

REPORT NUMBER: NCAPSIDE-MGA-2007-005

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**HONDA OF CANADA MFG.
2007 ACURA MDX
NHTSA NUMBER: M75303**

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



Test Date: December 11, 2006

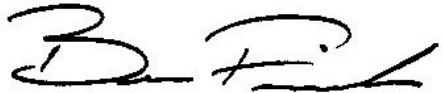
Report Date: January 4, 2007

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
400 SEVENTH STREET, SW, ROOM 5311
WASHINGTON, D.C. 20590**

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Date: 1/04/07

Technical Report Documentation Page

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2007 Acura MDX 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 December 11, 2006. 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 261 mm at level 3. The test vehicle's occupant performance is as follows: <table style="margin: 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;">27.5</td> <td style="text-align: center;">37.0</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">32.1</td> <td style="text-align: center;">44.3</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">28.6</td> <td style="text-align: center;">42.4</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">30</td> <td style="text-align: center;">43</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">36.1</td> <td style="text-align: center;">42.5</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">99</td> <td style="text-align: center;">79</td> </tr> </tbody> </table>					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	27.5	37.0	Left Lower Rib (LLR) Accel., g	32.1	44.3	Lower Spine (T ₁₂) Accel., g	28.6	42.4	Thoracic Trauma Index (TTI)	30	43	Pelvis (PEV) Accel., g	36.1	42.5	HIC	99	79
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The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.																								
17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590																						
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2007 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-12005. The purpose of this test was to evaluate side impact protection in a 2007 Acura MDX manufactured by Honda of Canada Mfg.

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 2007 Acura MDX 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 2272.9 kg and the test weight of the MDB was 1360.8 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on December 11, 2006.

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/HIIs) can be found in Appendix A. Two 50th percentile adult male SID/HIIs 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/HII was instrumented in the following locations:

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

The test vehicle was instrumented with twenty (20) structural accelerometers and the MDB was instrumented with six (6) 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 261 mm at level 3, 1350 mm rearward of the vertical impact point. The driver and passenger SID/HIIs, Serial Nos. 904 and 272 respectively, were calibrated just prior to this test.

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

The occupant data is summarized below:

ATD position	HIC	T ¹	T ²	TTI (G's)	Peak Pelvis (G's)
Driver	99	46.0	79.1	30	36.1
Passenger	79	50.1	86.1	43	42.5

SUPPLEMENTAL RESTRAINT 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:
Passenger Neck Moment X after 45 msec.
Floorpan @ Rear Axle Y after 55 msec.

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

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

TEST VEHICLE INFORMATION

Make	Acura
Model	MDX
Body Style	MPV
NHTSA No.	M75303
VIN	2HNYD28277H505610
Color	Aberdeen Green M.
Delivery Date	11/22/06
Odometer Reading (mile)	60
Dealer	Acura of Brookfield
Transmission	Automatic
Final Drive	AWD
Number of Cylinders	6
Engine Displacement (L)	3.7
Engine Placement	Lateral
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	No
All Wheel Drive	Yes
Power Seats	Yes
Pretensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda of Canada Mfg.
Date of Manufacture	10/06

GVWR (kg)	2700
GAWR Front (kg)	1310
GAWR Rear (kg)	1440

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	Bench	
Number Of Occupants	2	3	2	7
Capacity Wt. (VCW) (kg)				525
Cargo Wt. (RCLW) (kg)				49

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

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	586.5	460.9		634.1	547.0	
Right	kg	567.5	453.6		576.5	515.3	
Ratio	%	55.8	44.2		53.3	46.7	
Totals	kg	1154.0	914.5	2068.5	1210.6	1062.3	2272.9

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2068.5
Weight of 2 P572M ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	49
Calculated Vehicle Target Weight (TVTW)	kg	2279.0

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

Weight of Ballast in Cargo Area: 0

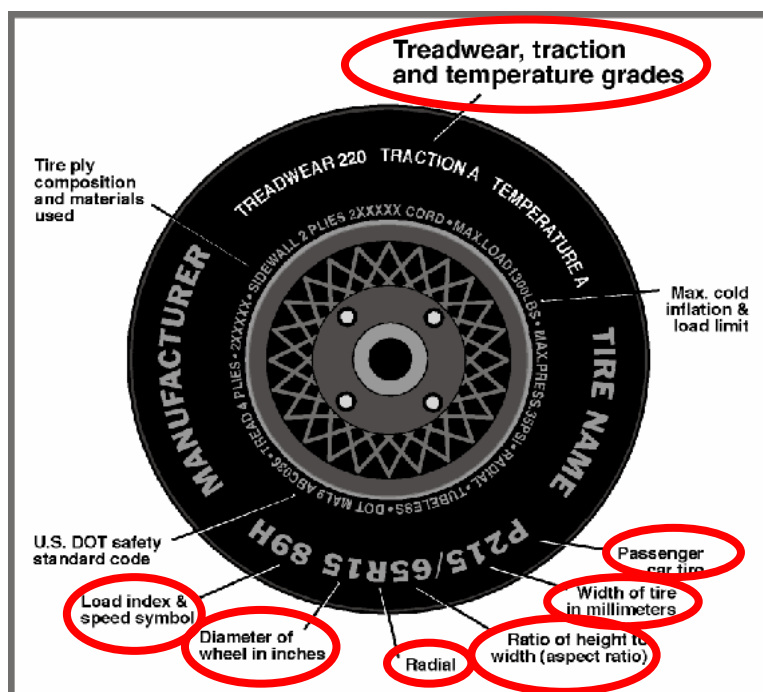
TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	811	810	825	826	1218
As Tested	mm	800	806	811	814	1288
Fully Loaded	mm	799	804	801	811	

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2755
Target Impact Point Aft of Front Axle	mm	437
Actual Impact Point Aft of Front Axle	mm	440

TEST VEHICLE TIRE INFORMATION



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	220	220
Recommended Tire Size	P255/55R18	P255/55R18
Tire Size on Vehicle	P255/55R18	P255/55R18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Dueler H/L	Dueler H/L
Tire Type	Passenger	Passenger
Tire Width (mm)	255	255
Ratio of Height to Width (aspect ratio)	55	55
Radial	R	R
Wheel Diameter	18	18
Load Index & Speed Symbol	104H	104H
Treadwear	400	400
Traction Grade	B	B
Temperature Grade	B	B

DATA SHEET NO. 3 **TEST VEHICLE INFORMATION**

Test Vehicle: 2007 Acura MDX
Test Program: NCAP Side Impact

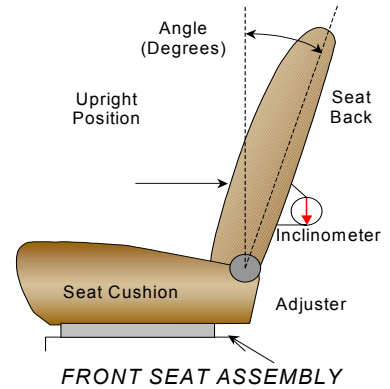
NHTSA No. M75303
Test Date: 12/11/2006

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows:
Seat back angle at test position (measured from upright position)
= 14.4 degrees

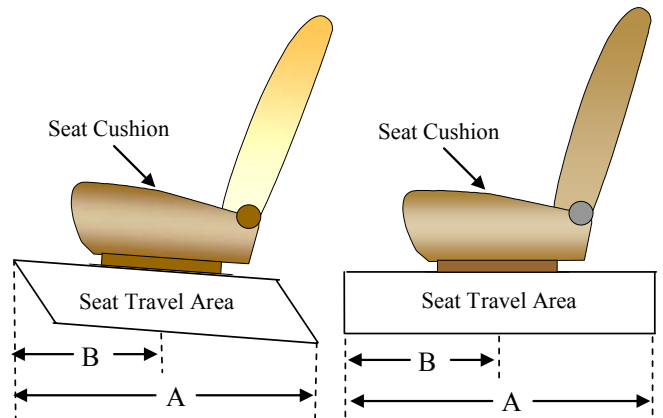
Driver seat back angle: 14.4° at headrest post

Passenger seat back angle: fixed seatback



SEAT FORE/AFT POSITIONS

SEAT FORE/AFT POSITIONS		
	Total Fore/Aft Travel	Placed in position #
Driver Seat	270 mm	135 mm
Rear Seat	non adjustable	non adjustable



DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

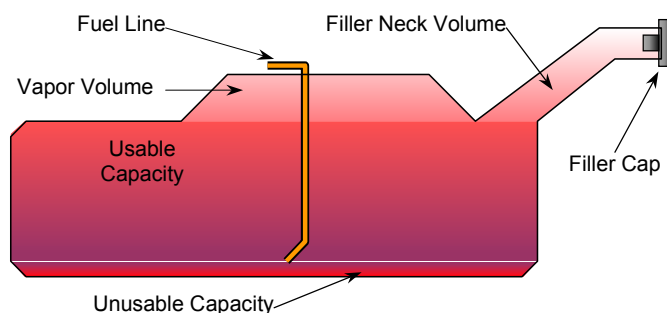
Test Vehicle: 2007 Acura MDX
Test Program: NCAP Side Impact

NHTSA No. M75303
Test Date: 12/11/2006

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	79.5
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	73.1 – 74.7
Actual Amount of Solvent used	73.8
1/3 of Usable Capacity	26.5

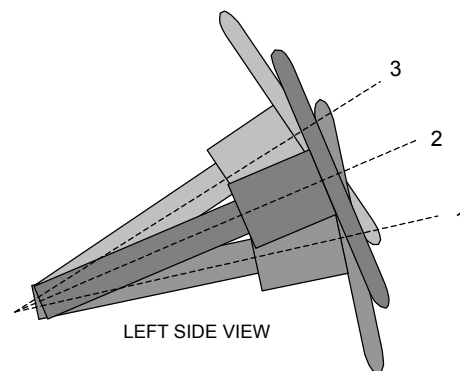
The vehicle is equipped with electric fuel pump.
The fuel pump will pump fuel when the key is on.



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

	Fore/Aft (mm)	Degrees
Lowermost position No. 1	167	19.5
Geometric center position No. 2	189	22.4
Uppermost position No. 3	211	25.4

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

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

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	89.8

POST TEST OBSERVATIONS
MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	3 rearward
Vertical Offset	mm	+/-20	11 up

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

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID HIII / 904	SID HIII / 272
Head Contact	Curtain Airbag, headrest	Curtain Airbag, headliner
Upper Torso Contact	Side Airbag	Door Panel
Lower Torso Contact	Side Airbag	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 Unlatched but remained closed
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 window broke
Other Notable Effects	None

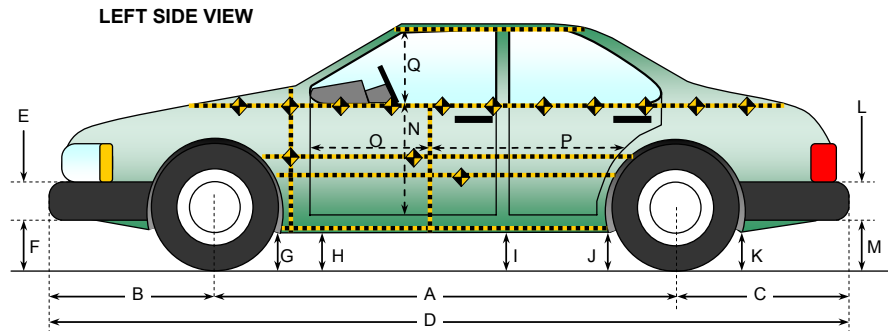
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Occupant Location 01		Occupant Location 04	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	Yes	None	
Side Torso Airbag	Yes	Yes	None	
Curtain Airbag	Yes	Yes	Yes	Yes

DATA SHEET NO. 6
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



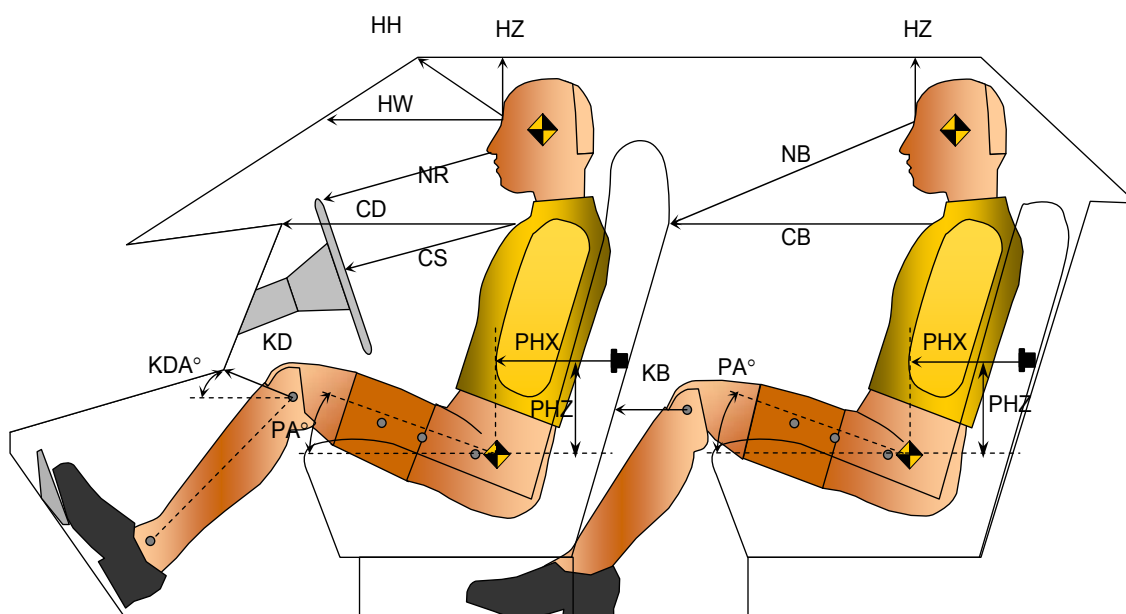
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2755	2714	41
B	Front Axle to FSOV	971	942	29
C	Rear Axle to RSOV	1108	1108	0
D	Total Length at Centerline	4834	4764	70
E	Front Bumper Thickness	106	106	0
F	Front Bumper Bottom to Ground	466	462	4
G	Sill Height at Front Wheel Well	317	306	11
H	Sill Height at Front Door Leading Edge	306	296	10
I	Sill Height at "B" Pillar	322	284	38
J1	Sill Height at Rear Wheel Well	306	306	0
J2	Pinch Weld Height at Rear Wheel Well	310	317	-7
K	Sill Height Aft of Rear Wheel Well	281	275	6
L	Rear Bumper Thickness	185	185	0
M	Rear Bumper Bottom to Ground	400	382	18
N	Sill Height to Window Bottom Sill	838	774	64
O	Front Door Leading Edge to Impact CL	803	730	73
P	Rear Door Trailing Edge to Impact CL	1232	1177	55
Q	Front Window Opening	453	436	17
R	Right Side Length	3684	3692	-8
S	Left Side Length	3686	3645	41
T	Vehicle Width at "B" Post	1971	1824	147

DATA SHEET NO. 7
SID/HII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

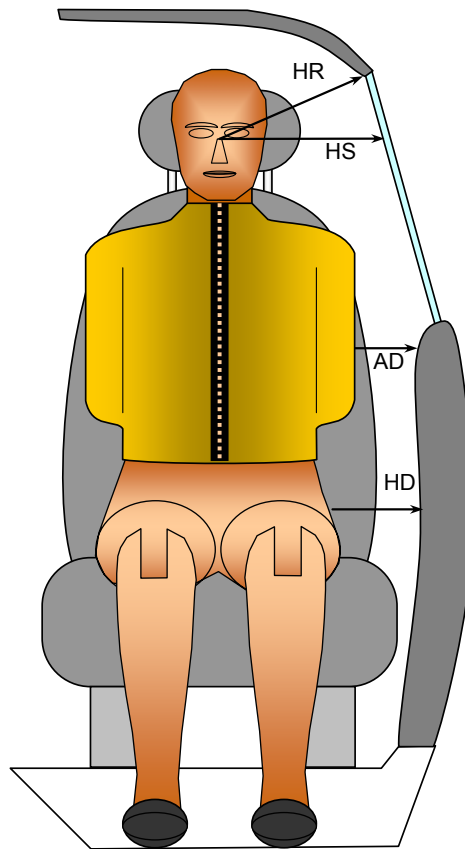


Driver Code	Pass. Code	Measurement Description	Driver S/N 904		Passenger S/N 272	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	432			
HW		Head to Windshield	655			
HZ	HZ	Head to Roof	248		177	
NR	NB	Nose to Rim/Nose to Seatback	442		618	
CD	CB	Chest to Dash or Seatback	571		544	
CS		Chest to Steering Wheel	352			
KDL	KBL	Left Knee to Dash or Seatback	164	23.5	239	21.0
KDR	KBR	Right Knee to Dash or Seatback	165	27.9	244	24.7
PA	PA	Pelvic Angle		24.3		24.2
PHX	PHX	H-Point to Striker (X-Axis)	188		326	
PHZ	PHZ	H-Point to Striker (Z-Axis)	161		194	

DATA SHEET NO. 8
SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



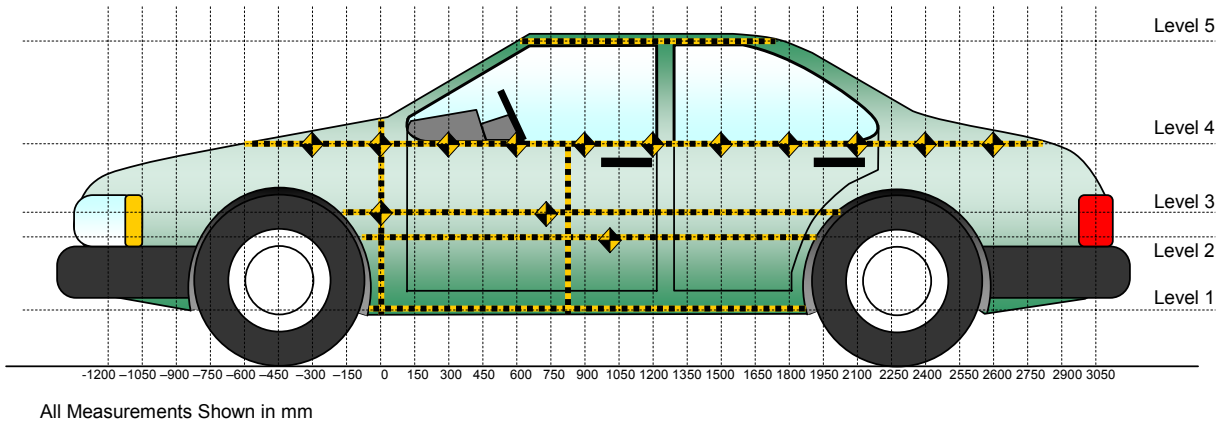
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 904	Passenger S/N 272
HR	Head to Side Header	mm	228	234
HS	Head to Side Window	mm	360	319
AD	Arm to Door	mm	82	142
HD	H-Point to Door	mm	165	166

DATA SHEET NO. 9 **VEHICLE SIDE MEASUREMENTS**

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



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	24	1350	1663
4	Window Sill	85	1200	1142
3	Mid Door	261	1350	766
2	Occupant H-Point	250	1200	716
1	Sill Top	106	1800	346
	Maximum Penetration	261		

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-750				275					266					-9	
-600				257					252					-5	
-450				242					241					-1	
-300				231					234					3	
-150			106	225				110	230				4	5	
0		114	119	219			120	126	226			6	7	7	
150	212	125	124	215		252	311	304	212		40	186	180	-3	
300	222	122	120	213		278	355	353	235		56	233	233	22	
450	223	120	118	212		292	360	366	242		69	240	248	30	
600	219	118	116	209	420	304	362	372	236	423	85	244	256	27	3
750	222	117	115	208	412	312	361	375	232	419	90	244	260	24	7
900	223	117	115	204	412	318	360	364	231	423	95	243	249	27	11
1050	224	117	115	205	415	321	355	356	246	433	97	238	241	41	18
1200	224	117	115	205	419	328	367	369	290	440	104	250	254	85	21
1350	225	118	116	208	419	328	366	377	285	443	103	248	261	77	24
1500	227	120	118	208	420	327	348	367	280	443	100	228	249	72	23
1650	224	122	120	212	422	328	323	344	274	440	104	201	224	62	18
1800	201	123	123	212	425	307	282	308	267	440	106	159	185	55	15
1950		108	110	219	432		184	202	232	441		76	92	13	9
2100			103	221	438			180	237	452			77	16	14
2250				229	444				256	455				27	11
2400				237	456				258	462				21	6
2550				248	466				264	473				16	7
2700				259	480				270	486				11	6
2850				274					284					10	
3000				304					309					5	

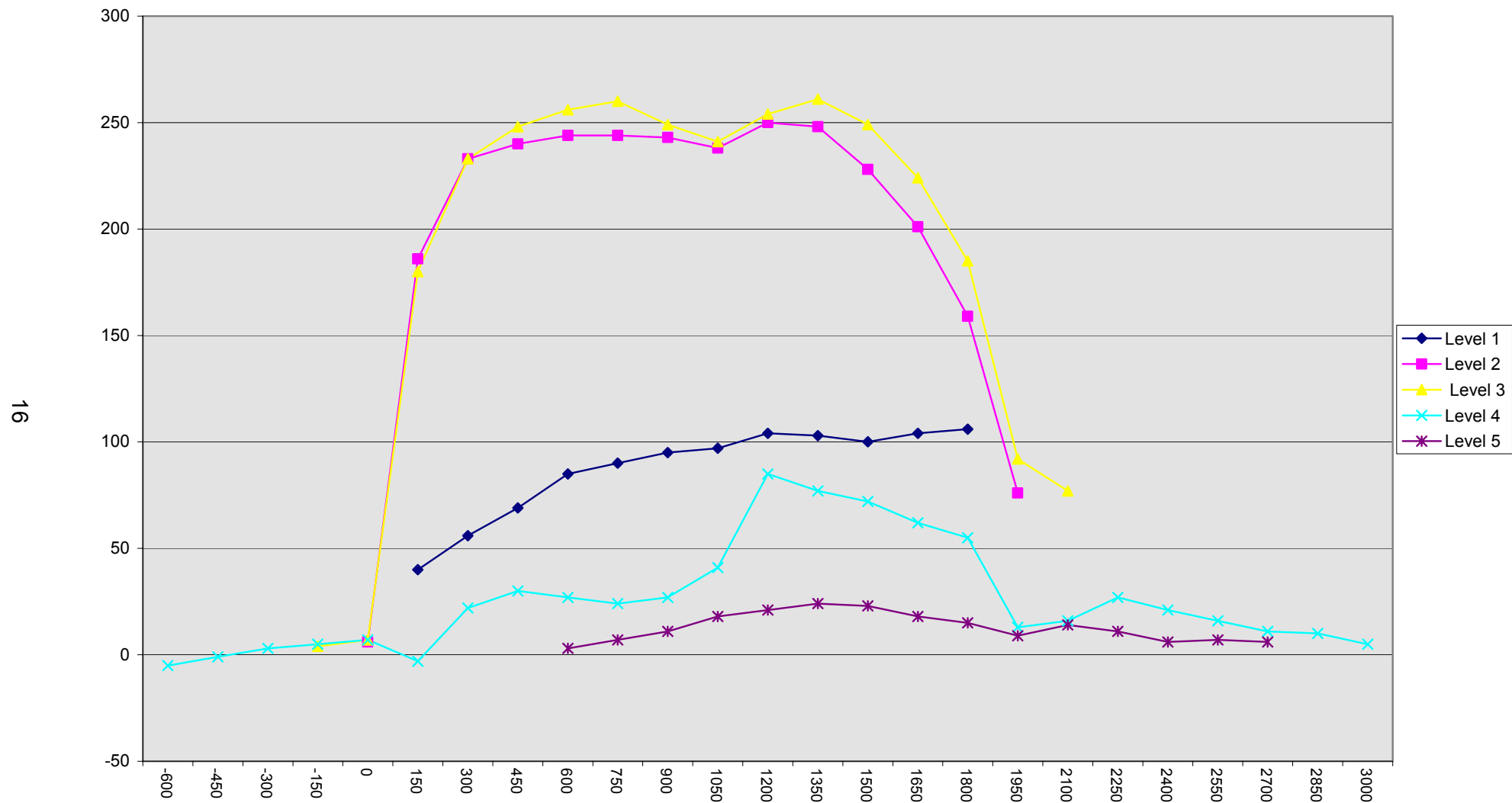
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

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

Test Vehicle: 2007 Acura MDX
Test Program: NCAP Side Impact

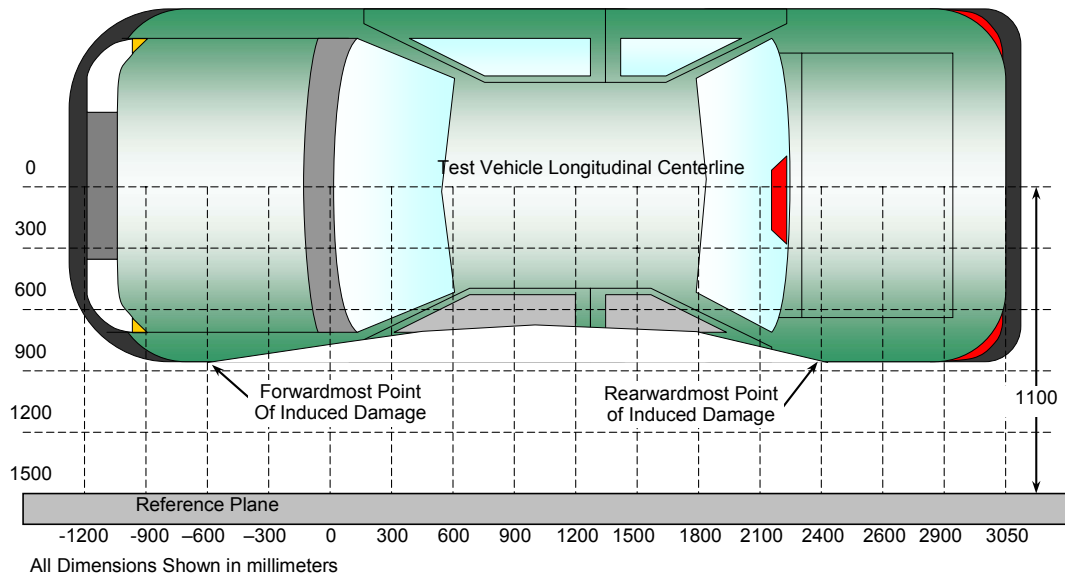
NHTSA No. M75303
Test Date: 12/11/2006



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	3000	4	304	309	5
2	2315	4	232	254	22
3	1614	3	120	362	242
4	902	2	117	364	247
5	203	2	124	347	223
6	-450	4	241	242	1

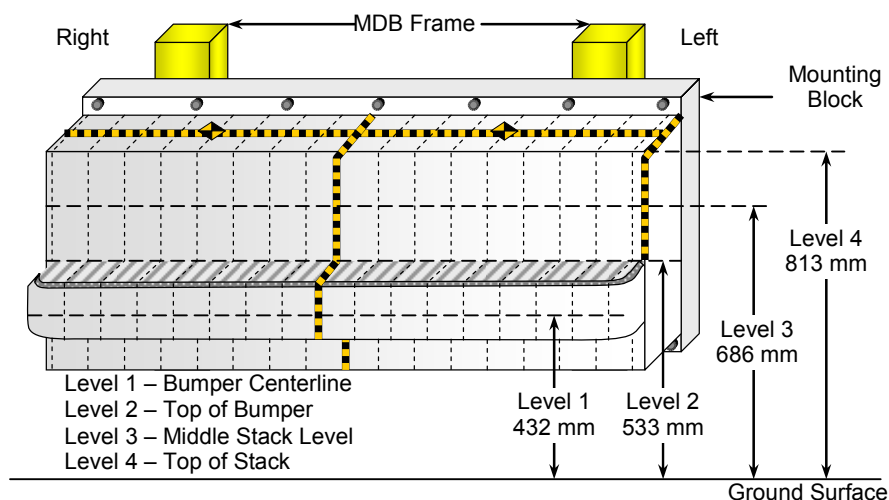
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



DEFORMABLE BARRIER STATIC CRUSH

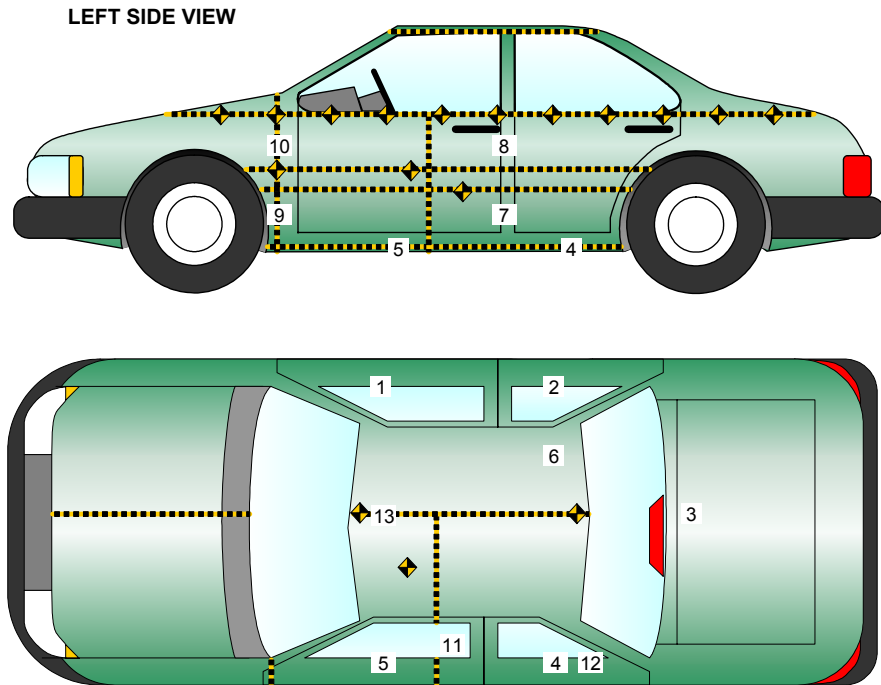
Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	177	176	175	163	149	137	132	134	139	142	147	150	157	162	175	183	183
2	150	135	119	104	89	73	70	72	86	89	94	99	101	103	109	112	114
3	130	107	82	57	39	35	50	48	45	41	36	32	31	34	41	56	89
4	101	67	45	33	29	37	55	57	58	45	44	41	49	54	60	86	127

All Dimensions in mm

DATA SHEET NO. 13
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



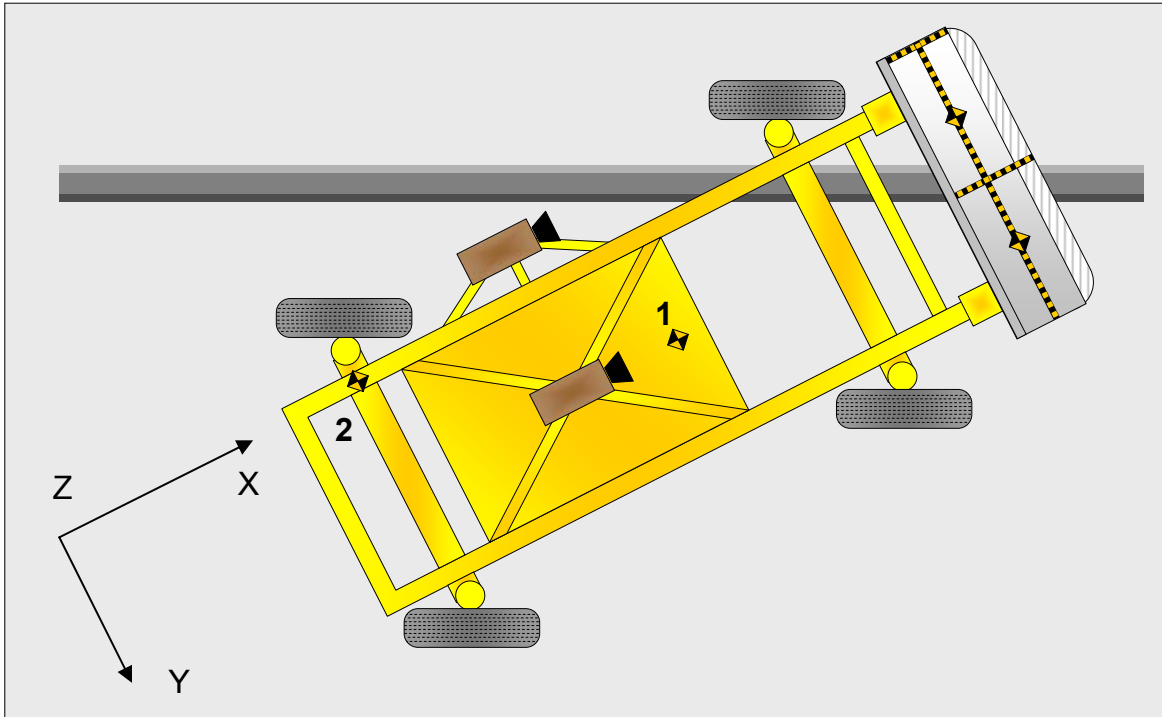
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2729	785	357
2	Right Sill at Rear Seat	1926	793	359
3	Rear Floorpan Above Axle	618	0	594
4	Left Sill at Rear Door	1946	-793	361
5	Left Sill at Front Door	2727	-786	359
6	Rear Occupant Compartment	1940	440	508
7	Left Lower B-Post	2285	-790	718
8	Left Middle B-Post	2274	-782	972
9	Left Lower A-Post	3323	-796	677
10	Left Middle A-Post	3337	-875	936
11	Front Seat Track	989	-976	535
12	Rear Seat Track or Structure			
13	Vehicle CG	1288	-79	411

