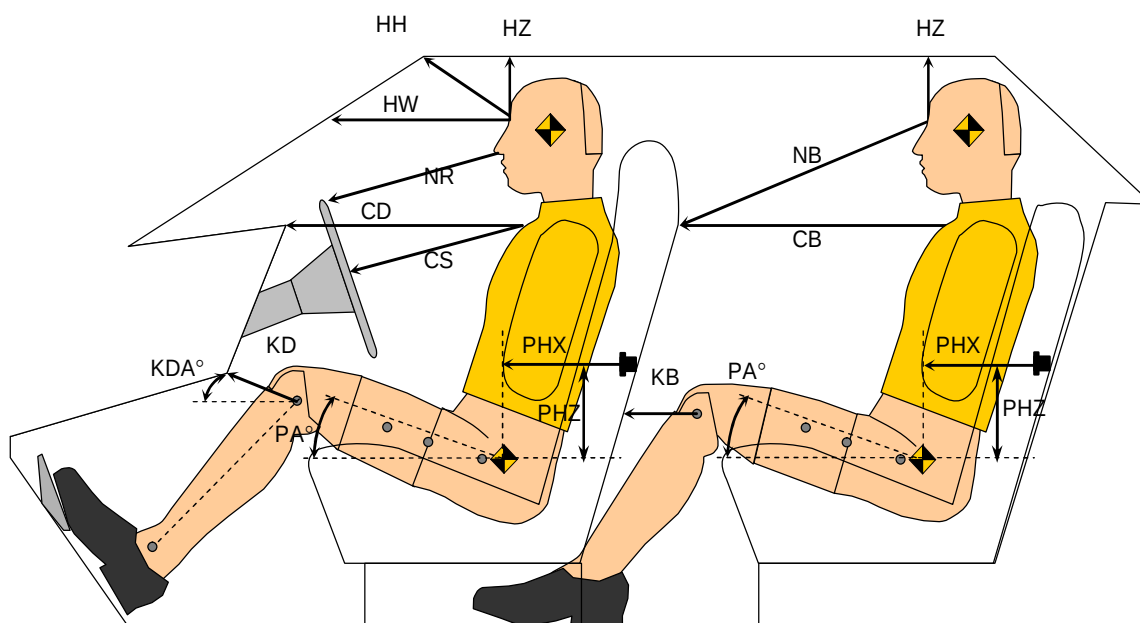
All Measurements in mm

Code	Measurement Description	Pre-Test (delivered)	Pre-Test (as tested)	Post-Test (as tested)	Difference
A	Wheelbase	2671	2671	2688	-17
B	Front Axle to FSOV	986	986	967	19
C	Rear Axle to RSOV	1013	1013	1013	0
D	Total Length at Centerline	4670	4670	4669	1
E	Front Bumper Thickness	140	140	140	0
F	Front Bumper Bottom to Ground	599	597	599	-2
G	Sill Height at Front Wheel Well	286	270	266	4
H	Sill Height at Front Door Leading Edge	287	269	271	-2
I	Sill Height at "B" Pillar	296	274	291	-17
J1	Sill Height at Rear Wheel Well	269	244	253	-9
J2	Pinch Weld Height at Rear Wheel Well	300	275	286	-11
K	Sill Height Aft of Rear Wheel Well	327	296	312	-16
L	Rear Bumper Thickness	168	168	168	0
M	Rear Bumper Bottom to Ground	573	546	563	-17
N	Sill Height to Window Bottom Sill	741	741	688	53
O	Front Door Leading Edge to Impact CL	748	748	730	18
P	Rear Door Trailing Edge to Impact CL	1224	1224	1181	43
Q	Front Window Opening	446	446	457	-11
R	Right Side Length	4533	4533	4532	1
S	Left Side Length	4533	4533	4529	4
T	Vehicle Width at "B" Post	1769	1769	1617	152

DATA SHEET NO. 7

SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

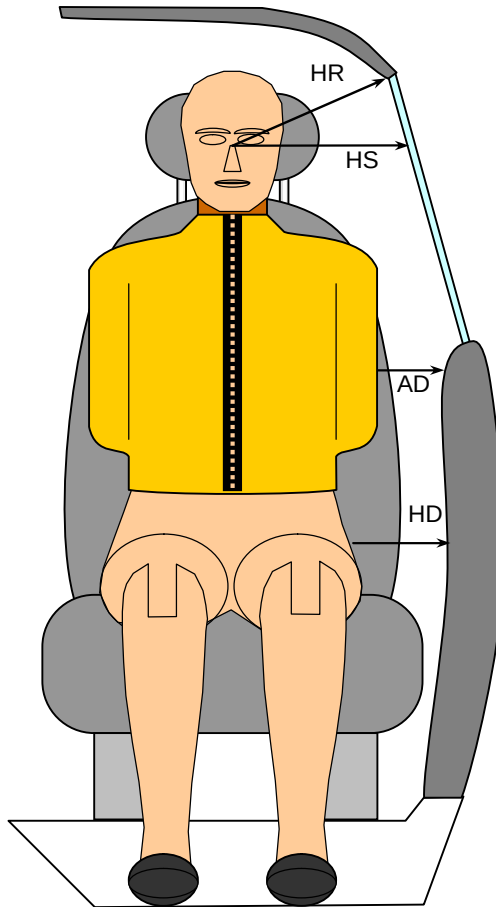


Driver Code	Pass. Code	Measurement Description	Driver S/N 905		Passenger S/N 906	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	436			
HW		Head to Windshield	693			
HZ	HZ	Head to Roof	205		165	
NR	NB	Nose to Rim/Nose to Seatback	448		727	
CD	CB	Chest to Dash or Seatback	603		636	
CS		Chest to Steering Wheel	291			
KDL	KBL	Left Knee to Dash or Seatback	123	24	258	21
KDR	KBR	Right Knee to Dash or Seatback	125	23	249	20
PA	PA	Pelvic Angle		24.6		24.5
PHX	PHX	H-Point to Striker (X-Axis)	251		218	
PHZ	PHZ	H-Point to Striker (Z-Axis)	123		151	

DATA SHEET NO. 8

SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



FRONT VIEW OF DUMMY

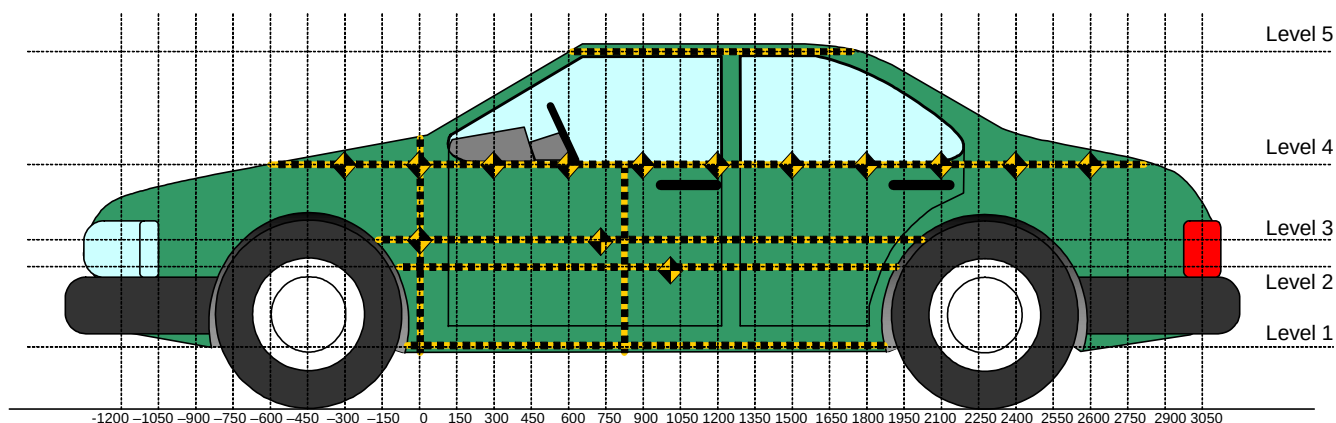
Code	Measurement Description	Units	Driver S/N 905	Passenger S/N 906
HR	Head to Side Header	mm	225	185
HS	Head to Side Window	mm	350	152 *
AD ₁	Arm to Door (at upper rib level)	mm	119	125
AD ₂	Arm to Door (at lower rib level)	mm	129	109
HD	H-Point to Door	mm	119	132

* The measurement was to the C-pillar

DATA SHEET NO. 9

VEHICLE SIDE MEASUREMENTS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



All Measurements Shown in mm

LEFT SIDE VIEW

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

Level	Measurement Description	Maximum Exterior Static Crush	Height Above Ground	Distance From Impact
1	Sill Top	9	305	150
2	Occupant H-Point	198	647	1500
3	Mid Door	208	732	750
4	Window Sill	105	992	1500
5	Window	4	1590	1200
	Maximum Penetration	208		

DATA SHEET NO. 10

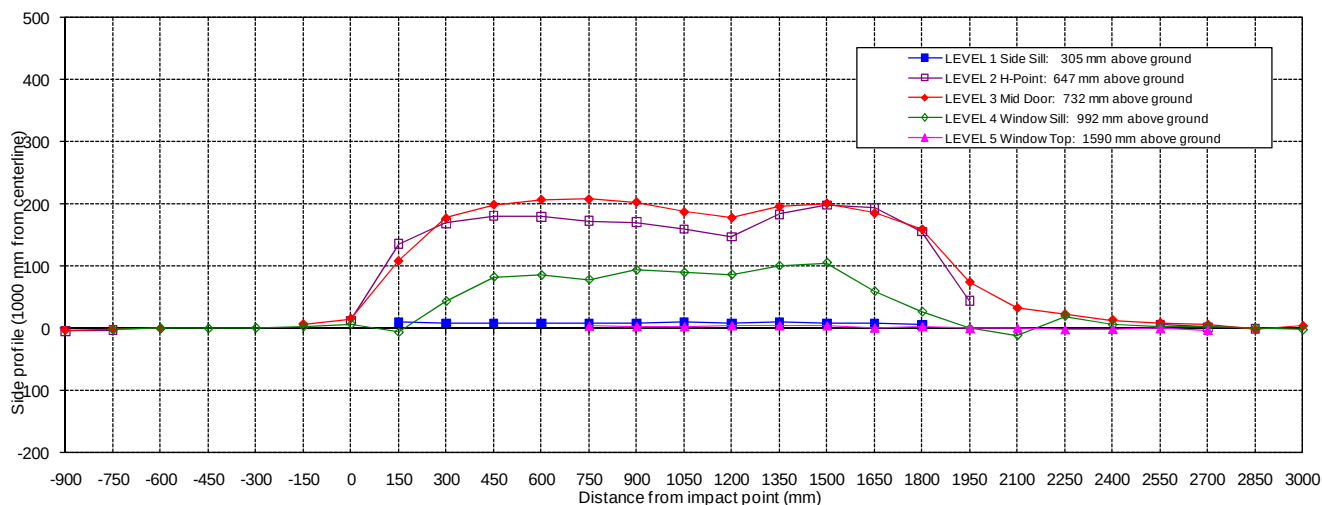
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2010 Mitsubishi Outlander 2.4 ES

NHTSA No. MA5601

Test Program: NCAP Side Impact

Test Date: January 21, 2010

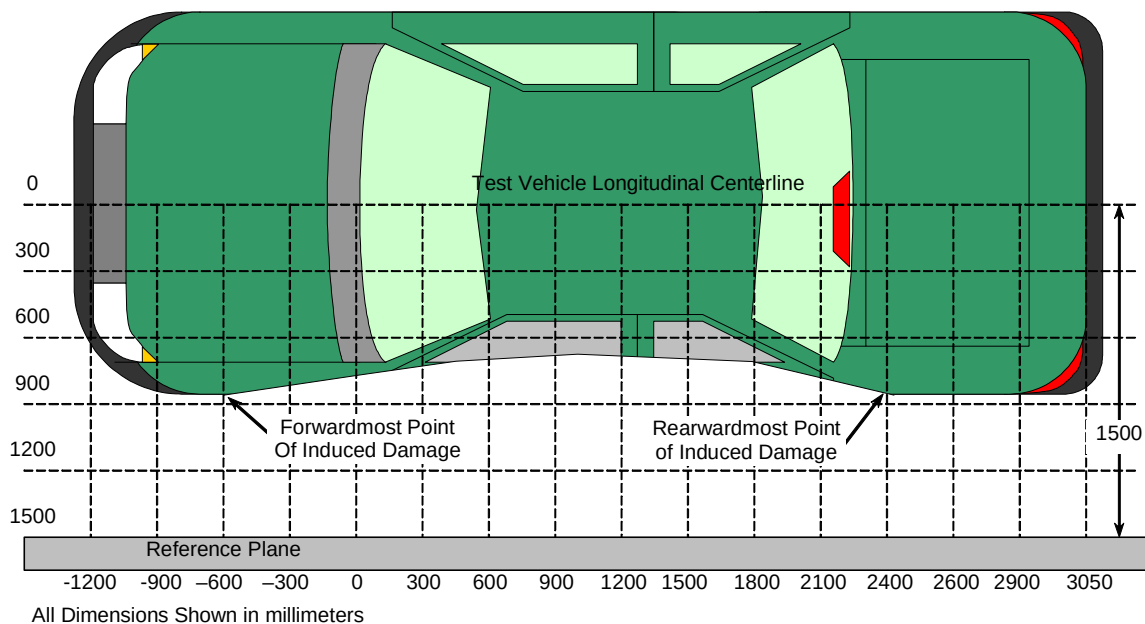


		NOTE: All dimensions are in millimeters with a tolerance of ±3 mm																											
		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000
LEVEL 1	305	PRE	--	--	--	--	--	--	--	155	156	155	153	152	151	150	153	154	157	162	167	--	--	--	--	--	--	--	--
SIDE		POST	--	--	--	--	--	--	--	164	164	163	161	159	159	159	160	163	165	169	172	--	--	--	--	--	--	--	
SILL		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9	8	8	8	7	8	9	7	9	8	7	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2	647	PRE	132	109	--	--	--	--	105	128	125	123	122	121	121	122	125	127	130	126	108	--	--	--	--	107	137	162	--
H		POST	127	105	--	--	--	--	117	263	294	303	301	293	291	281	272	308	325	323	281	151	--	--	--	113	138	161	--
POINT		CRUSH	-5	-4	N/A	N/A	N/A	N/A	12	135	169	180	179	172	170	159	147	183	198	193	155	43	N/A	N/A	N/A	6	1	-1	N/A
LEVEL 3	732	PRE	156	112	98	--	--	100	110	122	119	117	116	115	115	116	117	119	121	124	127	109	100	100	100	110	155	177	194
MID		POST	152	110	97	--	--	106	125	230	296	316	323	323	318	303	295	315	322	309	286	183	132	122	113	118	160	174	197
DOOR		CRUSH	-4	-2	-1	N/A	N/A	6	15	108	177	199	207	208	203	187	178	196	201	185	159	74	32	22	13	8	5	-3	3
LEVEL 4	992	PRE	--	214	189	177	169	164	159	156	151	147	143	139	137	151	134	135	136	139	140	134	147	153	161	168	178	193	221
WINDOW		POST	--	211	188	176	169	166	165	149	194	229	228	217	230	240	220	235	241	198	166	133	135	172	166	170	180	193	218
SILL		CRUSH	N/A	-3	-1	-1	0	2	6	-7	43	82	85	78	93	89	86	100	105	59	26	-1	-12	19	5	2	2	0	-3
LEVEL 5	1590	PRE	--	--	--	--	--	--	--	--	--	--	--	591	390	375	372	370	370	373	377	383	389	401	417	448	556	--	--
WINDOW		POST	--	--	--	--	--	--	--	--	--	--	--	594	392	377	376	374	374		379	382	389	398	415	447	552	--	--
TOP		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	2	2	4	4	4	0	2	-1	0	-3	-2	-1	-4	N/A	N/A

DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



TOP VIEW

DAMAGE PROFILE DISTANCES

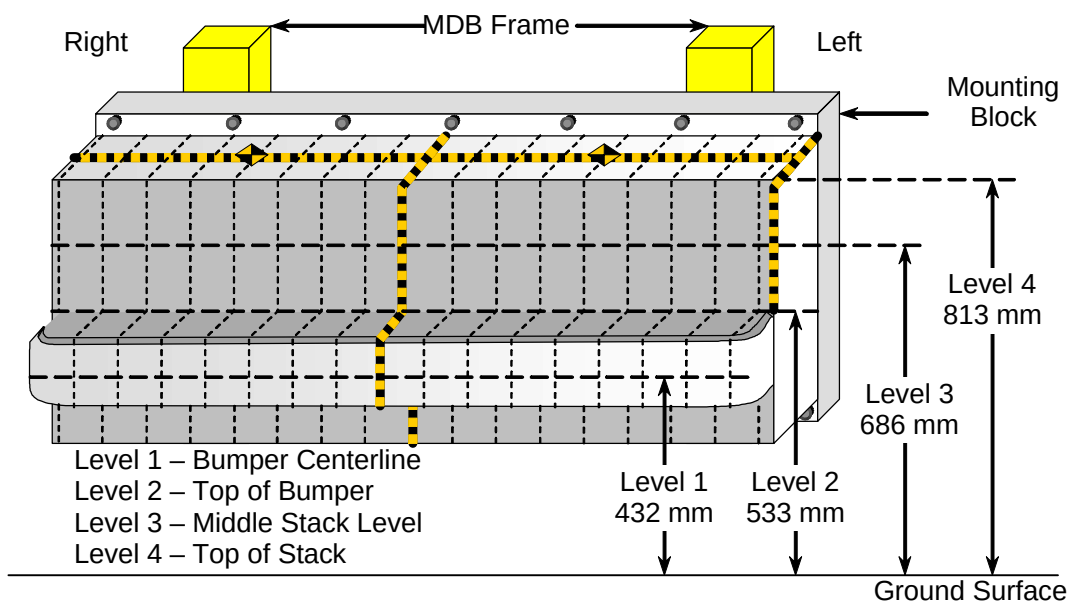
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1 (LR)	2550	3	110	118	8
2	2010	3	105	163	58
3	1470	3	121	321	200
4	930	3	115	315	200
5	390	3	118	308	190
6 (LF)	-150	3	100	106	6

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

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



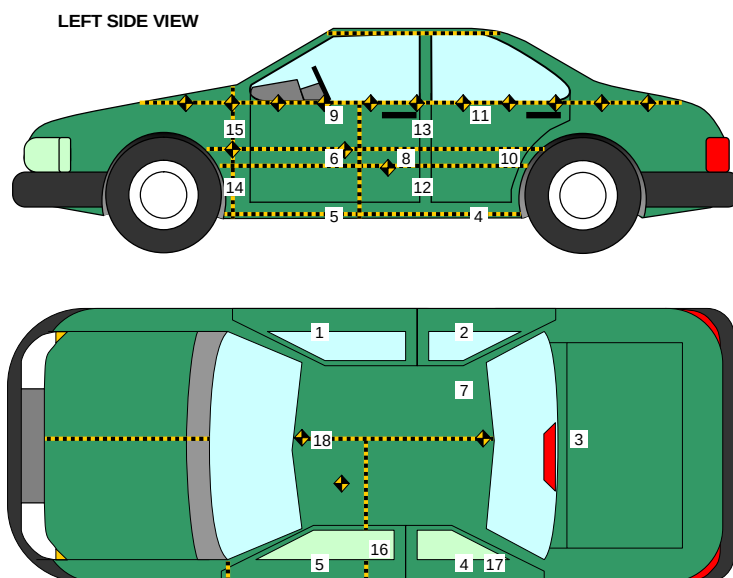
			NOTE: All dimensions are in millimeters with a tolerance of ±3 mm																	
				DISTANCE RIGHT OF CENTER (mm)									DISTANCE LEFT OF CENTER (mm)							
LEVEL	HEIGHT AT CL (mm)*		-800	-700	-600	-500	-400	-300	-200	-100	0	100	200	300	400	500	600	700	800	
LEVEL 4		PRE	411	412	412	412	412	412	413	413	413	413	413	413	413	413	413	413	412	
TOP	811	POST	288	312	320	326	317	299	310	340	349	353	355	349	340	332	313	292	244	
STACK		CRUSH	123	100	92	86	95	113	103	73	64	60	58	64	73	81	100	121	168	
LEVEL 3		PRE	411	411	412	412	412	412	412	412	413	412	412	412	412	412	412	412	412	
MID	682	POST	328	343	352	353	335	310	331	347	356	364	373	376	376	369	357	340	278	
LEVEL		CRUSH	83	68	60	59	77	102	81	65	57	48	39	36	36	43	55	72	134	
LEVEL 2		PRE	411	412	412	412	412	412	412	412	413	412	412	412	412	412	412	412	412	
TOP	542	POST	294	298	302	300	302	303	298	303	306	308	313	319	319	319	318	314	297	
BUMPER		CRUSH	117	114	110	112	110	109	114	109	107	104	99	93	93	93	94	98	115	
LEVEL 1		PRE	501	513	513	513	513	513	513	514	514	514	514	514	514	514	514	514	505	
MID	430	POST	272	288	292	295	296	297	300	303	305	308	308	309	312	314	314	310	296	
BUMPER		CRUSH	229	225	221	218	217	216	213	211	209	206	206	205	202	200	200	204	209	
*Heights measured above ground level.																				

*Heights measured above ground level.

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2722	649	362
2	Right Sill at Rear Seat	1866	643	371
3	Rear Floorpan Above Axle	1197	26	515
4	Left Sill at Rear Door	1872	-631	363
5	Left Sill at Front Door	2729	-644	371
6	Left Front Door C/L **	-	-	-
7	Rear Occupant Compartment	1944	448	267
8	Left Front Door Mid-Rear**	-	-	-
9	Left Front Door Upper C/L **	-	-	-
10	Left Rear Door Mid-Rear**	-	-	-
11	Left Rear Door Upper C/L **	-	-	-
12	Left Lower B-Post	2151	-664	457
13	Left Middle B-Post	2069	-678	1068
14	Left Lower A-Post	3136	-594	469
15	Left Middle A-Post	3104	-673	1125
16	Front Seat Track	2227	-550	479
17	Rear Seat Track or Structure	1132	-483	597
18	Vehicle CG	2513	-35	532

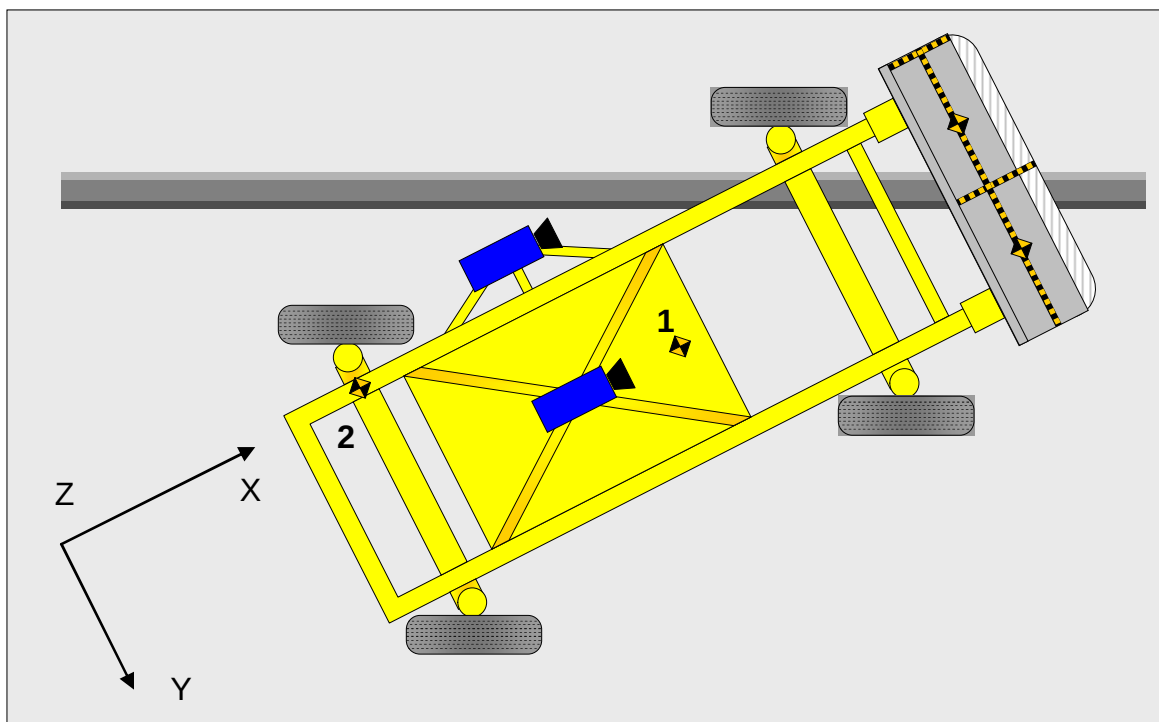
Reference Points X - Test Vehicle Rear Bumper (+ forward)
 Y - Test Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

** Accelerometer was not requested by the COTR.

DATA SHEET NO. 14

MDB ACCELEROMETER LOCATIONS

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



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**

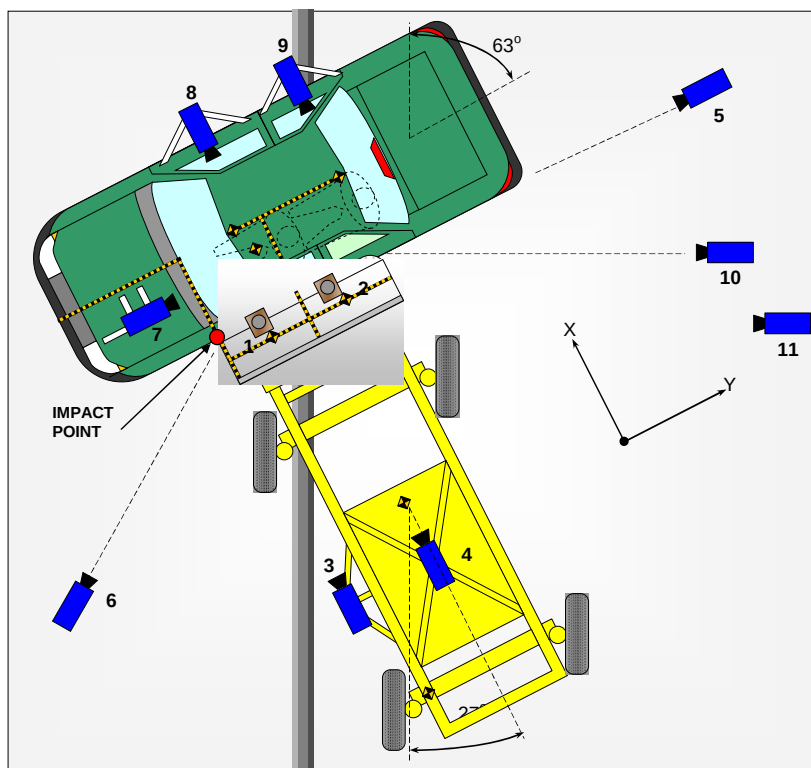
Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

