

REPORT NUMBER: NCAPSIDE-MGA-2007-006

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**CAMI AUTOMOTIVE INC.
2008 SUZUKI XL7
NHTSA NUMBER: X80501**

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



Test Date: May 22, 2007

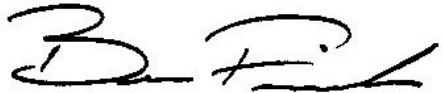
Report Date: June 22, 2007

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.

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: 
Ben Fischer, Project Engineer

Date: 6/22/07

Reviewed by: 
David Winkelbauer, Facility Director

Date: 6/22/07

Technical Report Documentation Page

1. <i>Report No.</i> NCAPSIDE-MGA-2007-006	2. <i>Government Accession No.</i>	3. <i>Recipient's Catalog No.</i>																						
4. <i>Title and Subtitle</i> Final Report of New Car Assessment Program Side Impact Testing of 2008 Suzuki XL7 NHTSA No.: X80501		5. <i>Report Date</i> June 22, 2007																						
		6. <i>Performing Organization Code</i> MGA																						
7. <i>Author(s)</i> Ben Fischer, Project Engineer		8. <i>Performing Organization Report No.</i> NCAPSIDE-MGA-2007-006																						
9. <i>Performing Organization Name and Address</i> MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. <i>Work Unit No.</i>																						
		11. <i>Contract or Grant No.</i> DTNH22-03-D-12005																						
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration Rulemaking, Office of Crashworthiness Standards 1200 New Jersey Ave, SE, Room W43-410, NVS-111 Washington, D.C. 20590		13. <i>Type of Report and Period Covered:</i> <i>Final Report</i> 5/22/07 to 6/22/07																						
		14. <i>Sponsoring Agency Code</i> NVS-111																						
15. <i>Supplementary Notes</i>																								
16. <i>Abstract</i> A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2008 Suzuki XL7 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 May 22, 2007. The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 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 315 mm at level 3. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border: none;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">42.5</td> <td style="text-align: center;">41.0</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">45.3</td> <td style="text-align: center;">42.0</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">53.8</td> <td style="text-align: center;">51.8</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">50</td> <td style="text-align: center;">47</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">56.4</td> <td style="text-align: center;">71.2</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">132</td> <td style="text-align: center;">89</td> </tr> </tbody> </table> The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	42.5	41.0	Left Lower Rib (LLR) Accel., g	45.3	42.0	Lower Spine (T ₁₂) Accel., g	53.8	51.8	Thoracic Trauma Index (TTI)	50	47	Pelvis (PEV) Accel., g	56.4	71.2	HIC	132	89
	<u>DRIVER</u>	<u>PASS.</u>																						
Left Upper Rib (LUR) Accel., g	42.5	41.0																						
Left Lower Rib (LLR) Accel., g	45.3	42.0																						
Lower Spine (T ₁₂) Accel., g	53.8	51.8																						
Thoracic Trauma Index (TTI)	50	47																						
Pelvis (PEV) Accel., g	56.4	71.2																						
HIC	132	89																						
17. <i>Key Words</i> New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection		18. <i>Distribution Statement</i> Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave, SE Washington, D.C. 20590																						
19. <i>Security Classif. (of this report)</i> Unclassified	20. <i>Security Classif. (of this page)</i> Unclassified	21. <i>No. of Pages</i> 137	22. <i>Price</i>																					

Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Test Procedure	1
2	Summary of NCAP Side Impact Test	2
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	4
2	Test Vehicle Tire Information	6
3	Test Vehicle Information	7
4	Moving Deformable Barrier (MDB) Summary of Results	9
5	Post Test Observations	10
6	Vehicle Pre-Test and Post Test Measurements	11
7	SID/HIII Longitudinal Clearance Dimensions	12
8	SID/HIII Lateral Clearance Dimensions	13
9	Vehicle Side Measurements	14
10	Vehicle Exterior Crush Profiles	15
11	Vehicle Damage Profile Distances	17
12	Deformable Barrier Honeycomb Face Static Crush	18
13	Vehicle Accelerometer Locations	19
14	MDB Accelerometer Locations	20
15	Vehicle Structural Measurements	21
16	High Speed Camera Locations and Data	22
17	Summary of FMVSS 301 Data	23
<u>Appendix</u>		
A	Photographs	A
B	SID/HIII Response Data Traces	B
C	Dummy Calibration Data	C

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 2008 Suzuki XL7 manufactured by CAMI Automotive Inc.

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 Suzuki XL7 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 62.0 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 2107.9 kg and the test weight of the MDB was 1360.8 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on May 22, 2007.

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-one (21) 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 315 mm at level 3, 1500 mm rearward of the vertical impact point. The driver and passenger SID/HIIs, Serial Nos. 271 and 904 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	132	40.3	69.4	50	56.4
Passenger	89	41.0	77.0	47	71.2

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Information	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	No	
Side Torso Airbag	No		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:
Driver Neck Moment Y after 45 msec.

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

TEST VEHICLE INFORMATION

Make	Suzuki
Model	XL7
Body Style	MPV
NHTSA No.	X80501
VIN	2S3DA217976115561
Color	Majestic Silver
Delivery Date	5/14/07
Odometer Reading (mile)	163
Dealer	Ray Suzuki
Transmission	Automatic
Final Drive	AWD
Number of Cylinders	6
Engine Displacement (L)	3.6
Engine Placement	Lateral
Automatic Door Locks (ADL)	Yes
Owner's Manual Details Instructions on Disabling ADLs	No

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	No
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	No
Pretensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	CAMI Automotive Inc.
Date of Manufacture	01/07

GVWR (kg)	2475
GAWR Front (kg)	1175
GAWR Rear (kg)	1325

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench	Split Folding Bench	
Number Of Occupants	2	3	2	7
Capacity Wt. (VCW) (kg)				549
Cargo Wt. (RCLW) (kg)				73

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	513.9	433.6		562.0	530.3	
Right	kg	511.7	421.4		512.6	503.0	
Ratio	%	54.5	45.5		51.0	49.0	
Totals	kg	1025.6	855.0	1880.6	1074.6	1033.3	2107.9

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1880.6
Weight of 2 P572M ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	73
Calculated Vehicle Target Weight (TVTW)	kg	2115.1

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

Weight of Ballast in Cargo Area: 49.0 kg

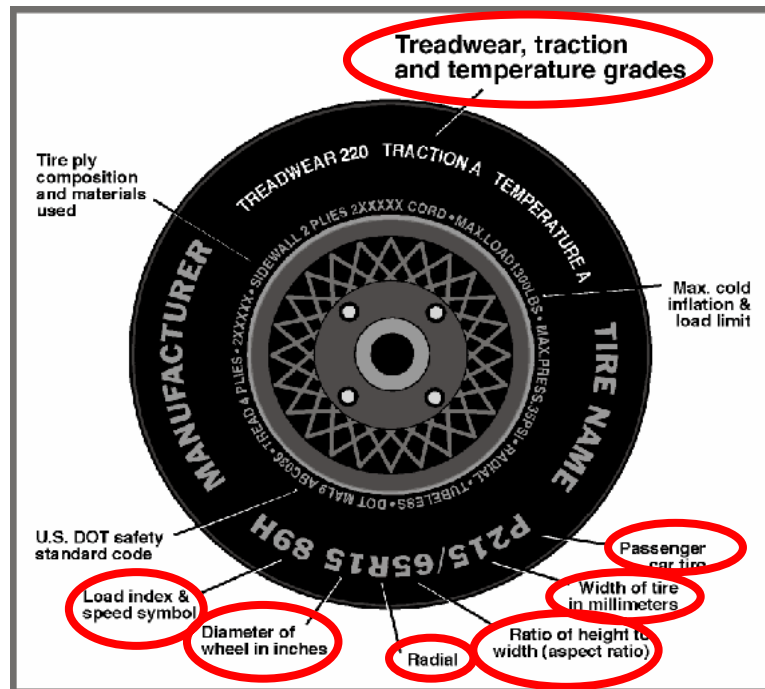
TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	829	824	844	850	1300
As Tested	mm	817	820	810	825	1402
Fully Loaded	mm	815	819	809	825	

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2860
Target Impact Point Aft of Front Axle	mm	492
Actual Impact Point Aft of Front Axle	mm	490

DATA SHEET NO. 2
TEST VEHICLE TIRE INFORMATION



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	240	240
Cold / Test Pressure (kPa)	210	210
Recommended Tire Size	P235/65R16	P235/65R16
Tire Size on Vehicle	P235/65R16	P235/65R16
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Dueler H/T	Dueler H/T
Tire Type	Passenger	Passenger
Tire Width (mm)	235	235
Ratio of Height to Width (aspect ratio)	65	65
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	101S	101S
Treadwear	360	360
Traction Grade	B	B
Temperature Grade	B	B

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

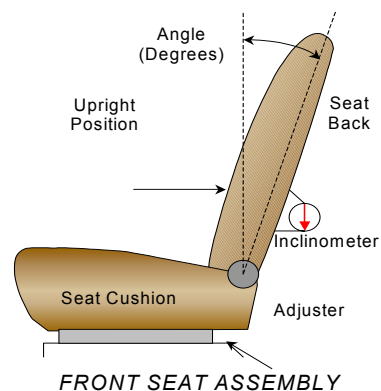
NHTSA No. X80501
 Test Date: 5/22/2007

NORMAL DESIGN RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle. The procedure is as follows:
 Driver seat back angle at test position can be achieved by measuring 4.5 degrees across the headrest support posts.
 Passenger seat back should be set at the forward-most detent.

Driver seat back angle: 4.5° at headrest post

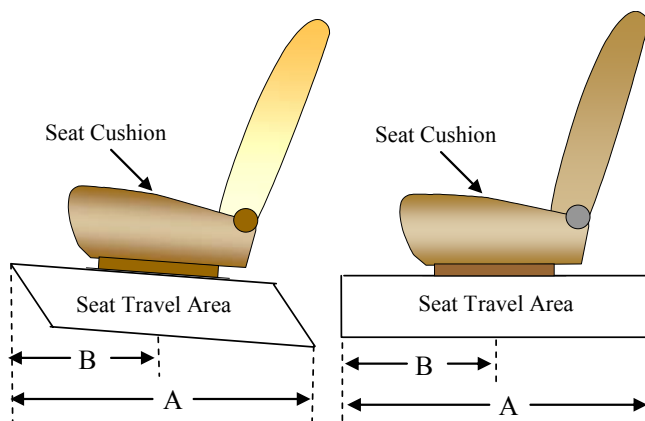
Passenger seat back set at the forward-most detent.



SEAT FORE/AFT POSITIONS

SEAT FORE/AFT POSITIONS

	Total Fore/Aft Travel	Placed in position #
Driver Seat	24 detents	12 th detent
Rear Seat	non adjustable	non adjustable



DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

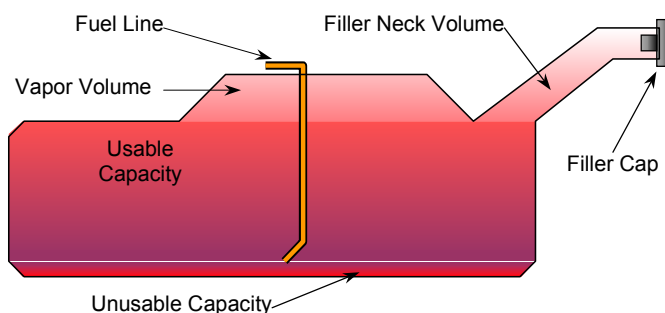
Test Vehicle: 2008 Suzuki XL7
Test Program: NCAP Side Impact

NHTSA No. X80501
Test Date: 5/22/2007

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	70.0
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	64.4 – 65.8
Actual Amount of Solvent used	65.4
1/3 of Usable Capacity	23.3

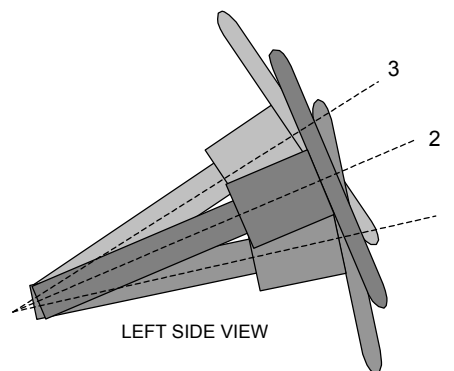
The vehicle is equipped with electric fuel pump. Fuel pump runs continuously – excess fuel volume not utilized by the engine is recycled back to the fuel bank. Fuel pump is located in fuel tank and cycling takes place internally in the fuel tank.



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		68.7
Geometric center position No. 2		66.7
Uppermost position No. 3		64.7

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

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	62.0
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.0
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	2 forward
Vertical Offset	mm	+/-20	12 up

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID HIII / 271	SID HIII / 904
Head Contact	Curtain Airbag	Curtain Airbag, side header
Upper Torso Contact	Door Panel	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

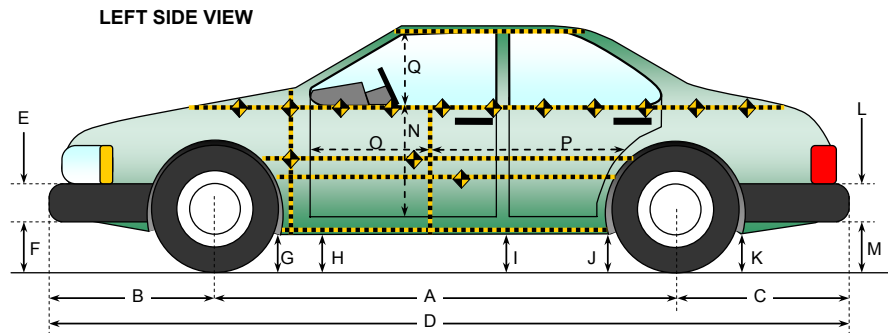
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Occupant Location 01		Occupant Location 04	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	Yes	No	
Side Torso Airbag	No		No	
Curtain Airbag	Yes	Yes	Yes	Yes

