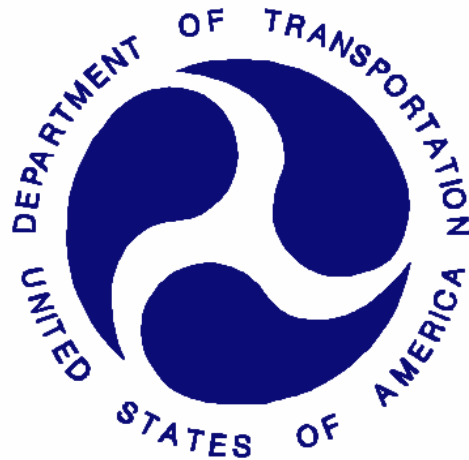


REPORT NUMBER: NCAPSIDE-MGA-2008-013

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**NISSAN MOTOR COMPANY, LTD.
2008 INFINITI EX35 AWD JOURNEY
NHTSA NUMBER: M85213**

**PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105**



Test Date: January 21, 2008


Report Date: February 26, 2008

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
1200 NEW JERSEY AVENUE, 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 DTNH22-03-D-12005.

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Prepared by:  Date: 2/26/08
Ben Fischer, Project Engineer

Reviewed by:  Date: 2/26/08
David Winkelbauer, Facility Director

Technical Report Documentation Page

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15. Supplementary Notes No.																								
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2008 Infiniti EX35 AWD Journey to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on January 21, 2008. The impact velocity of the Moving Deformable Barrier (MDB) was 62.3 km/h, and the ambient temperature at the struck side (drivers) of the vehicle was 21°C. The target vehicle's maximum post test static crush was 255 mm at level 3. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">40.8</td> <td style="text-align: center;">47.8</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">40.4</td> <td style="text-align: center;">44.7</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">29.3</td> <td style="text-align: center;">56.3</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">35</td> <td style="text-align: center;">52</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">38.8</td> <td style="text-align: center;">42.0</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">62</td> <td style="text-align: center;">93</td> </tr> </tbody> </table> <p>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.</p>					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	40.8	47.8	Left Lower Rib (LLR) Accel., g	40.4	44.7	Lower Spine (T ₁₂) Accel., g	29.3	56.3	Thoracic Trauma Index (TTI)	35	52	Pelvis (PEV) Accel., g	38.8	42.0	HIC	62	93
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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																						
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Form DOT F1700.7 (8-72)

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2008 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-12005. The purpose of this test was to evaluate side impact protection in a 2008 Infiniti EX35 AWD Journey manufactured by Nissan Motor Company, Ltd.

TEST PROCEDURE

The side impact test was conducted in accordance with the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002 and the corresponding MGA Research Corporation Test Procedure MGA-NHTSA5. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A model year 2008 Infiniti EX35 AWD Journey 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 62.3 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 2031.2 kg and the test weight of the MDB was 1360.8 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on January 21, 2008.

One (1) real-time motion picture camera and nine (9) 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/HIIIs were placed in the driver and left rear passenger 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 (20) structural accelerometers and the MDB was instrumented with five (5) accelerometers and two (2) contact switches on the bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board DTS TDAS Pro Data Acquisition System. The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 255 mm at level 3, 1650 mm rearward of the vertical impact point. The driver and passenger SID/HIIIs, Serial Nos. 904 and 271 respectively, were calibrated just prior to this test.

Appendix A contains the still photograph prints. Appendix B contains the SID/HIII response data traces. Appendix C contains the dummy calibration data. Appendix D contains the child dummy data.

The occupant data is summarized below:

ATD position	HIC	T ¹	T ²	TTI (G's)	Peak Pelvis (G's)
Driver	62	44.3	80.3	35	38.8
Passenger	93	56.5	78.2	52	42.0

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Information	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	No	
Side Torso Airbag	Yes	Yes	No	
Curtain Airbag	Yes	Yes	Yes	Yes

The test data can be found on the NHTSA website at www.nhtsa.dot.gov.

TEST NOTES

There was no valid data collected for:

- Right Rear Sill X
- Left Front Sill Y after 10 msec.
- RR Occupant Compartment Y
- Left Lower B-Post Y after 10 msec.
- Left Mid B-Post Y
- Left Lower A-Post Y
- Vehicle CG X after 30 msec.
- Vehicle CG Y after 30 msec.
- Vehicle CG Z after 30 msec.
- Passenger Lower Spine Y is Questionable from 80-90 msec.

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

TEST VEHICLE INFORMATION

Make	Infiniti
Model	EX35
Body Style	Passenger Car
NHTSA No.	M85213
VIN	JNKAJ09F48M350405
Color	Liquid Platinum
Delivery Date	1/15/2008
Odometer Reading (mile)	59
Dealer	Infiniti North Shore
Transmission	Automatic
Final Drive	AWD
Number of Cylinders	6
Engine Displacement (L)	3.5
Engine Placement	Longitudinal
Automatic Door Locks (ADL)	Yes
Owner's Manual Details Instructions on Disabling ADLs	Yes

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	Yes
Rear Passenger Side Curtain Airbag	Yes
Rear Passenger Side Torso Airbag	No
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Anti-lock Brakes	Yes
Traction Control	Yes
All Wheel Drive	Yes
Power Seats	Yes
Pretensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Nissan Motor Company, Ltd.
Date of Manufacture	11/07

GVWR (kg)	2281
GAWR Front (kg)	1130
GAWR Rear (kg)	1155

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				390
Cargo Wt. (RCLW) (kg)				50

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	486.7	422.3		528.0	510.8	
Right	kg	494.9	422.7		522.5	469.9	
Ratio	%	53.7	46.3		51.7	48.3	
Totals	kg	981.6	845.0	1826.6	1050.5	980.7	2031.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1826.6
Weight of 2 P572M ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	50
Calculated Vehicle Target Weight (TVTW)	kg	2038.1

* Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

Weight of Ballast in Cargo Area: None

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	750	757	755	750	1294
As Tested	mm	748	755	737	740	1350
Fully Loaded	mm	741	755	731	729	

TEST VEHICLE VERTICAL IMPACT LINE DATA

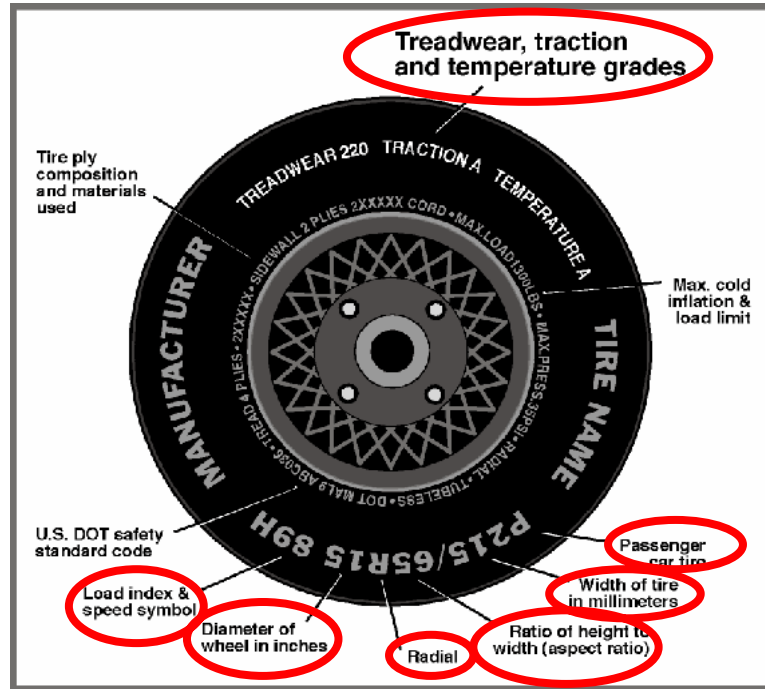
Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2797
Target Impact Point Aft of Front Axle	mm	459
Actual Impact Point Aft of Front Axle	mm	455

DATA SHEET NO. 2

TEST VEHICLE TIRE INFORMATION

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold / Test Pressure (kPa)	230	230
Recommended Tire Size	225/60R17	225/60R17
Tire Size on Vehicle	225/60R17	225/60R17
Tire Manufacturer	Dunlop	Dunlop
Tire Name	SP Sport 7000	SP Sport 7000
Tire Type	Passenger	Passenger
Tire Width (mm)	225	225
Ratio of Height to Width (aspect ratio)	60	60
Radial	R	R
Wheel Diameter	17	17
Load Index & Speed Symbol	98V	98V
Treadwear	340	340
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 3
TEST VEHICLE INFORMATION

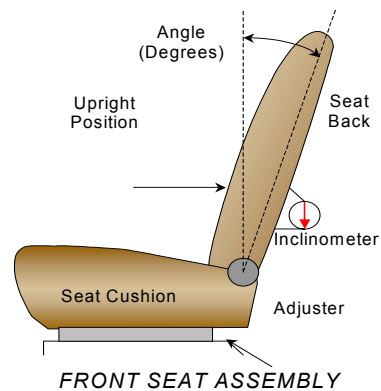
Test Vehicle: 2008 Infiniti EX35 AWD Journey
Test Program: NCAP Side Impact

NHTSA No. M85213
Test Date: 1/21/2008

NORMAL DESIGN RIDING POSITION

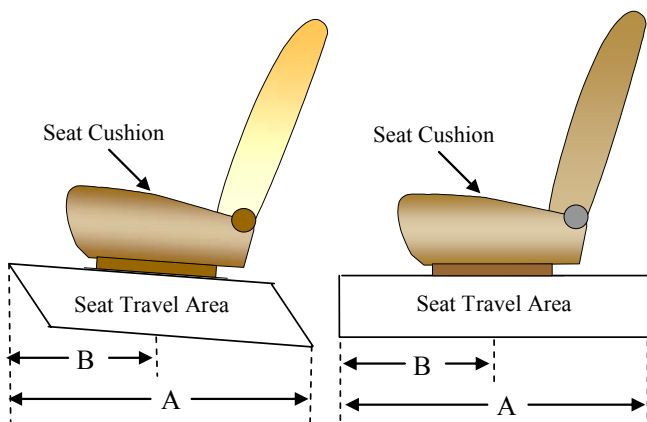
The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows:
Set seat back angle 953 mm to rear striker per Form 1.

Driver seat back angle: 953 mm to rear striker
Passenger seat back angle: Fixed



SEAT FORE/AFT POSITIONS

	Total Fore/Aft Travel	Placed in position #
Driver Seat	324 mm	162 mm
Rear Seat	Fixed	Fixed



DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

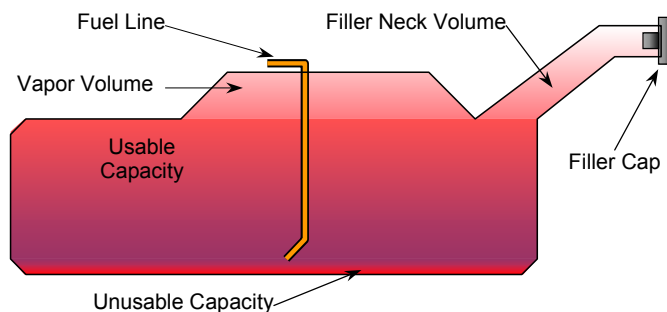
Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	75.7
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	69.6 to 71.2
Actual Amount of Solvent used	70.4
1/3 of Usable Capacity	25.2

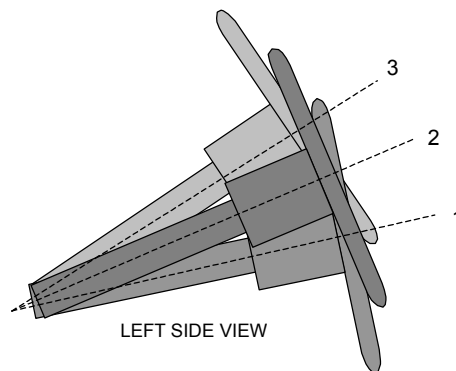
The test vehicle is equipped with an electric fuel pump. The fuel pump will pump fuel when the ignition key is in the "ON" position.



VEHICLE FUEL TANK ASSEMBLY

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 (mm)	Degrees
Lowermost position No. 1	0	63.5
Geometric center position No. 2	22 mm	66.0
Uppermost position No. 3	45 mm	68.5

DATA SHEET NO. 4

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
Test Program: NCAP Side Impact

NHTSA No. M85213
Test Date: 1/21/2008

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2588
C.G. Location aft of Front Axle	1101

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	473.5	219.5	
Right	kg	308.3	359.5	
Ratio	%	57.5	42.5	
Totals	kg	781.8	579.0	1360.8

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.3
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.3
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.9

POST TEST OBSERVATIONS MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	4 forward
Vertical Offset	mm	+/-20	6 up

DATA SHEET NO. 5

POST TEST OBSERVATIONS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID HIII / 904	SID HIII / 271
Head Contact	Curtain Airbag, Headrest	Curtain Airbag, Side Header, Headrest
Upper Torso Contact	Side Airbag	Door Panel
Lower Torso Contact	Door Panel	Door Panel
Left Knee Contact	Door Panel	Door Panel
Right Knee Contact	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

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

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	None
Window Damage	Left Front and Left Rear Windows Broke
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

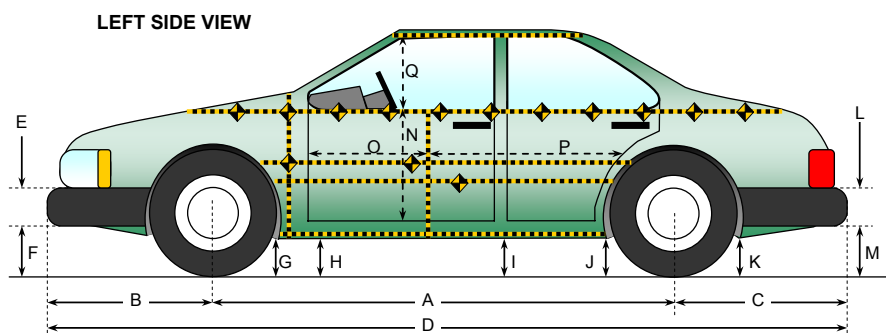
Restraint Information	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	No	
Side Torso Airbag	Yes	Yes	No	
Curtain Airbag	Yes	Yes	Yes	Yes

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



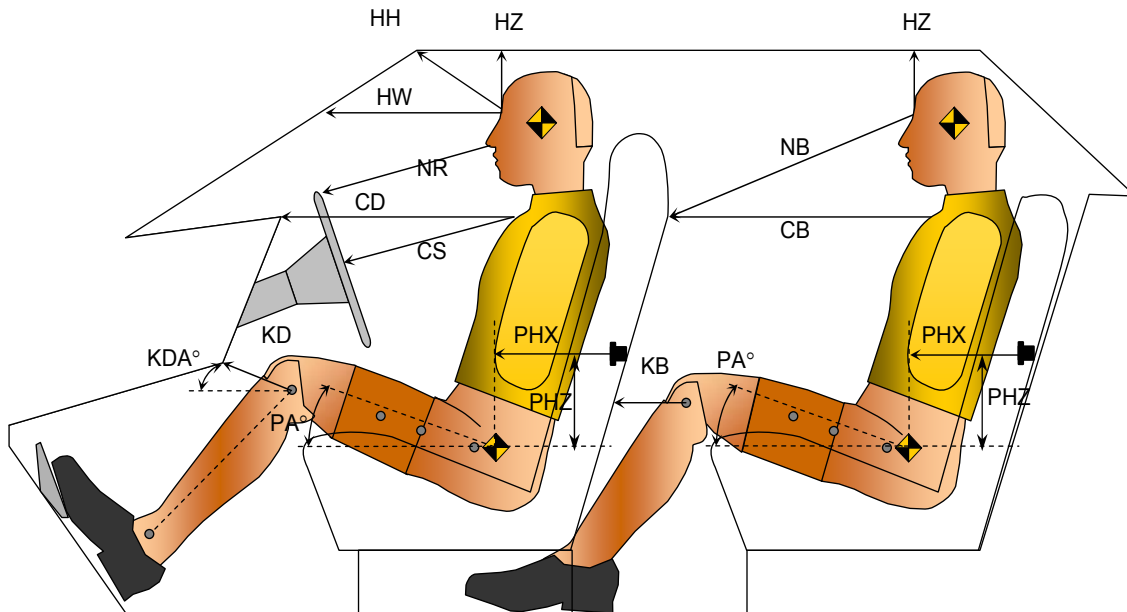
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2797	2782	-15
B	Front Axle to FSOV	877	889	12
C	Rear Axle to RSOV	924	933	9
D	Total Length at Centerline	4598	4604	-6
E	Front Bumper Thickness	139	139	0
F	Front Bumper Bottom to Ground	224	226	2
G	Sill Height at Front Wheel Well	191	181	-10
H	Sill Height at Front Door Leading Edge	188	188	0
I	Sill Height at "B" Pillar	181	213	32
J1	Sill Height at Rear Wheel Well	177	207	30
J2	Pinch Weld Height at Rear Wheel Well	179	209	30
K	Sill Height Aft of Rear Wheel Well	216	224	8
L	Rear Bumper Thickness	230	230	0
M	Rear Bumper Bottom to Ground	285	279	-6
N	Sill Height to Window Bottom Sill	740	656	-84
O	Front Door Leading Edge to Impact CL	698	684	-14
P	Rear Door Trailing Edge to Impact CL	1253	1200	-53
Q	Front Window Opening	400	398	-2
R	Right Side Length	3821	3826	5
S	Left Side Length	3821	3787	-34
T	Vehicle Width at "B" Post	1780	1581	-199

DATA SHEET NO. 7
SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

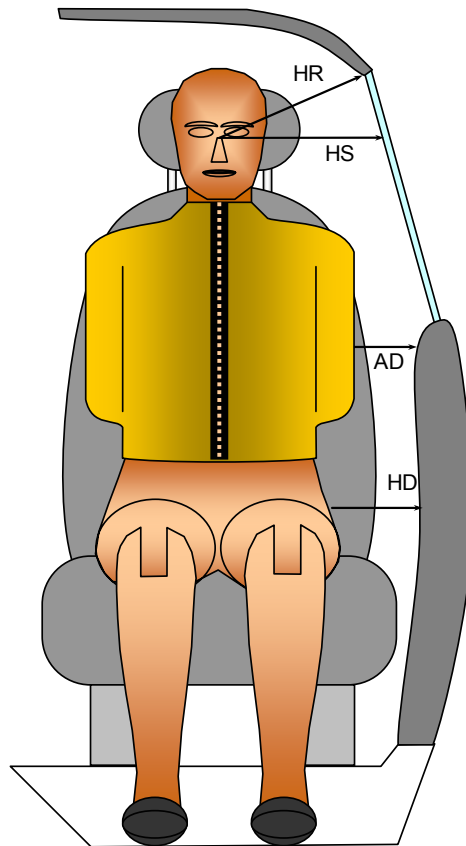


Driver Code	Pass. Code	Measurement Description	Driver S/N 904		Passenger S/N 271	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	290			
HW		Head to Windshield	502			
HZ	HZ	Head to Roof	120		143	
NR	NB	Nose to Rim/Nose to Seatback	410		544	
CD	CB	Chest to Dash or Seatback	490		486	
CS		Chest to Steering Wheel	294			
KDL	KBL	Left Knee to Dash or Seatback	139	15.2	203	13.6
KDR	KBR	Right Knee to Dash or Seatback	108	12.9	206	11.2
PA	PA	Pelvic Angle		24.4		24.7
PHX	PHX	H-Point to Striker (X-Axis)	258		330	
PHZ	PHZ	H-Point to Striker (Z-Axis)	104		309	

DATA SHEET NO. 8
SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



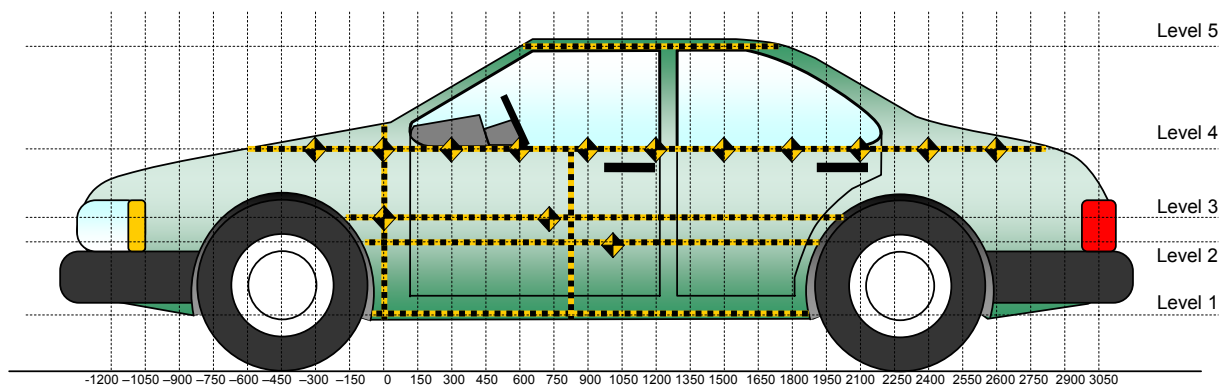
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 904	Passenger S/N 271
HR	Head to Side Header	mm	188	186
HS	Head to Side Window	mm	310	312
AD	Arm to Door	mm	90	185
HD	H-Point to Door	mm	158	198

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
Test Program: NCAP Side Impact

NHTSA No. M85213
Test Date: 1/21/2008



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.
Measurements along the vertical 800 mm.
All measurements below in mm.

Level	Measurement Description	Maximum Exterior Static Crush	Distance From Impact	Height Above Ground
5	Window	14	1500	1475
4	Window Sill	92	750	1014
3	Mid Door	255	1650	674
2	Occupant H-Point	237	1650	583
1	Sill Top	185	450	390
	Maximum Penetration	255		

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

	Pre-Test					Post-Test					Difference					
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
-450				294					293						-1	
-300				290					293						3	
-150			199	289				264	298				65	9		
0	220	203	201	289		276	312	275	304		56	109	74	15		
150	218	205	204	289		349	380	353	310		131	175	149	21		
300	218	208	205	290		395	426	410	326		177	218	205	36		
450	217	209	206	290		402	432	444	320		185	223	238	30		
600	215	210	207	291		398	426	448	343		183	216	241	52		
750	214	211	208	290		392	420	450	382		178	209	242	92		
900	212	211	209	291	508	389	416	448	372	518	177	205	239	81	10	
1050	211	212	209	292	506	382	410	440	364	517	171	198	231	72	11	
1200	212	212	208	295	506	376	396	407	359	519	164	184	199	64	13	
1350	215	212	208	299	509	381	411	422	374	522	166	199	214	75	13	
1500	217	211	207	304	511	363	446	457	385	525	146	235	250	81	14	
1650	220	209	206	309	516	343	446	461	399	526	123	237	255	90	10	
1800	223	206	204	314	520	315	414	433	402	530	92	208	229	88	10	
1950		204	200	320	526		294	324	364	536		90	124	44	10	
2100			199	329	537			229	339	545			30	10	8	
2250				337	552				329	559				-8	7	
2400				340	566				357	575				17	9	
2550				363					373					10		
2700				380					386					6		

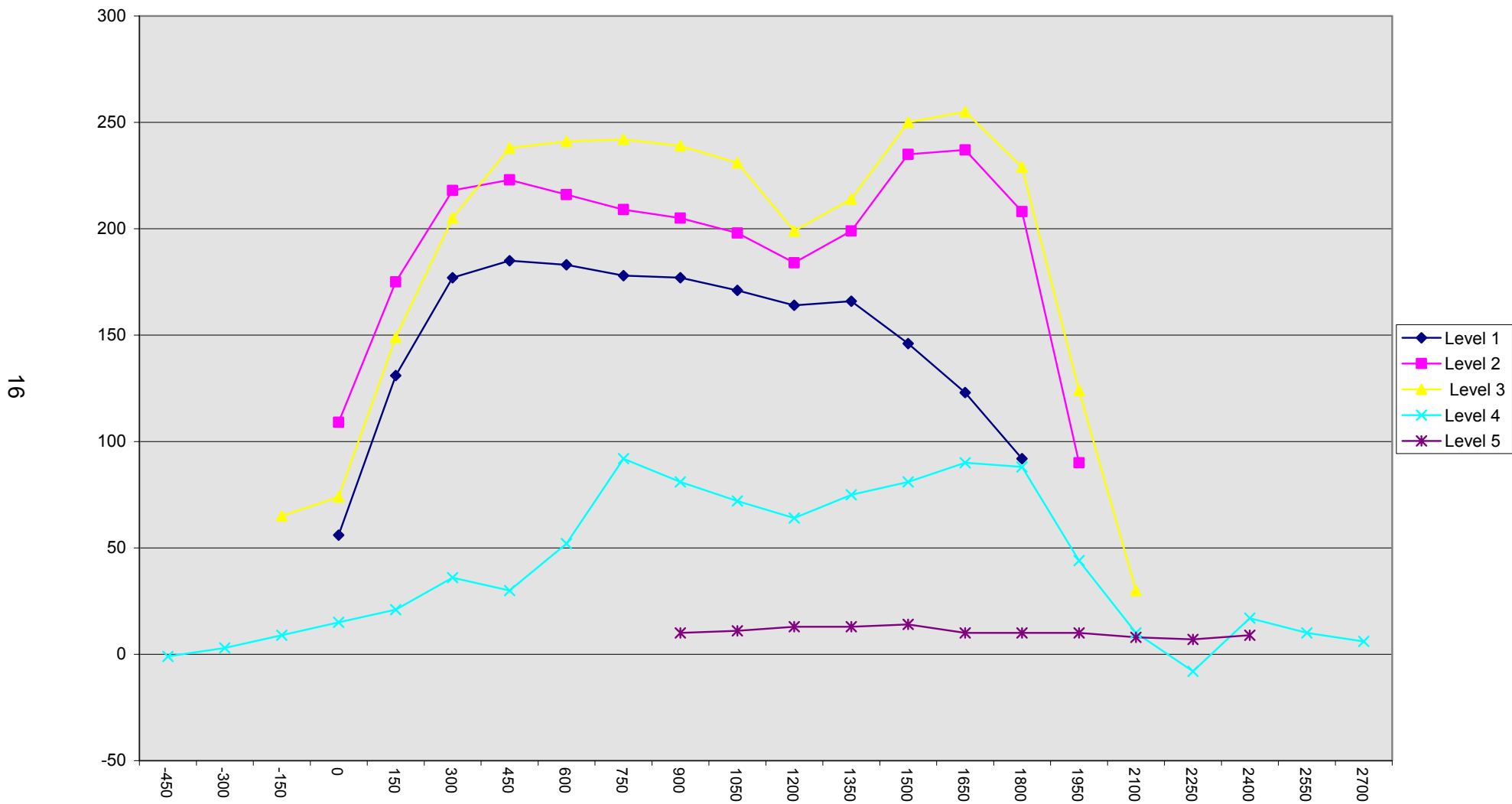
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

DATA SHEET NO. 10... (continued)
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2008 Infiniti EX35 AWD Journey
Test Program: NCAP Side Impact

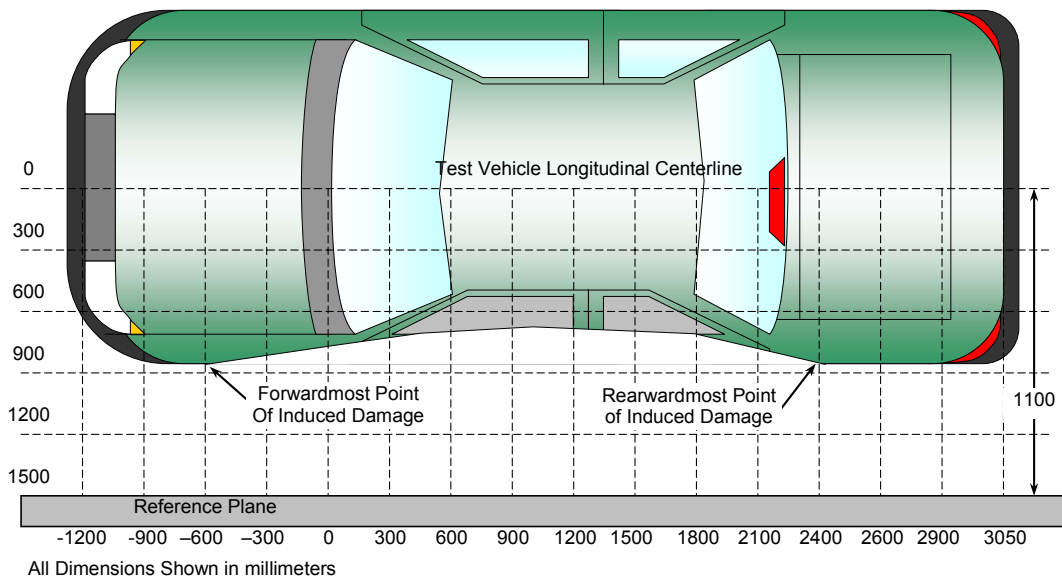
NHTSA No. M85213
Test Date: 1/21/2008



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2700	4	380	386	6
2	2080	4	329	340	11
3	1432	2	211	440	229
4	792	2	211	418	207
5	173	2	205	382	177
6	-450	4	294	293	-1

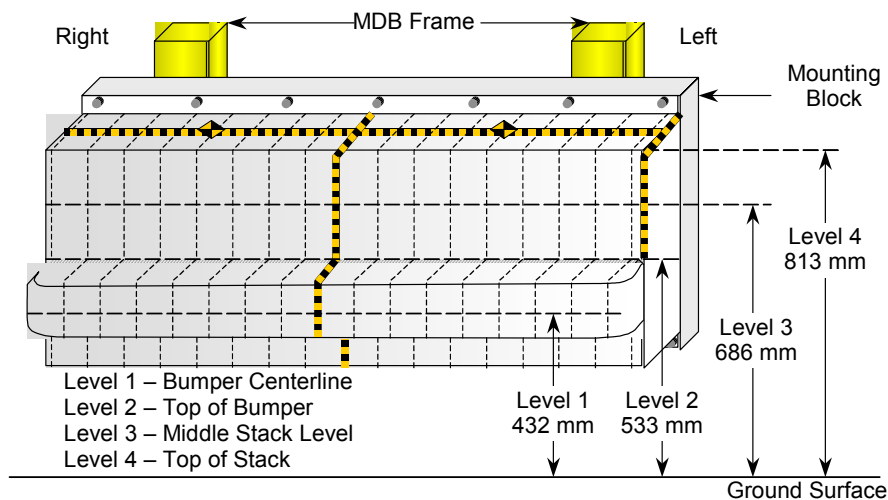
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



DEFORMABLE BARRIER STATIC CRUSH

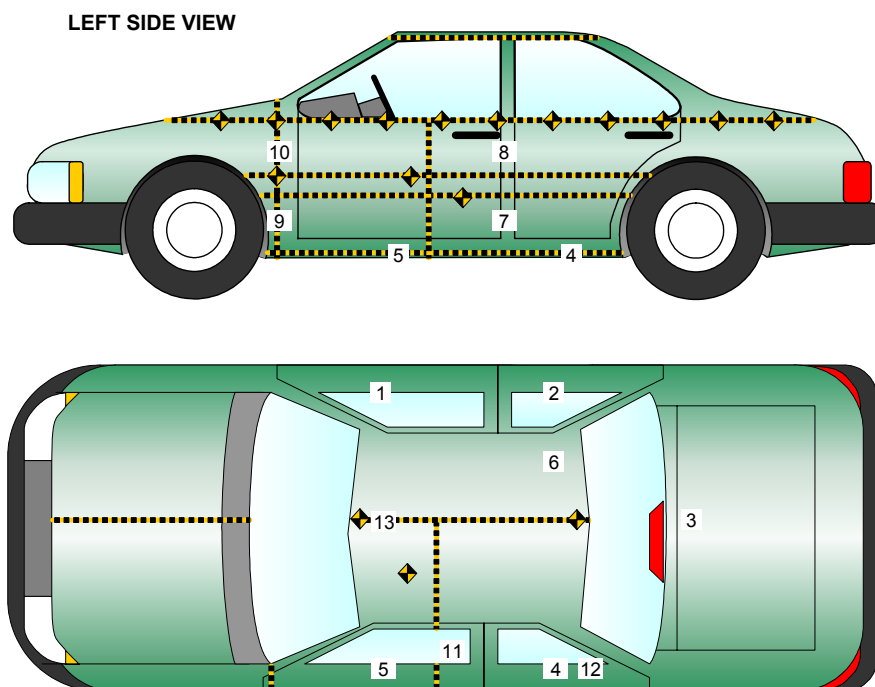
Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	248	230	215	204	203	201	201	199	199	194	192	189	191	188	194	214	222
2	135	116	101	90	88	87	91	90	92	96	100	99	97	97	99	109	124
3	67	53	47	54	72	92	87	57	43	39	34	36	43	53	73	112	160
4	71	71	61	81	120	143	124	94	68	54	45	50	59	72	98	155	218

All Dimensions in mm

DATA SHEET NO. 13
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
Test Program: NCAP Side Impact

NHTSA No. M85213
Test Date: 1/21/2008



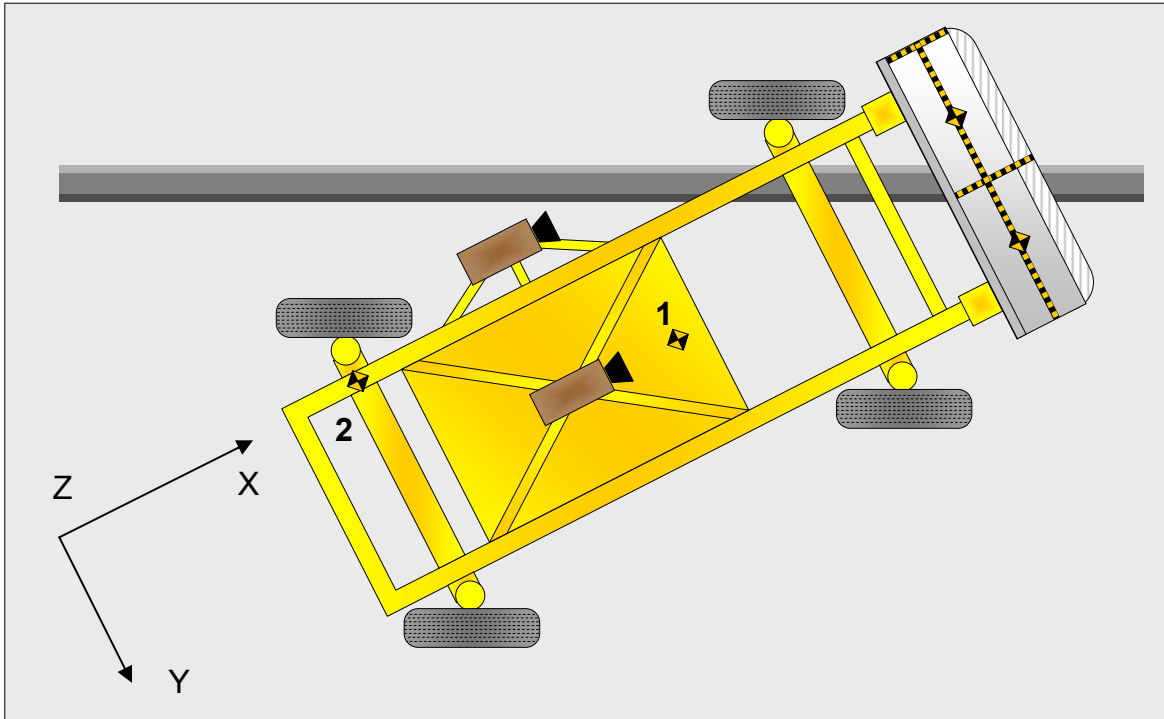
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2555	723	208
2	Right Sill at Rear Seat	1386	718	213
3	Rear Floorpan Above Axle	920	0	525
4	Left Sill at Rear Door	1386	-719	214
5	Left Sill at Front Door	2556	-723	216
6	Rear Occupant Compartment	1711	394	390
7	Left Lower B-Post	1912	-722	446
8	Left Middle B-Post	1923	-700	822
9	Left Lower A-Post	3038	-723	560
10	Left Middle A-Post	3062	-798	833
11	Front Seat Track	2138	-596	295
12	Rear Seat Track or Structure			
13	Vehicle CG	2364	0	516

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

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	-1092	0	-483
2	MDB Rear	-2591	-625	-622

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

DATA SHEET NO. 15
VEHICLE STRUCTURAL MEASUREMENTS

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

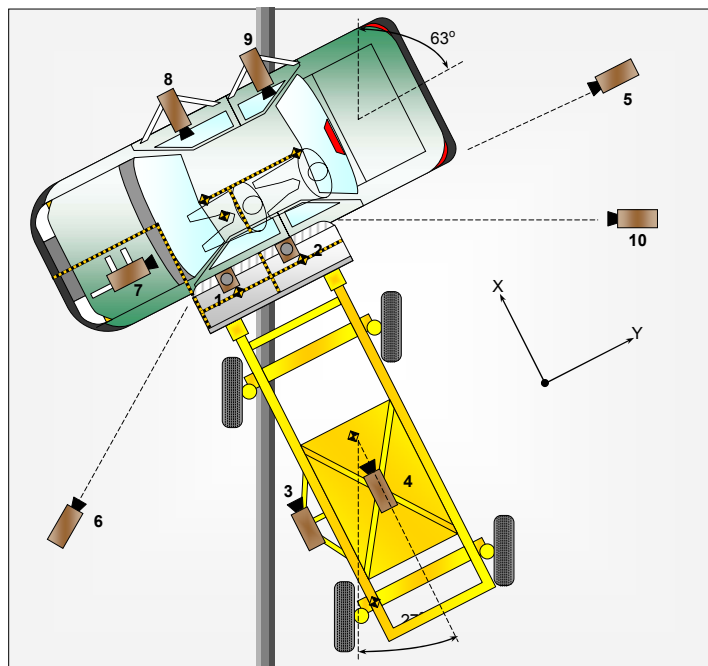
NHTSA No. M85213
 Test Date: 1/21/2008

	Elements	Pre-Test (mm)
1	Total Length	4598
2	Total Width	1780
3	Bumper Top Height	596
4	Bumper Bottom Height	442
5	Longitudinal Member Top Height	556
6	Distance between Longitudinal Members	868
7	Longitudinal Member Width	58
8	Engine Top Height	925
9	Engine Bottom Height	220
10	Engine and gearbox width	564
11	Front bumper-engine distance	561
12	Front shock absorber fixing height	821
13	Bonnet leading edge height	864
14	Front shock absorber fixing width	837
15	Front bumper – front axle distance	808
16	Front axle – a pillar distance	596
17	A-pillar – B-pillar distance	1147
18	B-Pillar – rear axle distance	1049
19	B-pillar – C-pillar distance	973
20	Roof sill bottom height	1492
21	Roof sill top height	1527
22	Floor sill bottom height	222
23	Floor sill top height	403

DATA SHEET NO. 16
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Close-up	100	0	5050	50	1000
2	Overhead Overall	-340	0	5050	14	1000
3	MDB Onboard, Impact Point Close-up				50	1000
4	MDB Onboard, Centerline of Impact				16	1000
5	Right Side, Ground Level, Overall	1150	5070	1250	24	1000
6	Left Side, Ground Level, Overall	1150	-4980	1210	24	1000
7	Vehicle Onboard Front SID/HIII, Front				12.5	1000
8	Vehicle Onboard Front SID/HIII, Side				8	1000
9	Vehicle Onboard Rear SID/HIII, Side				8	1000
10	Real Time Coverage				13	24

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: 2008 Infiniti EX35 AWD Journey
 Test Program: NCAP Side Impact

NHTSA No. M85213
 Test Date: 1/21/2008

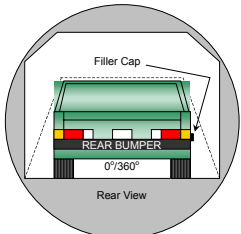
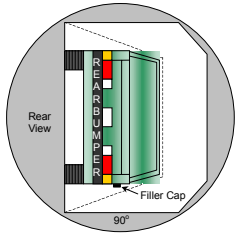
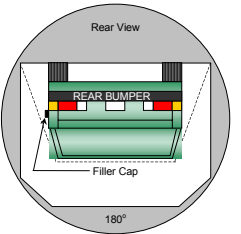
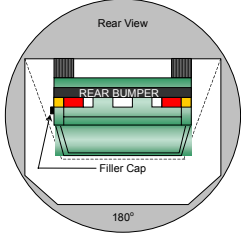
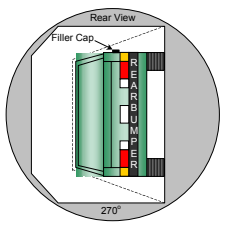
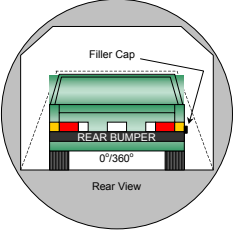
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 12:47 pm

Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
 (Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: None
 (Maximum allowable = 5 ounces)
- C. For the following 25 minutes: None
 (Maximum allowable = 1 oz./minute)
- D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA

			<p>1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.</p> <p>2. The position hold time at each position is 300 seconds (minimum).</p> <p>3. Details of Stoddard Solvent spillage locations: None</p>
0° to 90°	90° to 180°		
			
180° to 270°	270° to 360°		

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage Collection Time (min)	Spillage (oz.)
0° to 90°	118	300	First 5	0
90° to 180°	122	300	First 5	0
180° to 270°	117	300	First 5	0
270° to 360°	120	300	First 5	0