	Elements	Pre-Test (mm)
1	Total Length	4670
2	Total Width	1769
3	Bumper Top Height	734
4	Bumper Bottom Height	597
5	Longitudinal Member Top Height	600
6	Distance between Longitudinal Members	1040
7	Longitudinal Member Width	82
8	Engine Top Height	877
9	Engine Bottom Height	261
10	Engine and gearbox width	489
11	Front bumper-engine distance	498
12	Front shock absorber fixing height	932
13	Bonnet leading edge height	914
14	Front shock absorber fixing width	1125
15	Front bumper – front axle distance	986
16	Front axle – a pillar distance	484
17	A-pillar – B-pillar distance	1141
18	B-Pillar – rear axle distance	1046
19	B-pillar – C-pillar distance	920
20	Roof sill bottom height	1490
21	Roof sill top height	1611
22	Floor sill bottom height	314
23	Floor sill top height	438

DATA SHEET NO. 16

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010



No.	Camera View	Location (mm)			Angle (deg)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Overall	72	812	-4880	-90	8	1000
2	Overhead Close-up	195	855	-4880	-90	28	1000
3	MDB Onboard, Impact Point Close-up	-1470	0	-847	0	13	500
4	MDB Onboard, Centerline of Impact	-1140	838	-1587	-17	7.5	500
5	Right Side, Ground Level, Overall	195	10900	950	-2	50	1000
6	Left Side, Ground Level, Overall	-2020	-1065	925	-2	28	1000
7	Vehicle Onboard Front SID/HIII, Front	520	-460	1345	-6	25	500
8	Vehicle Onboard Front SID/HIII, Side	1730	845	1145	-6	12.5	500
9	Vehicle Onboard Rear SID/HIII, Side	1600	1795	1165	-8	12.5	500
10	Secondary Impact Point	-5420	2146	990	-2	50	1000
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

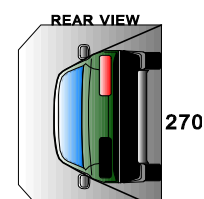
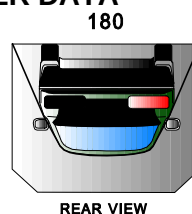
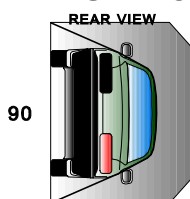
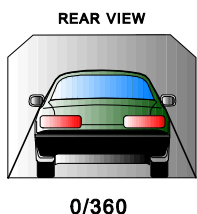
Test Vehicle:	2010 Mitsubishi Outlander 2.4 ES	NHTSA No.	MA5601
Test Program:	NCAP Side Impact	Test Date:	January 21, 2010

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



Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	12	seconds	5	minutes	6	minutes	12	seconds	7	minutes
90° - 180°	1	minutes	04	seconds	5	minutes	6	minutes	4	seconds	7	minutes
180°-270°	1	minutes	05	seconds	5	minutes	6	minutes	5	seconds	7	minutes
270°-360°	1	minutes	07	seconds	5	minutes	6	minutes	7	seconds	7	minutes

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

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

APPENDIX A
PHOTOGRAPHS

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A-44	Post-Test Left Front Interior Trim	A-25
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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

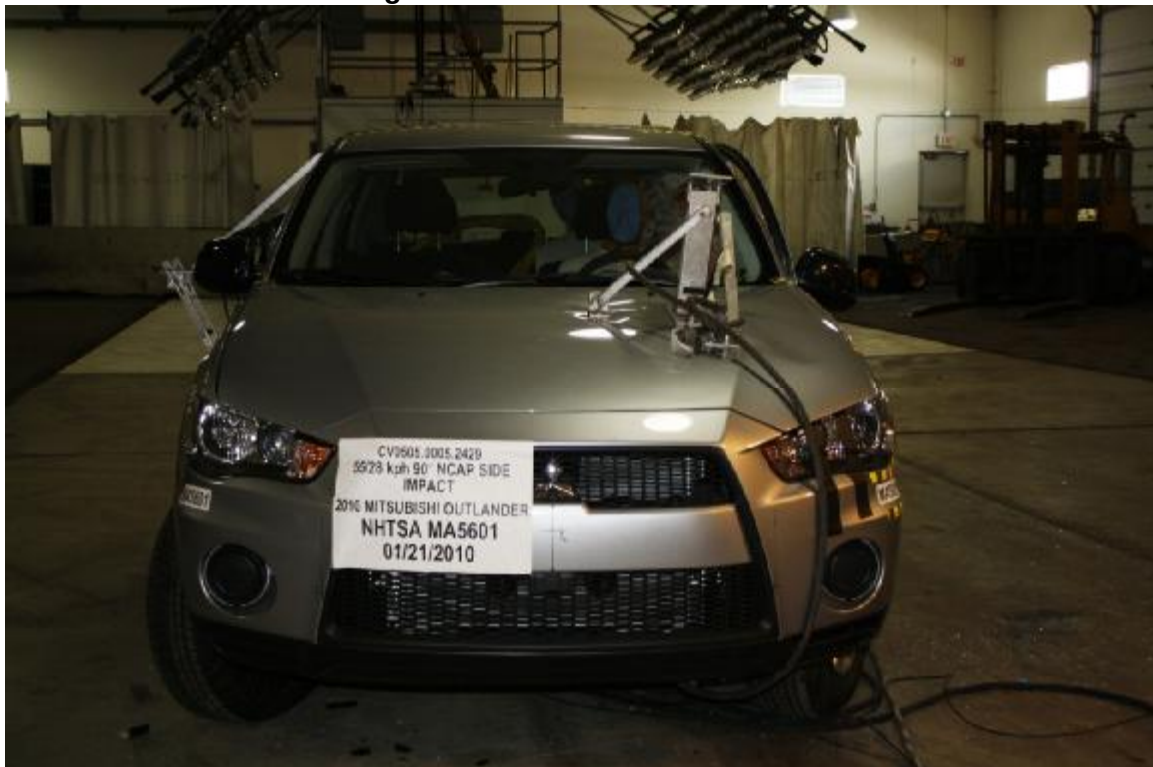


Figure A-6: Post-Test Front View



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



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



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



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



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



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



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



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



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



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



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



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



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

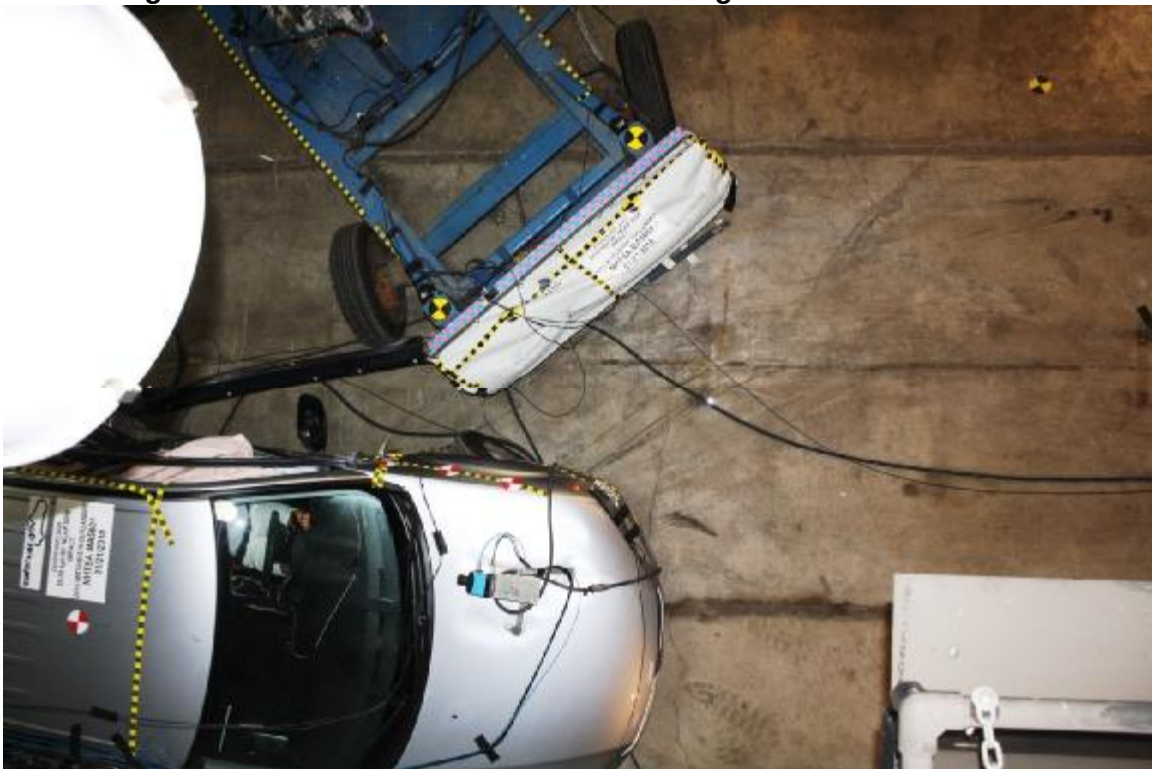


Figure A-32: Post-Test Overhead View of MDB and Vehicle



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



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



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



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



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



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



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



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



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



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



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



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



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



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



Figure A-47: Pre-Test Left Front $\frac{3}{4}$ View of Left Side Doors



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



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



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



Figure A-51: Rollover 90 Degrees



Figure A-52: Rollover 180 Degrees



Figure A-53: Rollover 270 Degrees



Figure A-54: Rollover 360 Degrees



Figure A-55: Impact Photo

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

DATA CHANNEL FILTER CLASS SUMMARY

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

DATA CHANNEL TITLE KEY

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

TABLE OF DATA PLOTS

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

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

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

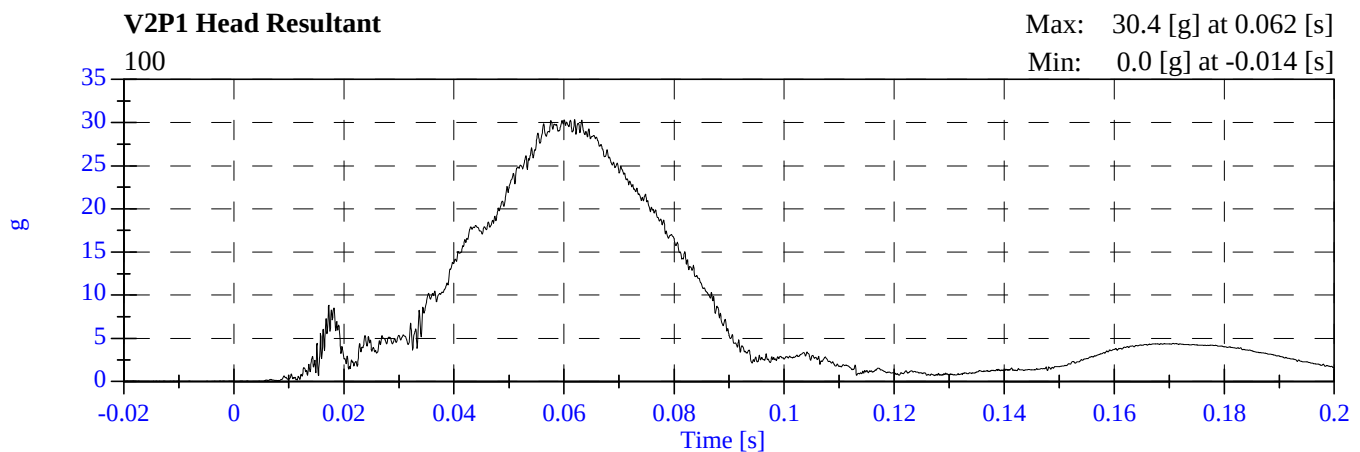
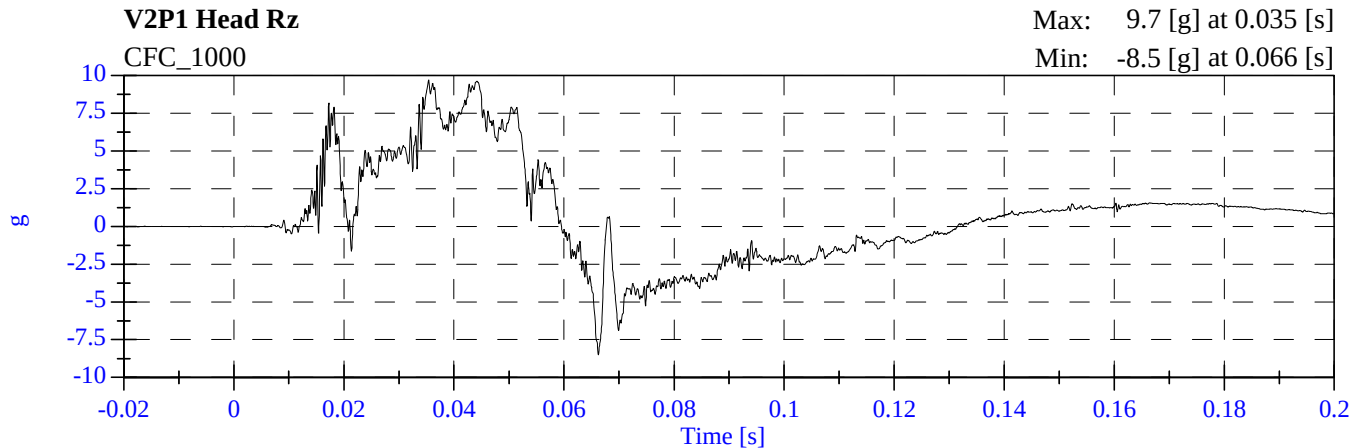
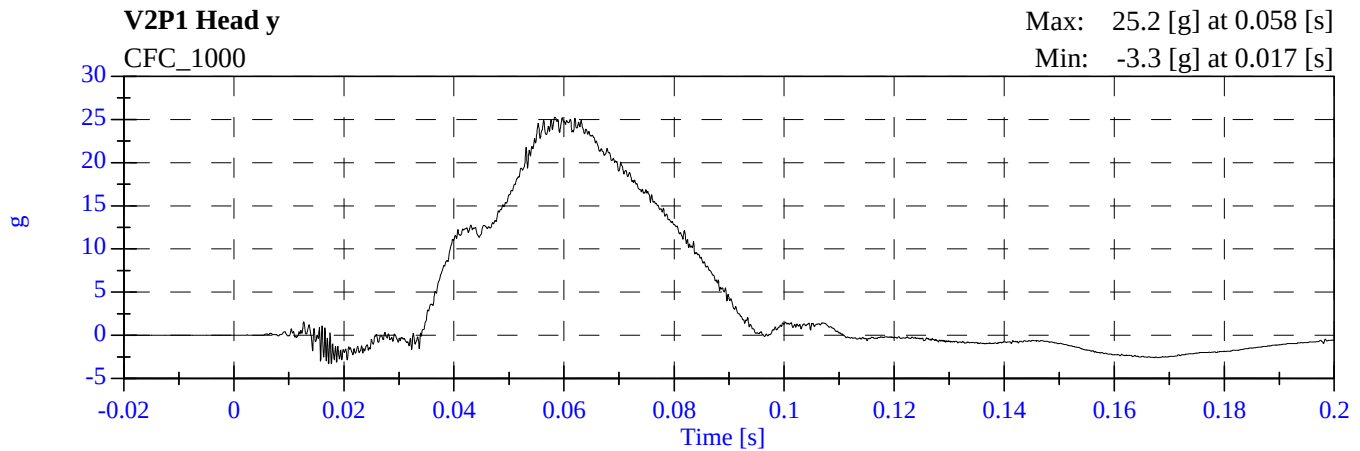
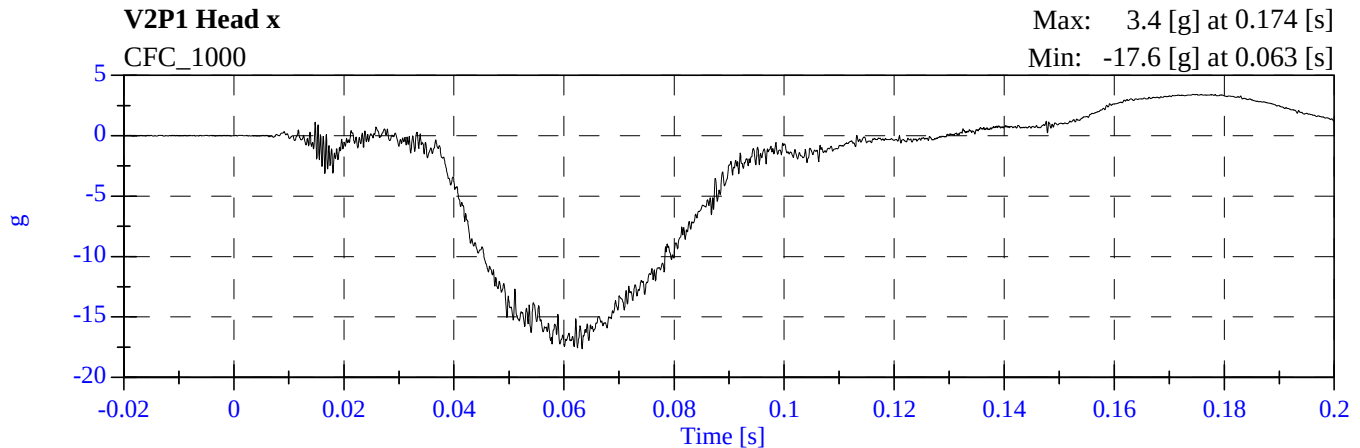
TEST NOTES

The following data anomalies occurred:

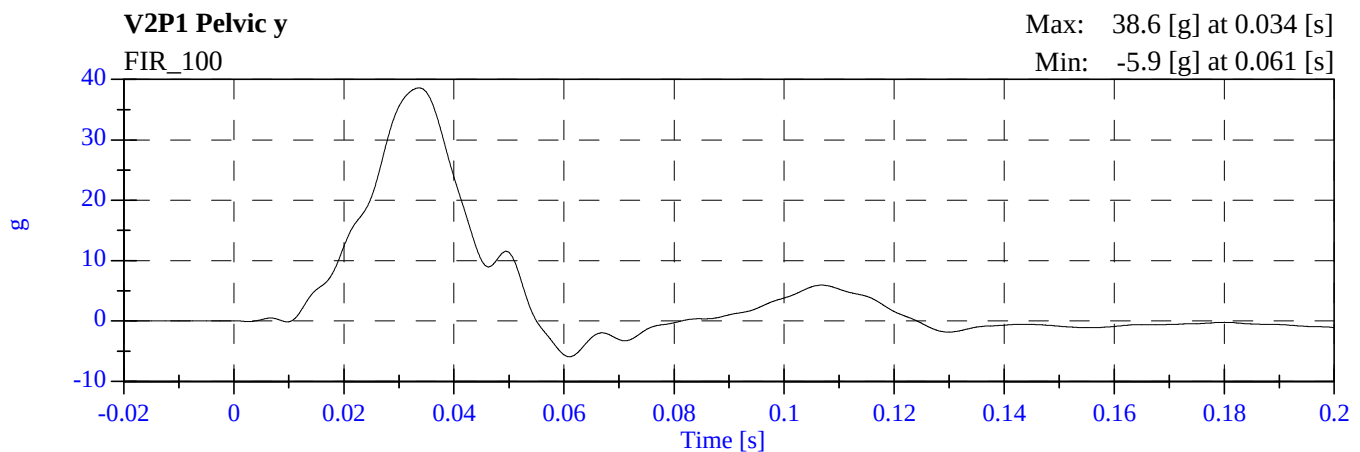
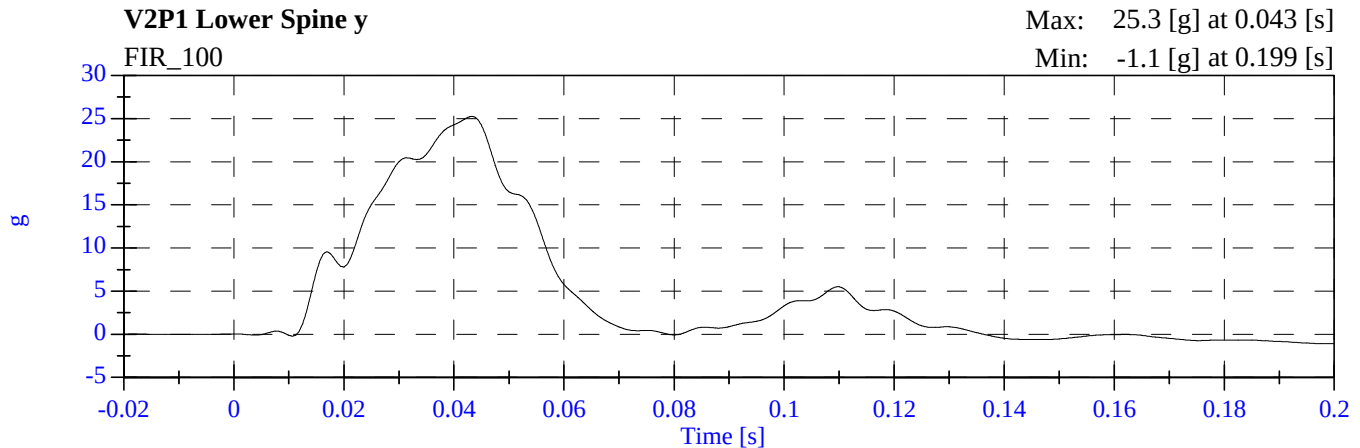
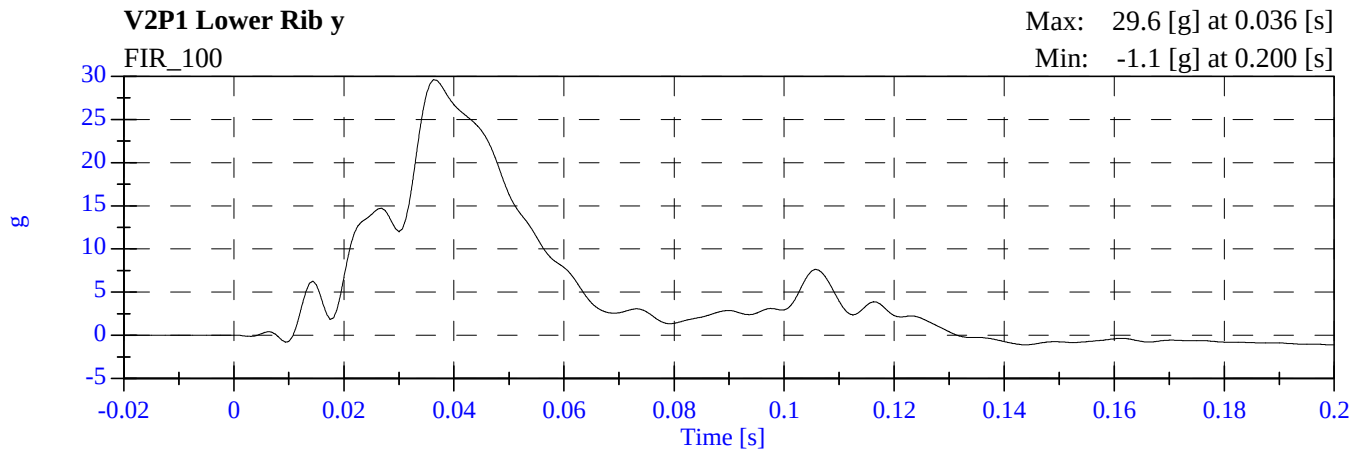
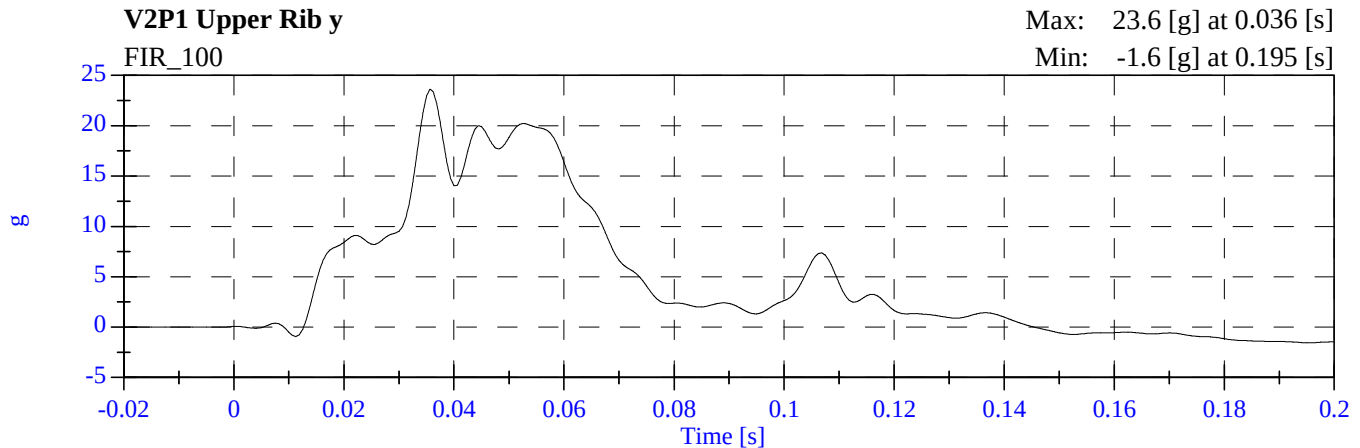
V2P1 Head Z: Sensor did not function properly.

V2 Left Lower B Post Y: Questionable Data after 123 milliseconds.