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



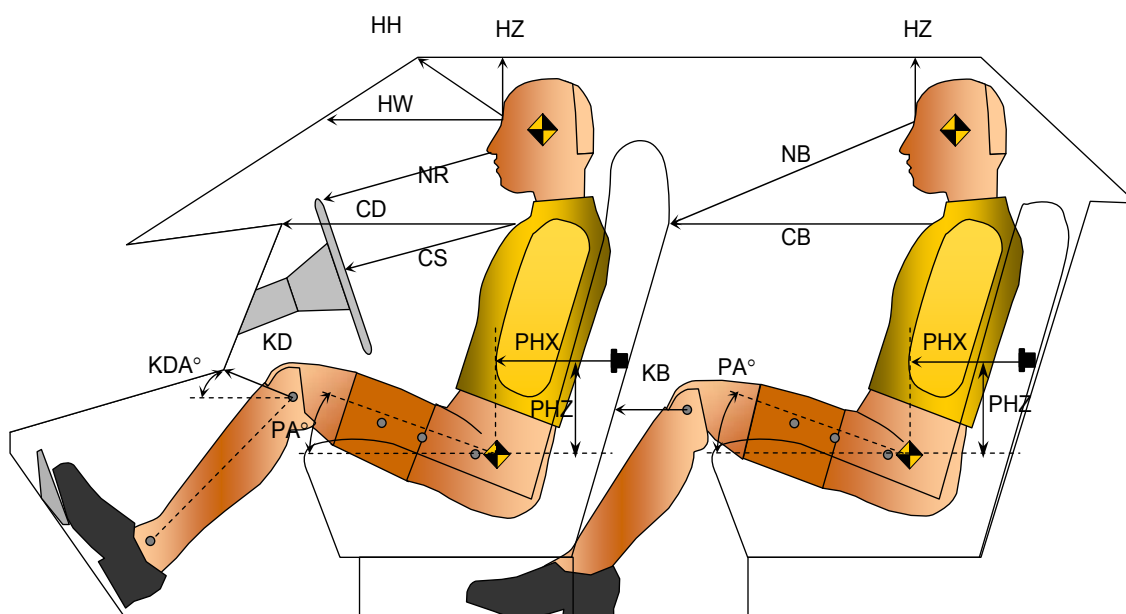
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2860	2826	34
B	Front Axle to FSOV	969	984	-15
C	Rear Axle to RSOV	1142	1162	-20
D	Total Length at Centerline	4971	4972	-1
E	Front Bumper Thickness	150	150	0
F	Front Bumper Bottom to Ground	422	426	-4
G	Sill Height at Front Wheel Well	236	242	-6
H	Sill Height at Front Door Leading Edge	246	241	5
I	Sill Height at "B" Pillar	243	260	-17
J1	Sill Height at Rear Wheel Well	245	271	-26
J2	Pinch Weld Height at Rear Wheel Well	226	262	-36
K	Sill Height Aft of Rear Wheel Well	302	311	-9
L	Rear Bumper Thickness	272	272	0
M	Rear Bumper Bottom to Ground	376	367	9
N	Sill Height to Window Bottom Sill	792	707	85
O	Front Door Leading Edge to Impact CL	785	773	12
P	Rear Door Trailing Edge to Impact CL	1378	1264	114
Q	Front Window Opening	485	468	17
R	Right Side Length	3933	3939	-6
S	Left Side Length	3932	3886	46
T	Vehicle Width at "B" Post	1784	1498	286

DATA SHEET NO. 7
SID/HII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

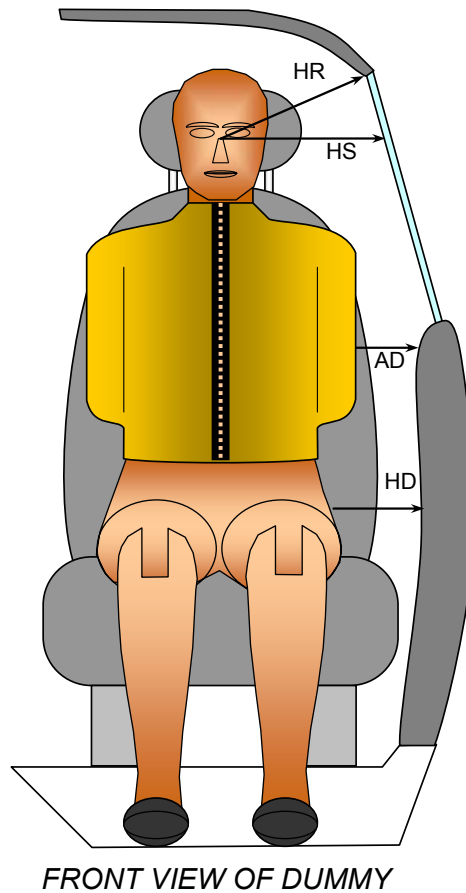


Driver Code	Pass. Code	Measurement Description	Driver S/N 271		Passenger S/N 904	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	427			
HW		Head to Windshield	706			
HZ	HZ	Head to Roof	208		180	
NR	NB	Nose to Rim/Nose to Seatback	445		632	
CD	CB	Chest to Dash or Seatback	543		571	
CS		Chest to Steering Wheel	342			
KDL	KBL	Left Knee to Dash or Seatback	176	29.7	232	25.8
KDR	KBR	Right Knee to Dash or Seatback	153	33.2	233	24.0
PA	PA	Pelvic Angle		24.2		23.6
PHX	PHX	H-Point to Striker (X-Axis)	195		236	
PHZ	PHZ	H-Point to Striker (Z-Axis)	102		255	

DATA SHEET NO. 8
SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

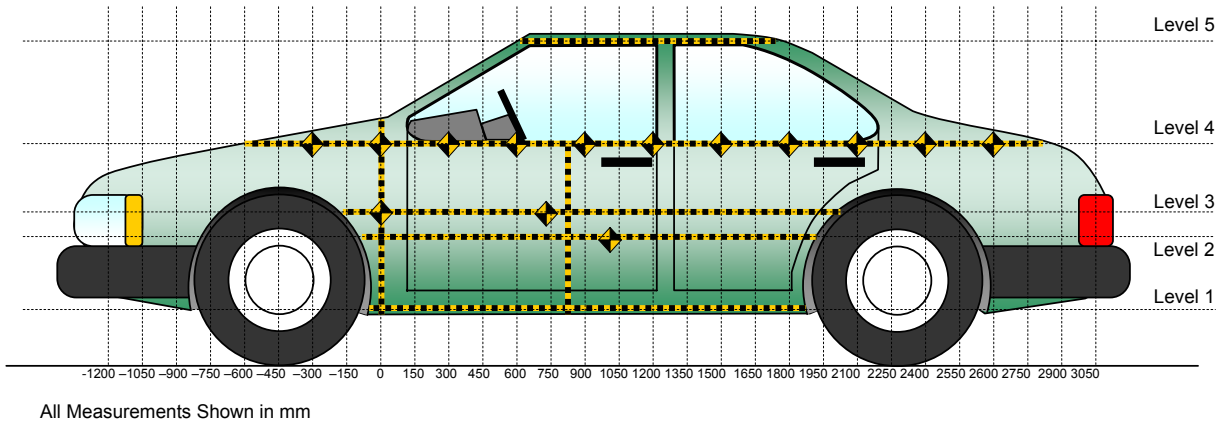


Code	Measurement Description	Units	Driver S/N 271	Passenger S/N 904
HR	Head to Side Header	mm	212	182
HS	Head to Side Window	mm	356	328
AD	Arm to Door	mm	94	98
HD	H-Point to Door	mm	136	132

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

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



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	54	1500	1614
4	Window Sill	158	1200	784
3	Mid Door	315	1500	727
2	Occupant H-Point	300	1350	591
1	Sill Top	203	1200	370
	Maximum Penetration	315		

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-750				315					309					-6	
-600				300					302					2	
-450				290					299					9	
-300				286					303					17	
-150				284					308					24	
0	234	210	207	280		273	272	268	308		39	62	61	28	
150	270	236	226	282		368	379	373	256		98	143	147	-26	
300	274	235	224	282		392	451	401	297		118	216	177	15	
450	274	233	222	280		413	474	434	327		139	241	212	47	
600	273	231	220	279	494	423	458	459	341	502	150	227	239	62	8
750	272	228	218	278	484	429	452	466	356	496	157	224	248	78	12
900	271	226	216	281	479	438	452	477	374	498	167	226	261	93	19
1050	272	225	215	282	477	431	459	492	393	501	159	234	277	111	24
1200	272	224	215	283	476	475	506	514	441	509	203	282	299	158	33
1350	273	223	214	285	474	474	523	527	433	513	201	300	313	148	39
1500	273	223	214	286	472	473	489	529	424	526	200	266	315	138	54
1650	272	222	214	289	472	471	482	522	418	514	199	260	308	129	42
1800	249	218	213	290	472	440	478	509	385	509	191	260	296	95	37
1950		196	196	294	472		357	382	357	504		161	186	63	32
2100			189	297	473			266	342	497			77	45	24
2250				301	474				355	491				54	17
2400				304	478				344	490				40	12
2550				311	482				336	490				25	8
2700				320	488				332	495				12	7
2850				333	501				331	505				-2	4
3000				347					345					-2	
3150				371					368					-3	

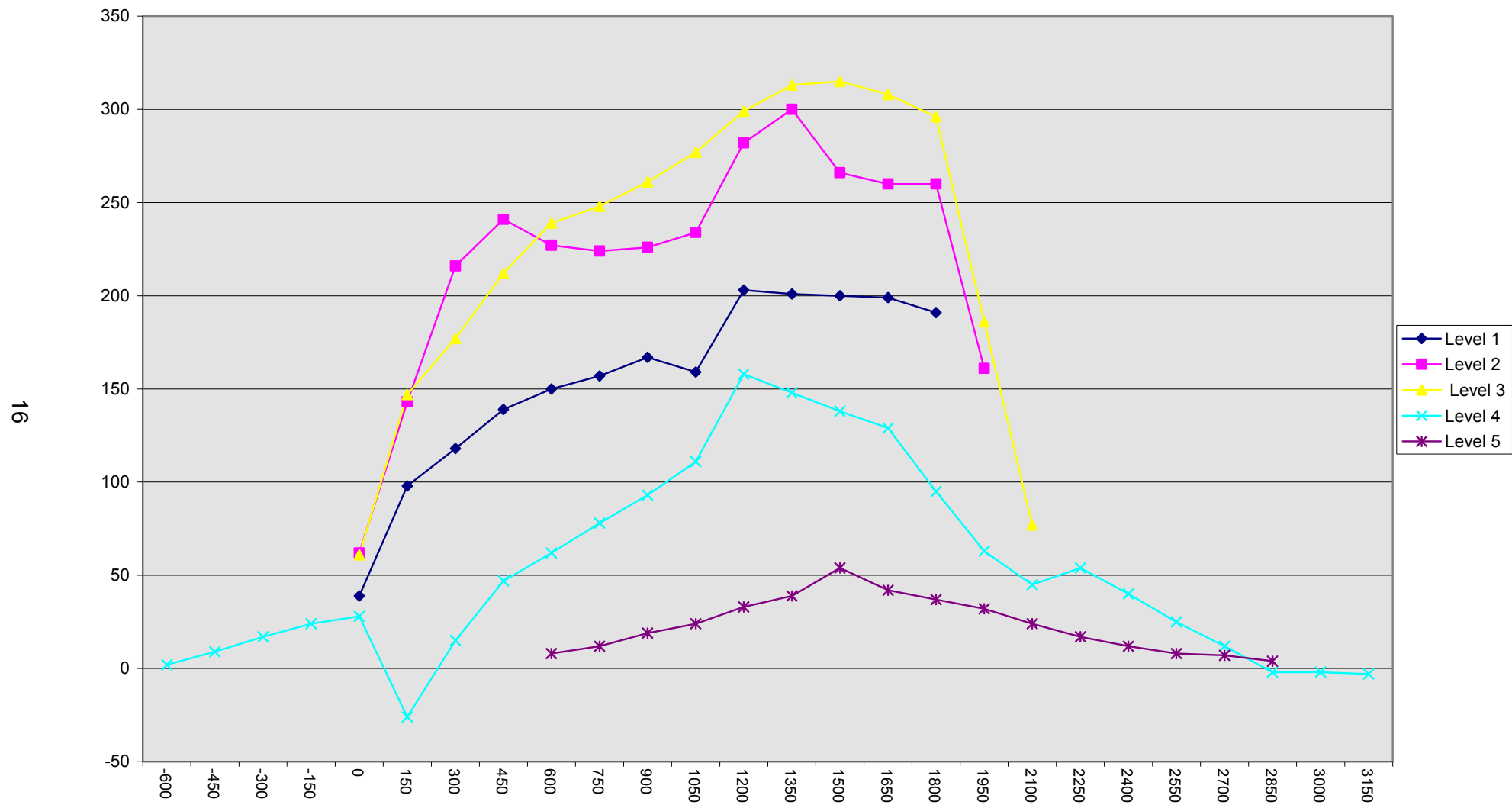
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

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

Test Vehicle: 2008 Suzuki XL7
Test Program: NCAP Side Impact

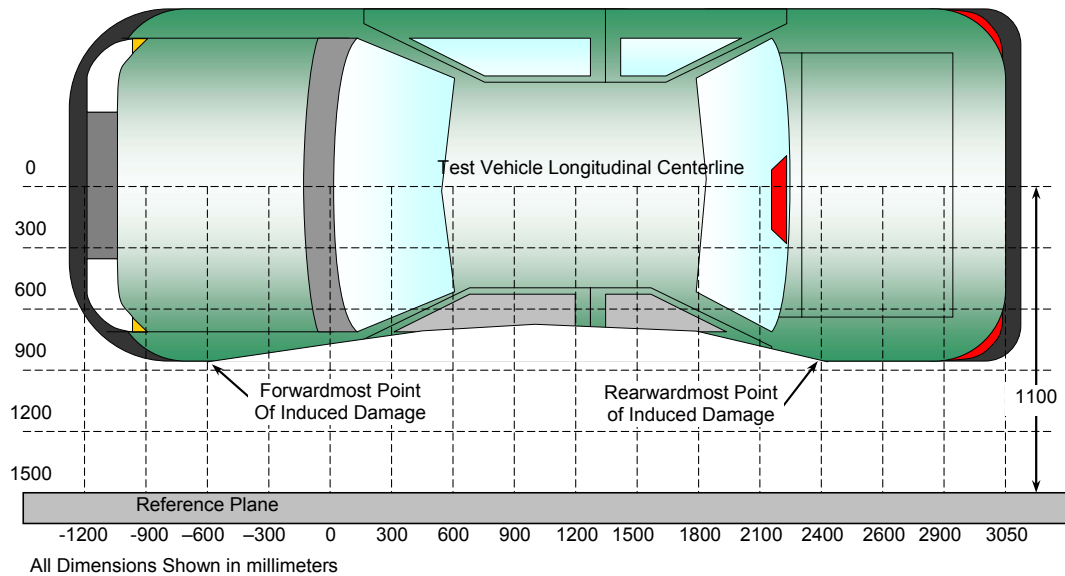
NHTSA No. X80501
Test Date: 5/22/2007



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2850	4	333	332	-2
2	2158	4	298	340	42
3	1418	3	214	542	328
4	724	3	278	491	213
5	183	2	235	310	75
6	-600	4	300	302	2

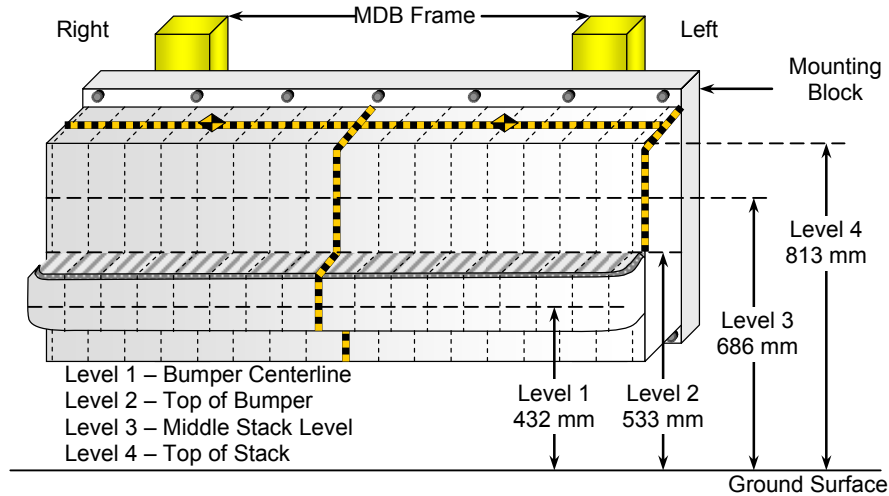
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