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: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



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: 2007 Acura MDX
Test Program: NCAP Side Impact

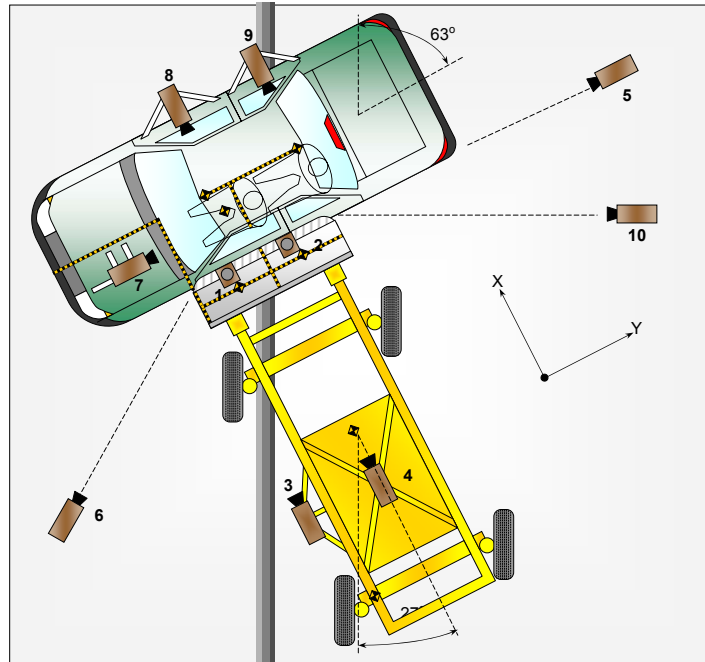
NHTSA No. M75303
Test Date: 12/11/2006

	Elements	Pre-Test (mm)
1	Total Length	4834
2	Total Width	1971
3	Bumper Top Height	580
4	Bumper Bottom Height	479
5	Longitudinal Member Top Height	630
6	Distance between Longitudinal Members	1147
7	Longitudinal Member Width	58
8	Engine Top Height	926
9	Engine Bottom Height	259
10	Engine and gearbox width	845
11	Front bumper-engine distance	493
12	Front shock absorber fixing height	1013
13	Bonnet leading edge height	965
14	Front shock absorber fixing width	1230
15	Front bumper – front axle distance	971
16	Front axle – a pillar distance	466
17	A-pillar – B-pillar distance	1054
18	B-Pillar – rear axle distance	1240
19	B-pillar – C-pillar distance	1065
20	Roof sill bottom height	1607
21	Roof sill top height	1670
22	Floor sill bottom height	345
23	Floor sill top height	480

DATA SHEET NO. 16
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Close-up	765	-80	4840	50	1000
2	Overhead Overall	-470	1270	4840	14	1000
3	MDB Onboard, Impact Point Close-up				50	1000
4	MDB Onboard, Centerline of Impact				25	1000
5	Right Side, Ground Level, Overall	-2965	6330	1270	24	1000
6	Left Side, Ground Level, Overall	2995	-4000	1240	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: 2007 Acura MDX
 Test Program: NCAP Side Impact

NHTSA No. M75303
 Test Date: 12/11/2006

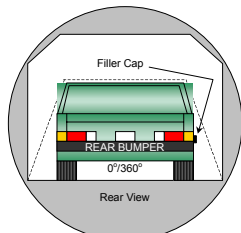
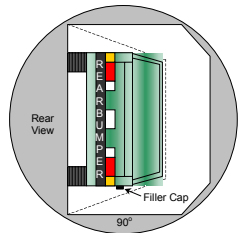
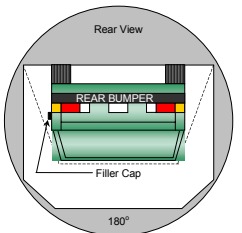
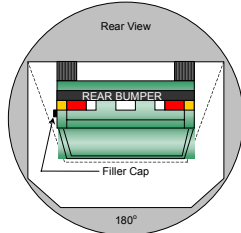
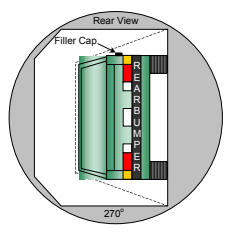
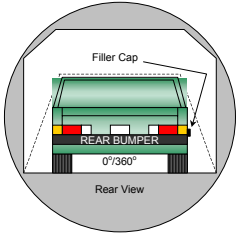
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 11:44 am

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

			1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds. 2. The position hold time at each position is 300 seconds (minimum). 3. Details of Stoddard Solvent spillage locations: None
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°	122	300	First 5	0
90° to 180°	120	300	First 5	0
180° to 270°	114	300	First 5	0
270° to 360°	118	300	First 5	0

APPENDIX A
PHOTOGRAPHS

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Left Front $\frac{3}{4}$ View, As Received



Right Rear $\frac{3}{4}$ View, As Received

MFD. IN CANADA BY HONDA OF CANADA MFG.,
 A DIVISION OF HONDA CANADA INC. 10/06
 GVWR 2700KG(5952LBS) TIRE SIZE RIM SIZE
 GAWR F 1310KG(2888LBS) P255/55R18 104H 18X8.0J
 GAWR R 1440KG(3175LBS) P255/55R18 104H 18X8.0J
 THIS VEHICLE CONFORMS TO ALL APPLICABLE
 FEDERAL MOTOR VEHICLE SAFETY
 AND THEFT PREVENTION STANDARDS IN EFFECT
 ON THE DATE OF MANUFACTURE SHOWN ABOVE.
 V.I.N.: 2HNYD28277H505610 TYPE: MPV



Manufacturer's Label

SIDE AIRBAG (A9)

• This car is equipped with side airbags in the front seats.

TIRE AND LOADING INFORMATION

SEATING CAPACITY: TOTAL 7 : FRONT 2 : SECOND 3 : THIRD 2

The combined weight of occupants and cargo should never exceed 525kg or 1158lbs.

TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	P255/55R18 104H	220KPA, 32PSI	
REAR		220KPA, 32PSI	
SPARE	T165/80D17 104M	420KPA, 60PSI	

STXA

Tire Placard



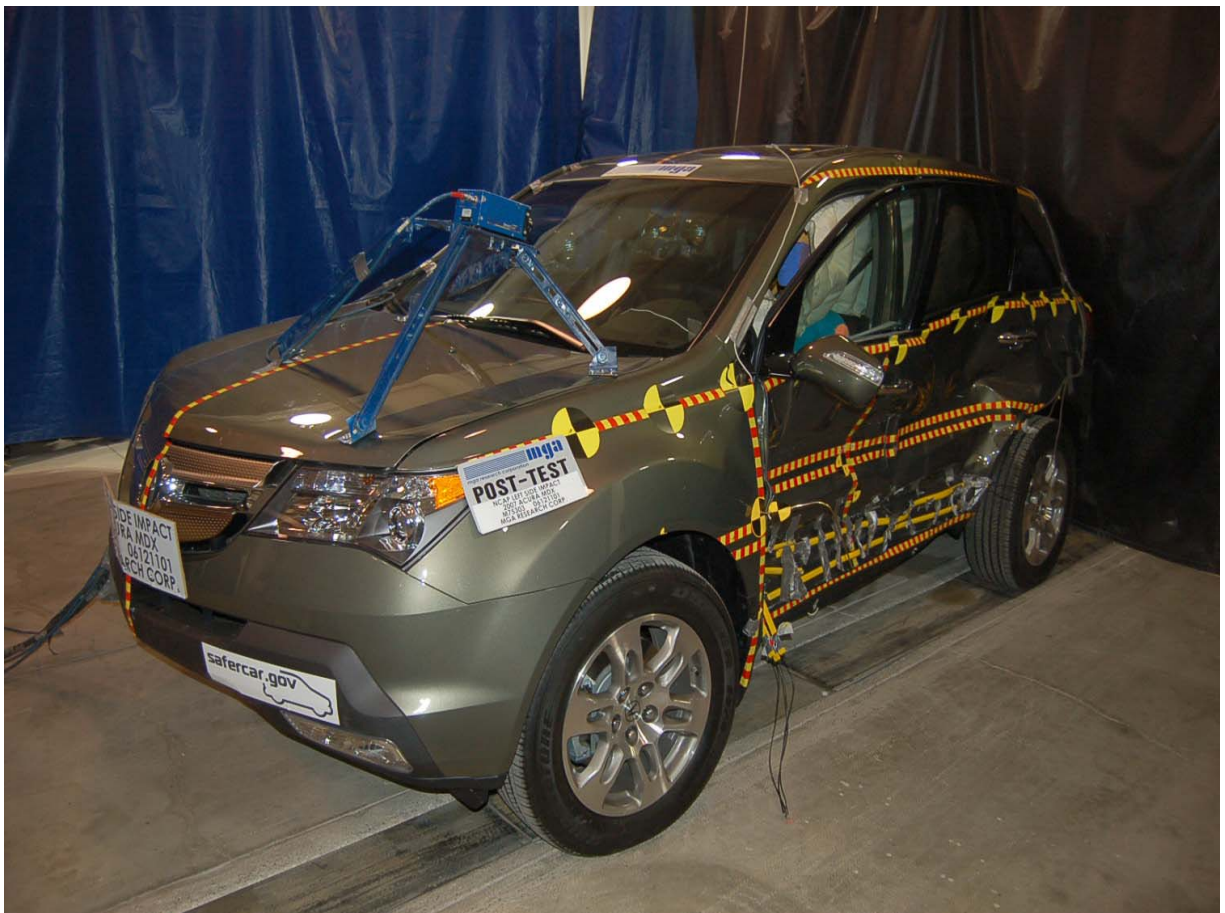
Pre-Test Front View



Post-Test Front View



Pre-Test Left Front $\frac{3}{4}$ View



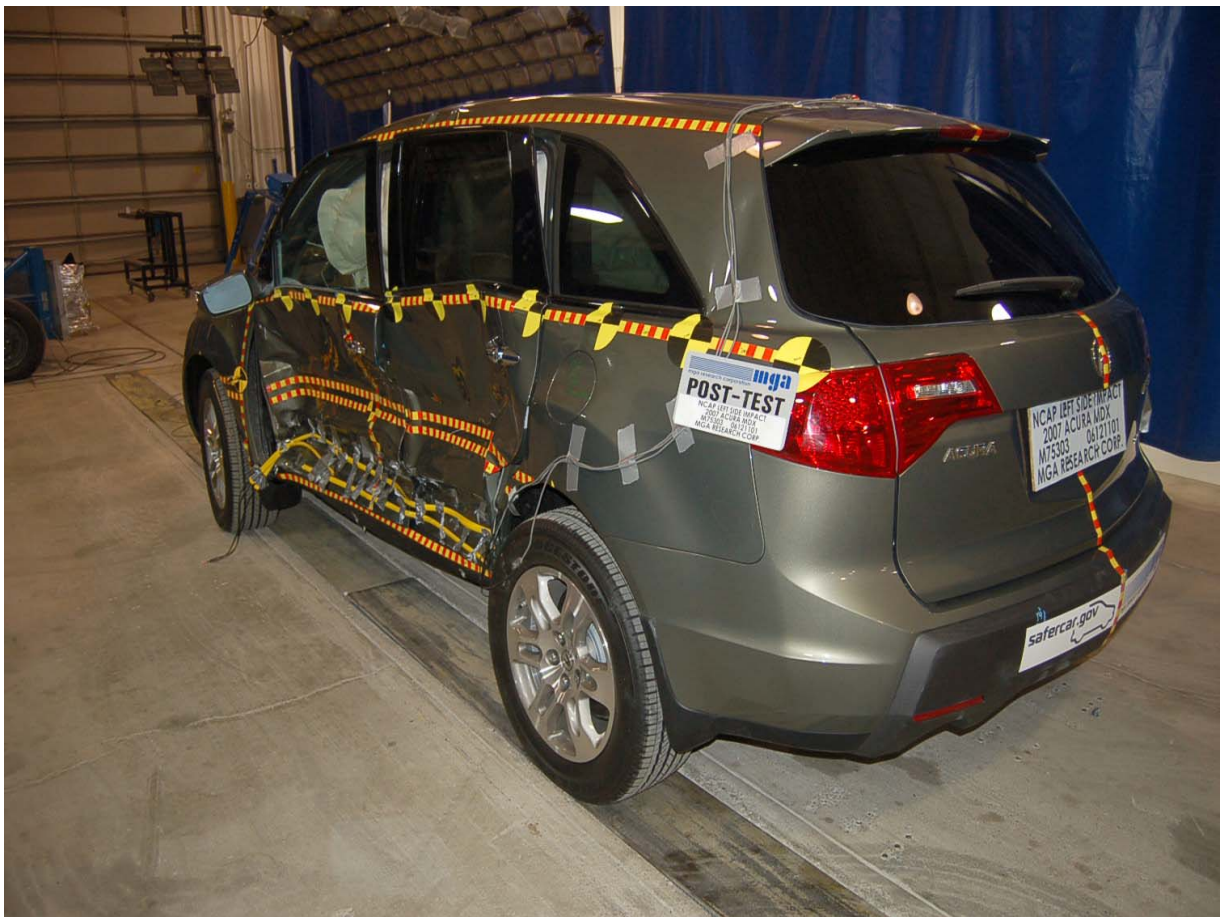
Post-Test Left Front $\frac{3}{4}$ View



Pre-Test Left Side View



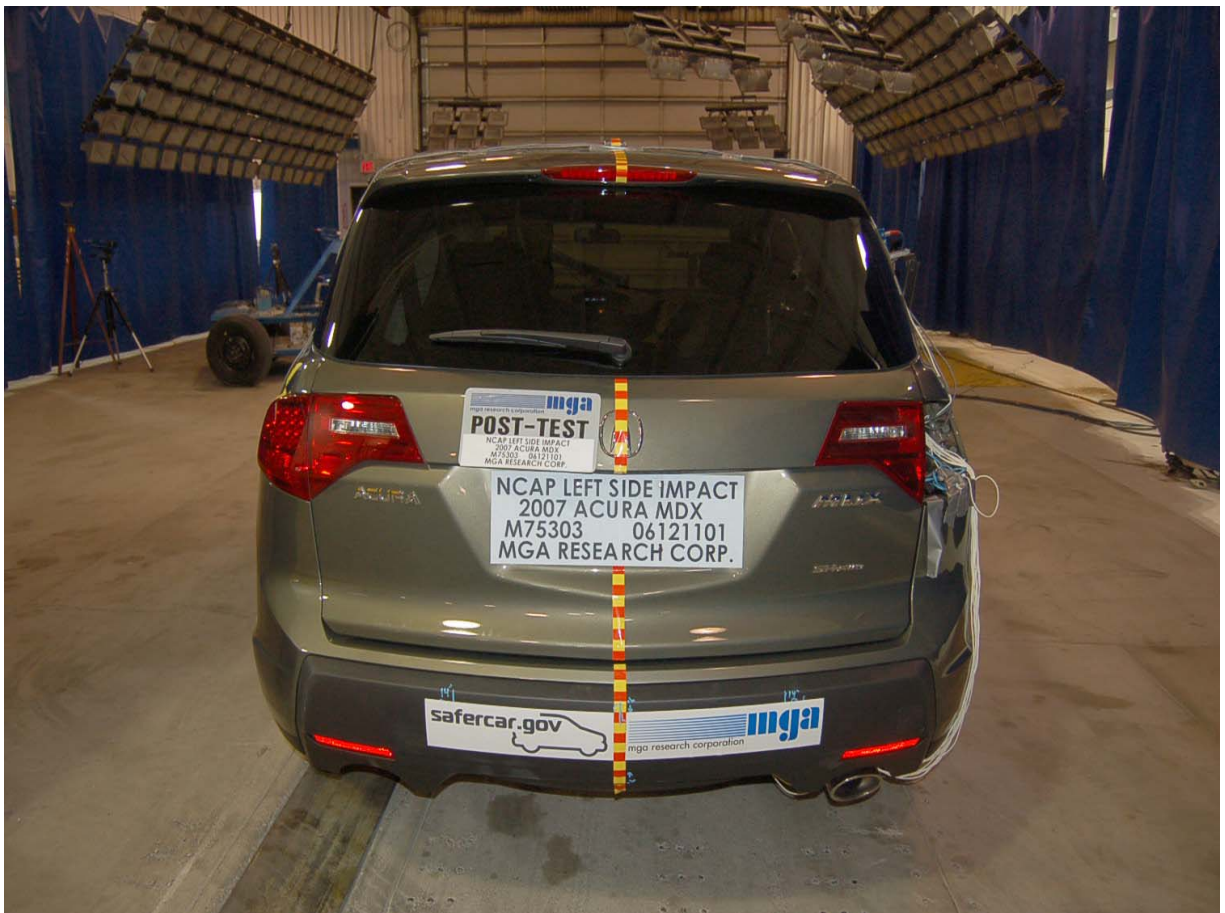
Post-Test Left Side View



Post-Test Left Rear $\frac{3}{4}$ 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



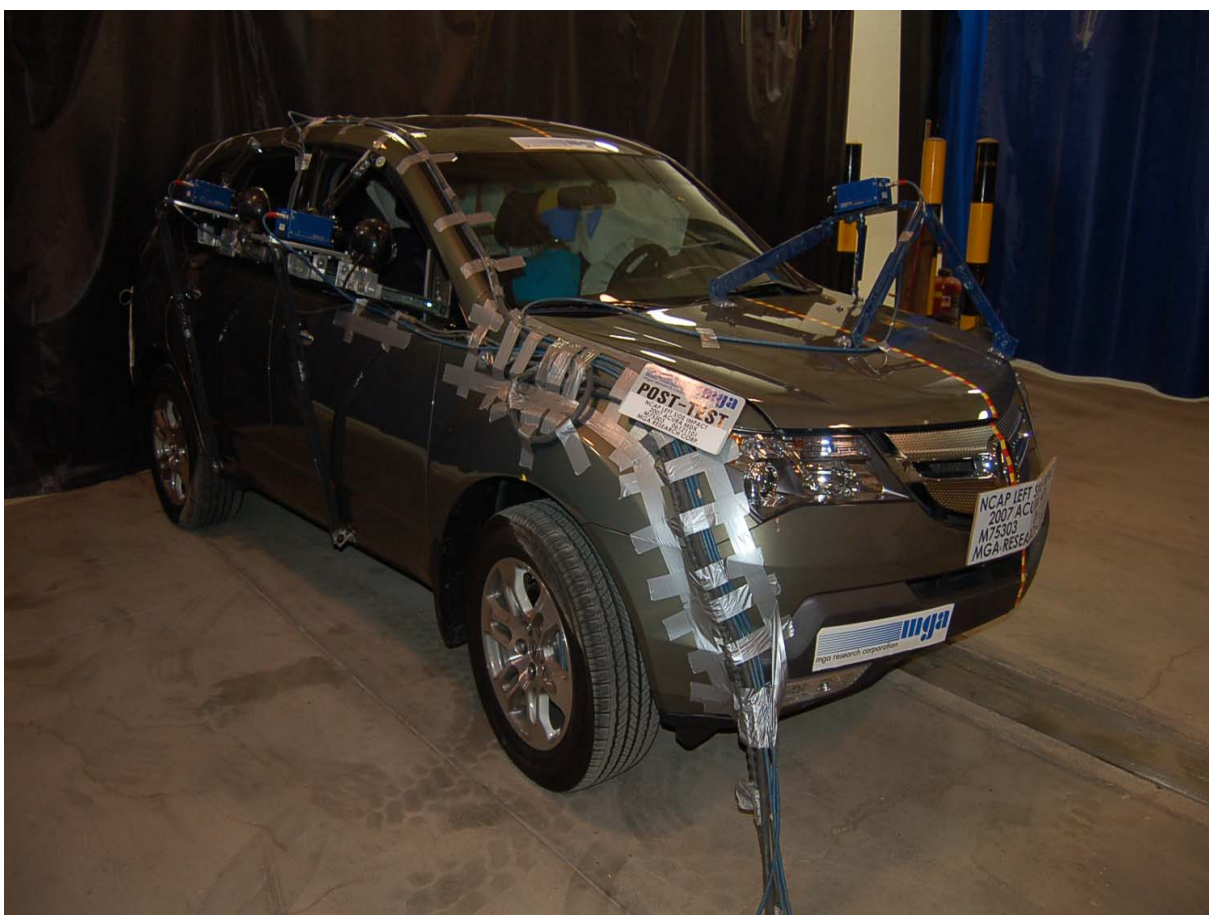
Pre-Test Right Side View



Post-Test Right Side View



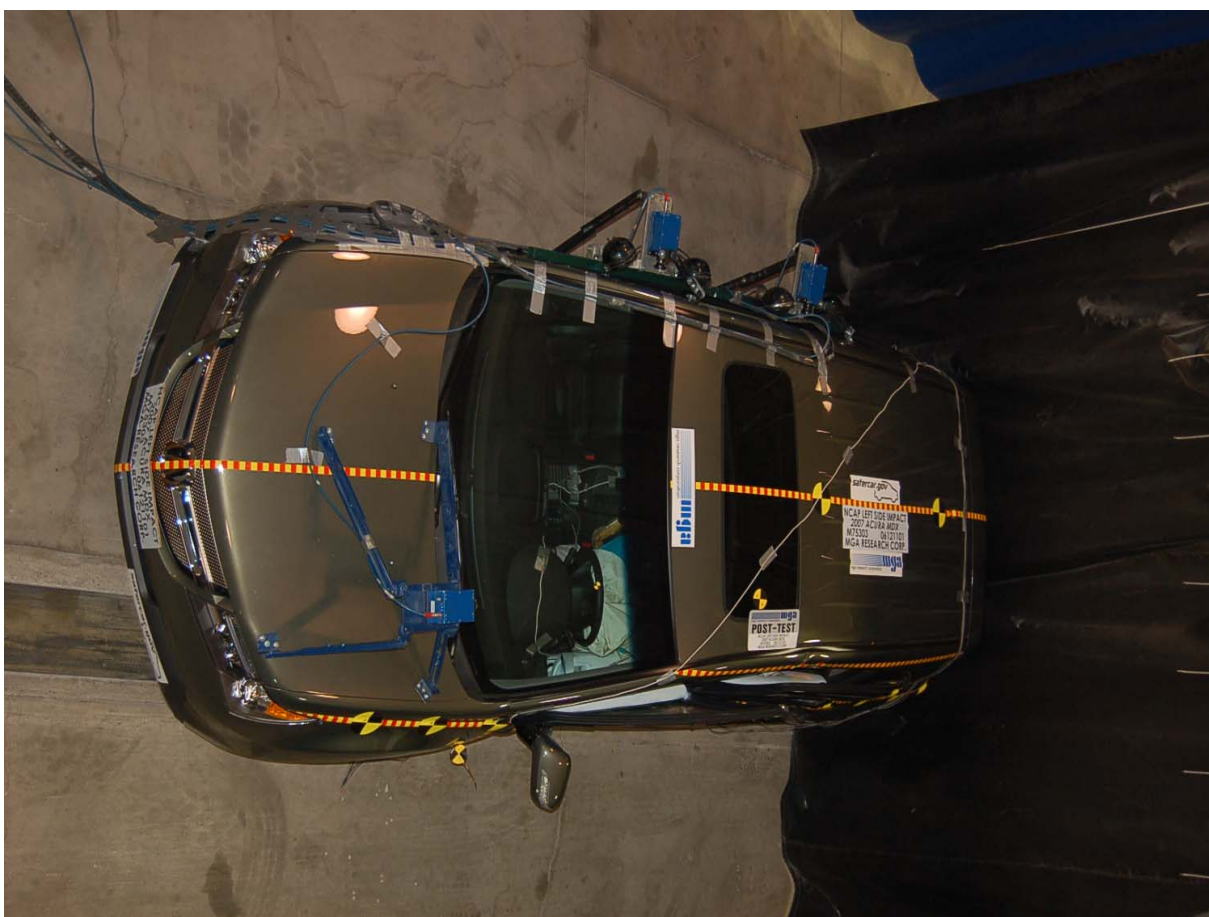
Pre-Test Right Front $\frac{3}{4}$ View



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



Pre-Test Overhead View



Post-Test Overhead View



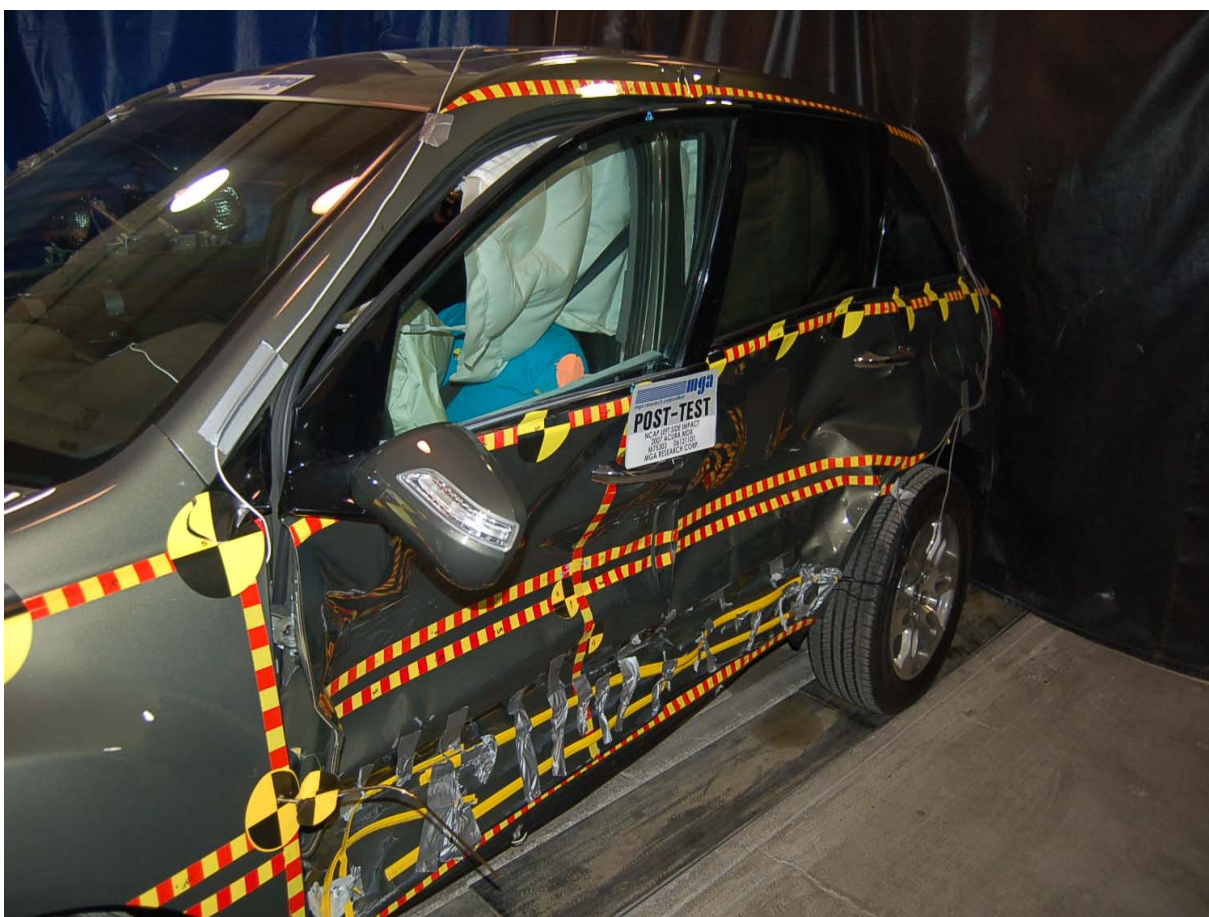
Pre-Test Left Impact Point



Post-Test Left Impact Point



Pre-Test Front $\frac{3}{4}$ View of Left Side Door



Post-Test Front $\frac{3}{4}$ View of Left Side Door



Pre-Test Rear $\frac{3}{4}$ View of Left Side Door



Post-Test Rear $\frac{3}{4}$ View of Left Side Door



Pre-Test Left Side Impact Close-up



Post-Test Left Side Impact Close-up



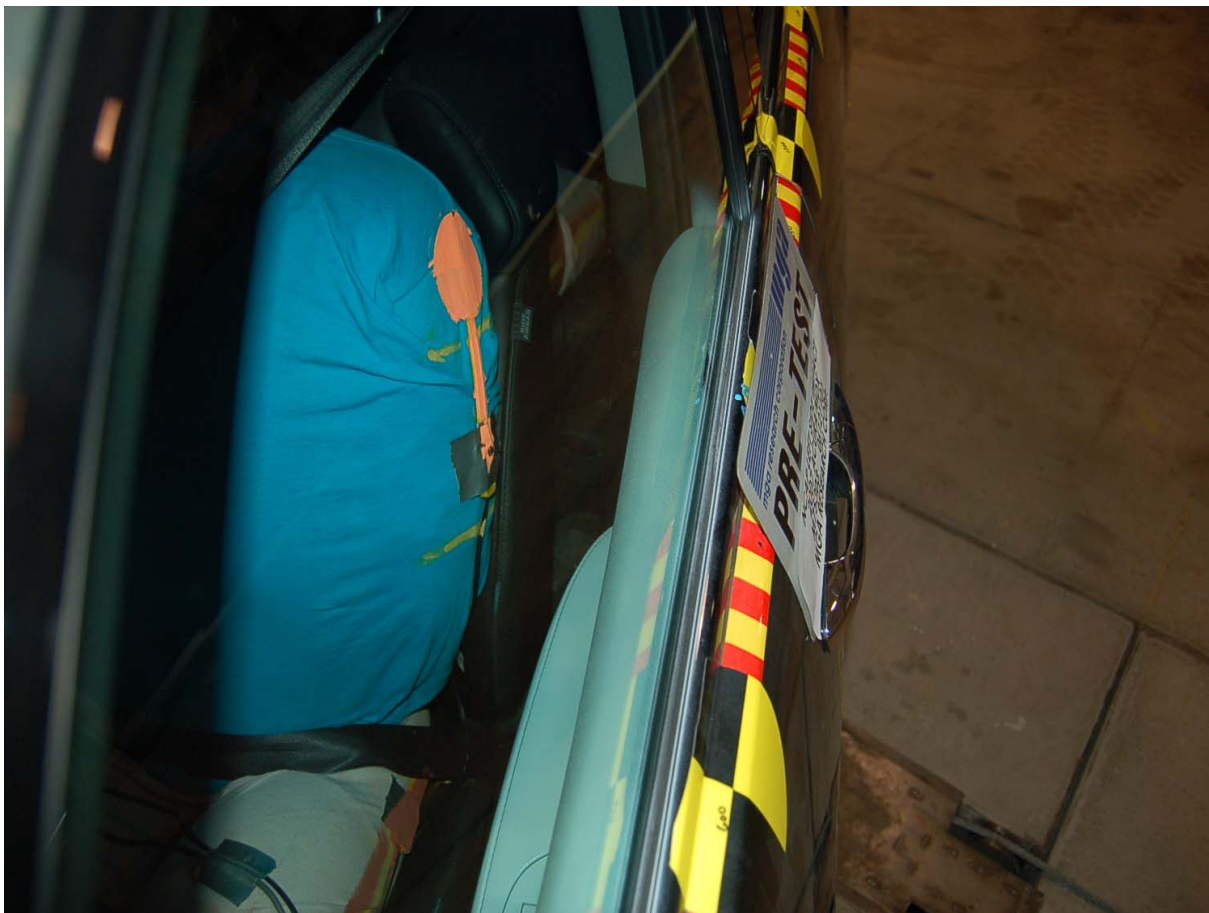
Pre-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