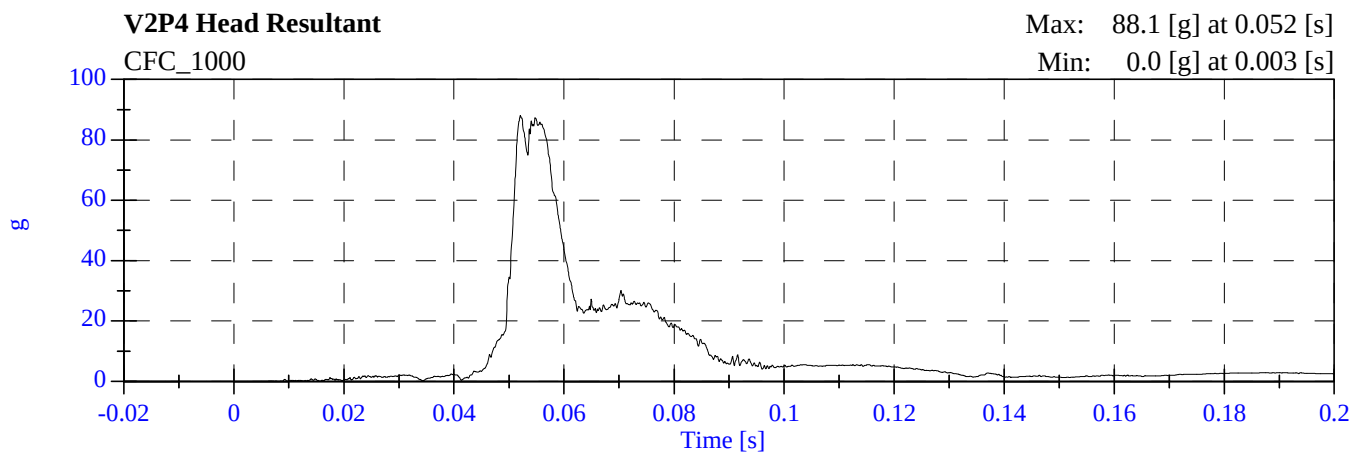
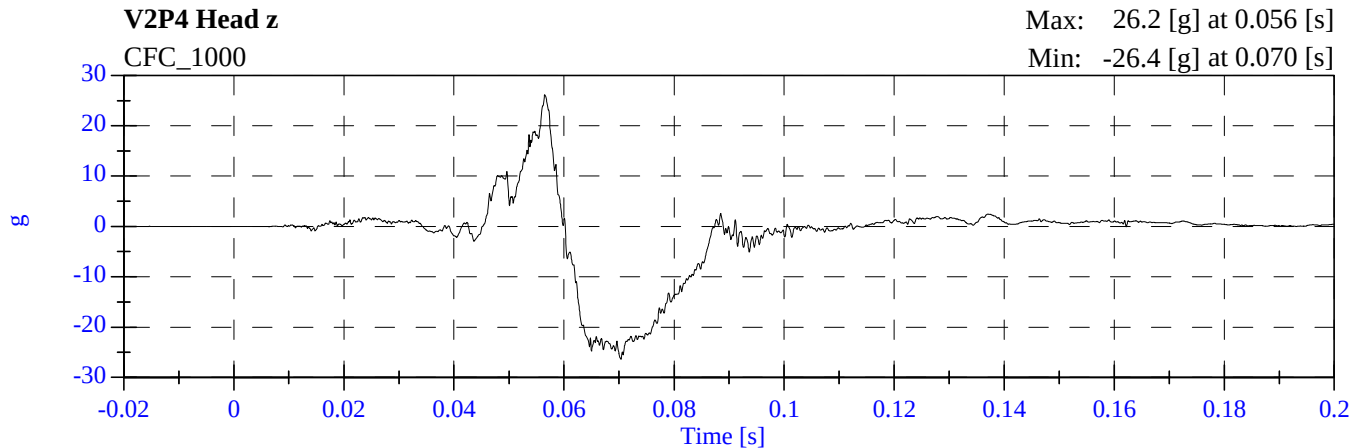
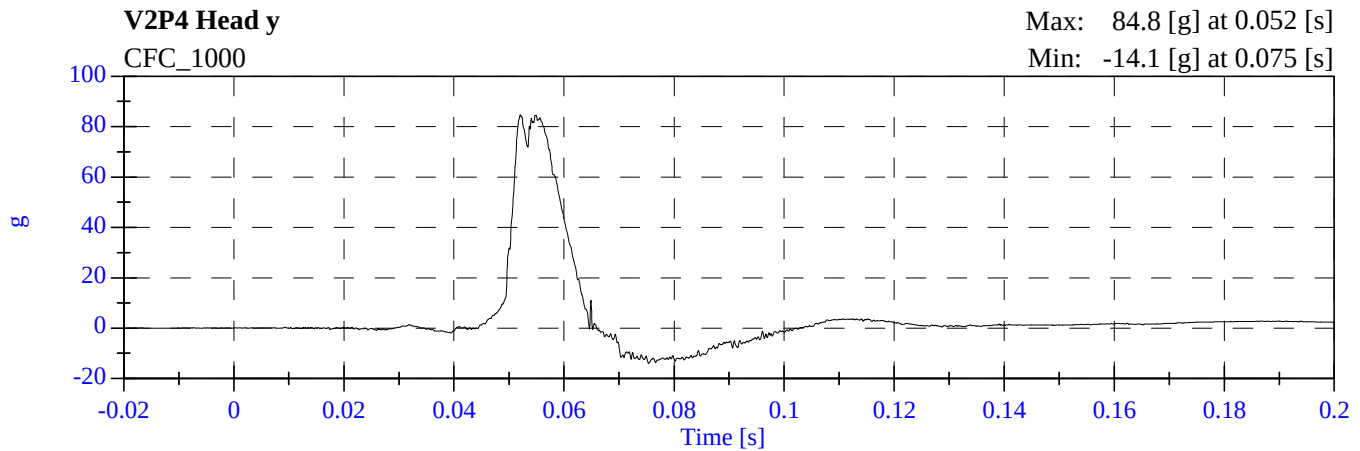
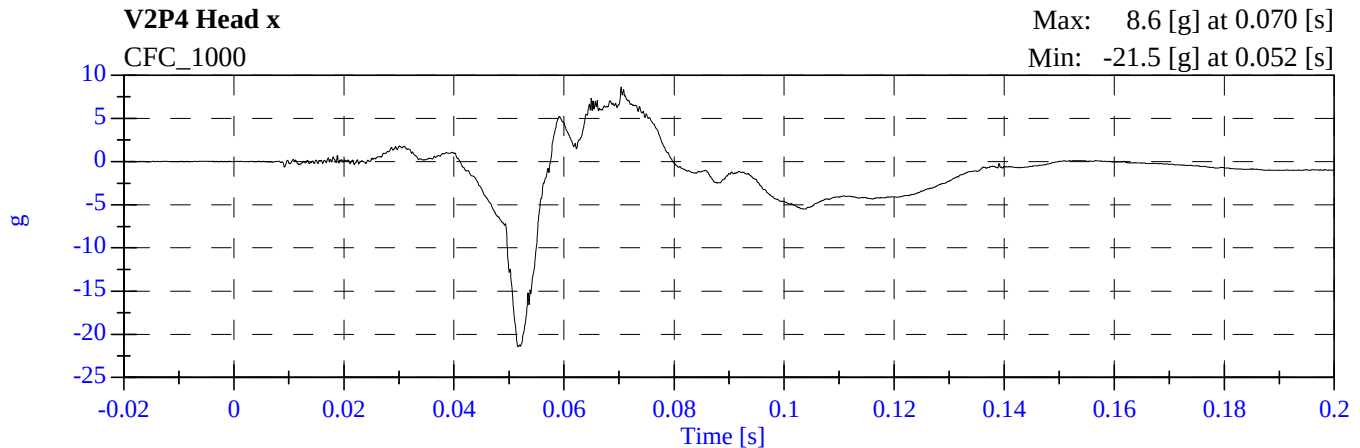
Side NCAP - 2010 Mitsubishi Outlander MA5601 - January 21, 2010



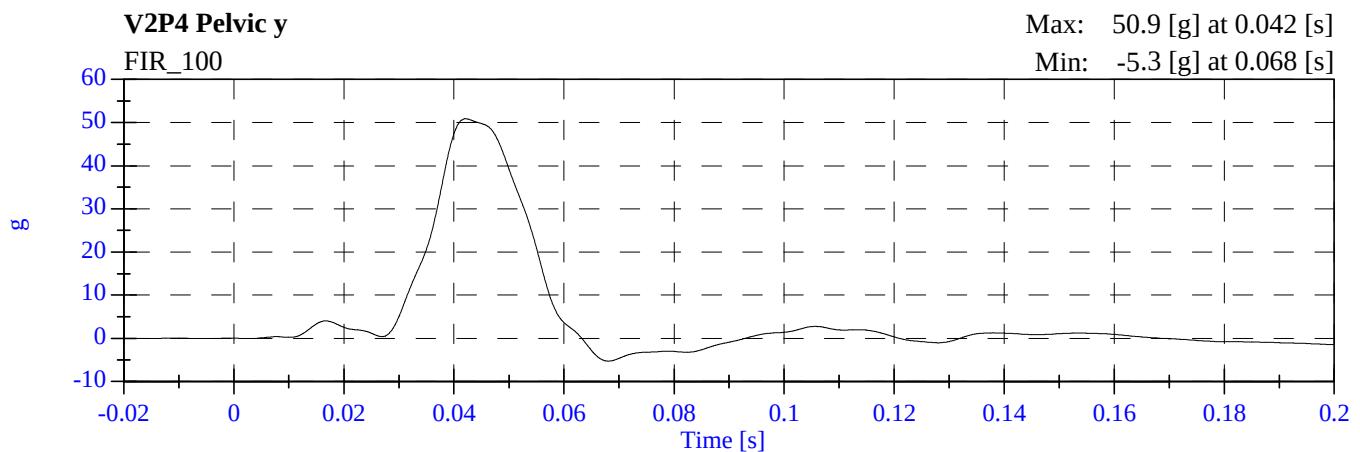
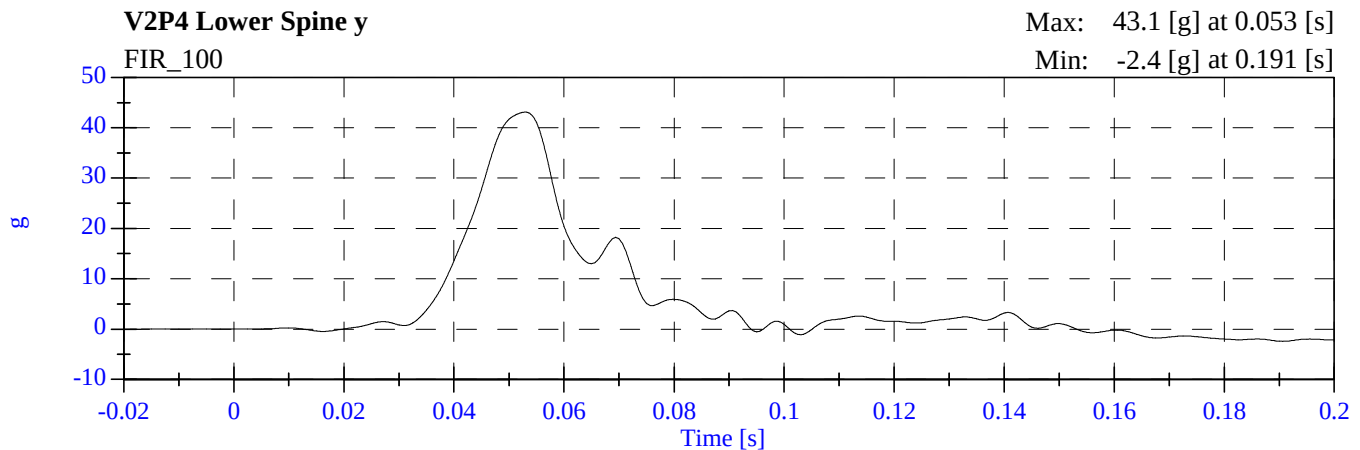
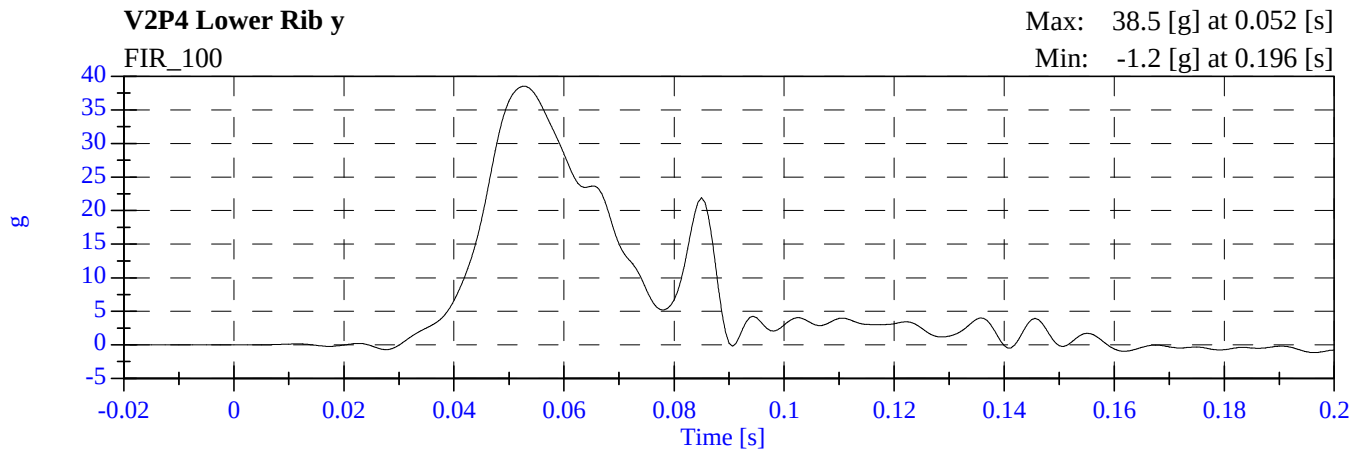
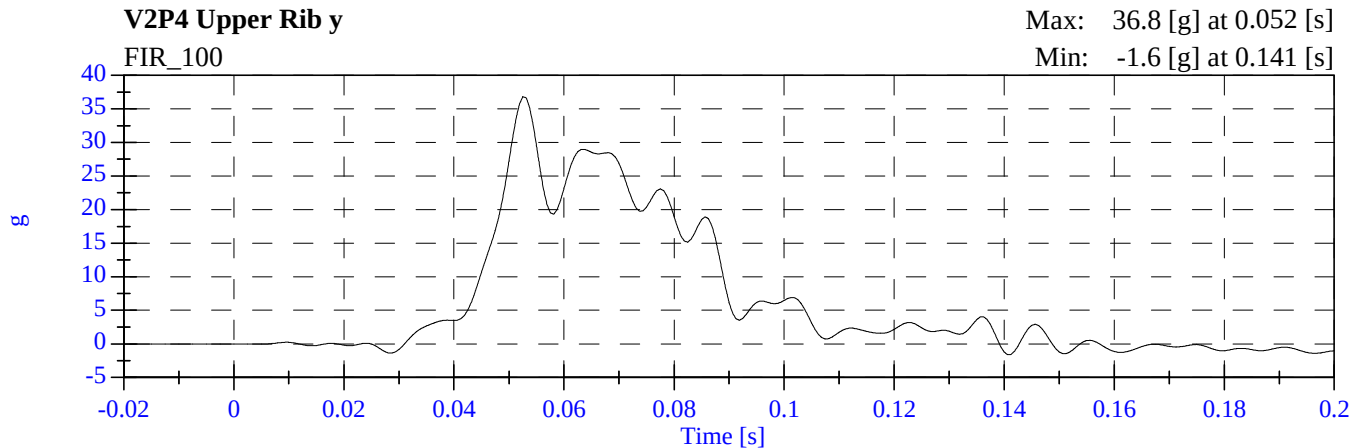
Side NCAP - 2010 Mitsubishi Outlander MA5601 - January 21, 2010



Side NCAP - 2010 Mitsubishi Outlander MA5601 - January 21, 2010



Side NCAP - 2010 Mitsubishi Outlander MA5601 - January 21, 2010



APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: 12/17/09; 1/11/10; 2/3/10

Sequential Test Number:

1

Laboratory Technician:

A. Rudniski

TEST PARAMETER	SPECIFICATION	SID H3 NO.: 905		SID H3 NO.: 906	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	• 89 - 909	899	899	899	899
RH- Rib Height (mm)	501 - 521	511	511	511	511
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	240	238	238	236
KV- Knee Pivot from Back Line (mm)	511 - 526	519	519	520	520
SW- Knee Pivot to Floor (mm)	490 - 505	495	494	492	491
HW- Hip Width (mm)	356 - 391	384	384	383	383
THORAX IMPACTS					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	20	21	35	21
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.31	4.28	4.29
UPPER RIB (g's)	37 - 46	45.24	43.12	43.44	44.09
LOWER RIB (g's)	37 - 46	42.22	41.53	42.06	43.63
LOWER SPINE (g's)	15 - 22	20.49	21.59	20.59	21.21
PELVIS IMPACT					
TEMPERATURE (• C)	18.9 - 25.5	21.1	21.7	21.1	21.7
RELATIVE HUMIDITY (%)	10 - 70	20	21	38	21
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.27	4.28	4.28
PELVIS (g's)	40 - 60	47.27	43.16	52.61	52.98

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.:	<u>905</u>	Sequential Test Number:	<u>1</u>
Date:	<u>12/17/09</u>	Laboratory Technician:	<u>A. Rudniski</u>

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: 11/23/09 Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	899
RH- Rib Height (mm)	502 – 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	240
KH- Knee Pivot from Back Line (mm)	511 – 526	519
KV- Knee Pivot to Floor (mm)	490 – 505	495
HW- Hip Width (mm)	356 - 391	384

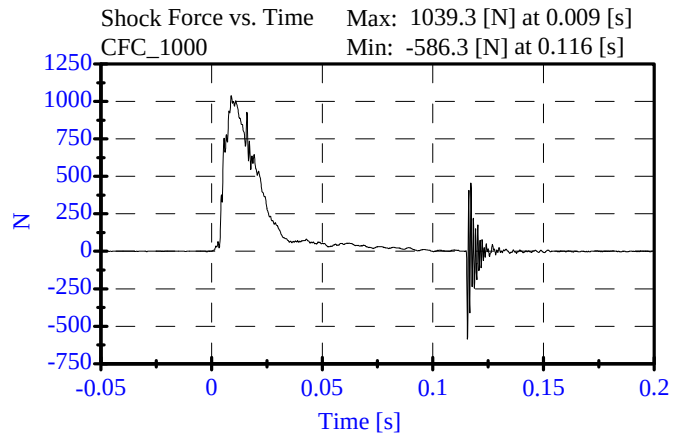
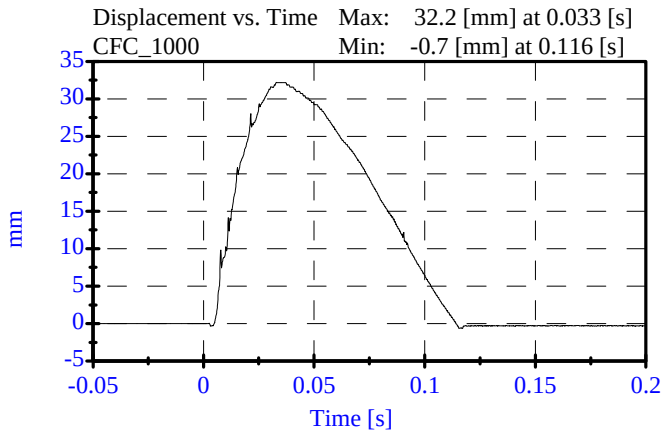
REMARKS: None

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

ATD Serial No: 905
Date: 05-28-09

Sequential Test Number: 1 File: 905SL 05-28-09
Laboratory Technician: A. Rudniski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	57.00 %	Passed
Displacement:	30.00-35.00 mm	32.21 mm	Passed
Maximum Force:	836.00-1125.00 N	1039.30 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	905		
Damper Setting:	5		



Shock Test Medium (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

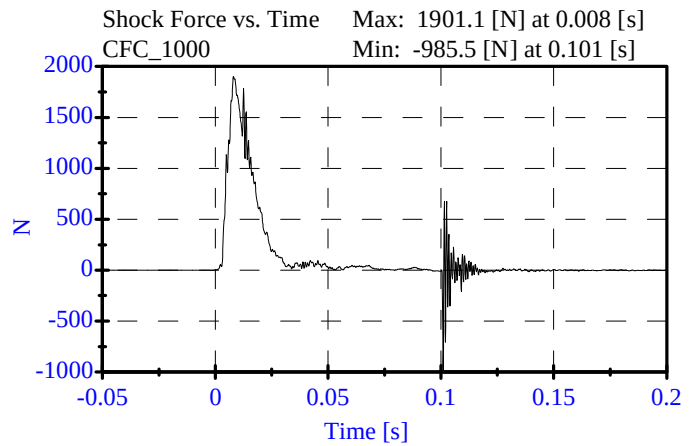
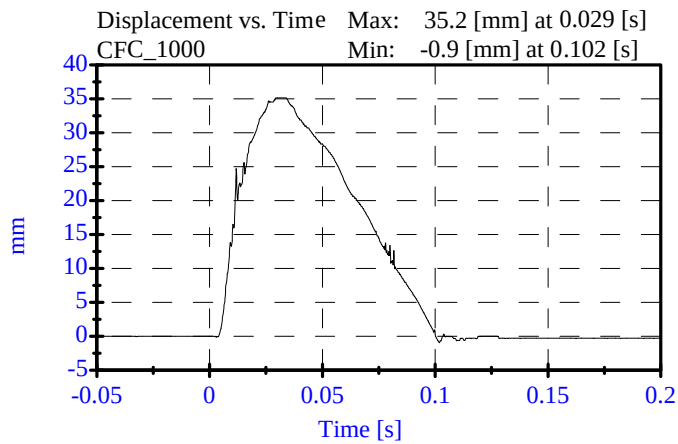
ATD Serial No: 905

Date: 05-28-09

Sequential Test Number: 1 File: 905SM 05-28-09

Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	54.00 %	Passed
Displacement:	32.00-37.00 mm	35.17 mm	Passed
Maximum Force:	1730.00-2099.00 N	1901.14 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	905		
Damper Setting:	5		

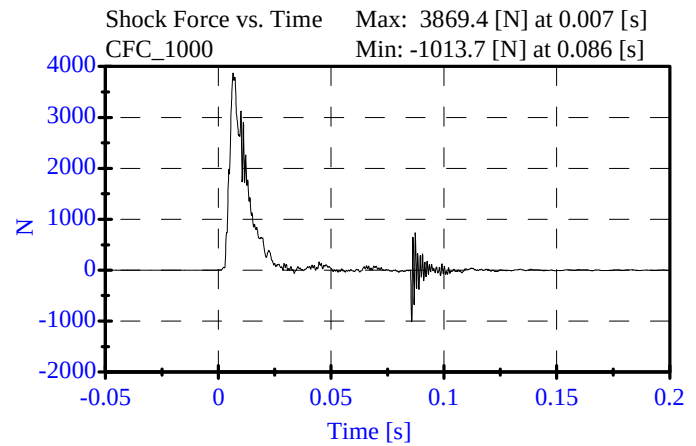
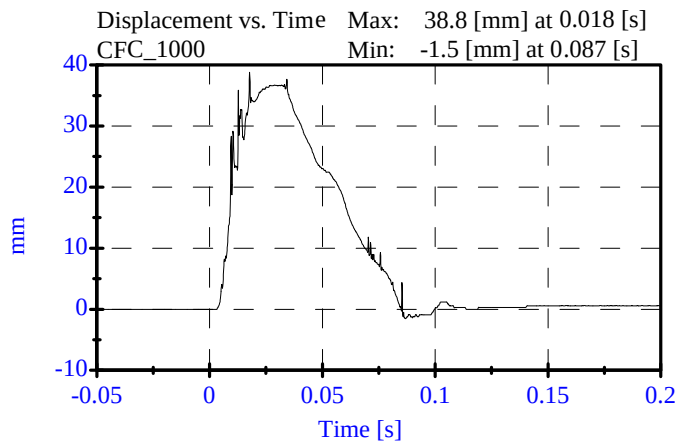


Shock Test High (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 05-28-09

Sequential Test Number: 1 File: 905SH1 05-28-09
Laboratory Technician: A. Rudniski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	54.00 %	Passed
Displacement:	33.00-40.00 mm	38.78 mm	Passed
Maximum Force:	3741.00-4448.00 N	3869.43 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	905		
Damper Setting:	5		

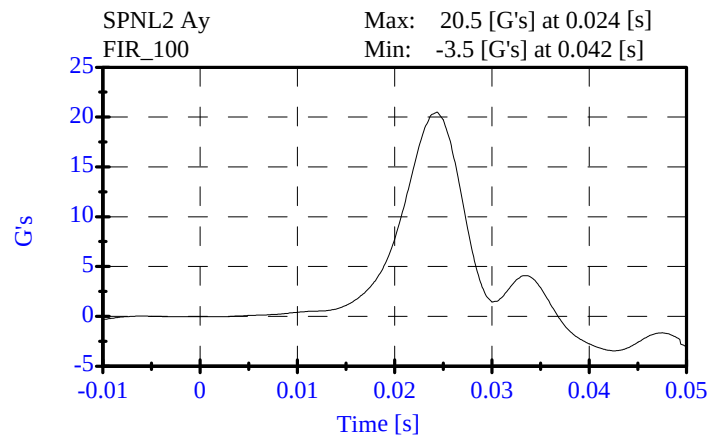
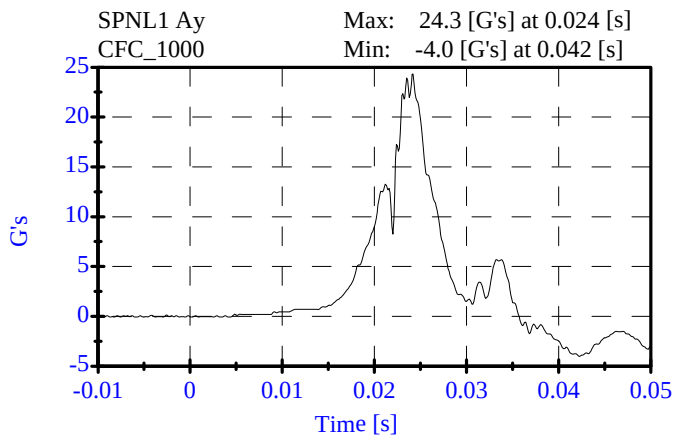
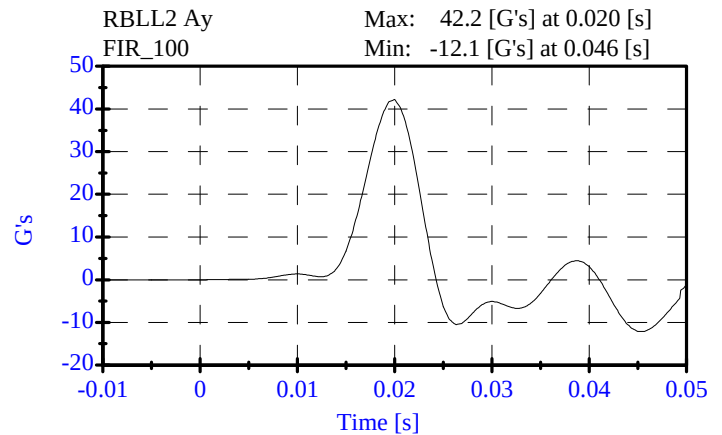
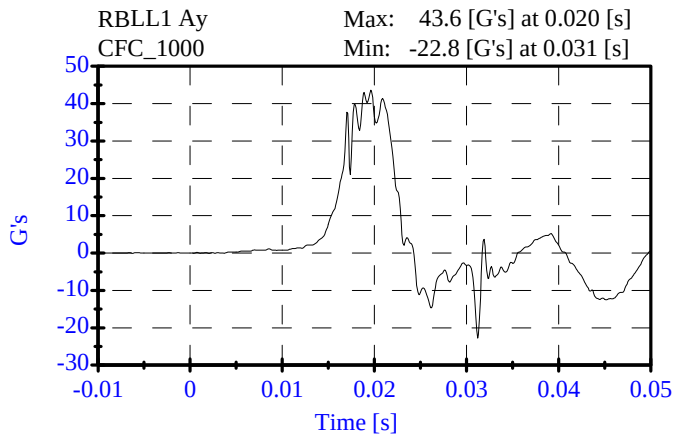
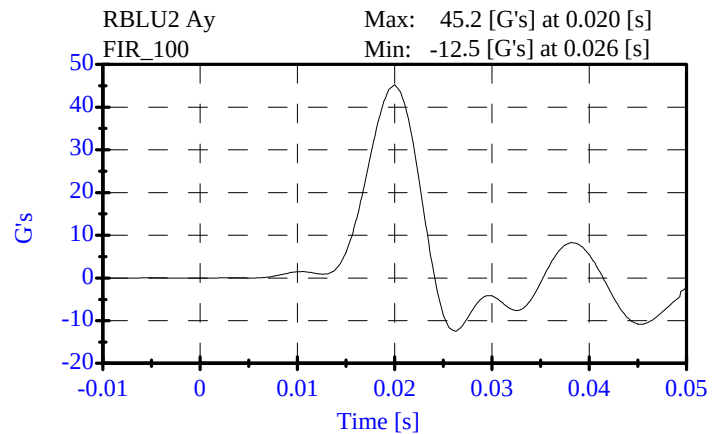
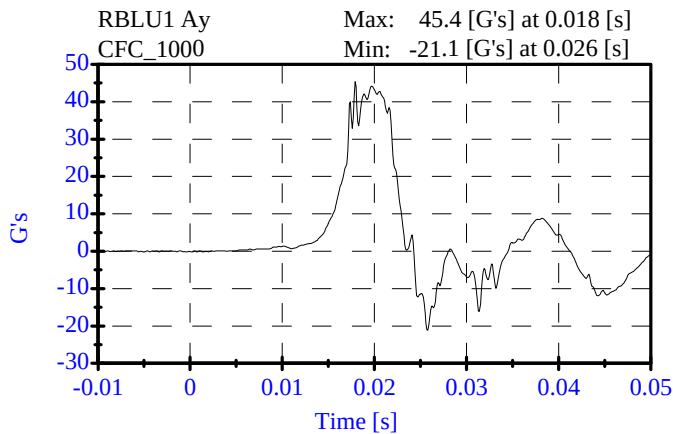