DEFORMABLE BARRIER STATIC CRUSH

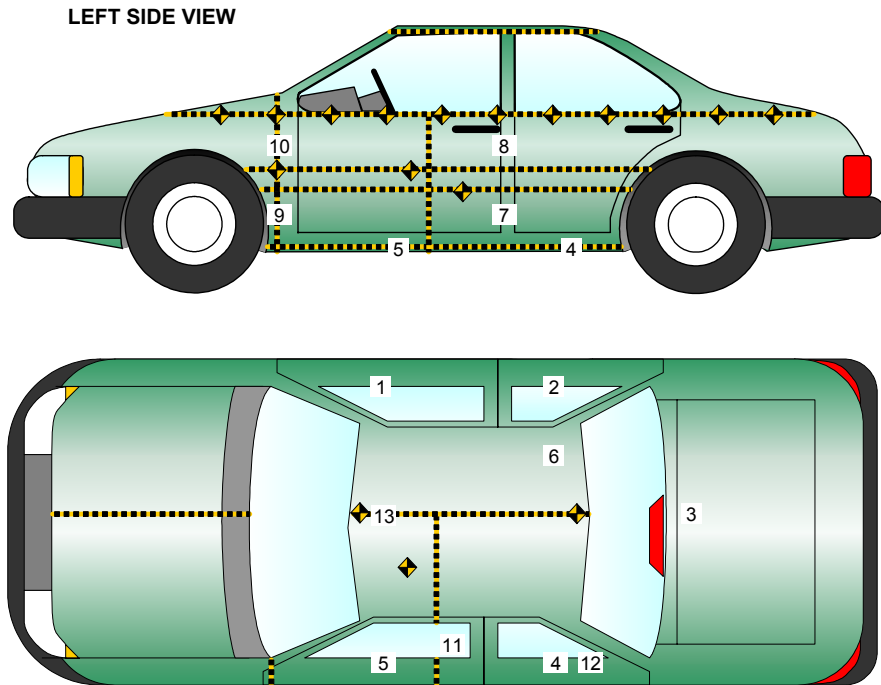
Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	170	163	148	141	141	146	150	149	154	155	157	163	170	166	170	176	200
2	124	99	86	77	75	73	73	75	78	78	75	74	75	79	89	99	114
3	67	41	29	24	24	24	19	31	19	20	19	22	24	39	63	94	127
4	65	41	30	20	6	11	21	19	17	23	27	35	45	55	69	97	163

All Dimensions in mm

DATA SHEET NO. 13
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



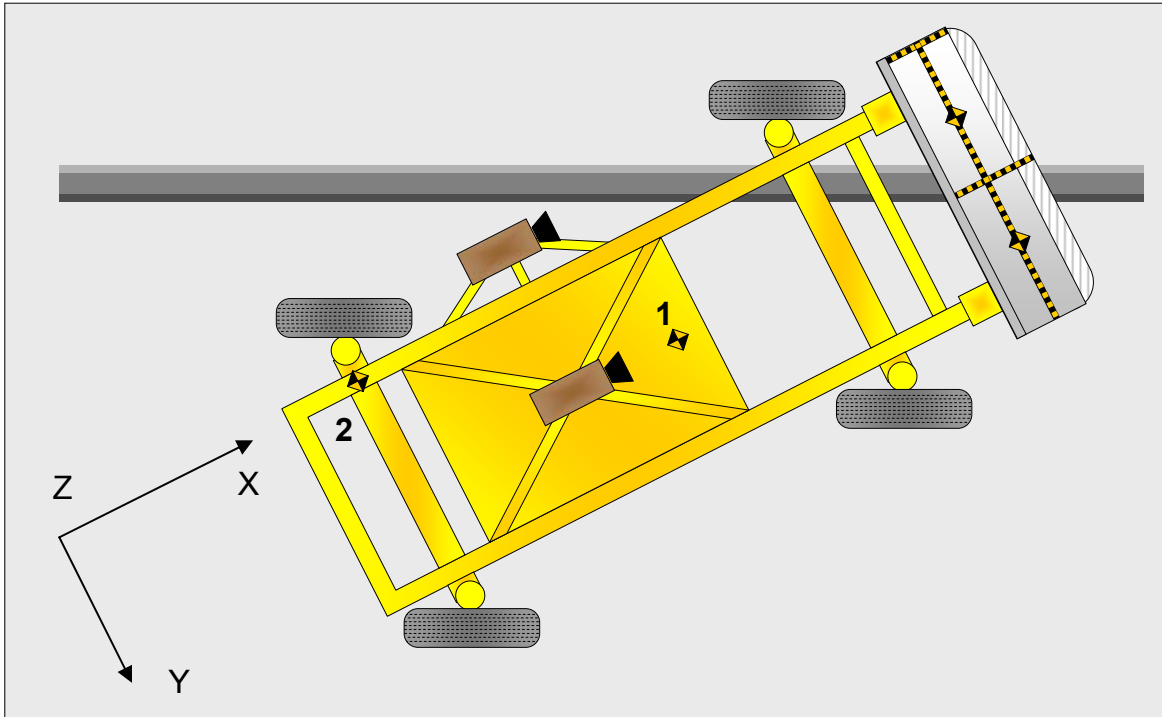
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2902	713	283
2	Right Sill at Rear Seat	1671	723	271
3	Rear Floorpan Above Axle	725	0	553
4	Left Sill at Rear Door	1662	-713	275
5	Left Sill at Front Door	2876	-723	279
6	Rear Occupant Compartment	2038	420	468
7	Left Lower B-Post	2409	-698	724
8	Left Middle B-Post	2390	-684	917
9	Left Lower A-Post	3458	-739	576
10	Left Middle A-Post	3470	-746	854
11	Front Seat Track	2516	-585	478
12	Rear Seat Track or Structure	1976	-372	592
13	Vehicle CG	3285	0	351

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 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



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 Suzuki XL7
Test Program: NCAP Side Impact

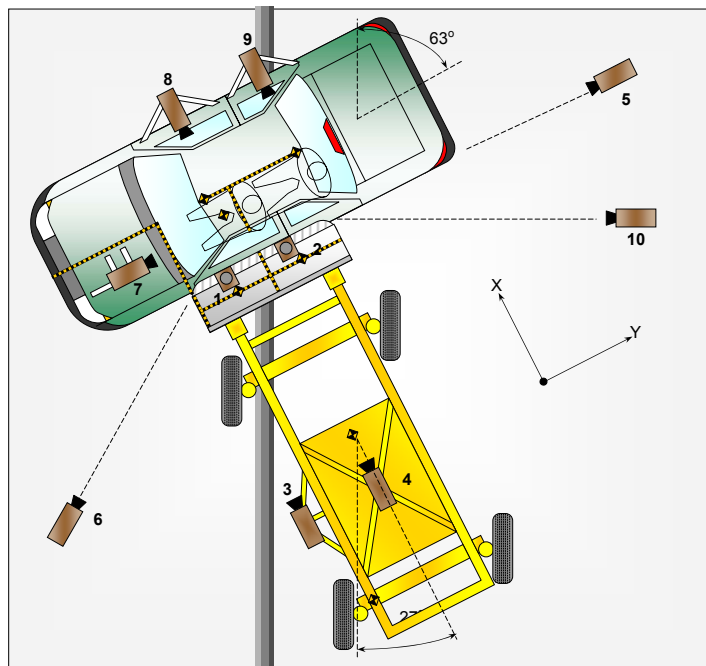
NHTSA No. X80501
Test Date: 5/22/2007

	Elements	Pre-Test (mm)
1	Total Length	4971
2	Total Width	1784
3	Bumper Top Height	554
4	Bumper Bottom Height	418
5	Longitudinal Member Top Height	346
6	Distance between Longitudinal Members	878
7	Longitudinal Member Width	85
8	Engine Top Height	1014
9	Engine Bottom Height	225
10	Engine and gearbox width	686
11	Front bumper-engine distance	550
12	Front shock absorber fixing height	995
13	Bonnet leading edge height	918
14	Front shock absorber fixing width	1164
15	Front bumper – front axle distance	969
16	Front axle – a pillar distance	426
17	A-pillar – B-pillar distance	1178
18	B-Pillar – rear axle distance	1260
19	B-pillar – C-pillar distance	829
20	Roof sill bottom height	1574
21	Roof sill top height	1637
22	Floor sill bottom height	271
23	Floor sill top height	383

DATA SHEET NO. 16
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2008 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Close-up	770	0	4840	50	1000
2	Overhead Overall	-670	1065	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	-2090	6280	1245	24	1000
6	Left Side, Ground Level, Overall	2100	-4450	1190	24	1000
7	Vehicle Onboard Front SID/HIII, Front				12.5	1000
8	Vehicle Onboard Front SID/HIII, Side				10	1000
9	Vehicle Onboard Rear SID/HIII, Side				8.5	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 Suzuki XL7
 Test Program: NCAP Side Impact

NHTSA No. X80501
 Test Date: 5/22/2007

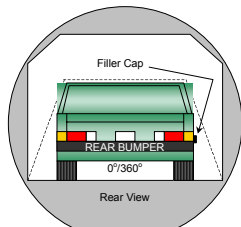
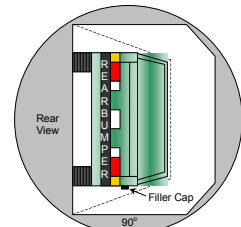
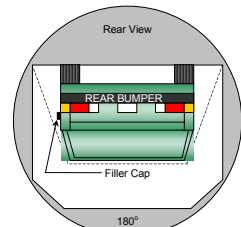
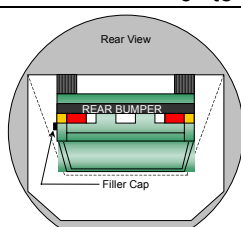
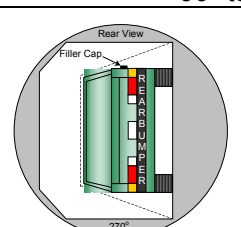
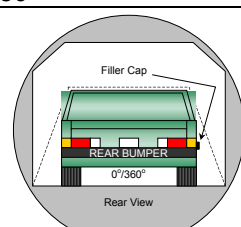
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 12:02 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

			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	302	First 5	0
90° to 180°	116	308	First 5	0
180° to 270°	117	306	First 5	0
270° to 360°	118	304	First 5	0

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

	<u>Page No.</u>
Photo No. 1. Left Front $\frac{3}{4}$ View, As Received	A-1
Photo No. 2. Right Rear $\frac{3}{4}$ View, As Received	A-1
Photo No. 3. Manufacturer's Label	A-2
Photo No. 4. Tire Placard	A-2
Photo No. 5. Pre-Test Front View	A-3
Photo No. 6. Post-Test Front View	A-3
Photo No. 7. Pre-Test Left Front $\frac{3}{4}$ View	A-4
Photo No. 8. Post-Test Left Front $\frac{3}{4}$ View	A-4
Photo No. 9. Pre-Test Left Side View	A-5
Photo No. 10. Post-Test Left Side View	A-5
Photo No. 11. Pre-Test Left Rear $\frac{3}{4}$ View	A-6
Photo No. 12. Post-Test Left Rear $\frac{3}{4}$ View	A-6
Photo No. 13. Pre-Test Rear View	A-7
Photo No. 14. Post-Test Rear View	A-7
Photo No. 15. Pre-Test Right Rear $\frac{3}{4}$ View	A-8
Photo No. 16. Post-Test Right Rear $\frac{3}{4}$ View	A-8
Photo No. 17. Pre-Test Right Side View	A-9
Photo No. 18. Post-Test Right Side View	A-9
Photo No. 19. Pre-Test Right Front $\frac{3}{4}$ View	A-10
Photo No. 20. Post-Test Right Front $\frac{3}{4}$ View	A-10
Photo No. 21. Pre-Test Overhead View	A-11
Photo No. 22. Post-Test Overhead View	A-11
Photo No. 23. Pre-Test Left Impact Point	A-12
Photo No. 24. Post-Test Left Impact Point	A-12
Photo No. 25. Pre-Test Front $\frac{3}{4}$ View of Left Side Doors	A-13
Photo No. 26. Post-Test Front $\frac{3}{4}$ View of Left Side Doors	A-13
Photo No. 27. Pre-Test Rear $\frac{3}{4}$ View of Left Side Doors	A-14
Photo No. 28. Post-Test Rear $\frac{3}{4}$ View of Left Side Doors	A-14
Photo No. 29. Pre-Test Left Side Impact Close-up	A-15
Photo No. 30. Post-Test Left Side Impact Close-up	A-15
Photo No. 31. Pre-Test Driver Dummy (Door Open)	A-16

	<u>Page No.</u>
Photo No. 32. Post-Test Driver Dummy Clearance From Door	A-16
Photo No. 33. Pre-Test Driver Dummy (Through Window)	A-17
Photo No. 34. Post-Test Driver Dummy (Through Window)	A-17
Photo No. 35. Pre-Test Driver Dummy Right Side View	A-18
Photo No. 36. Post-Test Driver Dummy Right Side View	A-18
Photo No. 37. Pre-Test Passenger Dummy (Door Open)	A-19
Photo No. 38. Post-Test Passenger Dummy Clearance From Door	A-19
Photo No. 39. Pre-Test Passenger Dummy (Through Window)	A-20
Photo No. 40. Post-Test Passenger Dummy (Through Window)	A-20
Photo No. 41. Pre-Test Passenger Dummy Right Side View	A-21
Photo No. 42. Post-Test Passenger Dummy Right Side View	A-21
Photo No. 43. Pre-Test Front View of Deformable Barrier	A-22
Photo No. 44. Post-Test Front View of Deformable Barrier	A-22
Photo No. 45. Pre-Test Top View of Deformable Barrier	A-23
Photo No. 46. Post-Test Top View of Deformable Barrier	A-23
Photo No. 47. Pre-Test Right Side View of Deformable Barrier	A-24
Photo No. 48. Post-Test Right Side View of Deformable Barrier	A-24
Photo No. 49. Pre-Test Left Side View of Deformable Barrier	A-25
Photo No. 50. Post-Test Left Side View of Deformable Barrier	A-25
Photo No. 51. Vehicle on Rollover Device (90 Degrees)	A-26
Photo No. 52. Vehicle on Rollover Device (180 Degrees)	A-26
Photo No. 53. Vehicle on Rollover Device (270 Degrees)	A-27
Photo No. 54. Vehicle on Rollover Device (360 Degrees)	A-27
Photo No. 55. Vehicle Impact	A-28
Photo No. 56. Post-Test Driver Dummy Head Contact	A-29
Photo No. 57. Post-Test Driver Dummy Torso Contact	A-29
Photo No. 58. Post-Test Driver Dummy Contact	A-30
Photo No. 59. Post-Test Passenger Dummy Head Contact	A-31
Photo No. 60. Post-Test Passenger Dummy Torso Contact	A-31
Photo No. 61. Post-Test Passenger Dummy Contact	A-32