APPENDIX A
PHOTOGRAPHS

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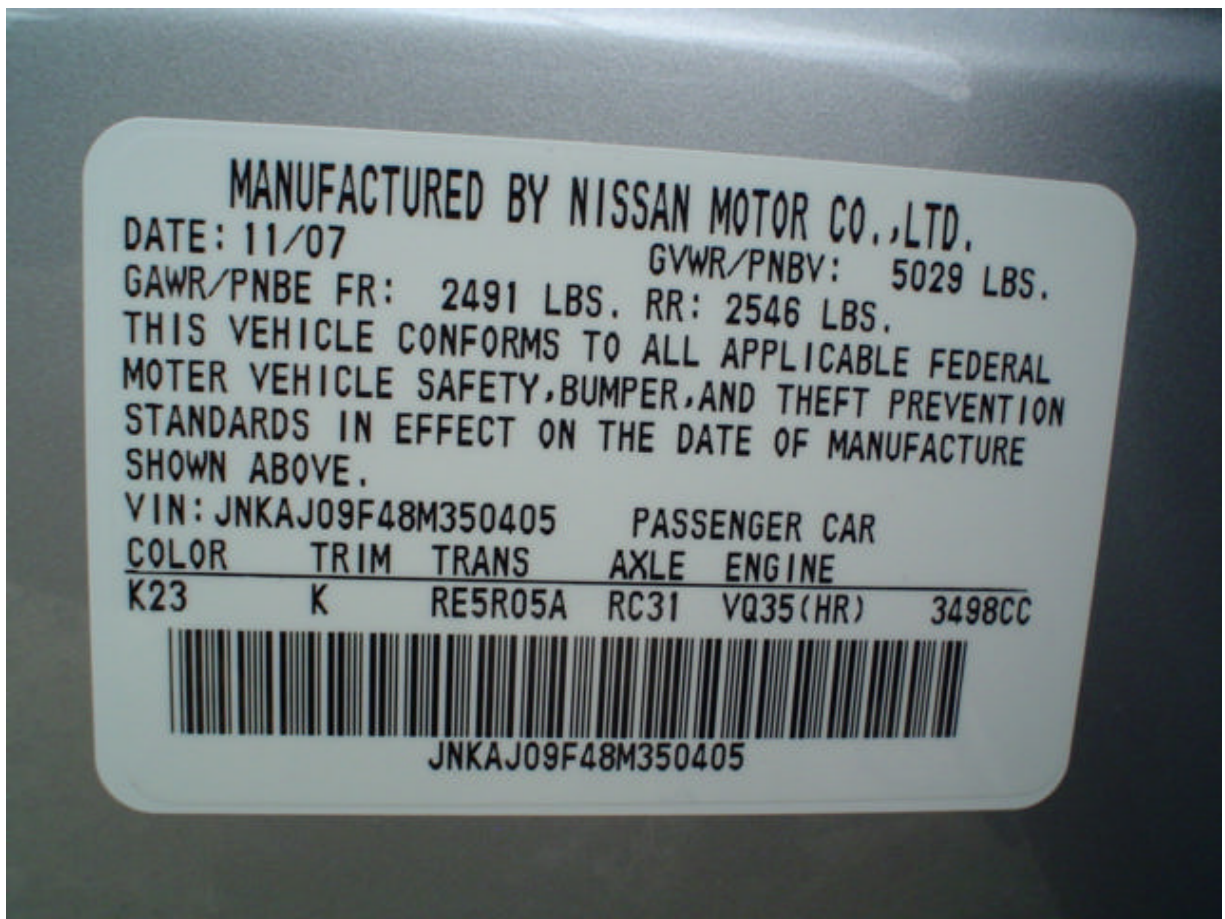
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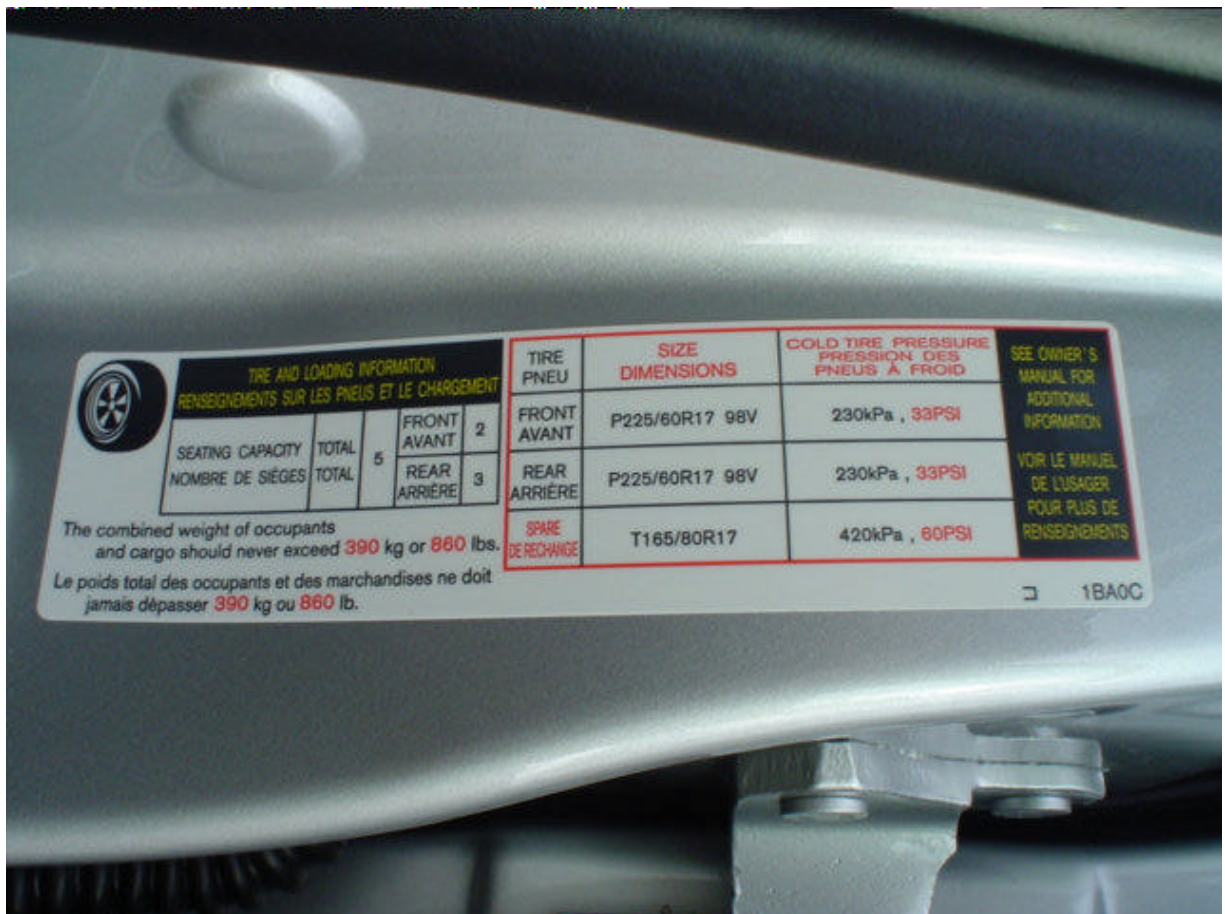
Left Front ¾ View, As Received



Right Rear ¾ View, As Received



Manufacturer's Label



Tire Placard



Pre-Test Front View



Post-Test Front View



Pre-Test Left Front 3/4 View



Post-Test Left Front 3/4 View



Pre-Test Left Side View



Post-Test Left Side View



Pre-Test Left Rear 3/4 View



Post-Test Left Rear 3/4 View



Pre-Test Rear View



Post-Test Rear View



Pre-Test Right Rear $\frac{3}{4}$ View



Post-Test Right Rear $\frac{3}{4}$ View



Pre-Test Right Side View



Post-Test Right Side View



Pre-Test Right Front ¾ View



Post-Test Right Front ¾ View



Pre-Test Left Impact Point



Post-Test Left Impact Point



Pre-Test Front 3/4 View of Left Side Doors



Post-Test Front 3/4 View of Left Side Doors



Pre-Test Rear ¾ View of Left Side Doors



Post-Test Rear ¾ View of Left Side Doors



Post-Test Left Side Impact Close-up



Pre-Test Overhead View



Post-Test Overhead View



Pre-Test Overhead Close-up View



Post-Test Overhead Close-up View



Pre-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy Clearance From Door



Post-Test Driver Dummy Clearance From Door



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



Pre-Test Passenger Dummy (Door Open)



Pre-Test Passenger Dummy Clearance From Door



Post-Test Passenger Dummy Clearance From Door



Pre-Test Passenger Dummy (Through Window)



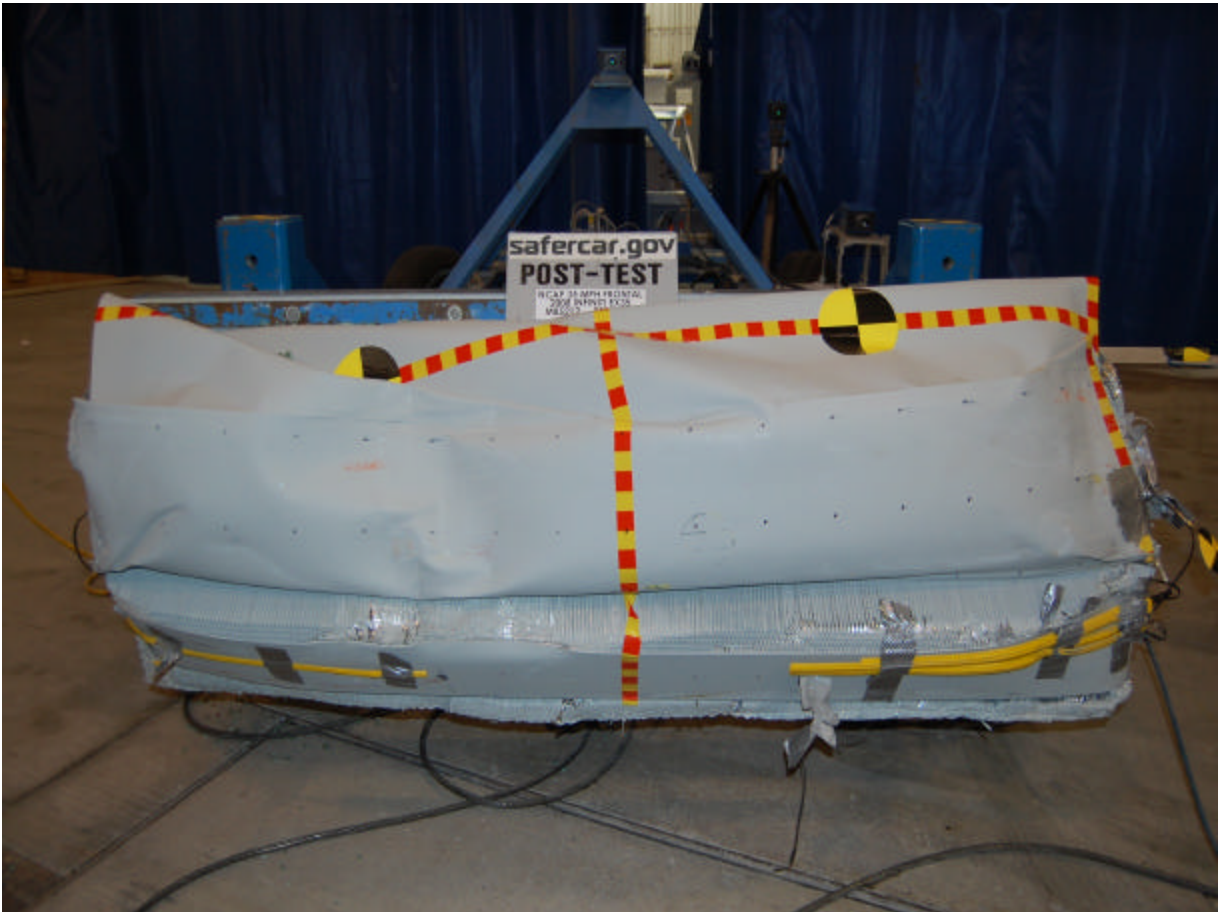
Post-Test Passenger Dummy (Through Window)



Post-Test Passenger Dummy Right Side View



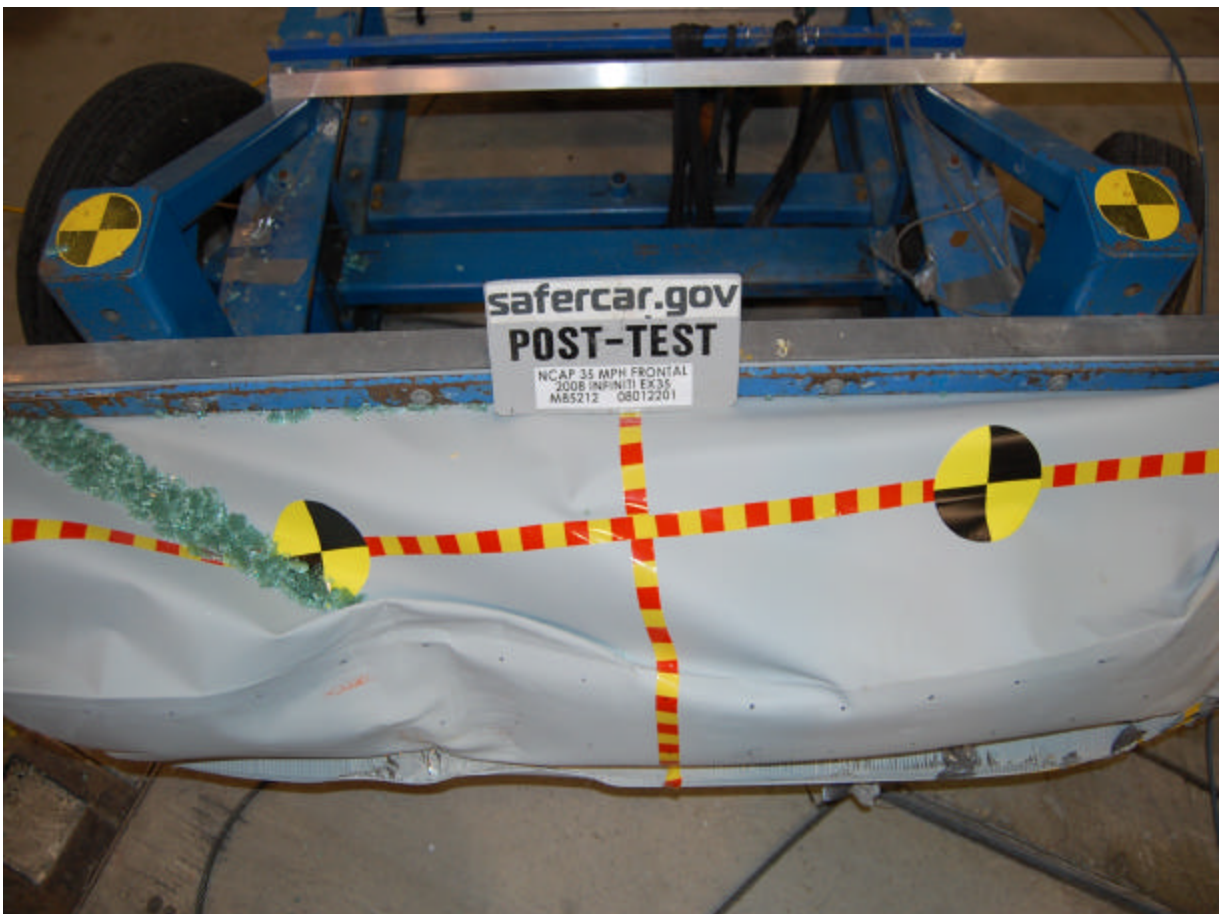
Pre-Test Front View of Deformable Barrier



Post-Test Front View of Deformable Barrier



Pre-Test Top View of Deformable Barrier



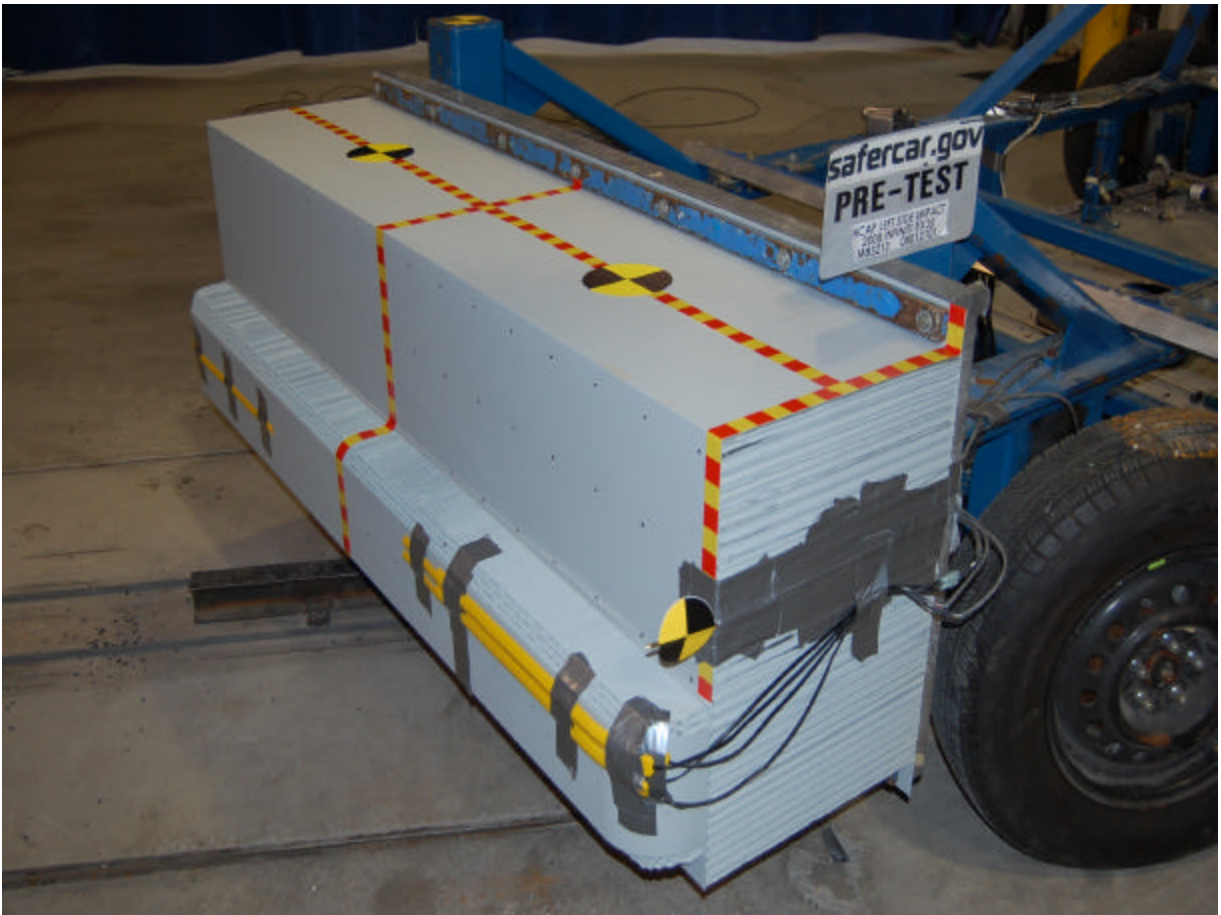
Post-Test Top View of Deformable Barrier



Pre-Test Right Side View of Deformable Barrier



Post-Test Right Side View of Deformable Barrier



Pre-Test Left Side View of Deformable Barrier



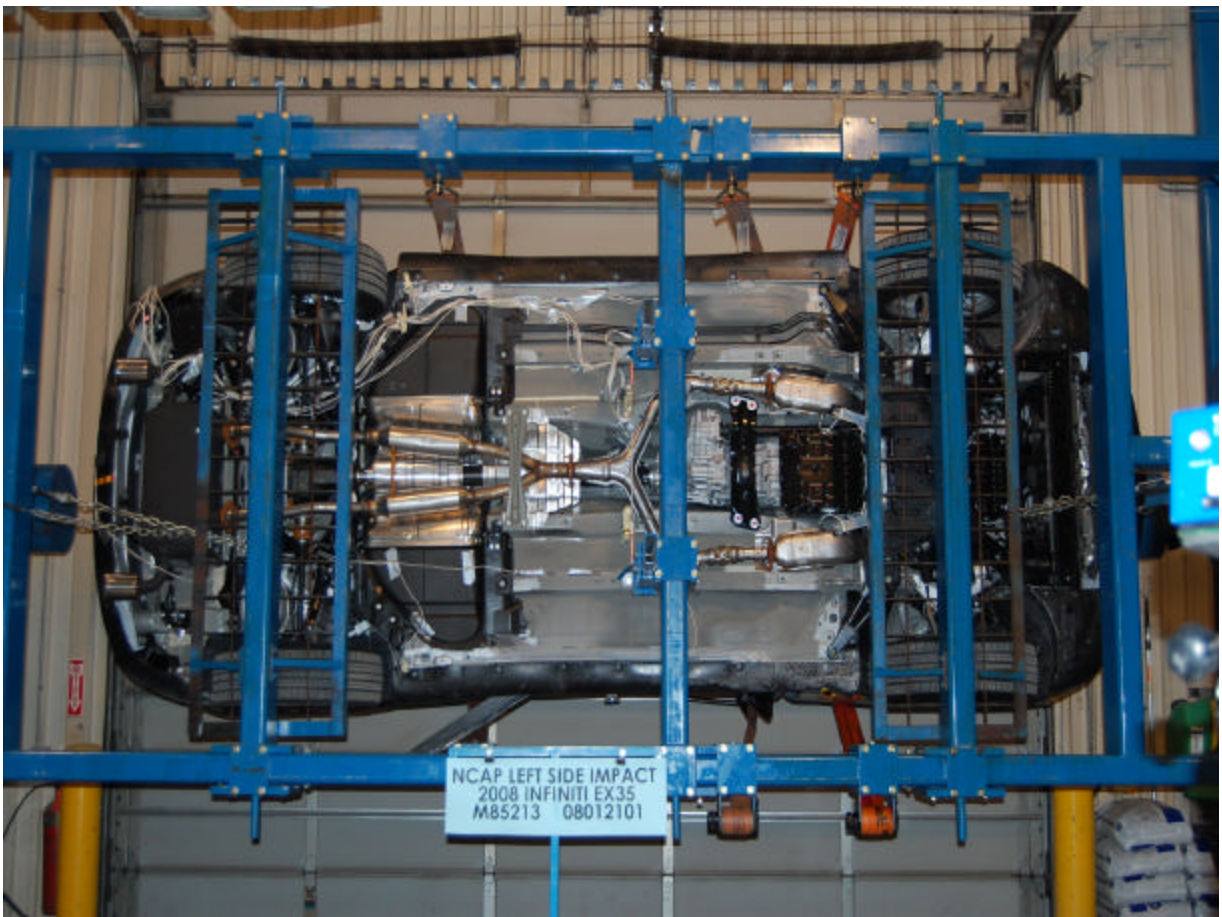
Post-Test Left Side View of Deformable Barrier



Vehicle on Rollover Device (90 Degrees)



Vehicle on Rollover Device (180 Degrees)



Vehicle on Rollover Device (270 Degrees)



Vehicle on Rollover Device (360 Degrees)



Vehicle Impact



Post-Test Driver Dummy Head Contact



Post-Test Driver Dummy Torso Contact



Post-Test Driver Dummy Contact



Post-Test Passenger Dummy Head Contact



Post-Test Passenger Dummy Torso Contact



Post-Test Passenger Dummy Contact

APPENDIX B

SID/HIII RESPONSE DATA TRACES

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The following dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.dot.gov

Driver Head X Primary

Driver Head Y Primary

Driver Head Z Primary

Driver Head X Redundant

Driver Head Y Redundant

Driver Head Z Redundant

Driver Upper Neck Force X

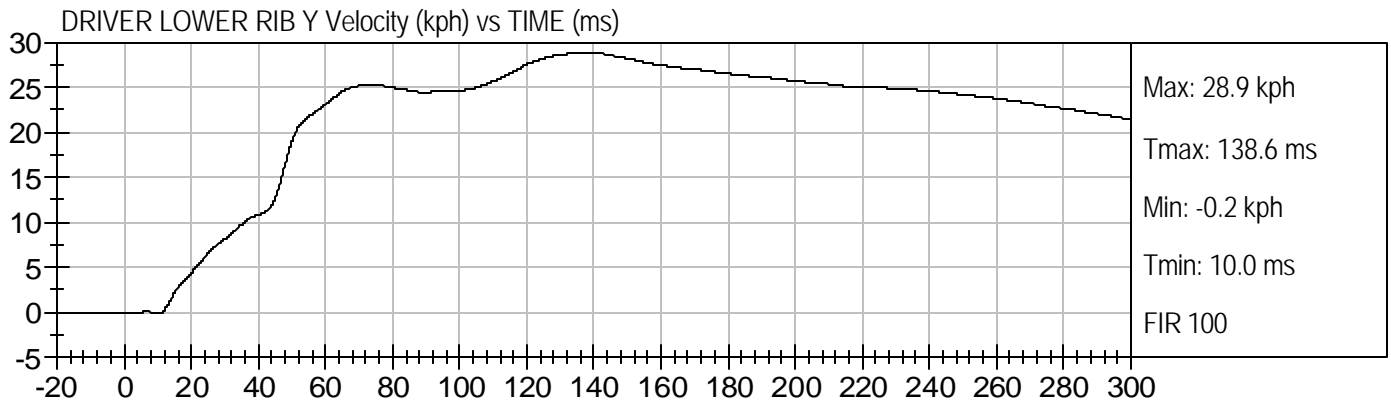
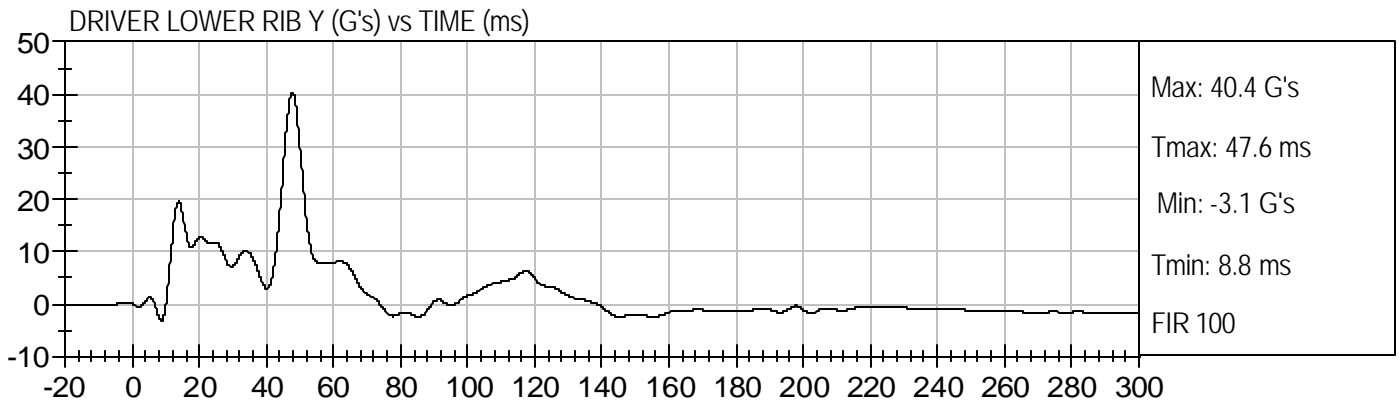
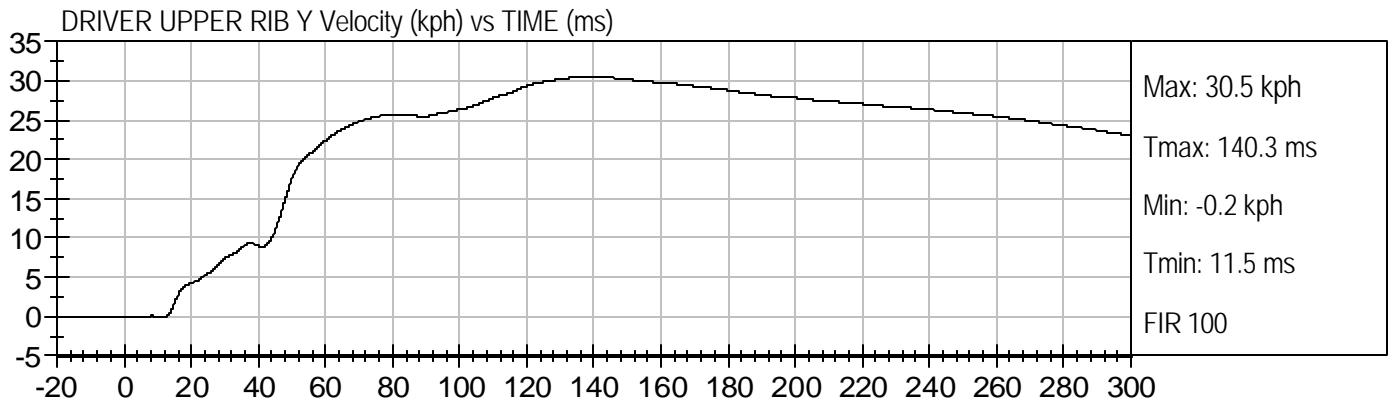
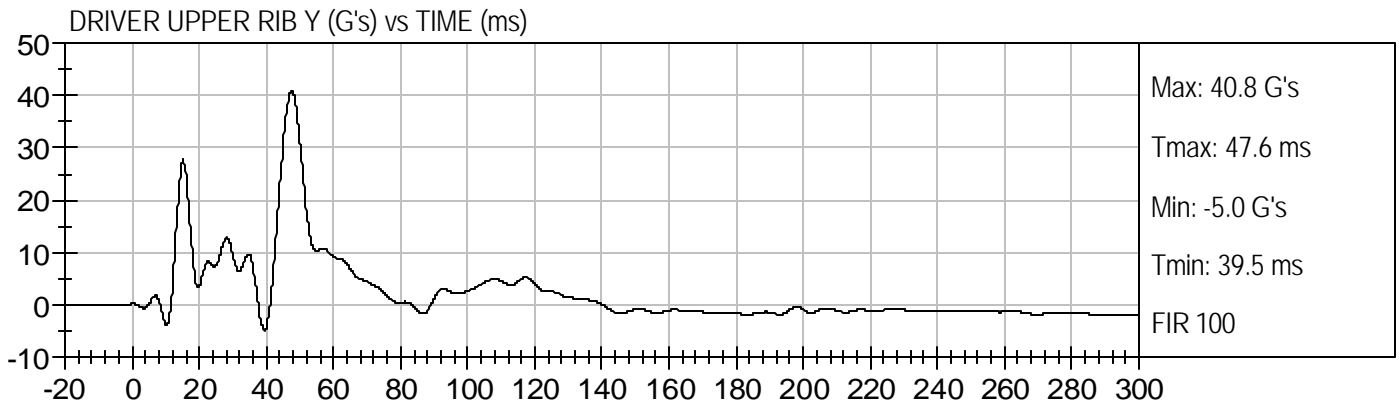
Driver Upper Neck Force Y

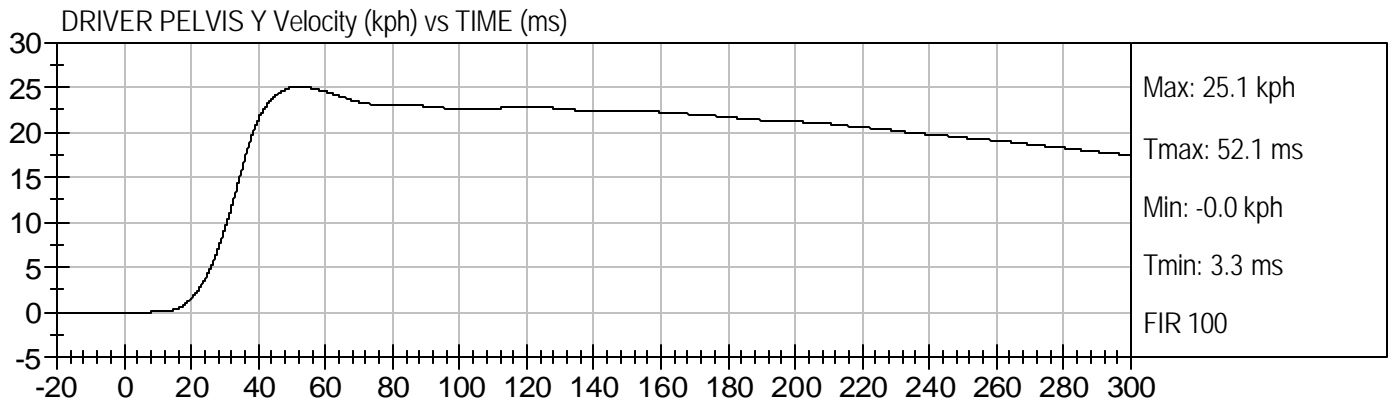
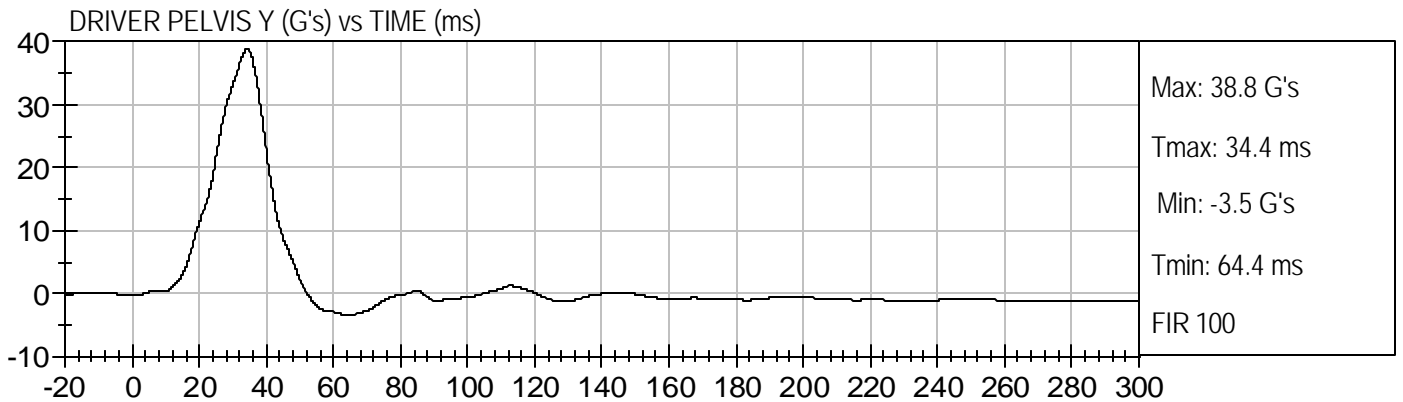
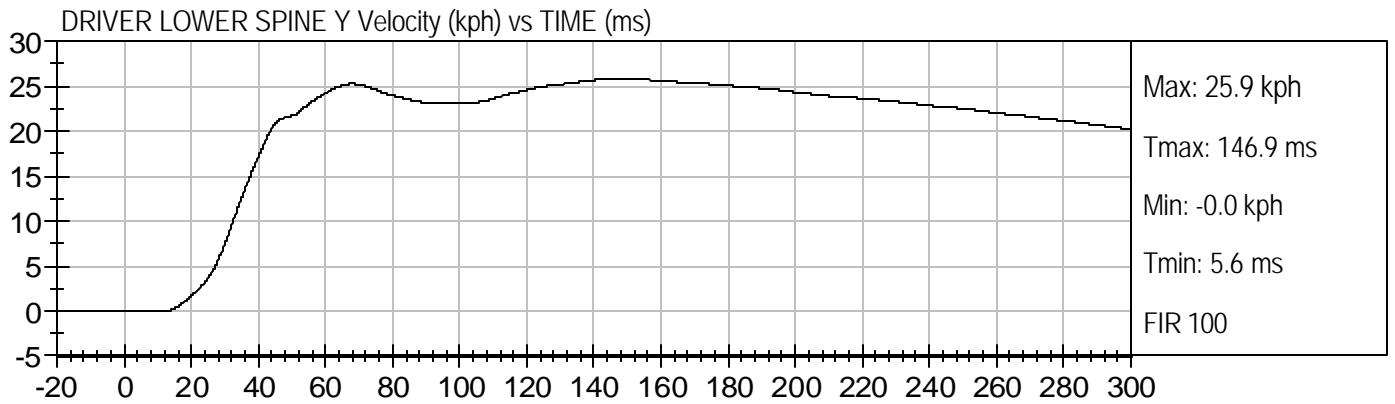
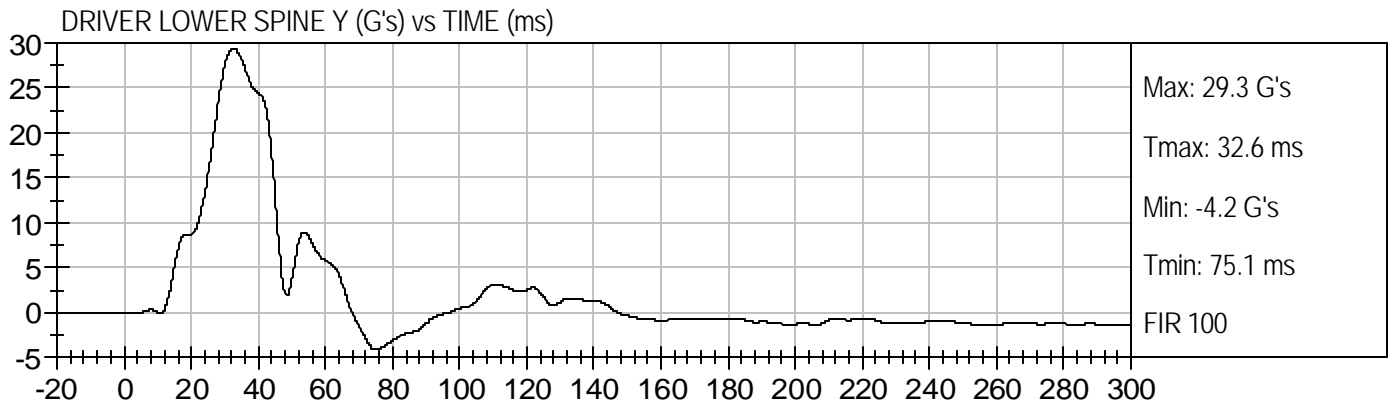
Driver Upper Neck Force Z

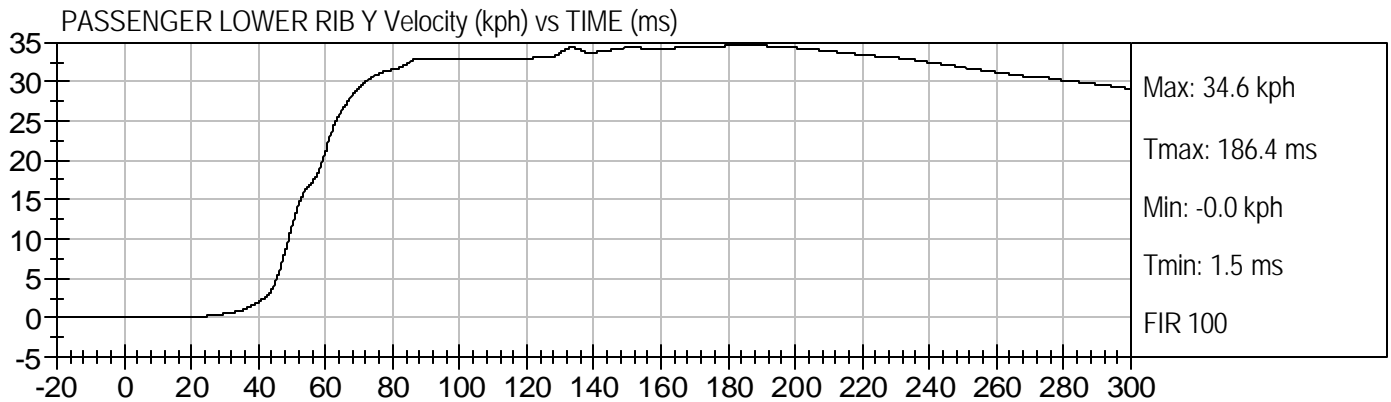
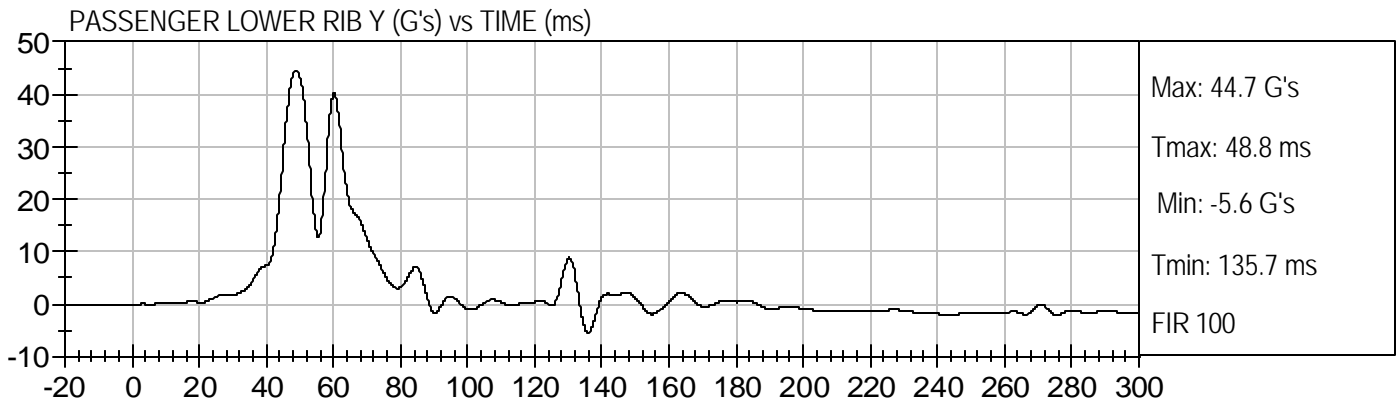
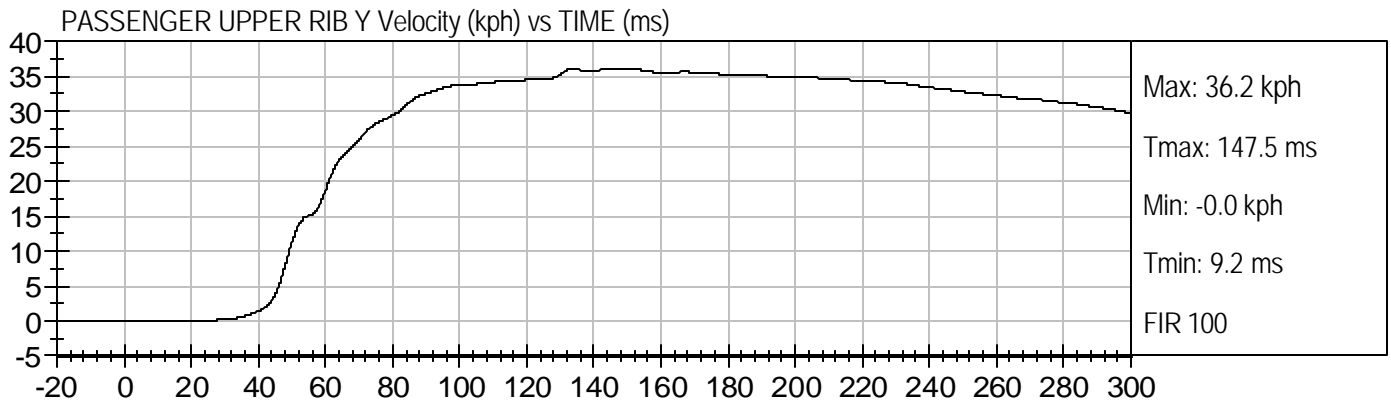
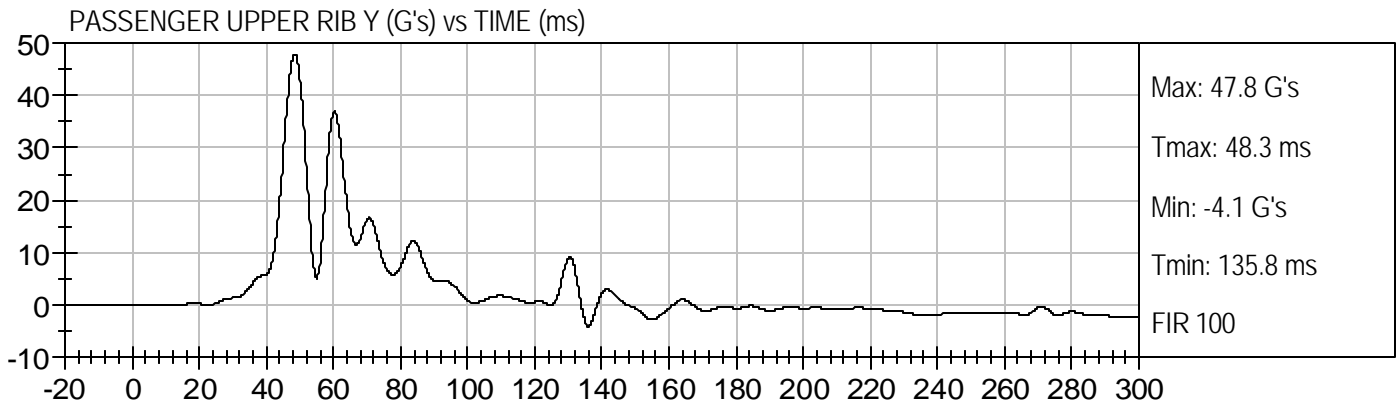
Driver Upper Neck Moment X