Pre-Test Driver Dummy Clearance From Door



Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



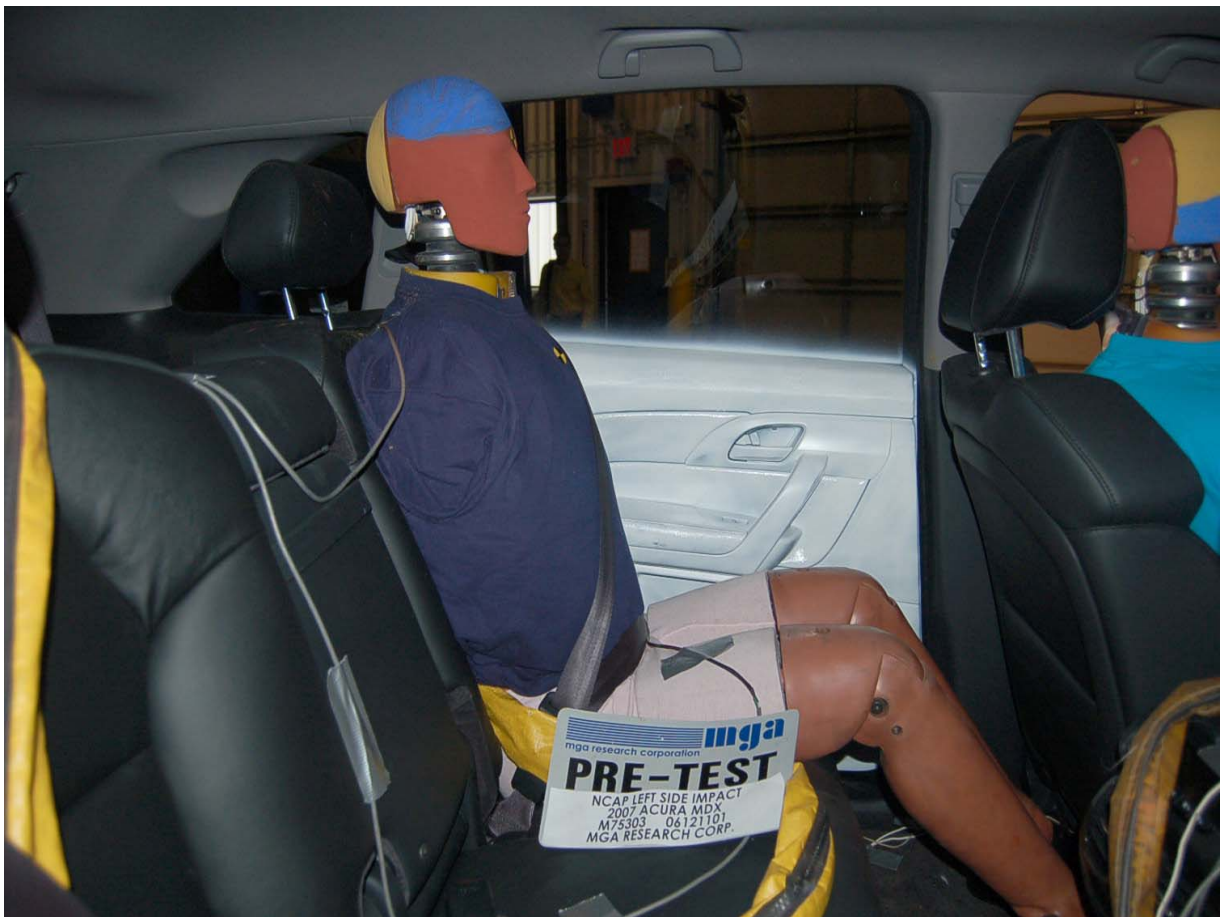
Pre-Test Passenger Dummy (Door Open)



Pre-Test Passenger Dummy (Through Window)



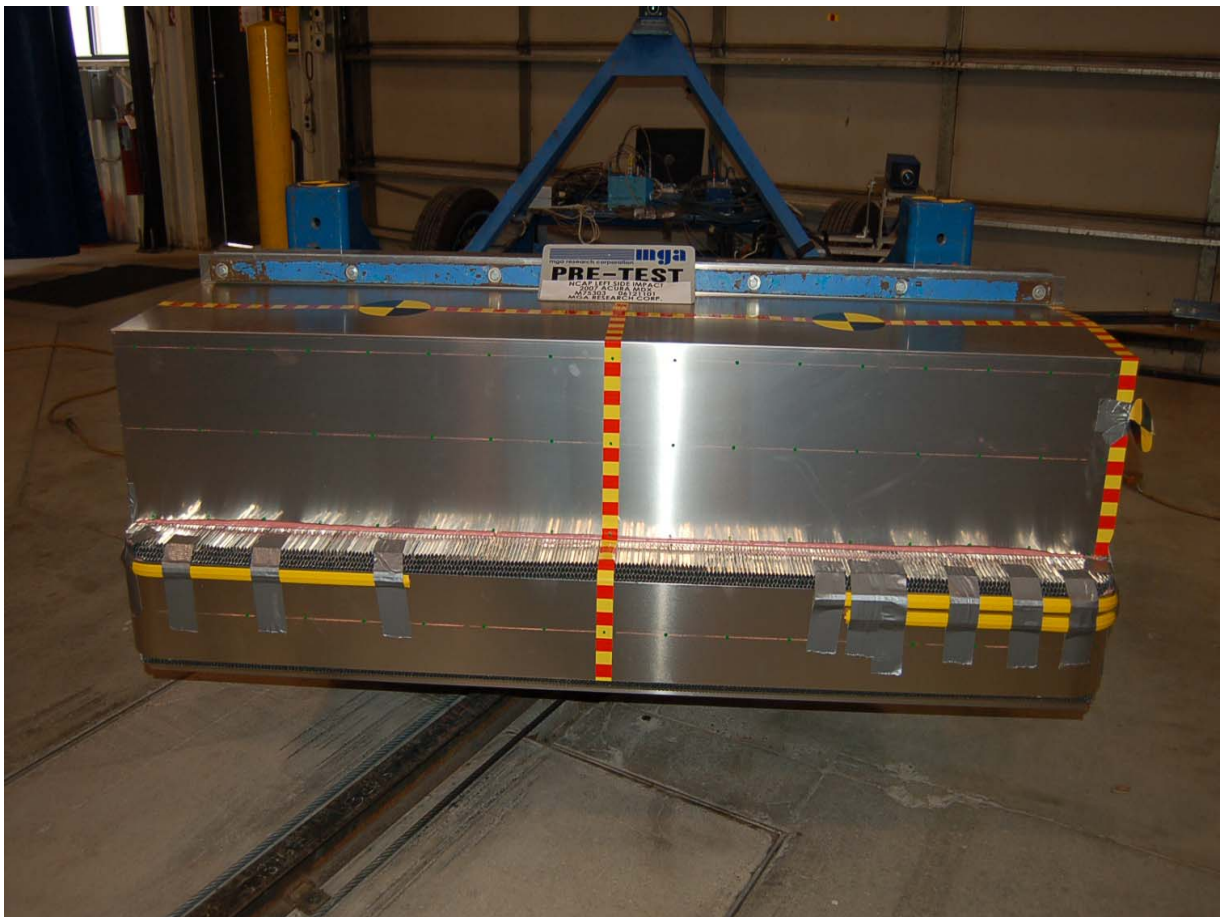
Post-Test Passenger Dummy (Through Window)



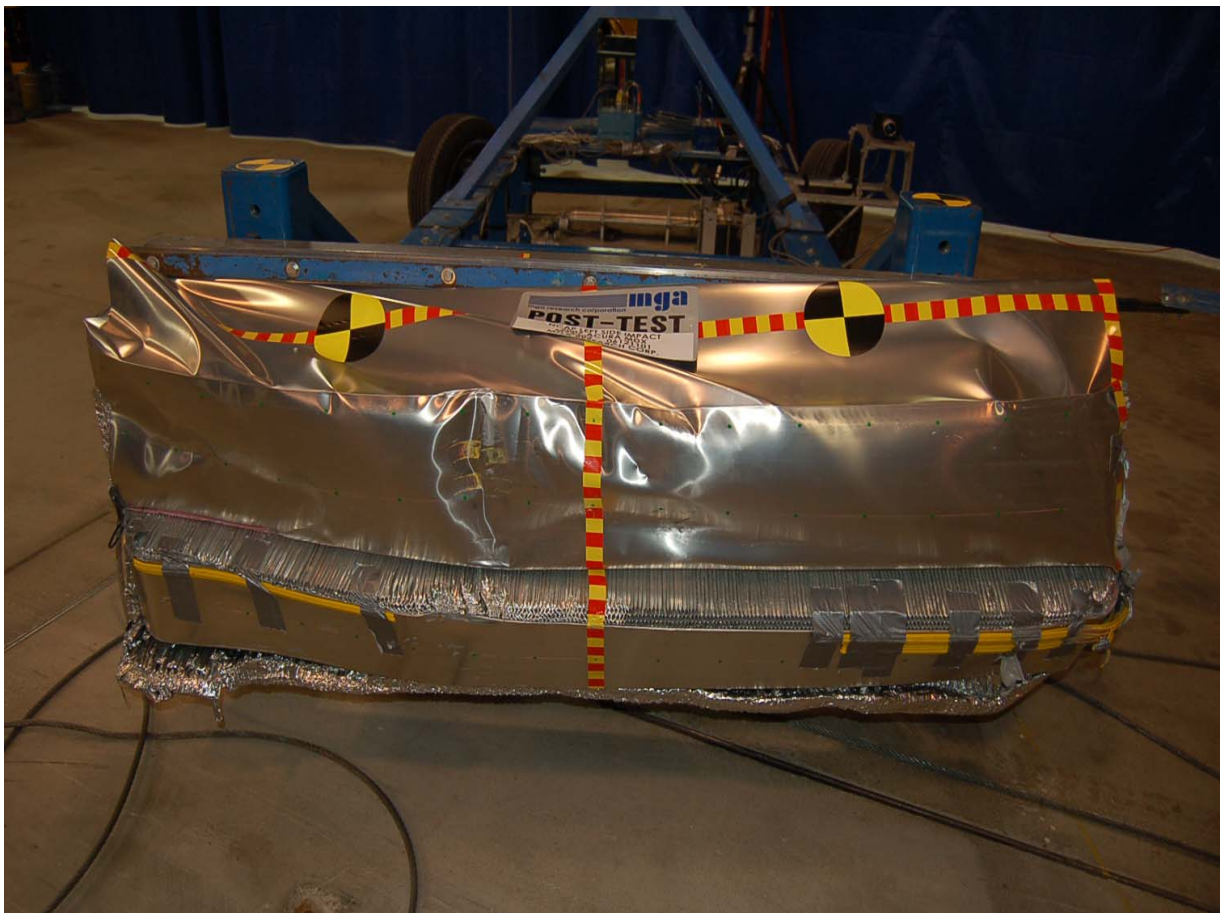
Pre-Test Passenger Dummy Right Side View



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



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

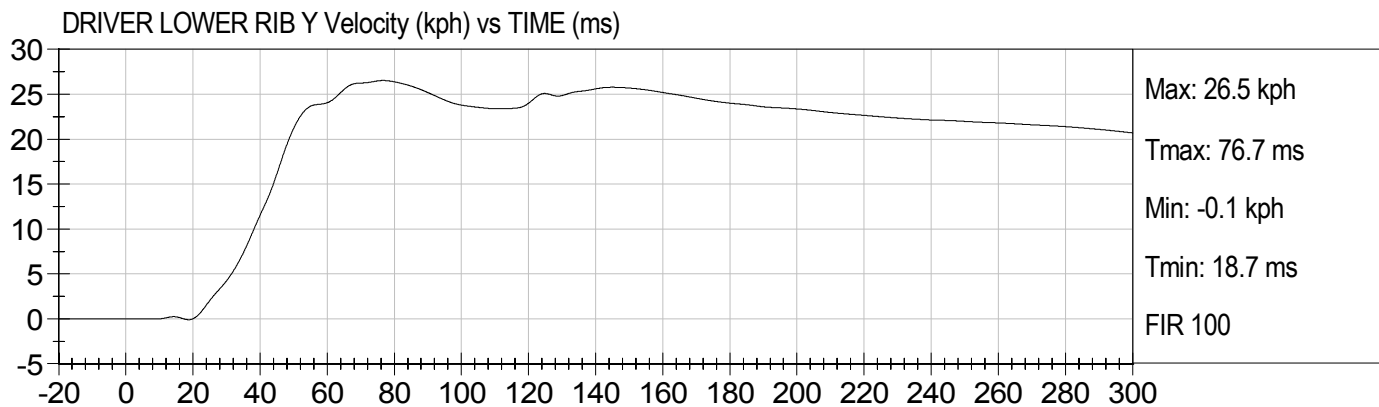
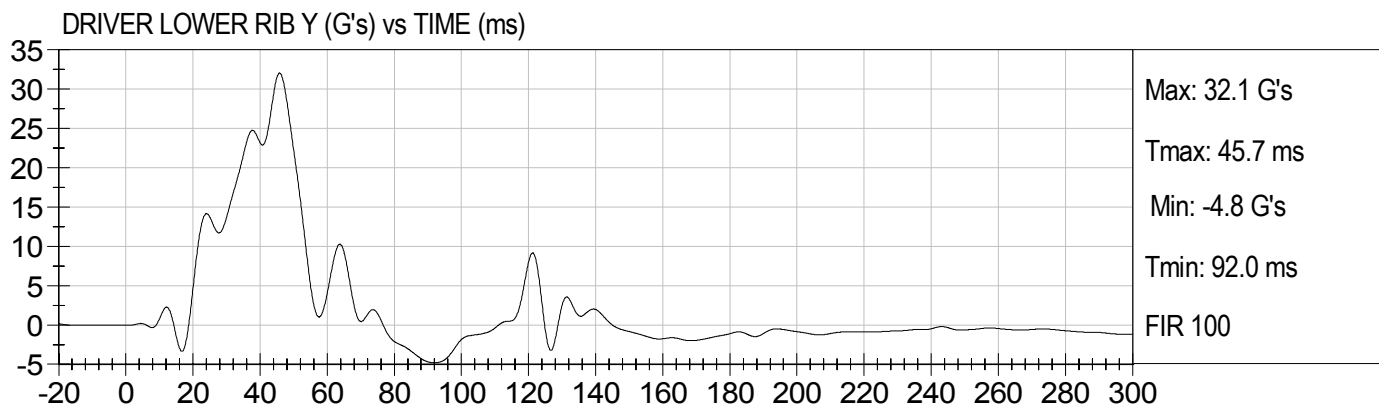
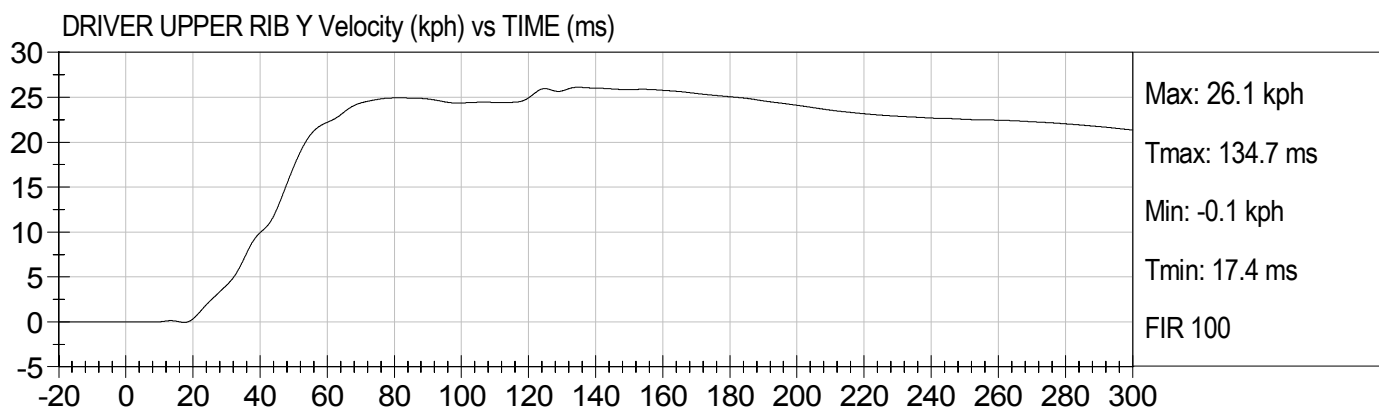
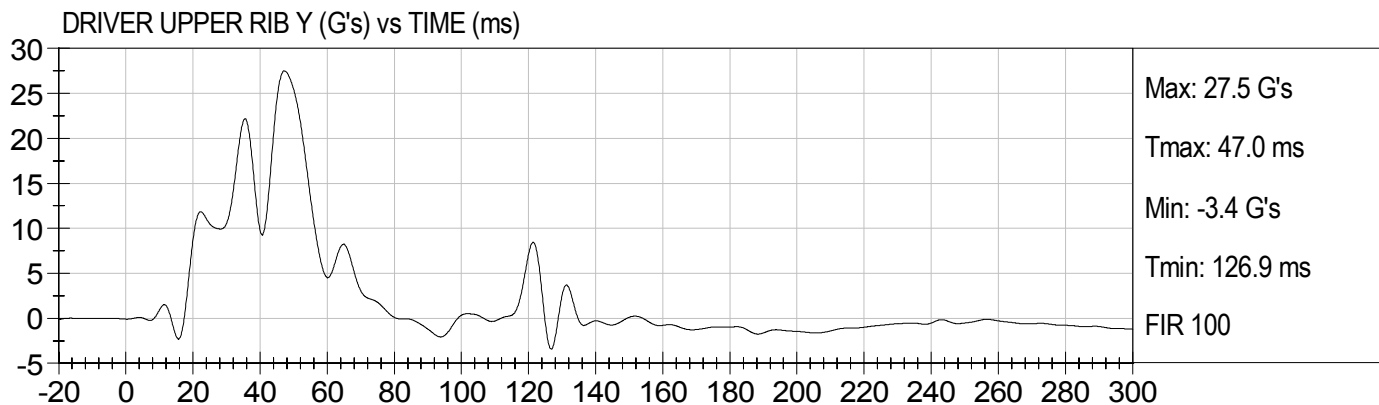
Driver Upper Neck Force Y

Driver Upper Neck Force Z

Driver Upper Neck Moment X

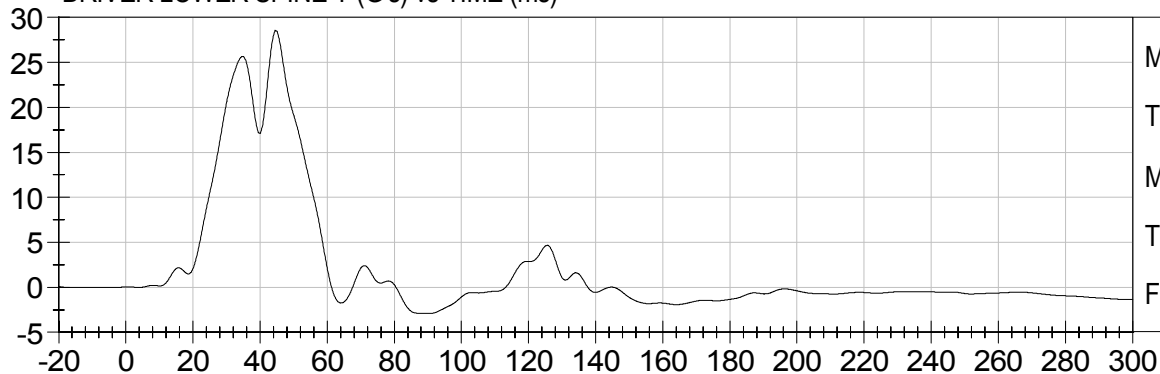
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head 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 Rear Z
MDB Left Bumper Contact
MDB Right Bumper Contact



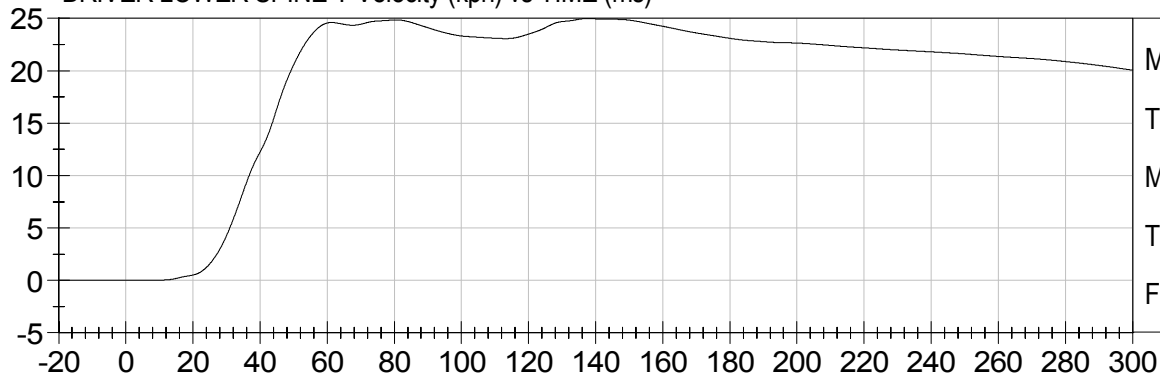


DRIVER LOWER SPINE Y (G's) vs TIME (ms)



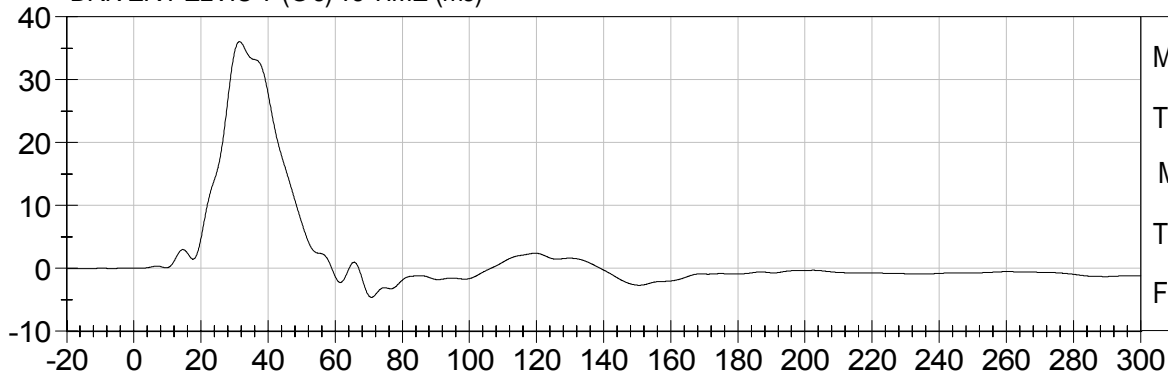
Max: 28.6 G's
Tmax: 44.5 ms
Min: -2.9 G's
Tmin: 90.7 ms
FIR 100

DRIVER LOWER SPINE Y Velocity (kph) vs TIME (ms)



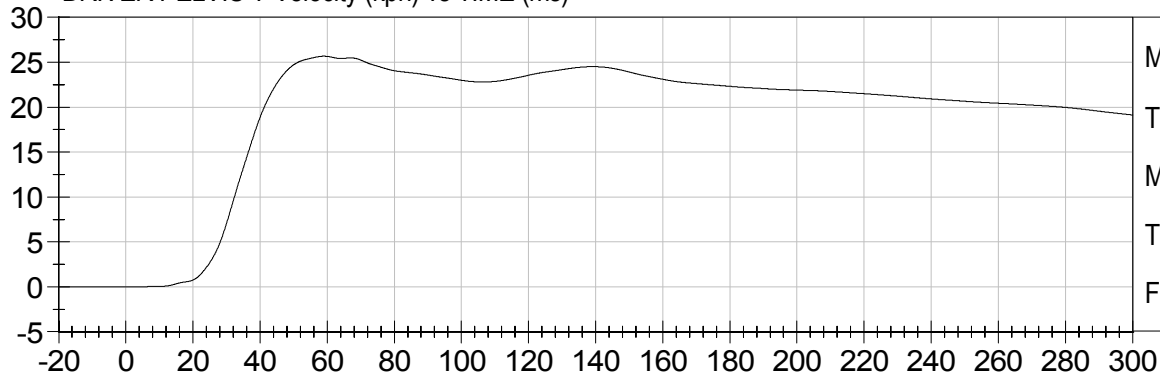
Max: 25.0 kph
Tmax: 137.7 ms
Min: -0.0 kph
Tmin: 0.0 ms
FIR 100

DRIVER PELVIS Y (G's) vs TIME (ms)

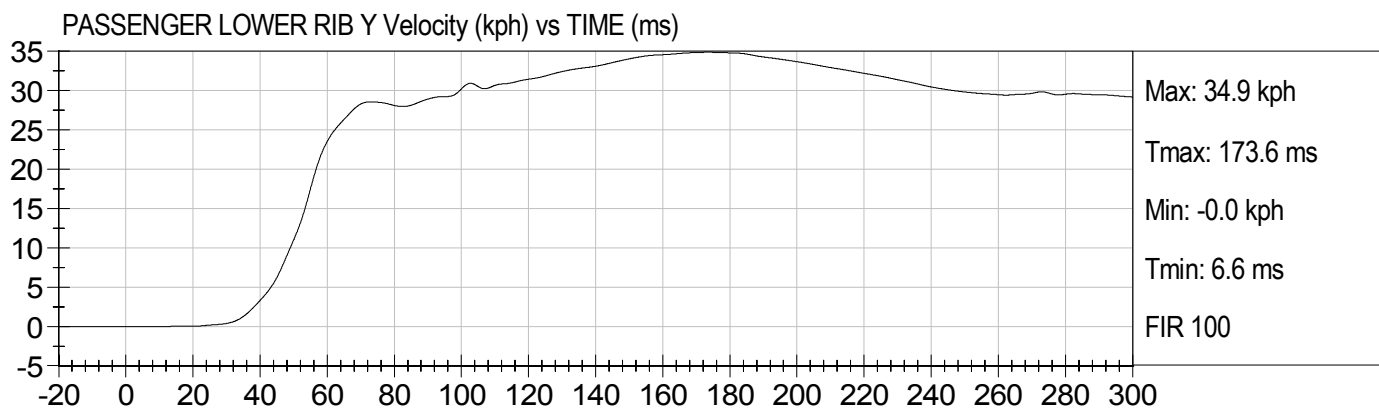
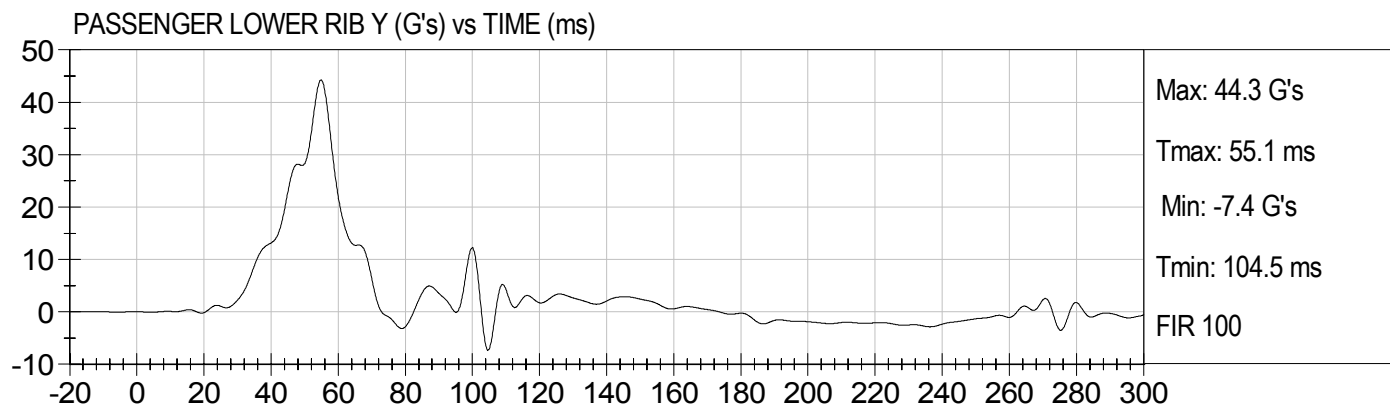
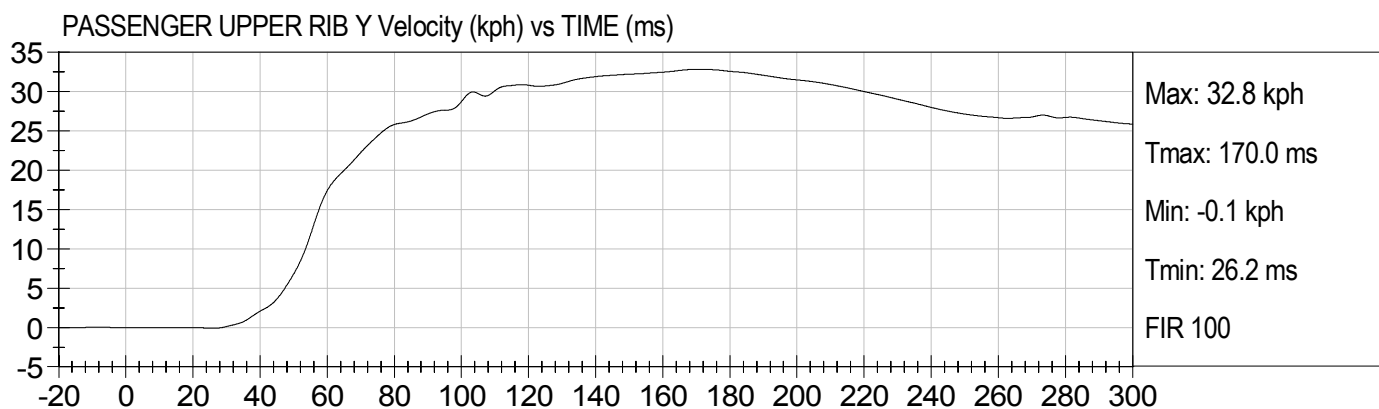
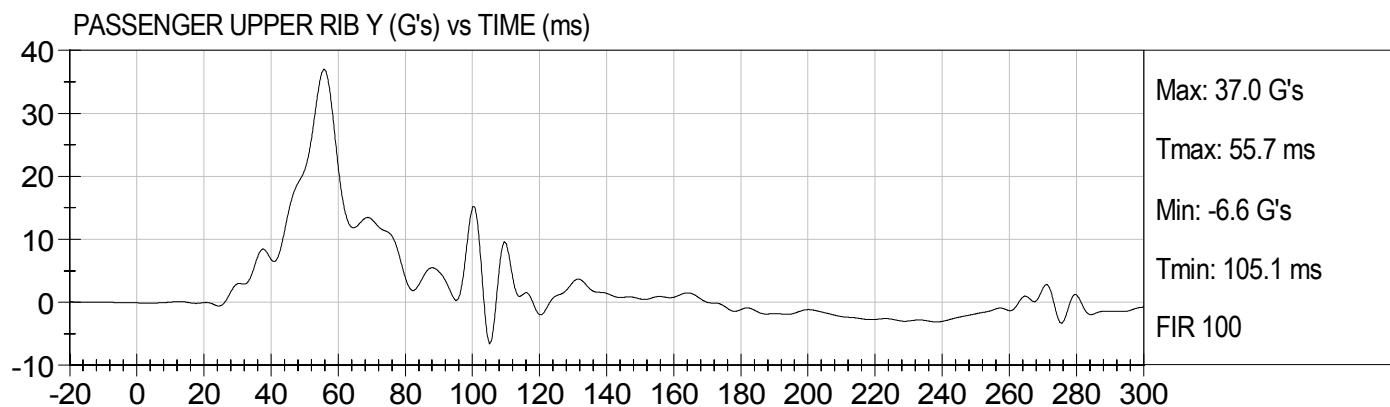