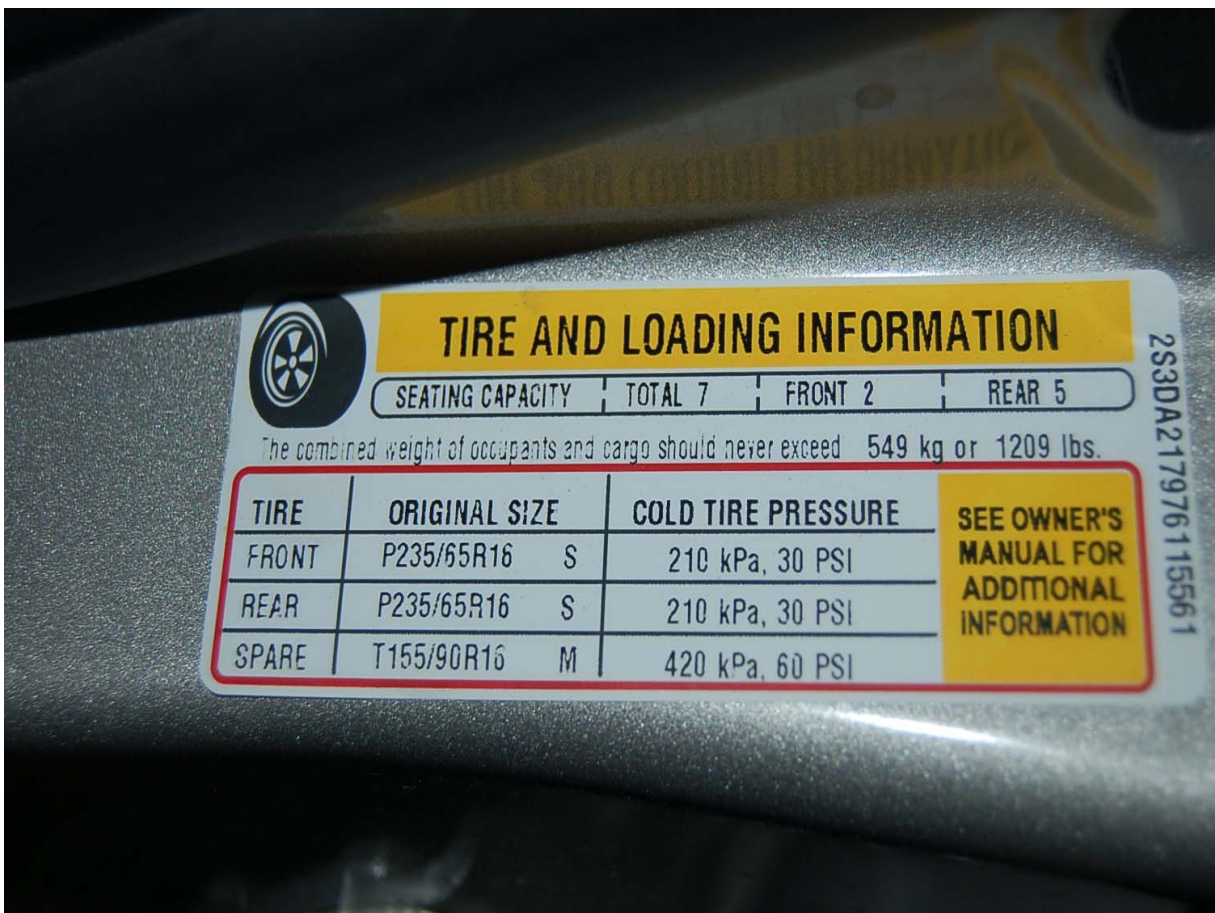
Left Front $\frac{3}{4}$ View, As Received



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



Manufacturer's Label



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



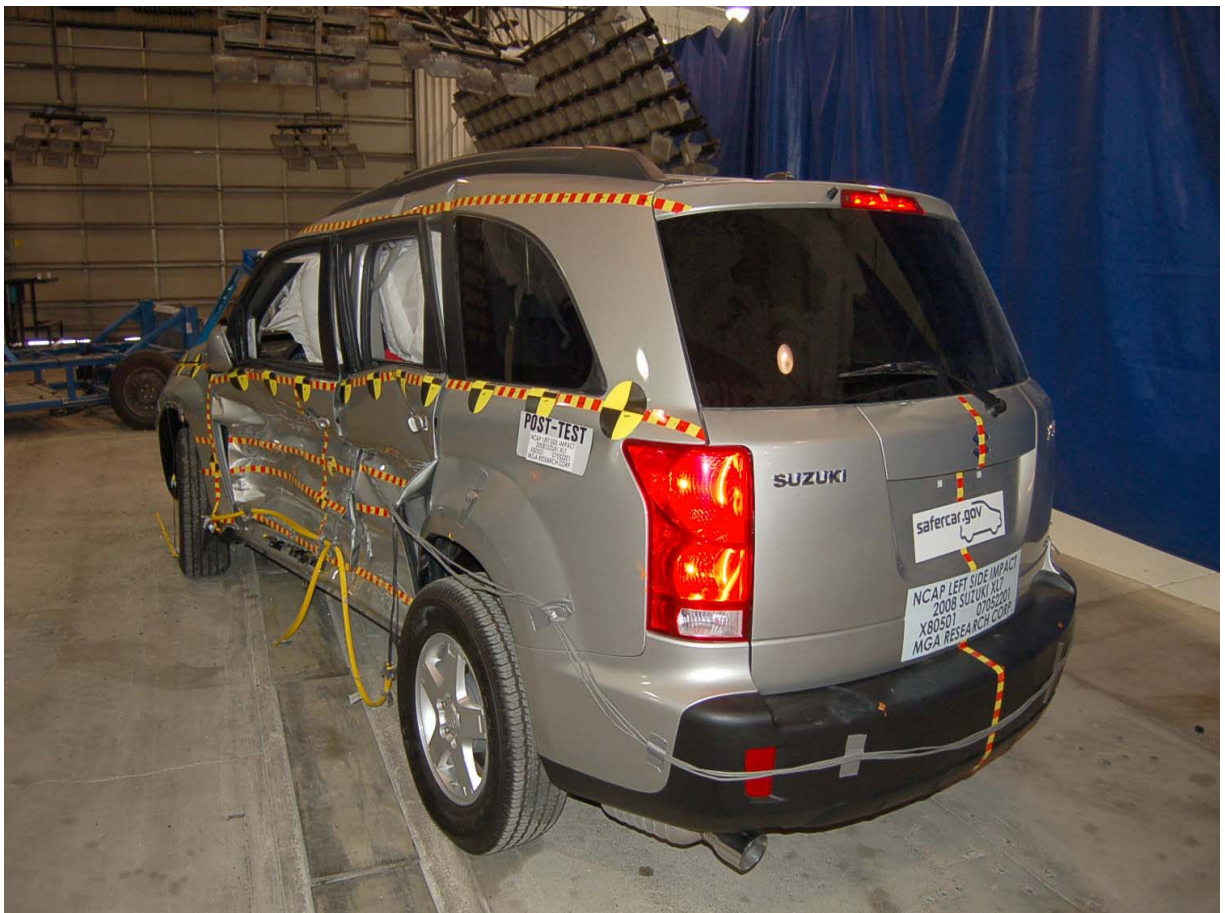
Pre-Test Left Side View



Post-Test Left Side View



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



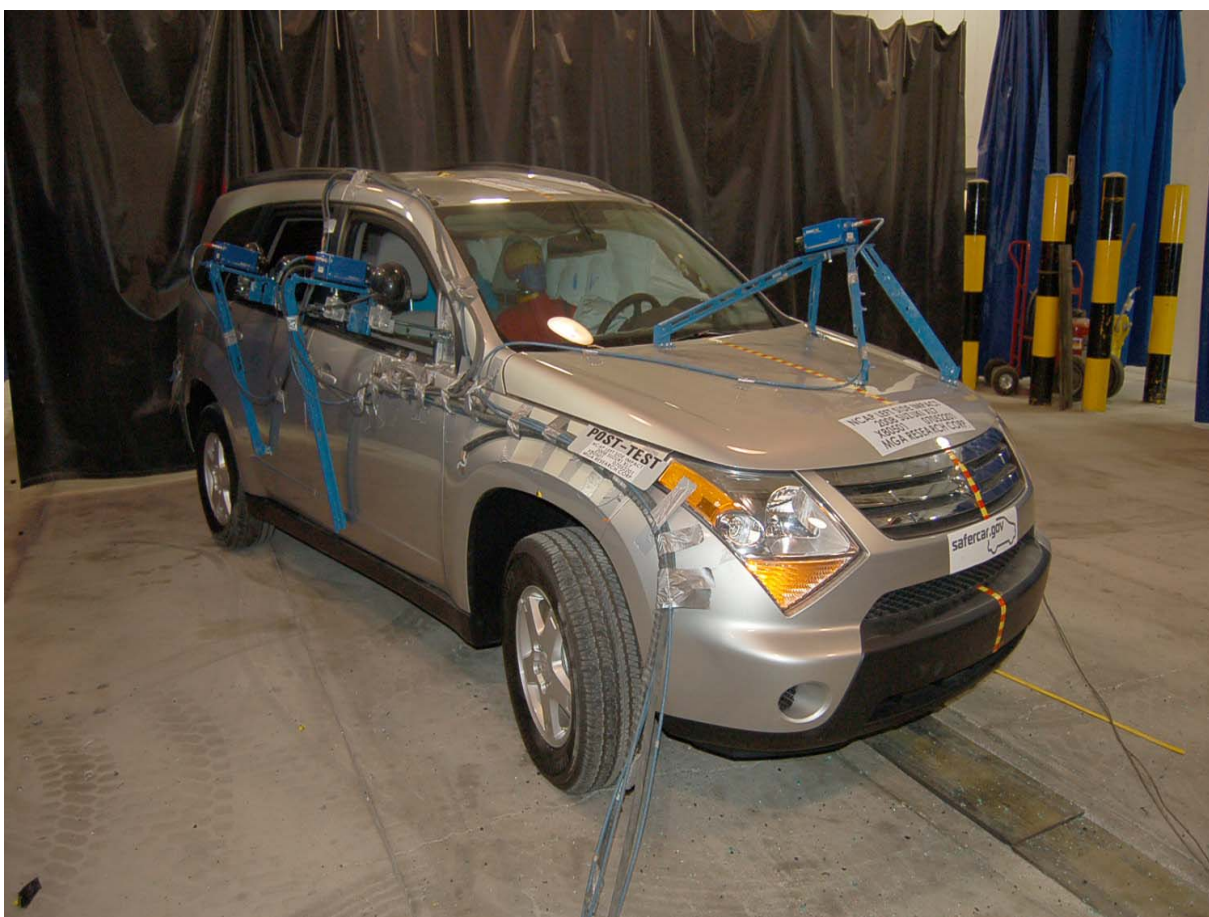
Pre-Test Right Side View



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 Doors



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



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



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



Pre-Test Left Side Impact Close-up



Post-Test Left Side Impact Close-up



Pre-Test Driver Dummy (Door Open)



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)



Post-Test Passenger Dummy Clearance From Door



Pre-Test Passenger Dummy (Through Window)



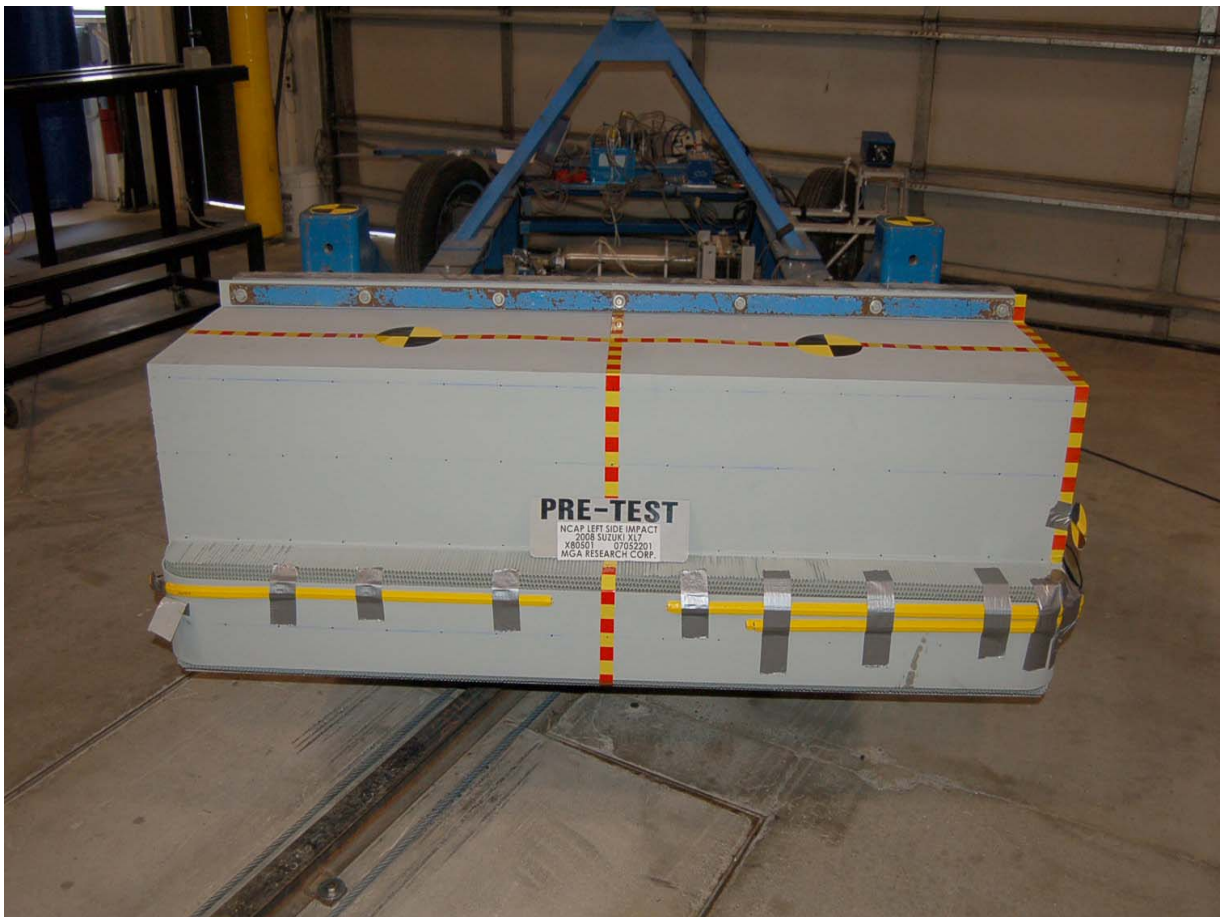
Post-Test Passenger Dummy (Through Window)