Thorax Impact Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-17-19

Sequential Test Number: 1 File: 905T 12-17-09
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	20.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	45.24 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.22 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.49 G's	Passed

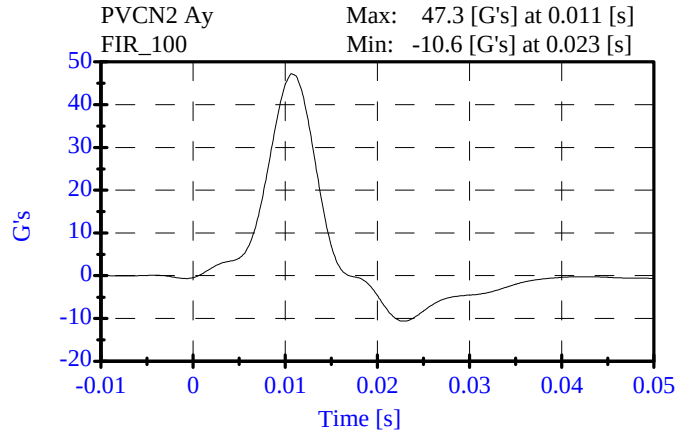
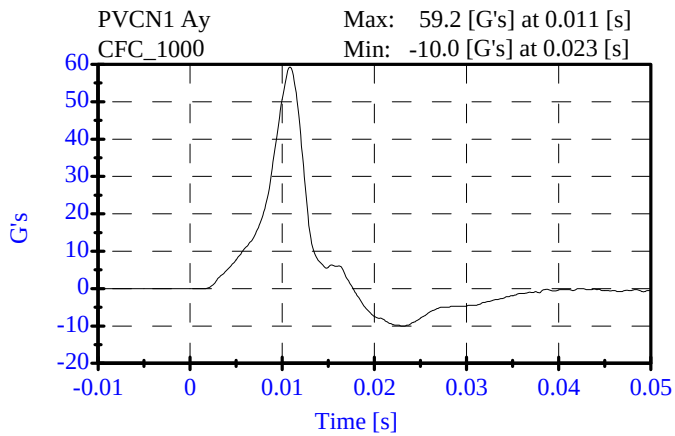


Pelvic Impact Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-17-09

Sequential Test Number: 1 File: 905P 12-17-09
Laboratory Technician: A. Rudniski

<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 %	20.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	47.27 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	6.1 ms	Passed

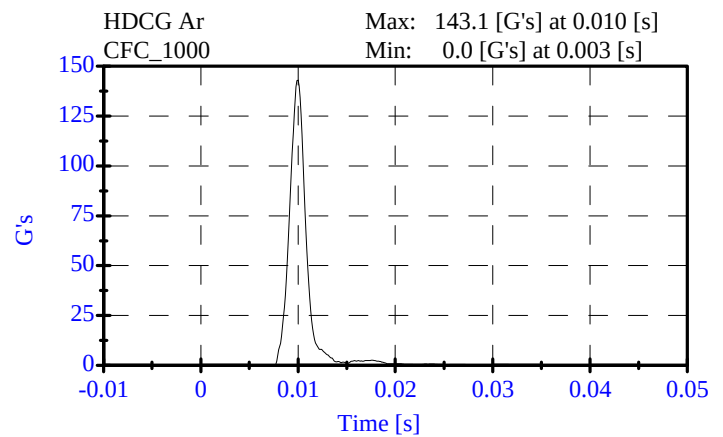
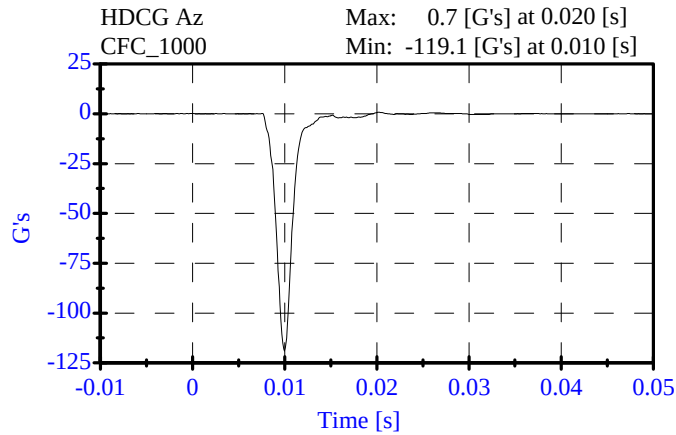
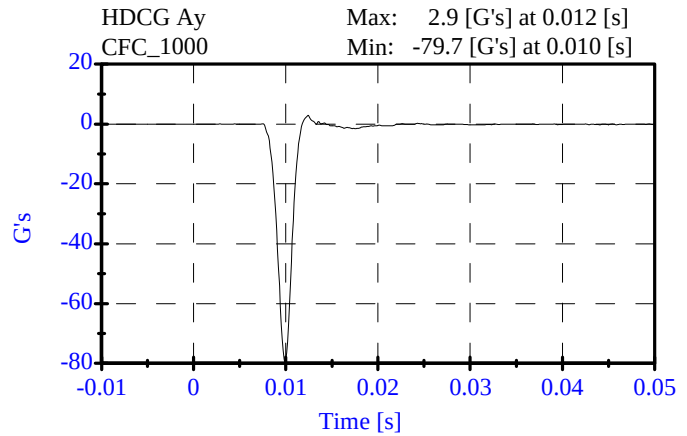
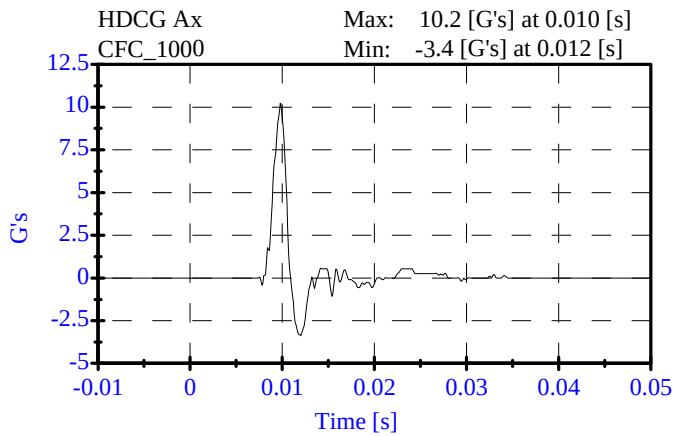


Head Drop Test **Pre-Test** **CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 905
Date: 12-16-09

Sequential Test Number: 1 File: 905H 12-16-09
Laboratory Technician: A.Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	32.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	143.08 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	10.23 Gs	Passed
Curve PerCent NonModal:	< 15%	1.77 %	Passed



Neck Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 12-16-09

Sequential Test Number: 1 File: 905N 12-16-09
Laboratory Technician: A. Rudnski

<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 %	29.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.01 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.13 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	6.28 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.99 m/s	Failed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	66.06 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 Nm	66.04 Nm	Failed
Occipital Moment Decay:	49.0-64.0 ms	54.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	10.00 ms	Passed

Neck Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

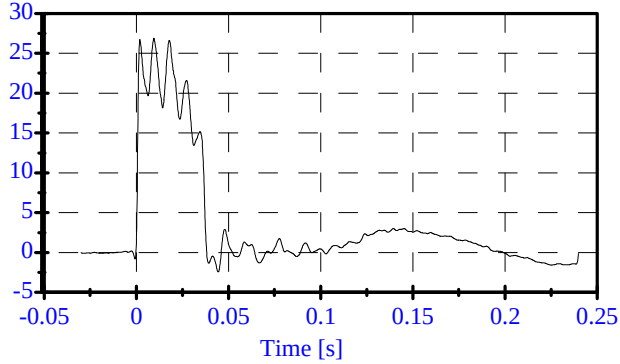
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Date: 12-16-09

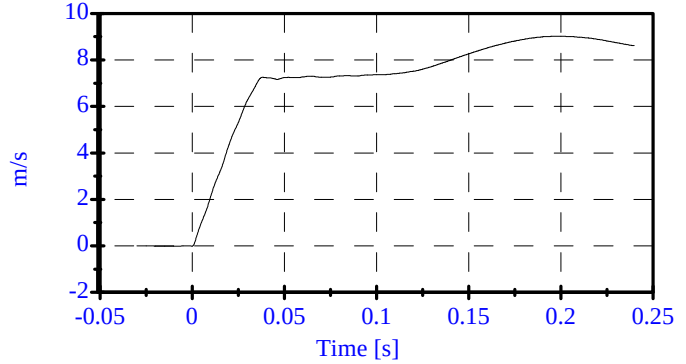
Sequential Test Number: 1 File: 905N 12-16-09

Laboratory Technician: A. Rudniski

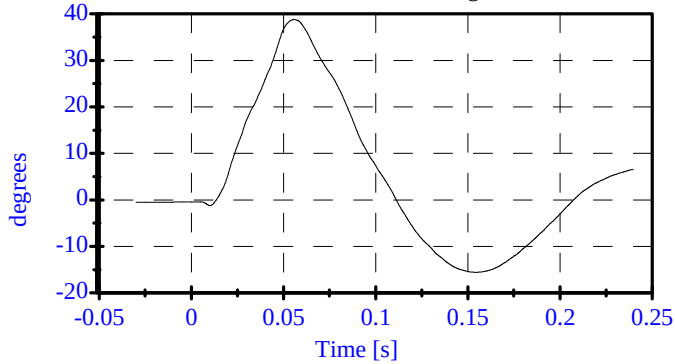
Pend Ax
CFC_180
Max: 26.9 [] at 0.010 [s]
Min: -2.4 [] at 0.044 [s]



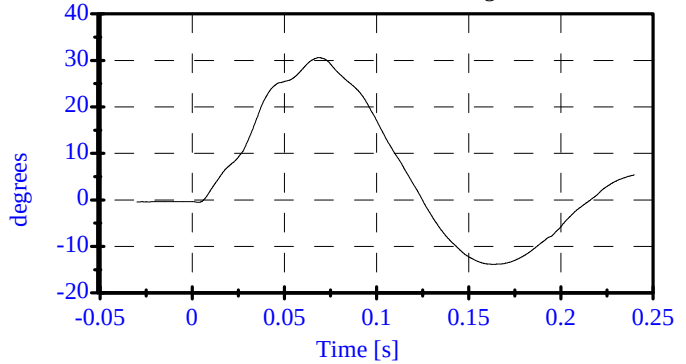
Pend Vx
CFC_180
Max: 9.0 [m/s] at 0.199 [s]
Min: -0.0 [m/s] at -0.012 [s]



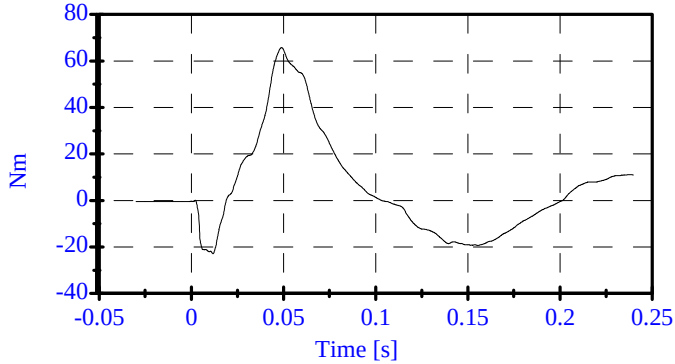
Head Rot
CFC_180
Max: 38.8 [degrees] at 0.056 [s]
Min: -15.5 [degrees] at 0.154 [s]



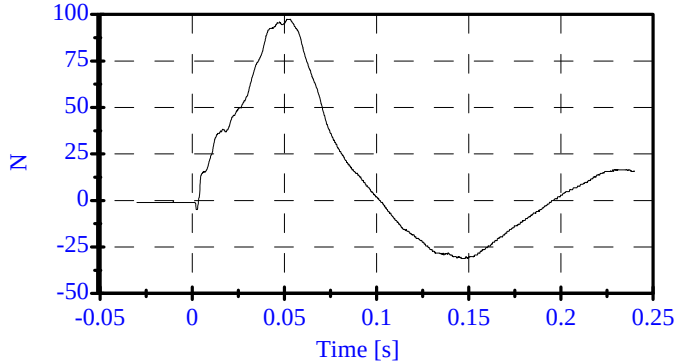
Arm Rot
CFC_180
Max: 30.6 [degrees] at 0.069 [s]
Min: -13.8 [degrees] at 0.164 [s]



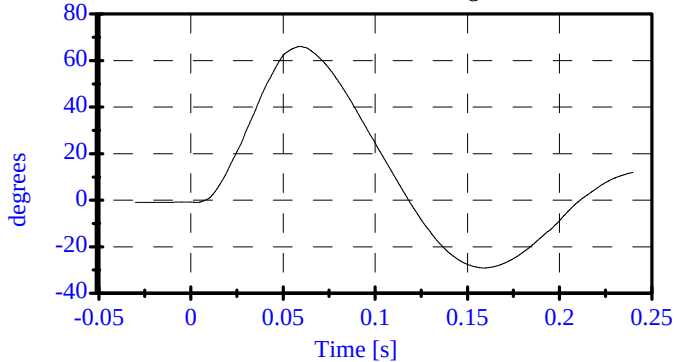
Neck Mx
CFC_600
Max: 65.7 [Nm] at 0.049 [s]
Min: -22.9 [Nm] at 0.012 [s]



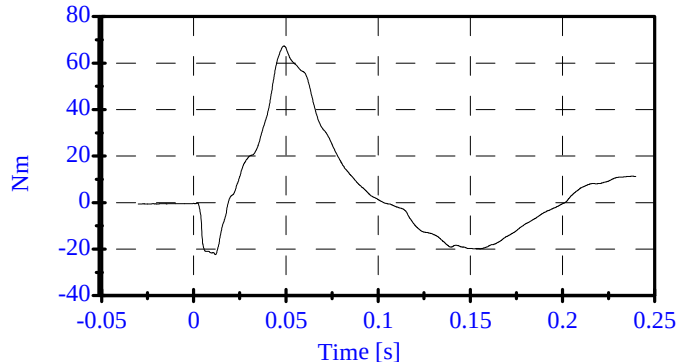
Neck Fy
CFC_1000
Max: 97.5 [N] at 0.051 [s]
Min: -31.3 [N] at 0.146 [s]



Tot Rot
CFC_180
Max: 66.1 [degrees] at 0.059 [s]
Min: -29.1 [degrees] at 0.159 [s]



MOCX
Max: 67.4 [Nm] at 0.049 [s]
Min: -22.4 [Nm] at 0.012 [s]



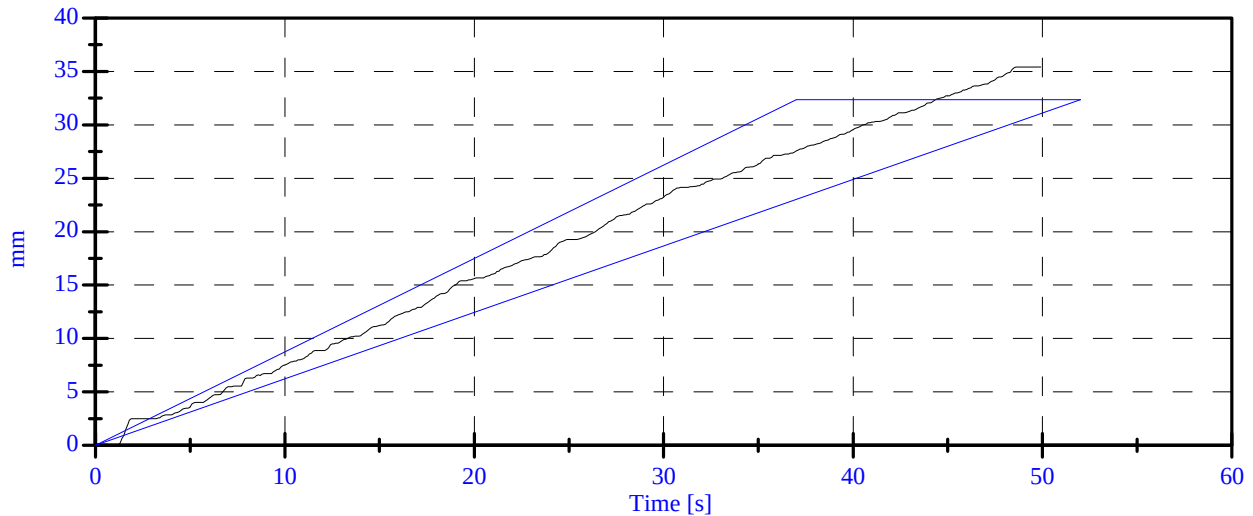
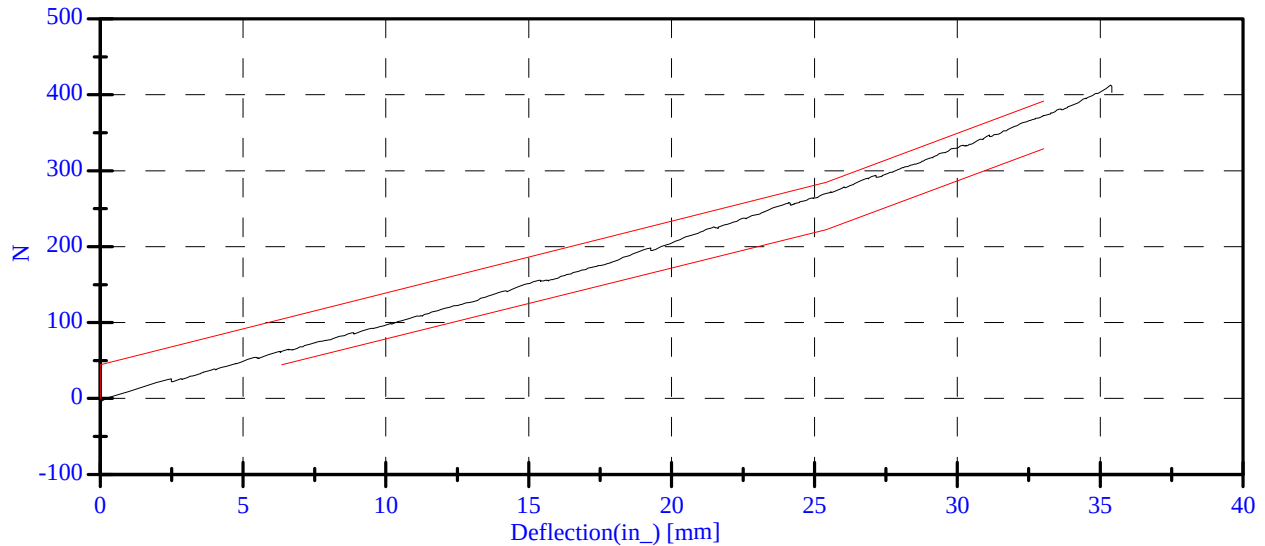
Abdomen Compression Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 11-30-09

Sequential Test Number: 1 File: 905AB 11-23-09
Laboratory Technician: A. Rudniski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	126.83 N	Passed
Force at 19.05 mm :	162.98-220.99 N	196.19 N	Passed
Force at 25.40 mm :	221.97-280.02 N	269.93 N	Passed
Force at 33.02 mm :	324.99-391.00 N	371.77 N	Passed

ABDOMINAL COMPRESSION TEST



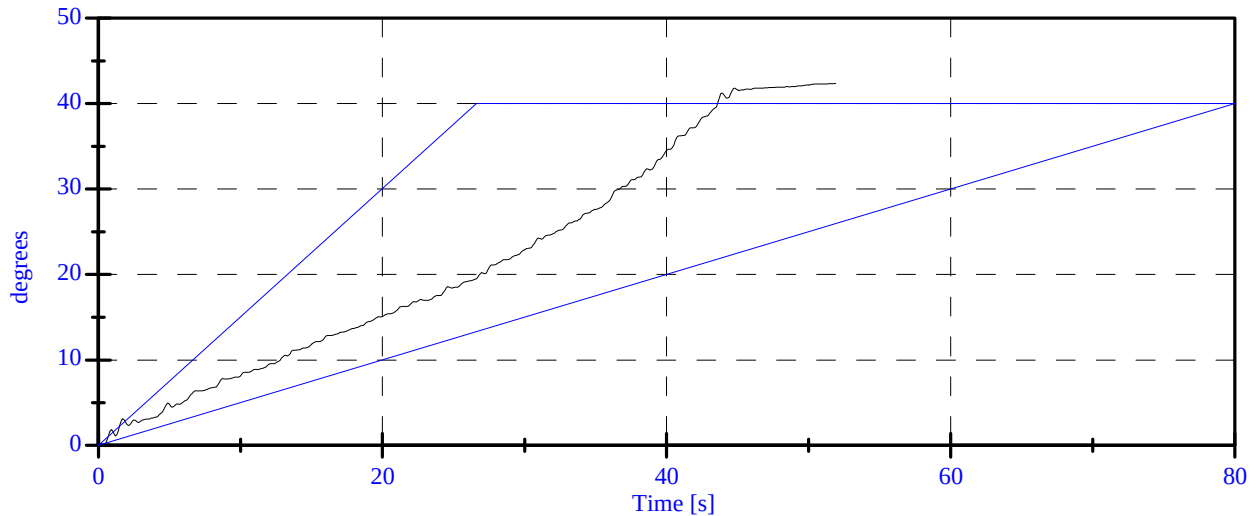
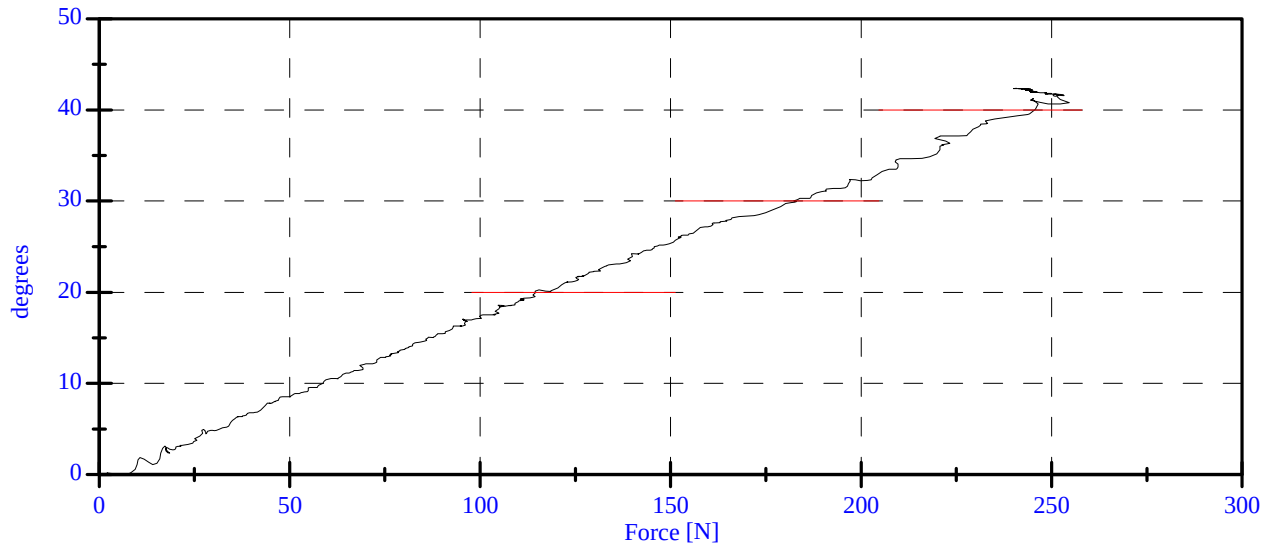
Lumbar Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 11-23-09

Sequential Test Number: 1 File: 905SP 11-23-09
Laboratory Technician: A. Rudniski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	2.35 N	Passed
Force at 20 Deg:	97.86-151.24 N	118.56 N	Passed
Force at 30 Deg:	151.24-204.62 N	182.28 N	Passed
Force at 40 Deg:	204.62-258.00 N	245.74 N	Passed
Return Angle	12 Deg Max	9.46 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: 11/23/09 Laboratory Technician: A. Rudniski