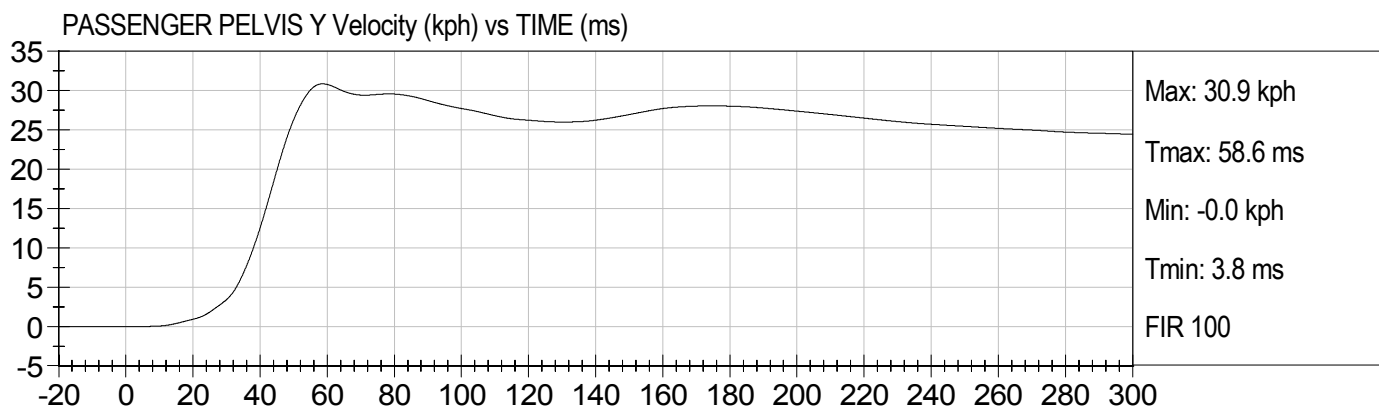
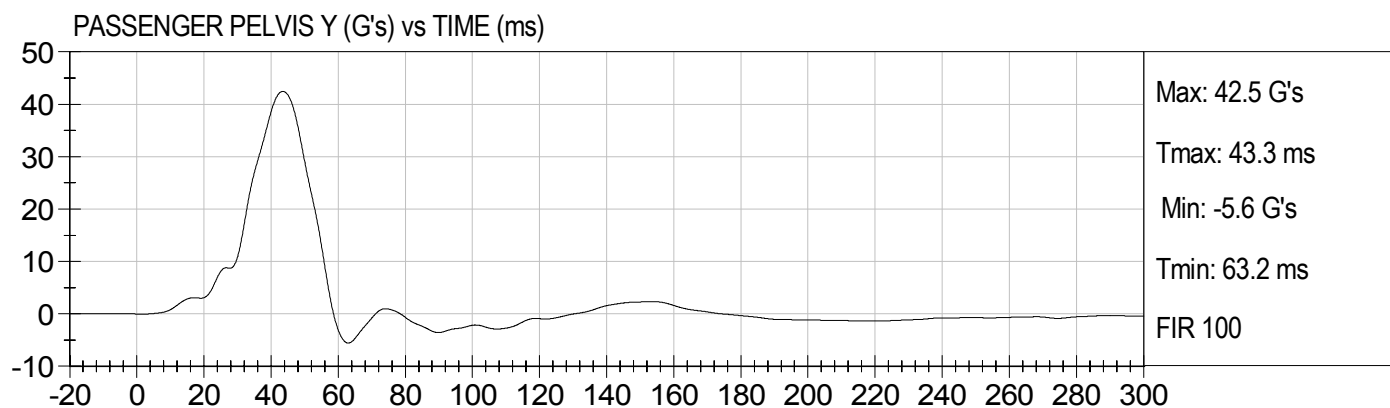
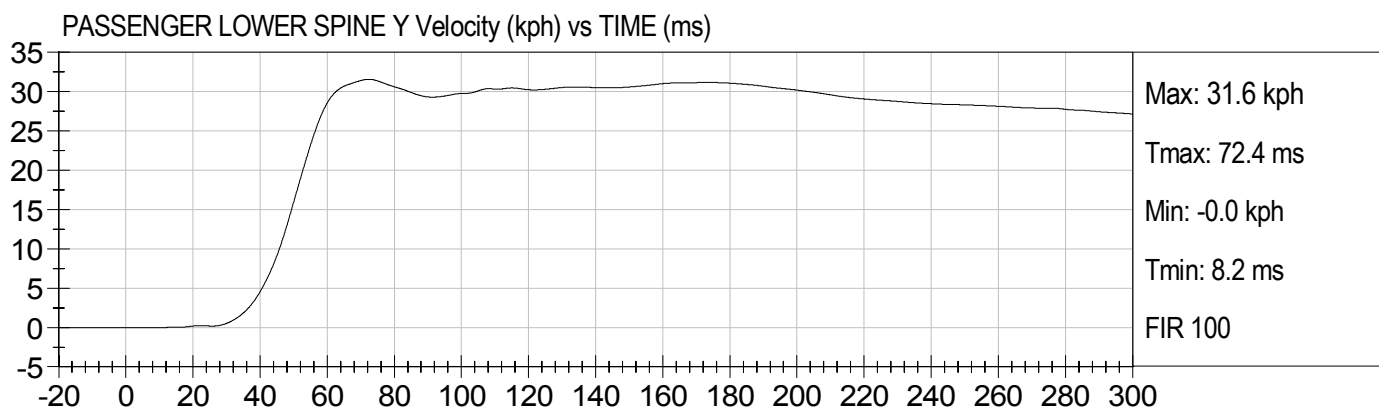
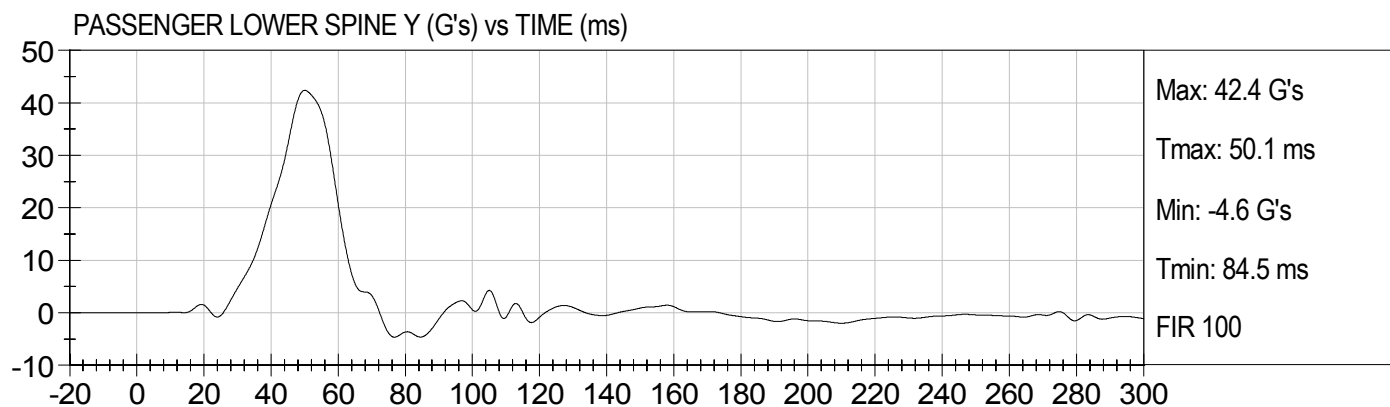
Max: 36.1 G's
Tmax: 31.4 ms
Min: -4.6 G's
Tmin: 70.7 ms
FIR 100

DRIVER PELVIS Y Velocity (kph) vs TIME (ms)



Max: 25.7 kph
Tmax: 59.0 ms
Min: -0.0 kph
Tmin: 0.0 ms
FIR 100





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/HIII Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 904

Test I.D: D06342

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

David Winkelbauer
Approved By

12/06/2006

Test Date

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

ATD Serial No: 904

Test I.D: D063421

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	23	Pass
Peak Resultant Acceleration	G's	120 to 150	143	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-6.9	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date



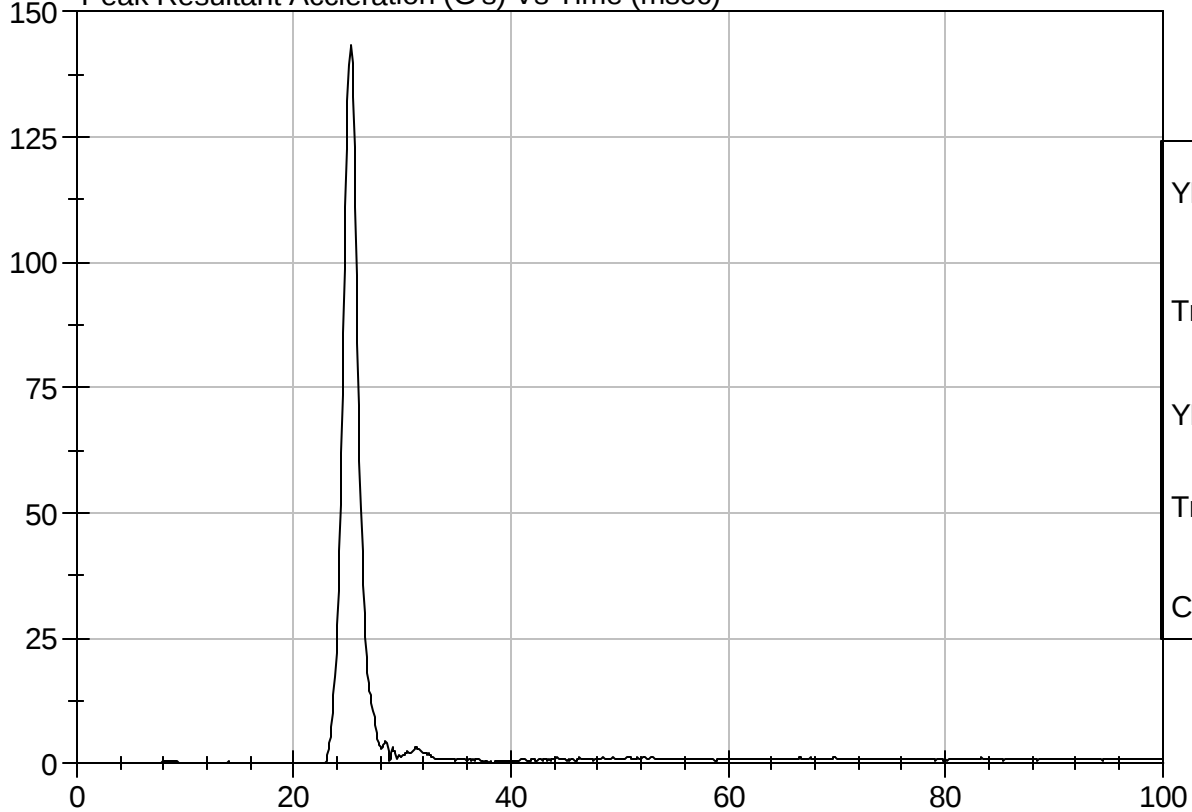
Test Description: Head Drop

Test Date: 12/06/2006

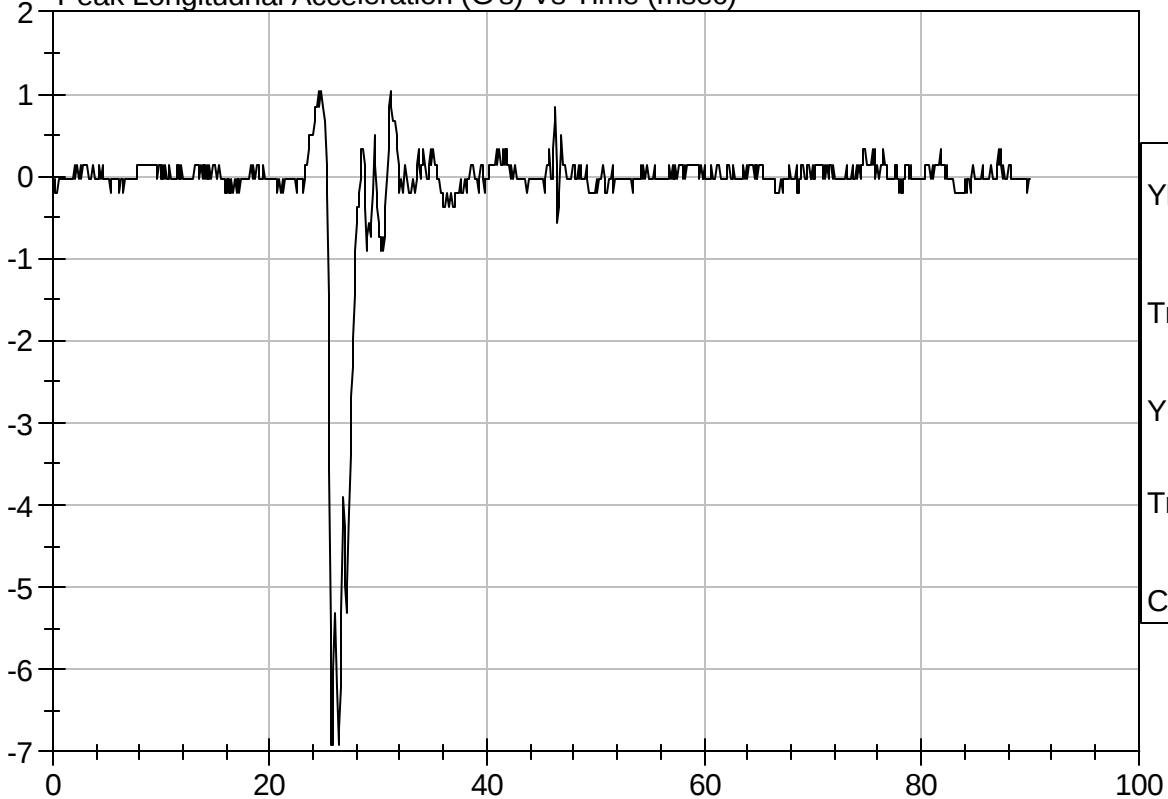
Component: D063421

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: 904

Test I.D: D063422

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.22 - 4.31	4.27	Pass
Upper Rib	G's	37 - 46	38	Pass
Lower Rib	G's	37 - 46	38	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

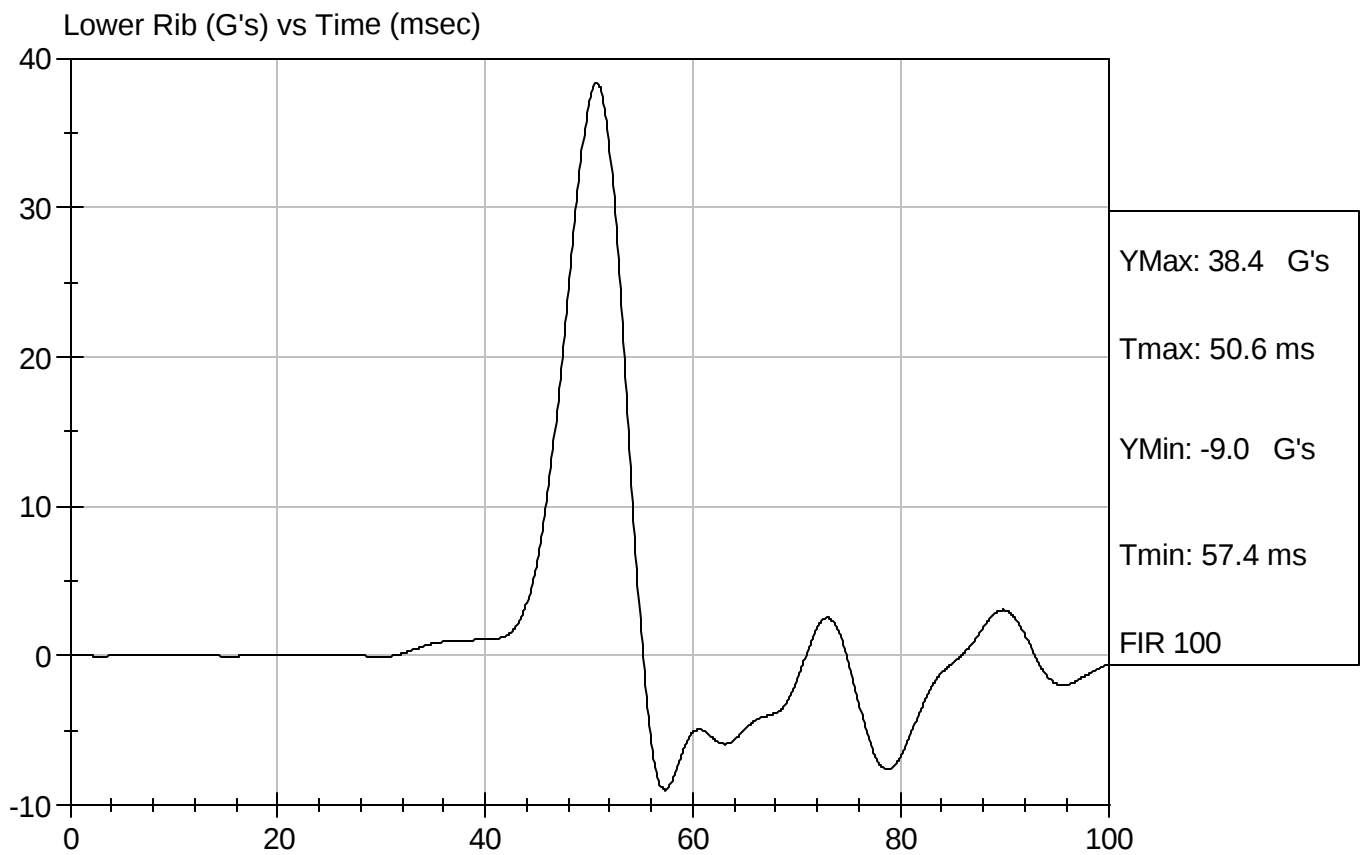
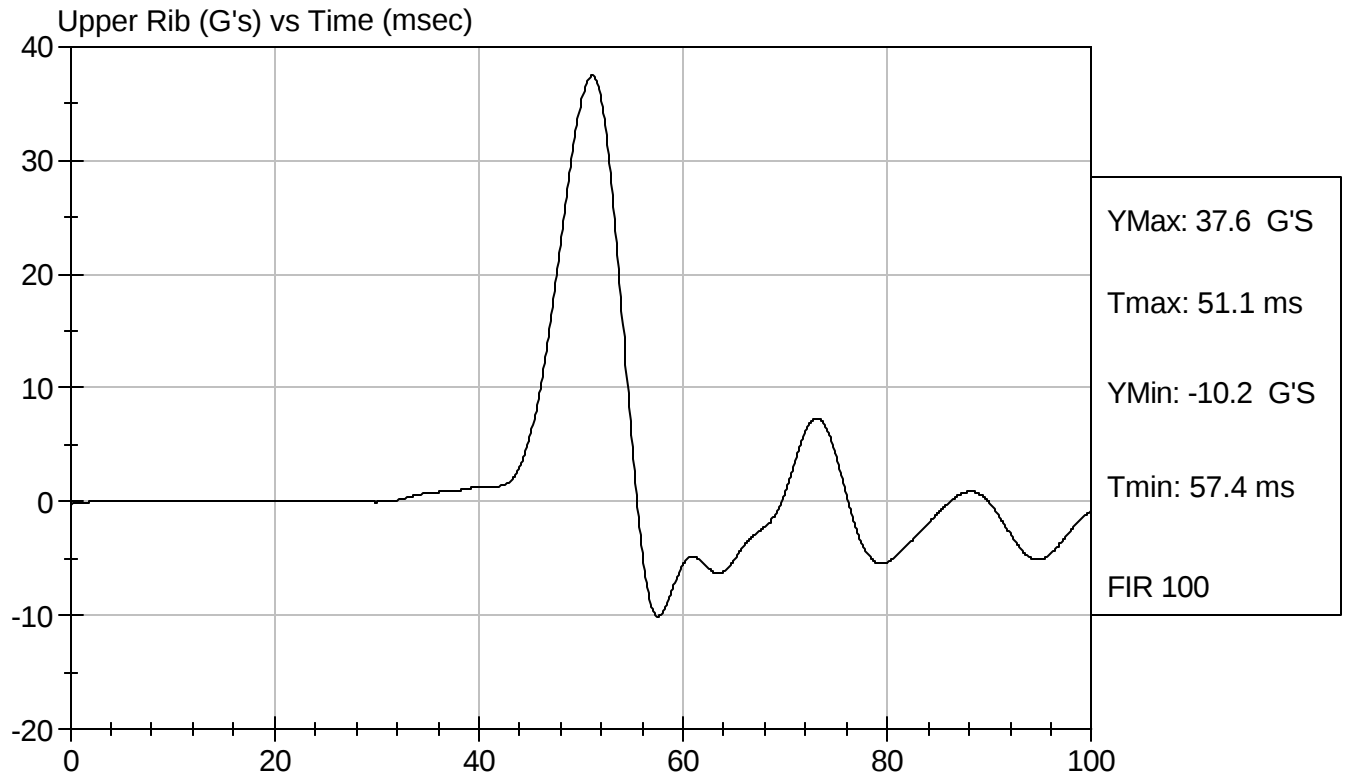
12/06/2006
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Impact
Component ID: D063422

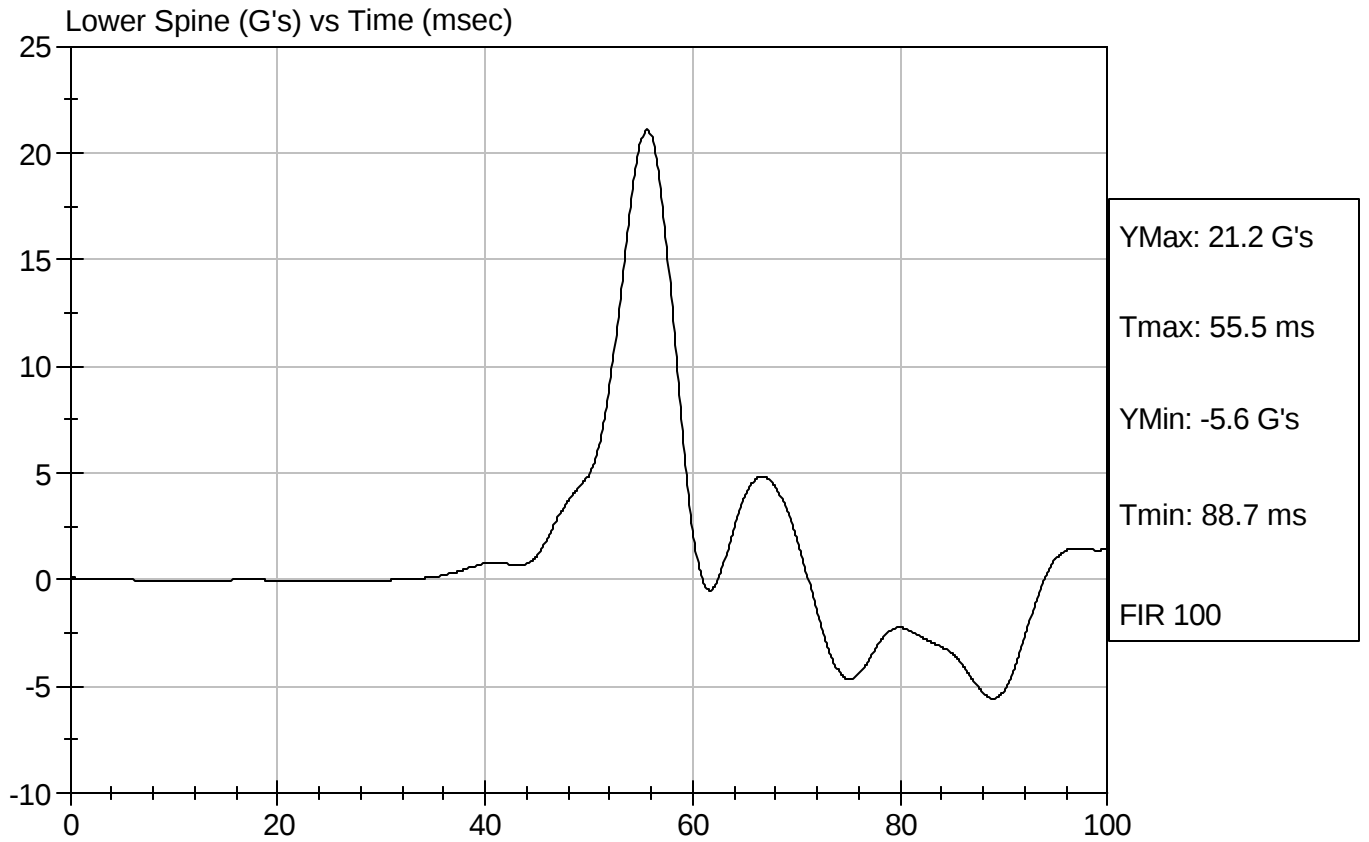
Test Date: 12/06/2006
Speed: 14.02 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D063422

Test Date: 12/06/2006
Speed: 14.02 ft/sec, 4.27 m/sec



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

ATD Serial No: 904

Test I.D: D063423

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.9	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Probe Velocity	m/s	4.27 - 4.33	4.32	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

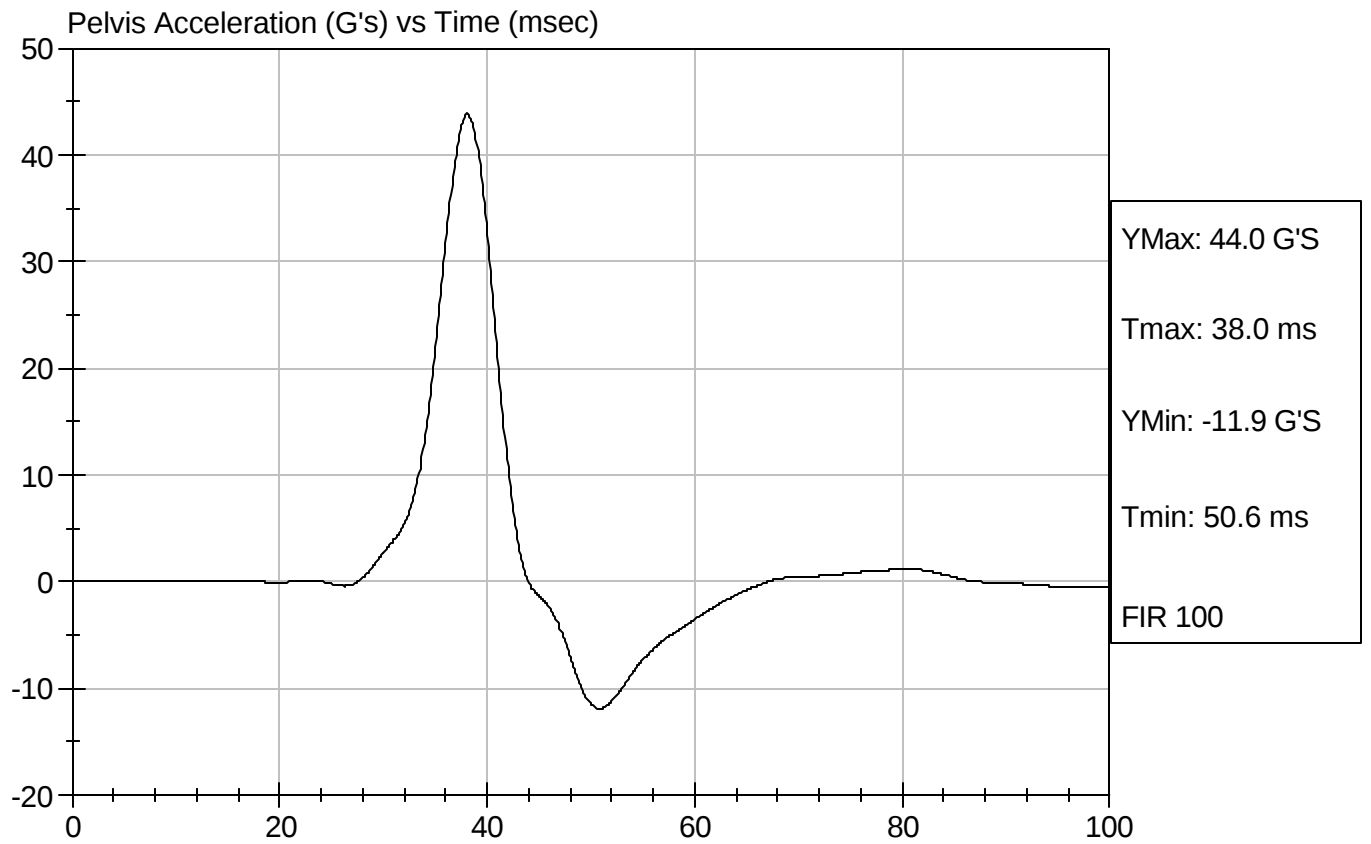
David Winkelbauer
Approved By

12/05/2006
Test Date



Test Desc: Pelvis Impact
Component ID: D063423

Test Date: 12/05/2006
Speed: 14.16 ft/sec, 4.32 m/sec



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

ATD Serial No: 904

Test I.D: D063424

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Force At 12.7 mm	N	104 -162	142	Pass
Force At 19 mm	N	163 - 222	195	Pass
Force At 25.4 mm	N	222 - 280	260	Pass
Force At 33 mm	N	325 - 391	348	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date



Test Description: Abdomen Compression

Test Date: 12/06/2006

Component: D063424

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D063425

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	145.1	Pass
Force At 30 deg	N	151.2 - 204.6	202.6	Pass
Force At 40 deg	N	204.6 - 258.0	237.1	Pass
Return Angle	Deg	12 Maximum	3	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date

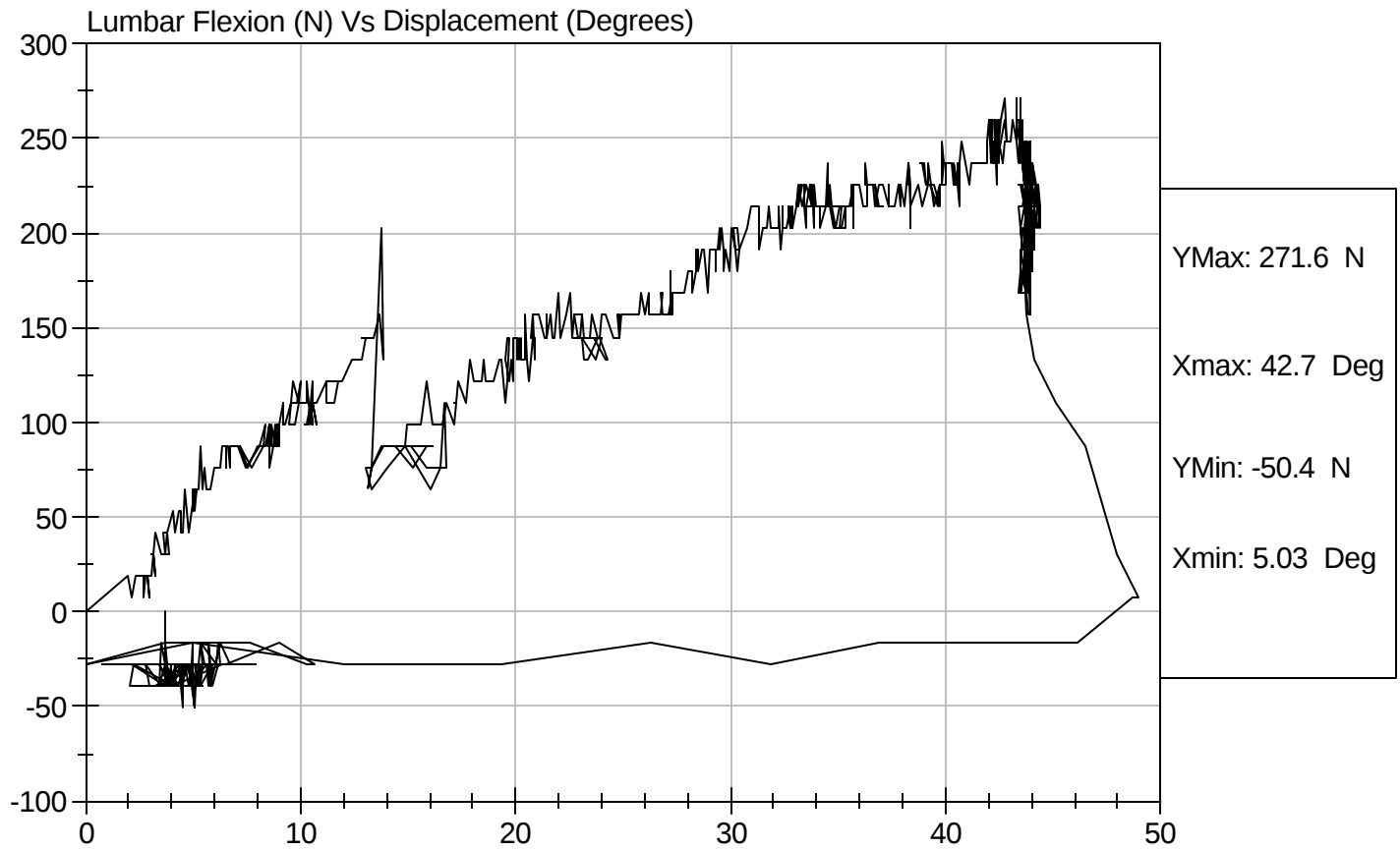


Test Description: Lumbar Flexion

Test Date: 12/06/2006

Component: D063425

Speed: 0 ft/sec, 0 m/sec



SID/HII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D063429

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	24	Pass
Impact Velocity		m/s	6.89 to 7.13	7.07	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.02	Pass
	20 msec	m/s	4.12 to 5.10	4.34	Pass
	30 msec	m/s	5.73 to 7.01	6.20	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.81	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	74	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	58	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass