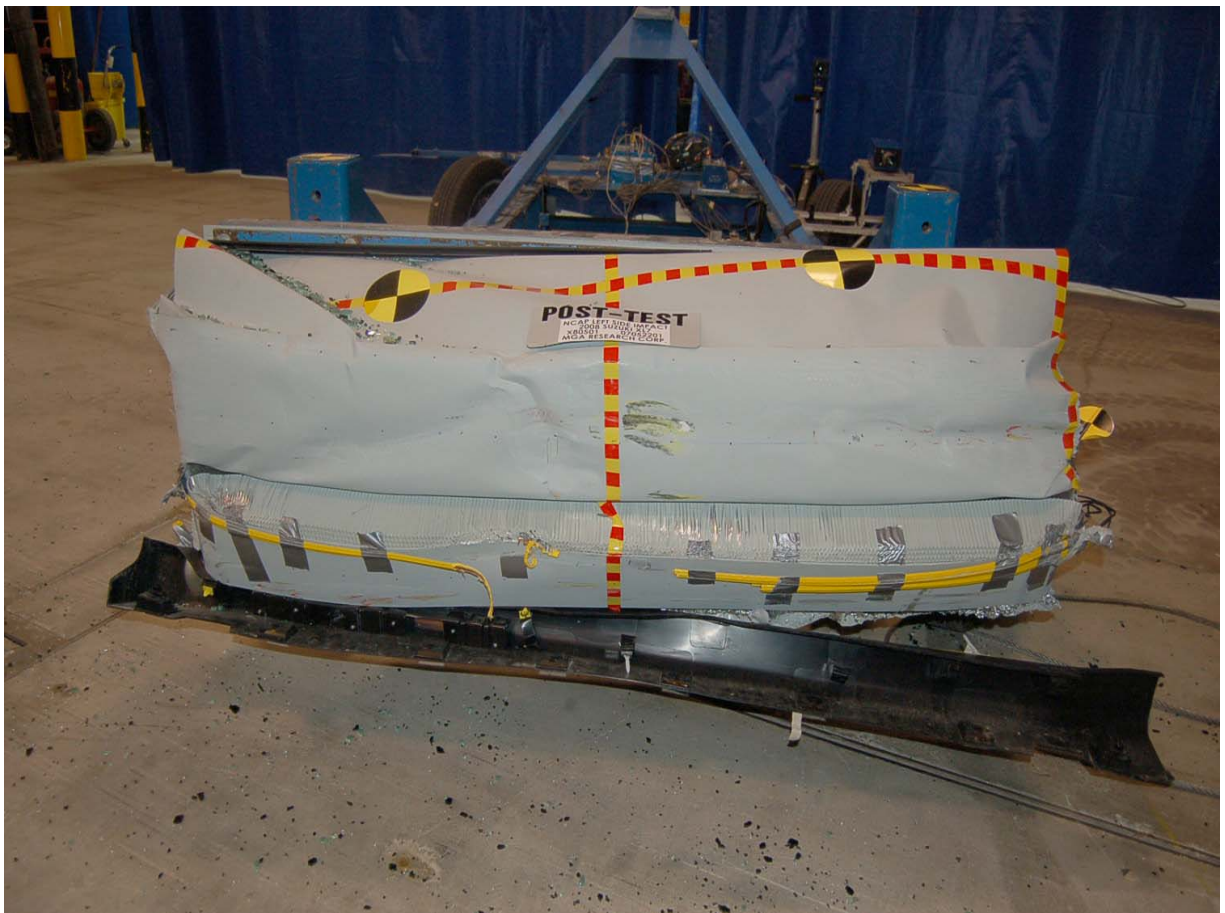
Pre-Test Passenger Dummy Right Side View



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



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



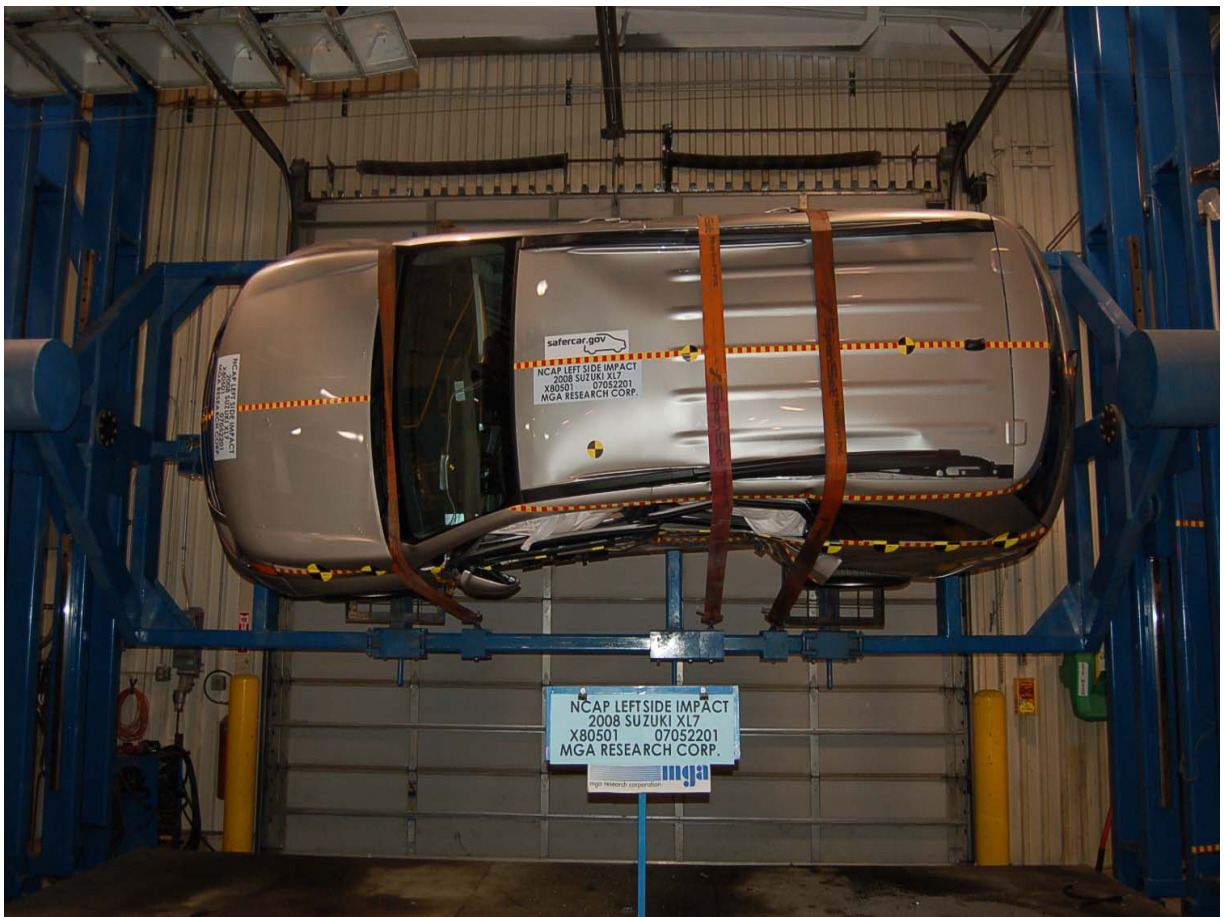
Post-Test Left Side View of Deformable Barrier



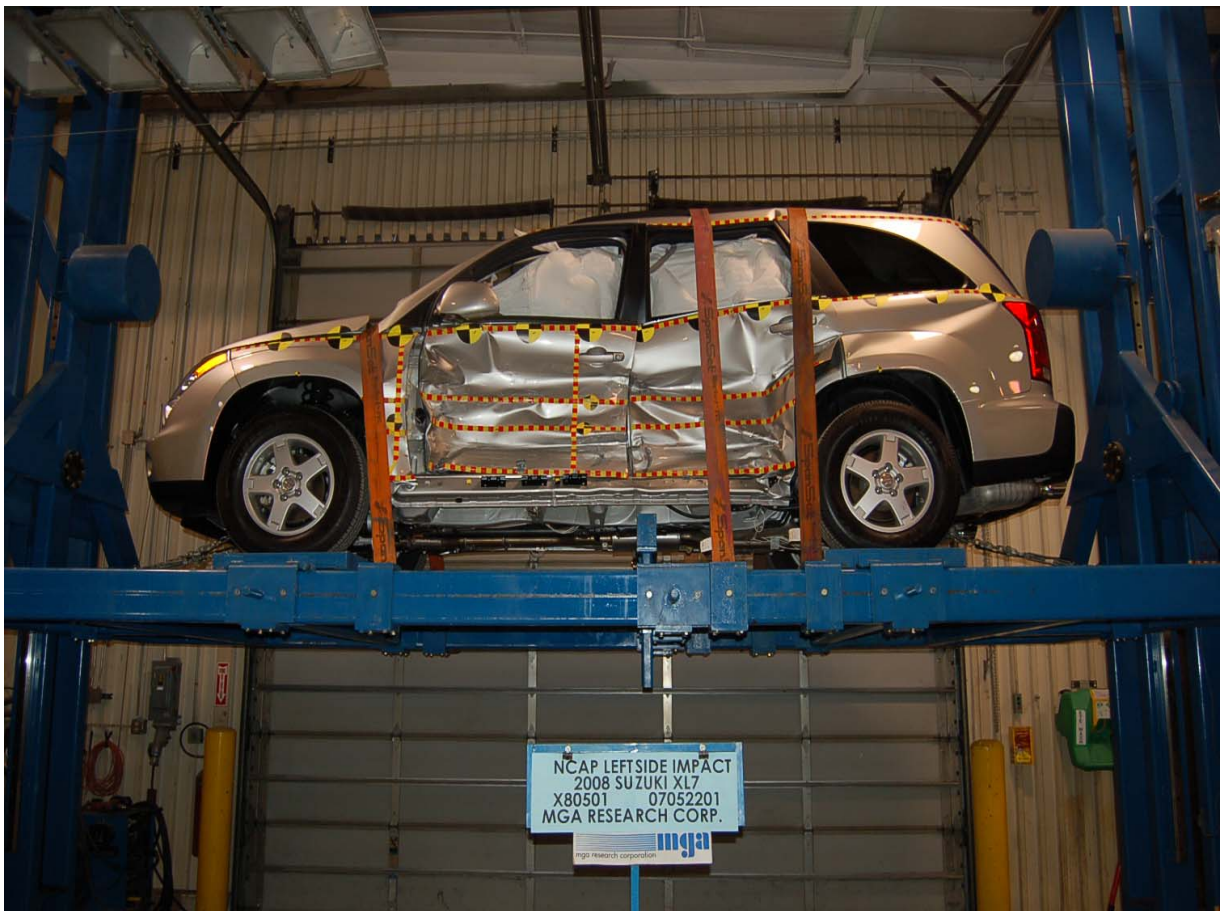
Vehicle on Rollover Device (90 Degrees)



Vehicle on Rollover Device (180 Degrees)



Vehicle on Rollover Device (270 Degrees)



Vehicle on Rollover Device (360 Degrees)

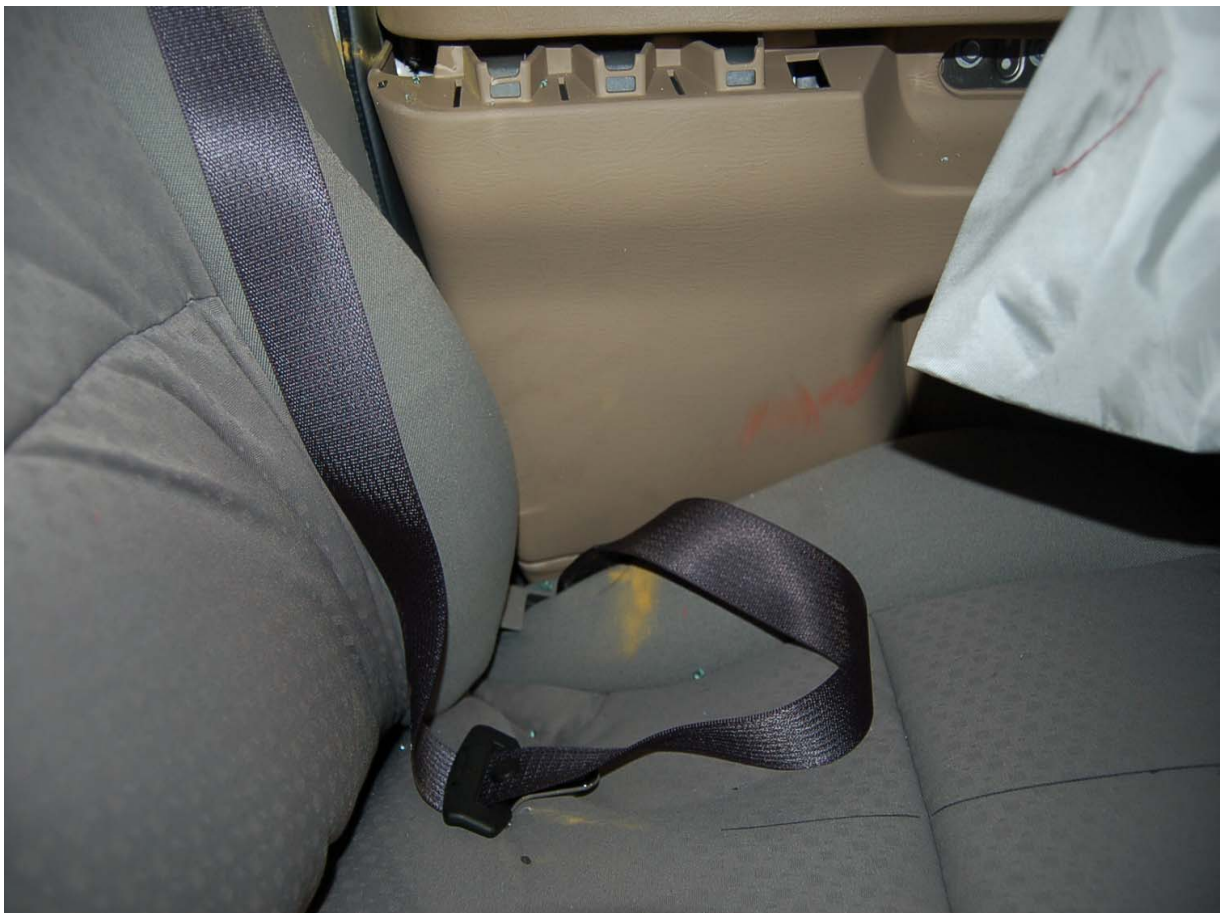


93,00 ms • 1,000 fps • T0: 21 • Frame: 114 • 22 May 2007 12:14

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

TABLE OF DATA PLOTS

Page No.