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: 1/11/10 Laboratory Technician: A. Rudniski

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: 1/8/10 Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	238
KH- Knee Pivot from Back Line (mm)	511 - 526	520
KV- Knee Pivot to Floor (mm)	490 - 505	492
HW- Hip Width (mm)	356 - 391	383

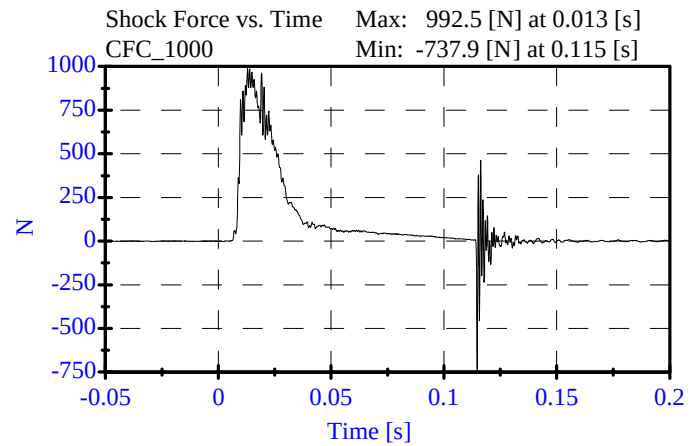
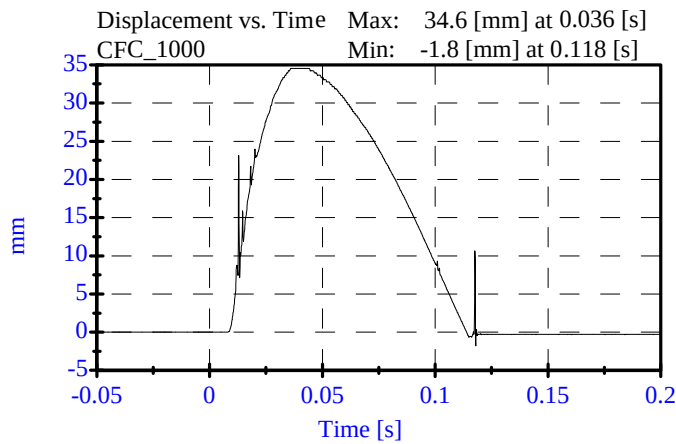
REMARKS: None

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

ATD Serial No: 906
Date: 06-10-09

Sequential Test Number: 1 File: 906SL1 06-10-09
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	48.00 %	Passed
Displacement:	30.00-35.00 mm	34.55 mm	Passed
Maximum Force:	836.00-1125.00 N	992.49 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	906		
Damper Setting:	5		



Shock Test Medium (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

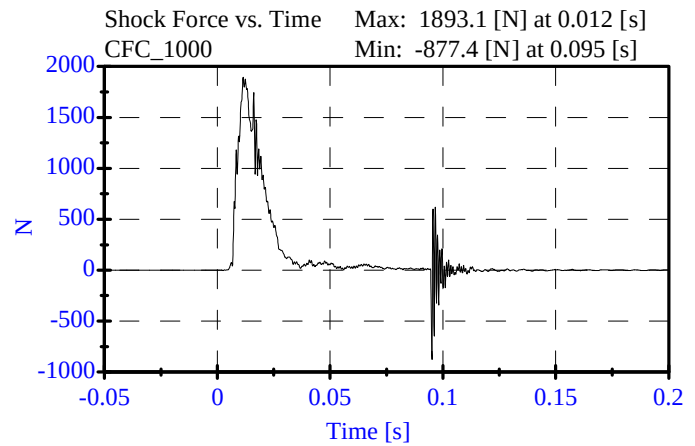
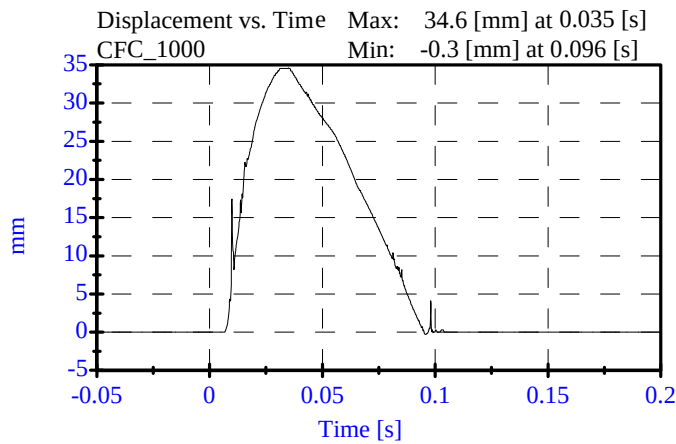
ATD Serial No: 906

Date: 06-10-09

Sequential Test Number: 1 File: 906SM1 06-10-09

Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	48.00 %	Passed
Displacement:	32.00-37.00 mm	34.59 mm	Passed
Maximum Force:	1730.00-2099.00 N	1893.14 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	906		
Damper Setting:	5		

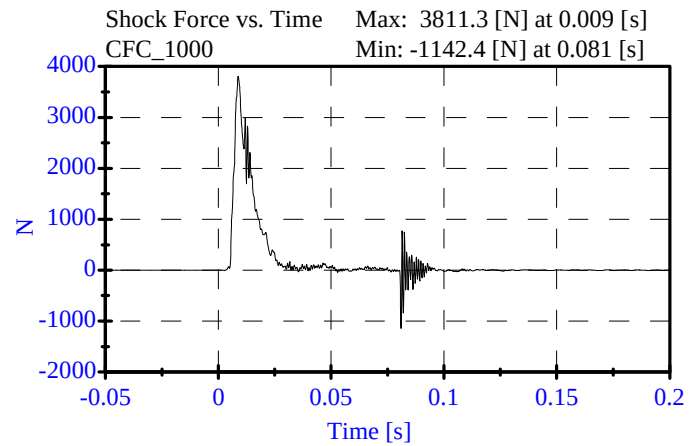
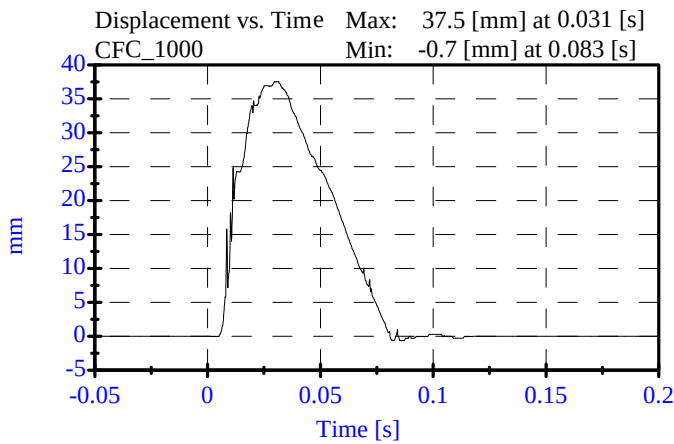


Shock Test High (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 06-10-09

Sequential Test Number: 1 File: 906SH 06-10-09
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	22.2 C	Passed
Lab Humidity:	10-70 %	48.00 %	Passed
Displacement:	33.00-40.00 mm	37.53 mm	Passed
Maximum Force:	3741.00-4448.00 N	3811.26 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	906		
Damper Setting:	5		

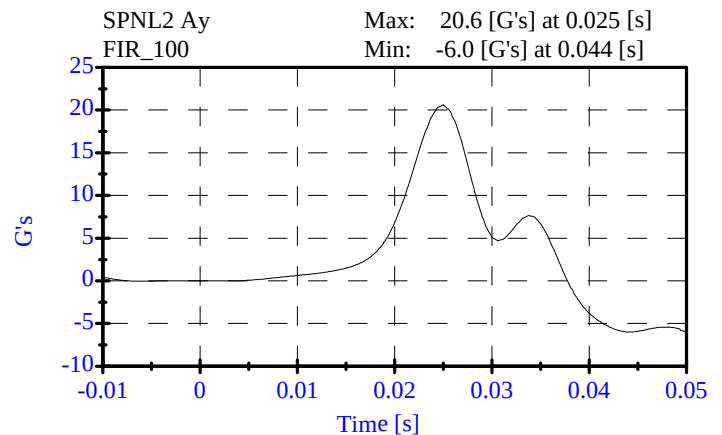
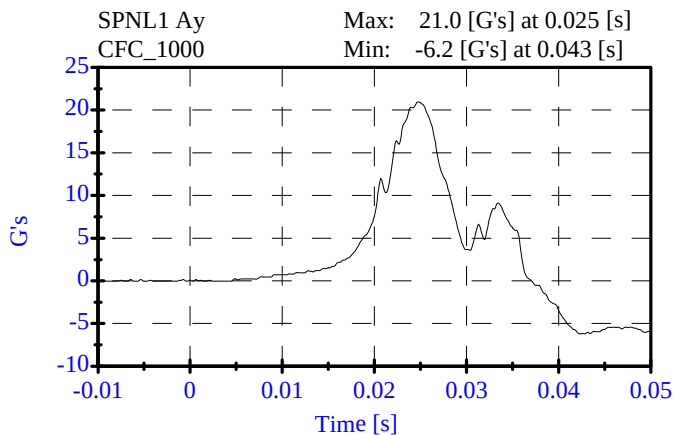
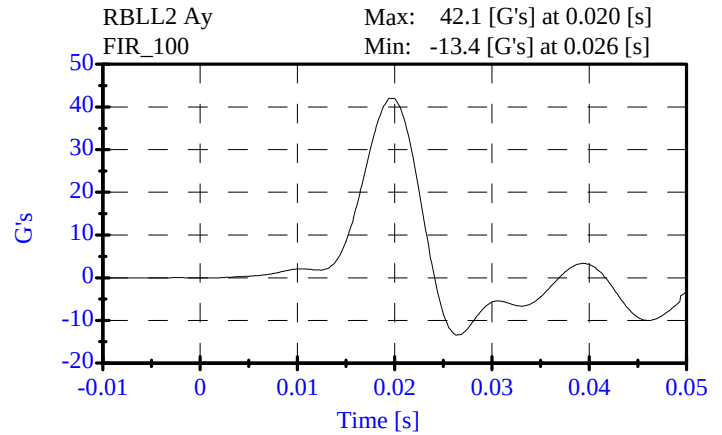
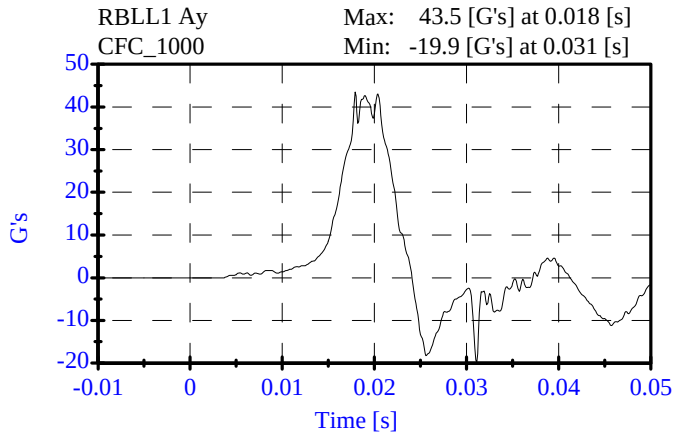
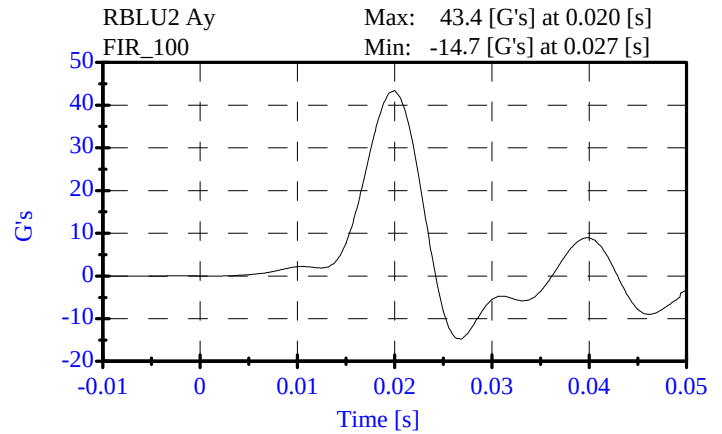
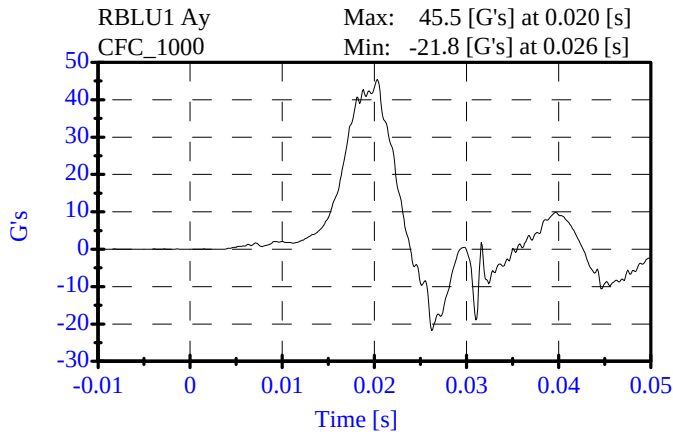


Thorax Impact Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 01-08-10

Sequential Test Number: 1 File: 906T 01-08-10
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	43.44 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.06 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	20.59 G's	Passed

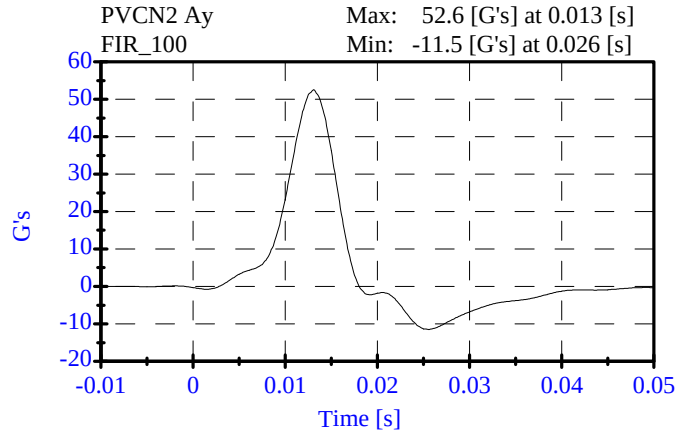
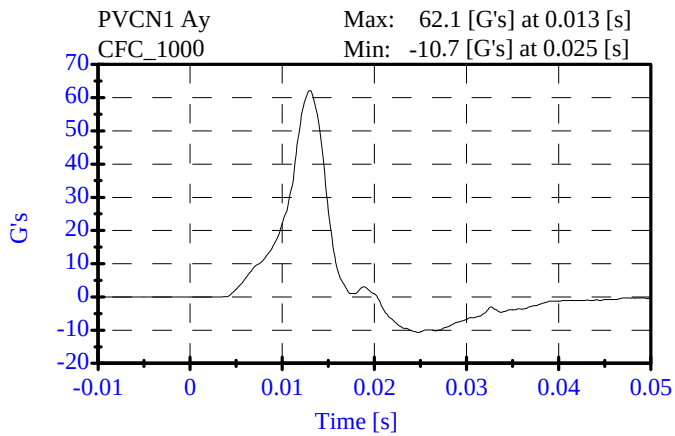


Pelvic Impact Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 01-08-10

Sequential Test Number: 1 File: 906P 01-08-10
Laboratory Technician: A. Rudniski

<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 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	52.61 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	6.4 ms	Passed

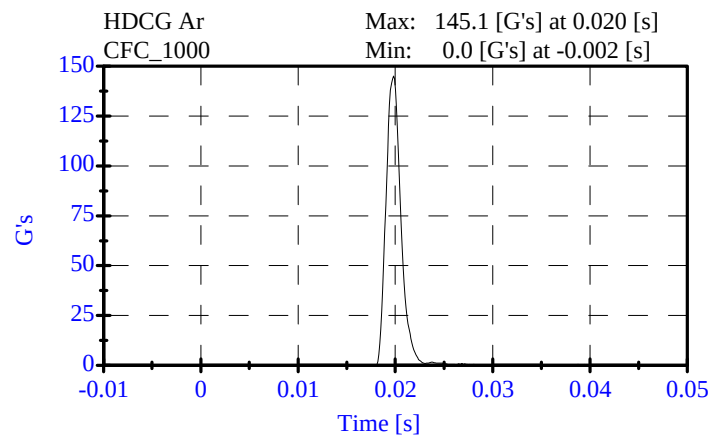
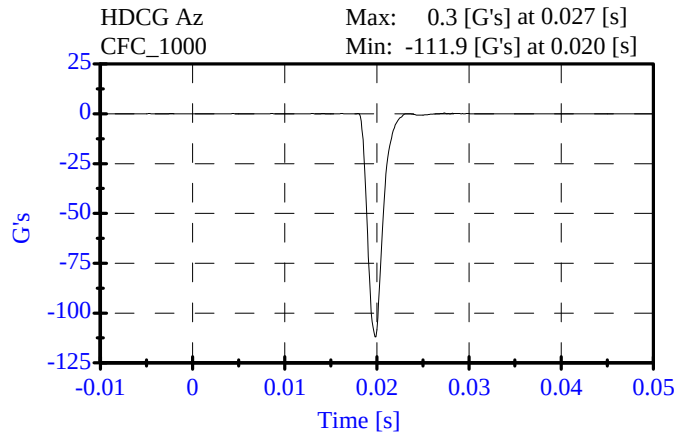
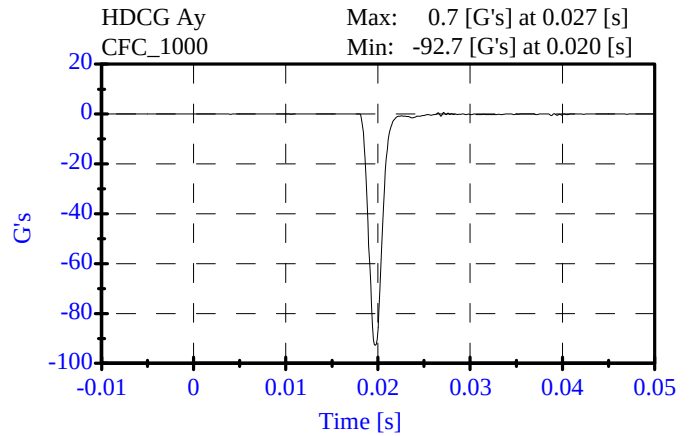
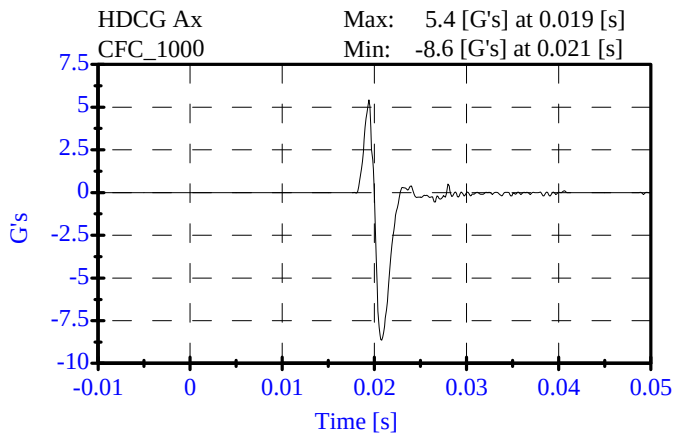


Head Drop Test **Pre-Test** **CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906
Date: 01-07-10

Sequential Test Number: 1 File: 906H2 01-07-10
Laboratory Technician: A.Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	145.06 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	5.42 Gs	Passed
Curve PerCent NonModal:	< 15%	1.05 %	Passed



Neck Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 01-08-10

Sequential Test Number: 1 File: 906N 01-08-10
Laboratory Technician: A. Rudnski

<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 %	36.00 %	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	2.48 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.93 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.85 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.49 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.14 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	58.50 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 Nm	88.28 Nm	Failed
Occipital Moment Decay:	49.0-64.0 ms	52.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	7.00 ms	Passed

Neck Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

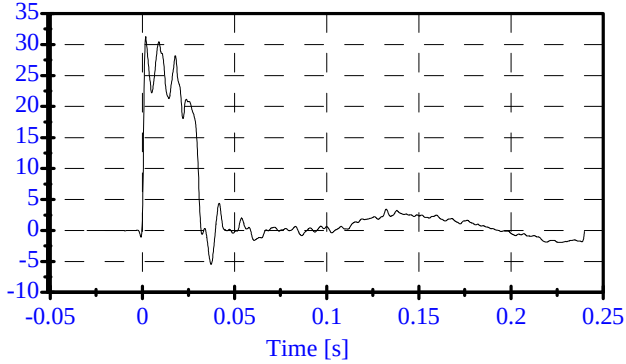
ATD Serial No: 906

Date: 01-08-10

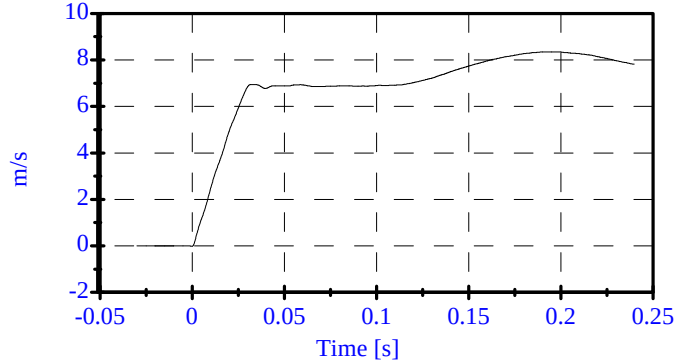
Sequential Test Number: 1 File: 906N 01-08-10

Laboratory Technician: A. Rudniski

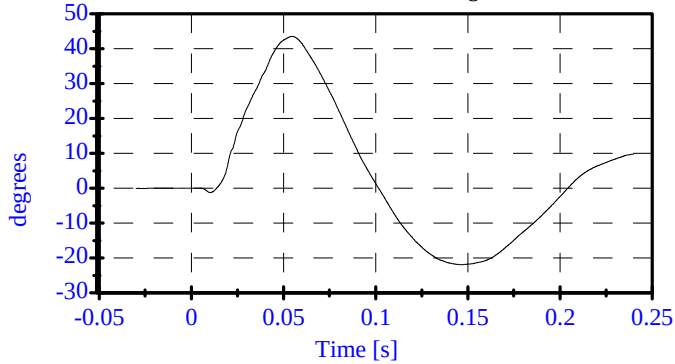
Pend Ax
CFC_180
Max: 31.3 [] at 0.002 [s]
Min: -5.5 [] at 0.037 [s]



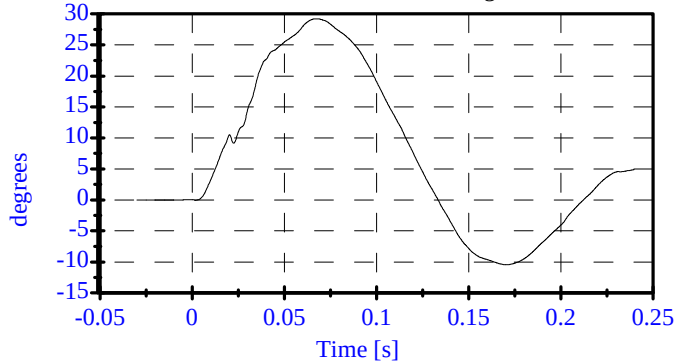
Pend Vx
CFC_180
Max: 8.3 [m/s] at 0.193 [s]
Min: -0.0 [m/s] at -0.000 [s]



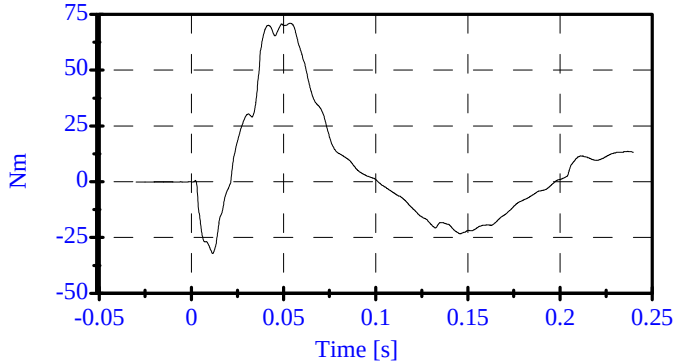
Head Rot
CFC_180
Max: 43.6 [degrees] at 0.055 [s]
Min: -21.8 [degrees] at 0.147 [s]



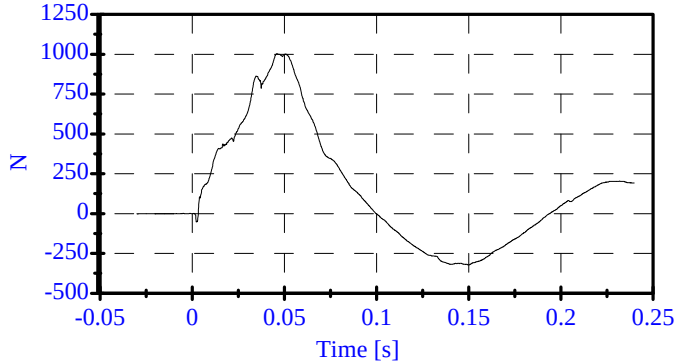
Arm Rot
CFC_180
Max: 29.2 [degrees] at 0.067 [s]
Min: -10.4 [degrees] at 0.170 [s]



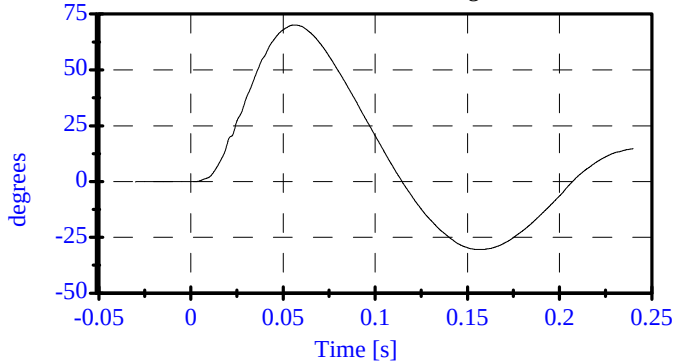
Neck Mx
CFC_600
Max: 71.0 [Nm] at 0.053 [s]
Min: -32.1 [Nm] at 0.012 [s]