 Laboratory Technician

12/06/2006

Test Date

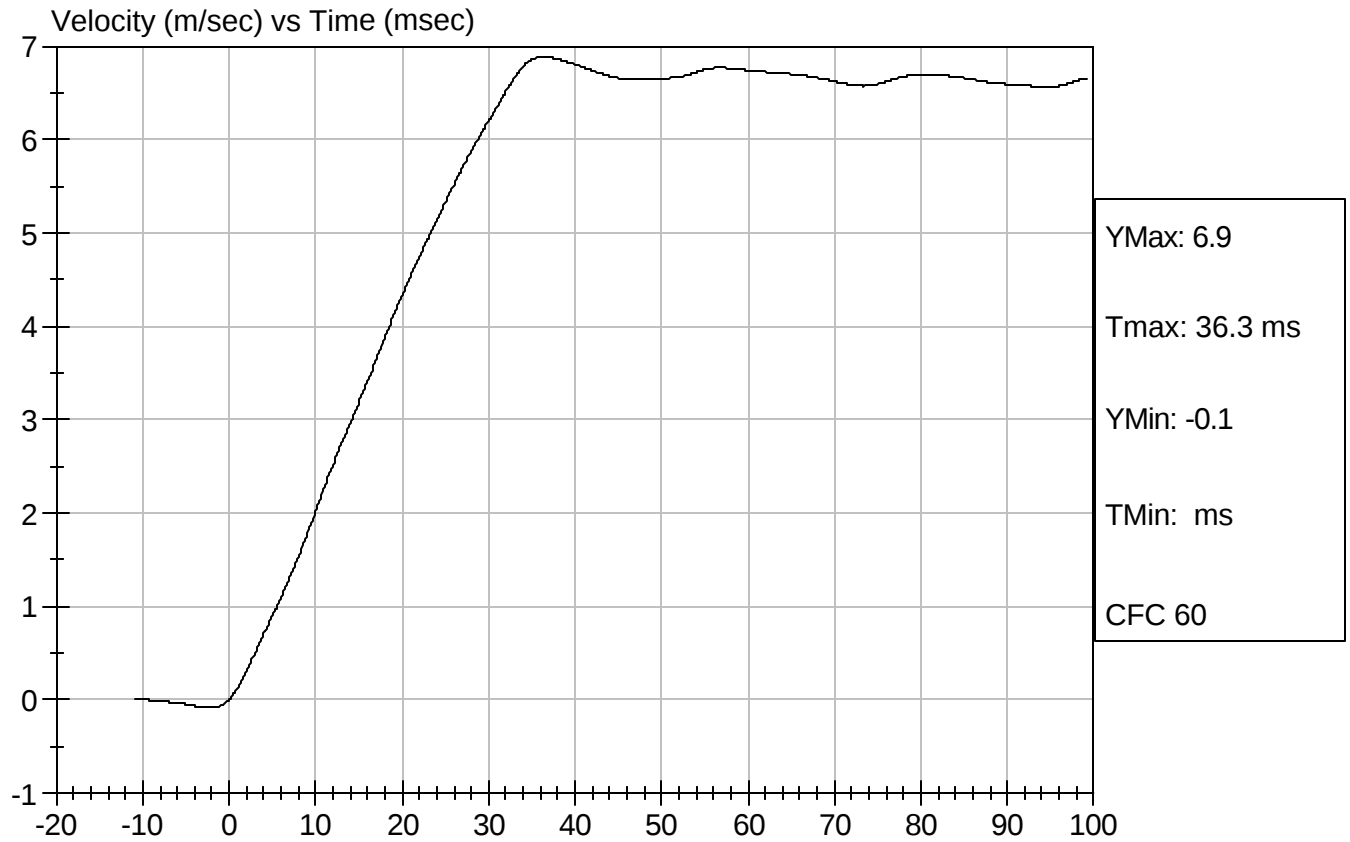


 Approved By



Test Desc: Neck Bending
Component ID: D063429

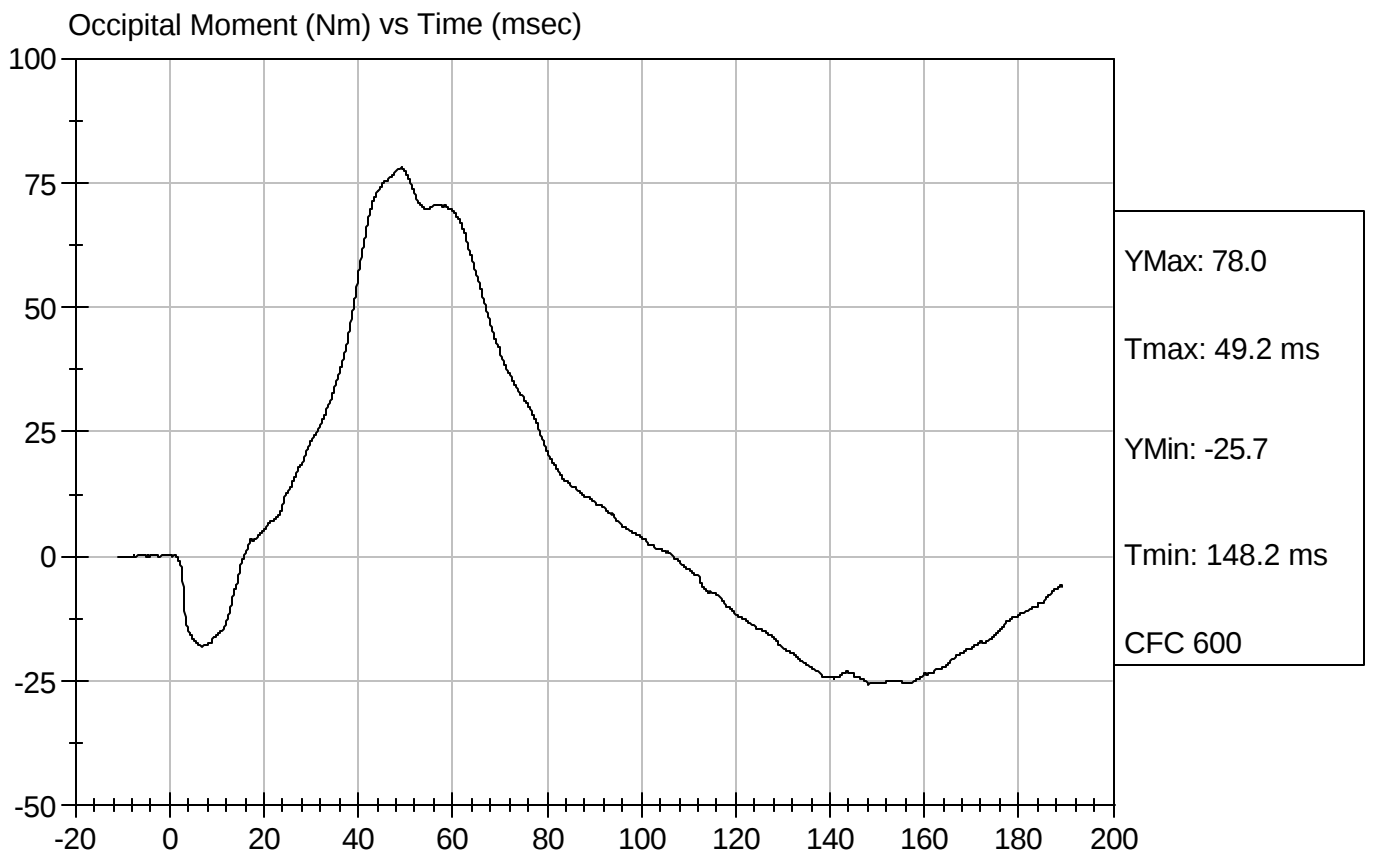
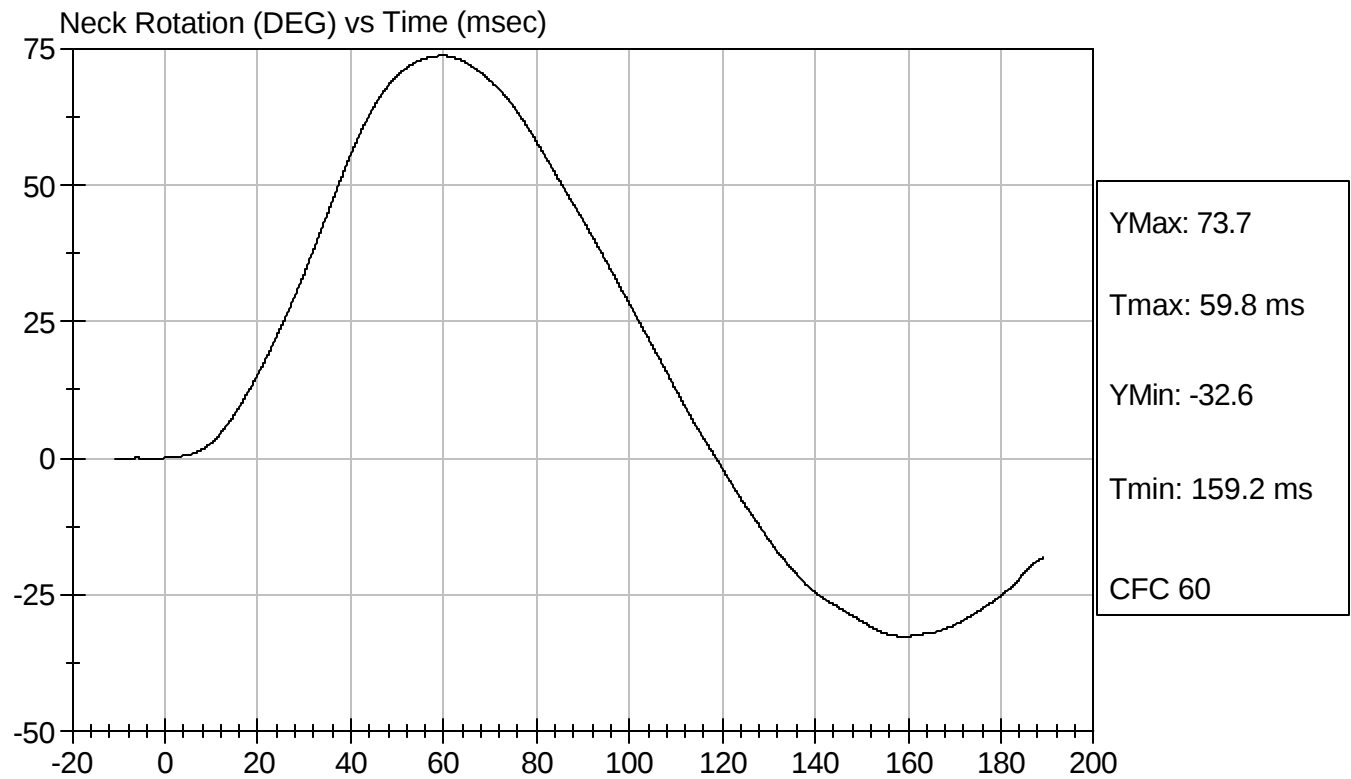
Test Date: 12/06/2006
Speed: 23.21 ft/sec, 7.07 m/sec





Test Desc: Neck Bending
Component ID: D063429

Test Date: 12/06/2006
Speed: 23.21 ft/sec, 7.07 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: D063481

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	120 to 150	144	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-6.5	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/12/2006
Test Date

David Winkelbauer
Approved By



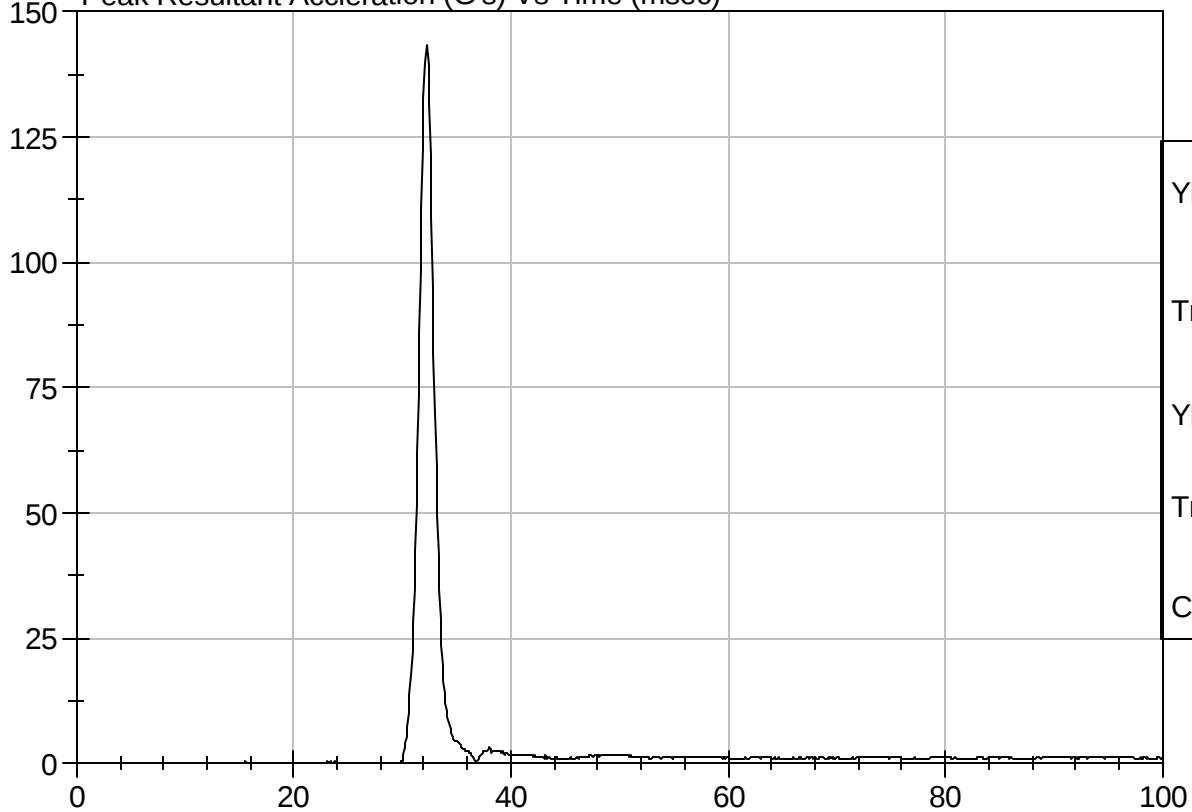
Test Description: Head Drop

Test Date: 12/12/2006

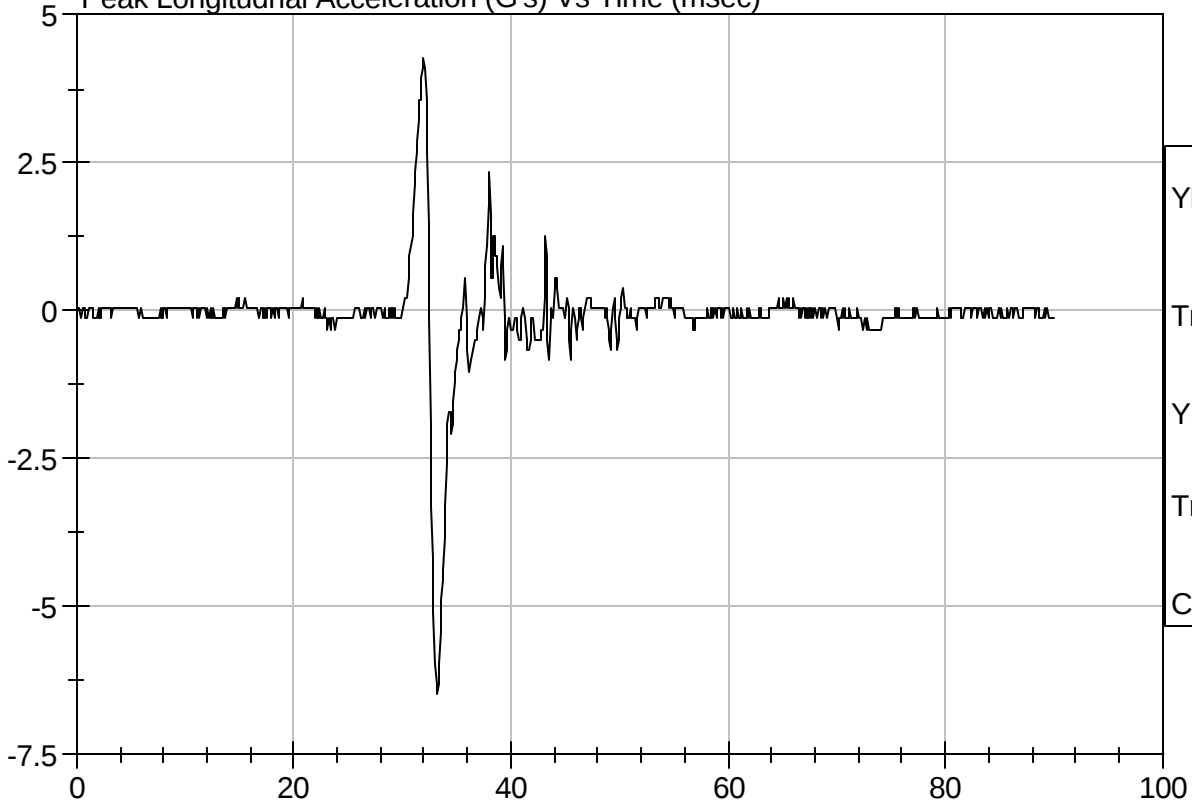
Component: D063481

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: 904

Test I.D: D063482

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	29	Pass
Probe Velocity	m/s	4.22 - 4.31	4.29	Pass
Upper Rib	G's	37 - 46	40	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

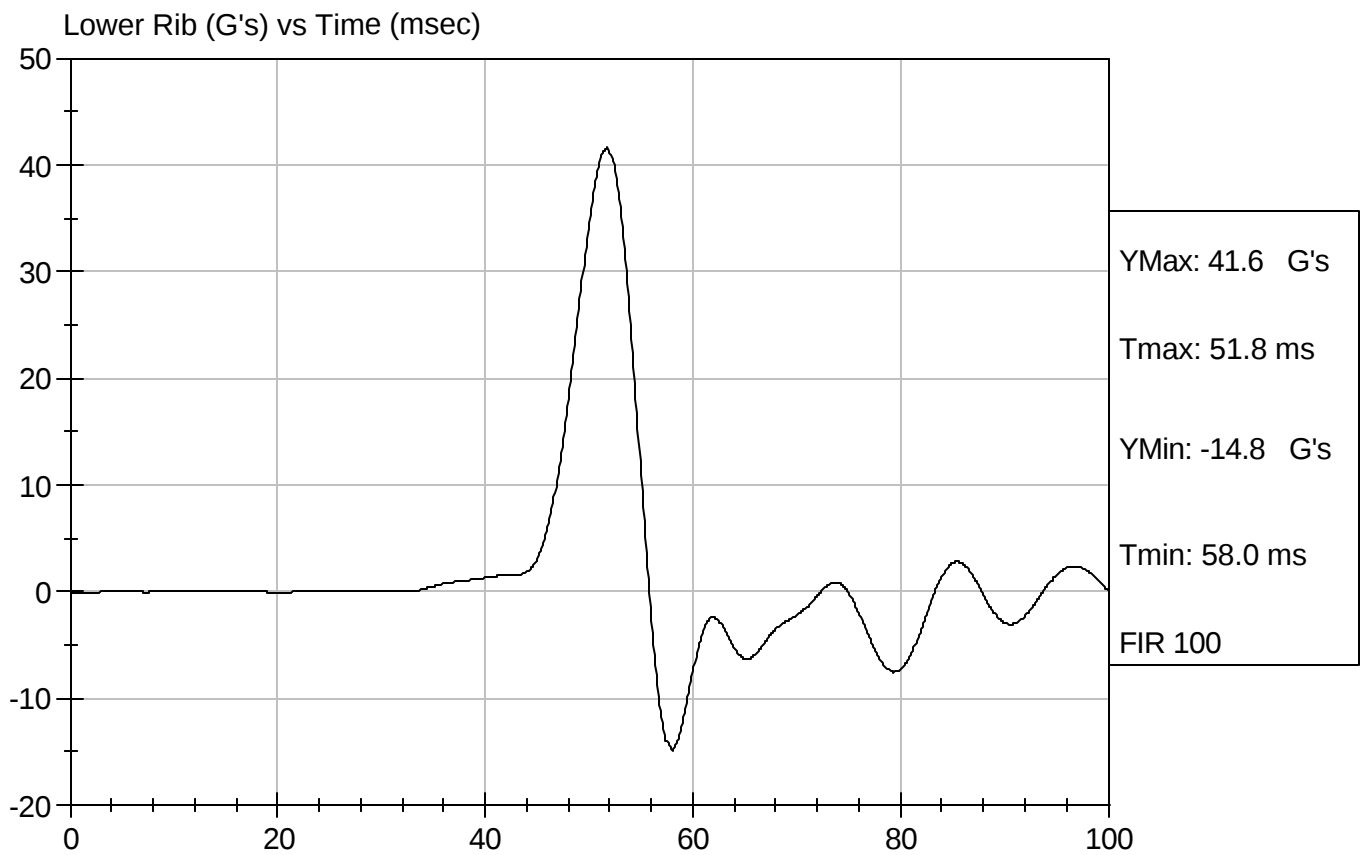
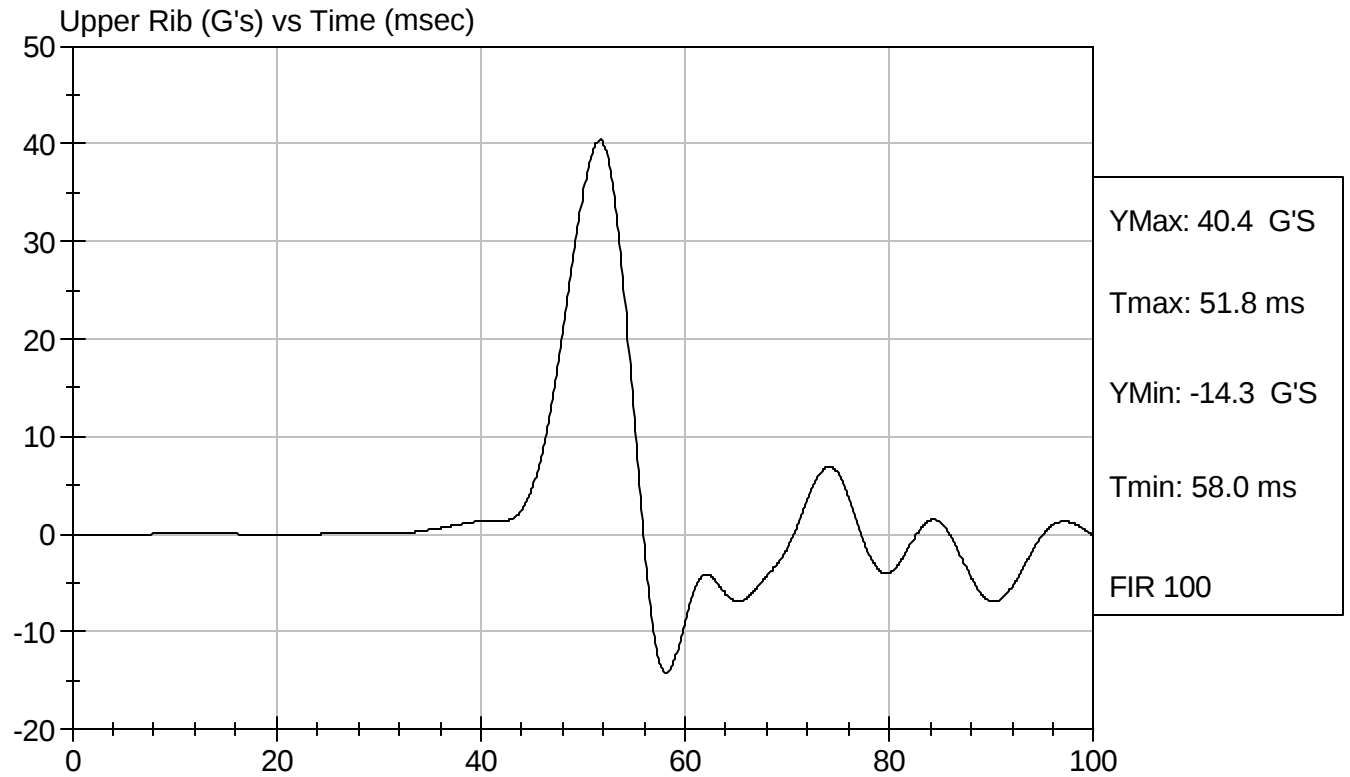
David Winkelbauer
Approved By

12/11/2006
Test Date



Test Desc: Thorax Impact
Component ID: D063482

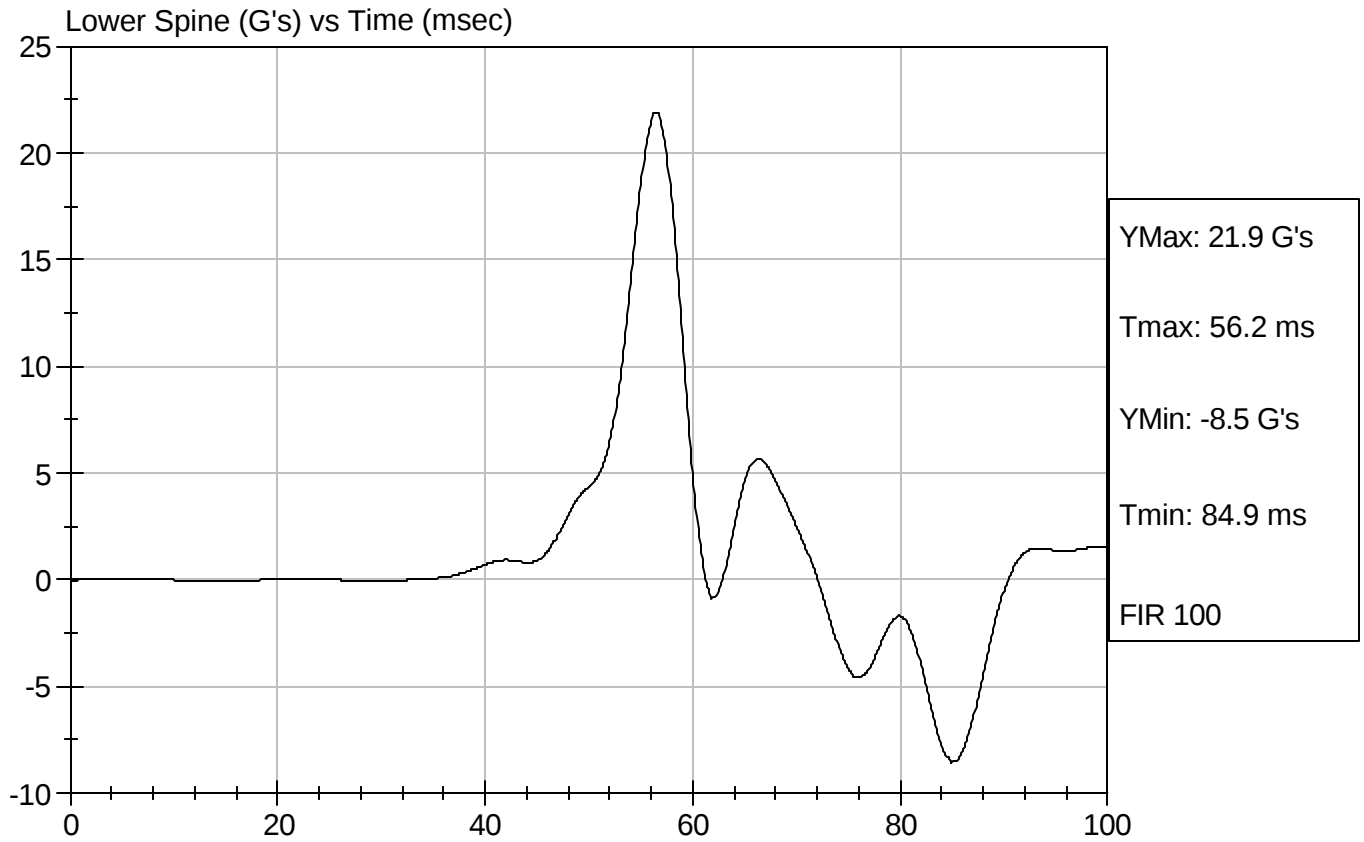
Test Date: 12/11/2006
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D063482

Test Date: 12/11/2006
Speed: 14.08 ft/sec, 4.29 m/sec



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

ATD Serial No: 904

Test I.D: D063483

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	29	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	46	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

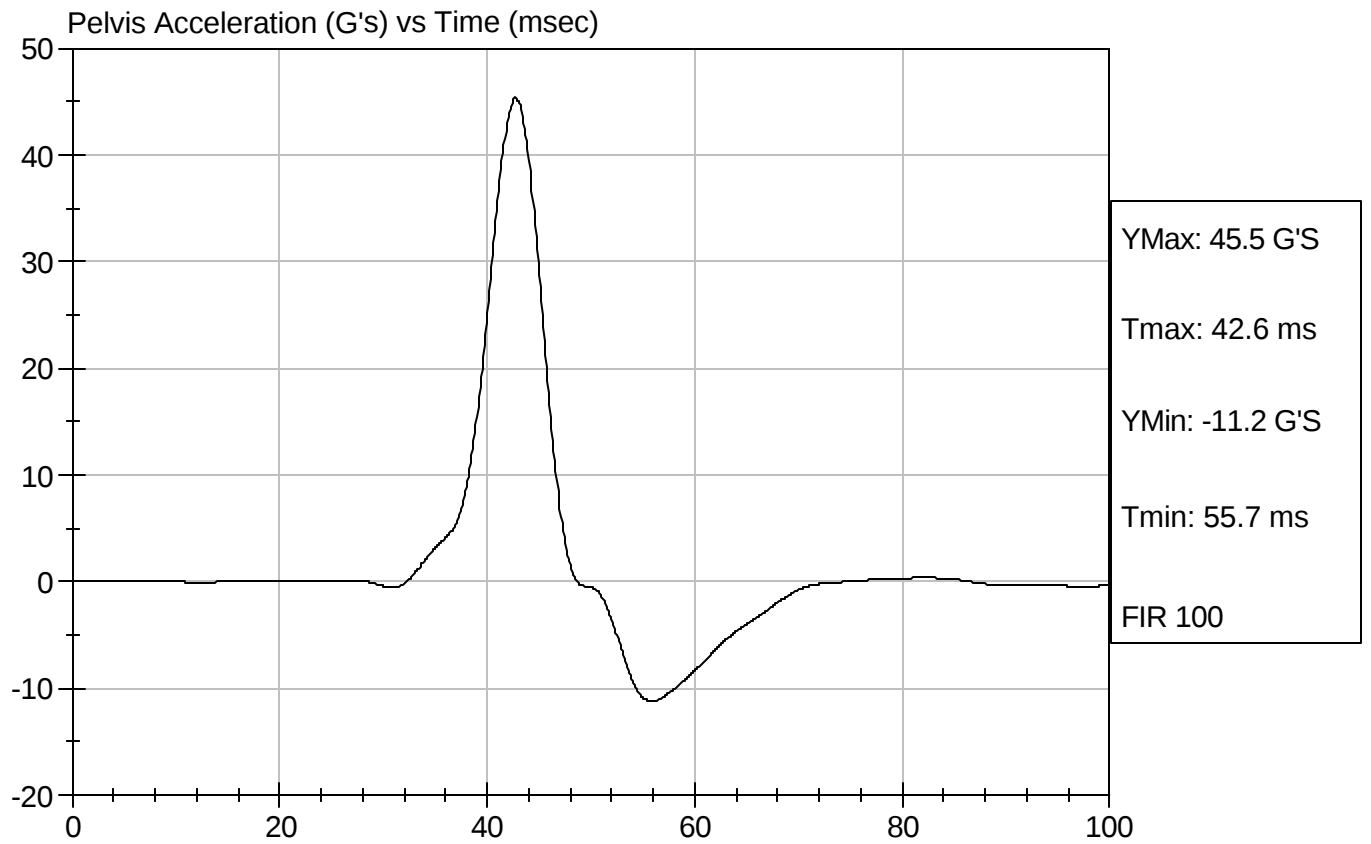
David Winkelbauer
Approved By

12/11/2006
Test Date



Test Desc: Pelvis Impact
Component ID: D063483

Test Date: 12/11/2006
Speed: 14.07 ft/sec, 4.29 m/sec



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

ATD Serial No: 904

Test I.D: D063484

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	144	Pass
Force At 19 mm	N	163 - 222	201	Pass
Force At 25.4 mm	N	222 - 280	274	Pass
Force At 33 mm	N	325 - 391	359	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/12/2006
Test Date