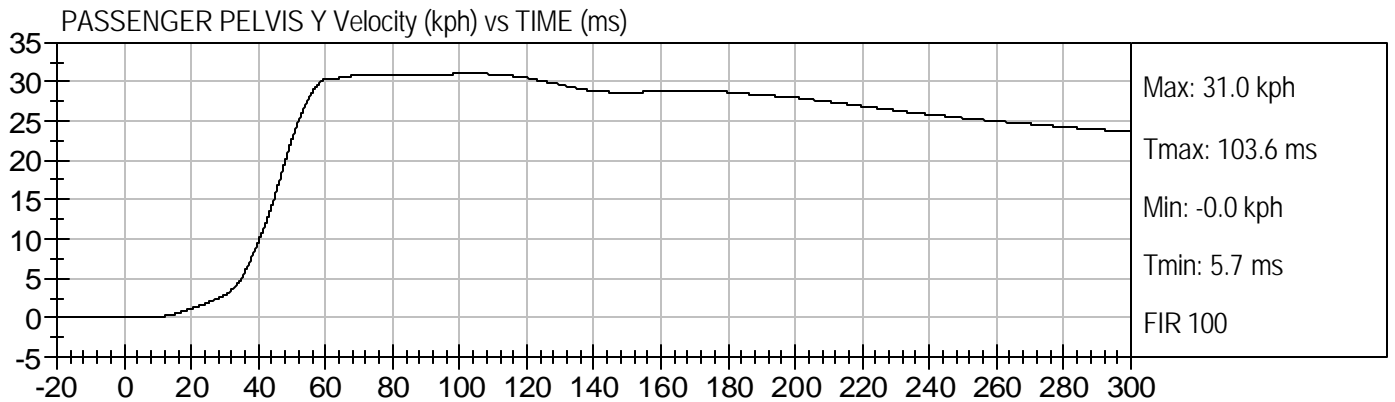
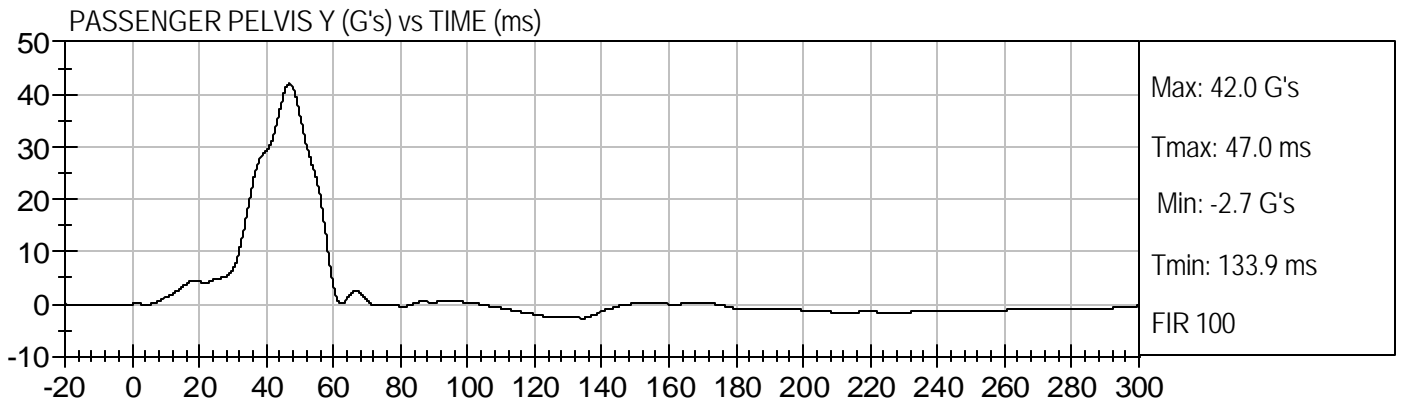
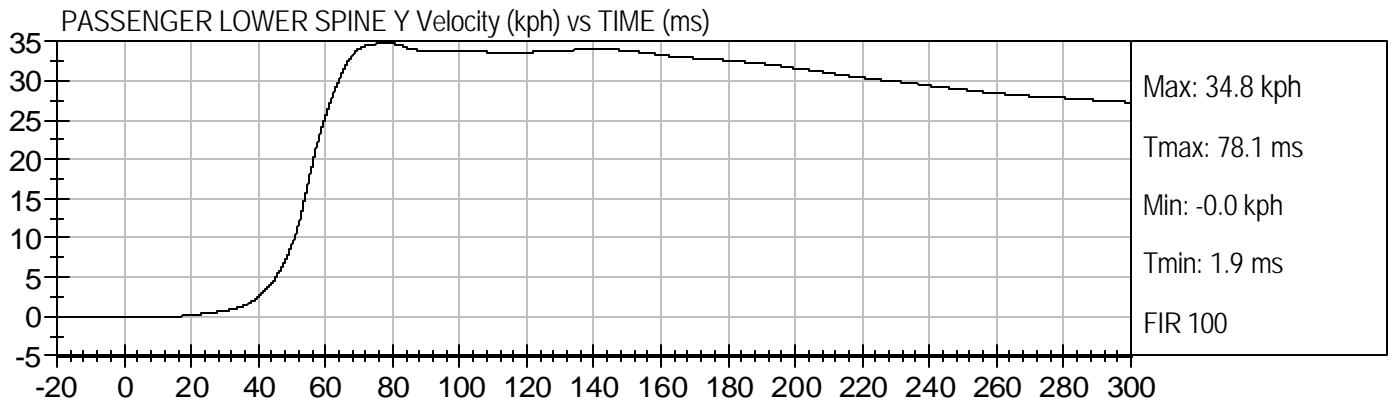
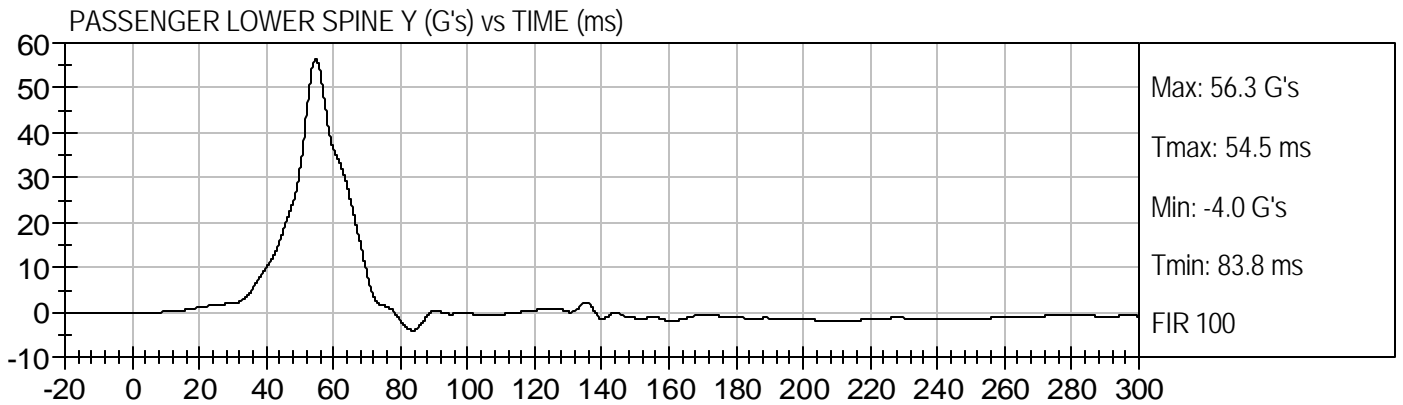
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head X Redundant
Passenger Head Y Redundant
Passenger Head Z Redundant
Passenger Upper Neck Force X
Passenger Upper Neck Force Y
Passenger Upper Neck Force Z
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Y
Passenger Upper Neck Moment Z
Passenger Upper Rib Redundant Y
Passenger Lower Rib Redundant Y
Passenger Lower Spine Redundant Y
Passenger Pelvis Redundant Y
Passenger Thorax Contact
Passenger Pelvis Contact
Vehicle Right Sill at Front Seat X
Vehicle Right Sill at Front Seat Y
Vehicle Right Sill at Front Seat Z
Vehicle Right Sill at Rear Seat X
Vehicle Right Sill at Rear Seat Y
Vehicle Right Sill at Rear Seat Z

Vehicle Rear Floor Above Axle X
Vehicle Rear Floor Above Axle Y
Vehicle Rear Floor Above Axle Z
Vehicle Left Sill at Rear Door Y
Vehicle Left Sill at Front Door Y
Vehicle Right Rear Occupant Compartment
Vehicle B-Post Lower Y
Vehicle B-Post Middle Y
Vehicle A-Post Lower Y
Vehicle A-Post Middle Y
Vehicle Left Front Seat Track
Vehicle CG X
Vehicle CG Y
Vehicle CG Z
MDB CG X
MDB CG Y
MDB CG Z
MDB Rear X
MDB Rear Y
MDB Left Bumper Contact
MDB Right Bumper Contact









APPENDIX C
DUMMY CALIBRATION DATA

CERTIFICATION DATA

Dummy Serial Number: 904

Calibration Test Results Summary

Dummy Serial Number: 904

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 904

Test I.D: D07365

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	906	Pass
RH - Rib Height	mm	501 - 521	508	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	240	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	523	Pass
SW - Knee Pivot to Floor	mm	490 - 505	496	Pass
HW - Hip Width	mm	356 - 391	360	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/21/2007
Test Date

David Winkelbauer
Approved By

SID/HIII Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 904

Test I.D.: D073651

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Peak Resultant Acceleration	G's	120 to 150	135	Pass
Is Resultant Curve Unimodal?	N/A	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-9.2	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By

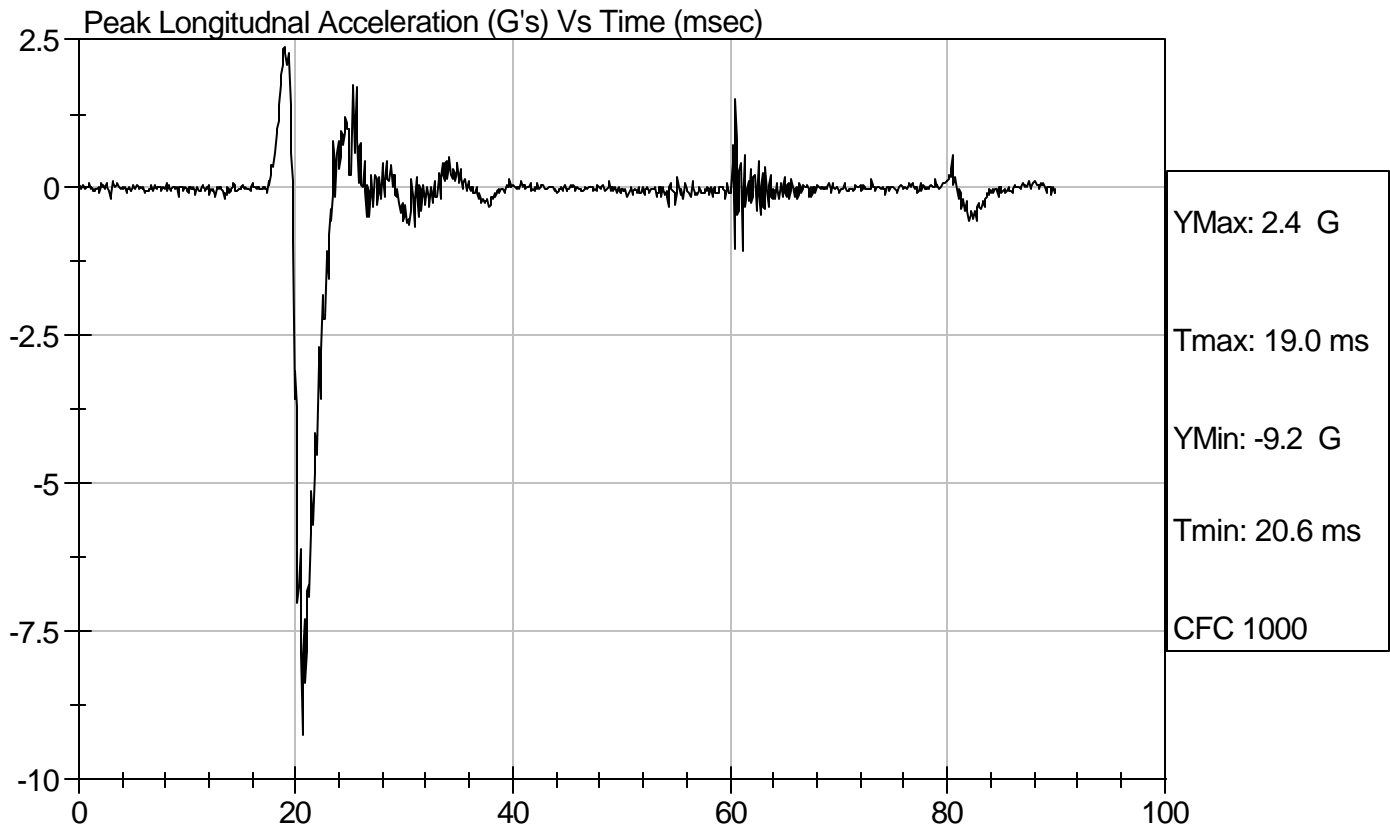
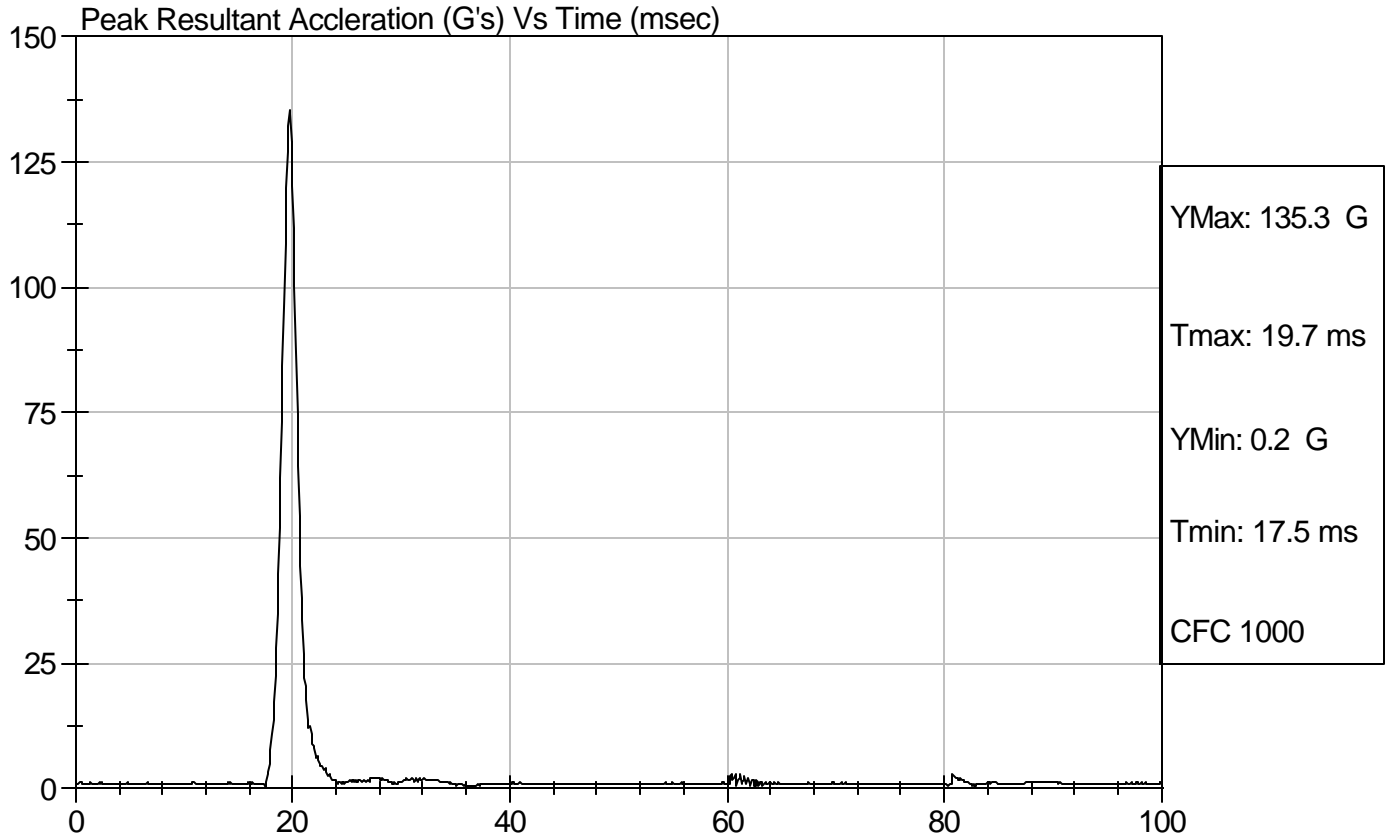


Test Description: Head Drop

Test Date: 12/21/07

Component: D073651

Speed: 0 ft/s, 0 m/s



SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D.: D073652

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Probe Velocity	m/s	4.22 - 4.31	4.27	Pass
Upper Rib	G's	37 - 46	40	Pass
Lower Rib	G's	37 - 46	39	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

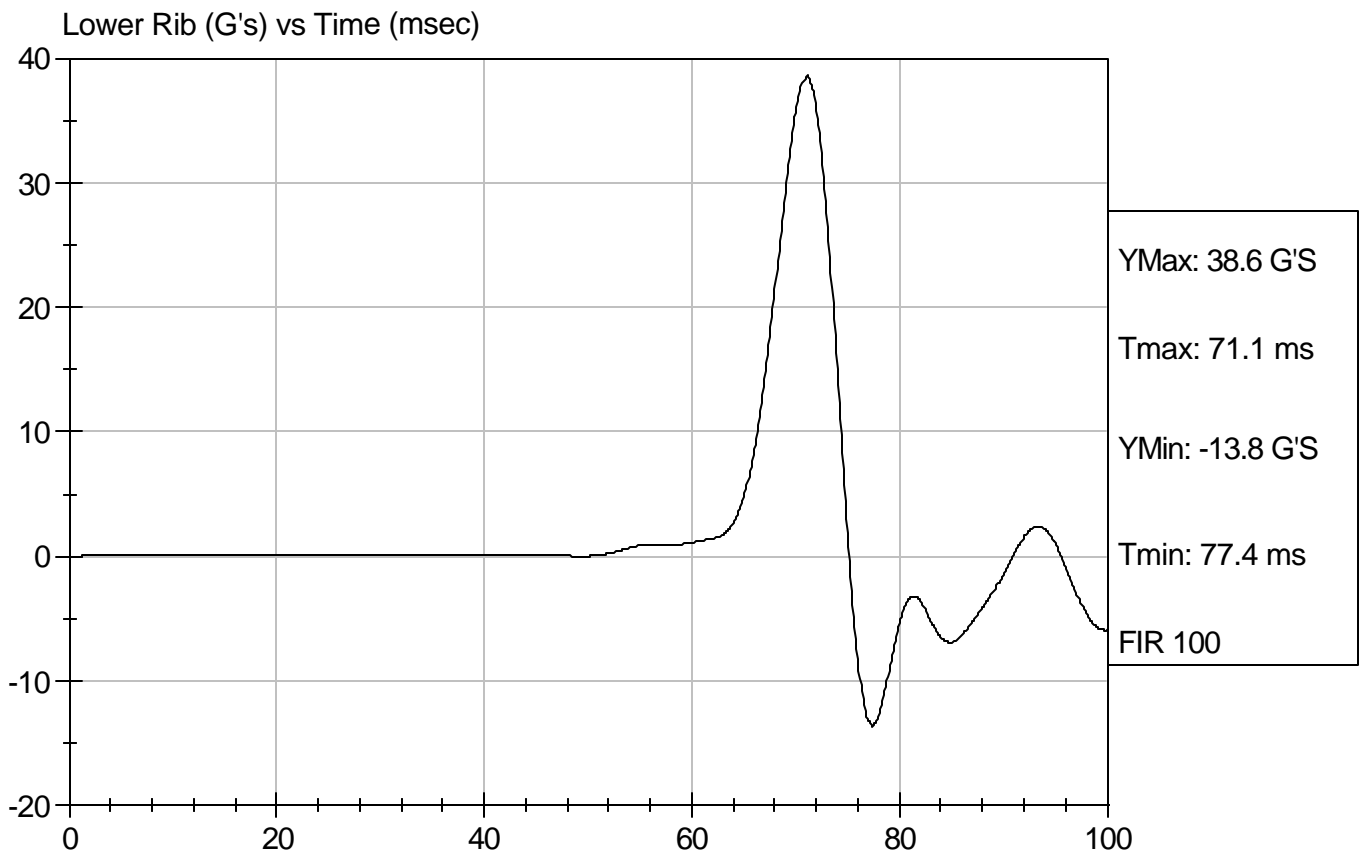
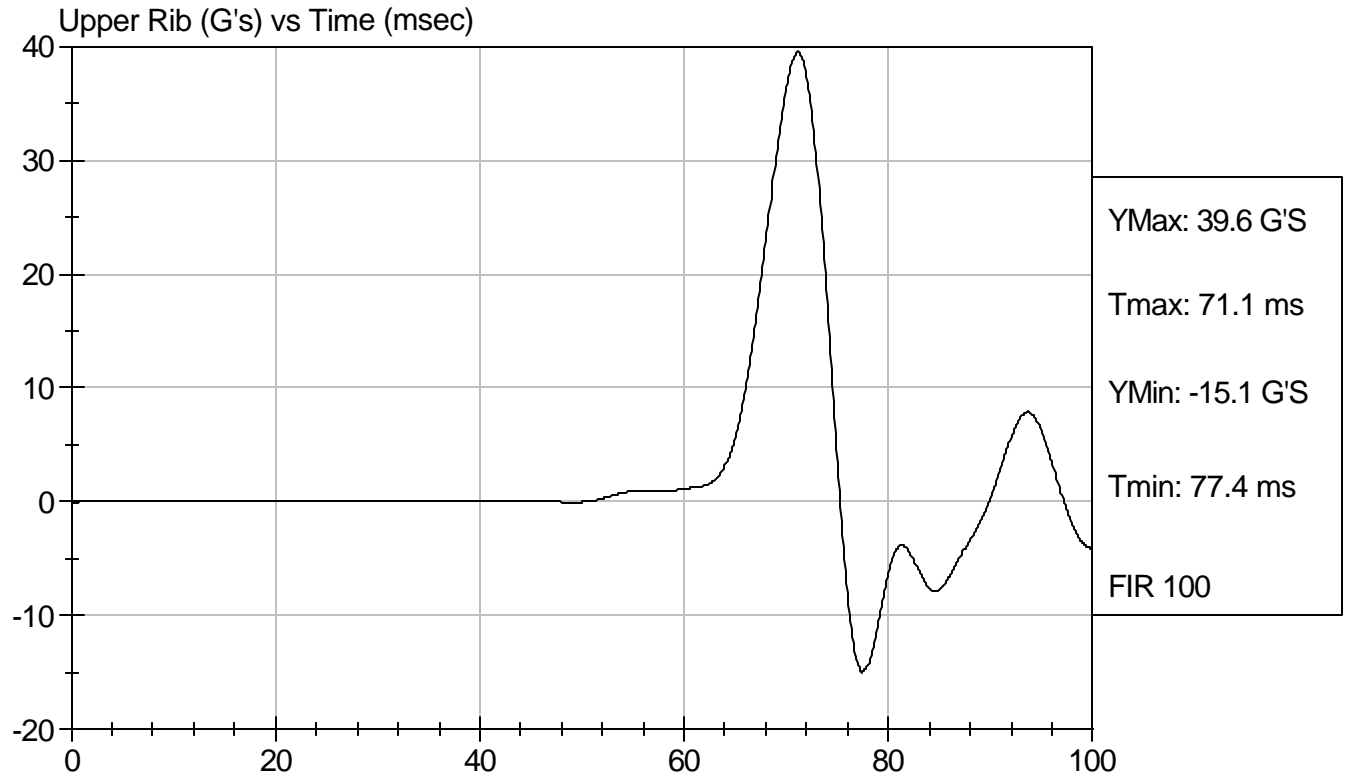
12/21/07
 Test Date

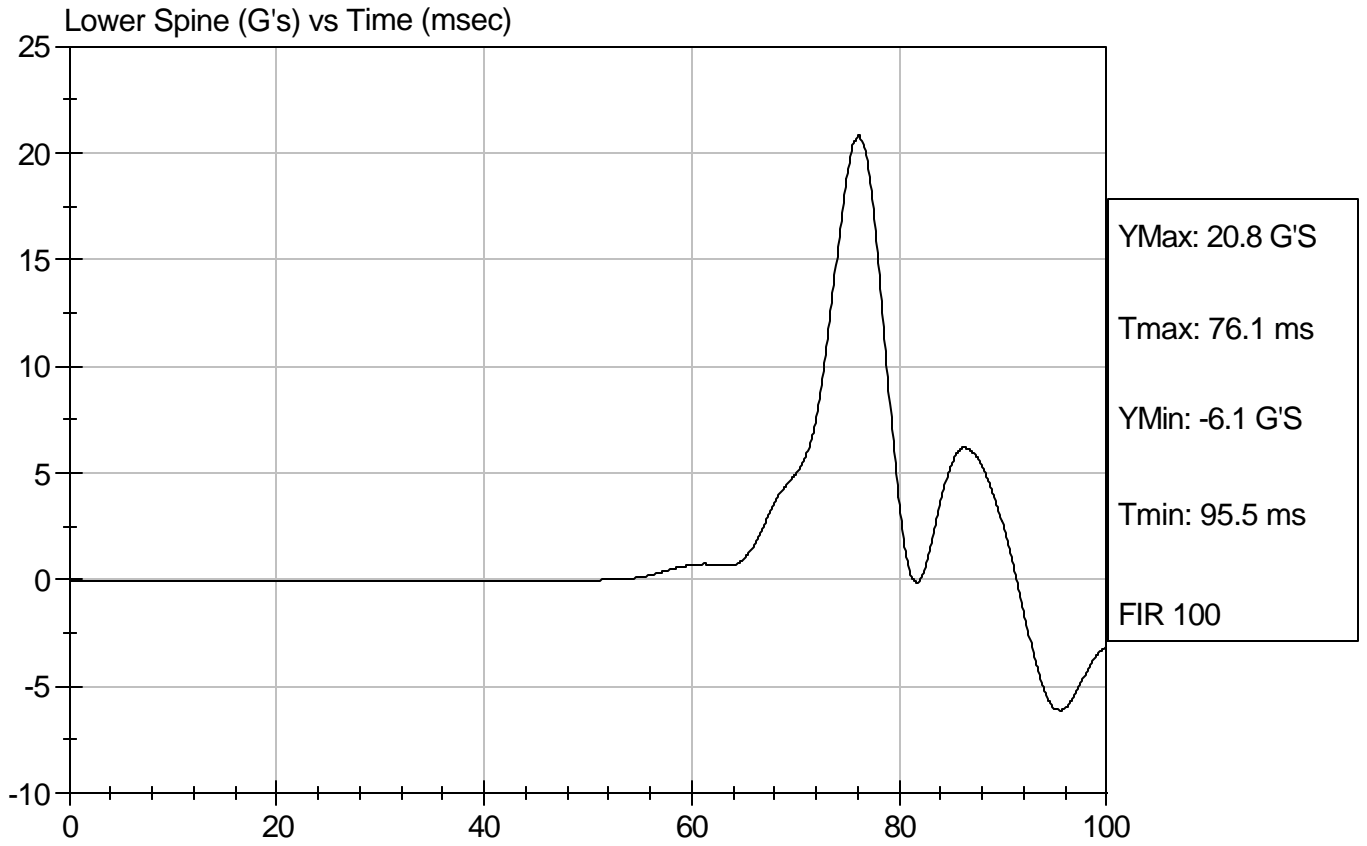
David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D073652

Test Date: 12/21/07
Speed: 14.00 ft/sec, 4.27 m/sec





SID/HIII Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D.: D073653

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	42	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

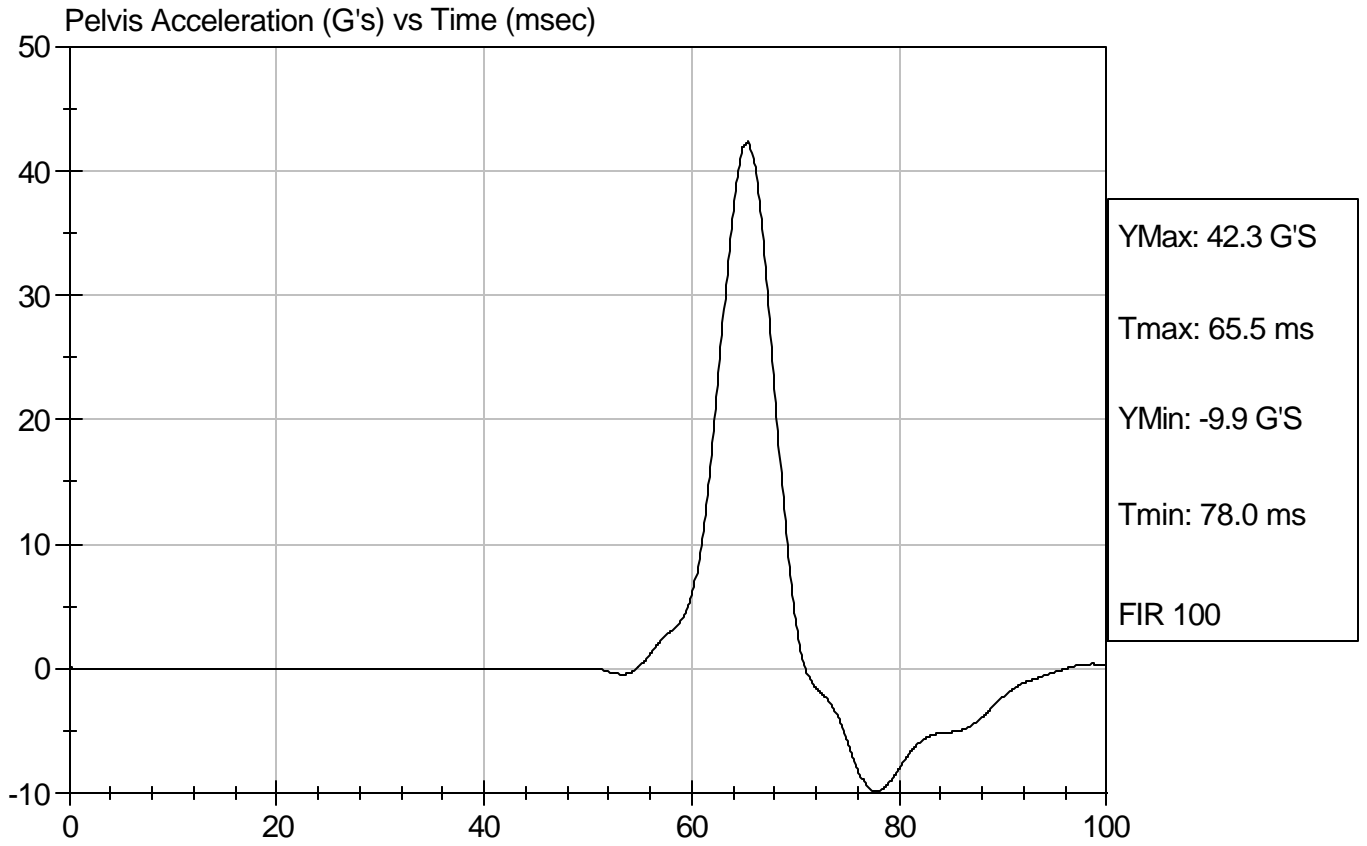
12/21/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D073653

Test Date: 12/21/07
Speed: 14.12 ft/sec, 4.30 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 904

Test I.D.: D073654

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Force At 12.7 mm	N	104 - 162	145	Pass
Force At 19 mm	N	163 - 222	205	Pass
Force At 25.4 mm	N	222 - 280	275	Pass
Force At 33 mm	N	325 - 391	367	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By

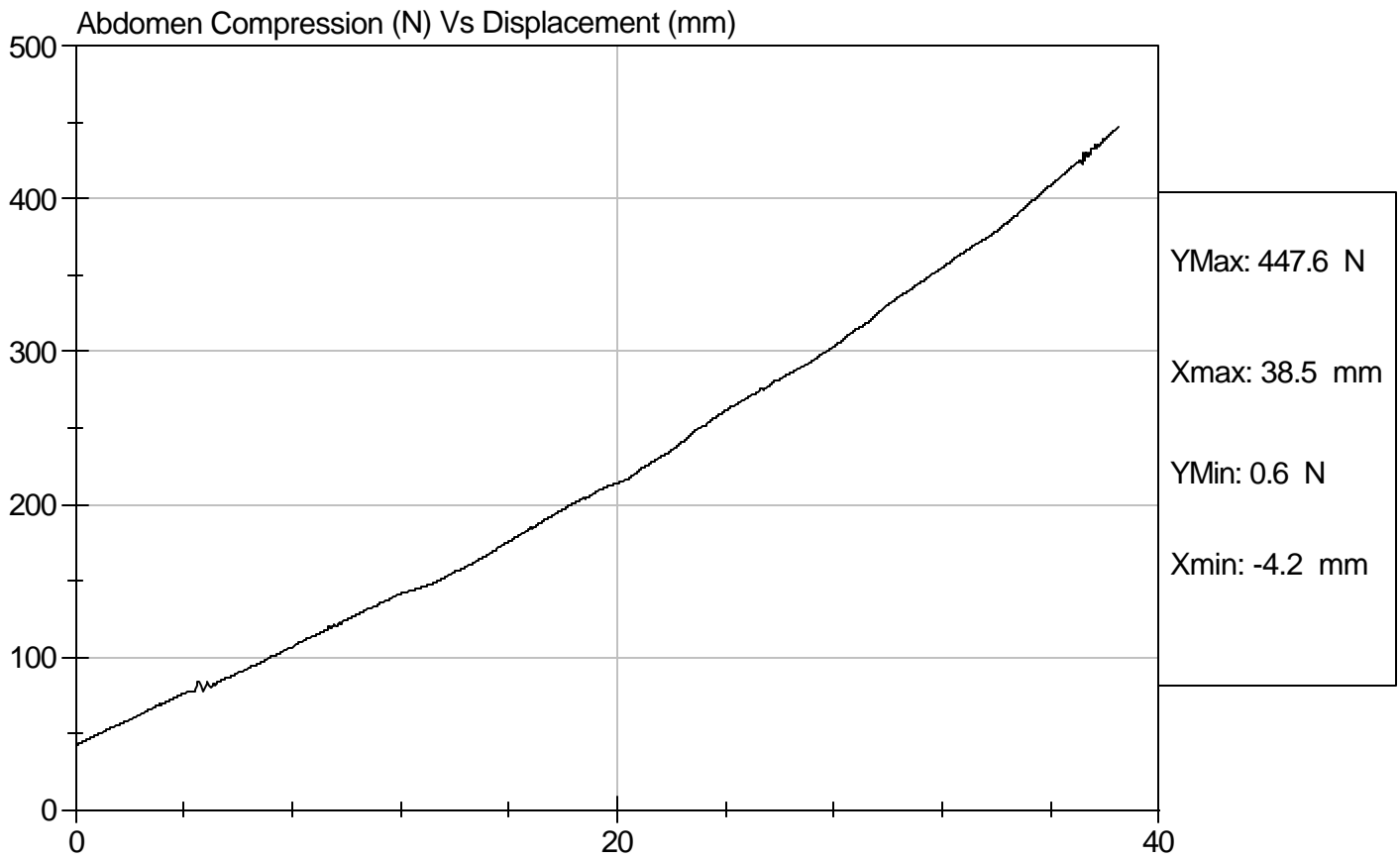


Test Description: Abdomen Compression

Test Date: 12/21/07

Component: D073654

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D.: D073655

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	120.3	Pass
Force At 30 deg	N	151.2 - 204.6	173.6	Pass
Force At 40 deg	N	204.6 - 258.0	210.7	Pass
Return Angle	Deg	12 Maximum	7	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By