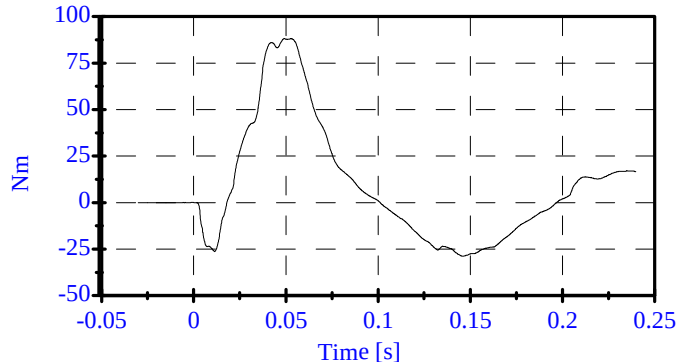
Neck Fy
CFC_1000
Max: 1003.1 [N] at 0.046 [s]
Min: -320.5 [N] at 0.150 [s]



Tot Rot
CFC_180
Max: 70.1 [degrees] at 0.056 [s]
Min: -30.4 [degrees] at 0.157 [s]



MOCX
Max: 88.3 [Nm] at 0.049 [s]
Min: -28.8 [Nm] at 0.146 [s]



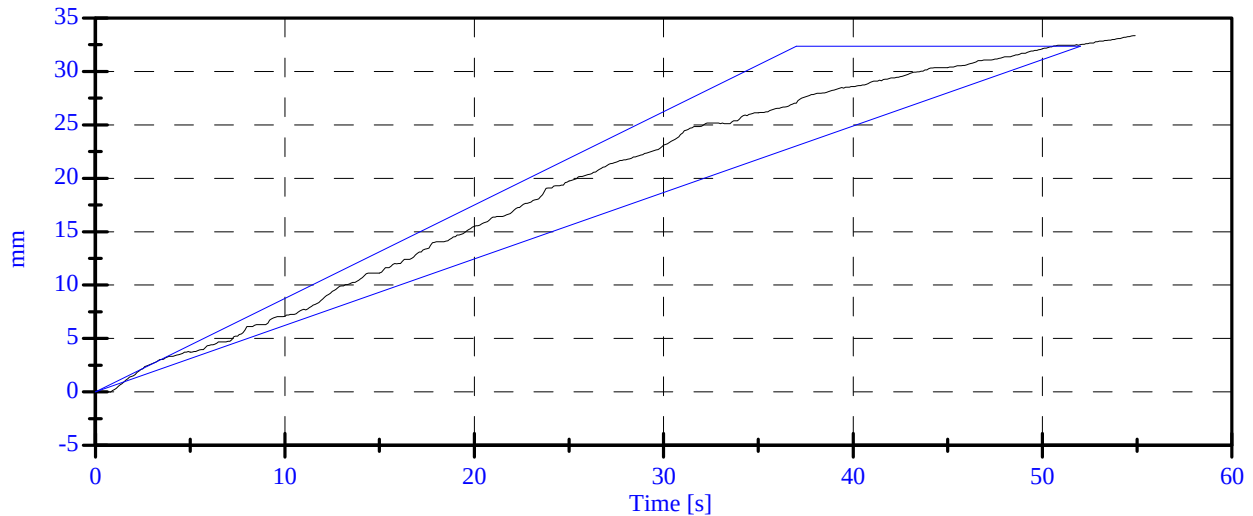
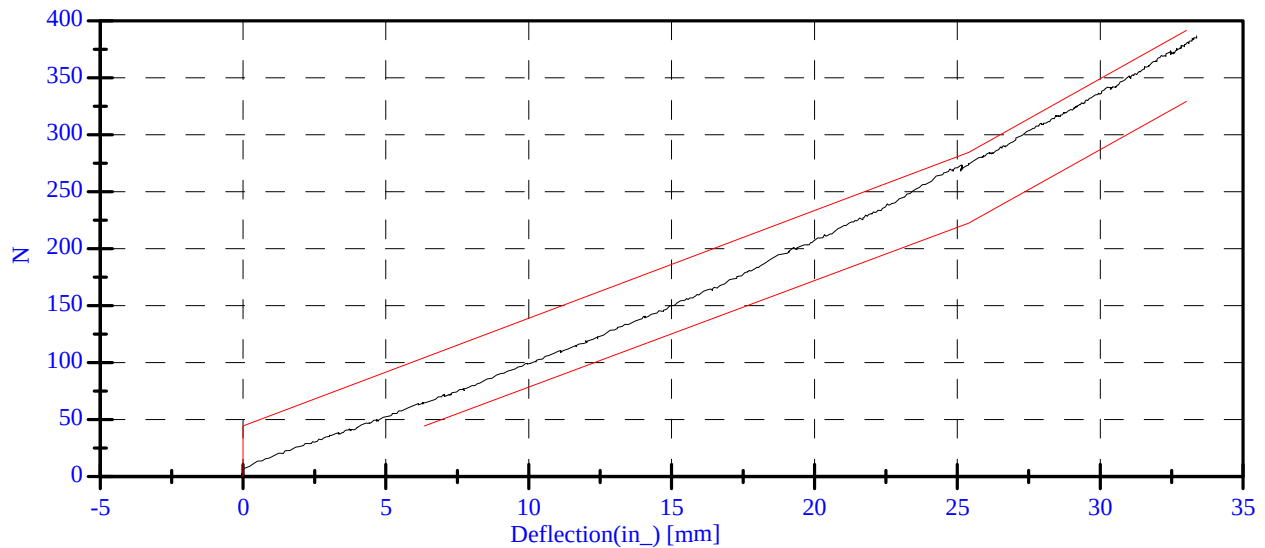
Abdominal Compression Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 01-11-10

Sequential Test Number: 1 File: 906AB 01-11-10
Laboratory Technician: A. Rudniski

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	128.66 N	Passed
Force at 19.05 mm :	162.98-220.99 N	196.19 N	Passed
Force at 25.40 mm :	221.97-280.02 N	273.21 N	Passed
Force at 33.02 mm :	324.99-391.00 N	379.08 N	Passed

ABDOMINAL COMPRESSION TEST



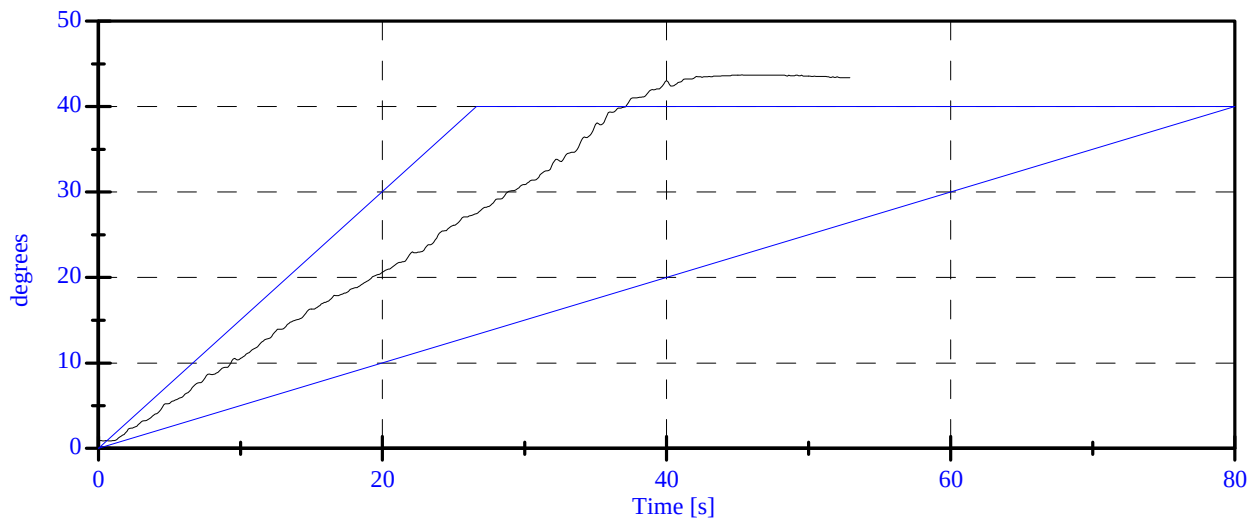
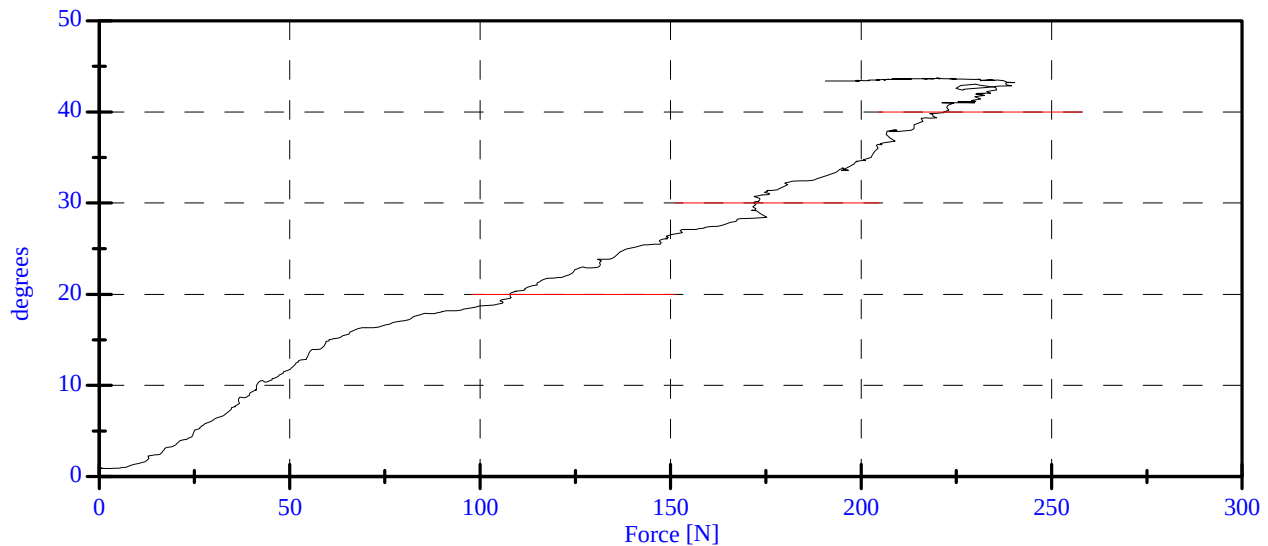
Lumbar Flexion Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 01-11-10

Sequential Test Number: 1 File: 906SP 01-11-10
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	39.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	0.52 N	Passed
Force at 20 Deg:	97.86-151.24 N	107.85 N	Passed
Force at 30 Deg	151.24-204.62 N	171.84 N	Passed
Force at 40 Deg	204.62-258.00 N	221.72 N	Passed
Return Angle	12 Deg Max	9.95 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: 1/11/10 Laboratory Technician: A. Rudniski

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: 2/3/10 Laboratory Technician: A. Rudniski

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: 2/2/10 Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	238
KH- Knee Pivot from Back Line (mm)	511 - 526	519
KV- Knee Pivot to Floor (mm)	490 - 505	494
HW- Hip Width (mm)	356 - 391	384

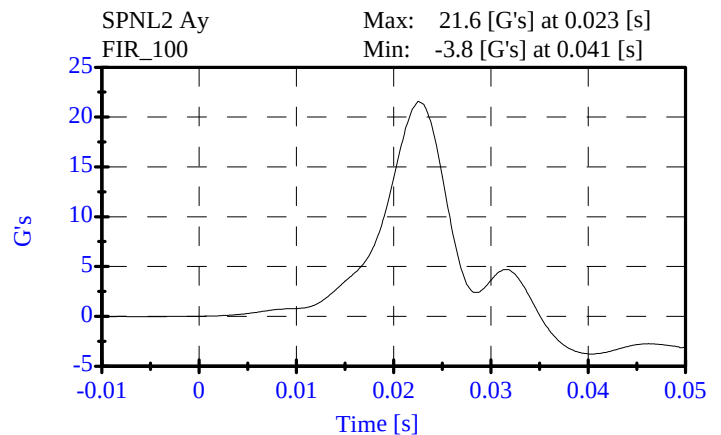
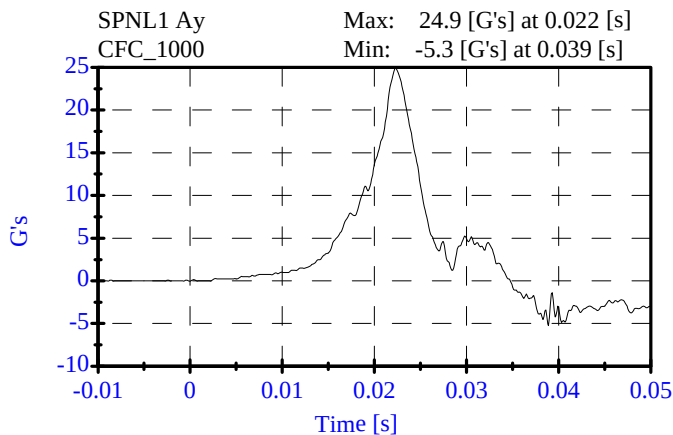
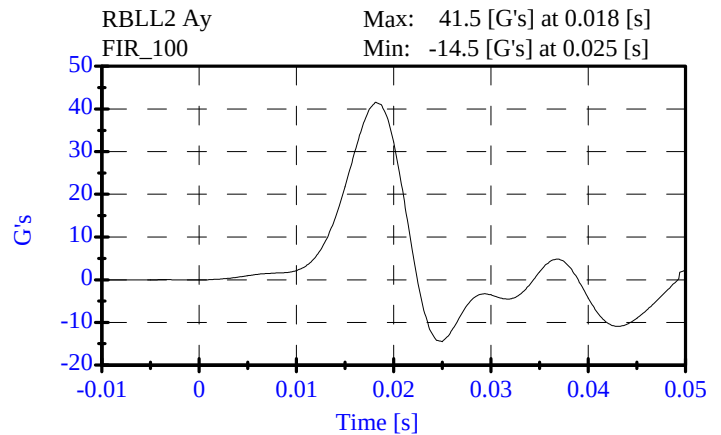
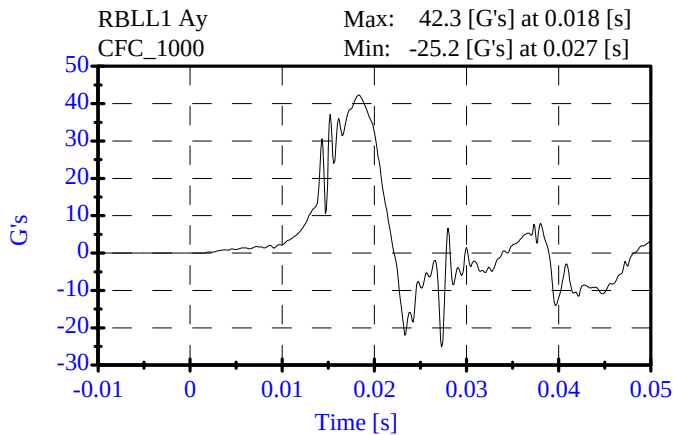
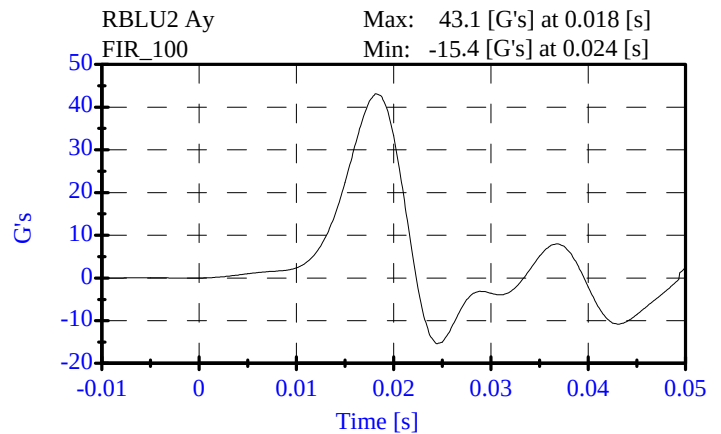
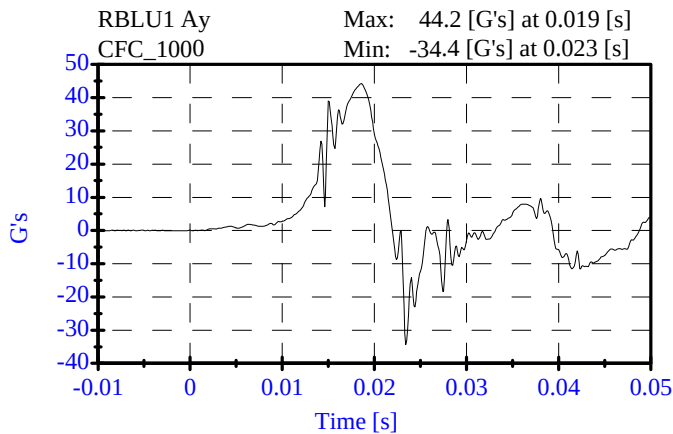
REMARKS: None

Thorax Impact Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 02-03-2010

Sequential Test Number: 1 File: 905T2 02-03-2010 E
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	43.12 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	41.53 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.59 G's	Passed

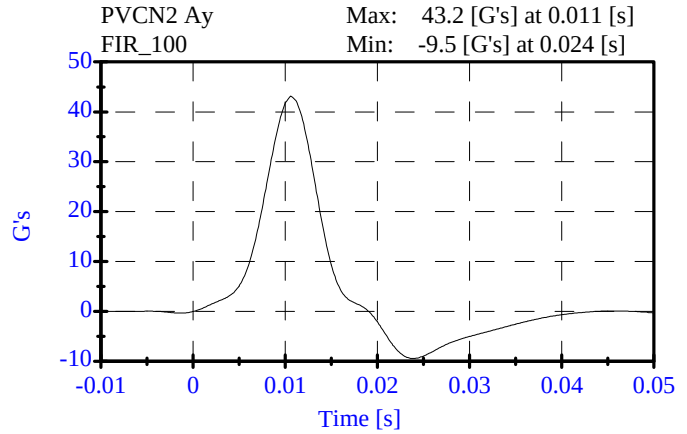
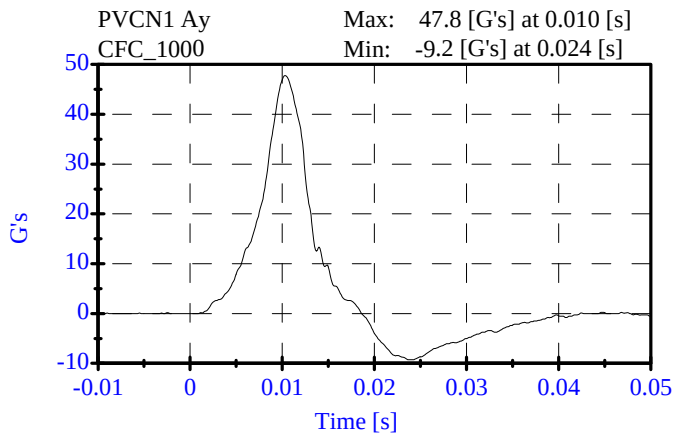


Pelvis Impact Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 02-03-2010

Sequential Test Number: 1 File: 905P 02-03-2010 E
Laboratory Technician: A. Rudniski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	43.16 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	6.3 ms	Passed



Head Drop Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

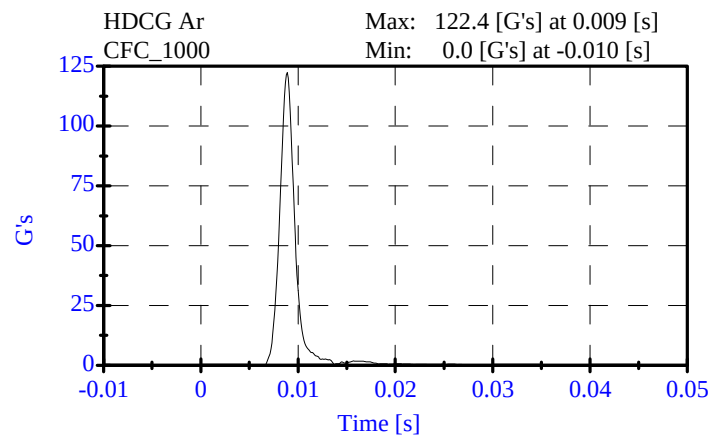
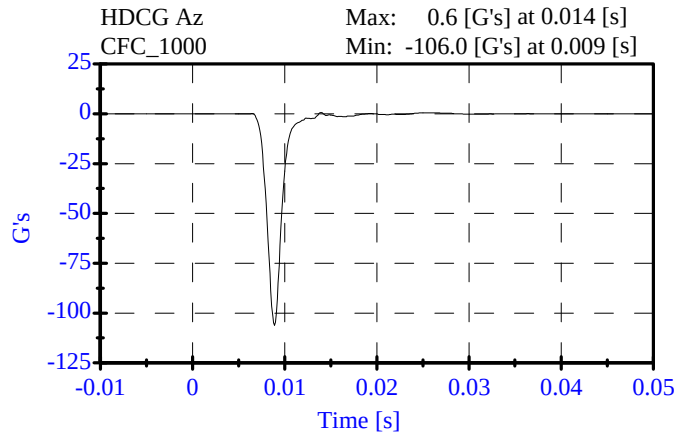
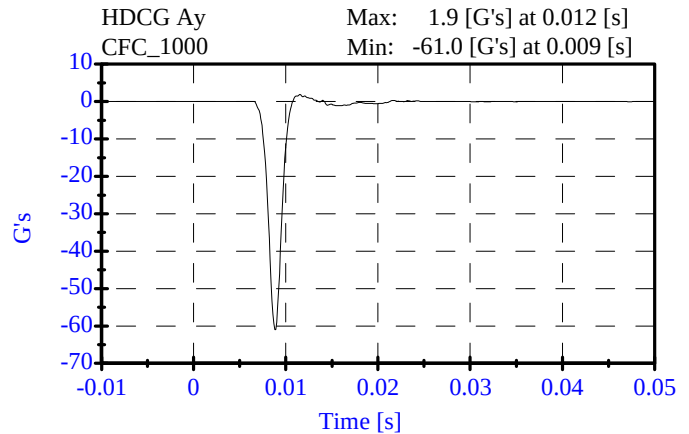
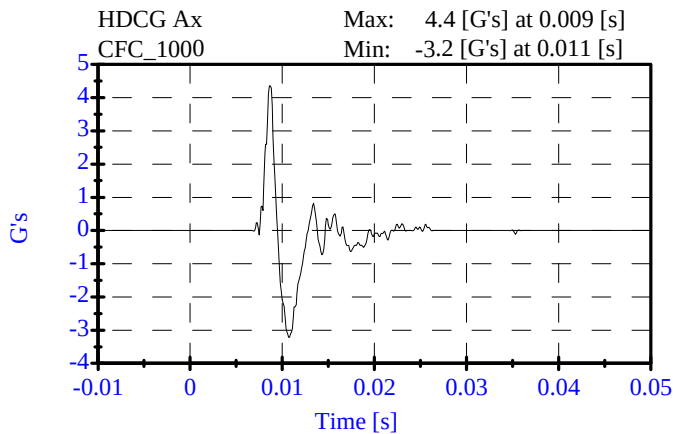
ATD Serial No: 905

Date: 02-02-2010

Sequential Test Number: 1 File: 905H1 02-02-10

Laboratory Technician: A.Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	14.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	122.37 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	4.36 Gs	Passed
Curve PerCent NonModal:	< 15%	2.15 %	Passed



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

ATD Serial No: 905

Sequential Test Number: 1 File: 905N1 02-02-10

Date: 02-02-2010

Laboratory Technician: A. Rudnski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.7 C	Passed
Lab Humidity:	10-70 %	22.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.23 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.60 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.60 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	8.07 m/s	Failed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	74.24 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	80.98 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	57.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	11.40 ms	Passed

Neck Flexion Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

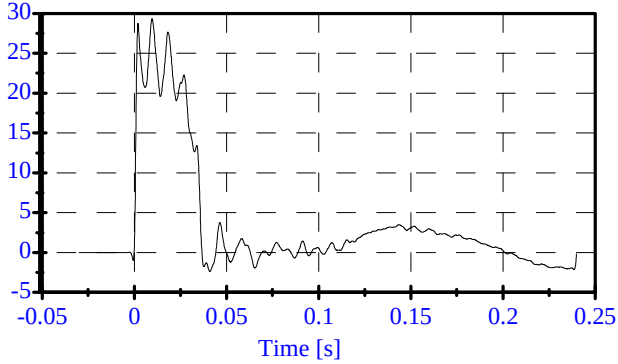
ATD Serial No: 905

Date: 02-02-2010

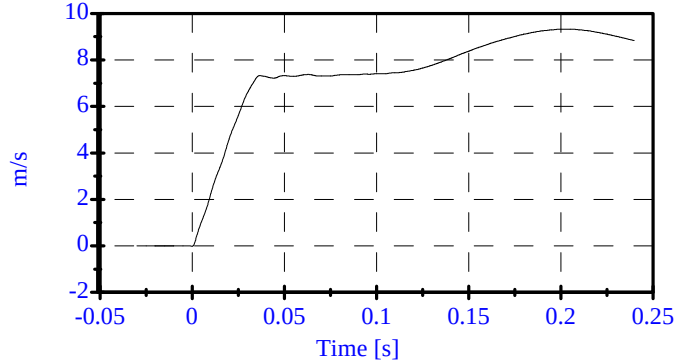
Sequential Test Number: 1 File: 905N1 02-02-10

Laboratory Technician: A. Rudniski

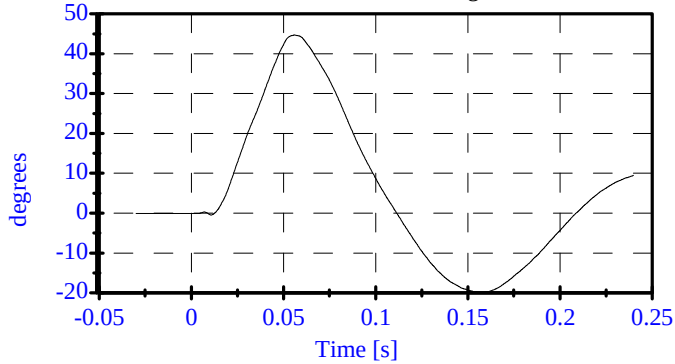
Pend Ax
CFC_180
Max: 29.4 [] at 0.010 [s]
Min: -2.4 [] at 0.041 [s]



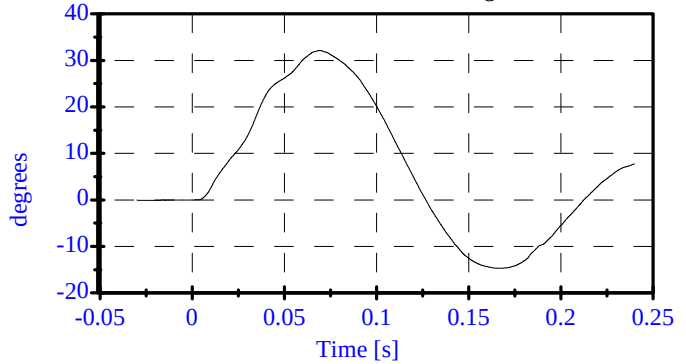
Pend Vx
CFC_180
Max: 9.3 [m/s] at 0.201 [s]
Min: -0.0 [m/s] at -0.000 [s]