List of Data Plots Provided in the Test Report

Figure No. 1.	Driver Upper Rib Y Acceleration vs. Time	B-1
Figure No. 2.	Driver Upper Rib Y Velocity vs. Time	B-1
Figure No. 3.	Driver Lower Rib Y Acceleration vs. Time	B-1
Figure No. 4.	Driver Lower Rib Y Velocity vs. Time	B-1
Figure No. 5.	Driver Lower Spine Y Acceleration vs. Time	B-2
Figure No. 6.	Driver Lower Spine Y Velocity vs. Time	B-2
Figure No. 7.	Driver Pelvis Y Acceleration vs. Time	B-2
Figure No. 8.	Driver Pelvis Y Velocity vs. Time	B-2
Figure No. 9.	Passenger Upper Rib Y Acceleration vs. Time	B-3
Figure No. 10.	Passenger Upper Rib Y Velocity vs. Time	B-3
Figure No. 11.	Passenger Lower Rib Y Acceleration vs. Time	B-3
Figure No. 12.	Passenger Lower Rib Y Velocity vs. Time	B-3
Figure No. 13.	Passenger Lower Spine Y Acceleration vs. Time	B-4
Figure No. 14.	Passenger Lower Spine Y Velocity vs. Time	B-4
Figure No. 15.	Passenger Pelvis Y Acceleration vs. Time	B-4
Figure No. 16.	Passenger Pelvis Y Velocity vs. Time	B-4

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

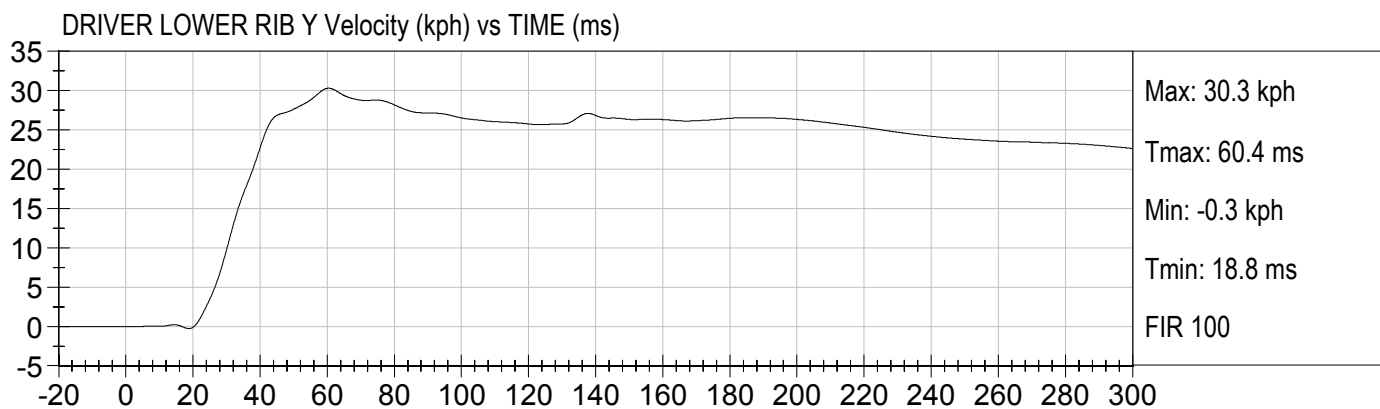
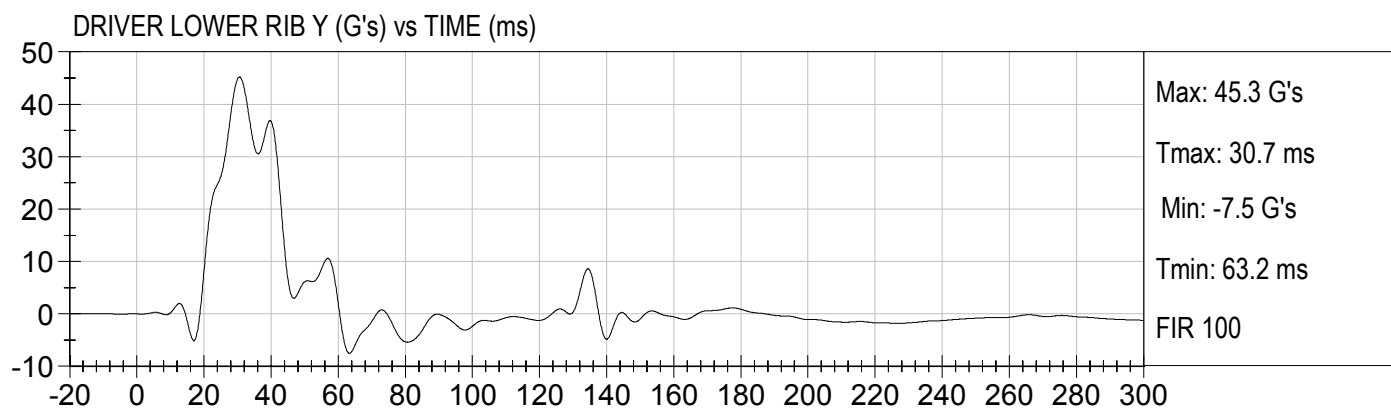
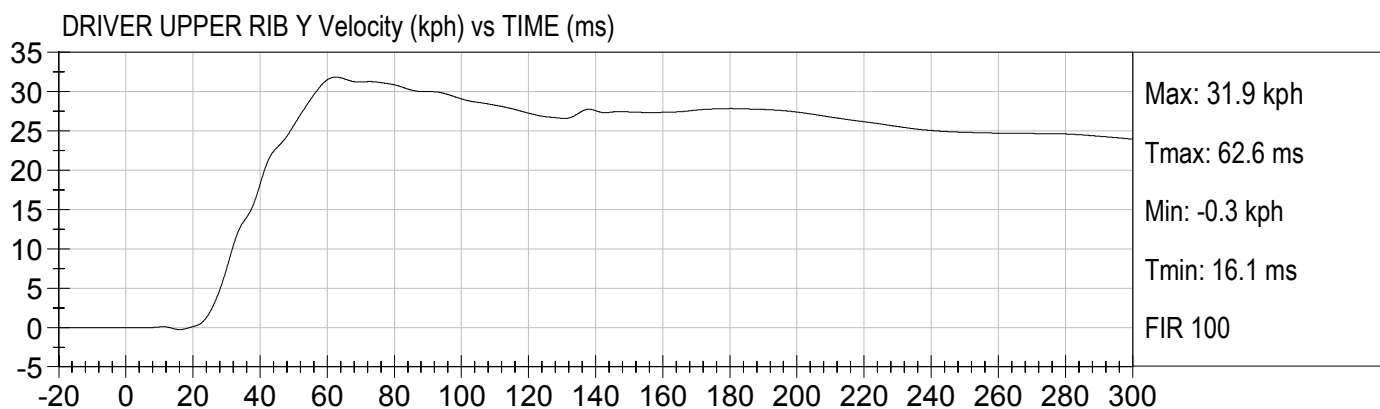
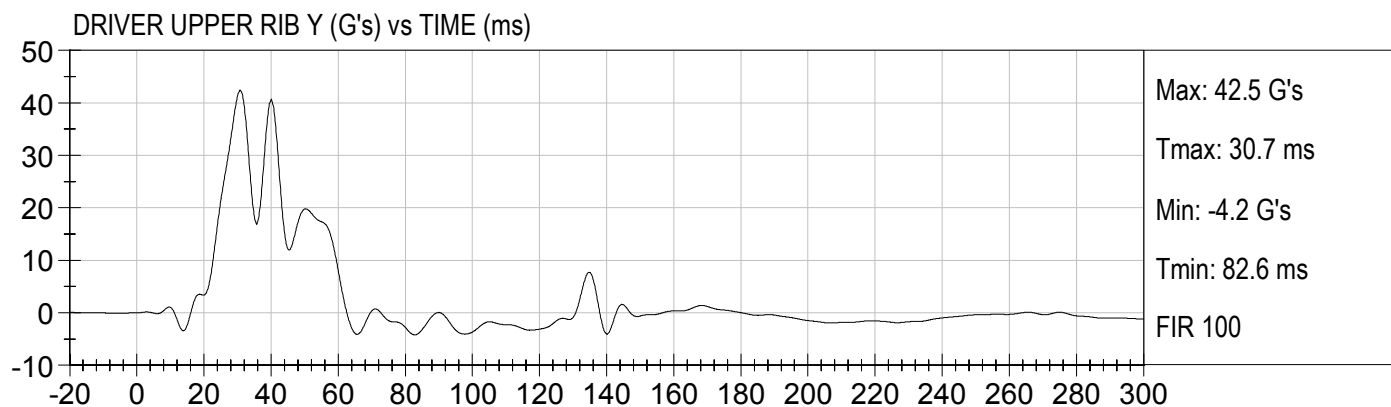
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head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



NCAP LEFT SIDE 38.5 MPH
2008 SUZUKI XL7 X80501

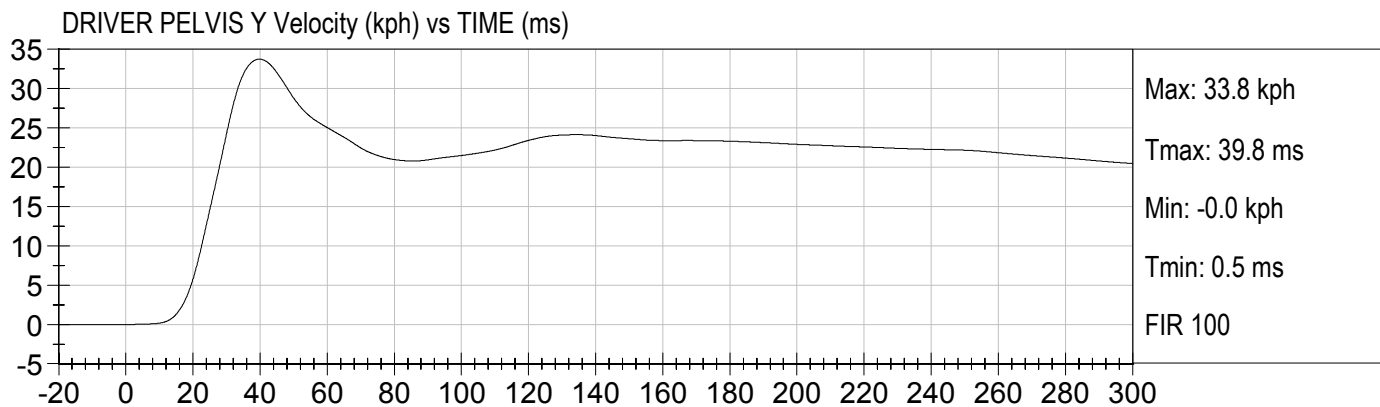
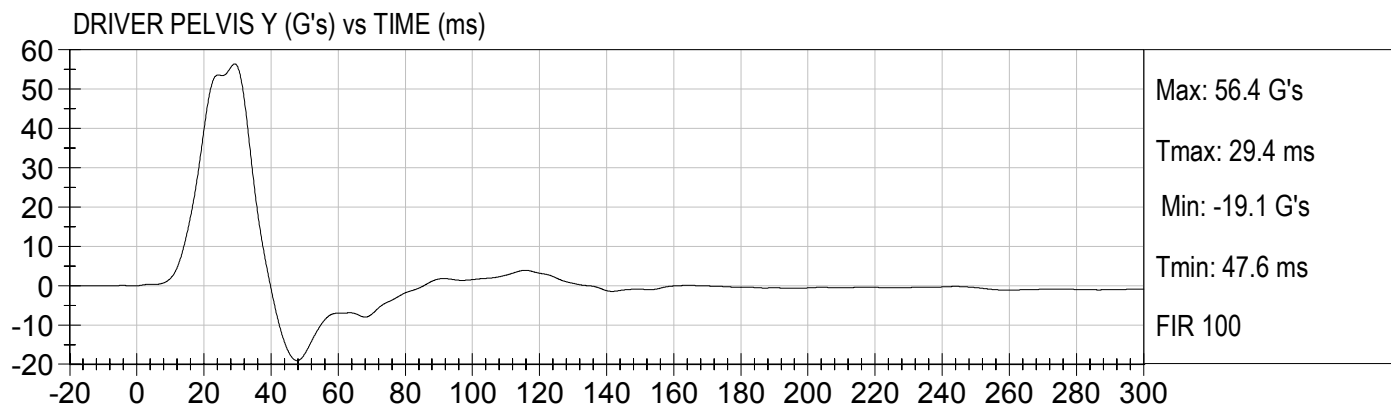
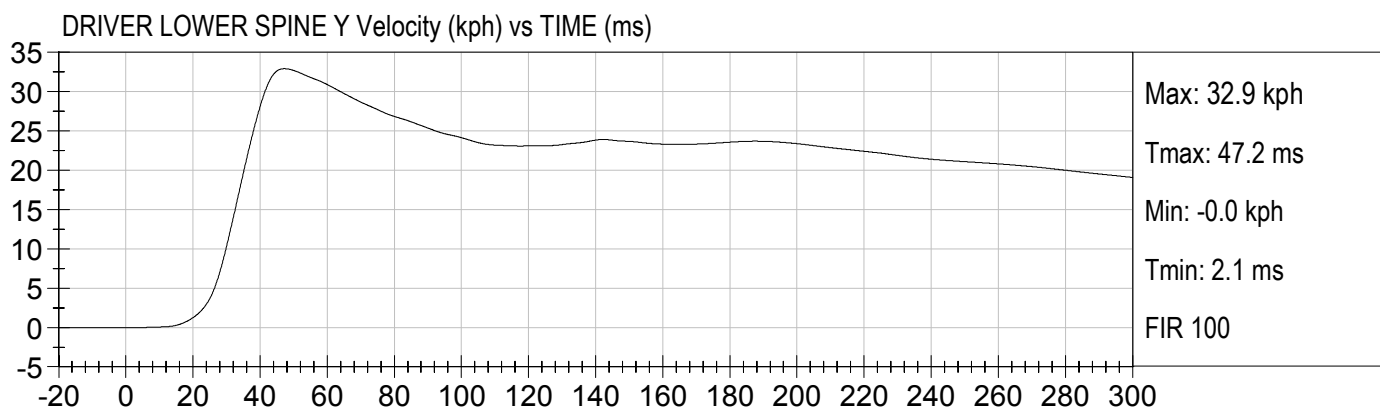
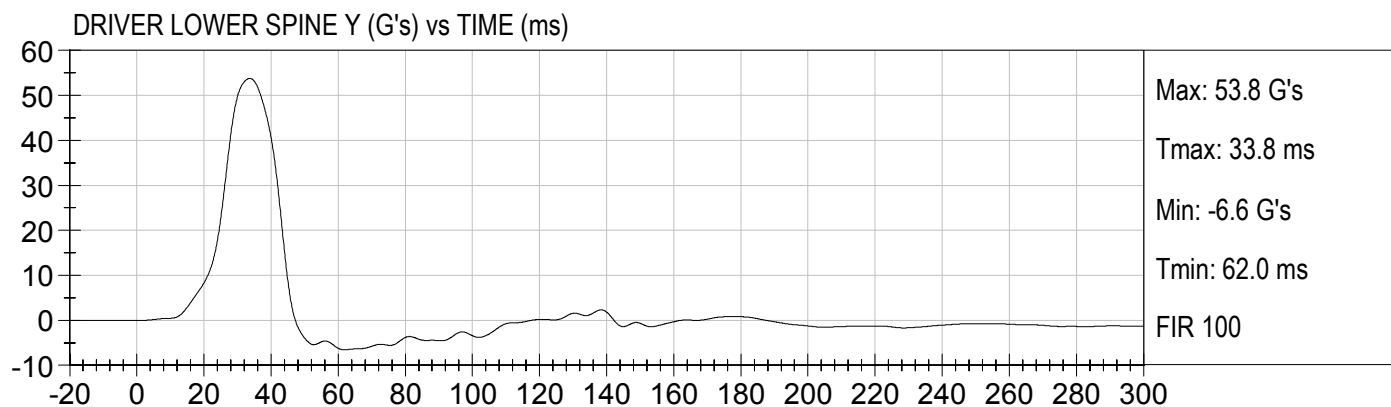
Test Date: 05/22/2007
Speed: 38.5 mph (62.0 km/h)