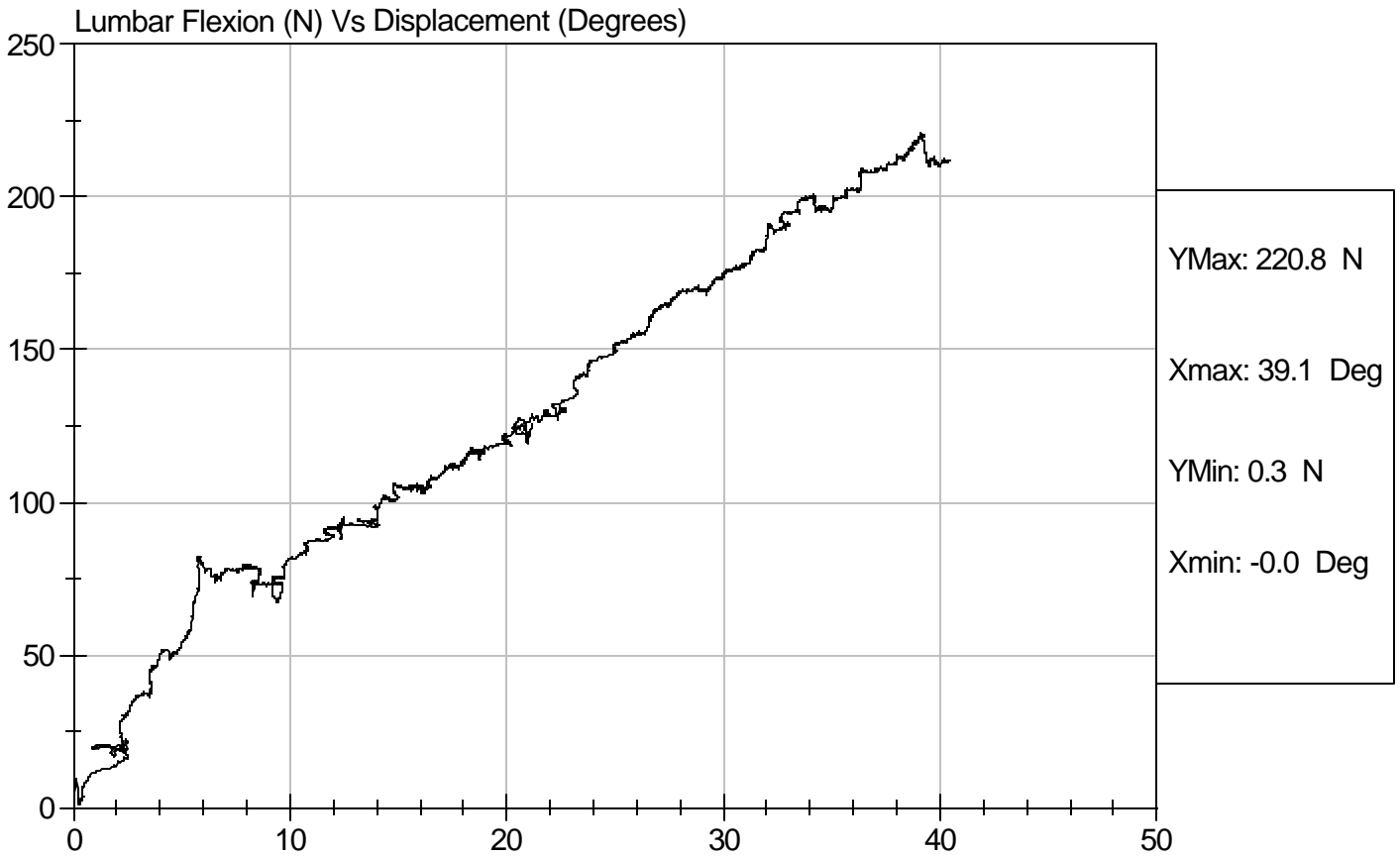


Test Description: Lumbar Flexion

Test Date: 12/21/07

Component: D073655

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Neck Pendulum Test

ATD Serial No: 904

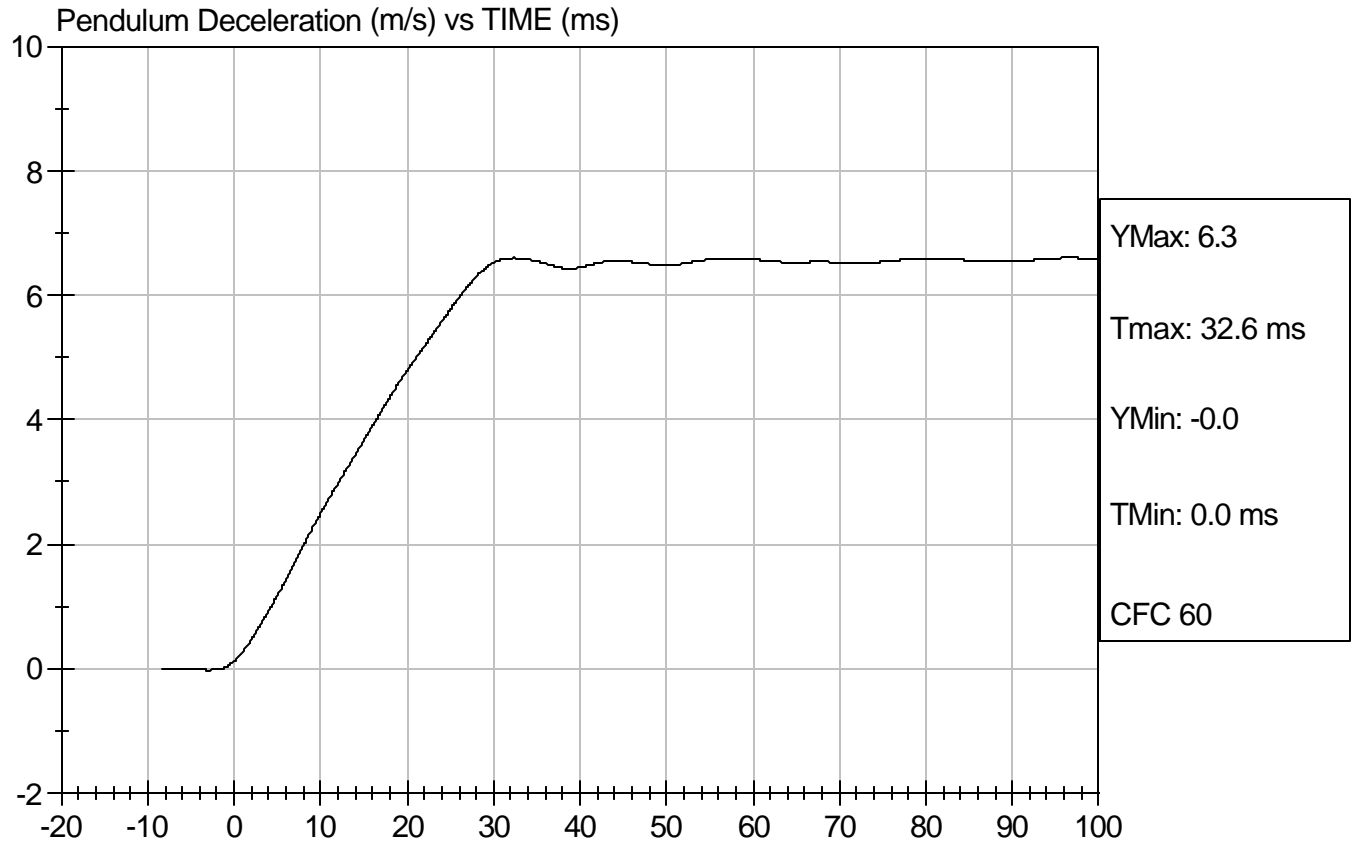
Test I.D.: D073659

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Impact Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.50	Pass
	20 msec	m/s	4.12 to 5.10	4.79	Pass
	30 msec	m/s	5.73 to 7.01	6.52	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.53	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	75	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	78	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	51	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	7	Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

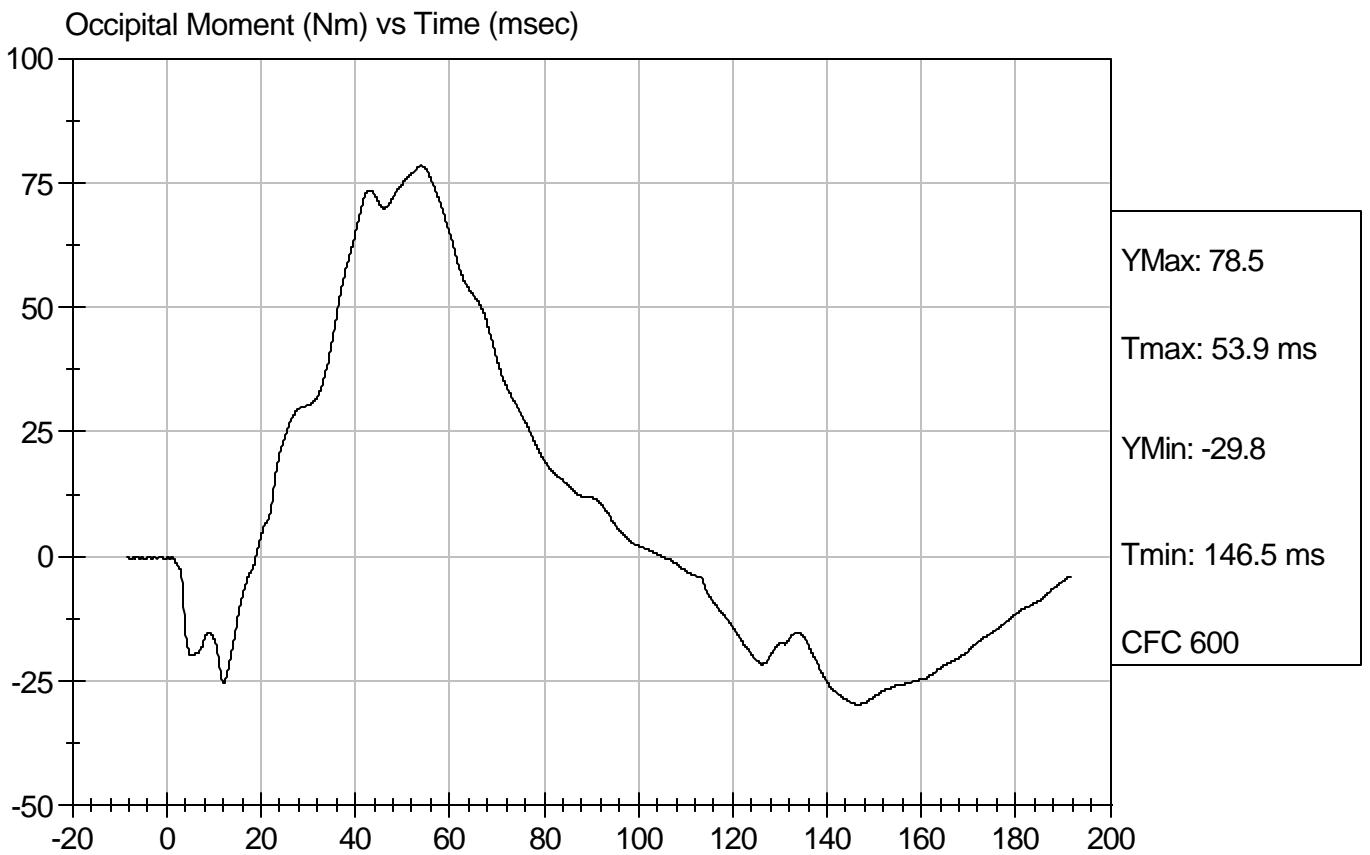
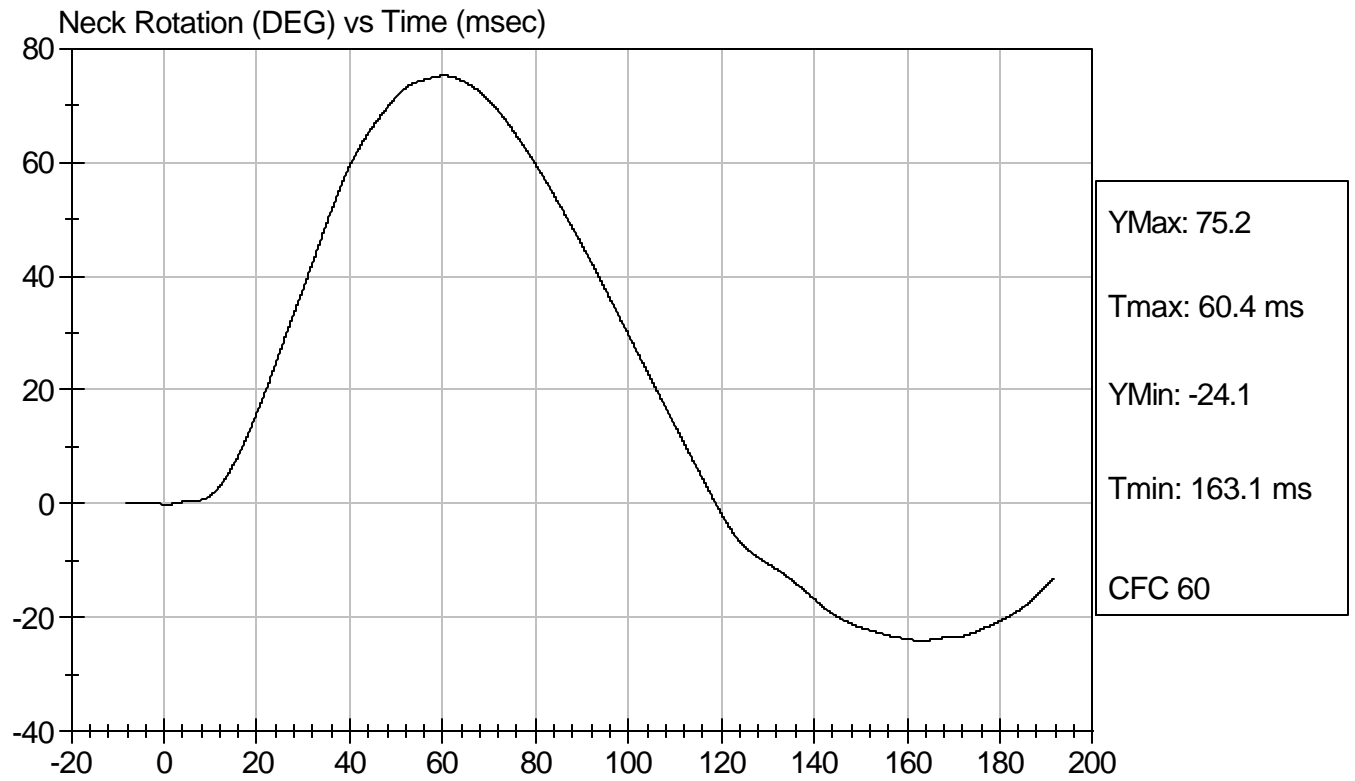
David Winkelbauer
 Approved By





Test Desc: Neck Bending
Component ID: D073659

Test Date: 12/21/07
Speed: 22.83 ft/sec, 6.96 m/sec



Calibration Test Results Summary

Dummy Serial Number: 904

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID/HIII Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 904

Test I.D.: D08081

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Peak Resultant Acceleration	G's	120 to 150	146	Pass
Is Resultant Curve Unimodal?	N/A	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	8.0	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

David Winkelbauer
 Approved By



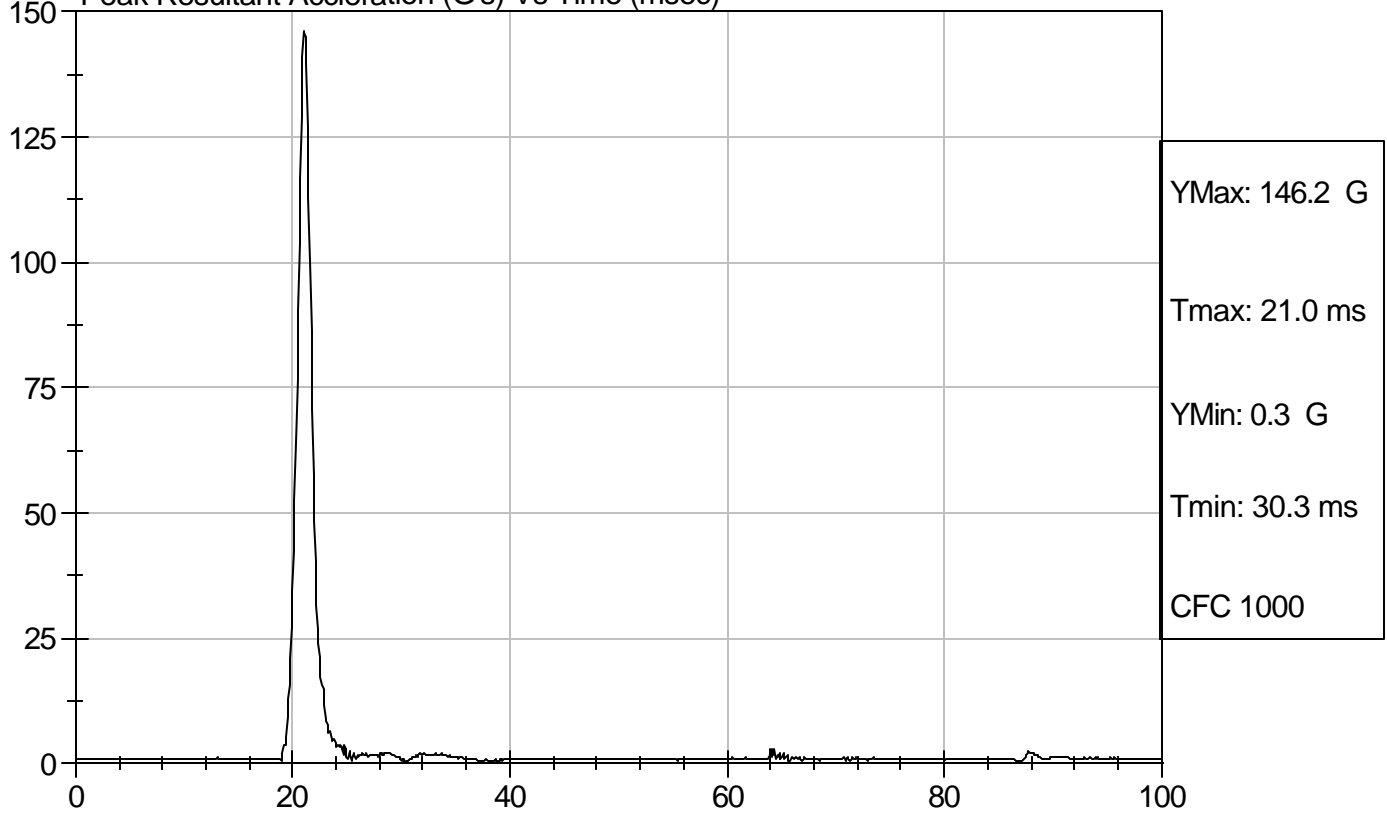
Test Description: Head Drop

Test Date: 1/22/08

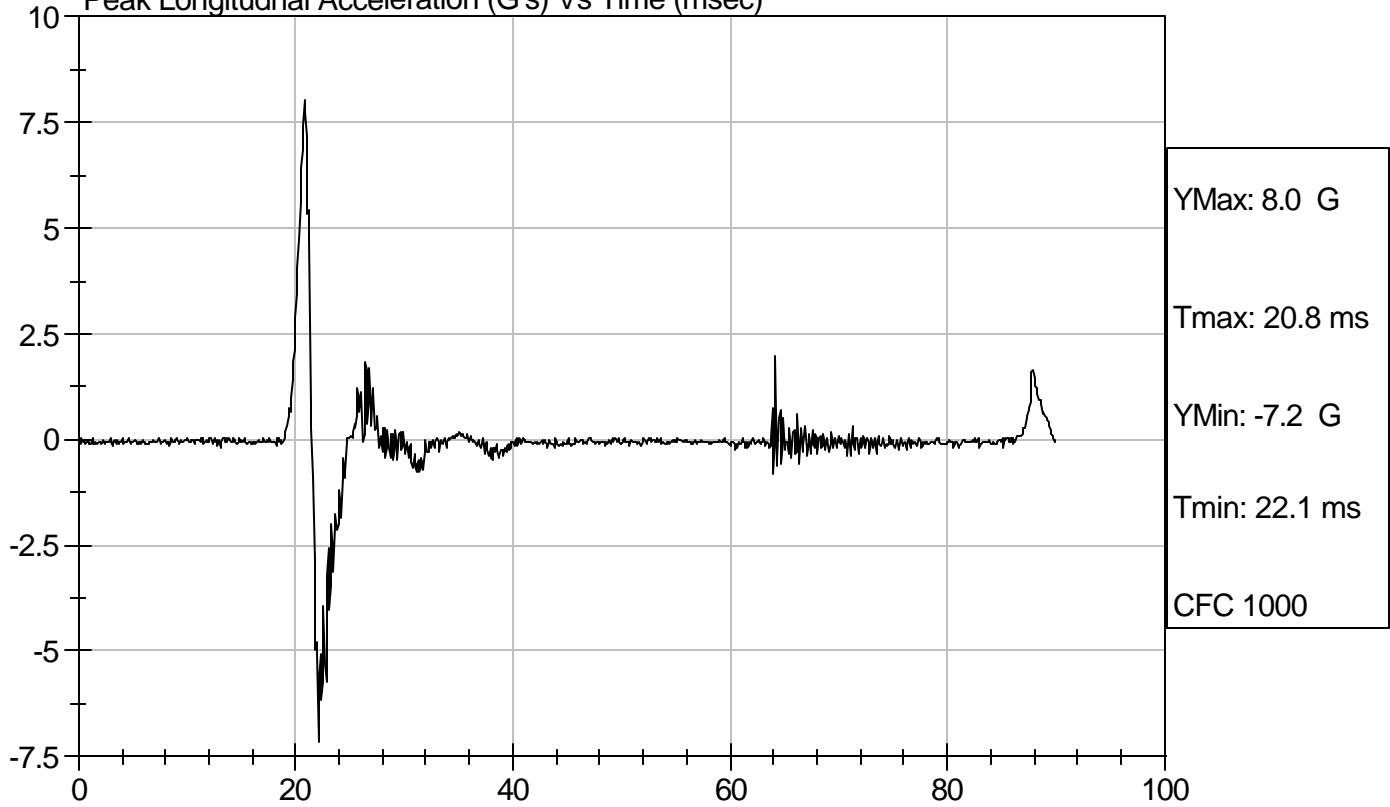
Component: D08081

Speed: 0 ft/s, 0 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudnal Acceleration (G's) Vs Time (msec)



SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D.: D08082

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Probe Velocity	m/s	4.22 - 4.31	4.23	Pass
Upper Rib	G's	37 - 46	40	Pass
Lower Rib	G's	37 - 46	38	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

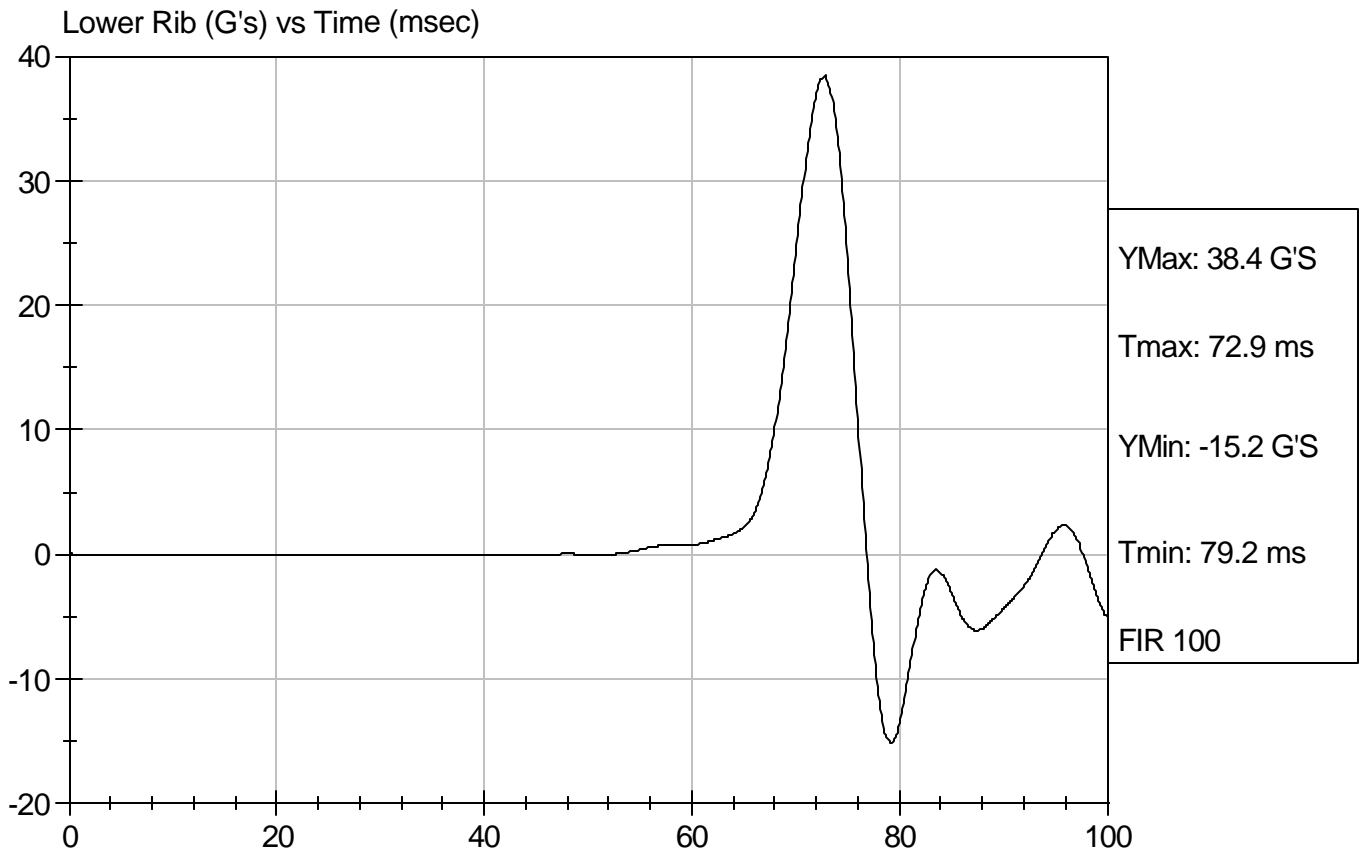
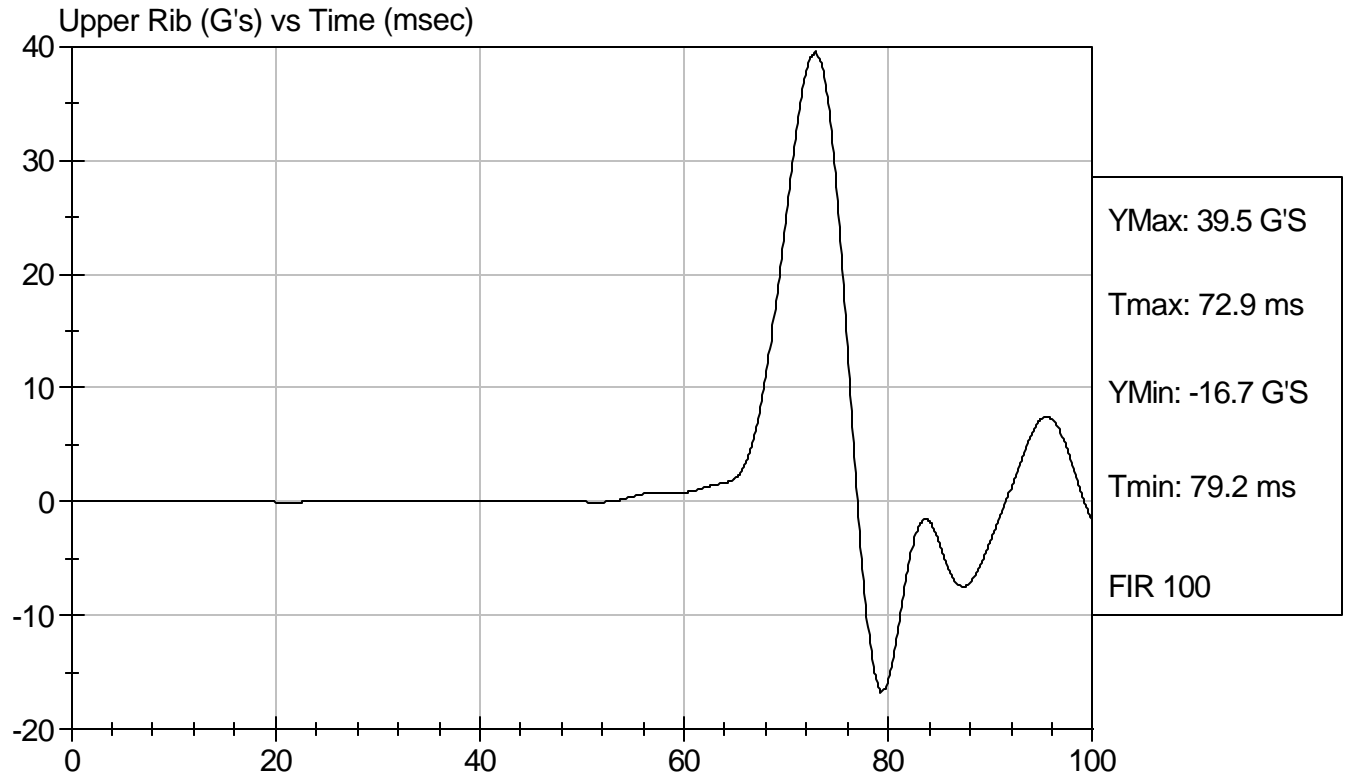
1/21/08
 Test Date

David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D08082

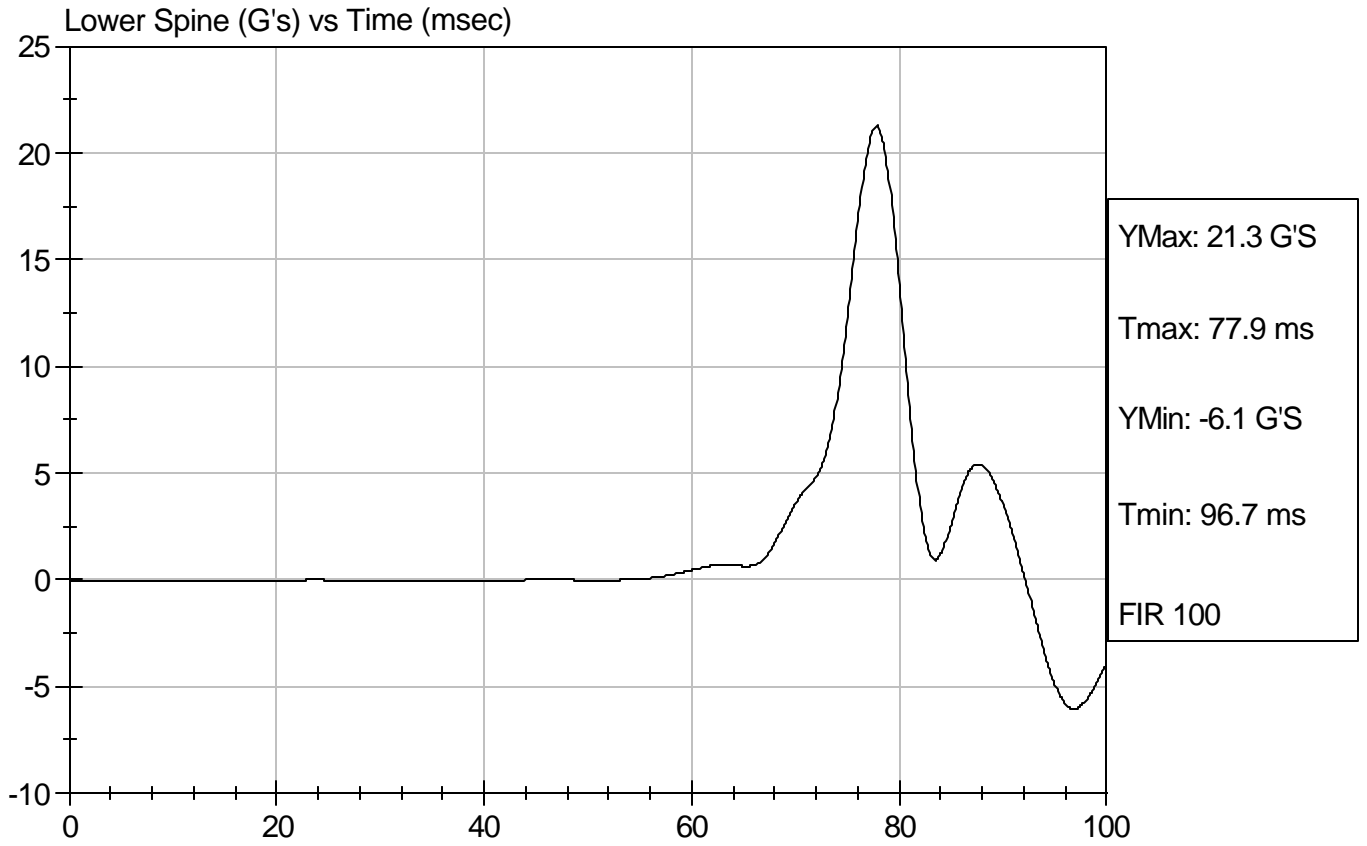
Test Date: 1/21/08
Speed: 13.89 ft/sec, 4.23 m/sec





Test Desc: Thorax Impact
Component ID: D08082

Test Date: 1/21/08
Speed: 13.89 ft/sec, 4.23 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D.: D08083

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	40	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

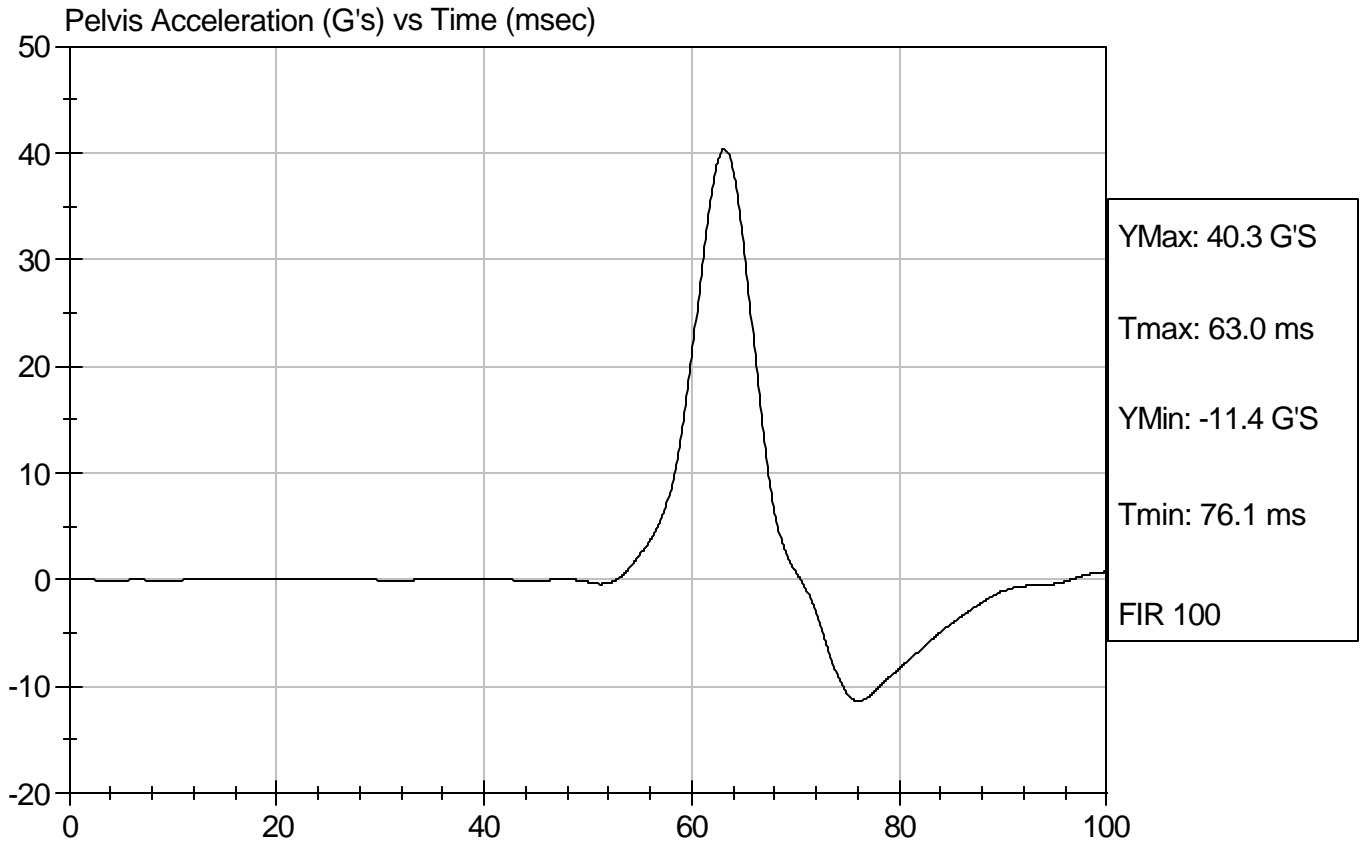
1/21/08
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D08083

Test Date: 1/21/08
Speed: 14.12 ft/sec, 4.30 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 904

Test I.D.: D08084

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	16	Pass
Force At 12.7 mm	N	104 -162	139	Pass
Force At 19 mm	N	163 - 222	194	Pass
Force At 25.4 mm	N	222 - 280	265	Pass
Force At 33 mm	N	325 - 391	368	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

David Winkelbauer
 Approved By

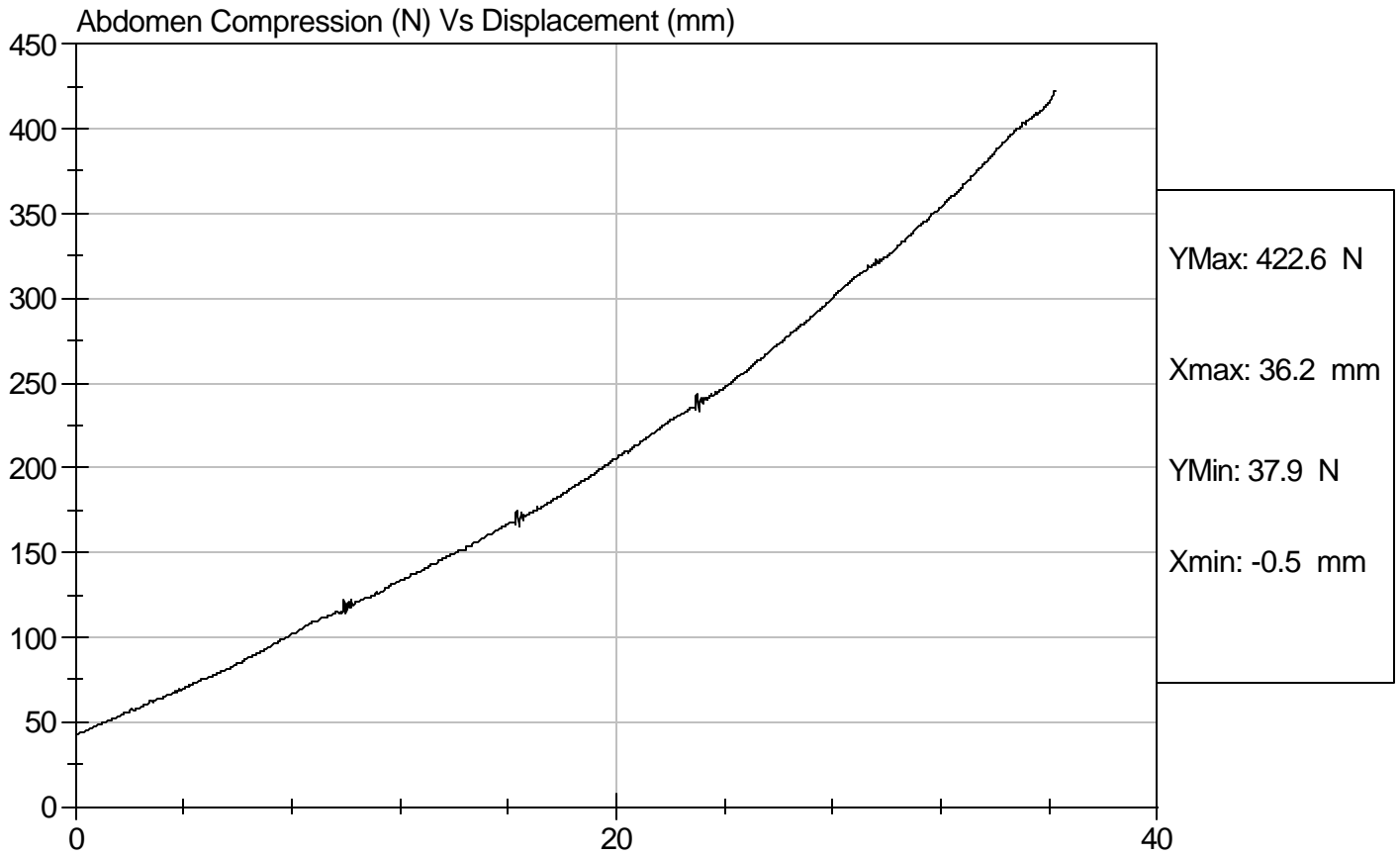


Test Description: Abdomen Compression

Test Date: 1/22/08

Component: D08084

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D.: D08085

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	128.2	Pass
Force At 30 deg	N	151.2 - 204.6	160.7	Pass
Force At 40 deg	N	204.6 - 258.0	225.8	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

David Winkelbauer
 Approved By

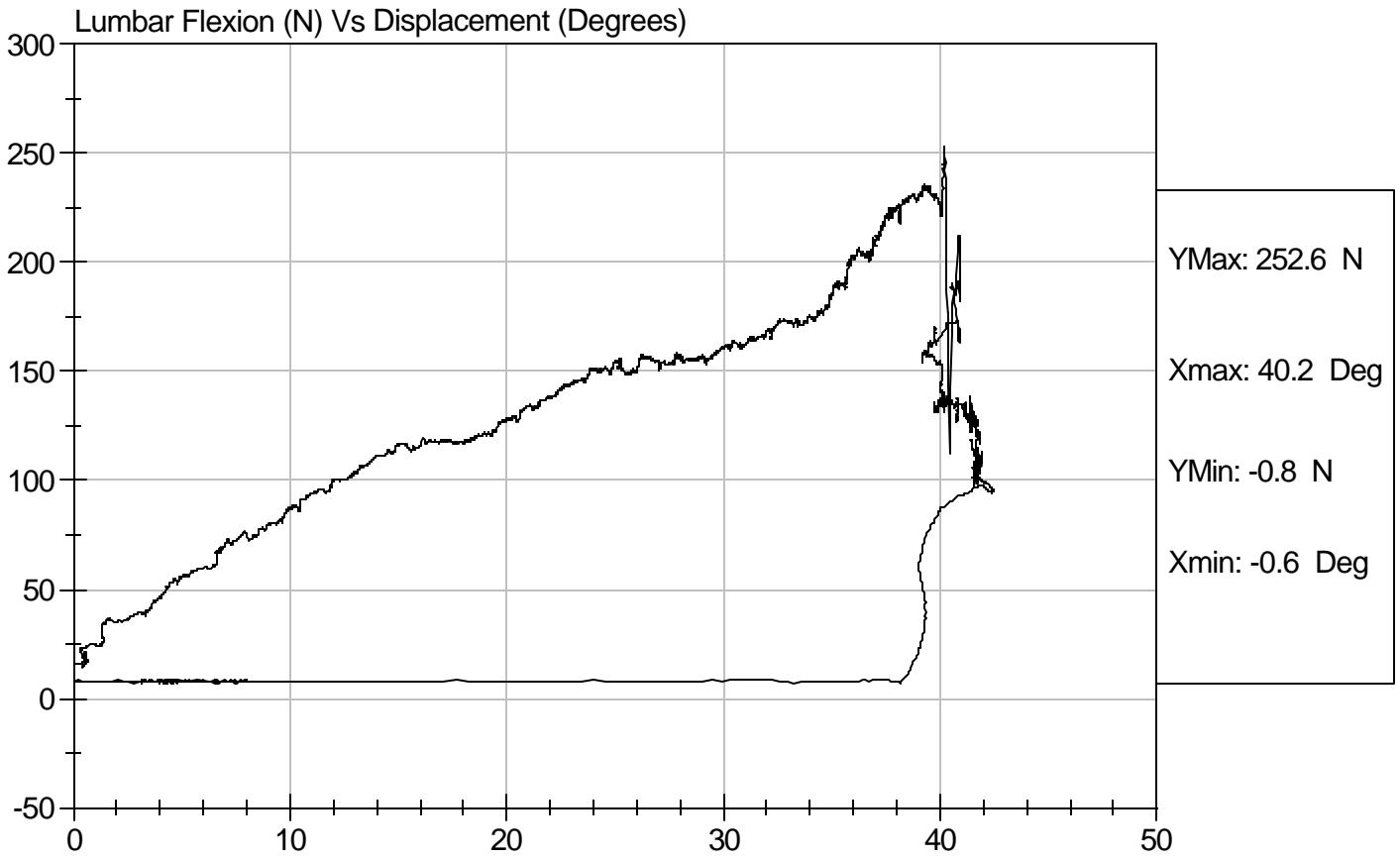


Test Description: Lumbar Flexion

Test Date: 1/22/08

Component: D08085

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Neck Pendulum Test

ATD Serial No: 904

Test I.D.: D08089

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity		%	10 to 70	16	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.48	Pass
	20 msec	m/s	4.12 to 5.10	4.72	Pass
	30 msec	m/s	5.73 to 7.01	6.45	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.61	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	71	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	61	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	74	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	52	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	3	Pass