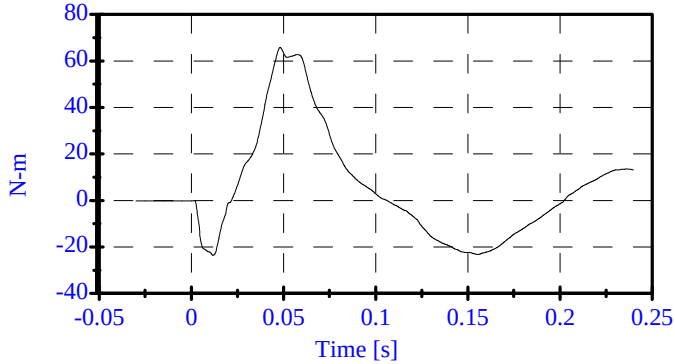
Head Rot
CFC_180
Max: 44.7 [degrees] at 0.056 [s]
Min: -19.9 [degrees] at 0.158 [s]



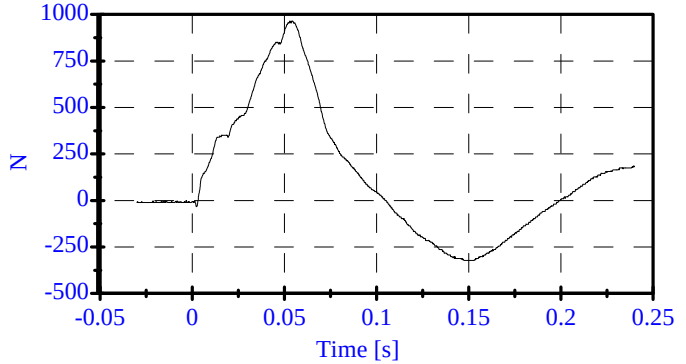
Arm Rot
CFC_180
Max: 32.1 [degrees] at 0.069 [s]
Min: -14.7 [degrees] at 0.166 [s]



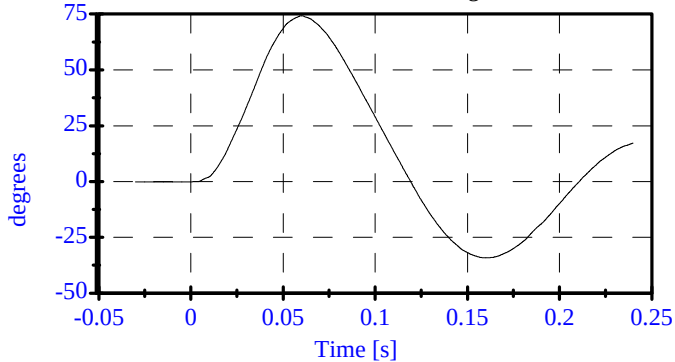
Neck Mx
CFC_600
Max: 65.8 [N-m] at 0.048 [s]
Min: -23.6 [N-m] at 0.012 [s]



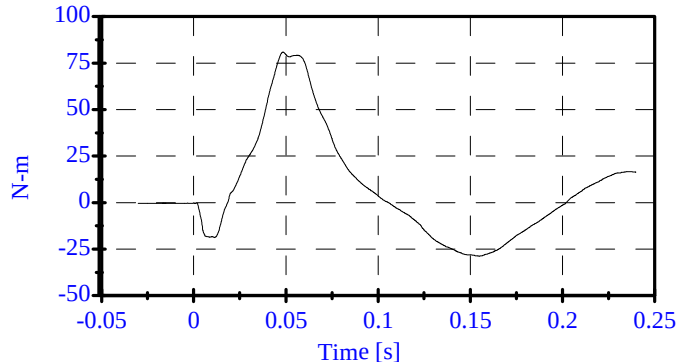
Neck Fy
CFC_1000
Max: 964.8 [N] at 0.054 [s]
Min: -322.9 [N] at 0.147 [s]



Tot Rot
CFC_180
Max: 74.2 [degrees] at 0.060 [s]
Min: -34.1 [degrees] at 0.161 [s]



MOCX
Max: 81.0 [N-m] at 0.049 [s]
Min: -28.7 [N-m] at 0.155 [s]



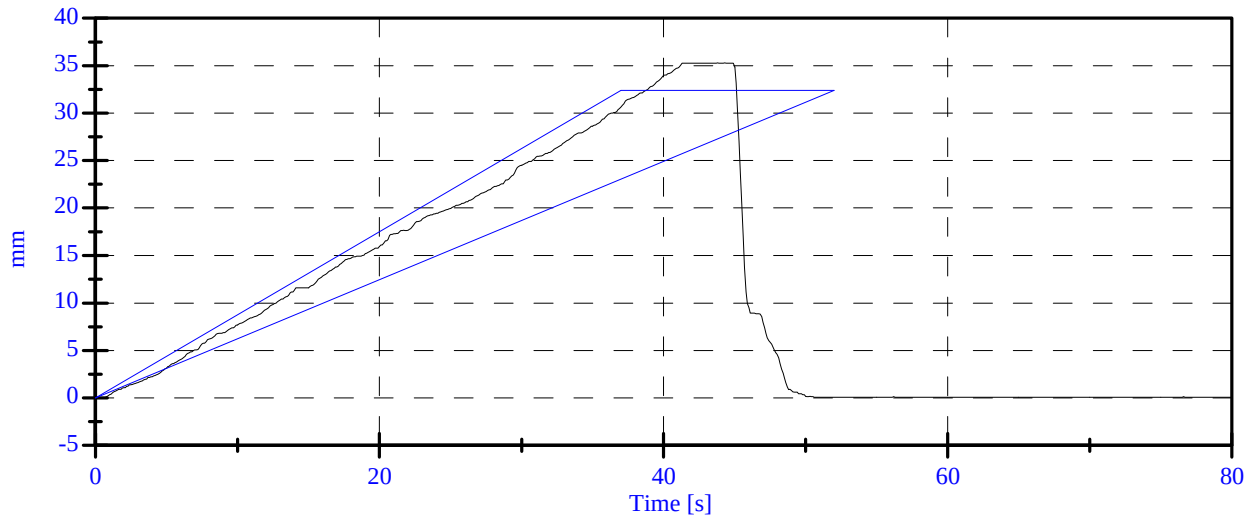
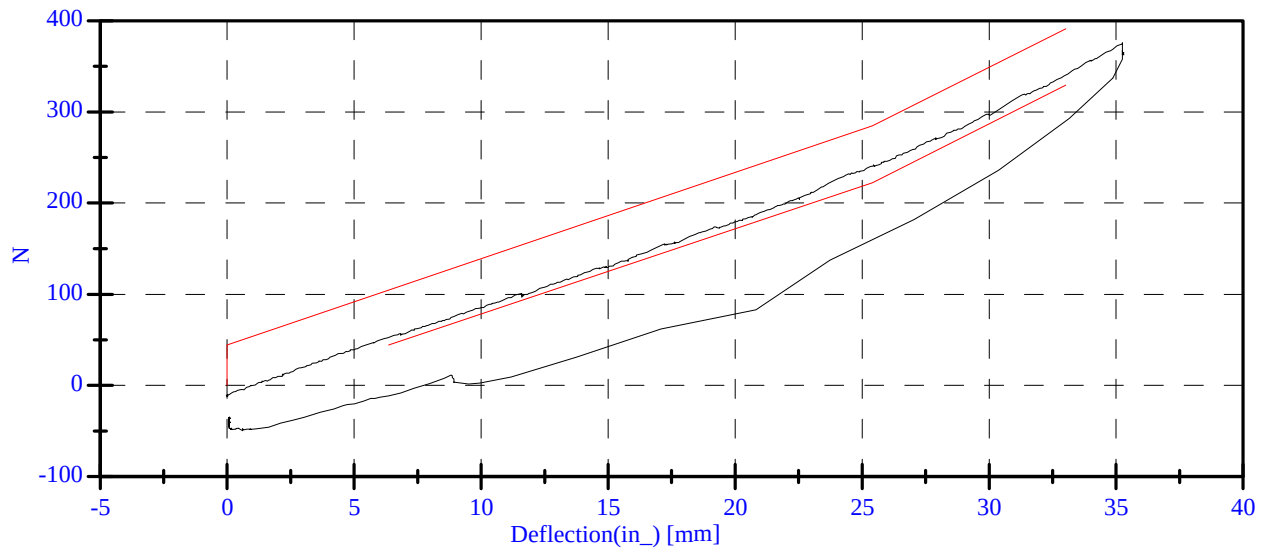
Neck Flexion Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905
Date: 02-02-2010

Sequential Test Number: 1 File: 905Ab 02-03-10 E
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	22.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	111.87 N	Passed
Force at 19.05 mm :	162.98-220.99 N	171.37 N	Passed
Force at 25.40 mm :	221.97-280.02 N	240.73 N	Passed
Force at 33.02 mm :	324.99-391.00 N	339.65 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 905

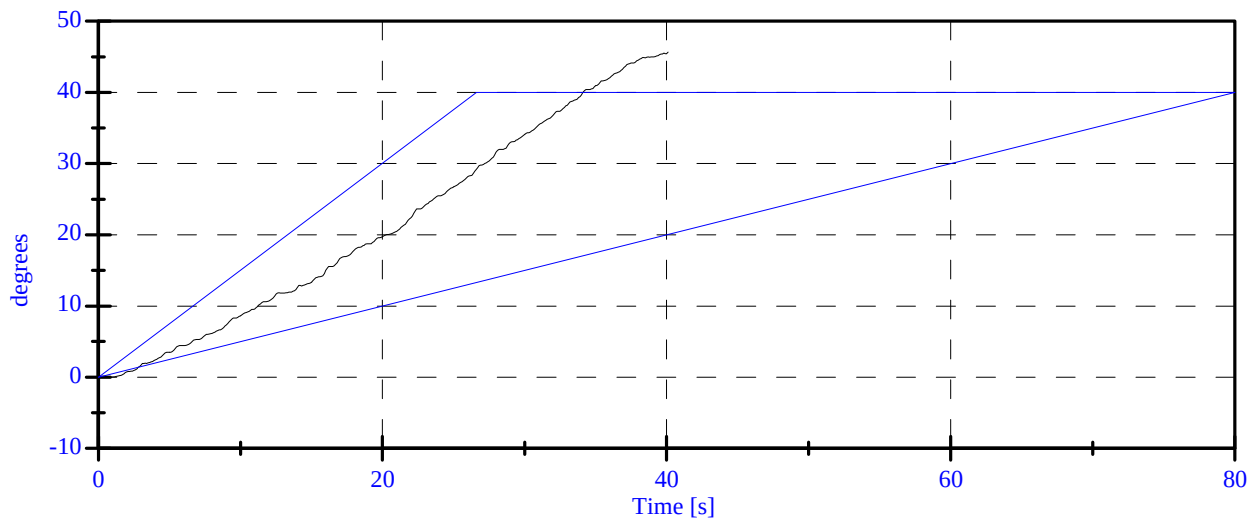
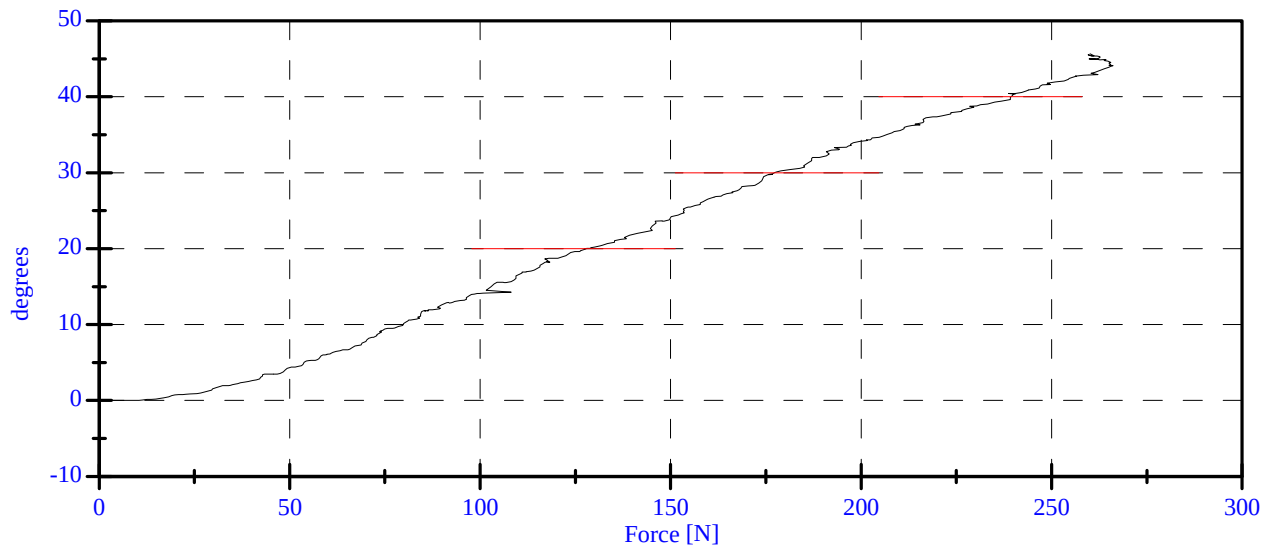
Date: 02-03-2010

Sequential Test Number: 1 File: 905S 02-03-2010 E

Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	0.52 N	Passed
Force at 20 Deg:	97.86-151.24 N	127.96 N	Passed
Force at 30 Deg	151.24-204.62 N	177.32 N	Passed
Force at 40 Deg	204.62-258.00 N	239.22 N	Passed
Return Angle	12 Deg Max	6.81 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: 2/2/10 Laboratory Technician: A. Rudniski

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: 2/3/10 Laboratory Technician: A. Rudniski

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: 2/3/10 Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	520
KV- Knee Pivot to Floor (mm)	490 - 505	491
HW- Hip Width (mm)	356 - 391	383

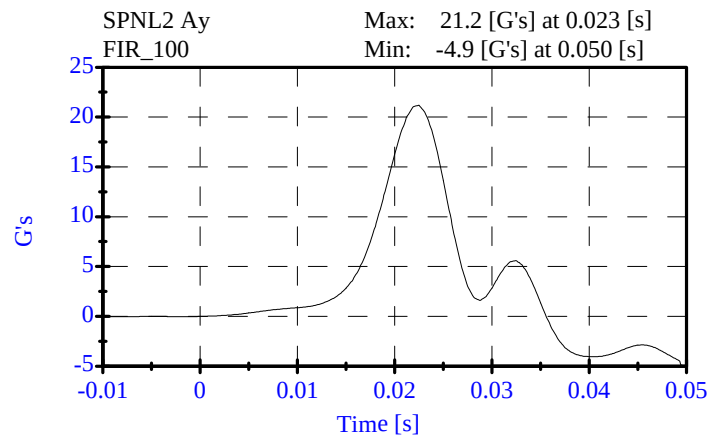
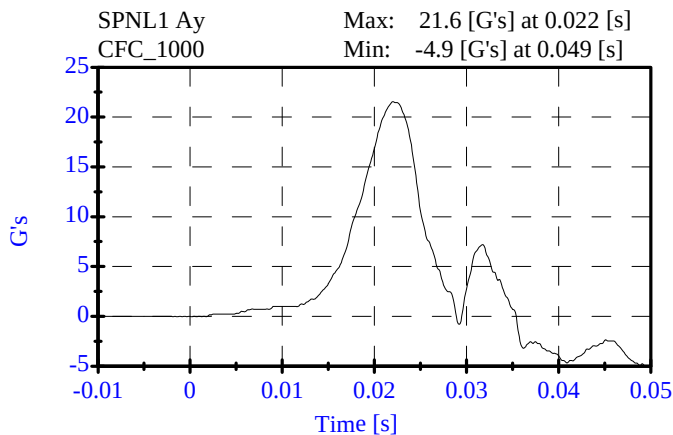
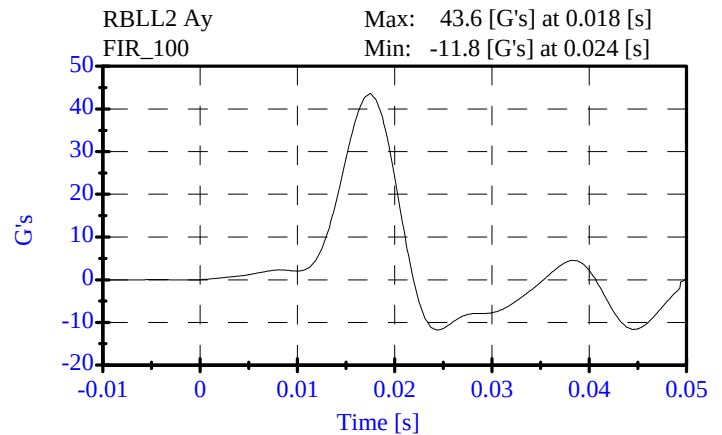
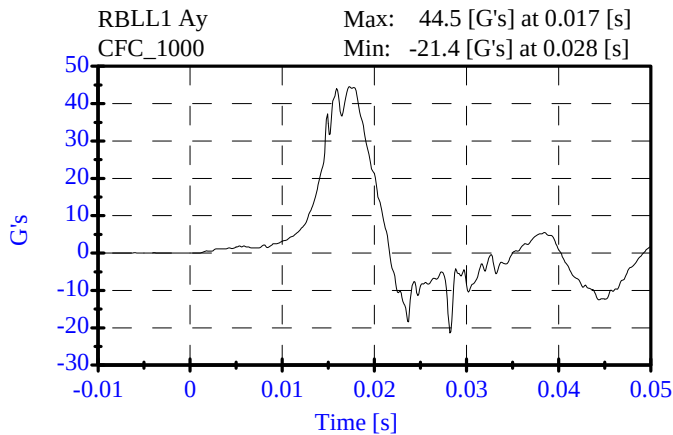
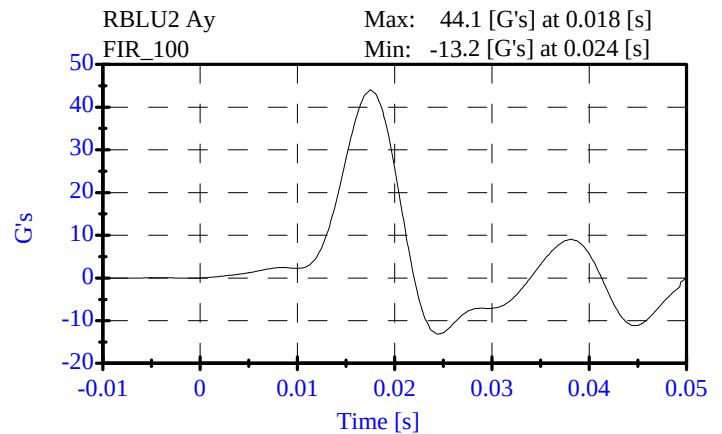
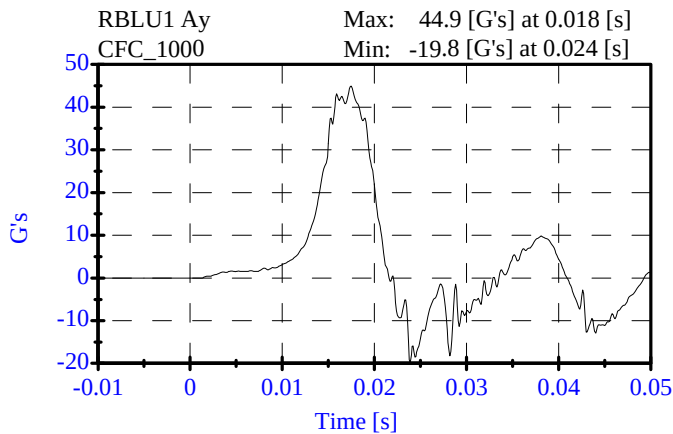
REMARKS: None

Thorax Impact Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 02-03-2010

Sequential Test Number: 1 File: 906T 02-03-2010 E
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	44.09 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	43.63 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.21 G's	Passed



Pelvis Impact Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

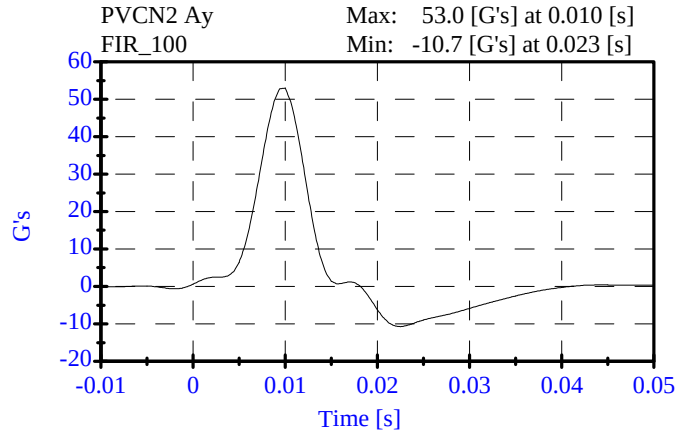
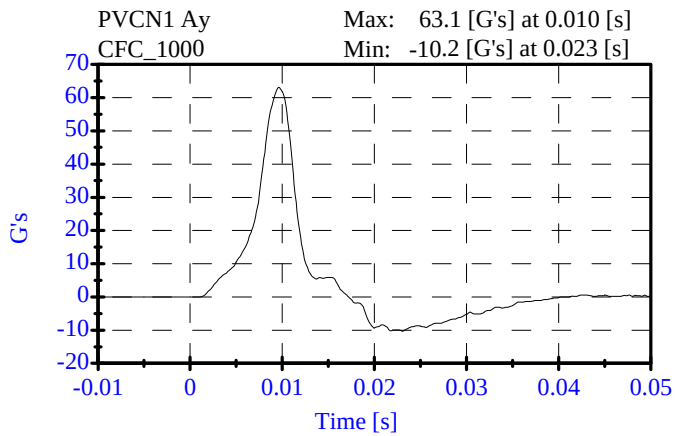
ATD Serial No: 906

Date: 02-03-2010

Sequential Test Number: 1 File: 906P 02-03-2010 E

Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.28 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	52.98 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	6.3 ms	Passed

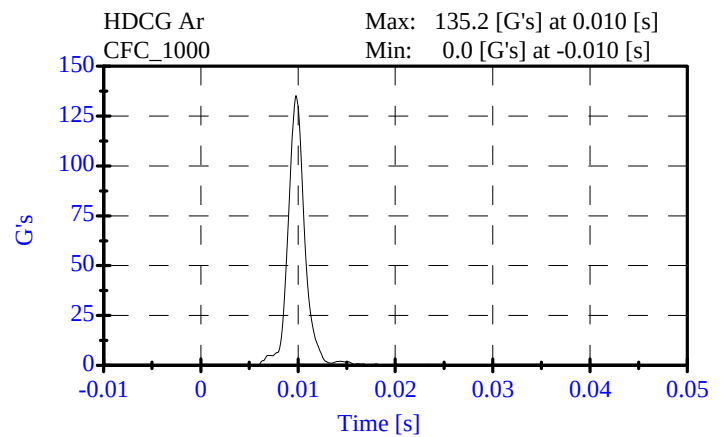
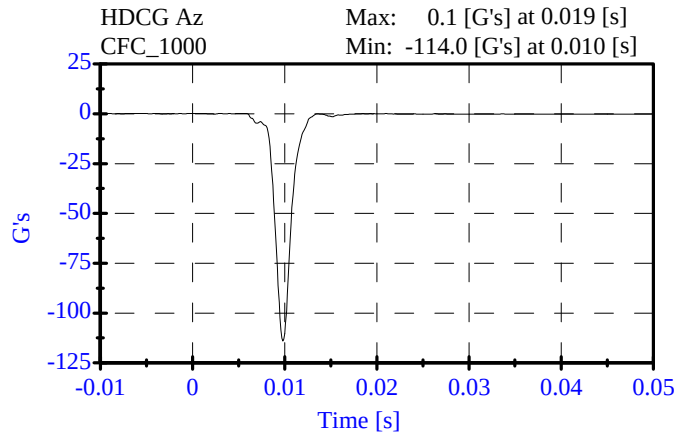
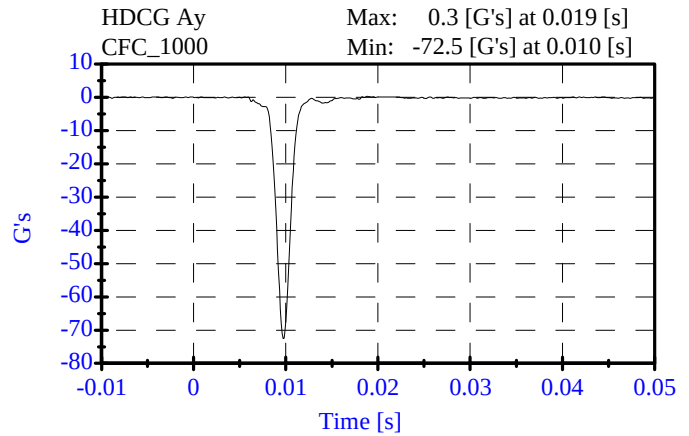
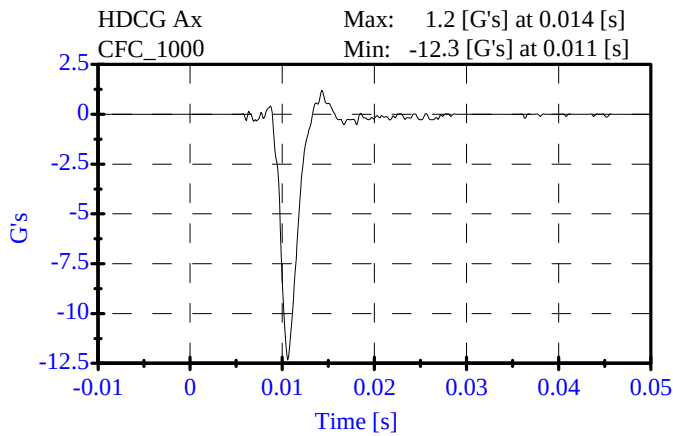


Head Drop Test **Post-Test** **CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 906
Date: 02-02-2010

Sequential Test Number: 1 File: 906H 02-02-2010
Laboratory Technician: A.Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	14.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	135.21 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	1.21 Gs	Passed
Curve PerCent NonModal:	< 15%	1.50 %	Passed