David Winkelbauer
Approved By

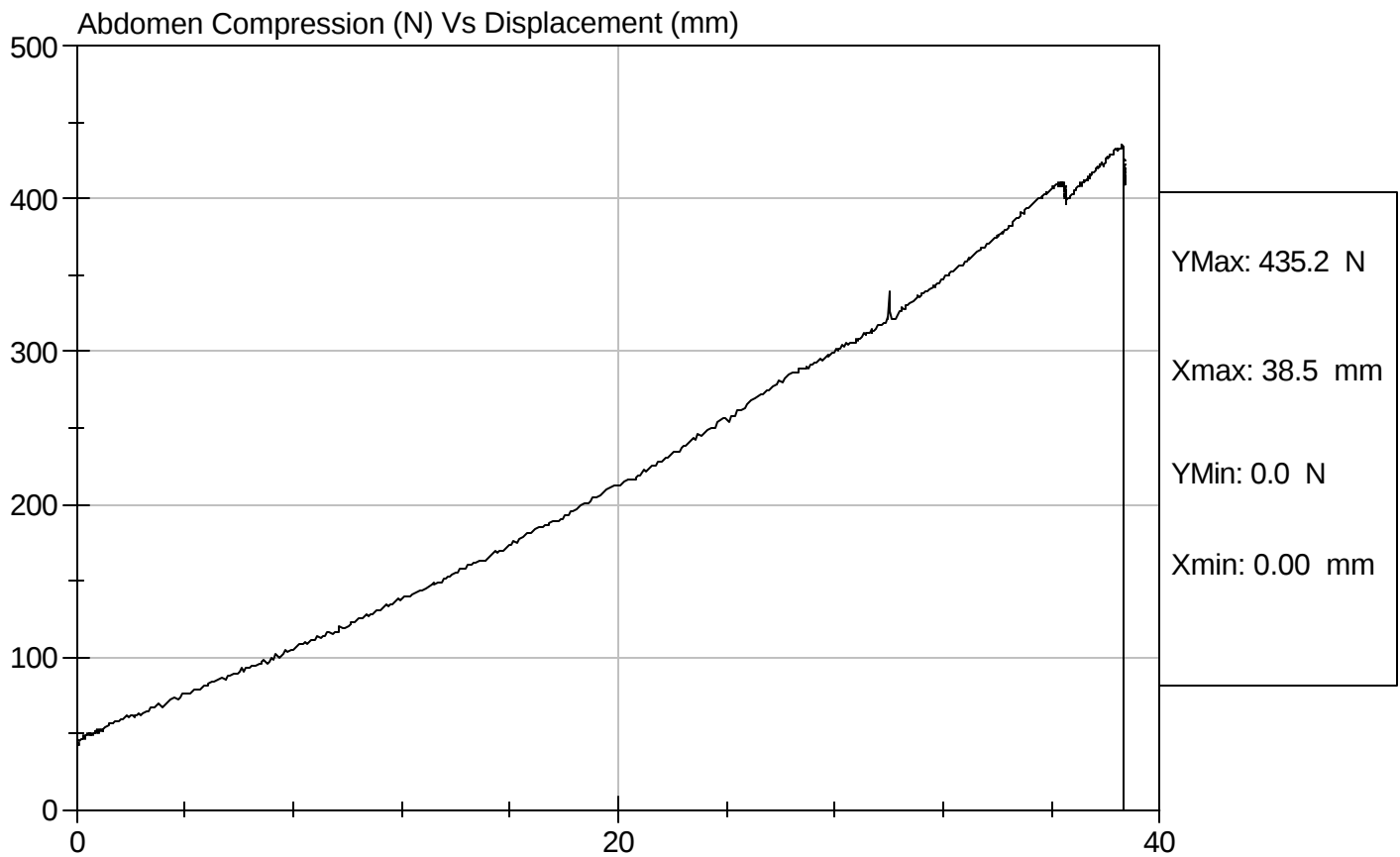


Test Description: Abdomen Compression

Test Date: 12/12/2006

Component: D063484

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D063485

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	119.3	Pass
Force At 30 deg	N	151.2 - 204.6	165.3	Pass
Force At 40 deg	N	204.6 - 258.0	222.8	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results			Pass	


Laboratory Technician

12/12/2006
Test Date


Approved By

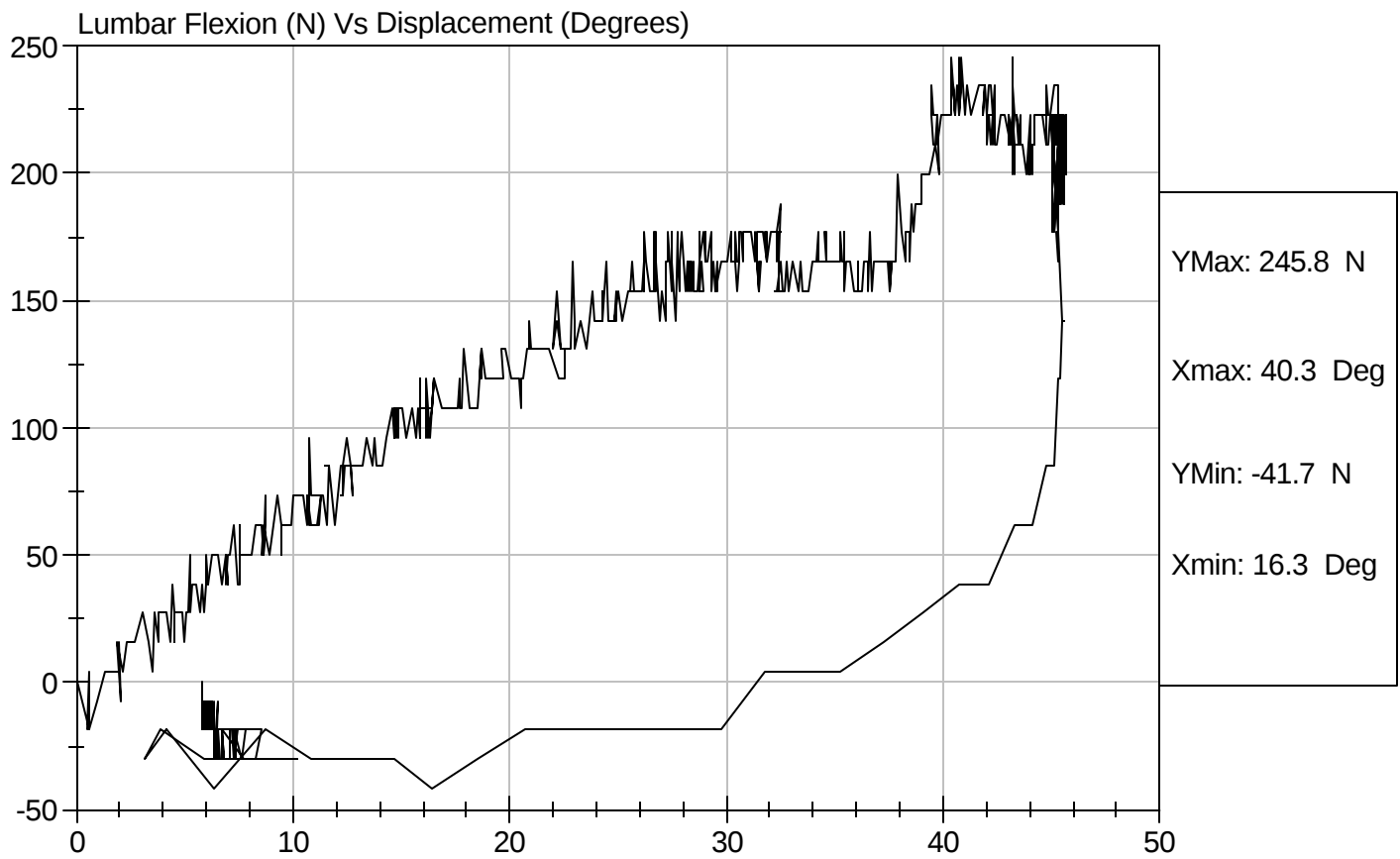


Test Description: Lumbar Flexion

Test Date: 12/12/2006

Component: D063485

Speed: 0 ft/sec, 0 m/sec



SID/HII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D063489

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	33	Pass
Impact Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.21	Pass
	20 msec	m/s	4.12 to 5.10	4.48	Pass
	30 msec	m/s	5.73 to 7.01	6.34	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.95	Pass
Midsagittal 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	57	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician

12/12/2006

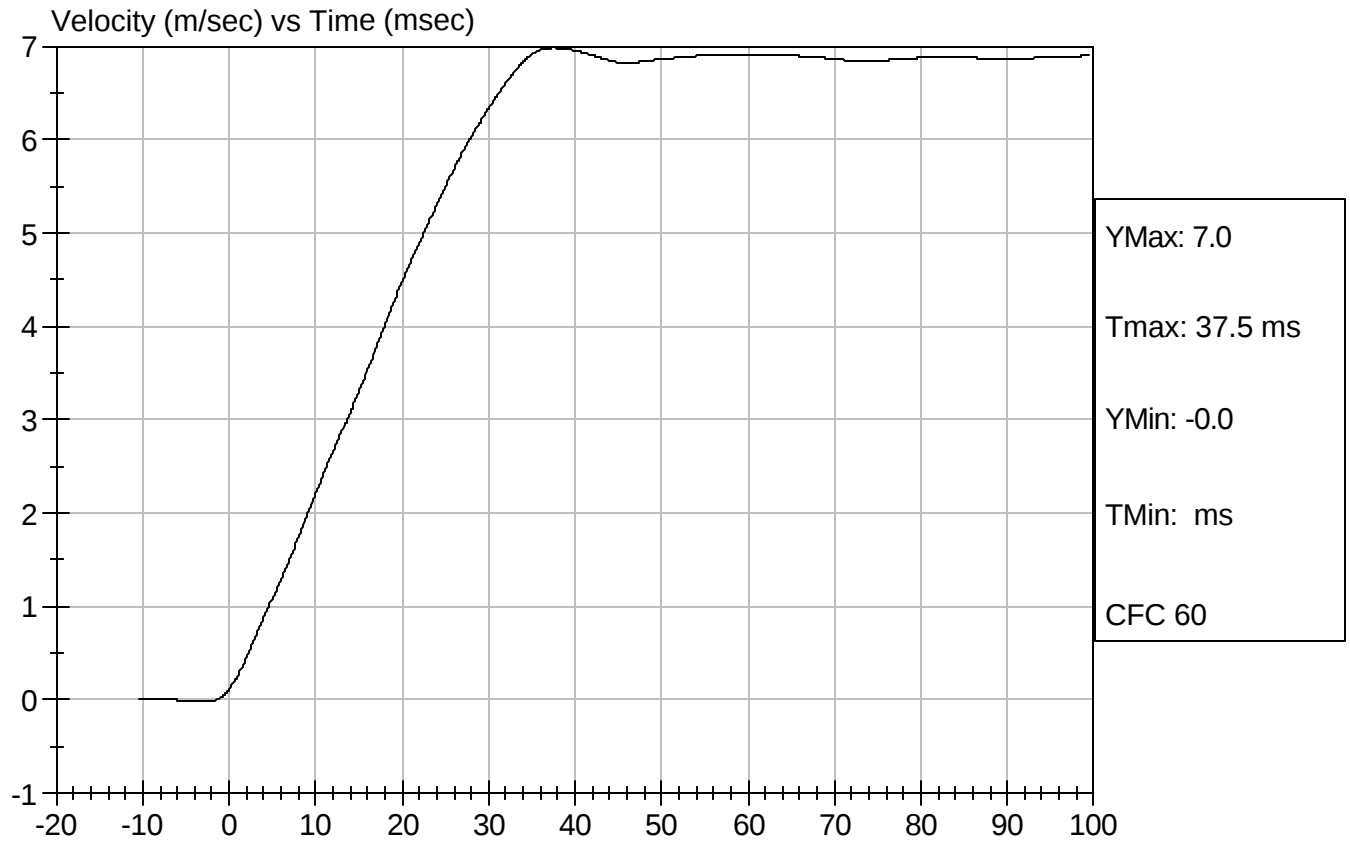
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D063489

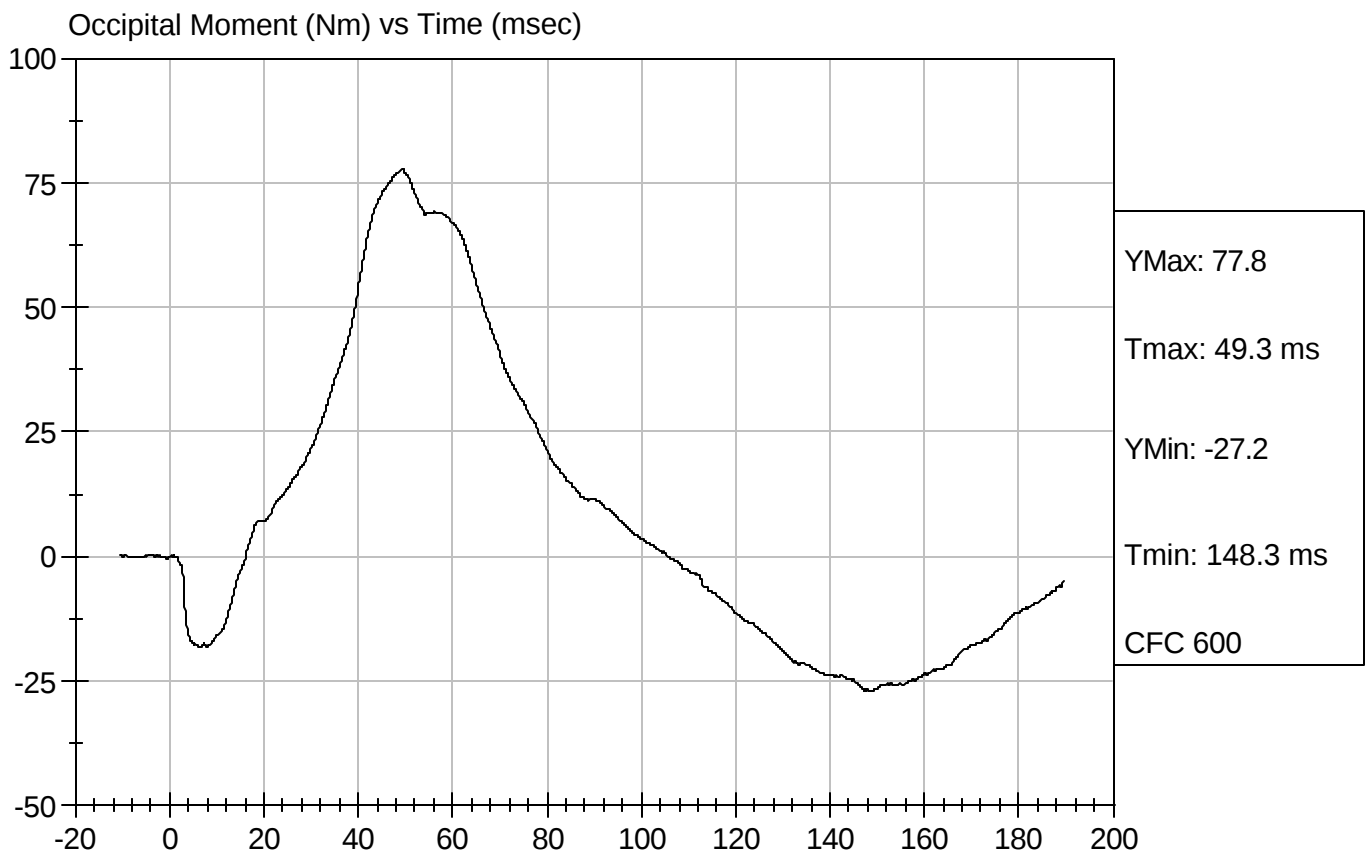
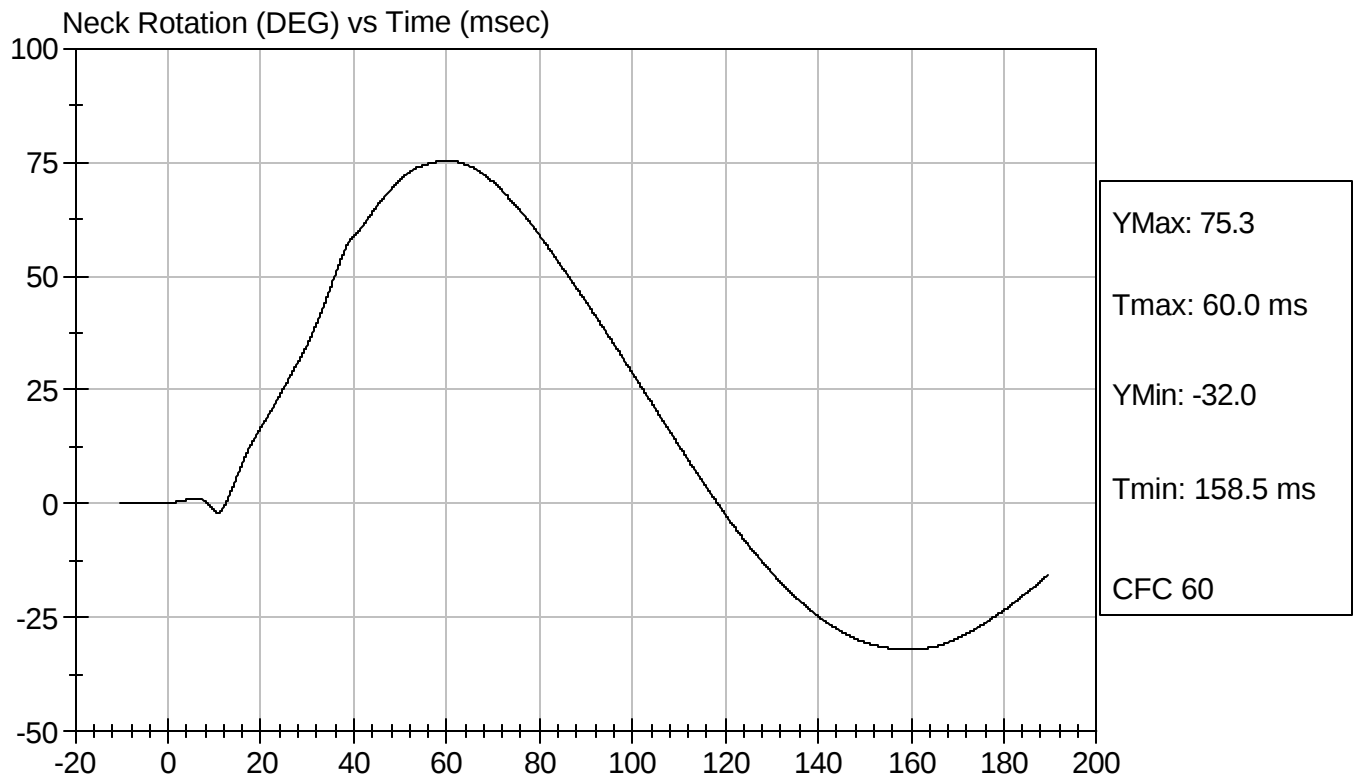
Test Date: 12/12/2006
Speed: 23.11 ft/sec, 7.04 m/sec





Test Desc: Neck Bending
Component ID: D063489

Test Date: 12/12/2006
Speed: 23.11 ft/sec, 7.04 m/sec



SID/HIII 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

12/12/2006
Test Date

CERTIFICATION DATA

Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

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/HIII Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 272

Test I.D: D06341

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	907	Pass
RH - Rib Height	mm	501 - 521	520	Pass
HP - Hip Pivot Height	mm	99 ref.	99	Pass
RD - Rib from Back Line	mm	229 - 241	230	Pass
KV - Knee Pivot to Back Line	mm	511 - 526	525	Pass
SW - Knee Pivot to Floor	mm	490 - 505	495	Pass
HW - Hip Width	mm	356 - 391	358	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date

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

ATD Serial No: 272

Test I.D: D063411

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	23	Pass
Peak Resultant Acceleration	G's	120 to 150	138	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-13.4	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date



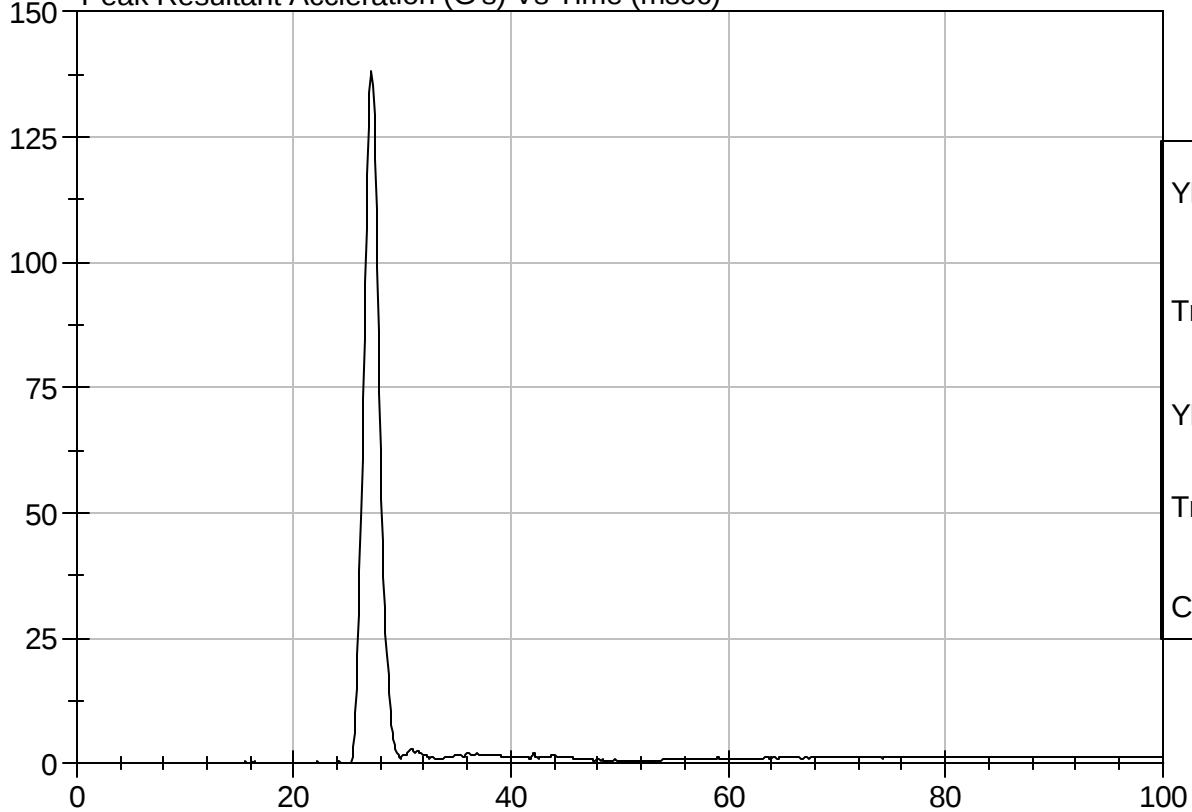
Test Description: Head Drop

Test Date: 12/06/2006

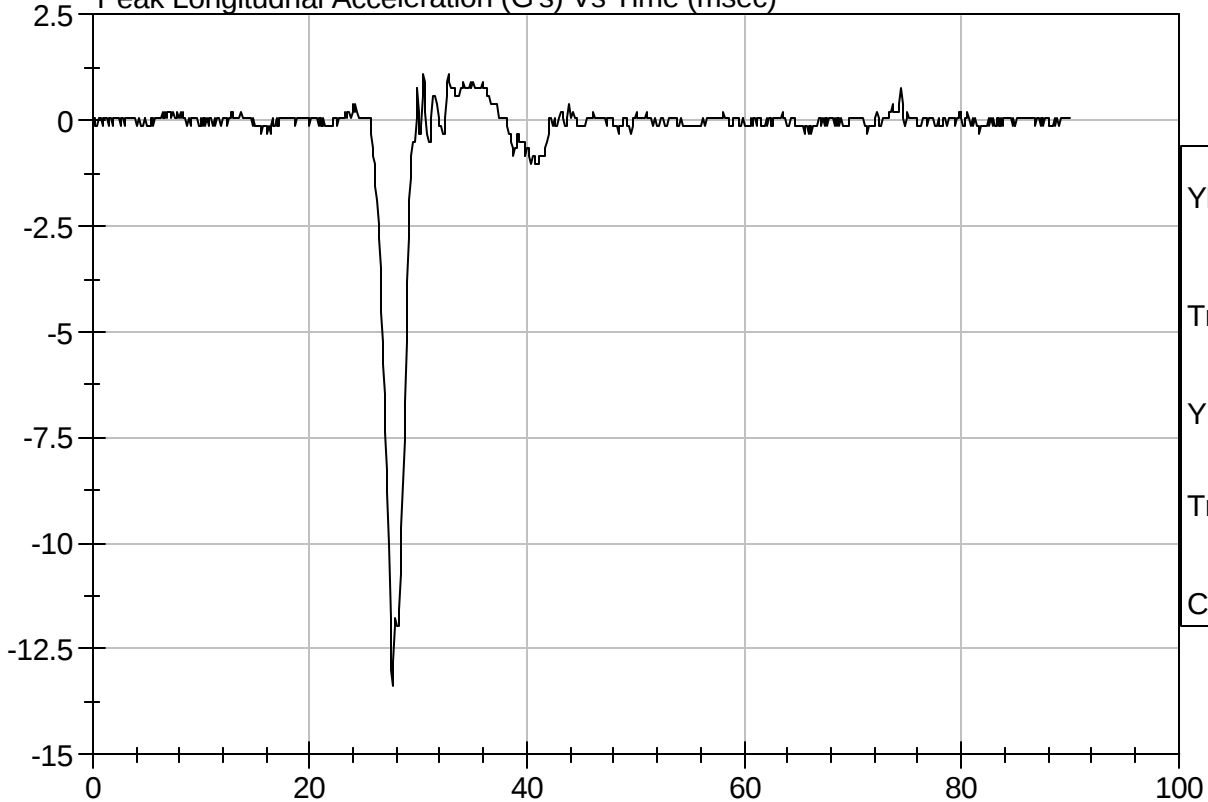
Component: D063411

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: 272

Test I.D: D063412

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Probe Velocity	m/s	4.22 - 4.31	4.29	Pass
Upper Rib	G's	37 - 46	41	Pass
Lower Rib	G's	37 - 46	40	Pass
Lower Spine	G's	15 - 22	15	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

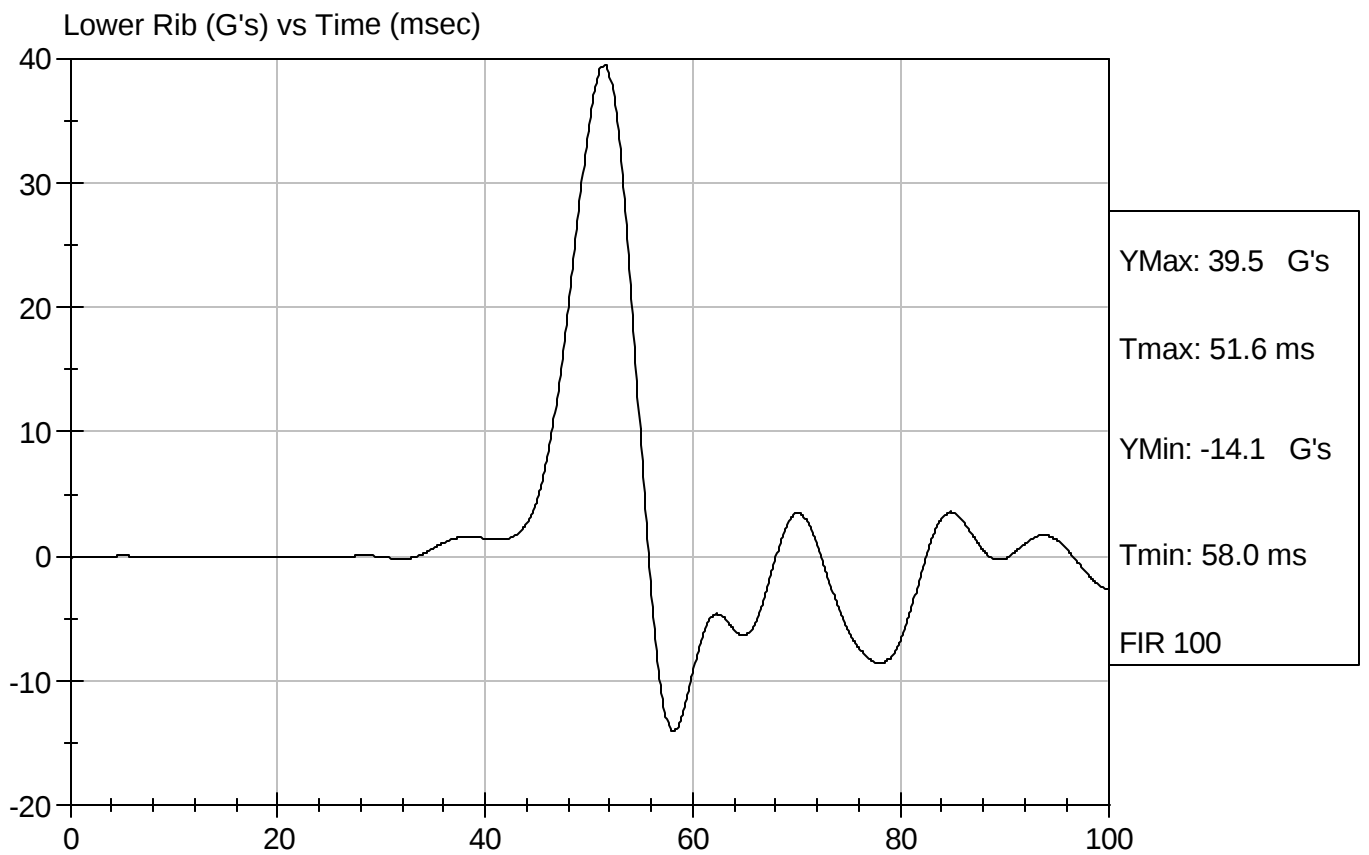
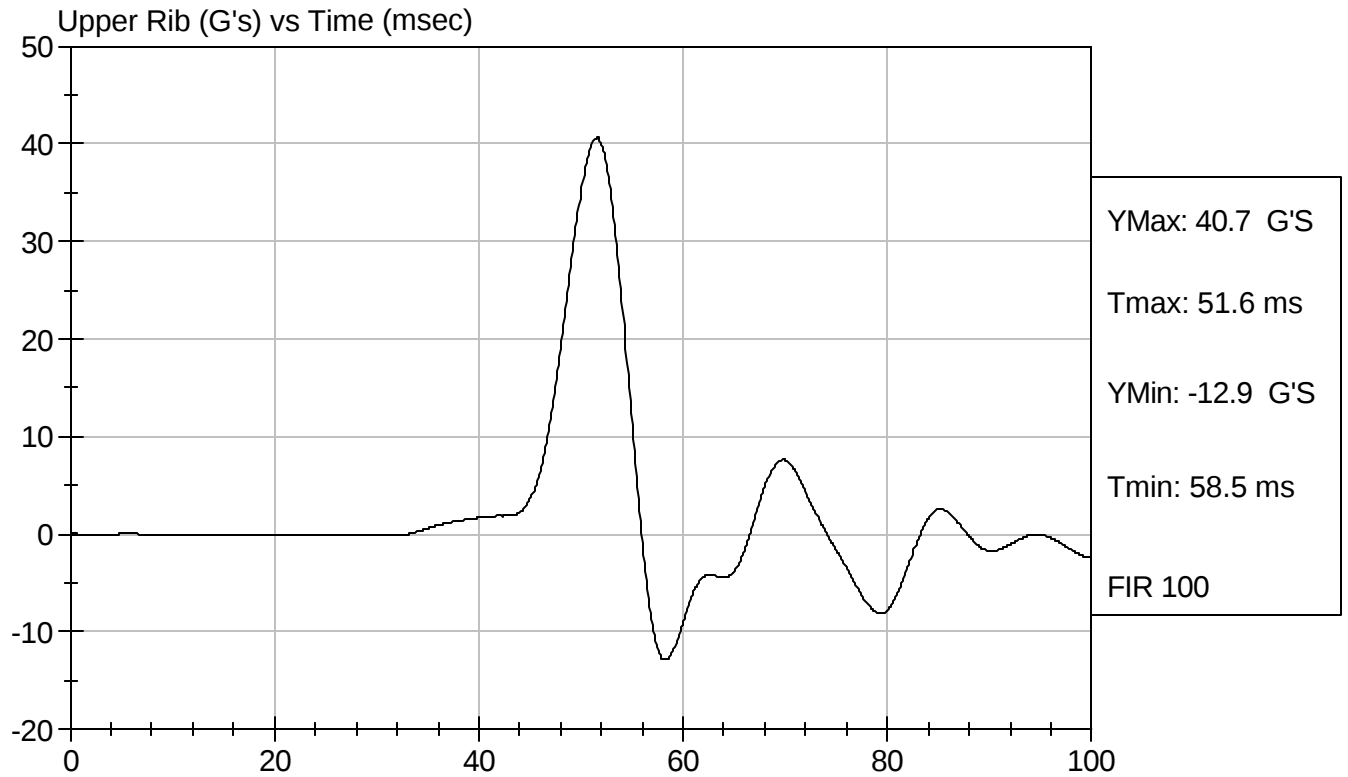
David Winkelbauer
Approved By