 Laboratory Technician

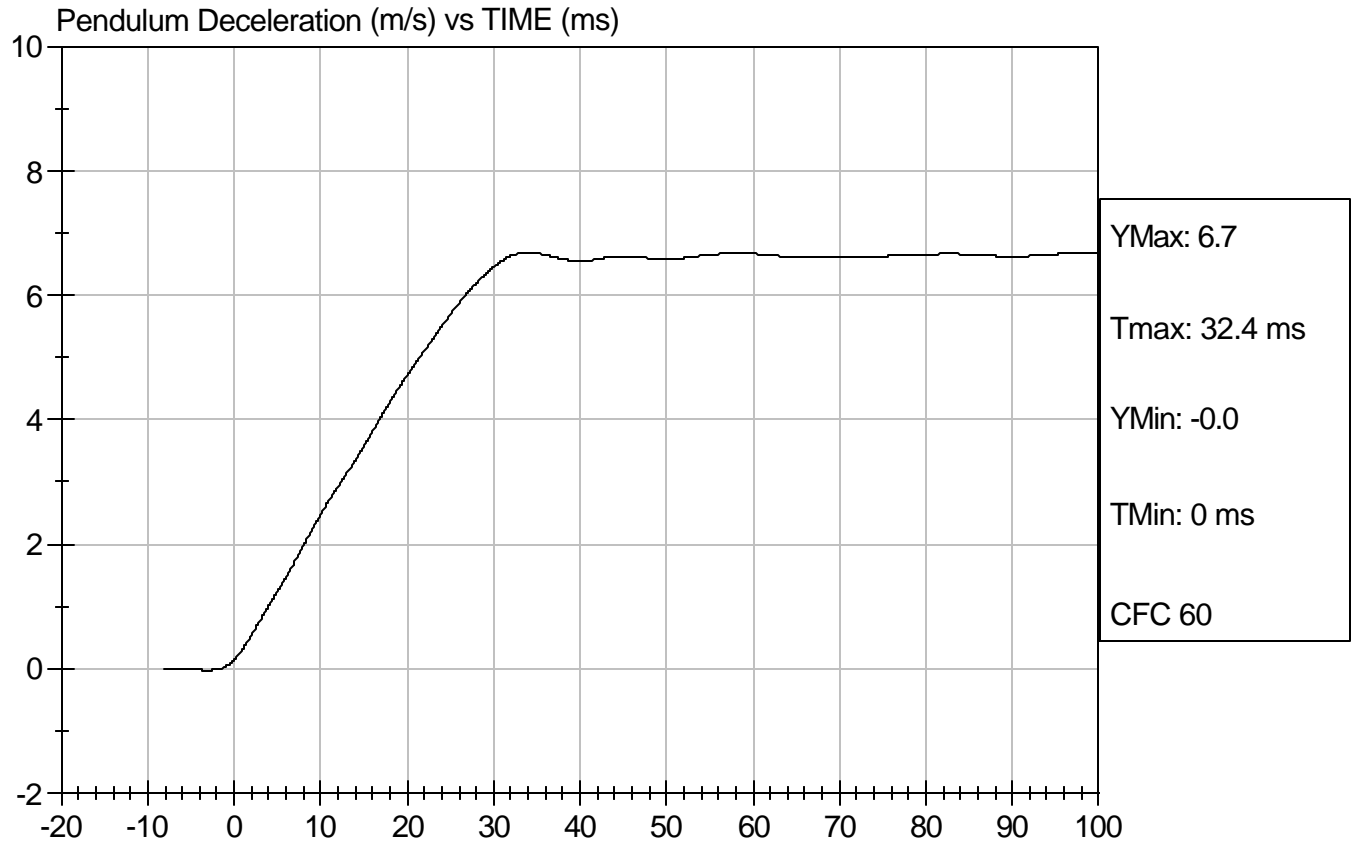
1/22/08
 Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D08089

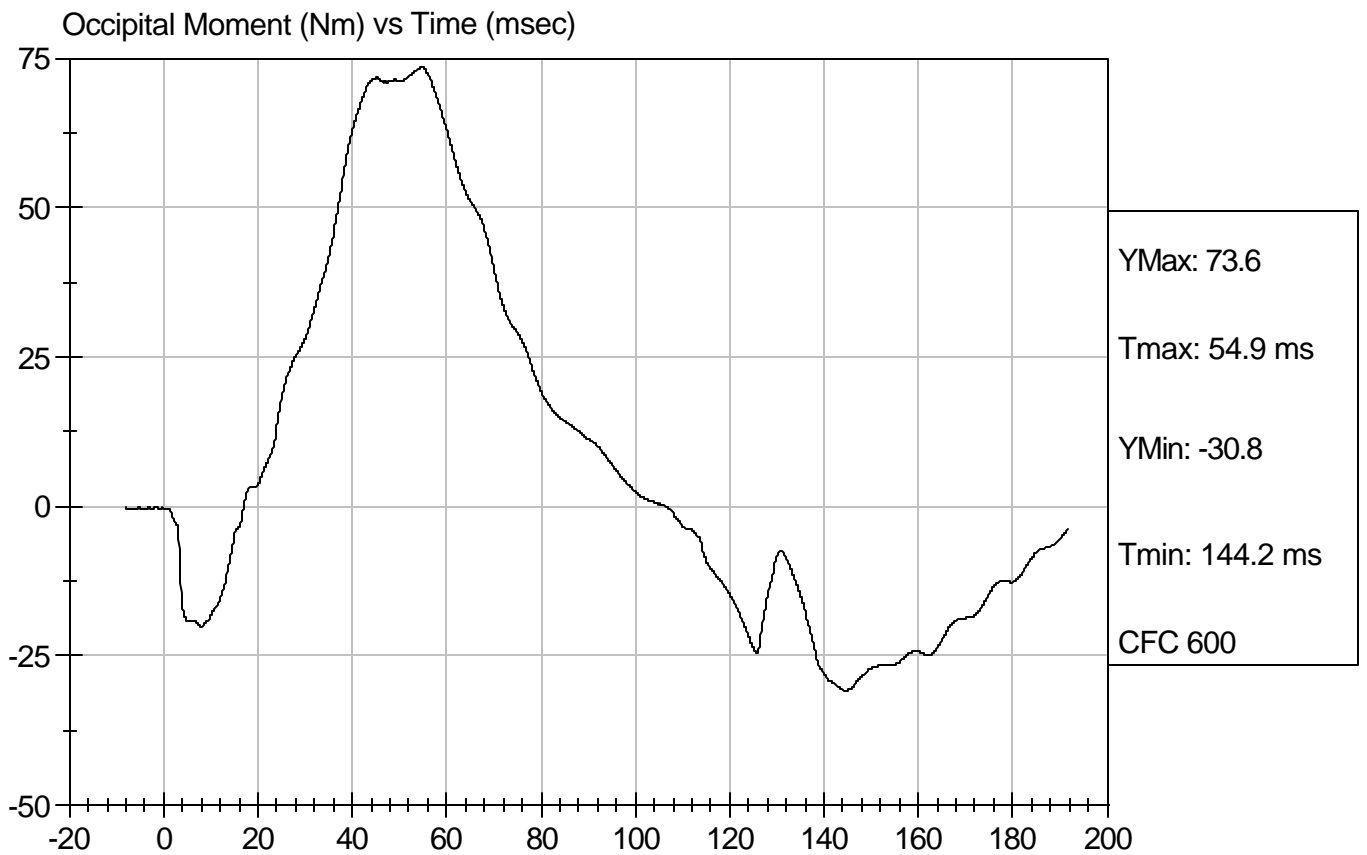
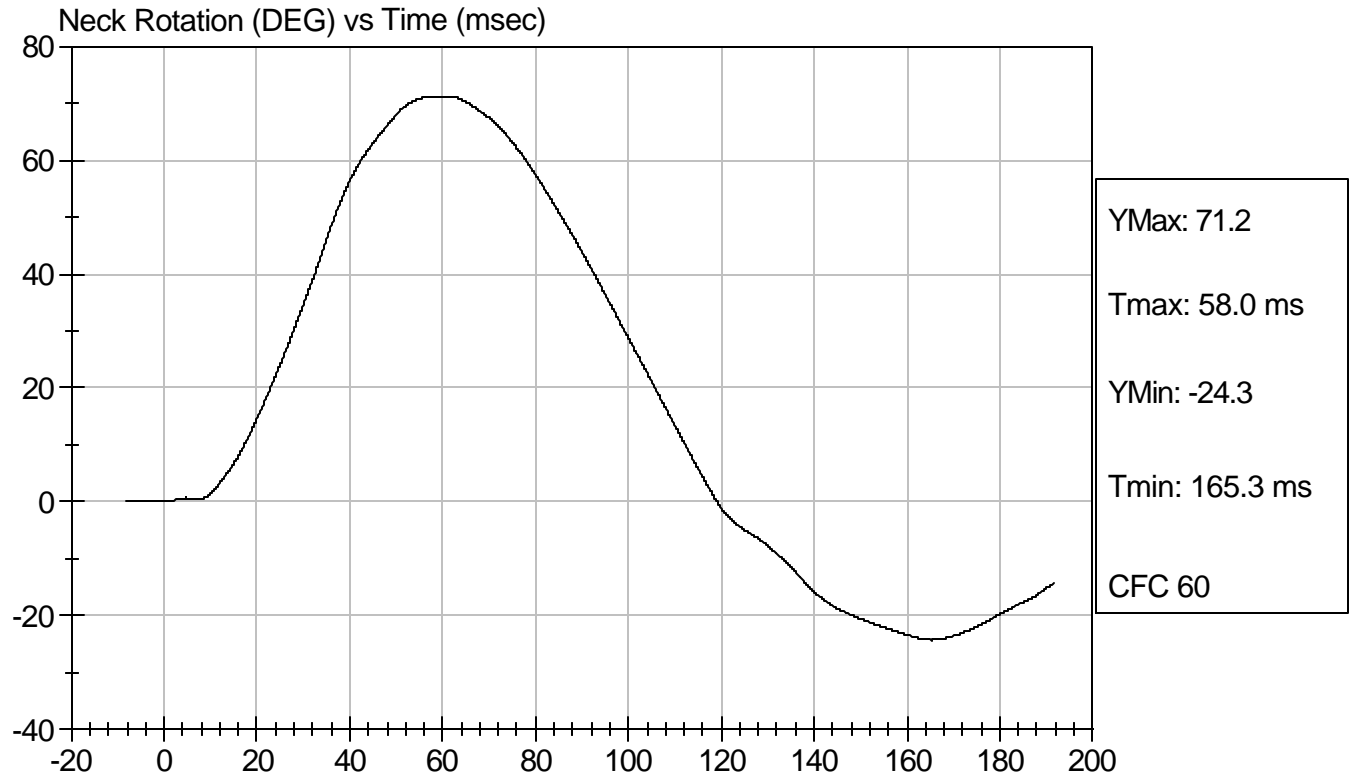
Test Date: 1/22/08
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D08089

Test Date: 1/22/08
Speed: 23.15 ft/sec, 7.06 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 904

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		Pass

Jessica Hall

 Laboratory Technician
David Winkelbauer

 Approved By

1/22/2008

 Test Date

Calibration Test Results Summary

Dummy Serial Number: 271

Pre-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 271

Test I.D.: D07364

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	905	Pass
RH - Rib Height	mm	501 - 521	502	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	239	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	526	Pass
SW - Knee Pivot to Floor	mm	490 - 505	497	Pass
HW - Hip Width	mm	356 - 391	371	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/2007
 Test Date

David Winkelbauer
 Approved By

SID/HIII Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 271

Test I.D.: D073641

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Peak Resultant Acceleration	G's	120 to 150	135	Pass
Is Resultant Curve Unimodal?	N/A	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	7.0	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By



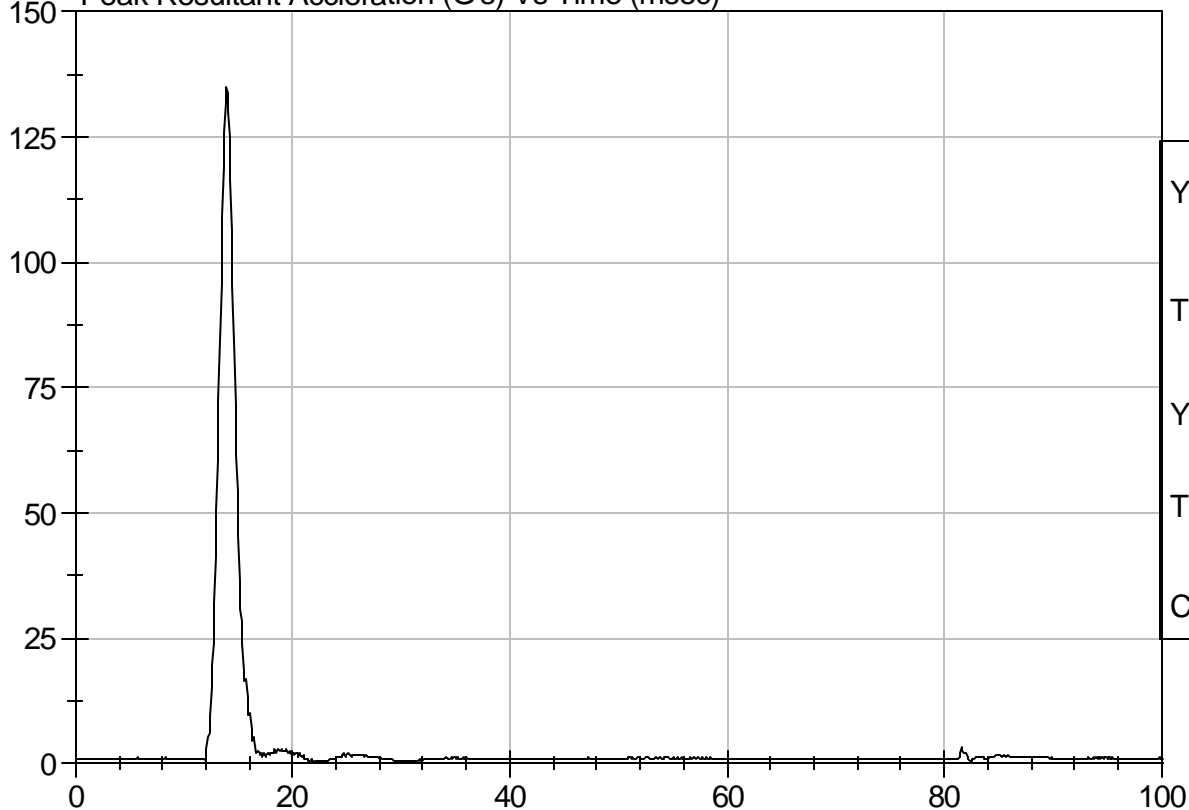
Test Description: Head Drop

Test Date: 12/21/07

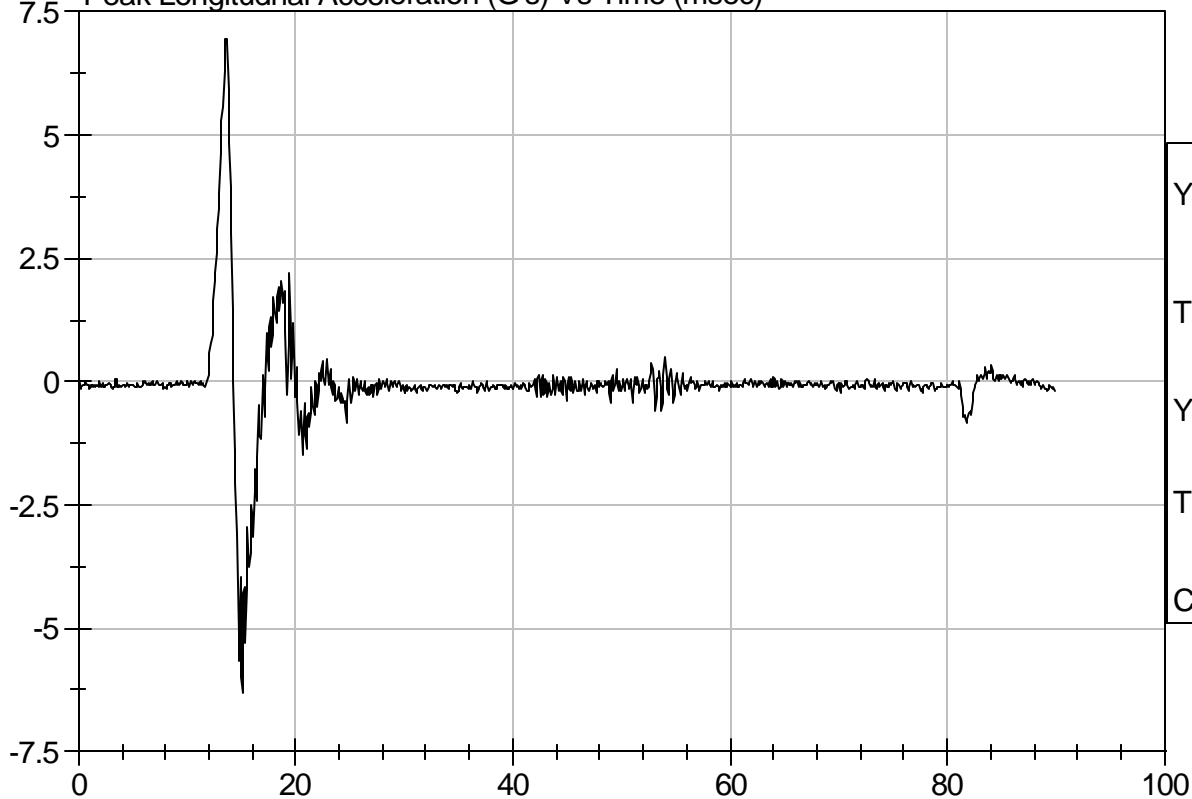
Component: D073641

Speed: 0 ft/s, 0.00 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



Peak Longitudnal Acceleration (G's) Vs Time (msec)



SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D.: D073642

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Probe Velocity	m/s	4.22 - 4.31	4.27	Pass
Upper Rib	G's	37 - 46	44	Pass
Lower Rib	G's	37 - 46	44	Pass
Lower Spine	G's	15 - 22	20	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

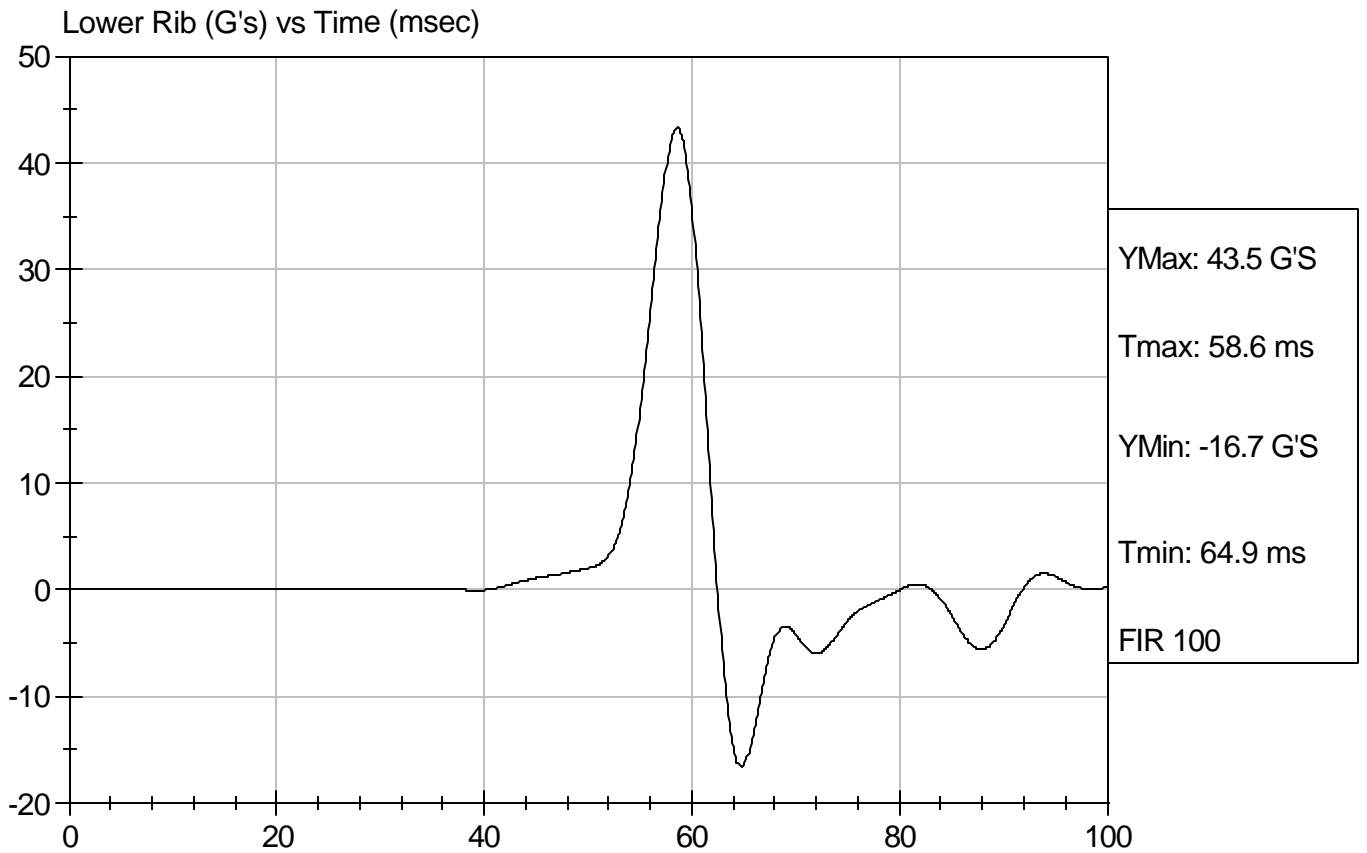
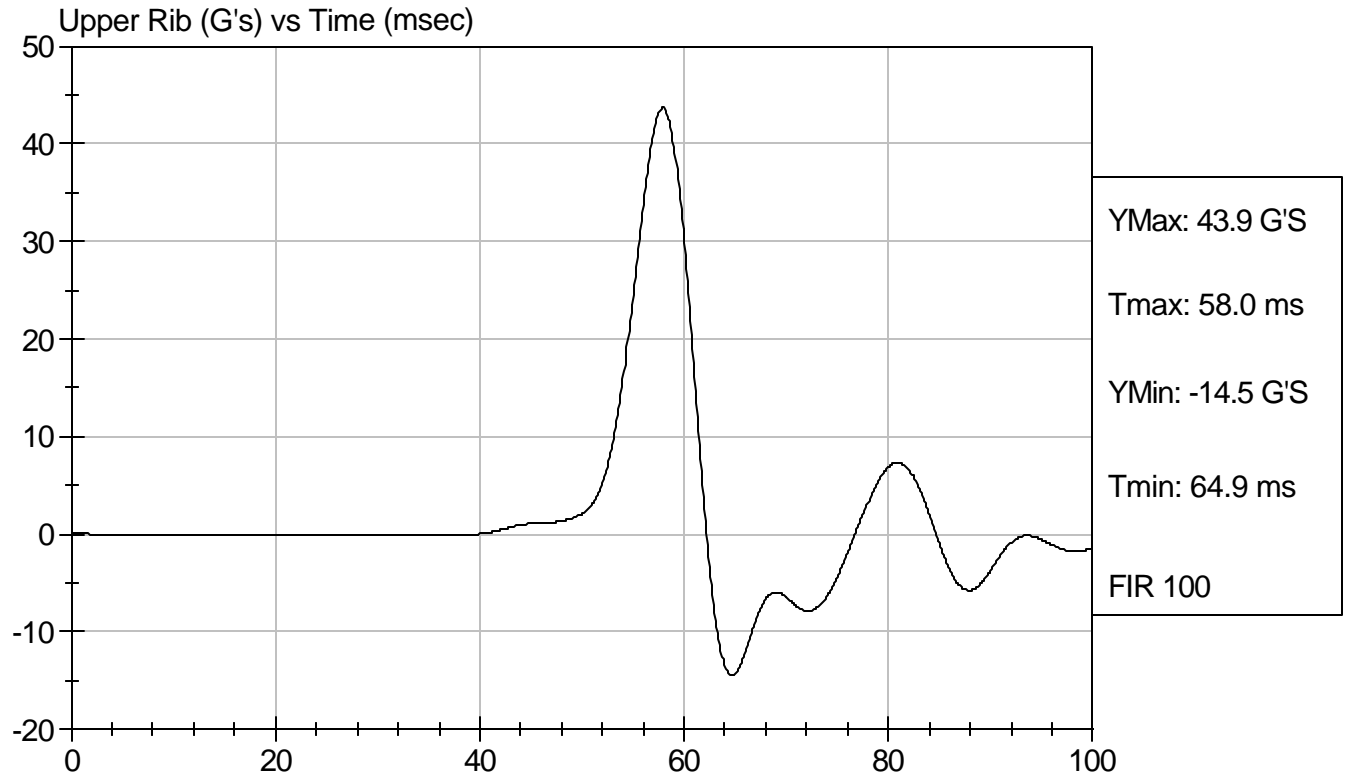
12/21/07
 Test Date

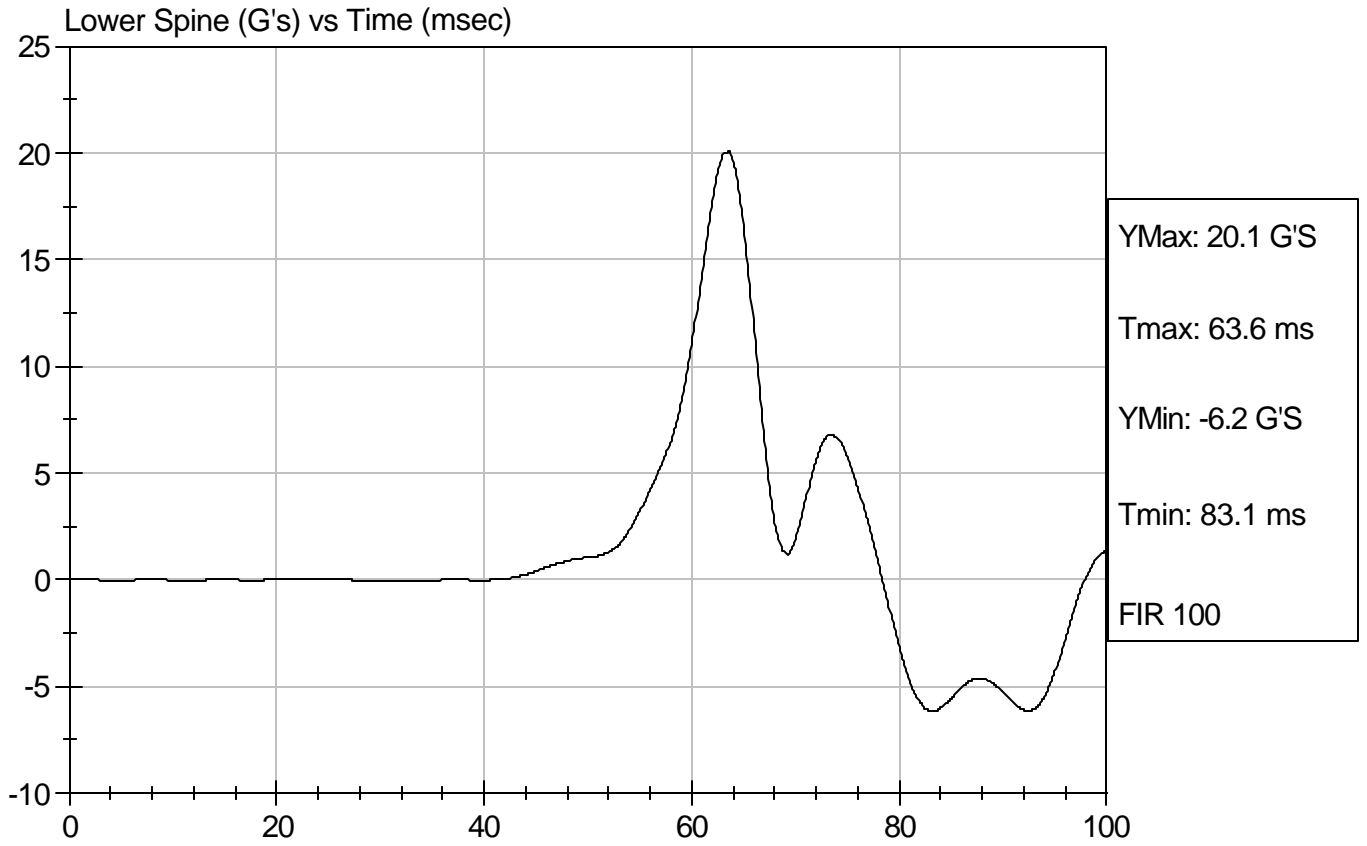
David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D073642

Test Date: 12/21/07
Speed: 14.00 ft/sec, 4.27 m/sec





SID/HIII Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

Test I.D.: D073643

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Probe Velocity	m/s	4.27 - 4.33	4.27	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

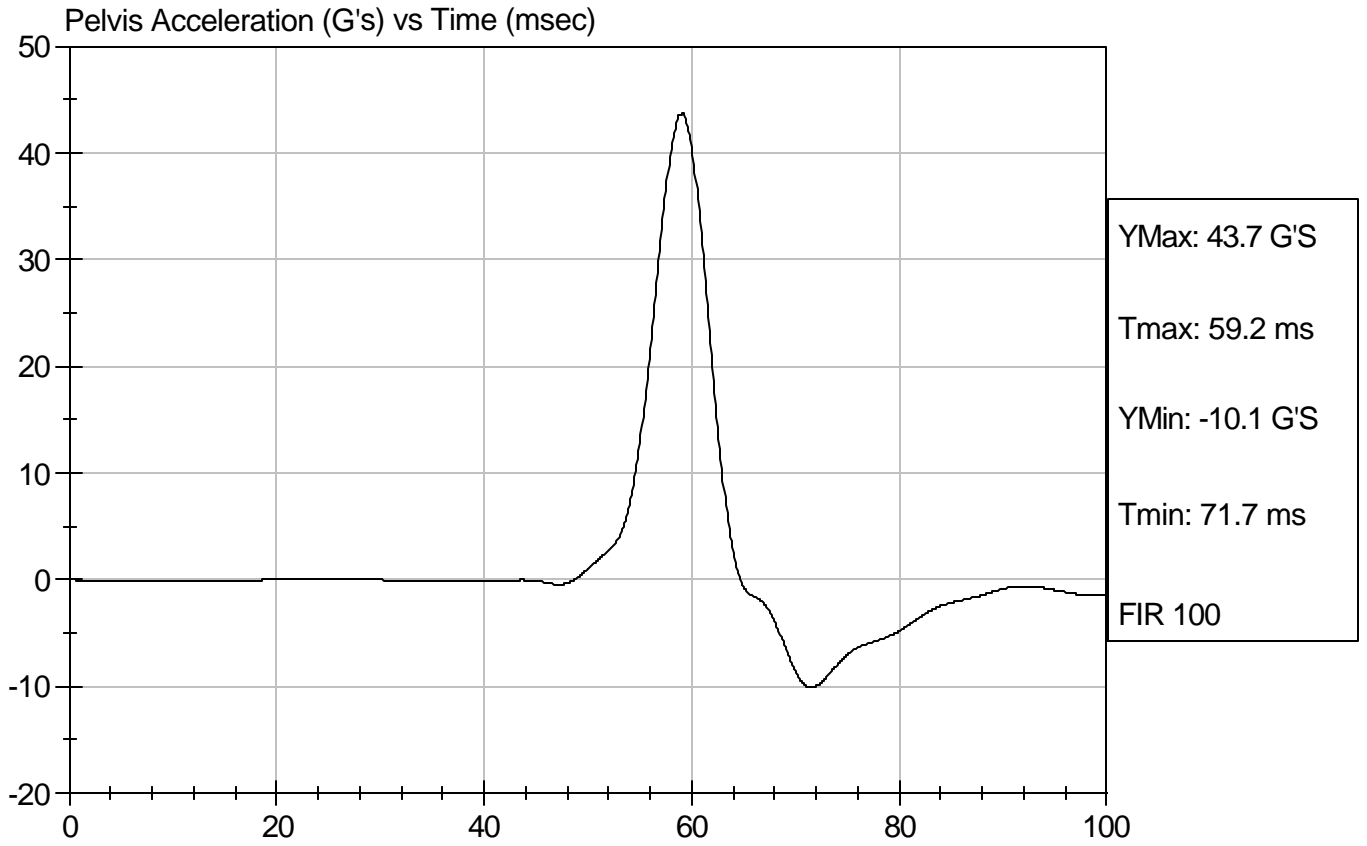
12/21/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D073643

Test Date: 12/21/07
Speed: 14.01 ft/sec, 4.27 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 271

Test I.D.: D073644

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Force At 12.7 mm	N	104 -162	149	Pass
Force At 19 mm	N	163 - 222	202	Pass
Force At 25.4 mm	N	222 - 280	271	Pass
Force At 33 mm	N	325 - 391	355	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By

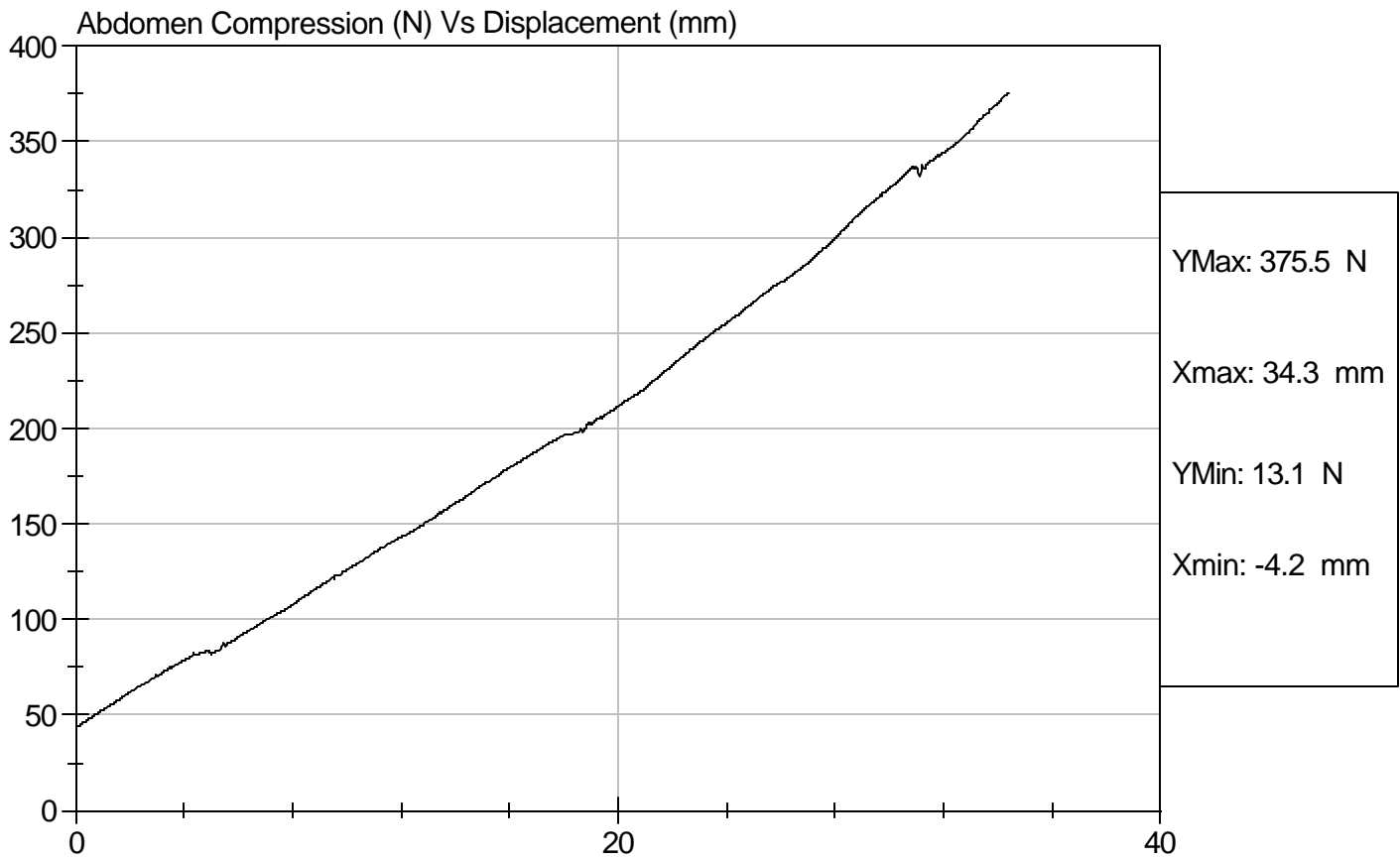


Test Description: Abdomen Compression

Test Date: 12/21/07

Component: D073644

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D.: D073645

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	126.5	Pass
Force At 30 deg	N	151.2 - 204.6	170.5	Pass
Force At 40 deg	N	204.6 - 258.0	219.9	Pass
Return Angle	Deg	12 Maximum	5	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

David Winkelbauer
 Approved By

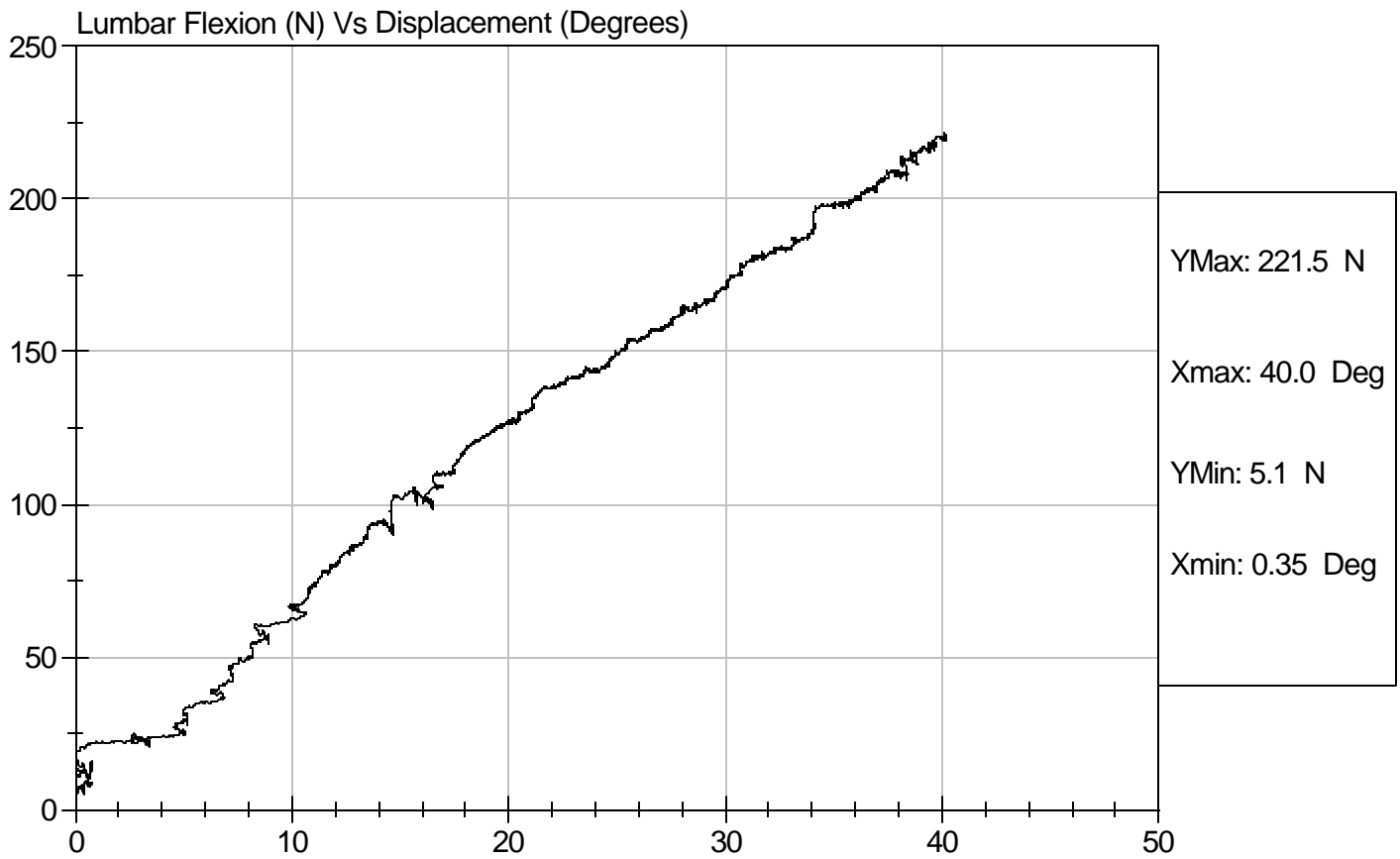


Test Description: Lumbar Flexion

Test Date: 12/21/07

Component: D073645

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Neck Pendulum Test

ATD Serial No: 271

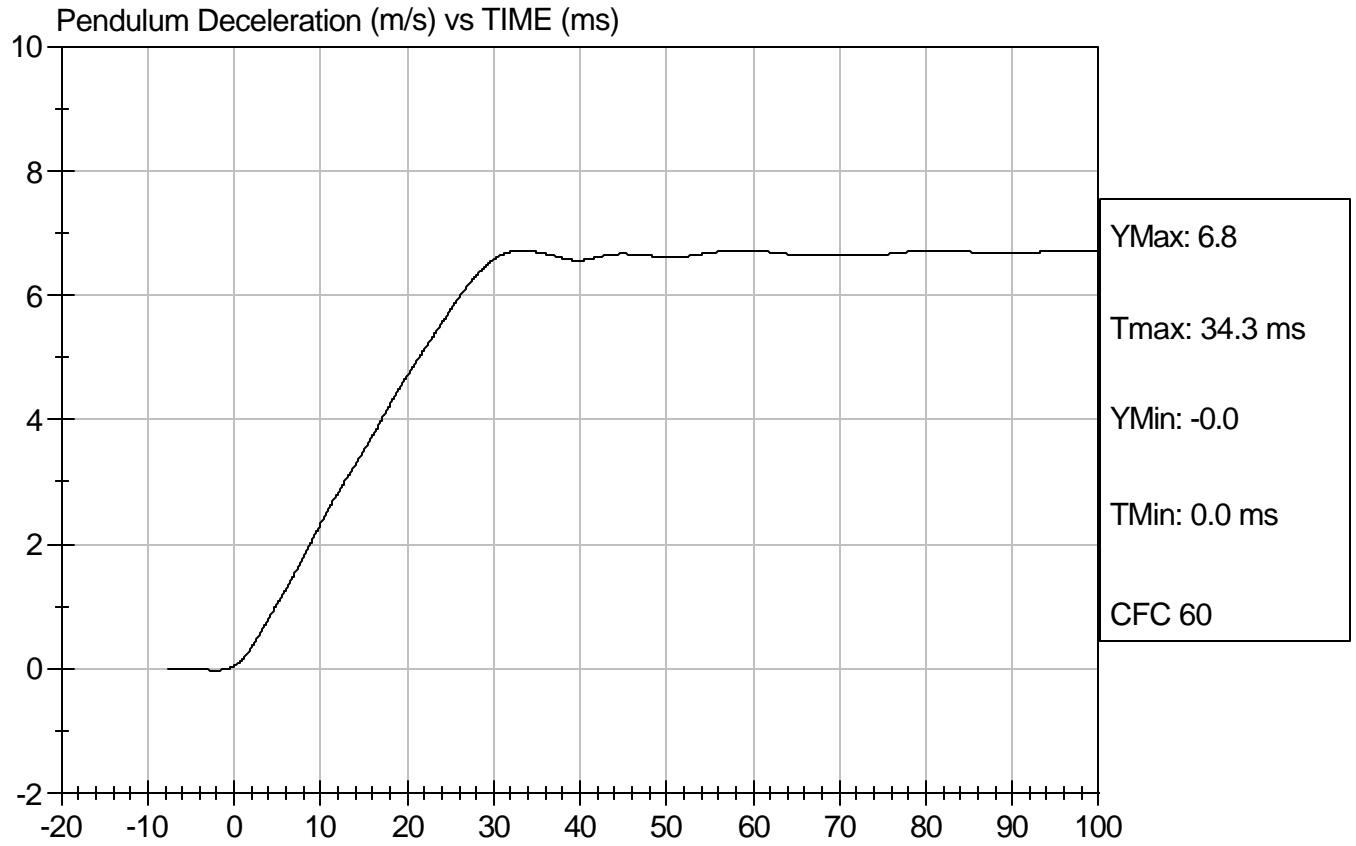
Test I.D.: D073649

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Impact Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.33	Pass
	20 msec	m/s	4.12 to 5.10	4.71	Pass
	30 msec	m/s	5.73 to 7.01	6.57	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.65	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	73	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	62	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	74	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	50	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	3	Pass