NCAP LEFT SIDE 38.5 MPH
2008 SUZUKI XL7 X80501

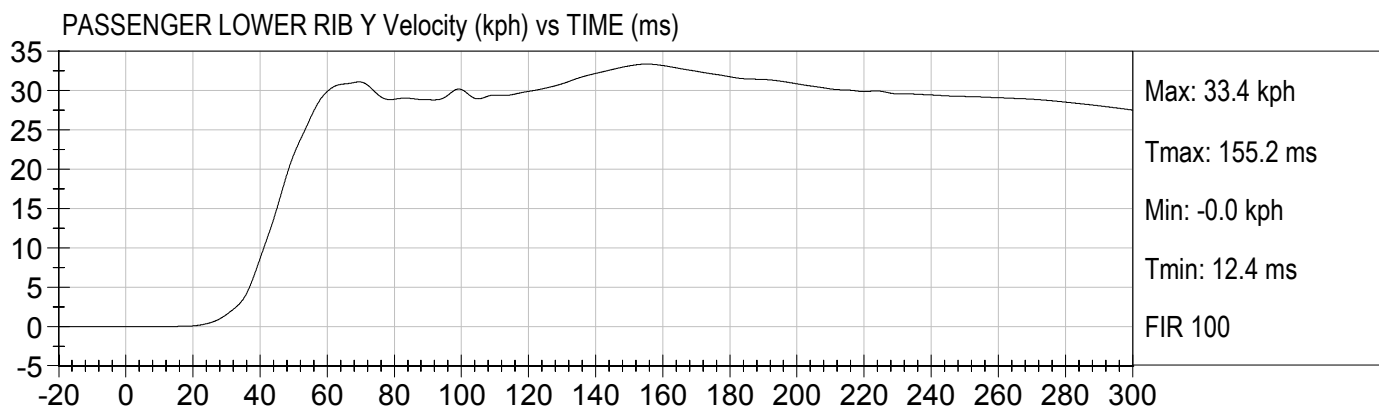
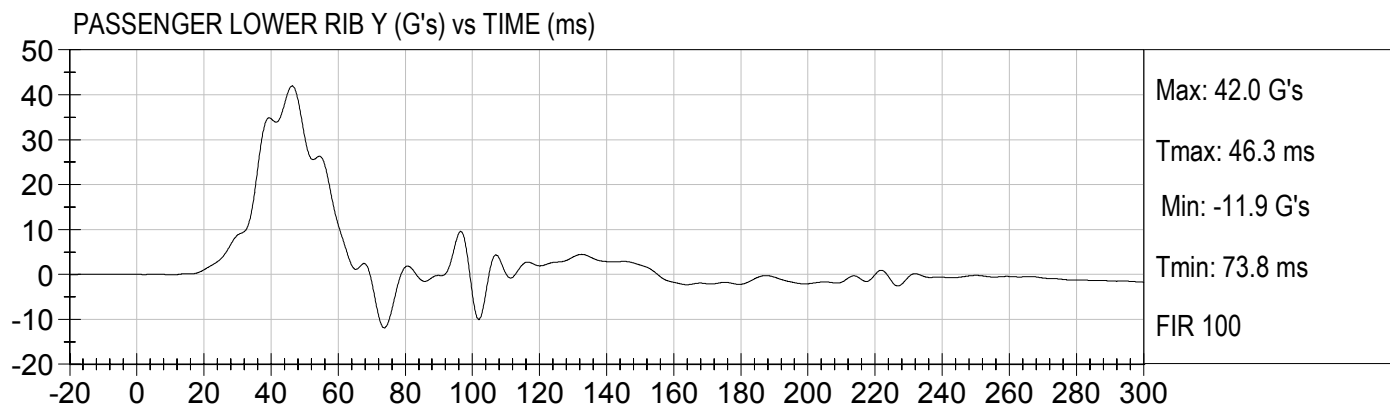
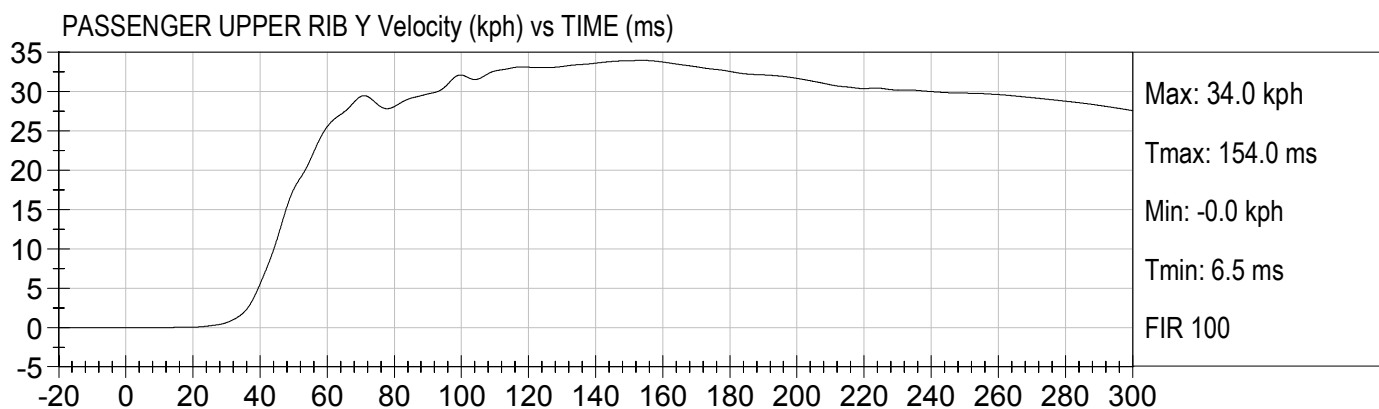
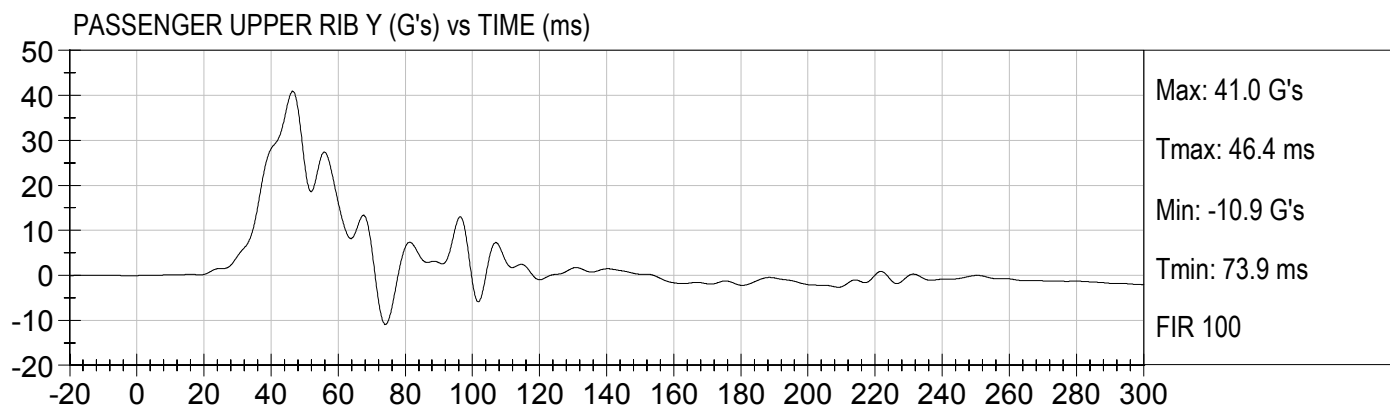
Test Date: 05/22/2007
Speed: 38.5 mph (62.0 km/h)





NCAP LEFT SIDE 38.5 MPH
2008 SUZUKI XL7 X80501

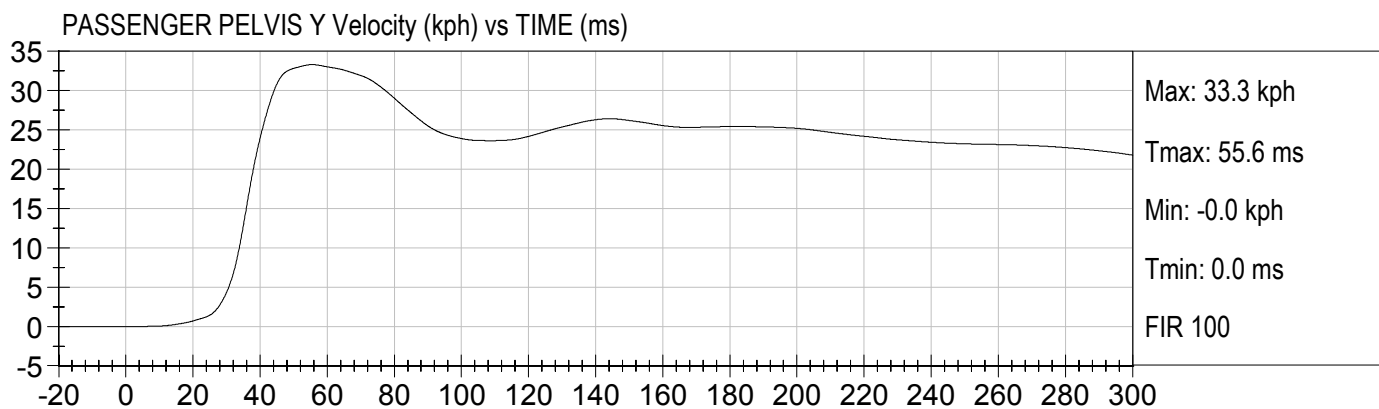
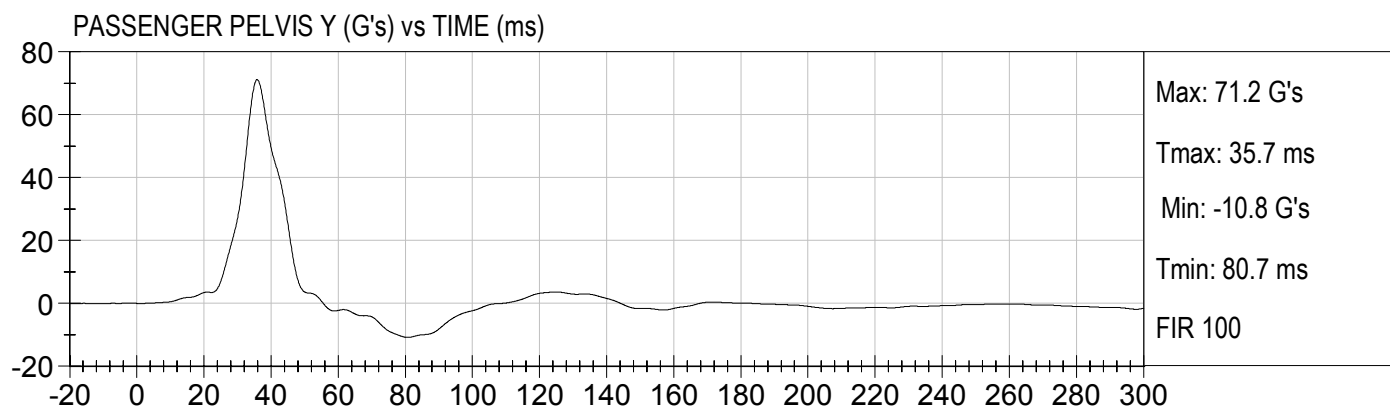
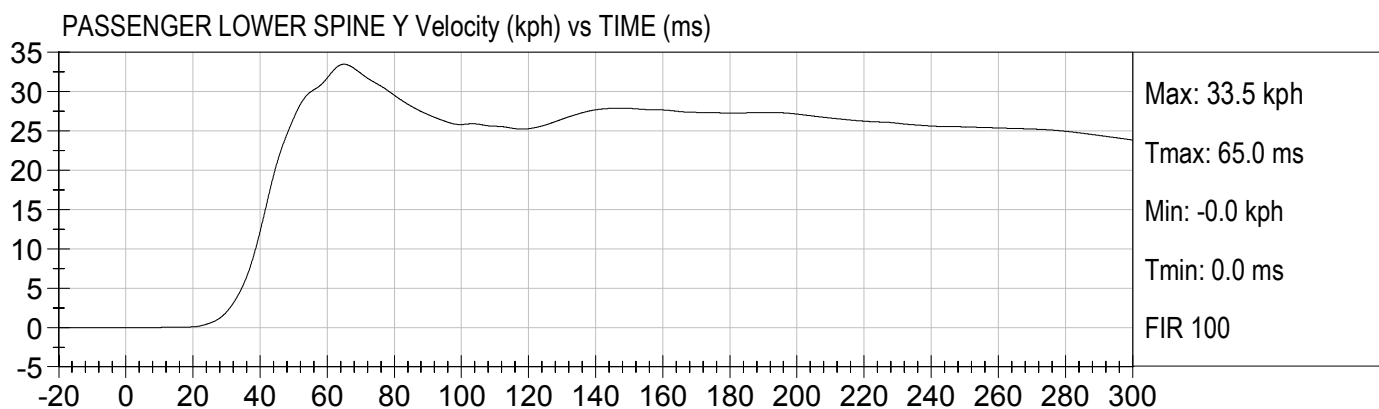
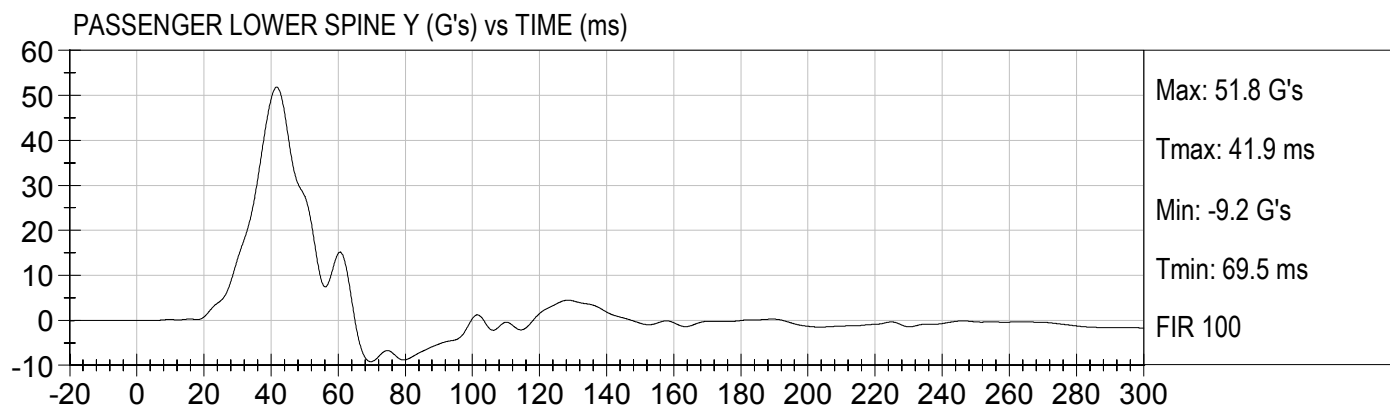
Test Date: 05/22/2007
Speed: 38.5 mph (62.0 km/h)