12/06/2006
Test Date



Test Desc: Thorax Impact
Component ID: D063412

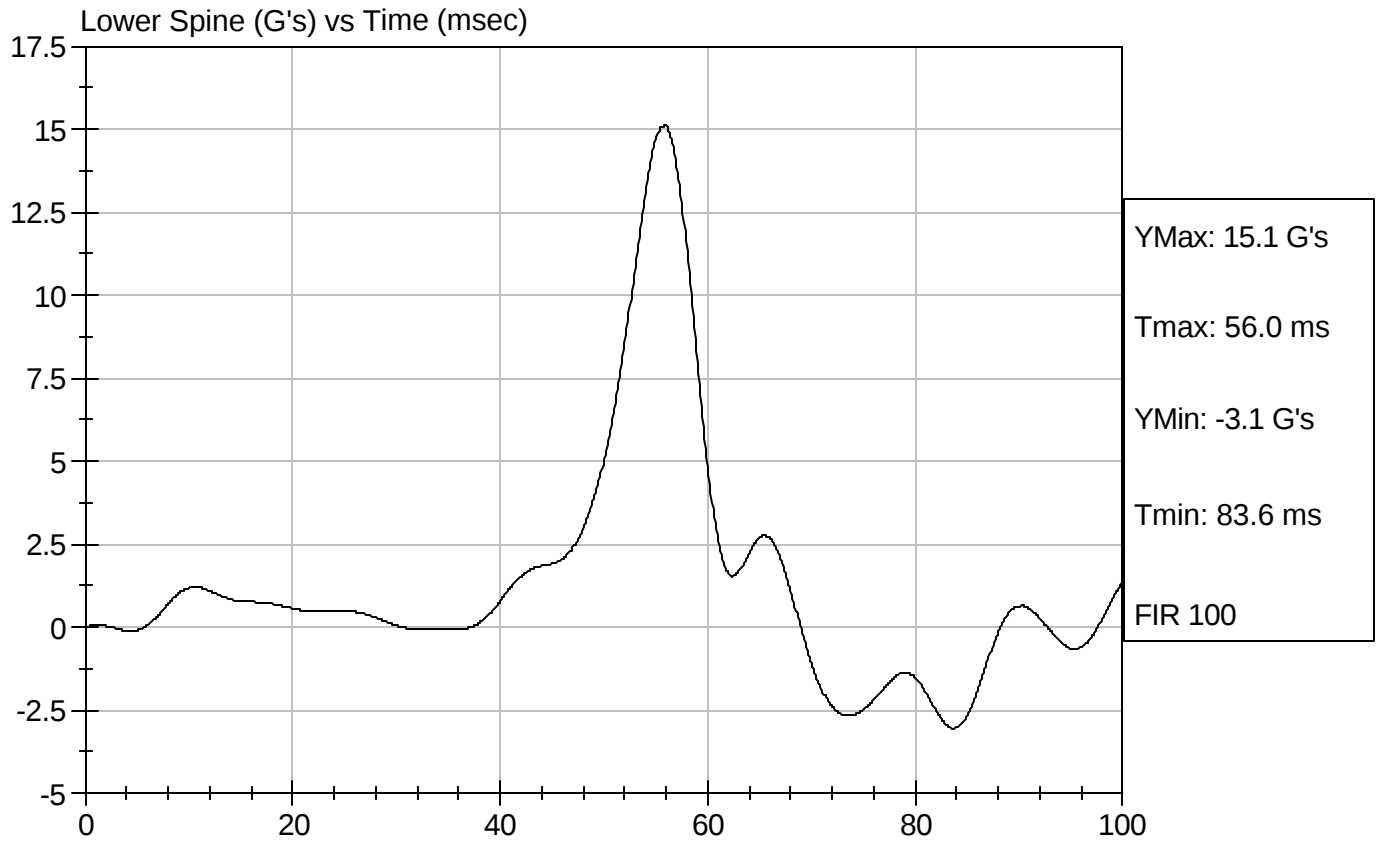
Test Date: 12/06/2006
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D063412

Test Date: 12/06/2006
Speed: 14.08 ft/sec, 4.29 m/sec



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

ATD Serial No: 272

Test I.D: D063413

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Probe Velocity	m/s	4.27 - 4.33	4.33	Pass
Pelvis Acceleration	G's	40 - 60	40	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

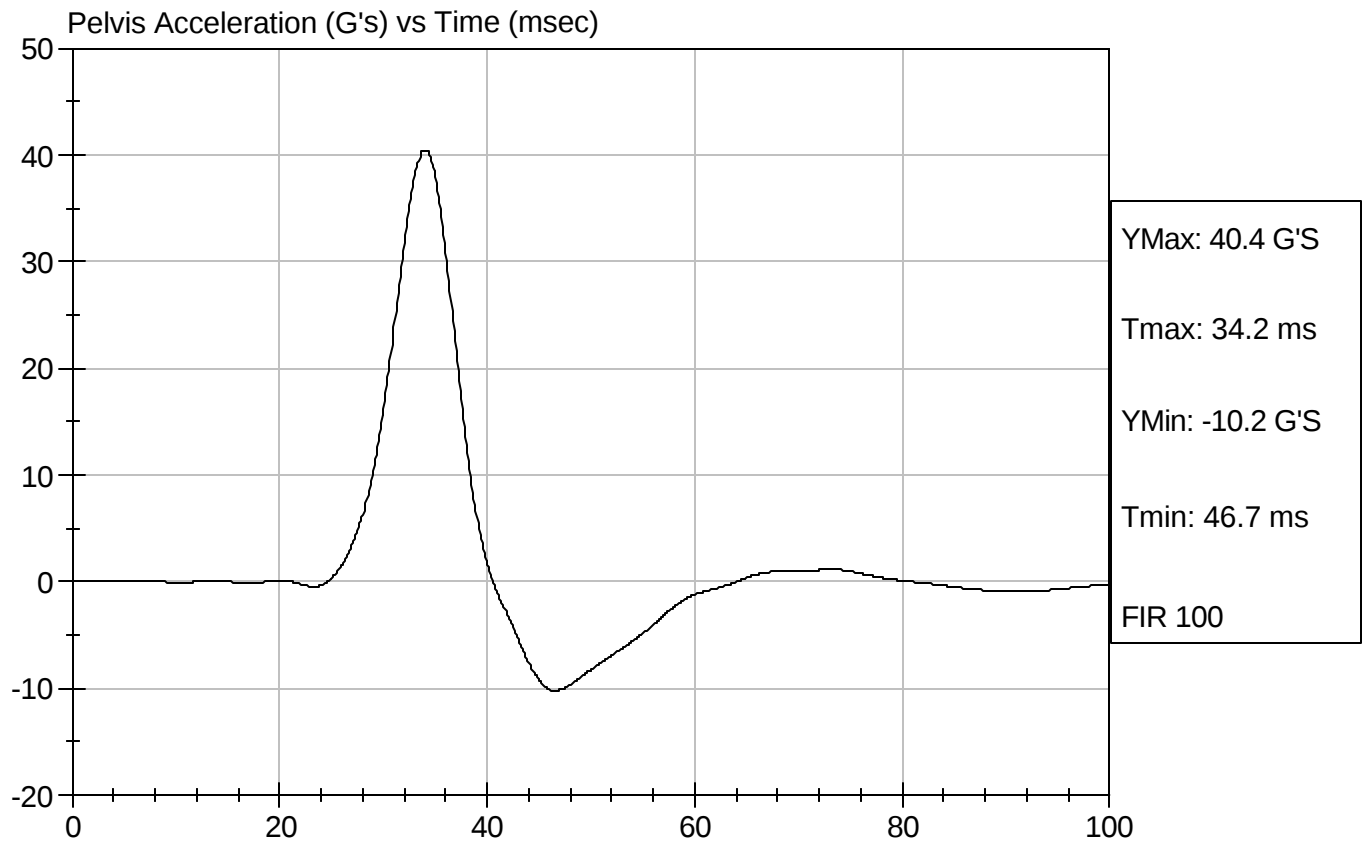
David Winkelbauer
Approved By

12/05/2006
Test Date



Test Desc: Pelvis Impact
Component ID: D063413

Test Date: 12/05/2006
Speed: 14.2 ft/sec, 4.33 m/sec



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

ATD Serial No: 272

Test I.D: D063414

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Force At 12.7 mm	N	104 -162	145	Pass
Force At 19 mm	N	163 - 222	196	Pass
Force At 25.4 mm	N	222 - 280	251	Pass
Force At 33 mm	N	325 - 391	341	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/06/2006
Test Date



Test Description: Abdomen Compression

Test Date: 12/06/2006

Component: D063414

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 272

Test I.D: D063415

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	110.6	Pass
Force At 30 deg	N	151.2 - 204.6	179.6	Pass
Force At 40 deg	N	204.6 - 258.0	248.6	Pass
Return Angle	Deg	12 Maximum	2	Pass
Overall Test Results			Pass	


Laboratory Technician


Approved By

12/06/2006
Test Date

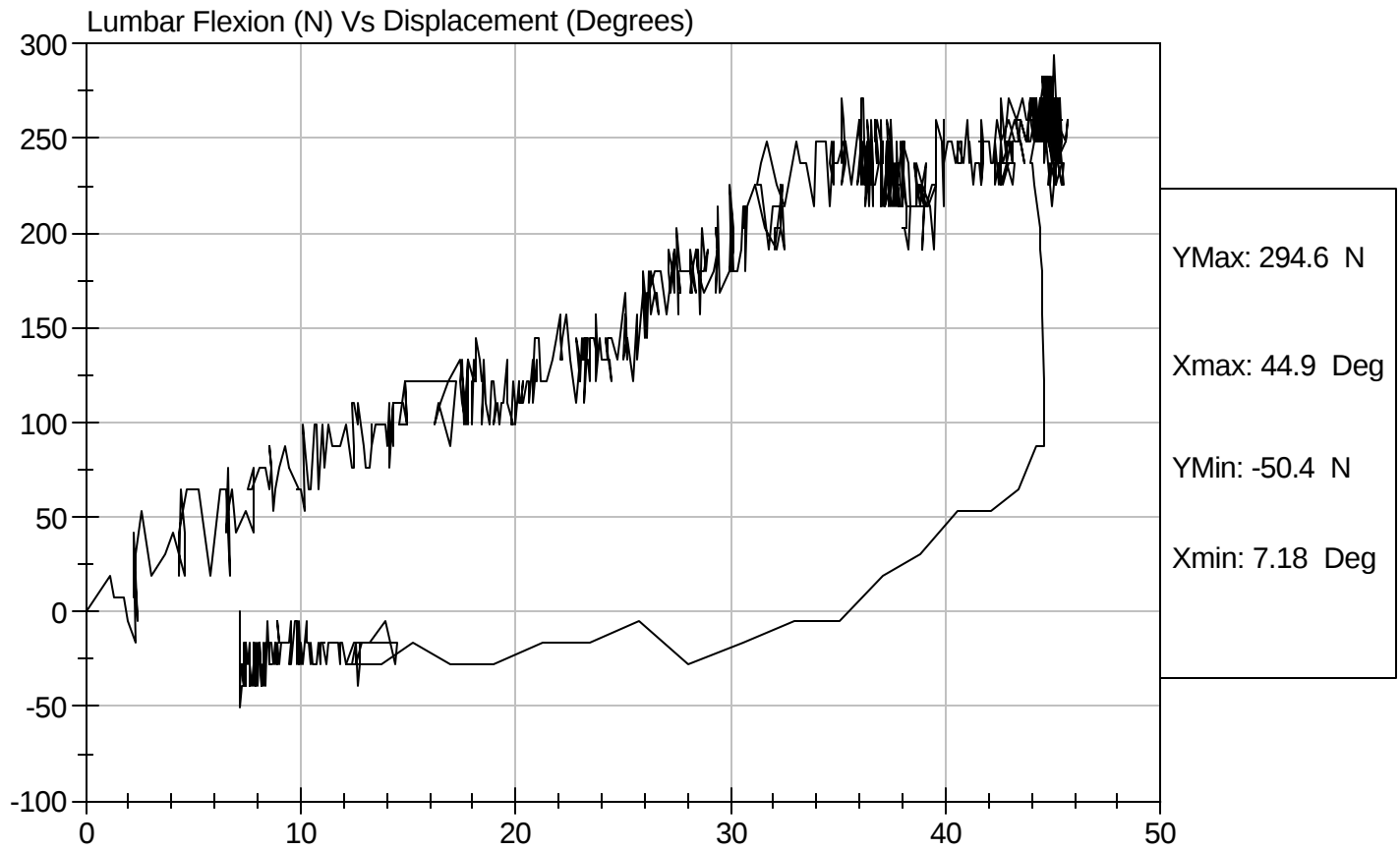


Test Description: Lumbar Flexion

Test Date: 12/06/2006

Component: D063415

Speed: 0 ft/sec, 0 m/sec



SID/HII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 272

Test I.D: D063419

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	23	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.25	Pass
	20 msec	m/s	4.12 to 5.10	4.55	Pass
	30 msec	m/s	5.73 to 7.01	6.36	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.99	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	73	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	58	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	81	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	56	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician

12/06/2006

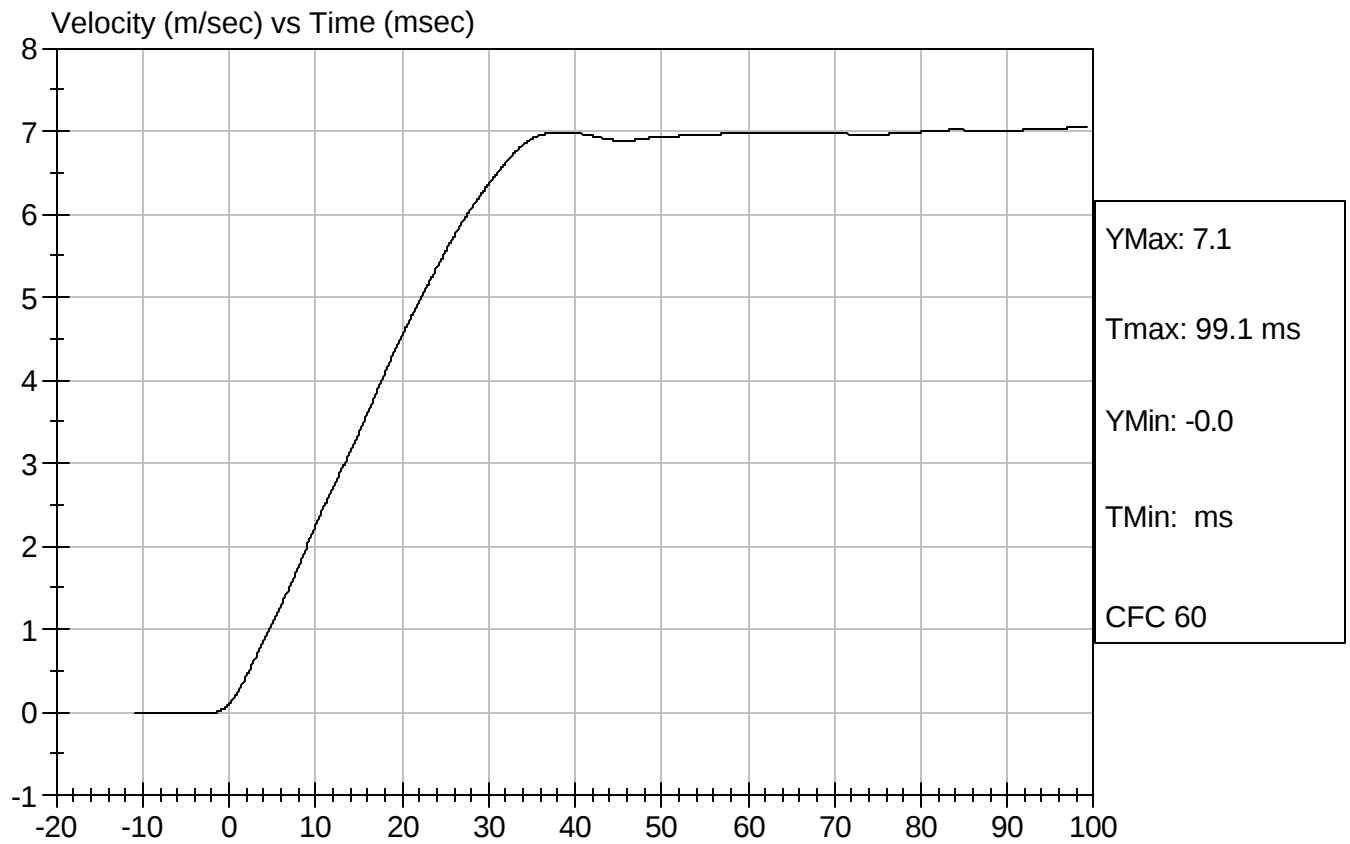
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D063419

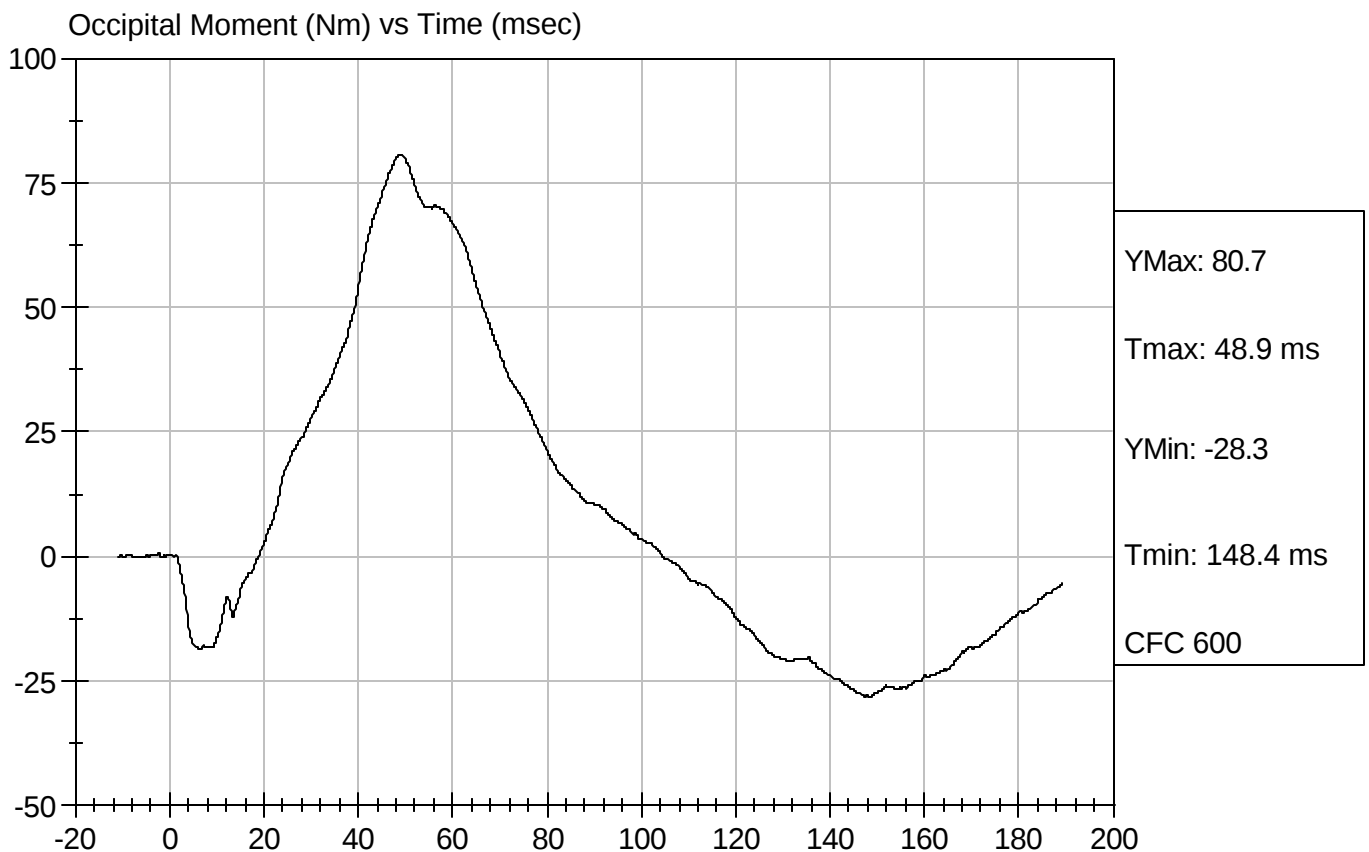
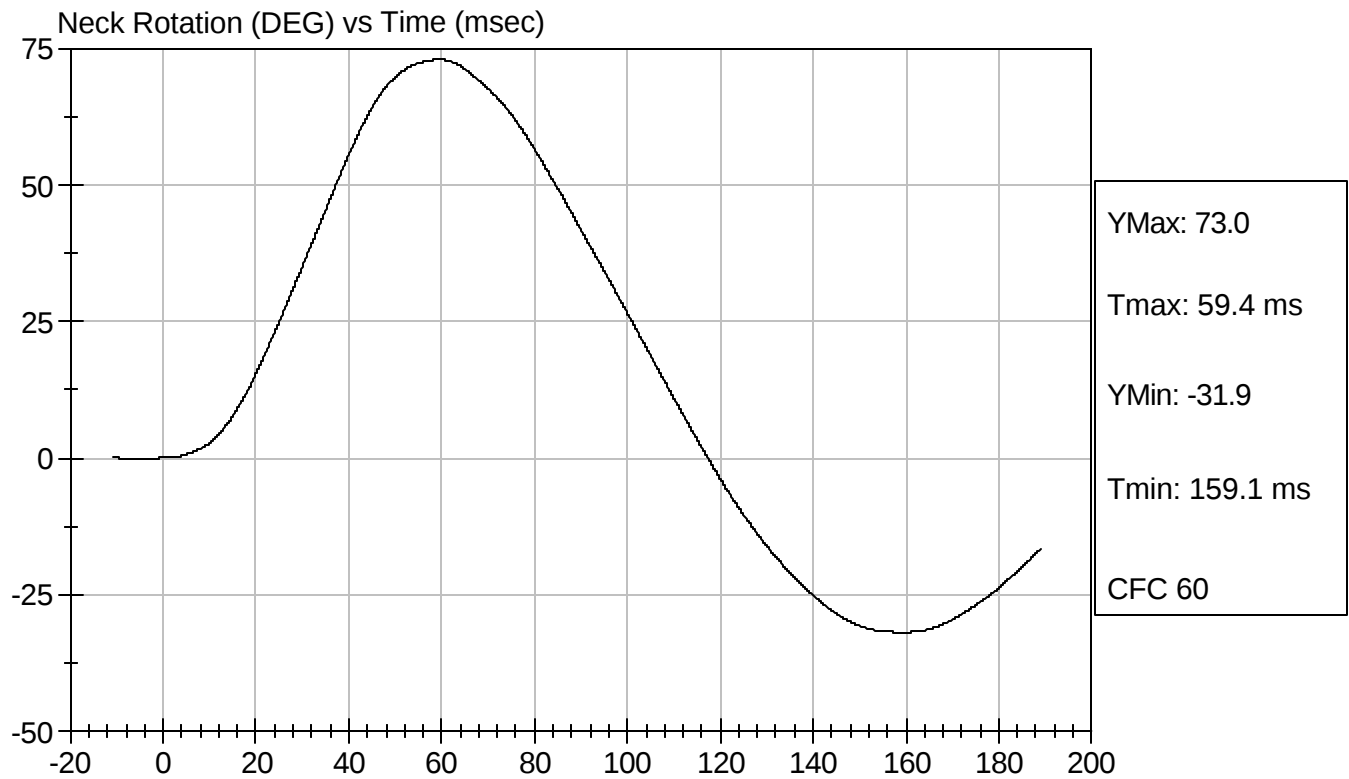
Test Date: 12/06/2006
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D063419

Test Date: 12/06/2006
Speed: 23.15 ft/sec, 7.06 m/sec



Calibration Test Results Summary

Dummy Serial Number: 272

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: 272

Test I.D: D063471

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Peak Resultant Acceleration	G's	120 to 150	146	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-10.7	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

David Winkelbauer
Approved By

12/12/2006
Test Date



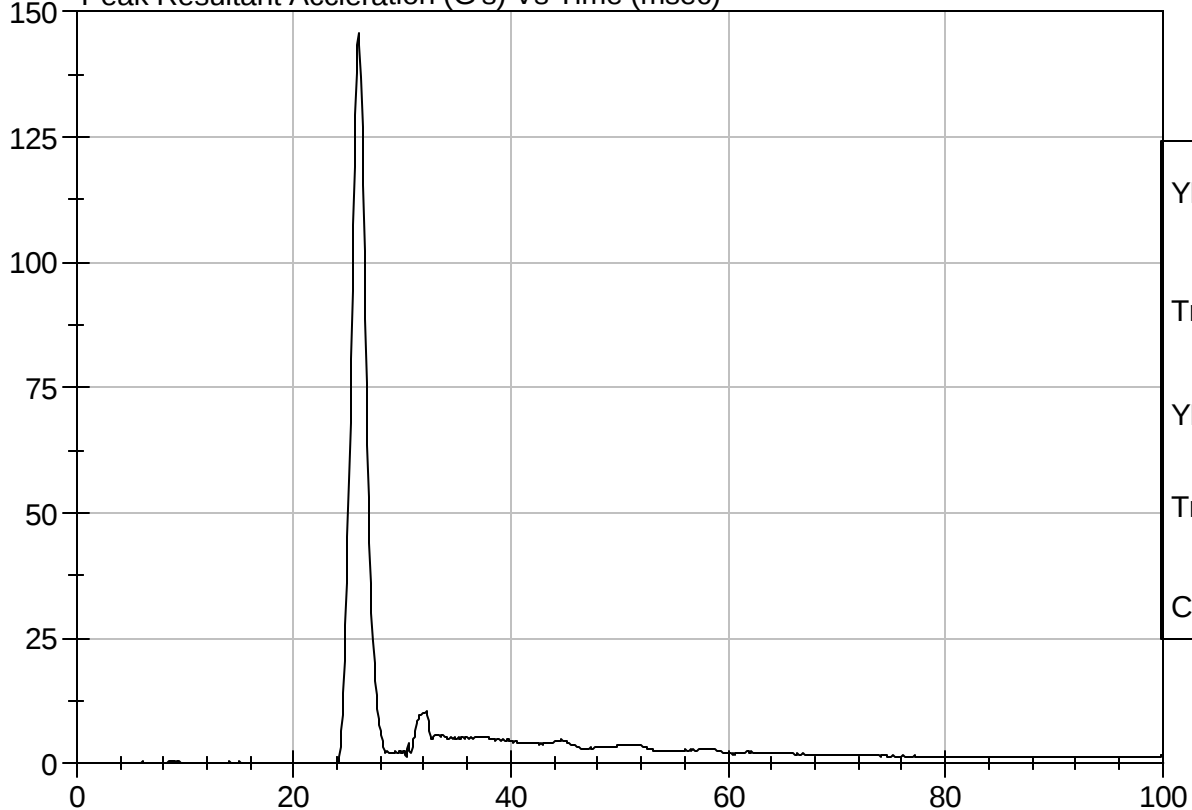
Test Description: Head Drop

Test Date: 12/12/2006

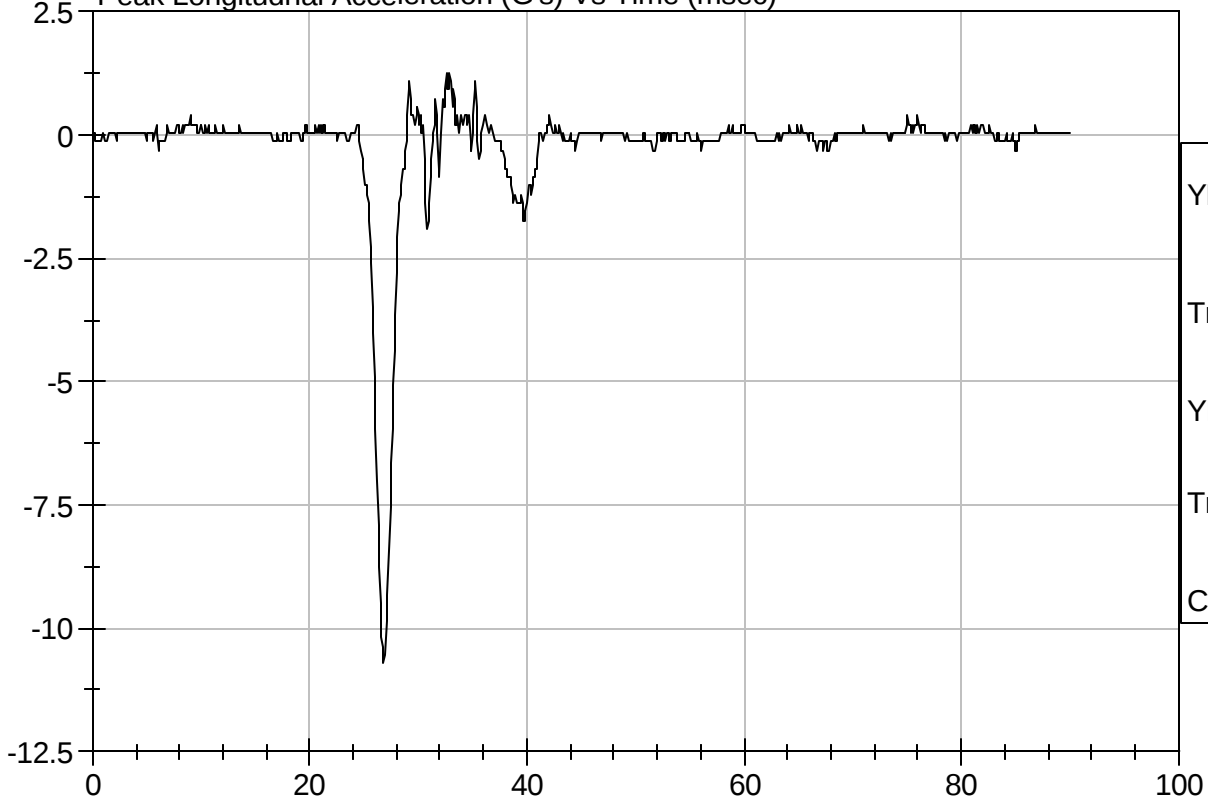
Component: D063471

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: 272

Test I.D: D063472

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	28	Pass
Probe Velocity	m/s	4.22 - 4.31	4.29	Pass
Upper Rib	G's	37 - 46	43	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