Jessica Gall
 Laboratory Technician

12/21/07
 Test Date

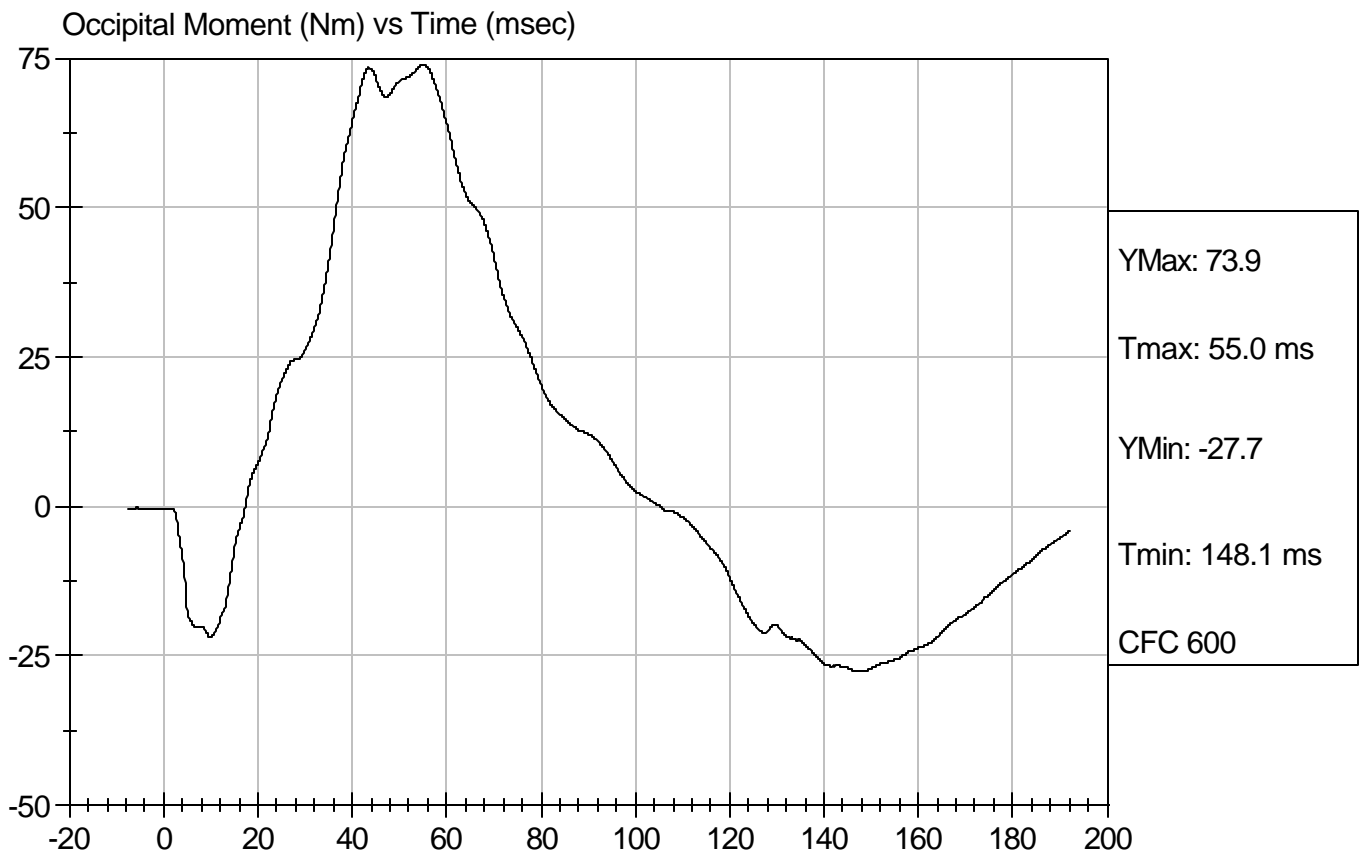
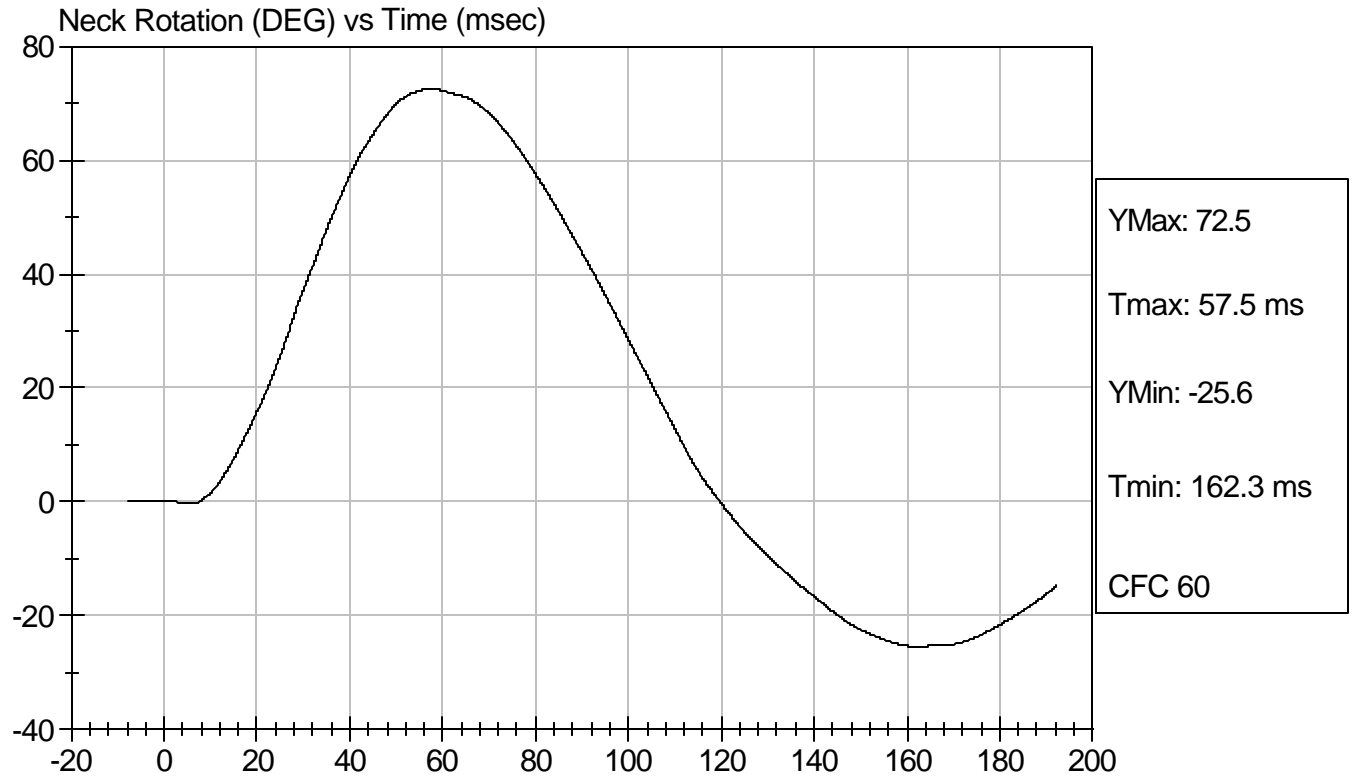
David Winkelbauer
 Approved By





Test Desc: Neck Bending
Component ID: D073649

Test Date: 12/21/07
Speed: 22.83 ft/sec, 6.96 m/sec



Calibration Test Results Summary

Dummy Serial Number: 271

Post-Test Calibration

External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis passed all impact test requirements.
Abdominal Compression Test:	The abdomen passed all compression test requirements.
Lumbar Flexion Test:	The lumbar passed all flexion test requirements.

CERTIFICATION DATA

Dummy Serial Number: 271

SID/HIII Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 271

Test I.D.: D08071

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Peak Resultant Acceleration	G's	120 to 150	148	Pass
Is Resultant Curve Unimodal?	N/A	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	9.7	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/21/08
 Test Date

David Winkelbauer
 Approved By



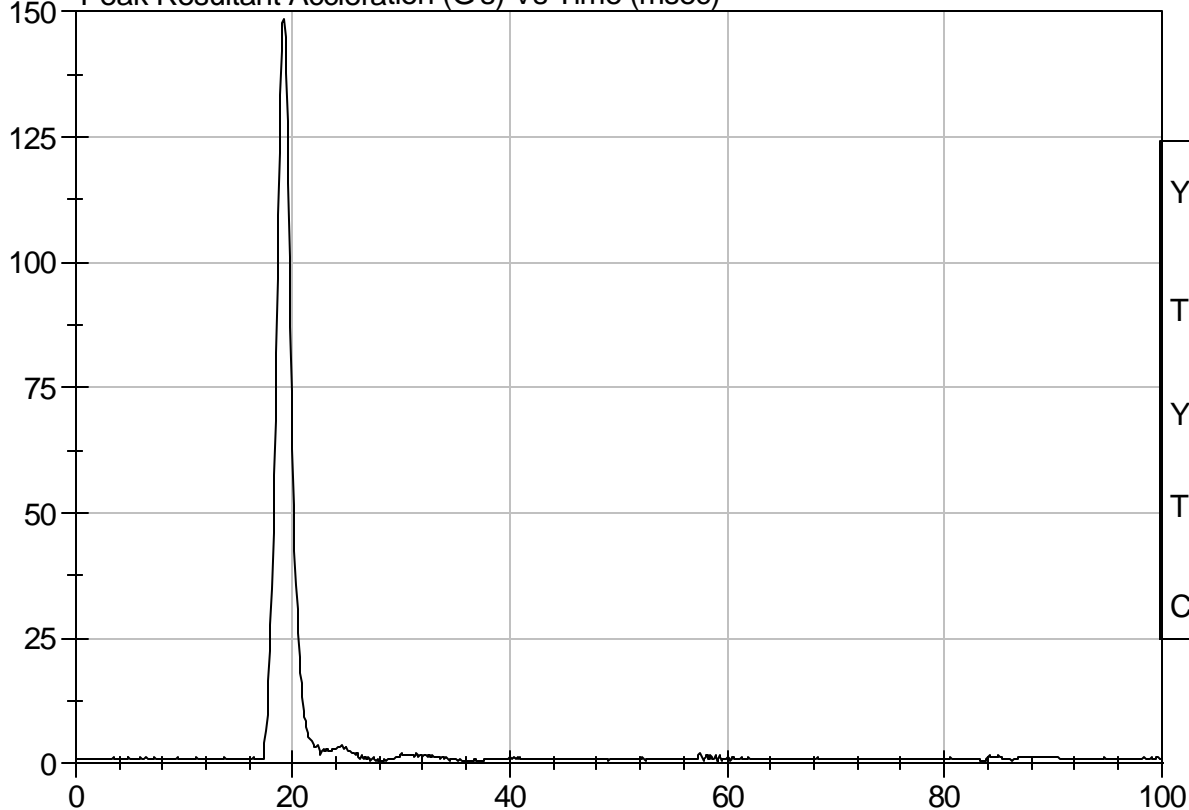
Test Description: Head Drop

Test Date: 1/21/08

Component: D08071

Speed: 0 ft/s, 0 m/s

Peak Resultant Acceleration (G's) Vs Time (msec)



YMax: 148.4 G

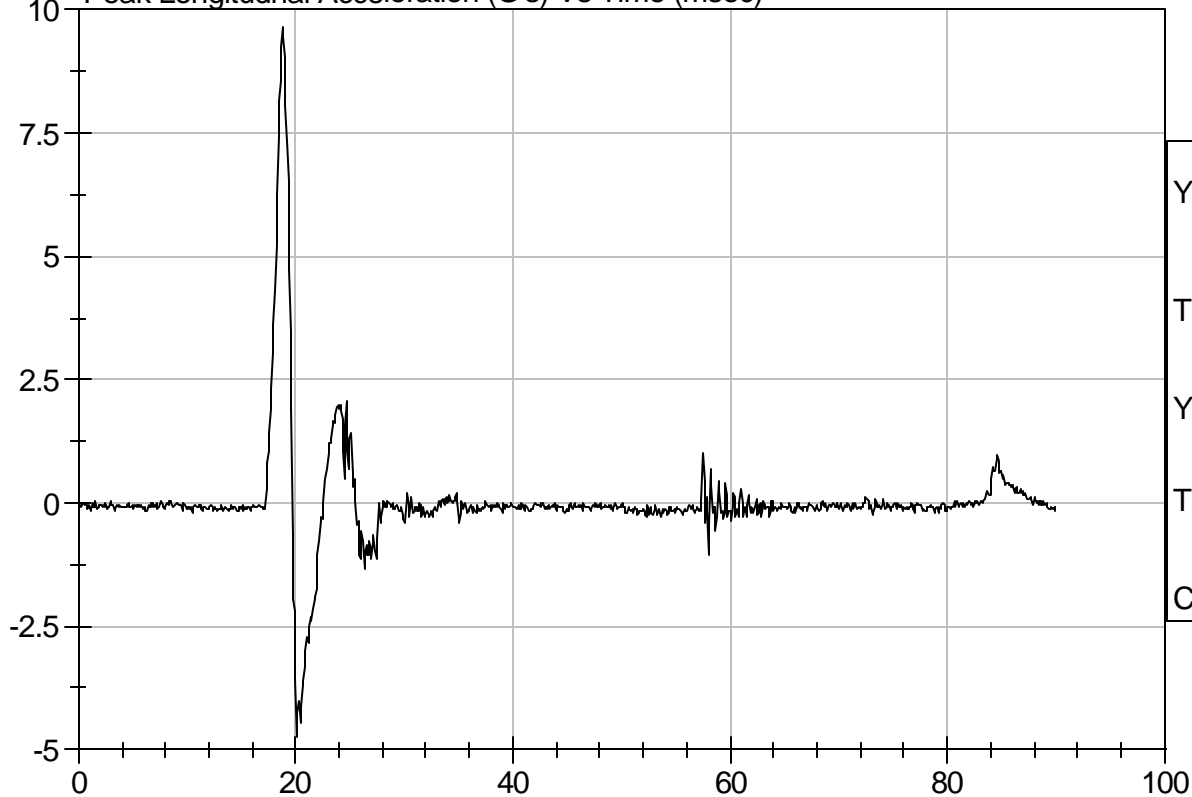
Tmax: 19.2 ms

YMin: 0.2 G

Tmin: 59.1 ms

CFC 1000

Peak Longitudnal Acceleration (G's) Vs Time (msec)



YMax: 9.7 G

Tmax: 18.8 ms

YMin: -4.7 G

Tmin: 20.1 ms

CFC 1000

SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D.: D08072

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	14	Pass
Probe Velocity	m/s	4.22 - 4.31	4.27	Pass
Upper Rib	G's	37 - 46	45	Pass
Lower Rib	G's	37 - 46	43	Pass
Lower Spine	G's	15 - 22	20	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

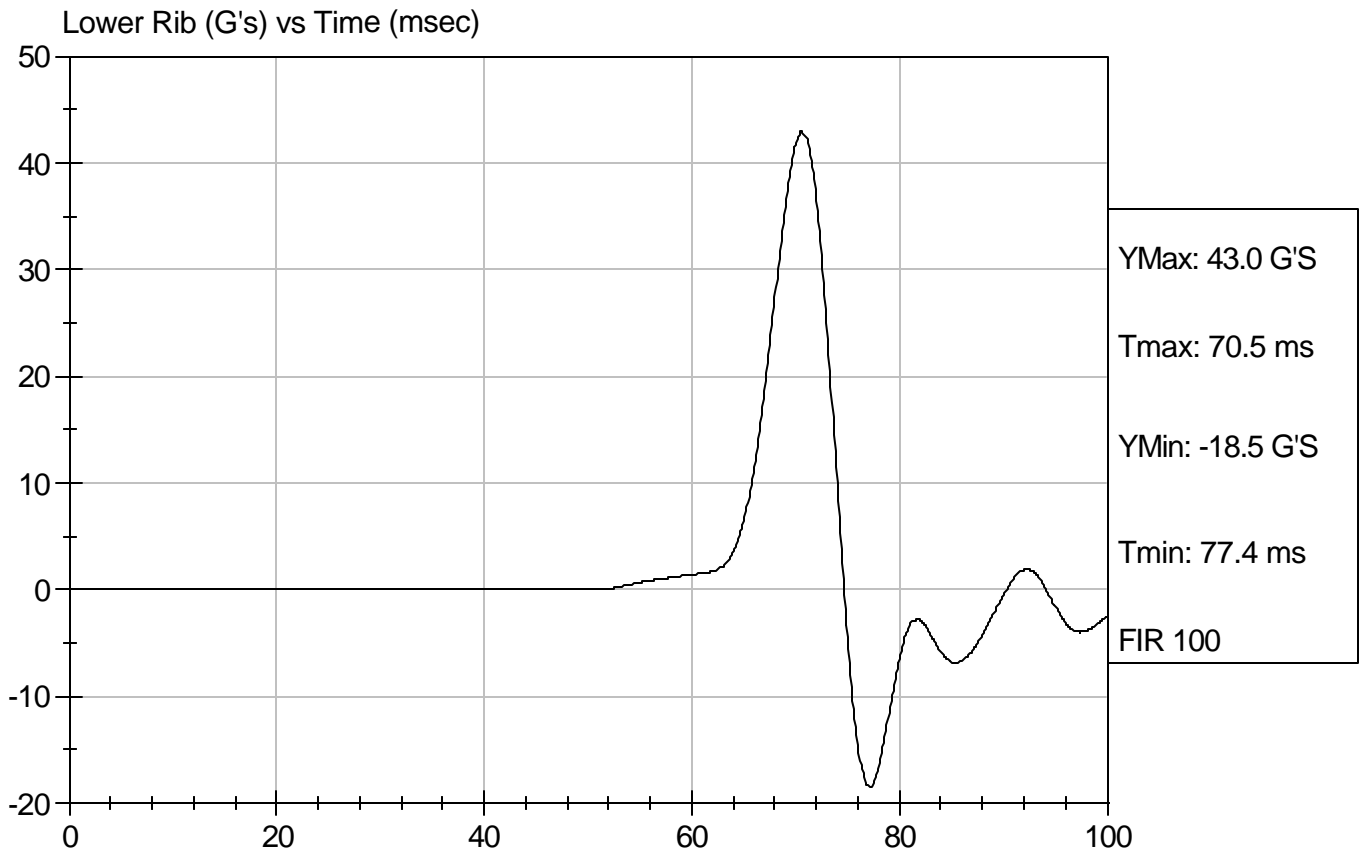
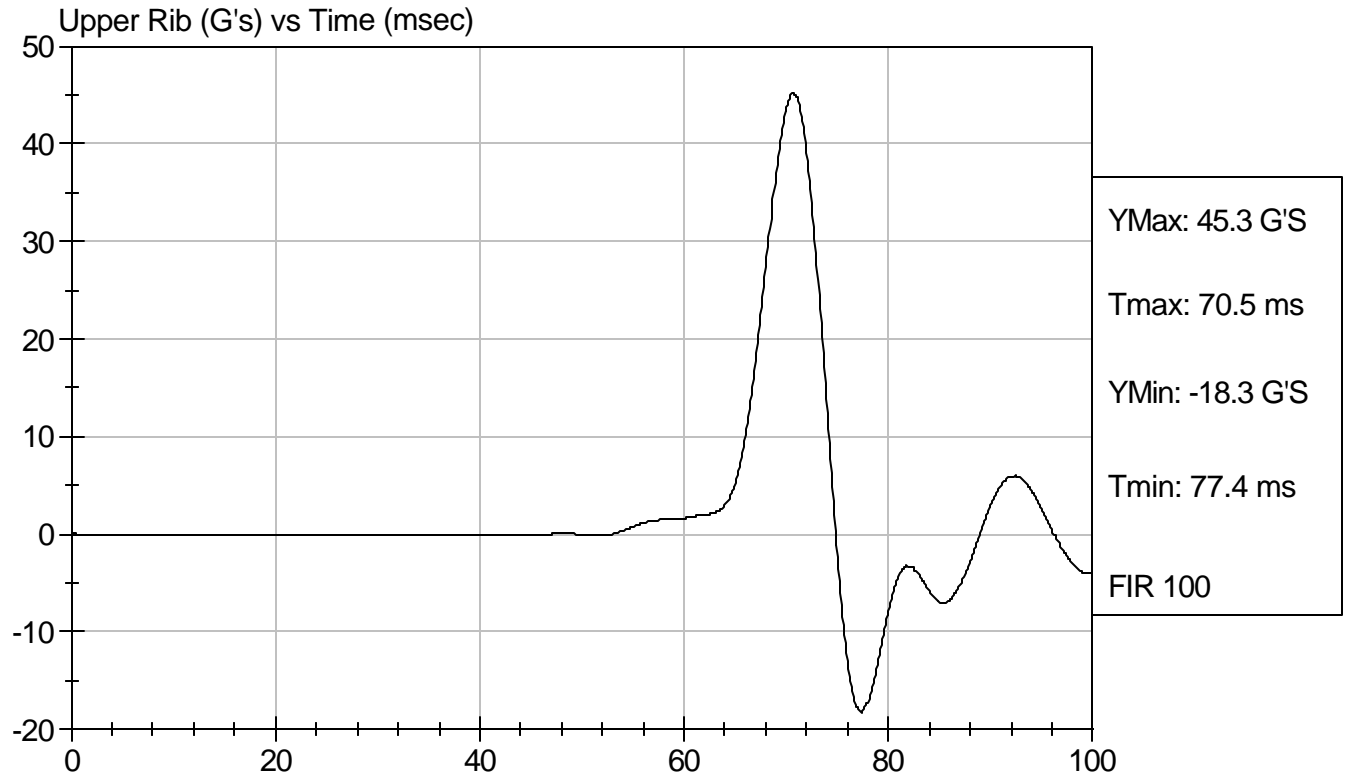
1/21/08
 Test Date

David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D08072

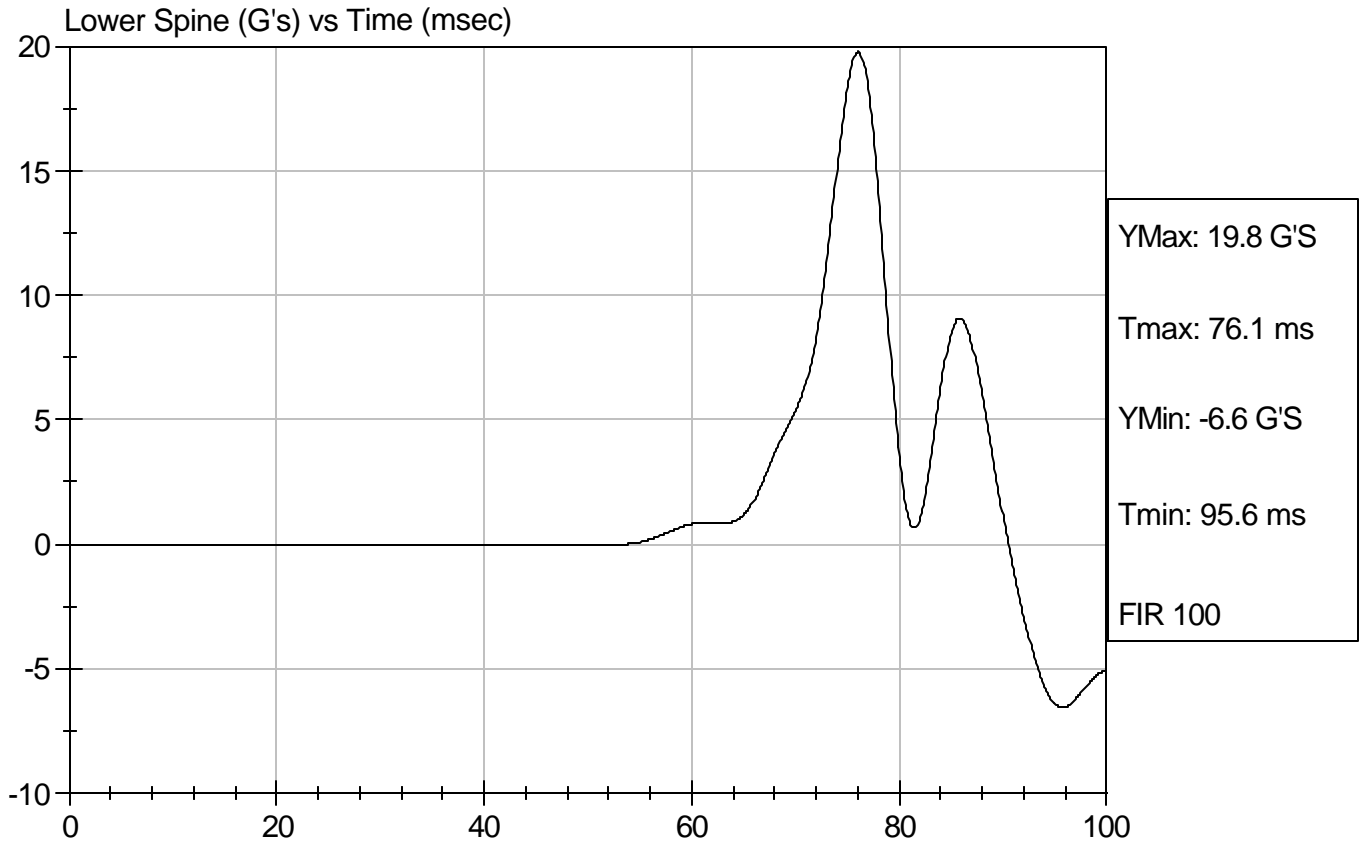
Test Date: 1/21/08
Speed: 14.01 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D08072

Test Date: 1/21/08
Speed: 14.01 ft/sec, 4.27 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

Test I.D.: D08073

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	41	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

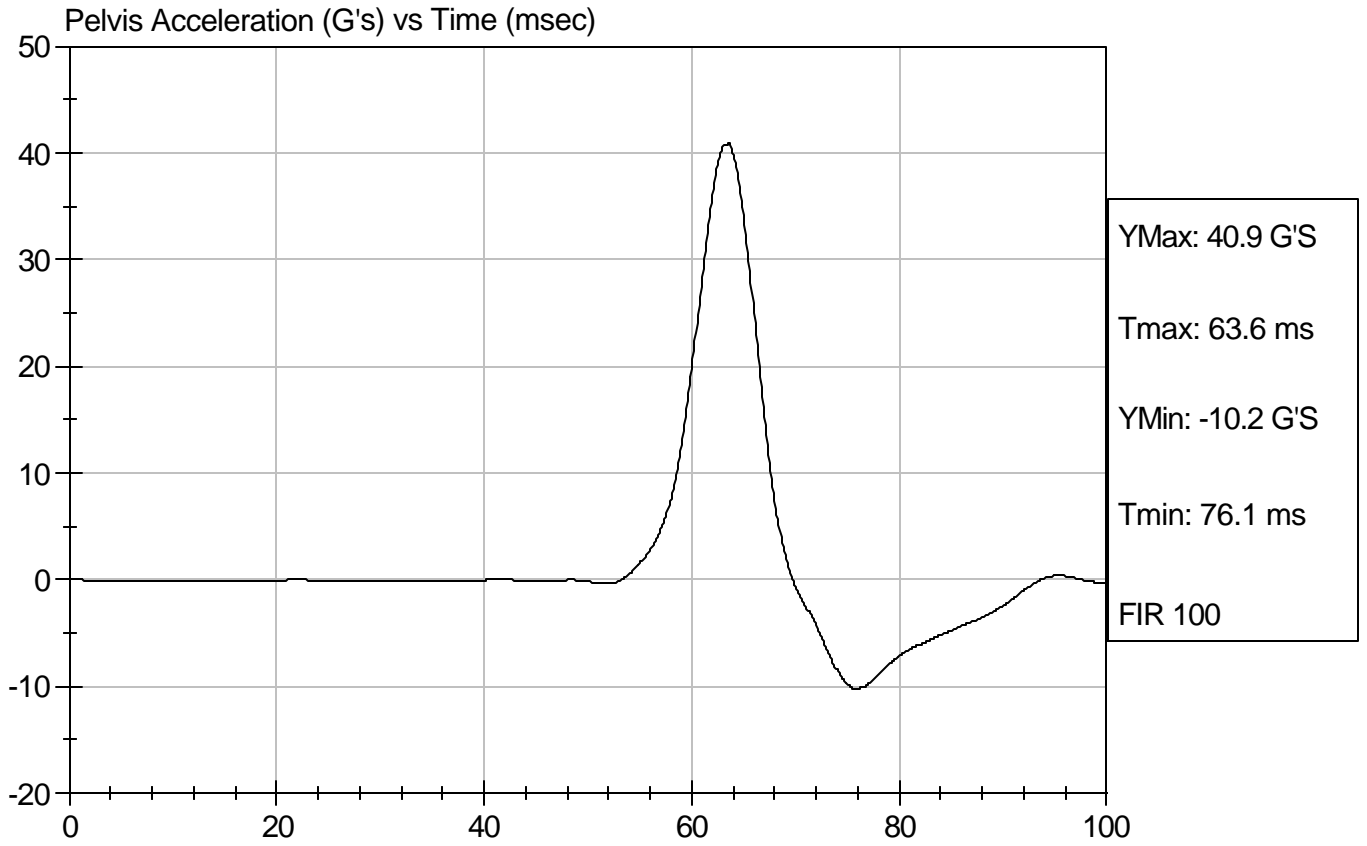
1/21/08
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D08073

Test Date: 1/21/08
Speed: 14.12 ft/sec, 4.30 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 271

Test I.D.: D08074

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Force At 12.7 mm	N	104 - 162	141	Pass
Force At 19 mm	N	163 - 222	200	Pass
Force At 25.4 mm	N	222 - 280	271	Pass
Force At 33 mm	N	325 - 391	375	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

David Winkelbauer
 Approved By

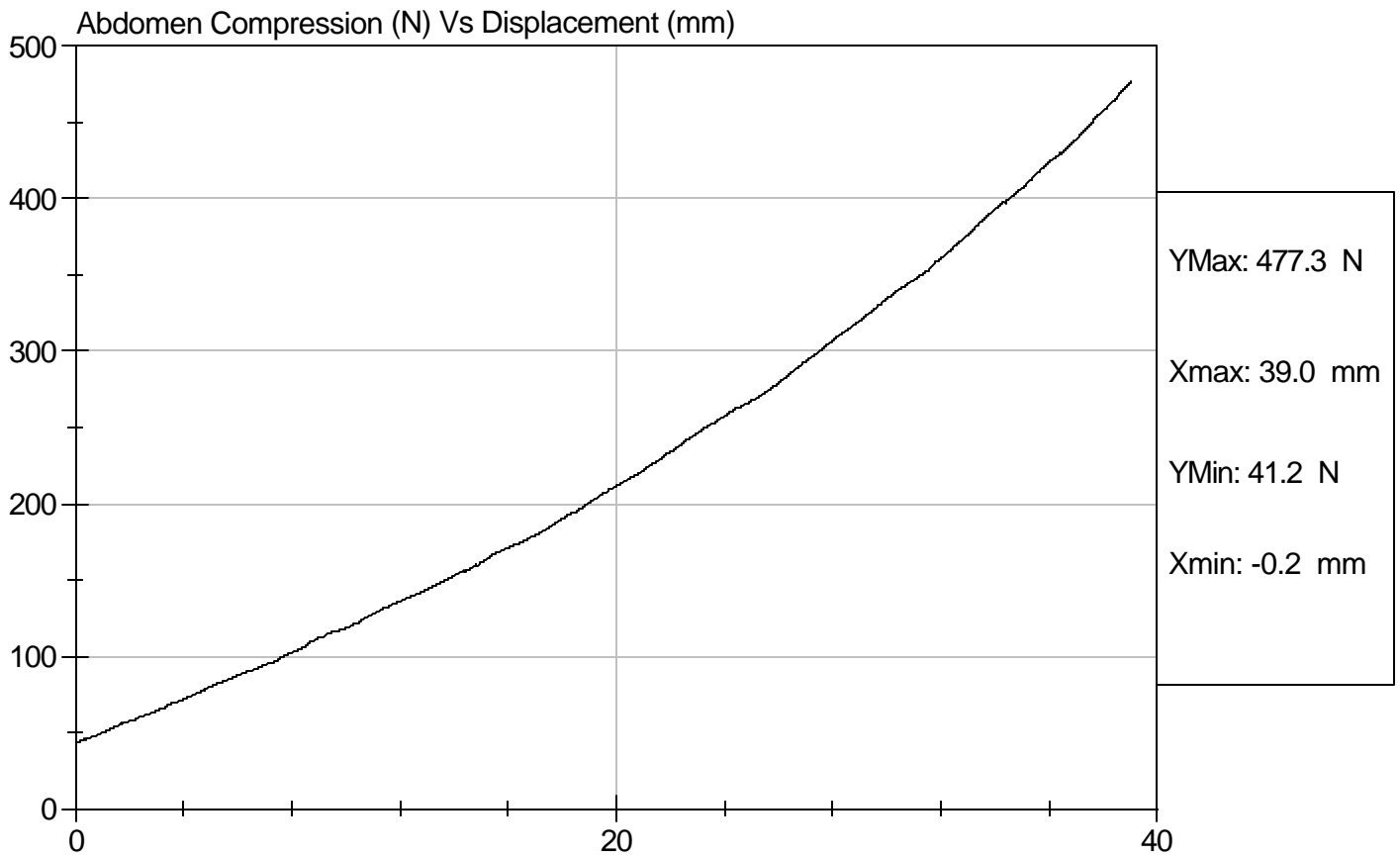


Test Description: Abdomen Compression

Test Date: 1/22/08

Component: D08074

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D.: D08075

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	15	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	124.1	Pass
Force At 30 deg	N	151.2 - 204.6	162.7	Pass
Force At 40 deg	N	204.6 - 258.0	216.2	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

David Winkelbauer
 Approved By

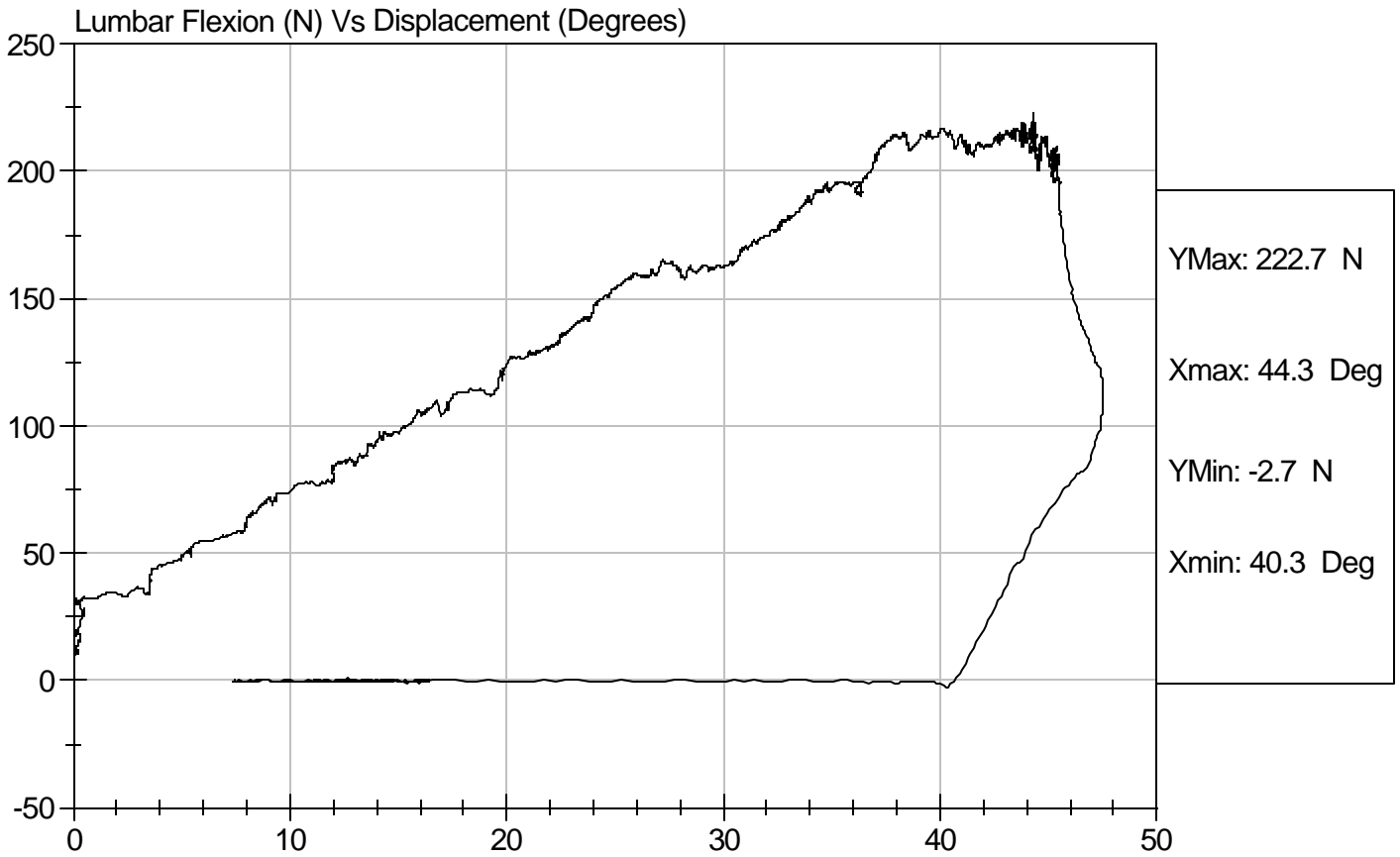


Test Description: Lumbar Flexion

Test Date: 1/22/08

Component: D08075

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Neck Pendulum Test

ATD Serial No: 271

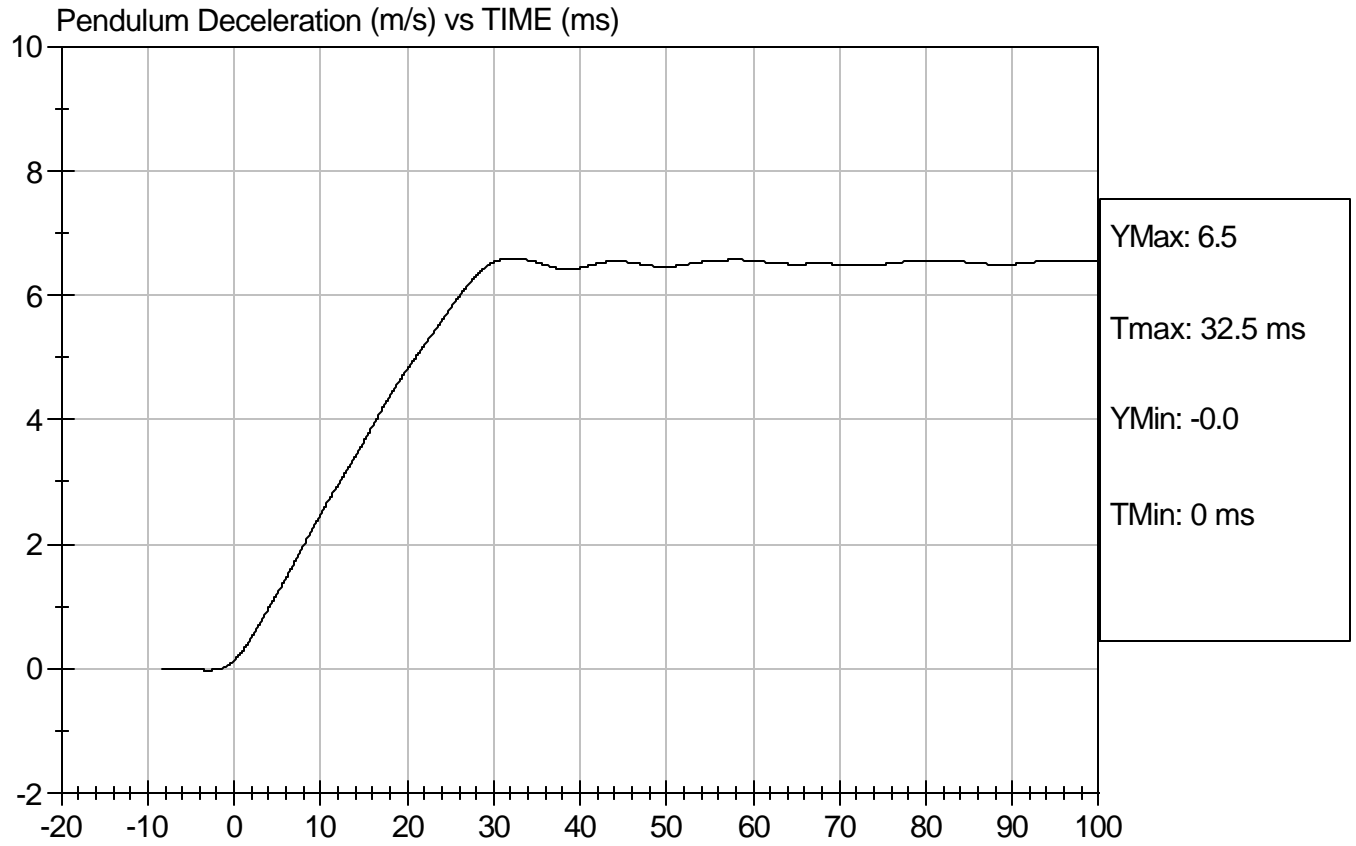
Test I.D.: D08079

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.8	Pass
Laboratory Relative Humidity		%	10 to 70	16	Pass
Impact Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.49	Pass
	20 msec	m/s	4.12 to 5.10	4.81	Pass
	30 msec	m/s	5.73 to 7.01	6.53	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.50	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	73	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	65	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	78	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	52	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	3	Pass