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

ATD Serial No: 906

Date: 02-02-2010

Sequential Test Number: 1 File: 906N1 02-02-2010

Laboratory Technician: A. Rudnski

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.7 C	Passed
Lab Humidity:	10-70 %	22.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	6.99 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.22 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.59 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.60 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	8.31 m/s	Failed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	73.52 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	58.70 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 Nm	81.48 Nm	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	10.50 ms	Passed

Neck Flexion Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

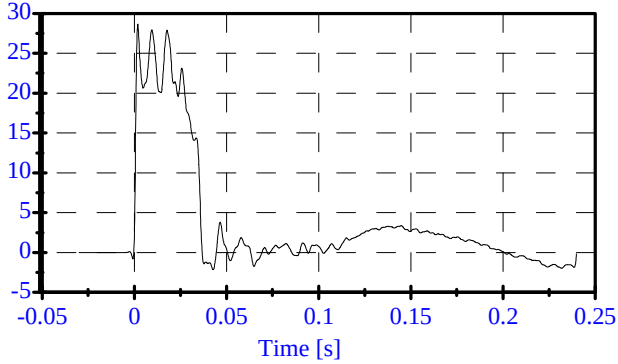
ATD Serial No: 906

Date: 02-02-2010

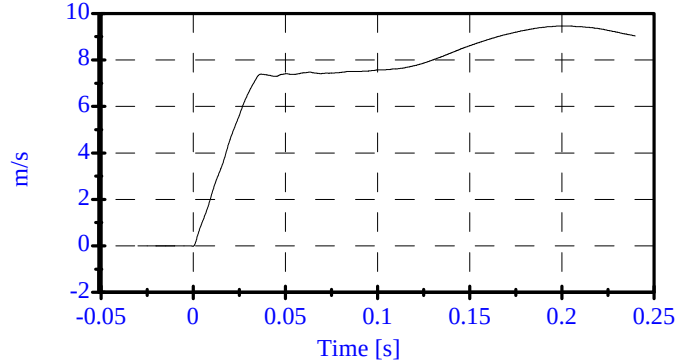
Sequential Test Number: 1 File: 906N1 02-02-2010

Laboratory Technician: A. Rudniski

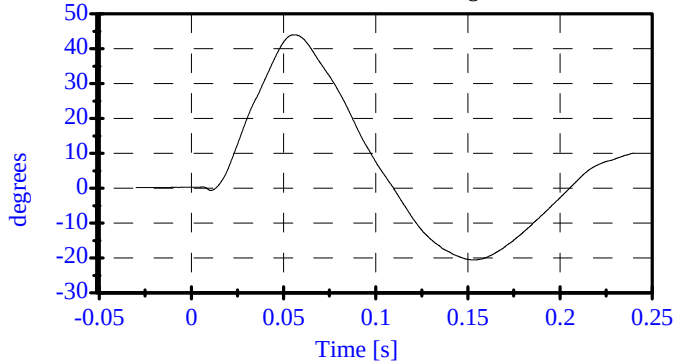
Pend Ax
CFC_180
Max: 28.7 [] at 0.002 [s]
Min: -2.1 [] at 0.043 [s]



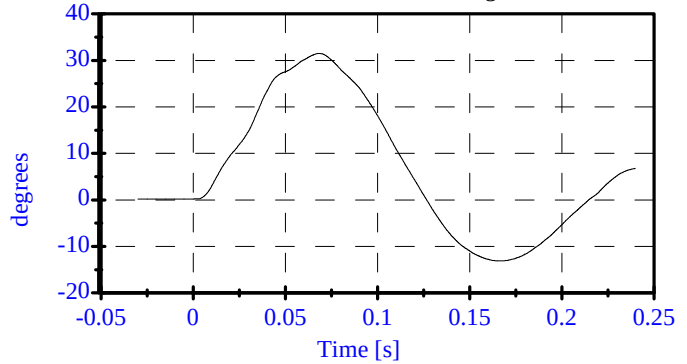
Pend Vx
CFC_180
Max: 9.5 [m/s] at 0.201 [s]
Min: -0.0 [m/s] at -0.000 [s]



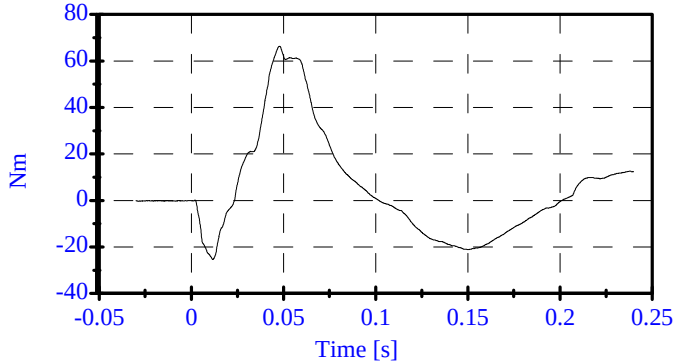
Head Rot
CFC_180
Max: 44.0 [degrees] at 0.056 [s]
Min: -20.5 [degrees] at 0.153 [s]



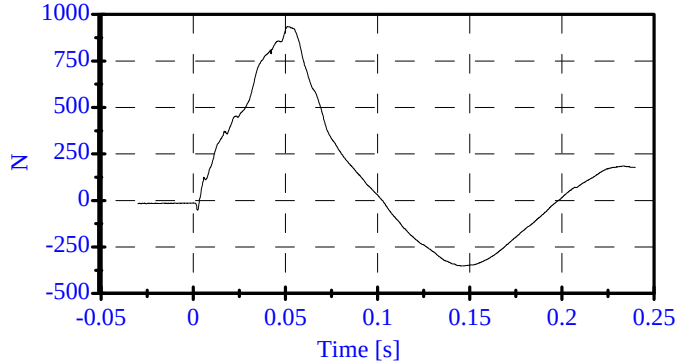
Arm Rot
CFC_180
Max: 31.5 [degrees] at 0.068 [s]
Min: -13.1 [degrees] at 0.167 [s]



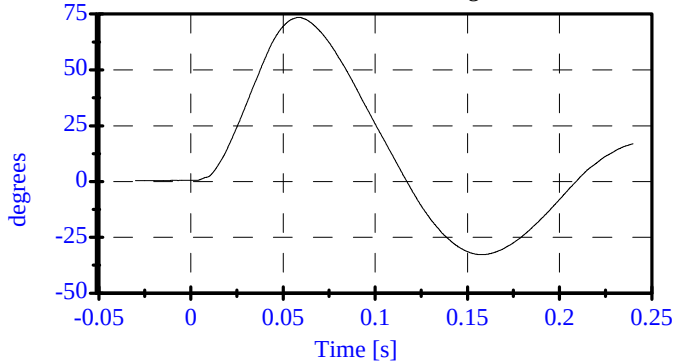
Neck Mx
CFC_600
Max: 66.3 [Nm] at 0.048 [s]
Min: -25.4 [Nm] at 0.012 [s]



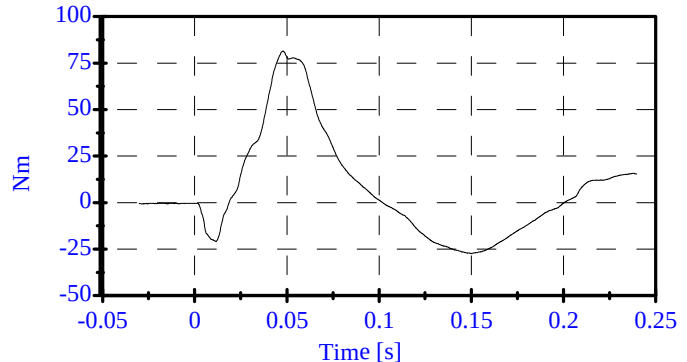
Neck Fy
CFC_1000
Max: 935.1 [N] at 0.051 [s]
Min: -353.1 [N] at 0.147 [s]



Tot Rot
CFC_180
Max: 73.5 [degrees] at 0.059 [s]
Min: -32.7 [degrees] at 0.158 [s]



MOCX
Max: 81.5 [Nm] at 0.048 [s]
Min: -27.4 [Nm] at 0.150 [s]



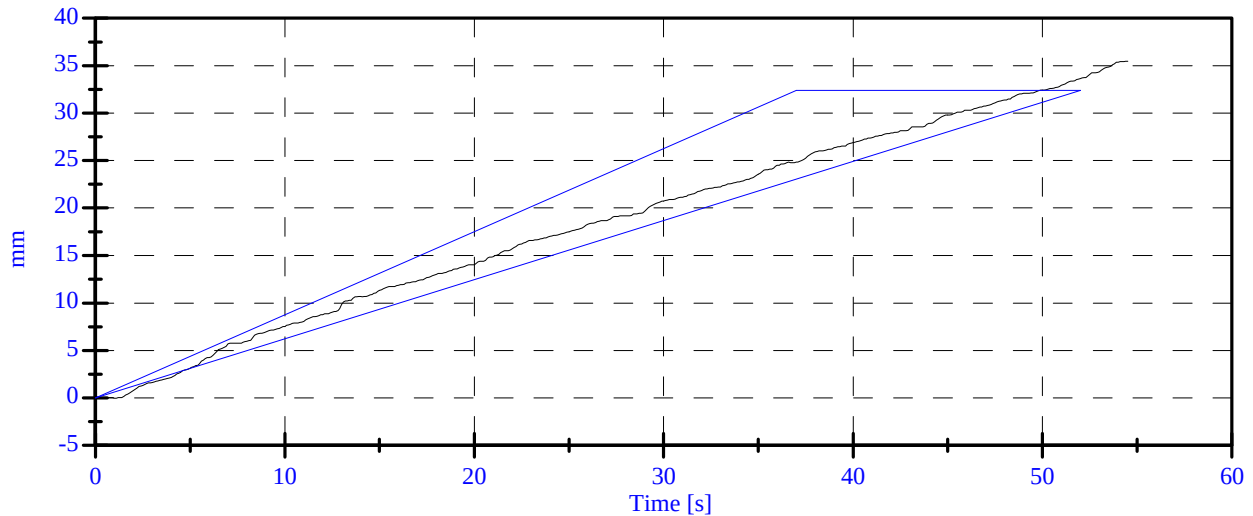
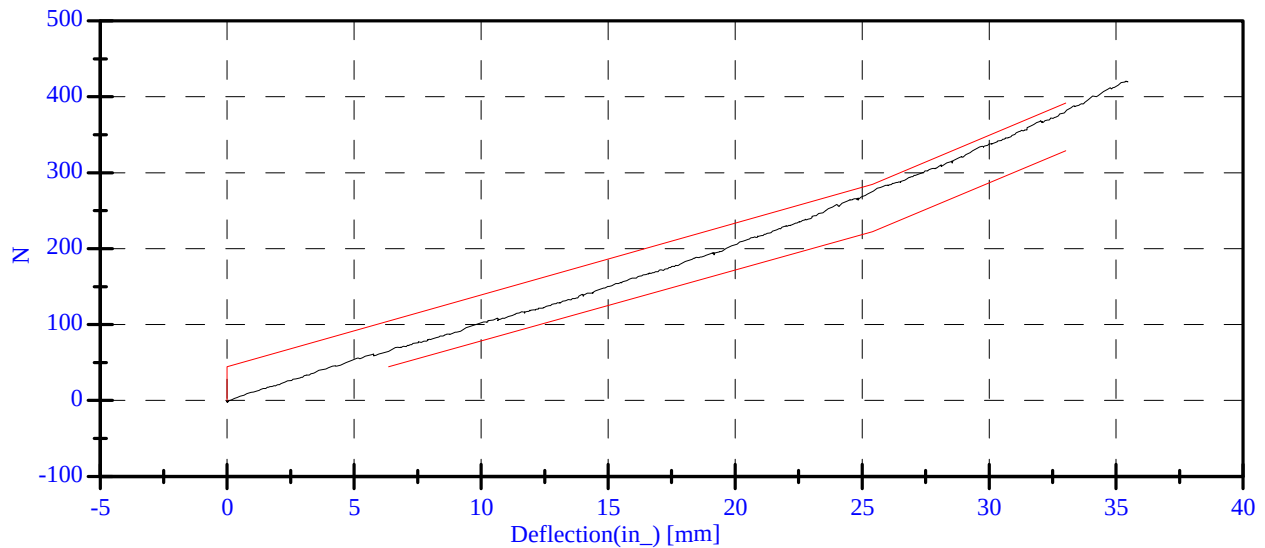
Abdominal Compression Test
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906
Date: 02-03-2010

Sequential Test Number: 1 File: 906Ab 02-03-2010 E
Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	127.56 N	Passed
Force at 19.05 mm :	162.98-220.99 N	193.64 N	Passed
Force at 25.40 mm :	221.97-280.02 N	275.77 N	Passed
Force at 33.02 mm :	324.99-391.00 N	379.81 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 906

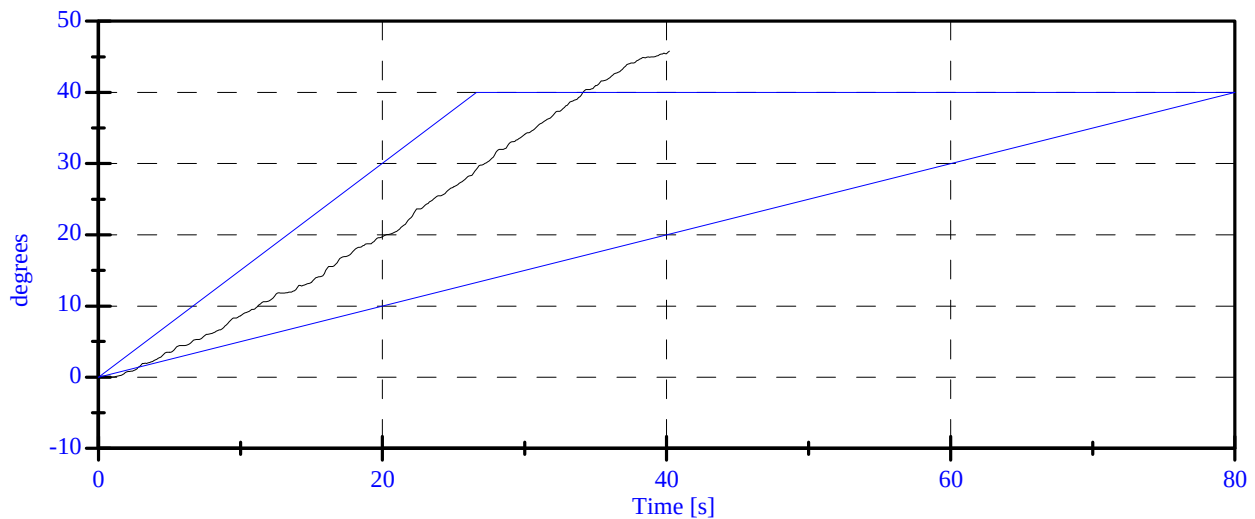
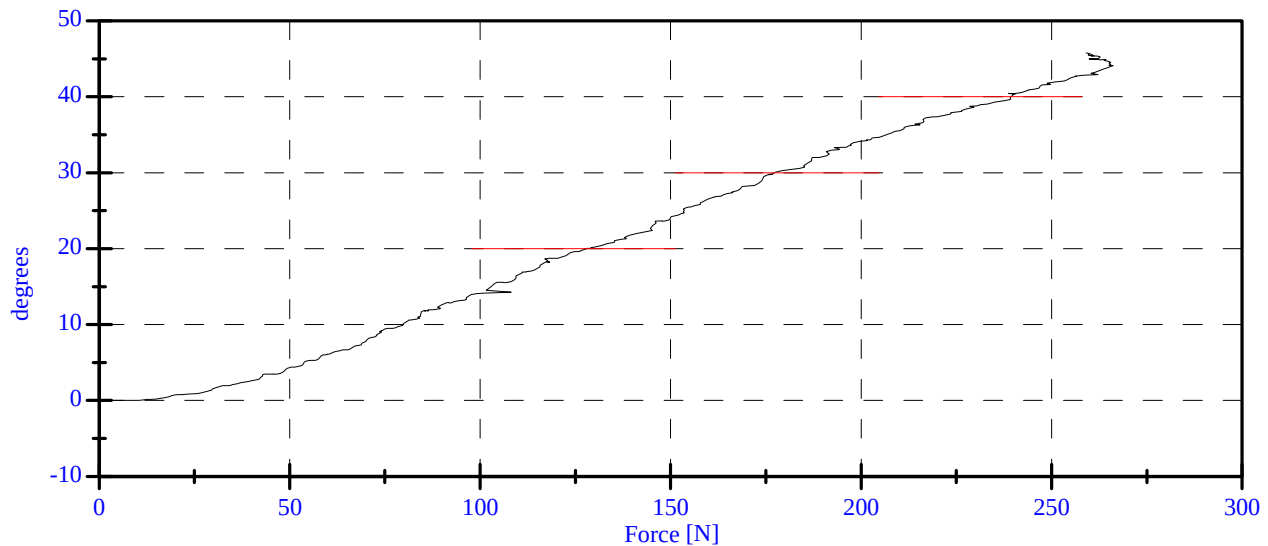
Date: 02-03-2010

Sequential Test Number: 1 File: 906S 02-03-2010 E

Laboratory Technician: A. Rudniski

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	21.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	0.52 N	Passed
Force at 20 Deg:	97.86-151.24 N	127.96 N	Passed
Force at 30 Deg	151.24-204.62 N	177.32 N	Passed
Force at 40 Deg	204.62-258.00 N	239.22 N	Passed
Return Angle	12 Deg Max	0.06 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

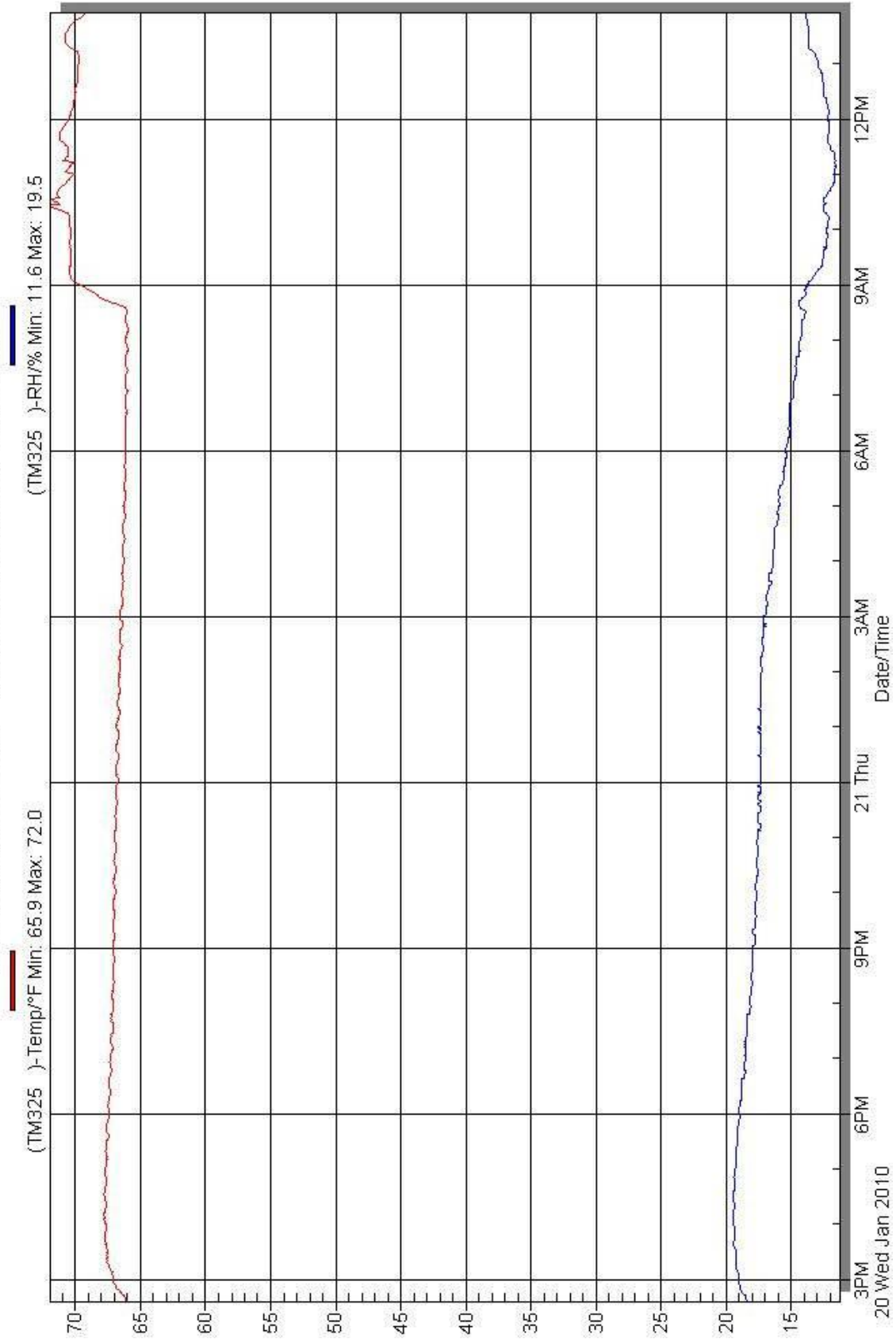
SID H3 Serial No.: 906 Sequential Test Number: 1
Date: 2/2/10 Laboratory Technician: A. Rudniski

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

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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-P58757	ENDEVCO	24-Sep-09
HEAD AY	AC-P58911	ENDEVCO	24-Sep-09
HEAD AZ	AC-P58887	ENDEVCO	24-Sep-09
HEAD AX (Redundant)	AC-P58791	ENDEVCO	24-Sep-09
HEAD AY (Redundant)	AC-P58888	ENDEVCO	24-Sep-09
HEAD AZ (Redundant)	AC-P58904	ENDEVCO	24-Sep-09
UPPER NECK FX	LC-441Fx	DENTON	21-Apr-09
UPPER NECK FY	LC-441Fy	DENTON	21-Apr-09
UPPER NECK FZ	LC-441Fz	DENTON	21-Apr-09
UPPER NECK MX	LC-441Mx	DENTON	21-Apr-09
UPPER NECK MY	LC-441My	DENTON	21-Apr-09
UPPER NECK MZ	LC-441Mz	DENTON	21-Apr-09
UPPER RIB	AC-P59010	ENDEVCO	25-Sep-09
LOWER RIB	AC-P59017	ENDEVCO	25-Sep-09
LOWER SPINE	AC-P59019	ENDEVCO	25-Sep-09
PELVIS	AC-P58777	ENDEVCO	25-Sep-09
UPPER RIB REDUNDANT	AC-P58981	ENDEVCO	25-Sep-09
LOWER RIB REDUNDANT	AC-P58788	ENDEVCO	25-Sep-09
LOWER SPINE REDUNDANT	AC-P58979	ENDEVCO	25-Sep-09
PELVIS REDUNDANT	AC-P59018	ENDEVCO	25-Sep-09

	REAR SID/HIII NO.: 906		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-J24876	ENDEVCO	23-Sep-09
HEAD AY	AC-J14687	ENDEVCO	18-Sep-09
HEAD AZ	AC-AJ7M2	ENDEVCO	18-Sep-09
HEAD AX (Redundant)	AC-P51698	ENDEVCO	18-Sep-09
HEAD AY (Redundant)	AC-J23759	ENDEVCO	18-Sep-09
HEAD AZ (Redundant)	AC-J32099	ENDEVCO	18-Sep-09
UPPER NECK FX	LC-280Fx	DENTON	28-May-09
UPPER NECK FY	LC-280Fy	DENTON	28-May-09
UPPER NECK FZ	LC-280Fz	DENTON	28-May-09
UPPER NECK MX	LC-280Mx	DENTON	28-May-09
UPPER NECK MY	LC-280My	DENTON	28-May-09
UPPER NECK MZ	LC-280Mz	DENTON	28-May-09
UPPER RIB	AC-J32365	ENDEVCO	23-Sep-09
LOWER RIB	AC-J36648	ENDEVCO	23-Sep-09
LOWER SPINE	AC-AJ5P0	ENDEVCO	23-Sep-09
PELVIS	AC-J23805	ENDEVCO	23-Sep-09
UPPER RIB REDUNDANT	AC-J18742	ENDEVCO	23-Sep-09
LOWER RIB REDUNDANT	AC-J19338	ENDEVCO	23-Sep-09
LOWER SPINE REDUNDANT	AC-J19561	ENDEVCO	23-Sep-09
PELVIS REDUNDANT	AC-J27464	ENDEVCO	23-Sep-09

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-P16671	ENDEVCO	25-Sep-09
RIGHT FRONT SILL (Y)	AC-P32288	ENDEVCO	25-Sep-09
RIGHT FRONT SILL (Z)	AC-P23885	ENDEVCO	04-Nov-09
RIGHT REAR SILL (X)	AC-P35811	ENDEVCO	25-Sep-09
RIGHT REAR SILL (Y)	AC-P35789	ENDEVCO	25-Sep-09
RIGHT REAR SILL (Z)	AC-P35803	ENDEVCO	25-Sep-09
REAR FLOORPAN ABOVE AXLE (X)	AC-P23993	ENDEVCO	25-Sep-09
REAR FLOORPAN ABOVE AXLE (Y)	AC-P17283	ENDEVCO	25-Sep-09
REAR FLOORPAN ABOVE AXLE (Z)	AC-P23939	ENDEVCO	25-Sep-09
LEFT REAR SILL (Y)	AC-P23788	ENDEVCO	25-Sep-09
LEFT FRONT SILL (Y)	AC-J31095	ENDEVCO	23-Aug-09
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-P16862	ENDEVCO	25-Sep-09
LOWER LEFT B- PILLAR (Y)	AC-P17242	ENDEVCO	27-Aug-09
MIDDLE LEFT B-PILLAR (Y)	AC-P32204	ENDEVCO	04-Nov-09
LOWER LEFT A-PILLAR (Y)	AC-P39731	ENDEVCO	27-Aug-09
UPPER LEFT A-PILLAR (Y)	AC-P13323	ENDEVCO	27-Aug-09
FRONT SEAT TRACK (Y)	AC-P52389	ENDEVCO	27-Aug-09
REAR SEAT TRACK (Y)	AC-P19217	ENDEVCO	23-Aug-09
VEHICLE CG (X)	AC-P35757	ENDEVCO	25-Sep-09
VEHICLE CG (Y)	AC-P21399	ENDEVCO	25-Sep-09
VEHICLE CG (Z)	AC-P23899	ENDEVCO	25-Sep-09
MDB CG (X)	AC-C16680	ENDEVCO	09-Nov-09
MDB CG (Y)	AC-C14948	ENDEVCO	09-Nov-09
MDB CG (Z)	AC-CP30	ENDEVCO	09-Nov-09
MDB REAR FRAME MEMBER (X)	AC-C15007	ENDEVCO	09-Nov-09
MDB REAR FRAME MEMBER (Y)	AC-C16499	ENDEVCO	09-Nov-09

REMARKS: None