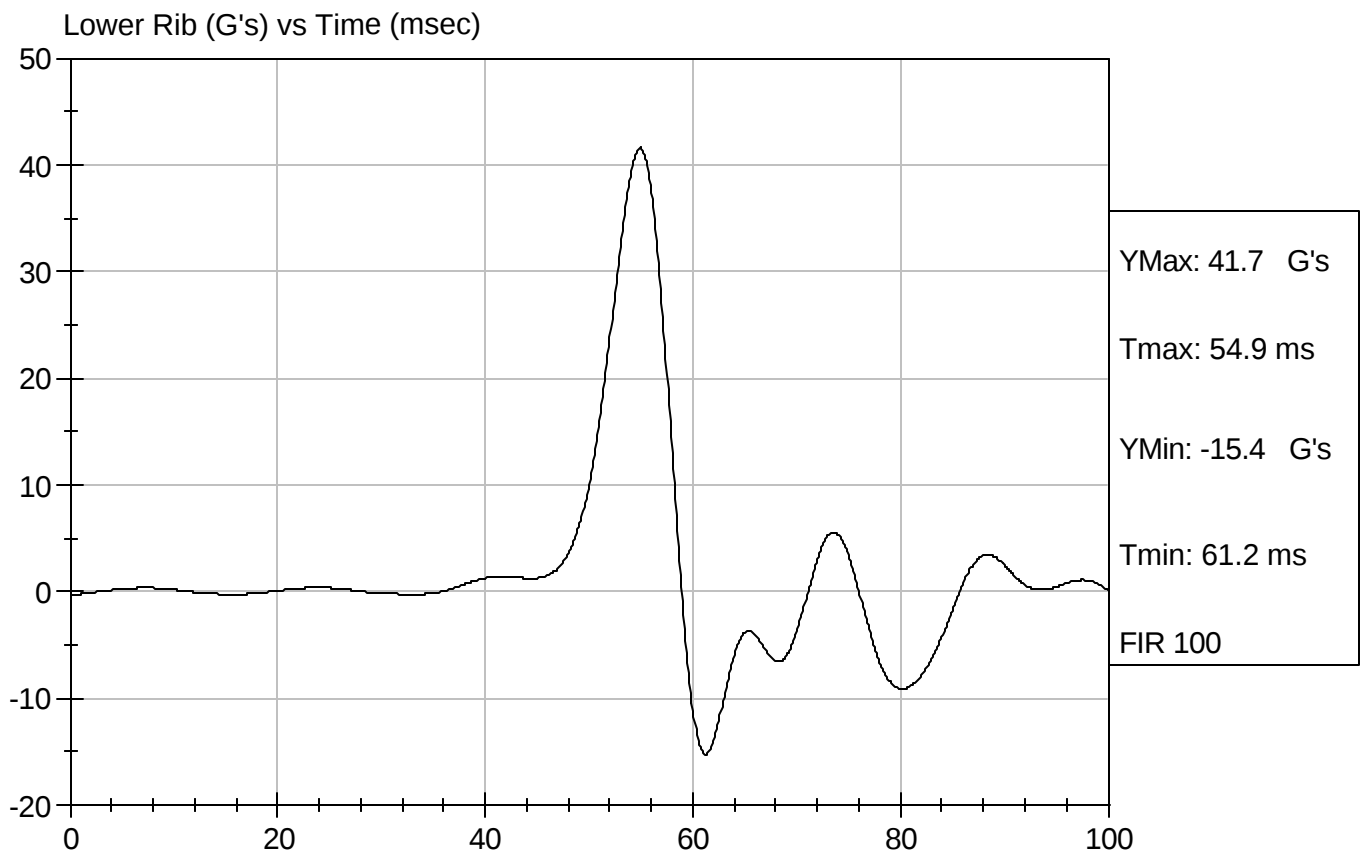
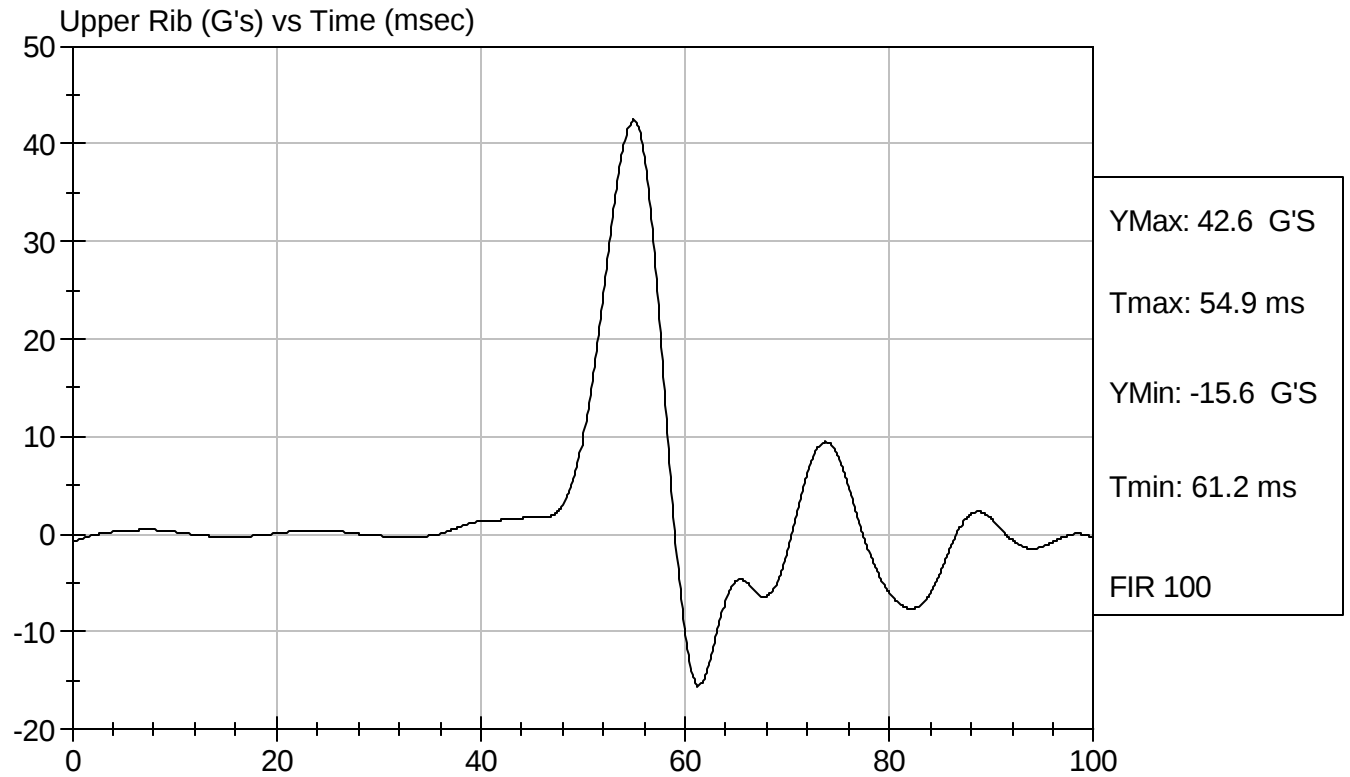
David Winkelbauer
Approved By

12/11/2006
Test Date



Test Desc: Thorax Impact
Component ID: D063472

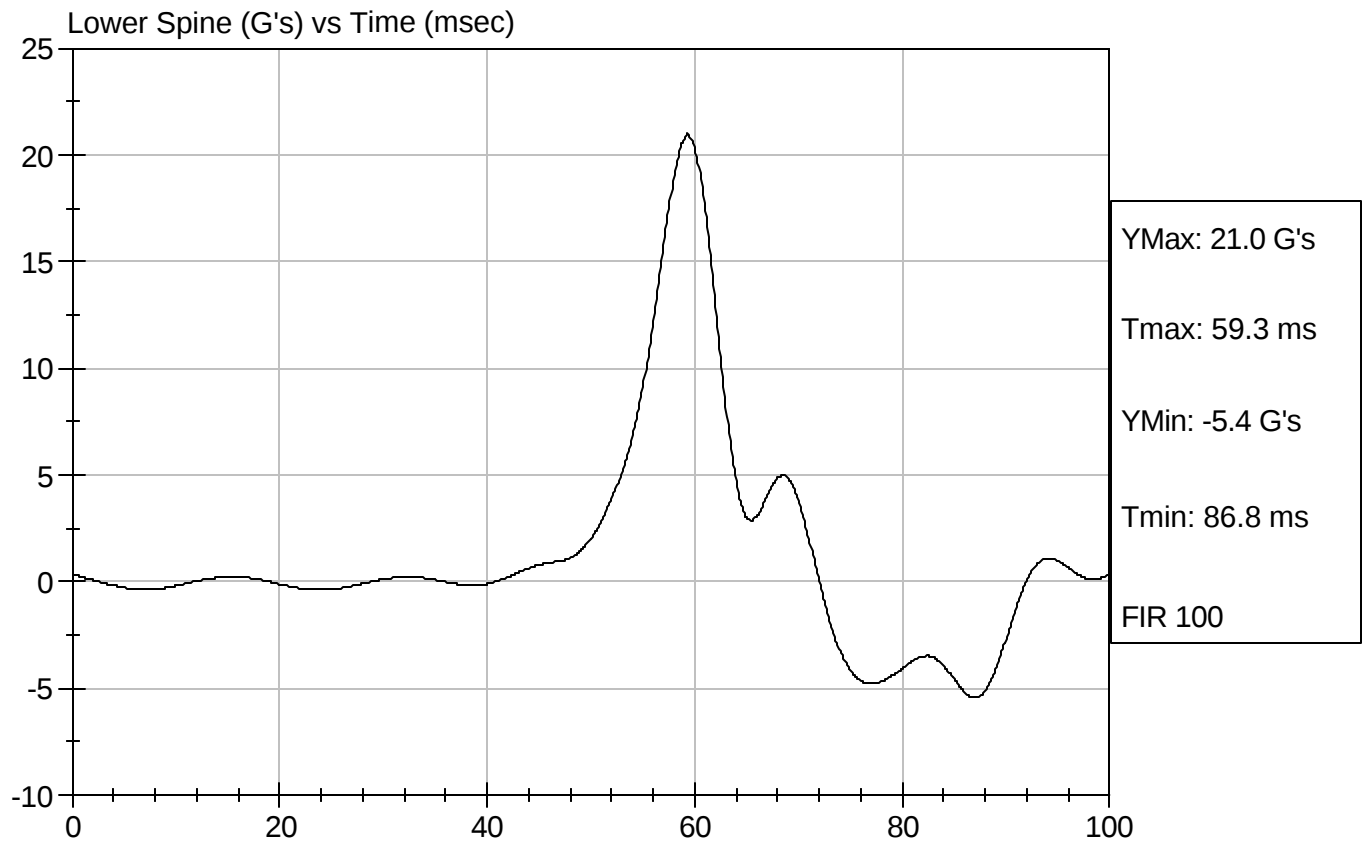
Test Date: 12/11/2006
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D063472

Test Date: 12/11/2006
Speed: 14.08 ft/sec, 4.29 m/sec



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

ATD Serial No: 272

Test I.D: D063473

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	28	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	42	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

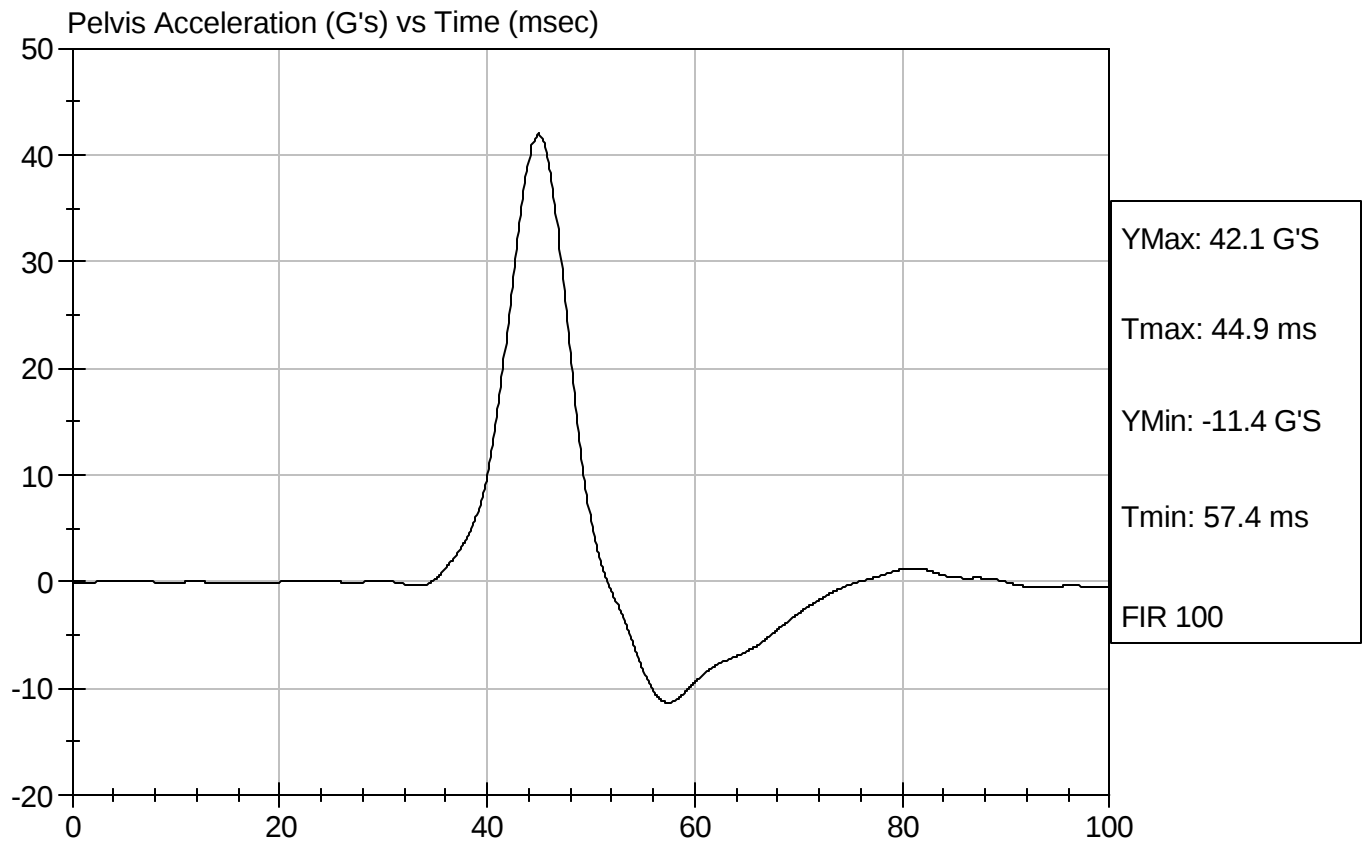
David Winkelbauer
Approved By

12/11/2006
Test Date



Test Desc: Pelvis Impact
Component ID: D063473

Test Date: 12/11/2006
Speed: 14.06 ft/sec, 4.29 m/sec



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

ATD Serial No: 272

Test I.D: D063474

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 12.7 mm	N	104 -162	141	Pass
Force At 19 mm	N	163 - 222	194	Pass
Force At 25.4 mm	N	222 - 280	257	Pass
Force At 33 mm	N	325 - 391	364	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/12/2006
Test Date

David Winkelbauer
Approved By

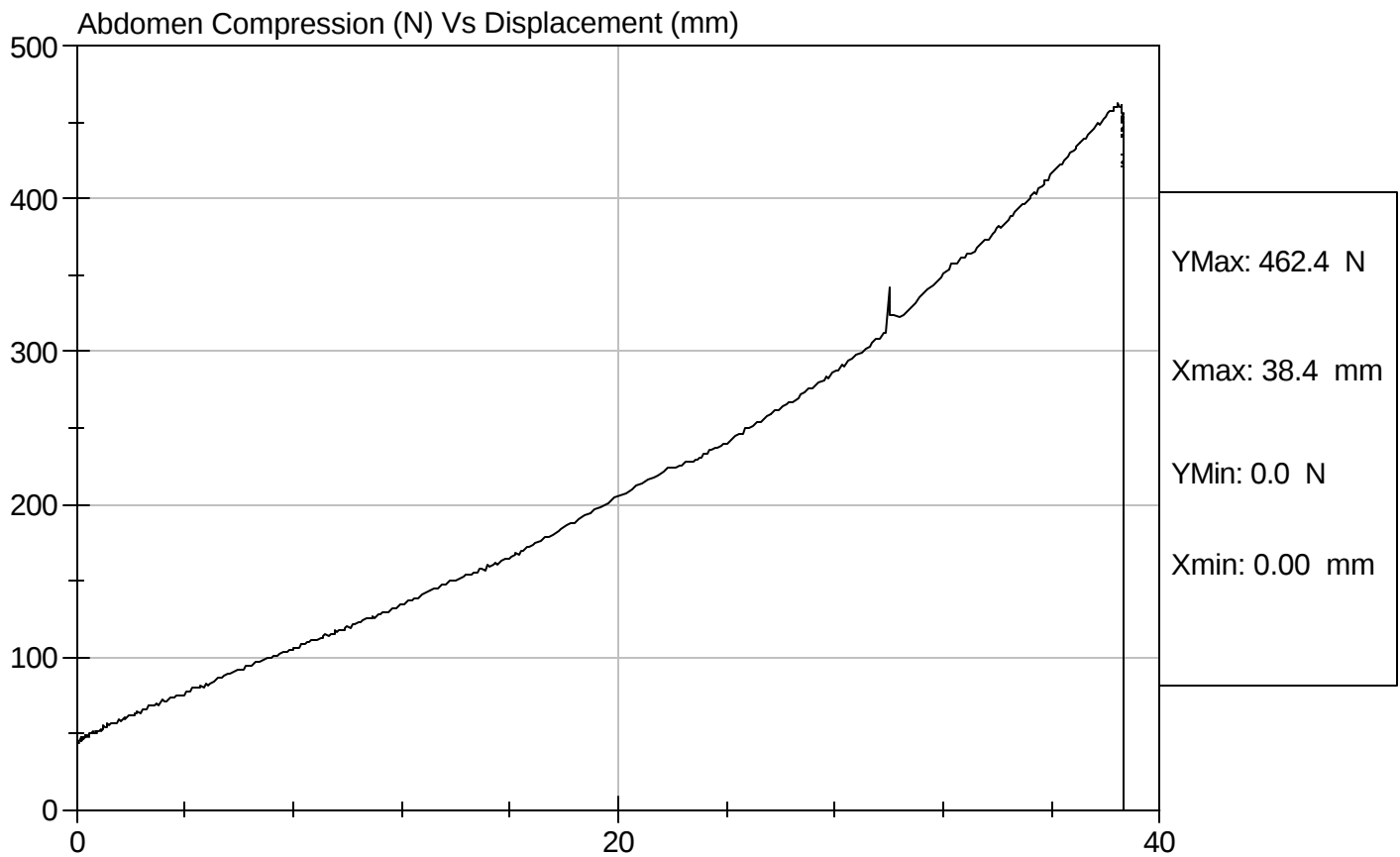


Test Description: Abdomen Compression

Test Date: 12/12/2006

Component: D063474

Speed: 0 ft/sec, 0 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 272

Test I.D: D063475

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	111.9	Pass
Force At 30 deg	N	151.2 - 204.6	169.4	Pass
Force At 40 deg	N	204.6 - 258.0	238.4	Pass
Return Angle	Deg	12 Maximum	5	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

12/12/2006
Test Date

David Winkelbauer
Approved By

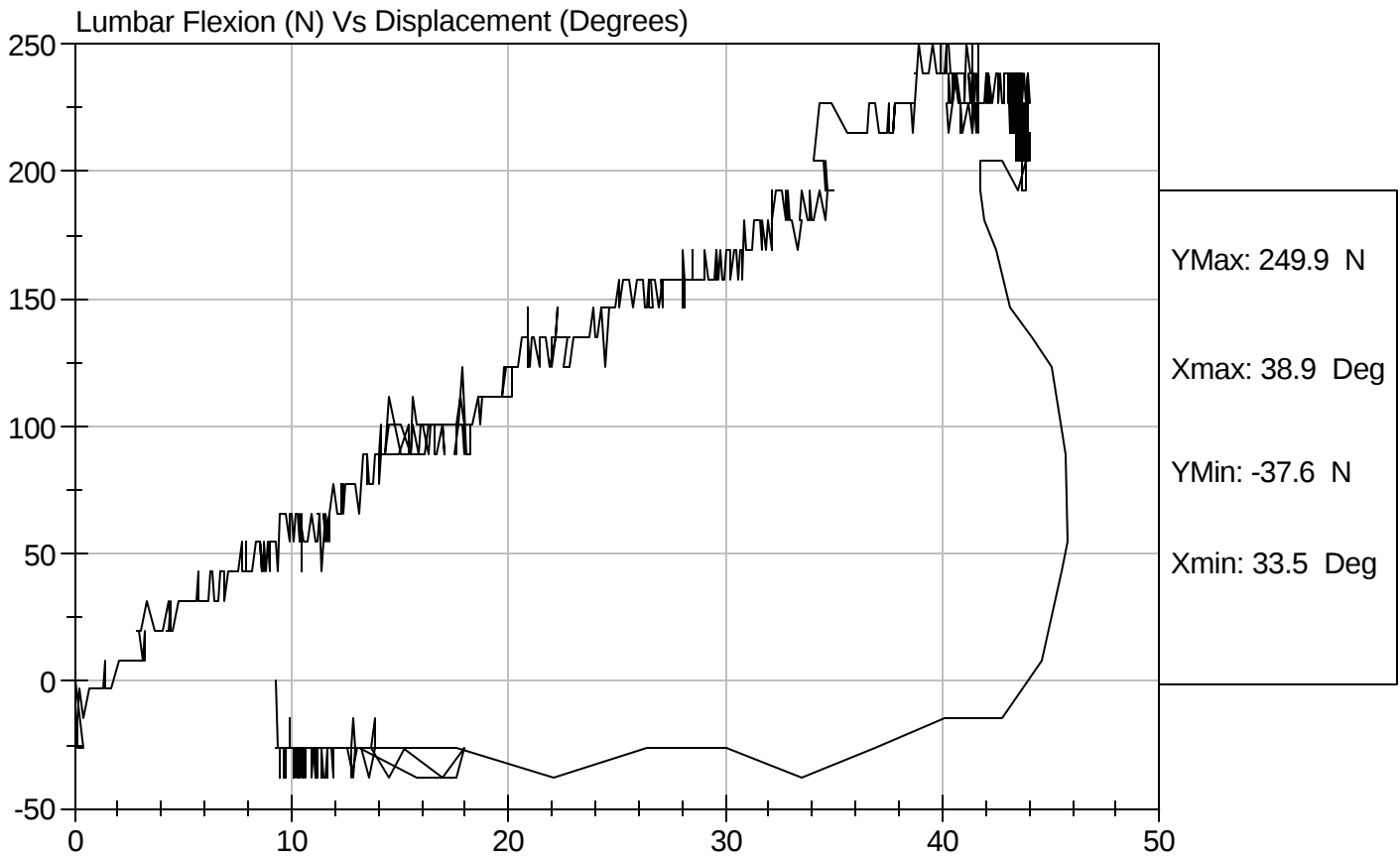


Test Description: Lumbar Flexion

Test Date: 12/12/2006

Component: D063475

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 272

Test I.D: D063479

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity		%	10 to 70	33	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.37	Pass
	20 msec	m/s	4.12 to 5.10	4.68	Pass
	30 msec	m/s	5.73 to 7.01	6.66	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.06	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	75	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	58	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	79	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	59	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	14	Pass


 Laboratory Technician

12/12/2006

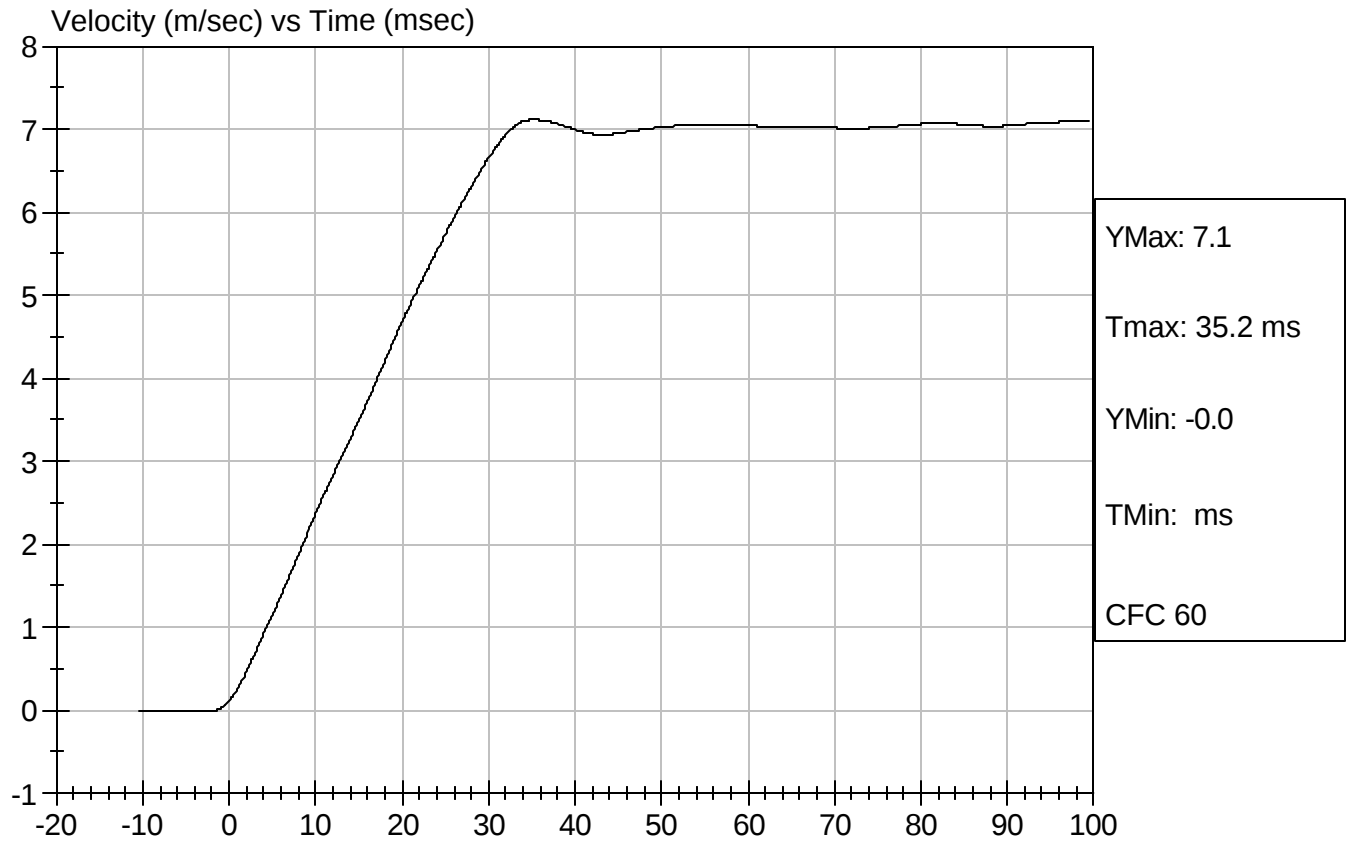
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D063479

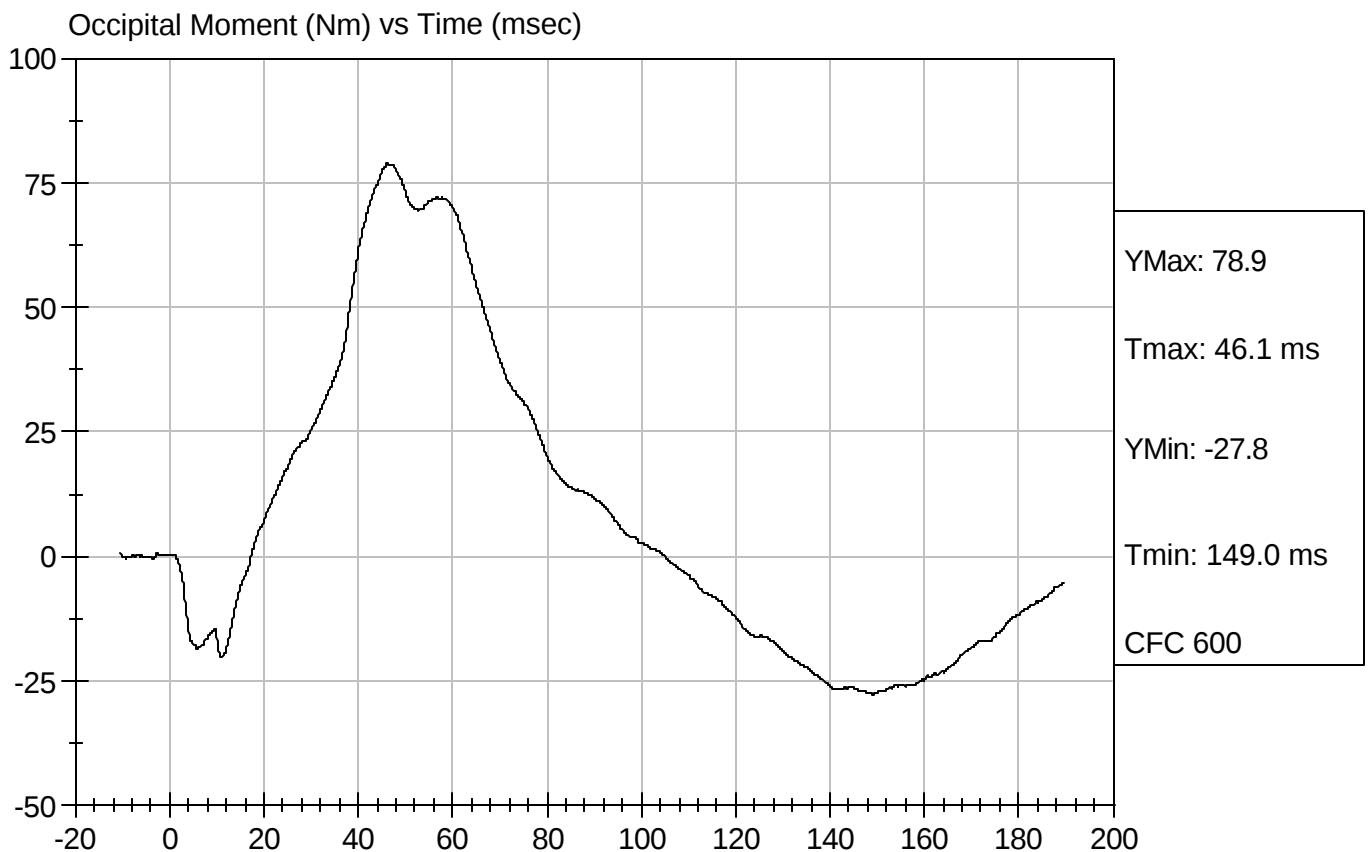
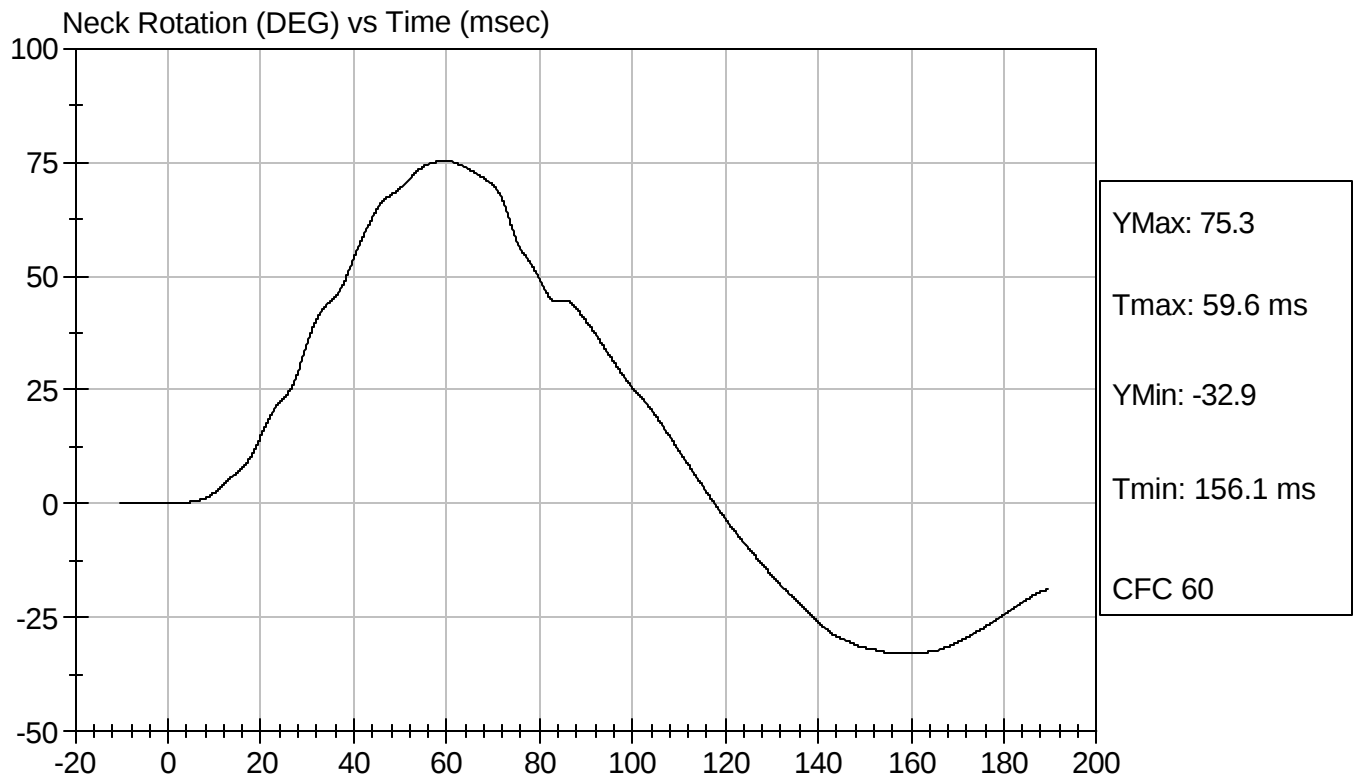
Test Date: 12/12/2006
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D063479

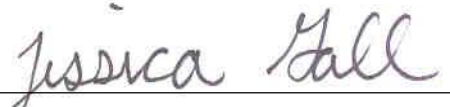
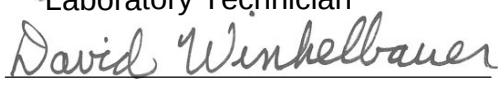
Test Date: 12/12/2006
Speed: 23.15 ft/sec, 7.06 m/sec



SID/HIII Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 272

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


Laboratory Technician

Approved By

12/12/2006
Test Date