Jessica Gall
 Laboratory Technician

1/22/08
 Test Date

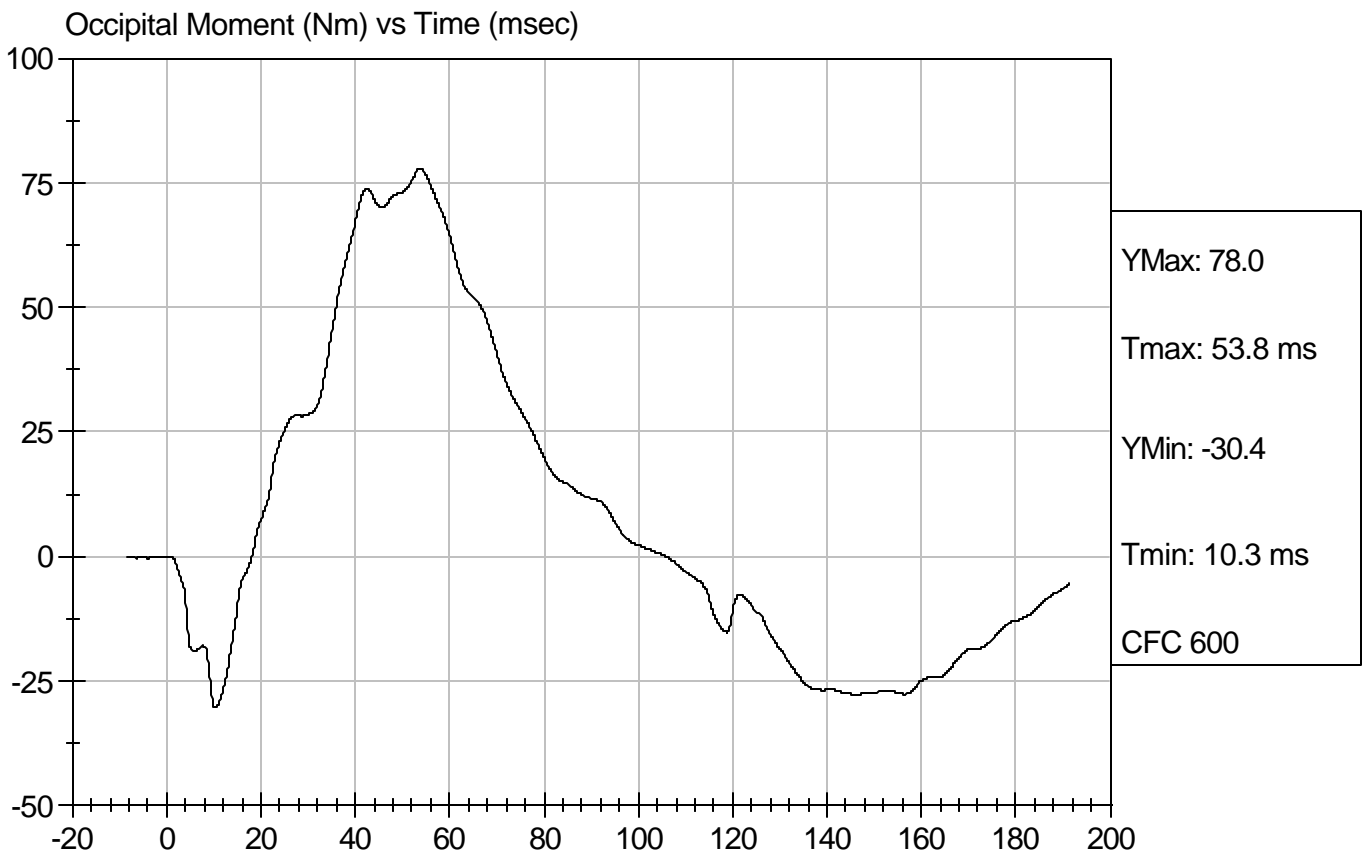
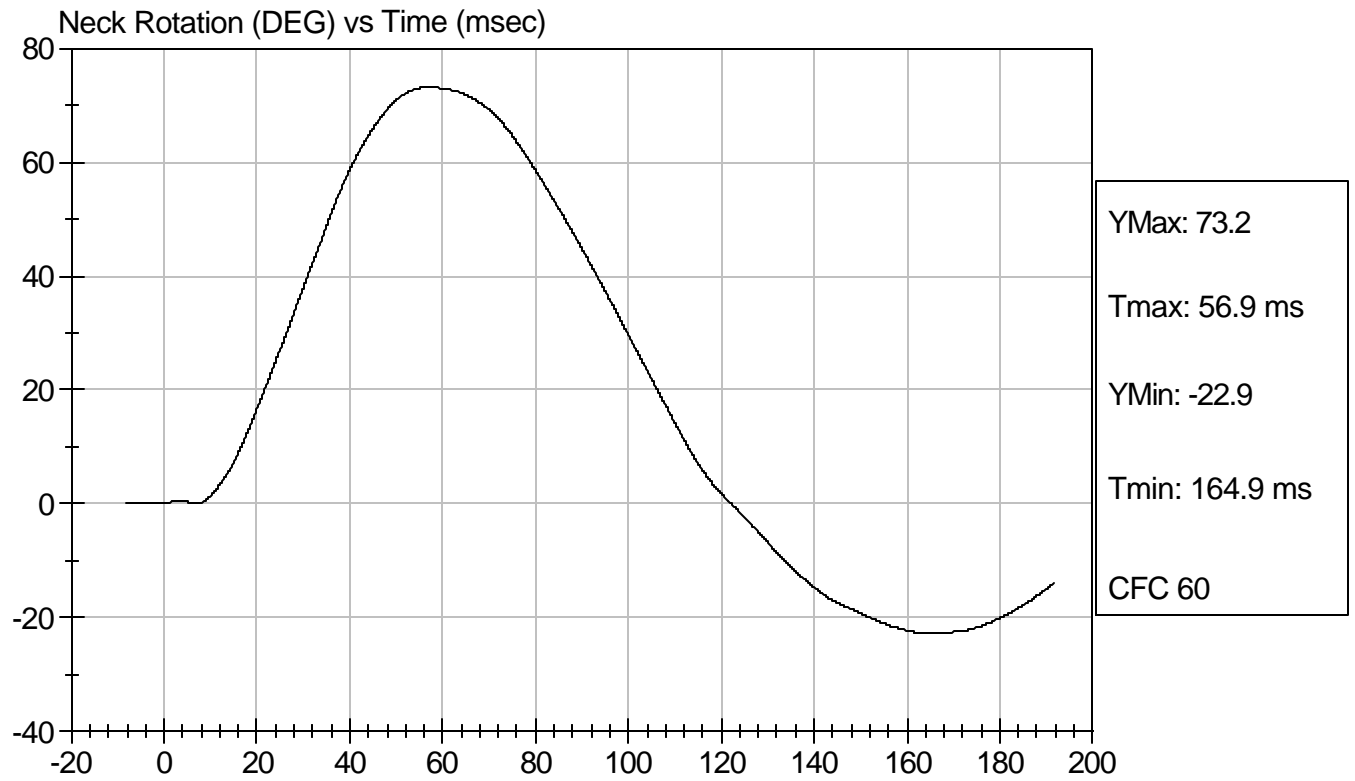
David Winkelbauer
 Approved By





Test Desc: Neck Bending
Component ID: D08079

Test Date: 1/22/08
Speed: 22.83 ft/sec, 6.96 m/sec



**SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist**

ATD Serial No: 271

Test Part	Items Checked	Result
Skin	Visual inspection	Pass
Head	Visual, ballast, accelerometer mount	Pass
Neck	Visual	Pass
Spine Box	Visual, ballast, accelerometer mount	Pass
Rib Cage	Visual, measure	Pass
Sternum	Visual	Pass
Lumbar Spine	Visual	Pass
Abdomen	Visual	Pass
Pelvis	Visual, palpate, accelerometer mount	Pass
Upper Legs	Visual	Pass
Knees	Visual	Pass
Lower Legs	Visual, range of motion	Pass
Ankles	Visual, range of motion	Pass
Feet	Visual, range of motion	Pass
Joints	1 to 2 g range	Pass
Other		Pass

Jessica Hall

 Laboratory Technician
David Winkelbauer

 Approved By

1/22/2008

 Test Date

APPENDIX D
CHILD DUMMY DATA

SUMMARY OF TEST

Measurement Description	Units	Threshold	P3 ATD
Head Injury Criteria (HIC36)	N/A	N/A	98
Head Injury Criteria (HIC15)	N/A	390	60
Max. Thorax Accel. (3msec Clip)	G's	50	18

The child dummy was instrumented with head, chest, and upper six axial neck force and moment sensors.

The right rear (Position 3) child dummy (S/N 090) was calibrated previous to this test. Child dummy certification information can be found in this Appendix.

Position 3 was rear facing and used the vehicle LATCH attachment.

TEST VEHICLE WEIGHTS

	Units	As Tested (ATW) (Axle)		
		Front	Rear	Total
Left	kg	528.0	510.8	
Right	kg	522.5	469.9	
Ratio	%	51.7	48.3	
Totals	kg	1050.5	980.7	2031.2

As tested weight of vehicle includes two ATDs, one CRABI with CRS, cargo, equipment and instrumentation.

TEST NOTES

There was no valid data collected for:
RRP Neck Moment X after 250 msec.

TEST DUMMY INFORMATION

Description	Position 3 CRS
Dummy Type / Serial No.	12 month old CRABI / 090
Number of Data Channels	12
Restraint System	Evenflo Discovery (Rear Facing)

POST TEST SEAT DATA

Location	Seat Movement (mm)	Seat Back Failure
P1 (Left Front)	0	None
P2 (Right Front)	0	None
P3 (Right Rear)	0	None
P4 (Left Rear)	0	None

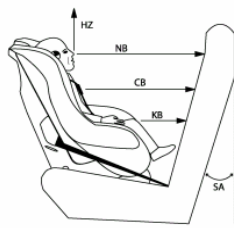
VISIBLE DUMMY CONTACT POINTS

Description	Position 3 CRS
Head Contact	None
Upper Torso Contact	None
Lower Torso Contact	None
Left Foot Contact	Foot to RR Seat Back
Right Foot Contact	Foot to RR Seat Back

CHILD DUMMY POSITIONING IN VEHICLE

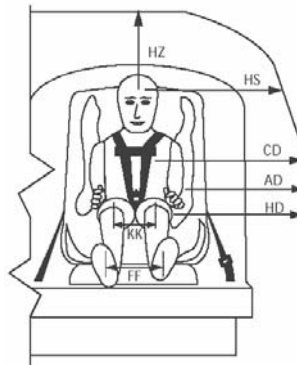
Child Restraint System (Position 3)	Evenflo Discovery (Rear Facing)
NHTSA No.	M85213

Dummy Measurements for Rear-facing CRS Passengers



X—Z View

HZ	-	Head to Roof
NB	-	Nose to Front of Back Seat
CB	-	Chest to Front of Back Seat
KB	-	Knee to Front of Back Seat
SA	-	Seat Back Angle



Y—Z View

X—Z View

HZ	-	Head to Roof
HS	-	Head to Side Window
CD	-	Chest to Door
AD	-	Arm to Door
HD	-	H-Point to Door
KK	-	Knee to Knee
FF	-	Foot to Foot
NB	-	Nose to Front Seat Back
CB	-	Chest to Front Seat Back
KB	-	Knee to Front Seat Back
TB	-	Toe to Front Seat Back
SA	-	Seat Back Angle

Measurement	Pre-Test (mm)	Post-Test (mm)
	P3 CRS (090)	P3 CRS (090)
SA (deg)		
HS	401	410
CD	376	379
AD	252	251
HD	294	283
HZ	360	361
NB	536	538
CB	424	419
KK	110	108
FF	112	110
KB - LEFT	169	160
KB - RIGHT	164	163
TB - LEFT	58	55
TB - RIGHT	60	53

All dimensions in mm (unless noted)
P3 – Right Rear Passenger (Rear Facing)

CRS PERFORMANCE DATA

Child Restraint System (Position 3)	Evenflo Discovery (Rear Facing)
NHTSA No.	M85213

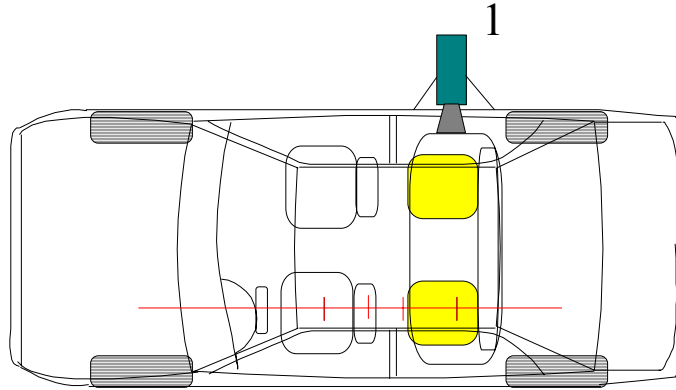
POSITION 3 CRS POST-TEST INSPECTION

Location	Damage	Remarks
Upper Tether Strap		
Upper Tether Buckle		
Upper Tether Hook		
Vehicle Upper Tether Anchor		
Lower Anchor Strap	None	
Lower Anchor Buckle		
Lower Anchor Hooks	None	
Vehicle Lower CRS Anchors	None	
Harness Connections	None	
Cracks on CRS	None	
Fabric Tears on CRS	None	
Vehicle Seat Structure	None	
Vehicle Seat Fabric Tears	None	
Child Dummy	None	CRABI 12 Month Old

Note: Supplemental fastener was installed on this seat per Evenflo instructions.

CRS CAMERA DATA

Child Restraint System (Position 3)	Evenflo Discovery (Rear Facing)
NHTSA No.	M85213



No.	Camera View	Location (mm) *			Angle (deg)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Vehicle Onboard Rear SID/HIII, Side					8	1000

***COORDINATES:**

- +X = film plane rearward of barrier
- +Y = film plane to right of monorail centerline
- +Z = film plane above ground level

PHOTOGRAPHS

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Close-up View of Position 3 CRS Label 1



Close-up View of Position 3 CRS Label 2



Pre-Test Front View of Position 3 CRS



Post-Test Front View of Position 3 CRS



Pre-Test Rear View of Position 3 CRS



Post-Test Rear View of Position 3 CRS



Pre-Test Left Side View of Position 3 CRS



Post-Test Left Side View of Position 3 CRS



Pre-Test Right Side View of Position 3 CRS



Post-Test Right Side View of Position 3 CRS



Pre-Test Position 3 Left Side View



Pre-Test Position 3 Right Side View



Post-Test Position 3 Right Side View

CHILD DUMMY RESPONSE DATA TRACES

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Figure No. 20.	RRP Child Neck Z Force vs. Time	D-16
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The following response data can be found in the R&D section of the NHTSA website at ww.nhtsa.dot.gov

RRP Child Seat X Acceleration vs. Time

RRP Child Seat Y Acceleration vs. Time

RRP Child Seat Z Acceleration vs. Time

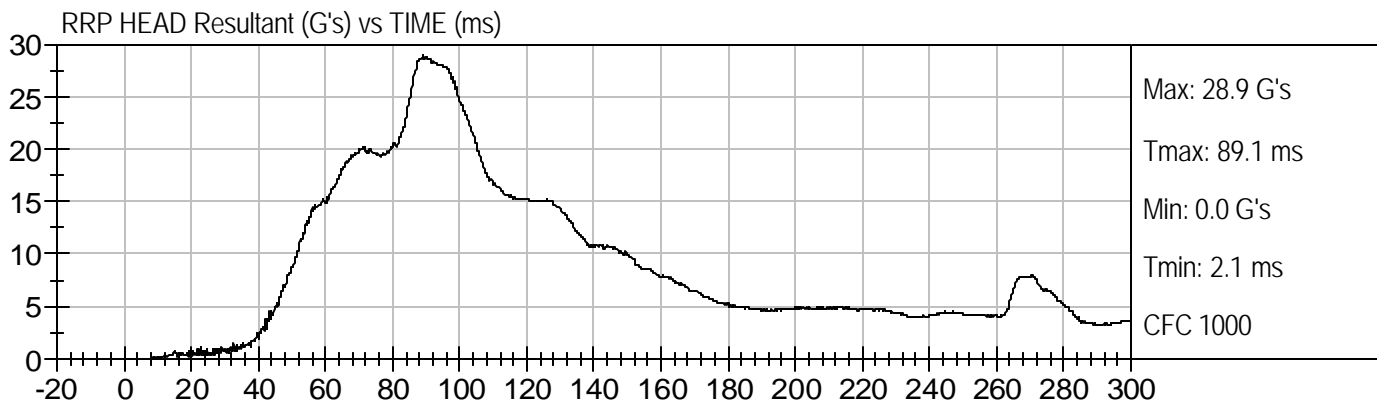
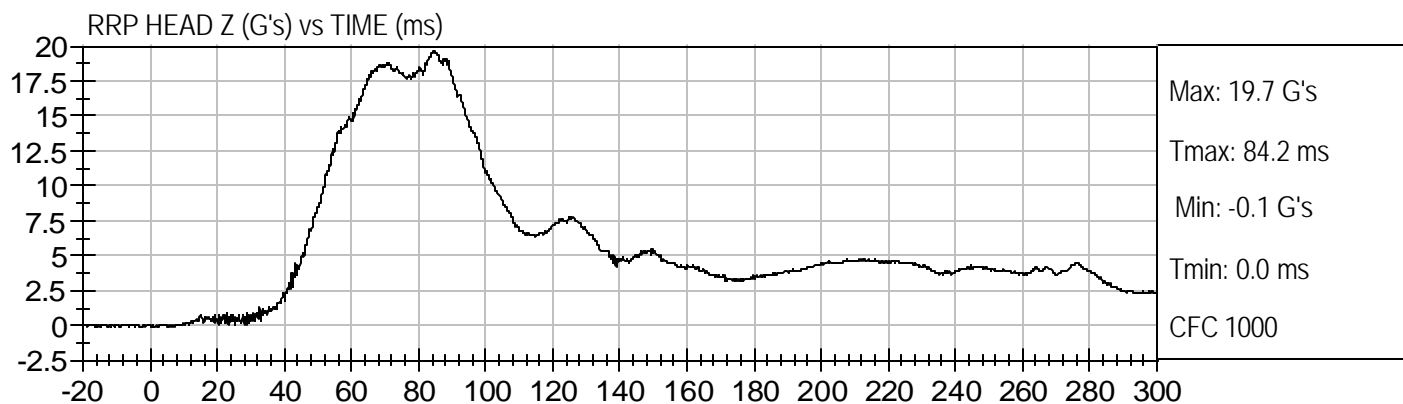
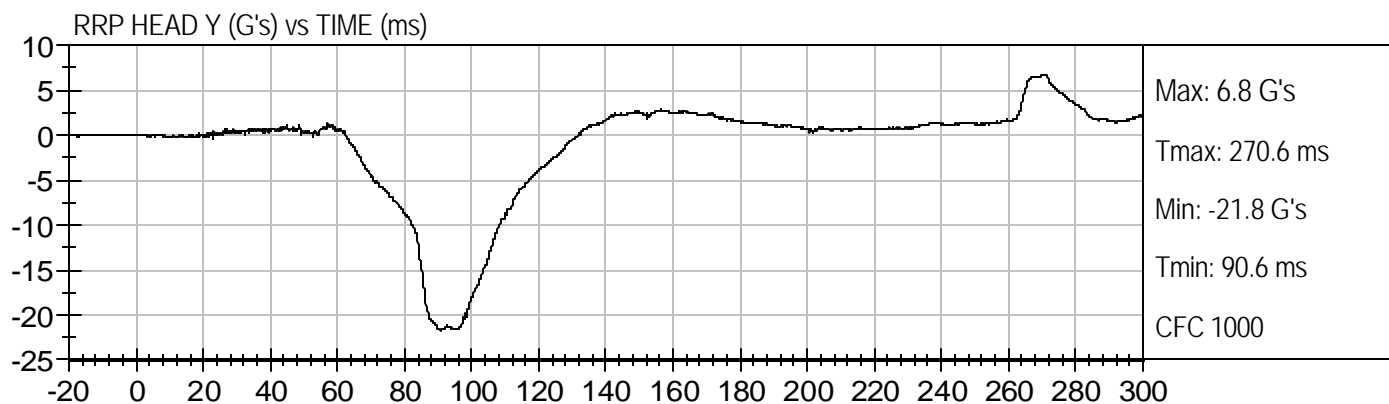
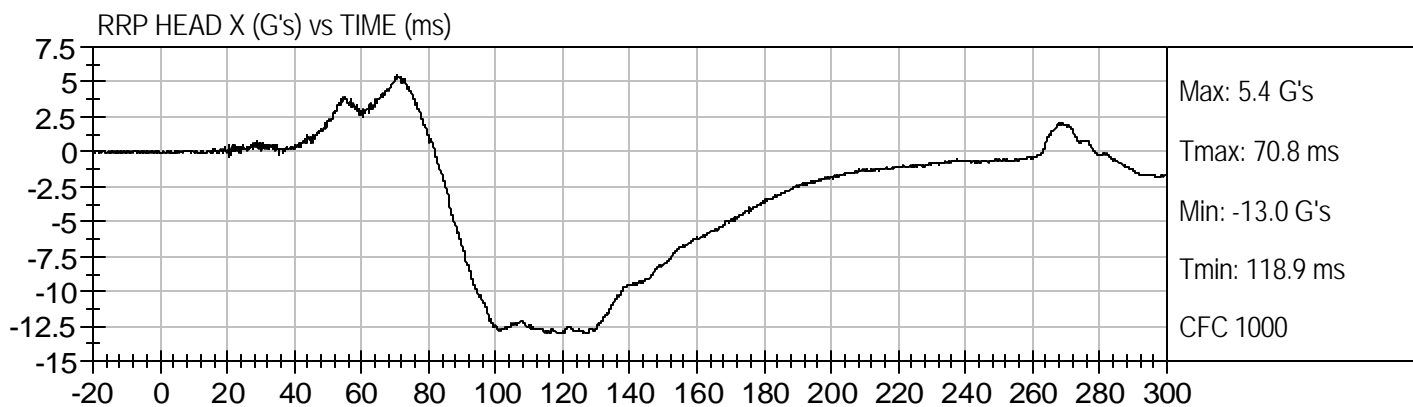
RRP Child Seat Resultant Acceleration vs. Time

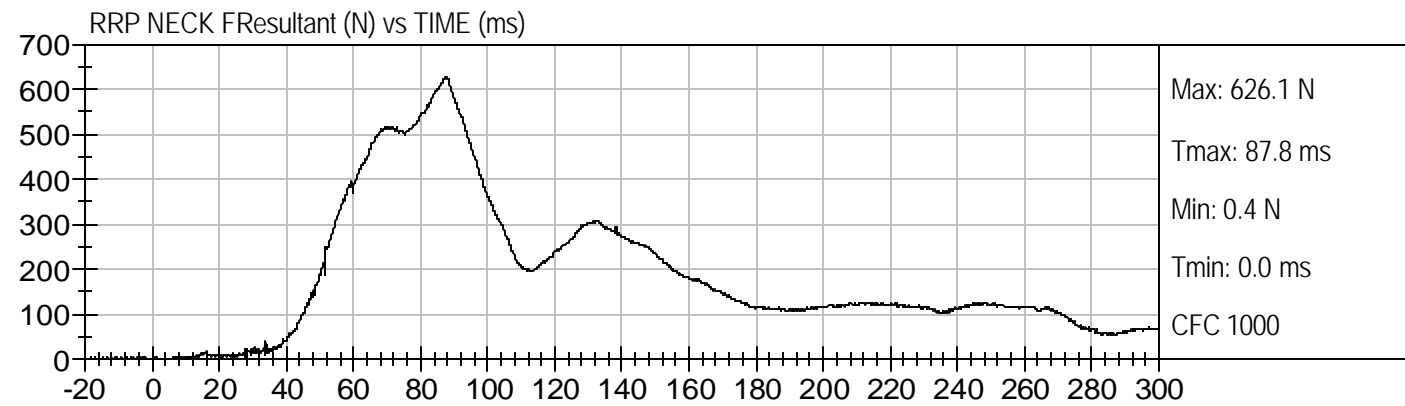
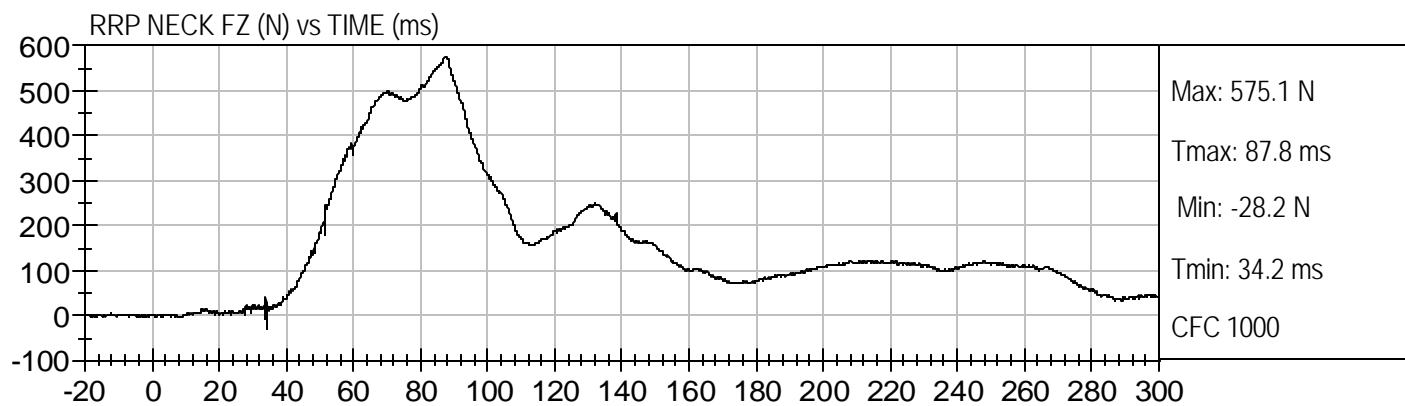
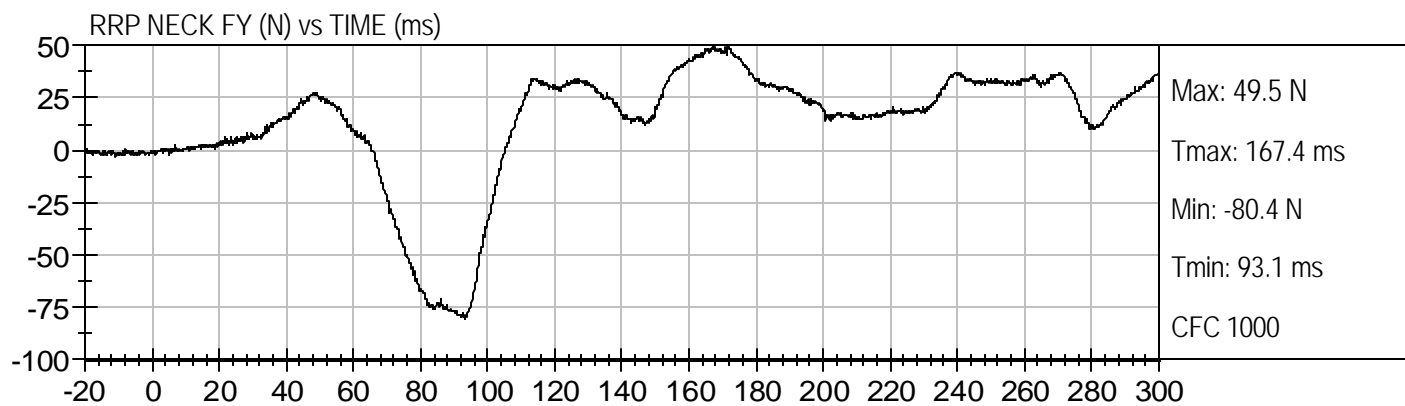
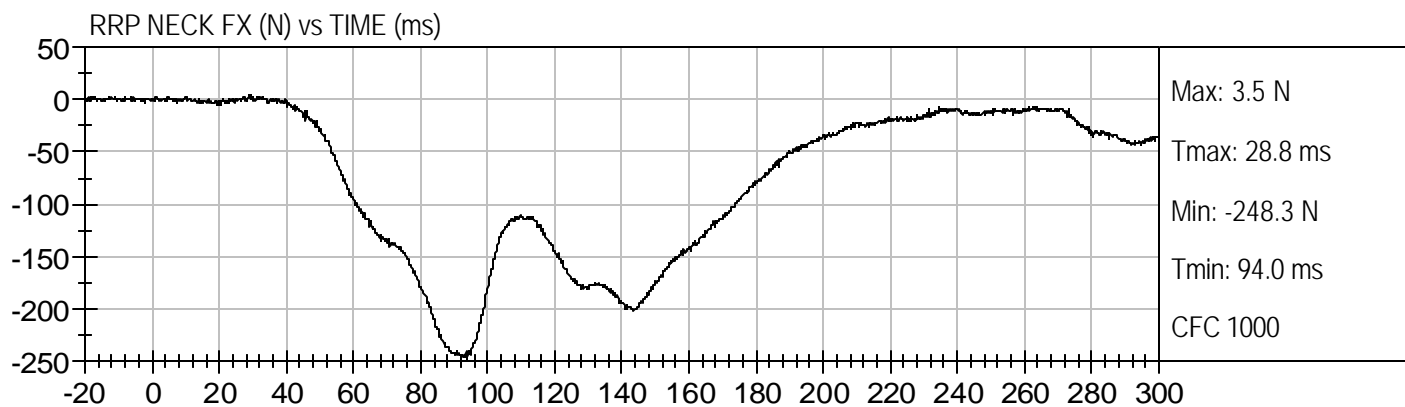
RRP Child Seat Base X Acceleration vs. Time

RRP Child Seat Base Y Acceleration vs. Time

RRP Child Seat Base Z Acceleration vs. Time

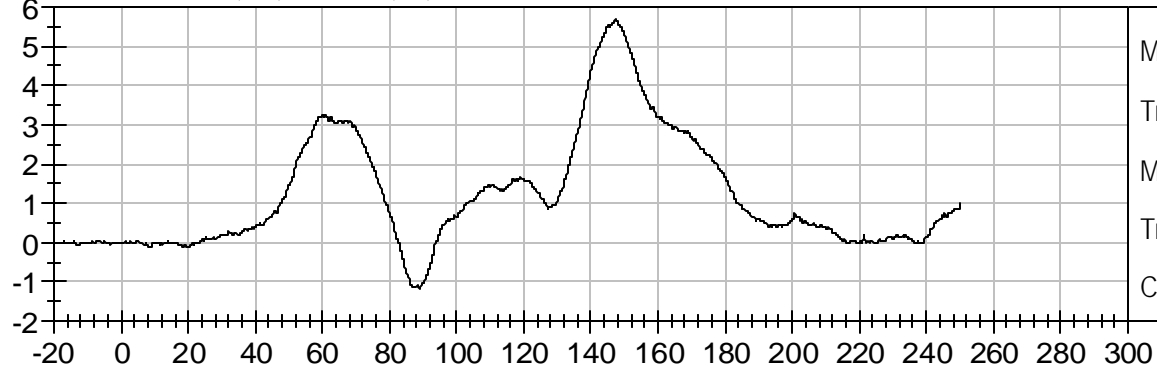
RRP Child Seat Base Resultant Acceleration vs. Time



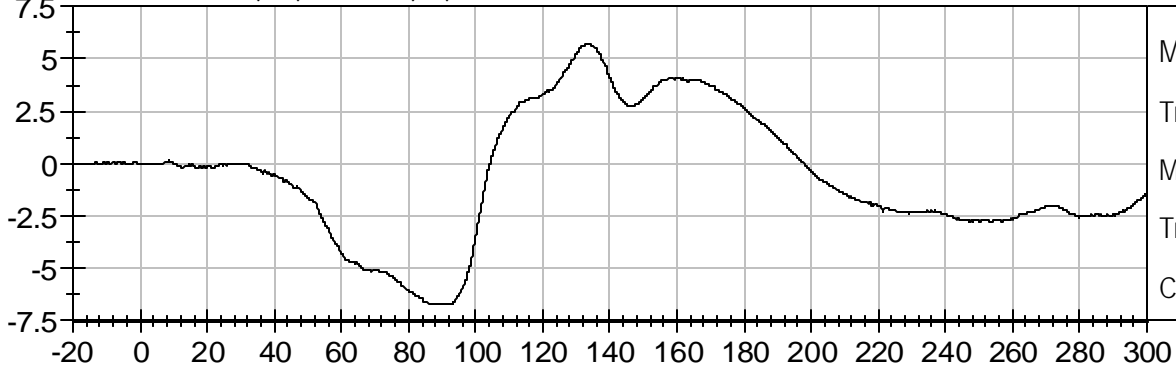




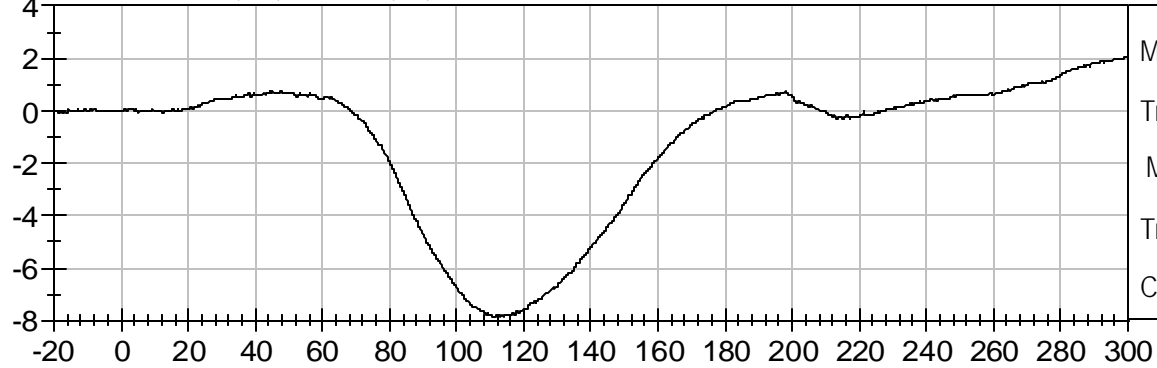
RRP NECK MX (Nm) vs TIME (ms)



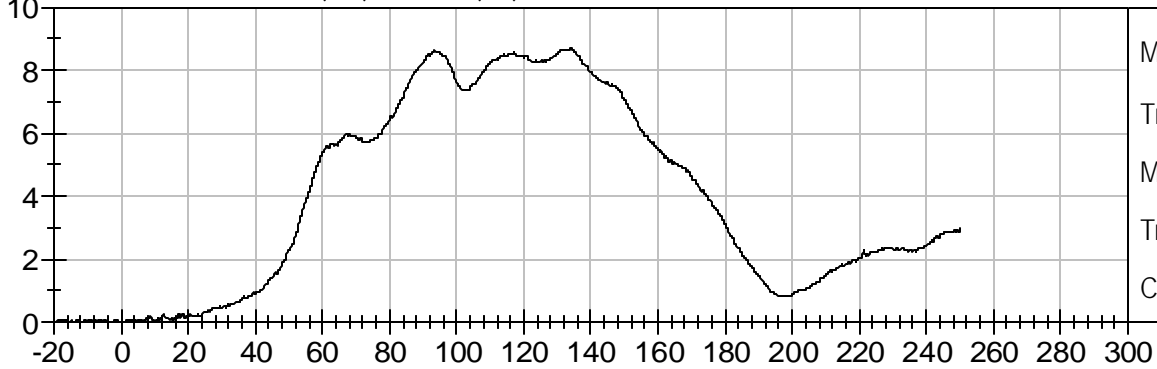
RRP NECK MY (Nm) vs TIME (ms)



RRP NECK MZ (Nm) vs TIME (ms)

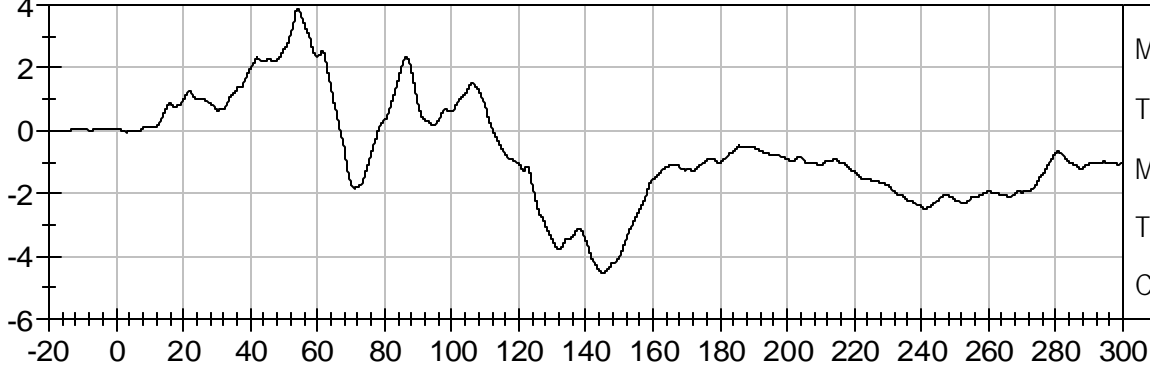


RRP NECK MResultant (Nm) vs TIME (ms)



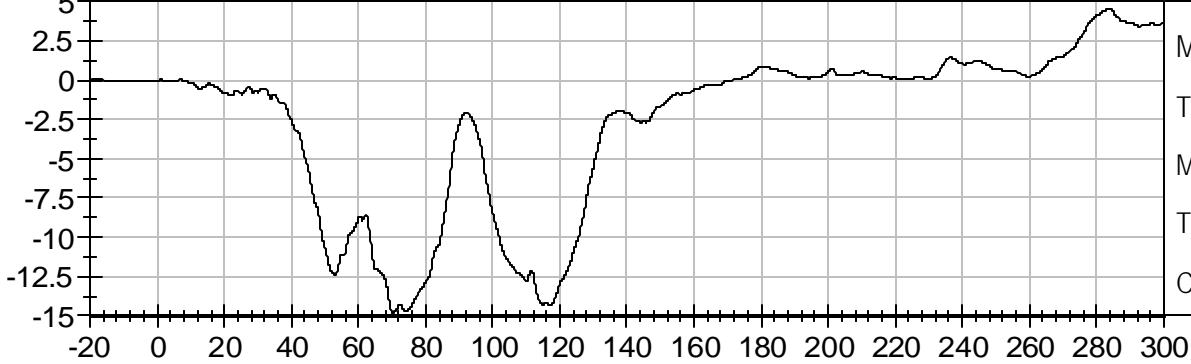


RRP CHEST X (G's) vs TIME (ms)



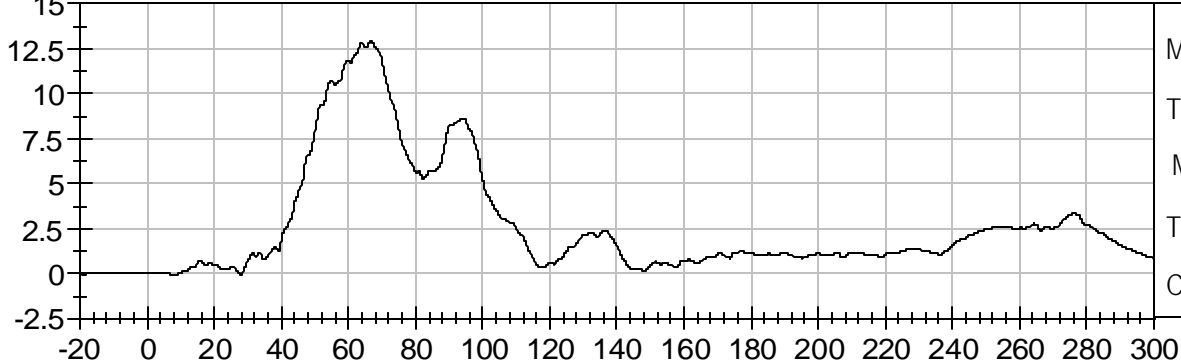
Max: 3.9 G's
Tmax: 54.1 ms
Min: -4.5 G's
Tmin: 144.7 ms
CFC 180

RRP CHEST Y (G's) vs TIME (ms)



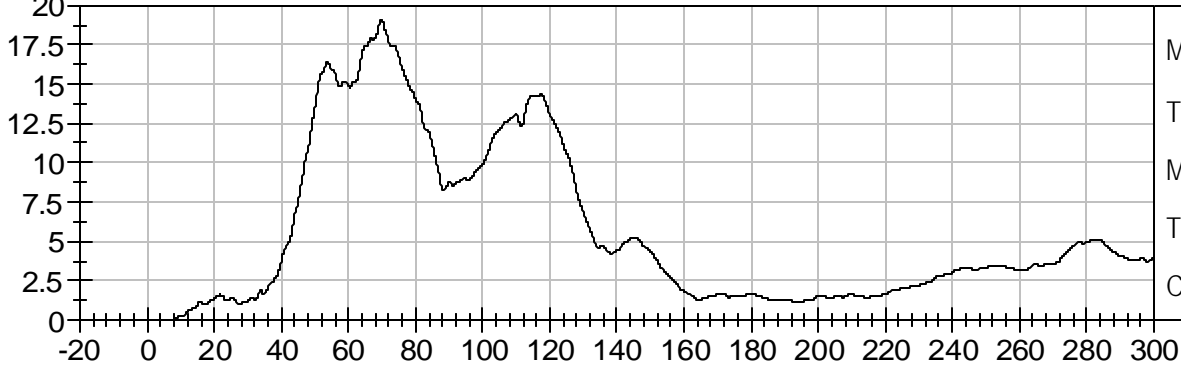
Max: 4.5 G's
Tmax: 283.8 ms
Min: -14.8 G's
Tmin: 70.1 ms
CFC 180

RRP CHEST Z (G's) vs TIME (ms)



Max: 13.0 G's
Tmax: 66.6 ms
Min: -0.1 G's
Tmin: 27.9 ms
CFC 180

RRP CHEST Resultant (G's) vs TIME (ms)



Max: 19.1 G's
Tmax: 69.8 ms
Min: 0.0 G's
Tmin: 0.0 ms
CFC 180

CHILD DUMMY CALIBRATION INFORMATION

MGA RESEARCH CORPORATION
FRONT HEAD DROP TEST
CRABI 12 MONTH

ATD Serial No: 090

Test ID: D073551

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Peak Resultant Acceleration	G's	100 to 120	112	Pass
Peak Lateral Acceleration	G's	+/- 15	5	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass

Jessica Gall

 Laboratory Technician

12/12/07
 Test Date

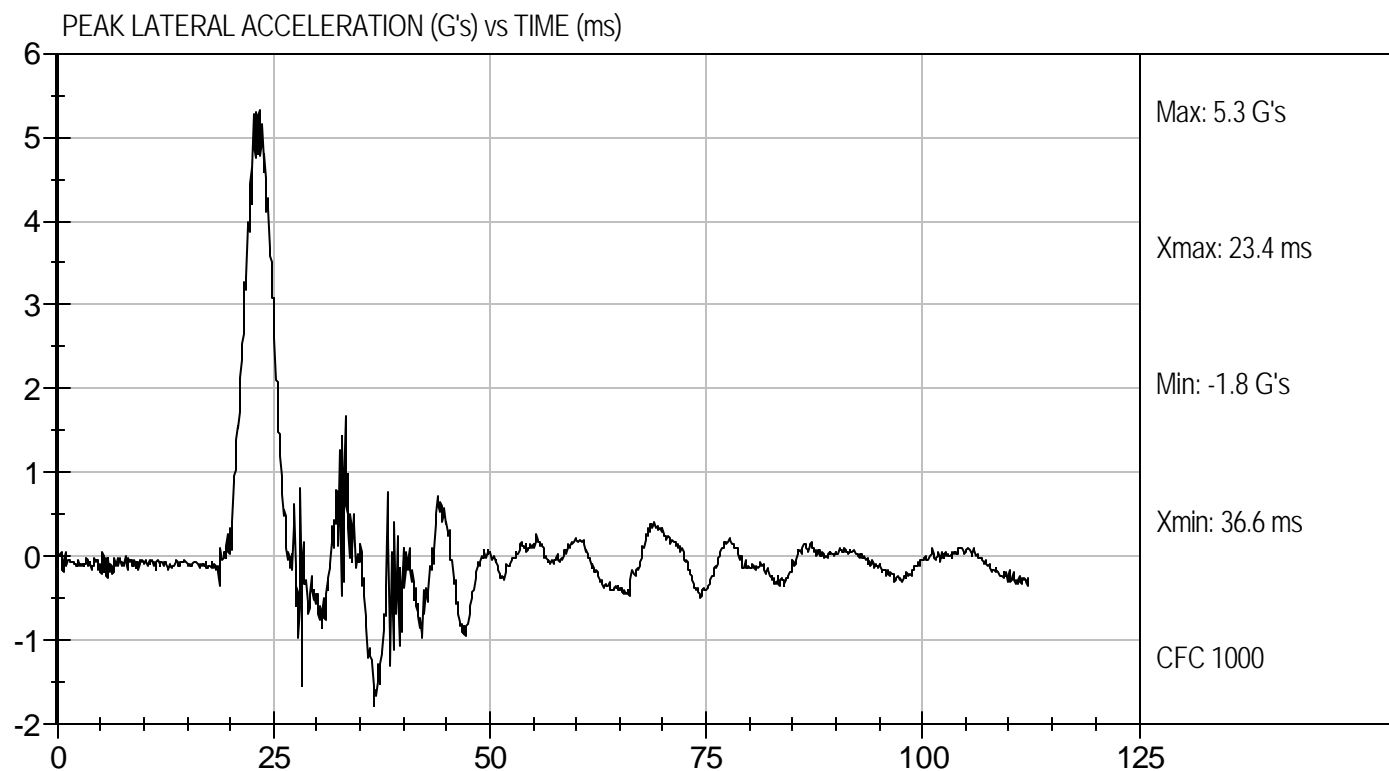
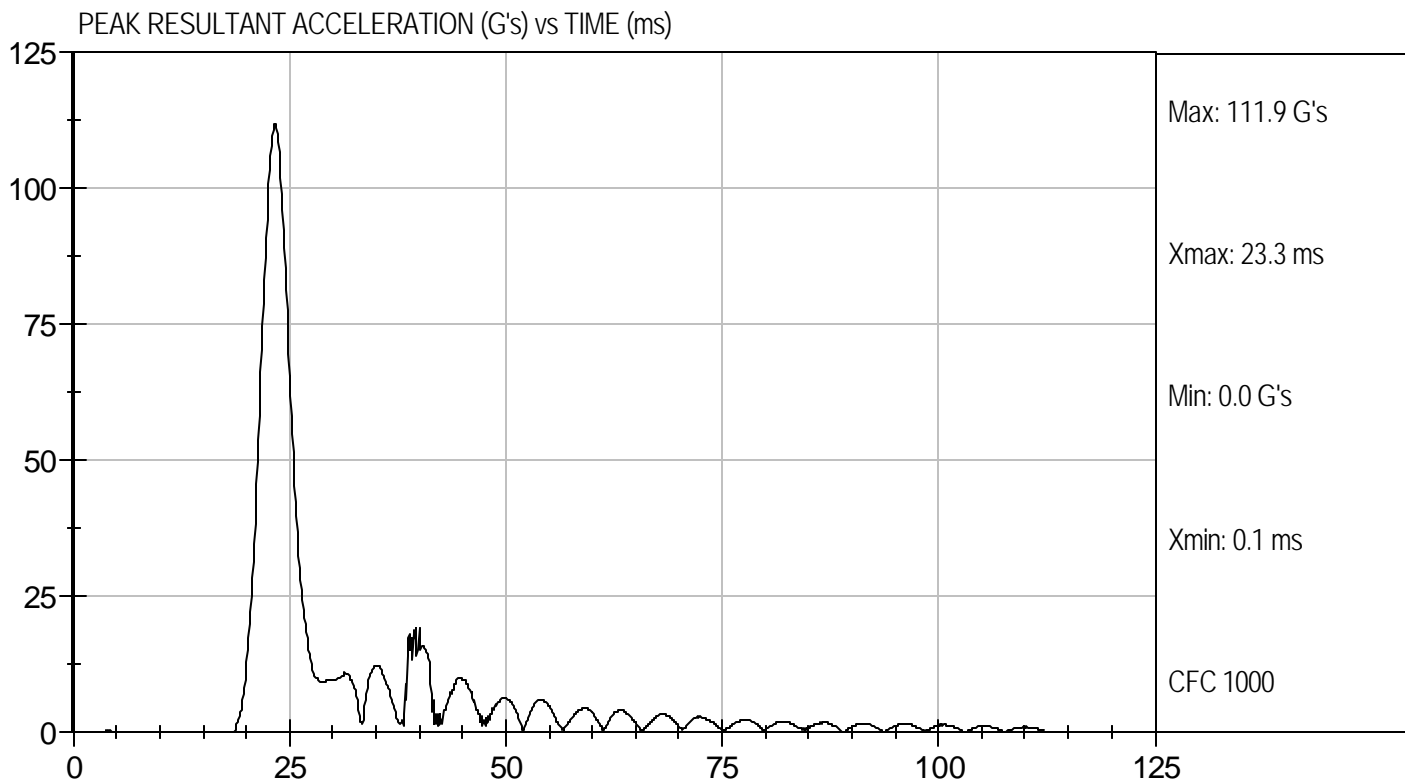
David Winkelbauer

 Approved By



Test Desc: Head Drop
Component ID: D073551

Test Date: 12/12/07
Velocity: 0 ft/s, 0 m/s



MGA RESEARCH CORPORATION
NECK FLEXION TEST
CRABI 12 MONTH


ATD Serial No: 090

Test I.D.: D073552

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	20.9	Pass
Humidity		%	10 to 70	27	Pass
Impact Velocity		m/s	5.1 to 5.3	5.2	Pass
Pendulum Deceleration	10 msec	m/s	1.6 to 2.3	1.9	Pass
	20 msec	m/s	3.4 to 4.2	3.6	Pass
	25 msec	m/s	4.3 to 5.2	4.4	Pass
D Plane Rotation		deg	75.0 to 86.0	80.4	Pass
Moment About Occipital Condyle		Nm	36.0 to 45.0	37.3	Pass
Positive Moment - Time Curve Decay to 5 Nm		msec	60 to 80	75	Pass
Overall Test Results					Pass


 Laboratory Technician

12/12/07
 Test Date

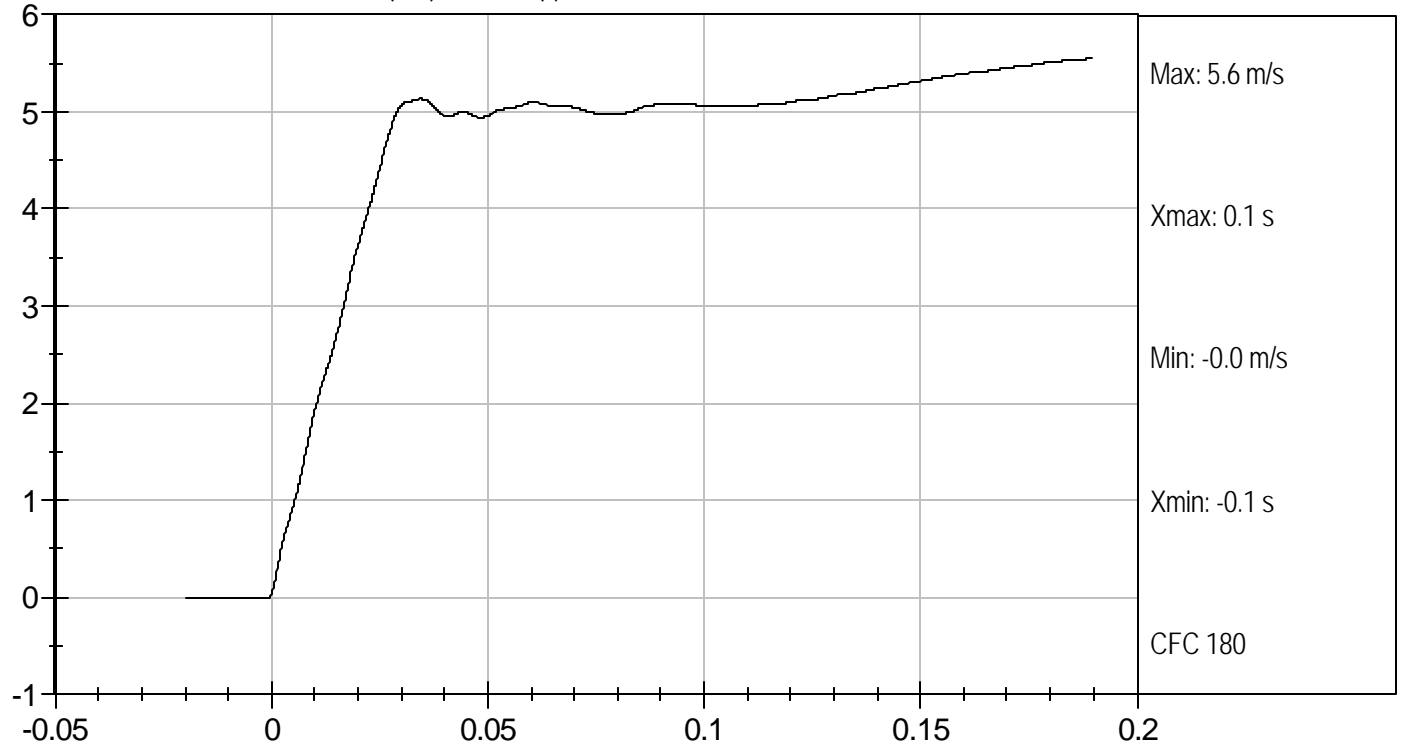

 Approved By



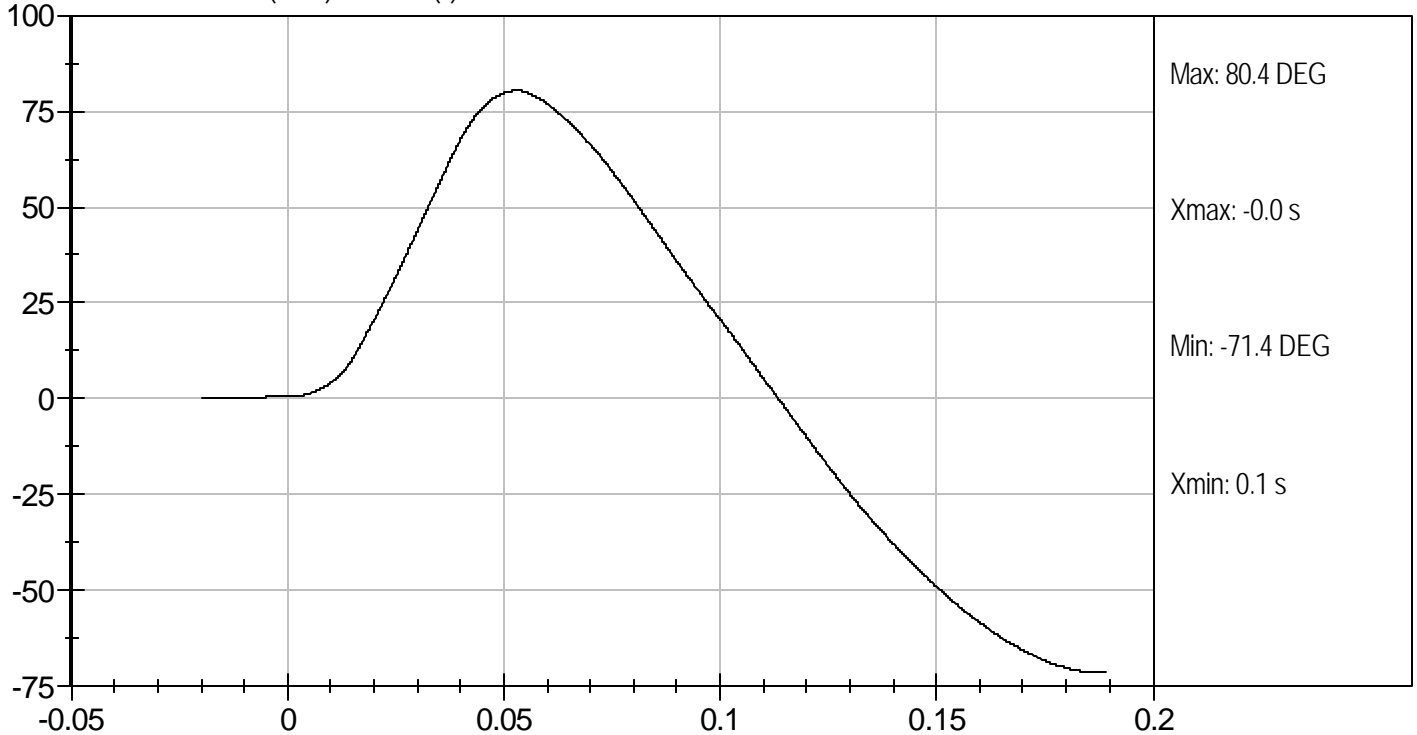
Test Desc: Neck Flexion
Component ID: D073552

Test Date: 12/12/07
Velocity: 17.00 ft/s, 5.2 m/s

PENDULUM DECELERATION (m/s) vs TIME (s)



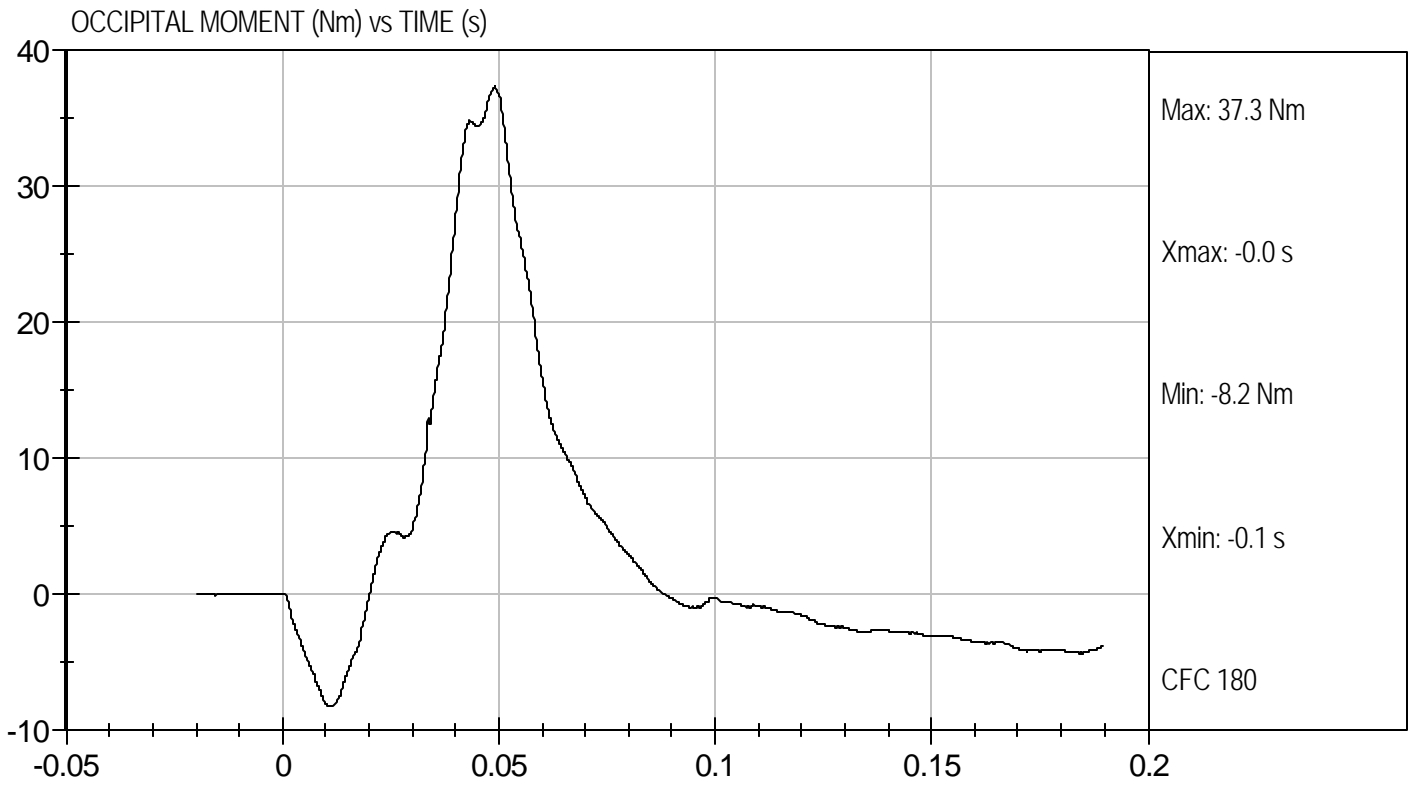
FLEXION ANGLE (DEG) vs TIME (s)





Test Desc: Neck Flexion
Component ID: D073552

Test Date: 12/12/07
Velocity: 17.00 ft/s, 5.2 m/s



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
CRABI 12 MONTH


ATD Serial No: 090

Test I.D.: D073553

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.2	Pass
Humidity		%	10 to 70	25	Pass
Pendulum Speed		m/s	2.4 to 2.6	2.6	Pass
Pendulum Deceleration	6 msec	m/s	0.8 to 1.2	0.9	Pass
	10 msec	m/s	1.5 to 2.1	1.9	Pass
	14 msec	m/s	2.2 to 2.9	2.6	Pass
D Plane Rotation		deg	80.0 to 92.0	81.7	Pass
Moment About Occipital Condyle		Nm	-23.0 to -12.0	-13.2	Pass
Negative Moment - Time Curve Decay to -5 Nm		msec	76 to 90	86	Pass
Overall Test Results					Pass


 Laboratory Technician

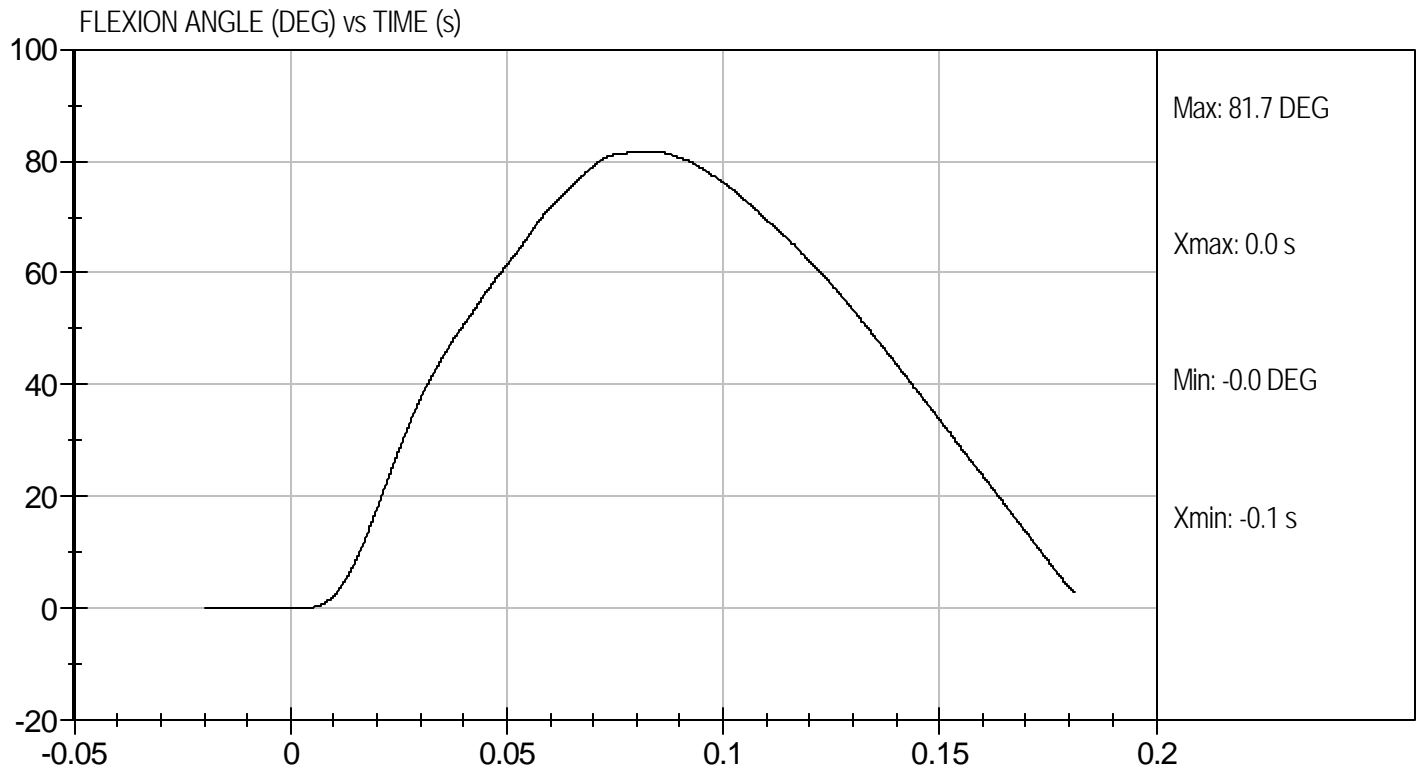
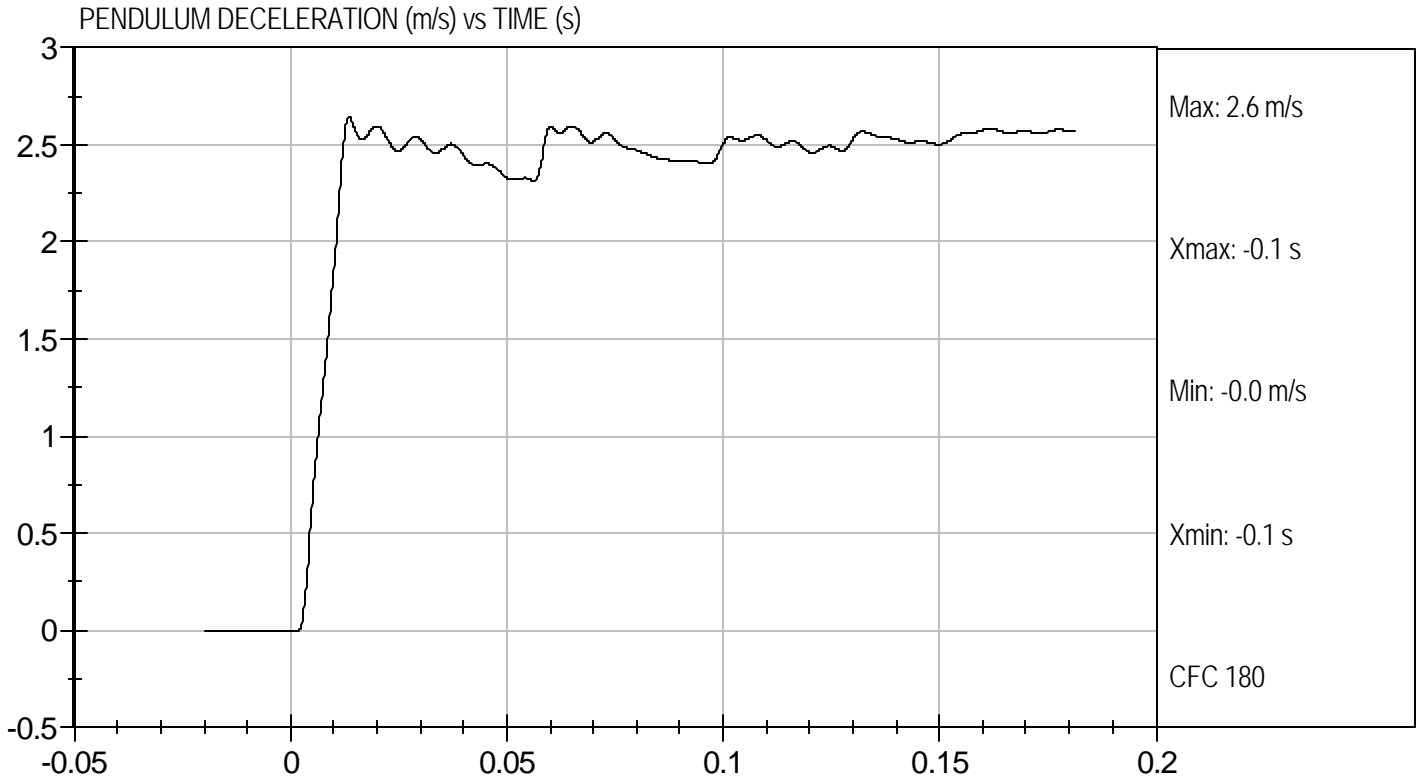
12/12/07
 Test Date


 Approved By



Test Desc: Neck Extension
Component ID: D073553

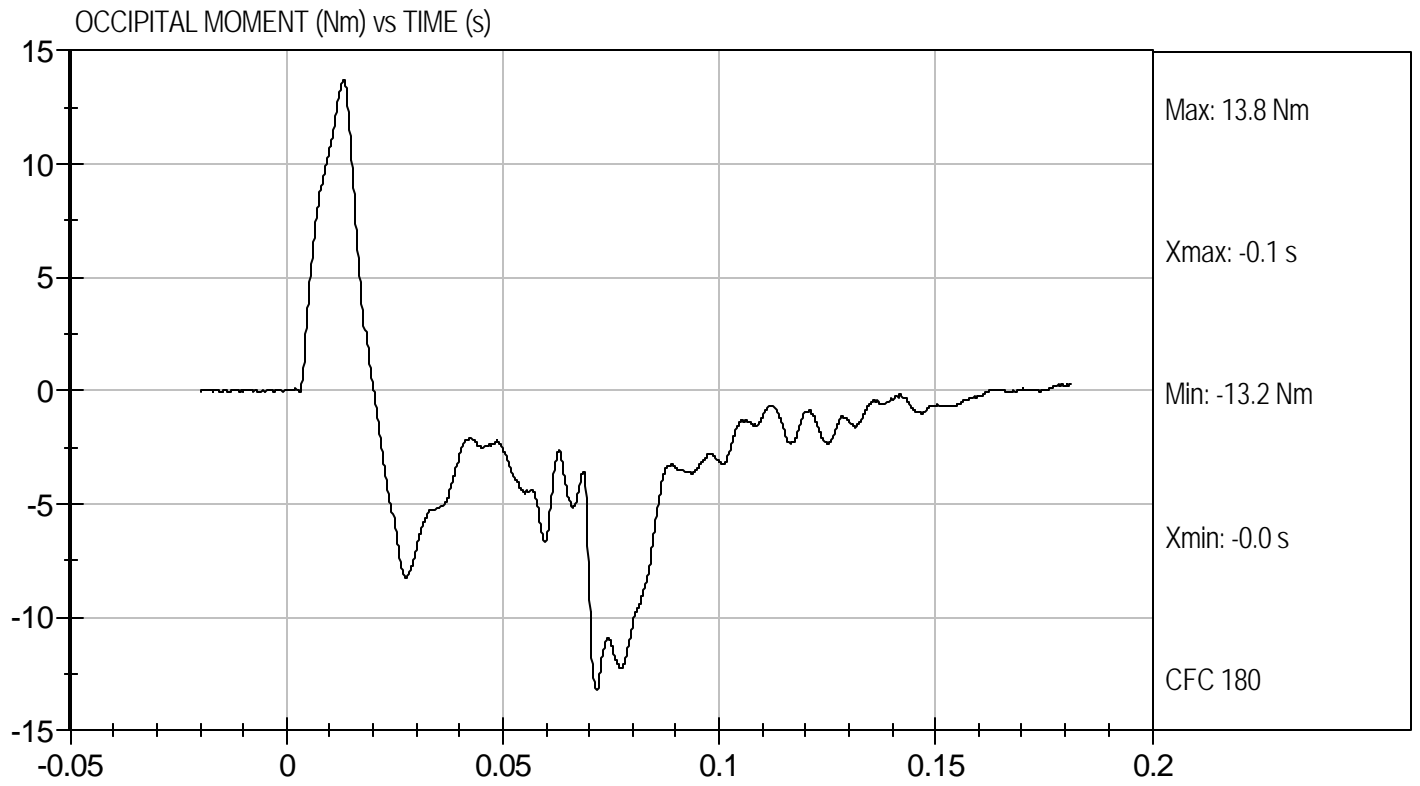
Test Date: 12/12/07
Velocity: 8.41 ft/s, 2.6 m/s





Test Desc: Neck Extension
Component ID: D073553

Test Date: 12/12/07
Velocity: 8.41 ft/s, 2.6 m/s



MGA RESEARCH CORPORATION
THORAX IMPACT TEST
CRABI 12 MONTH

ATD Serial No: 090

Test I.D: D073554

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Probe Speed	m/sec	4.9 to 5.1	5.08	Pass
Probe Force	kN	1.51 to 1.80	1.59	Pass
Overall Test Results				Pass

Jessica Hall

 Laboratory Technician

12/12/07

 Test Date

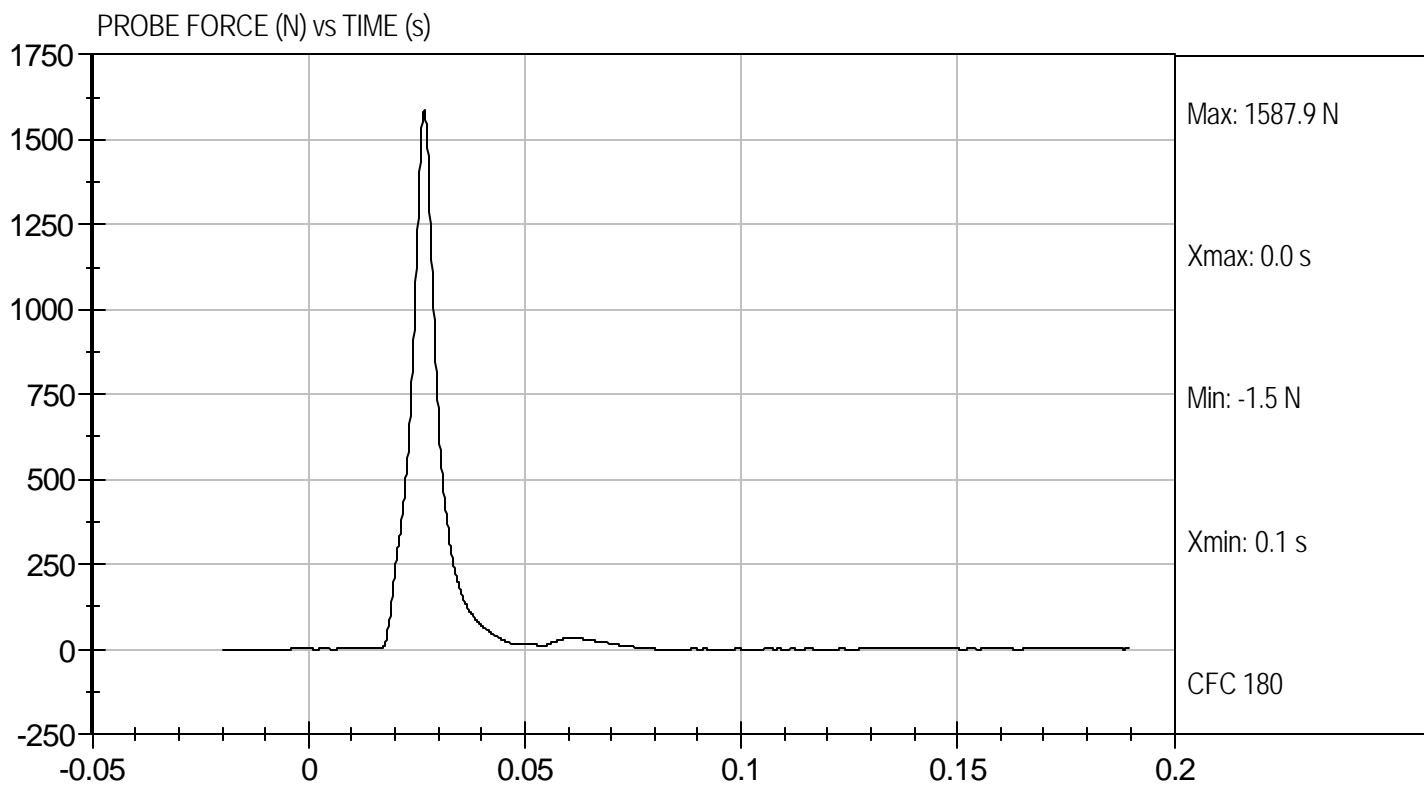
David Winkelbauer

 Approved By



Test Desc: Thorax Impact
Component ID: D073554

Test Date: 12/12/07
Velocity: 16.67 ft/s, 5.08 m/s



MGA RESEARCH CORPORATION
REAR HEAD DROP TEST
CRABI 12 MONTH

ATD Serial No: 090

Test ID: D073555

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Peak Resultant Acceleration	G's	55 to 71	66	Pass
Peak Lateral Acceleration	G's	+/- 15	-4	Pass
Unimodal	N/A	within 17% of peak	Yes	Pass
Overall Test Results				Pass

Jessica Gall

 Laboratory Technician

12/12/07

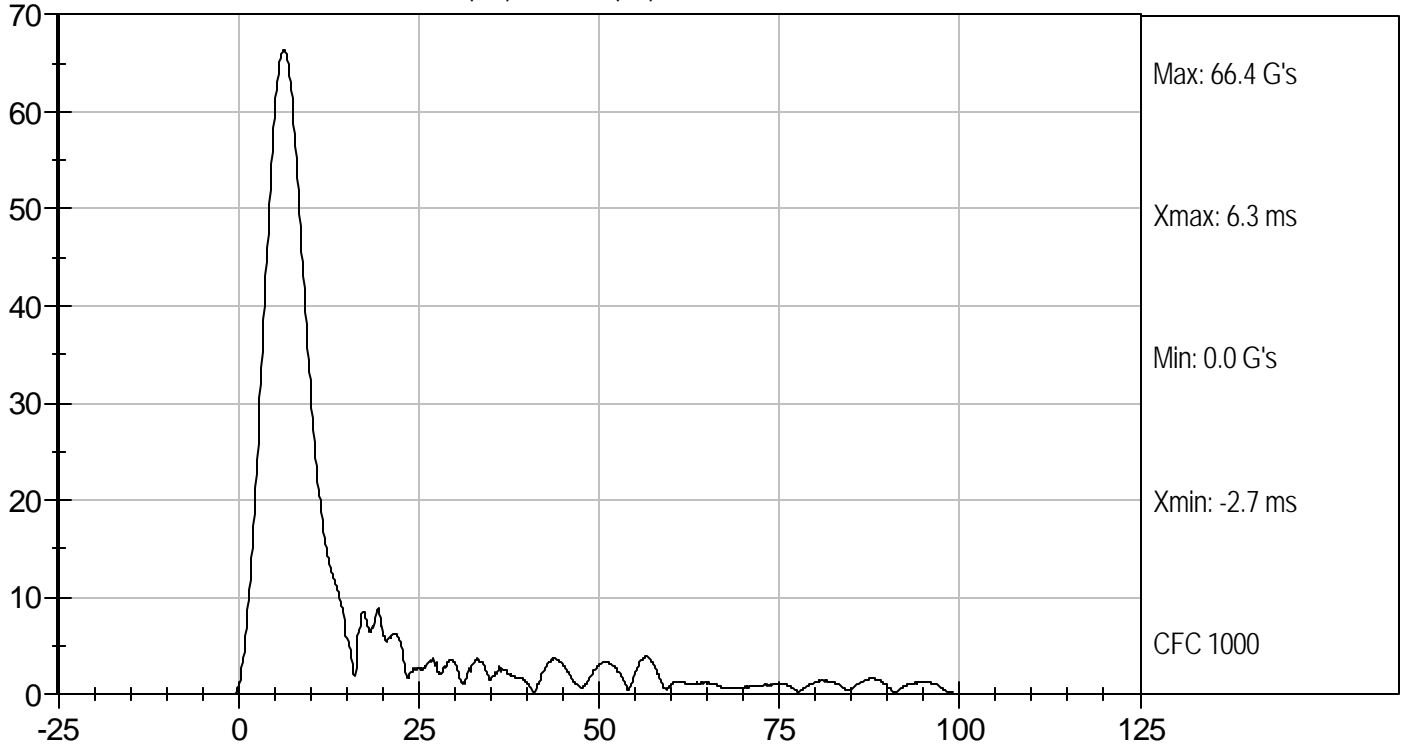
 Test Date

David Winkelbauer

 Approved By



PEAK RESULTANT ACCELERATION (G's) vs TIME (ms)



PEAK LATERAL ACCELERATION (G's) vs TIME (ms)