NCAP LEFT SIDE 38.5 MPH
2008 SUZUKI XL7 X80501

Test Date: 05/22/2007
Speed: 38.5 mph (62.0 km/h)



APPENDIX C
DUMMY CALIBRATION DATA

CERTIFICATION DATA

Dummy Serial Number: 271

Calibration Test Results Summary

Dummy Serial Number: 271

Pre-Test Calibration

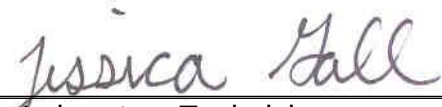
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis 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: D07137

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	


Laboratory Technician


Approved By

5/17/2007
Test Date

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

ATD Serial No: 271

Test I.D: D071371

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	37	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	-12	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By



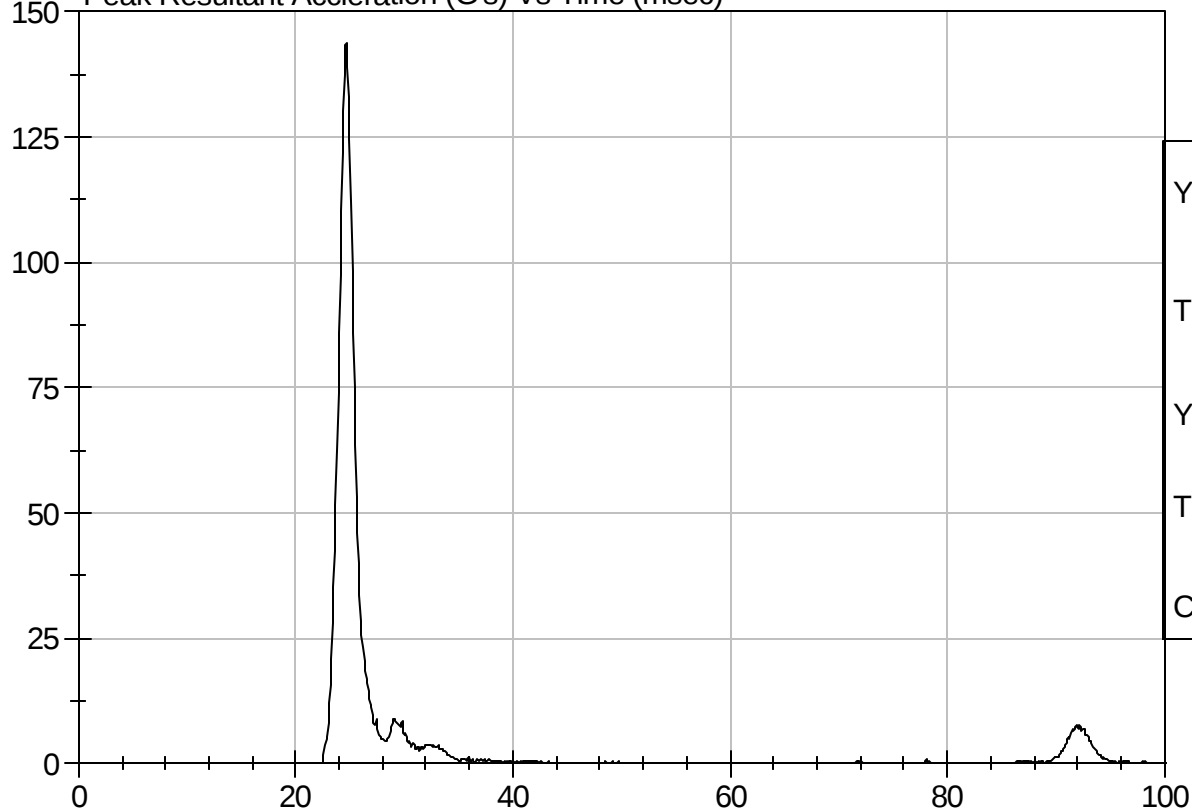
Test Description: Head Drop

Test Date: 5/16/07

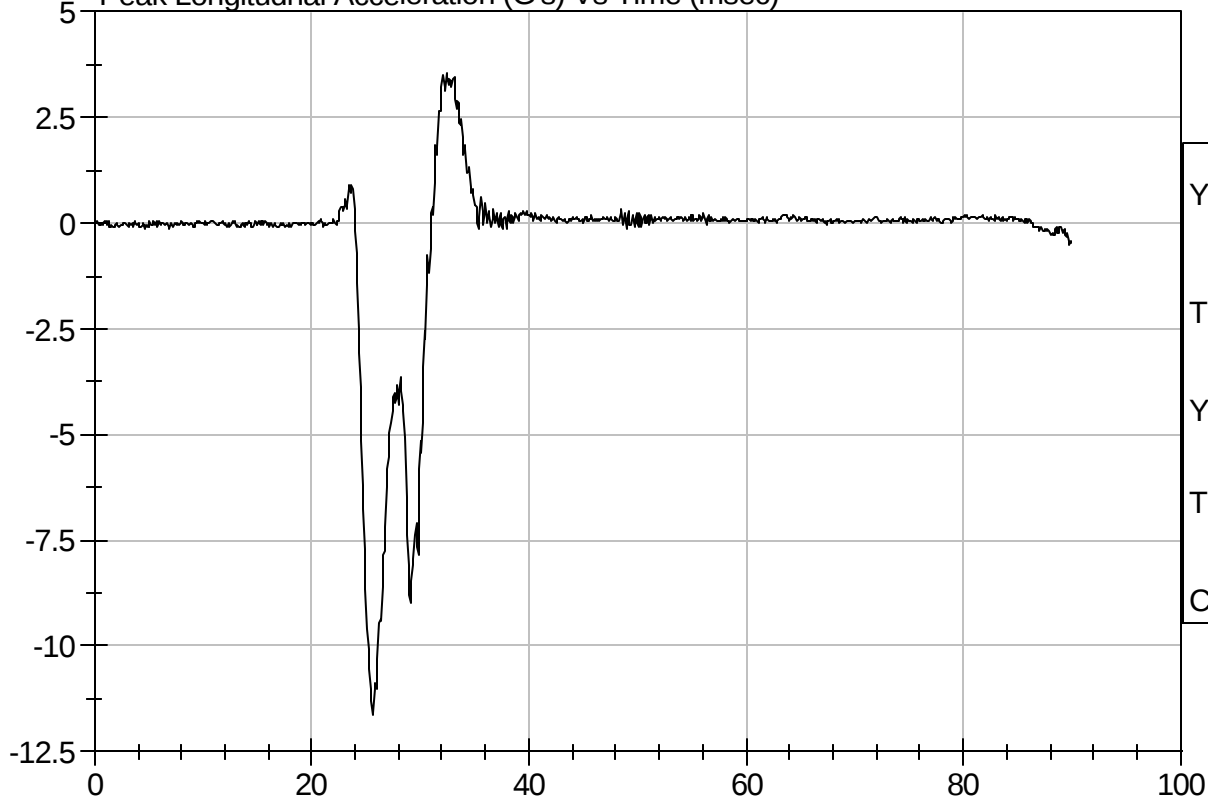
Component: D071371

Speed: 0 ft/s, 0 m/s

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



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

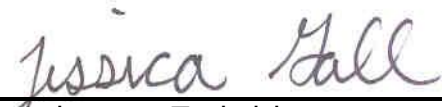


SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D: D071372

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	39	Pass
Probe Velocity	m/s	4.22 - 4.31	4.27	Pass
Upper Rib	G's	37 - 46	42	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	19	Pass
Overall Test Results				Pass


Laboratory Technician

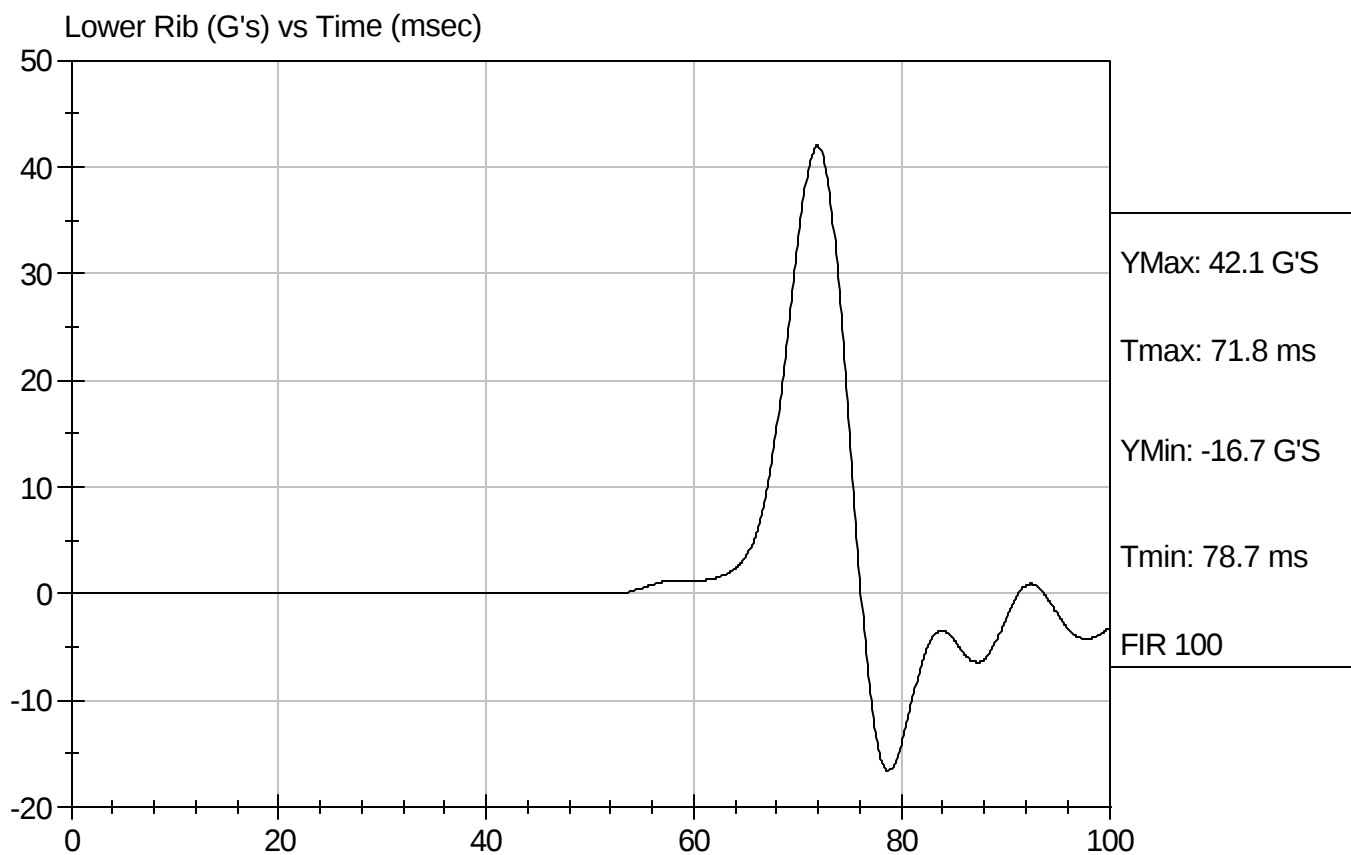
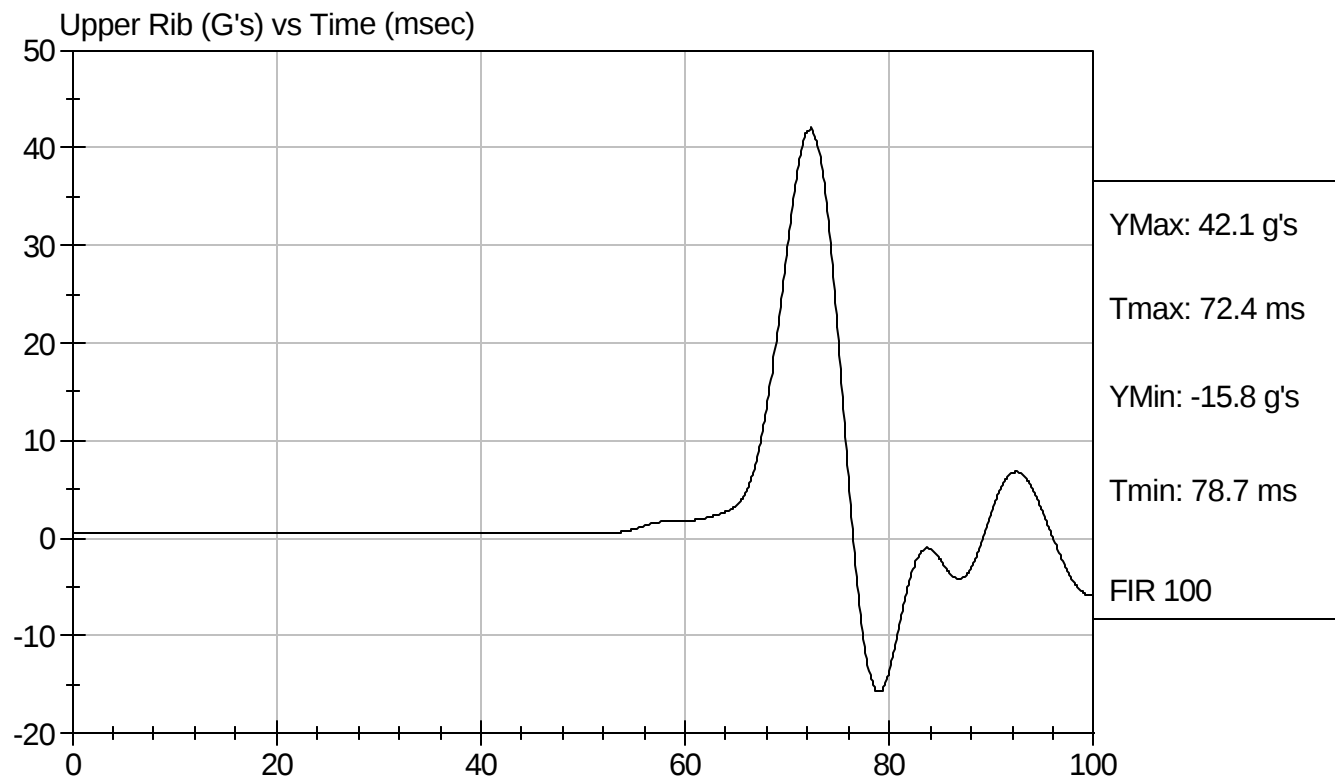
5/21/07
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D071372

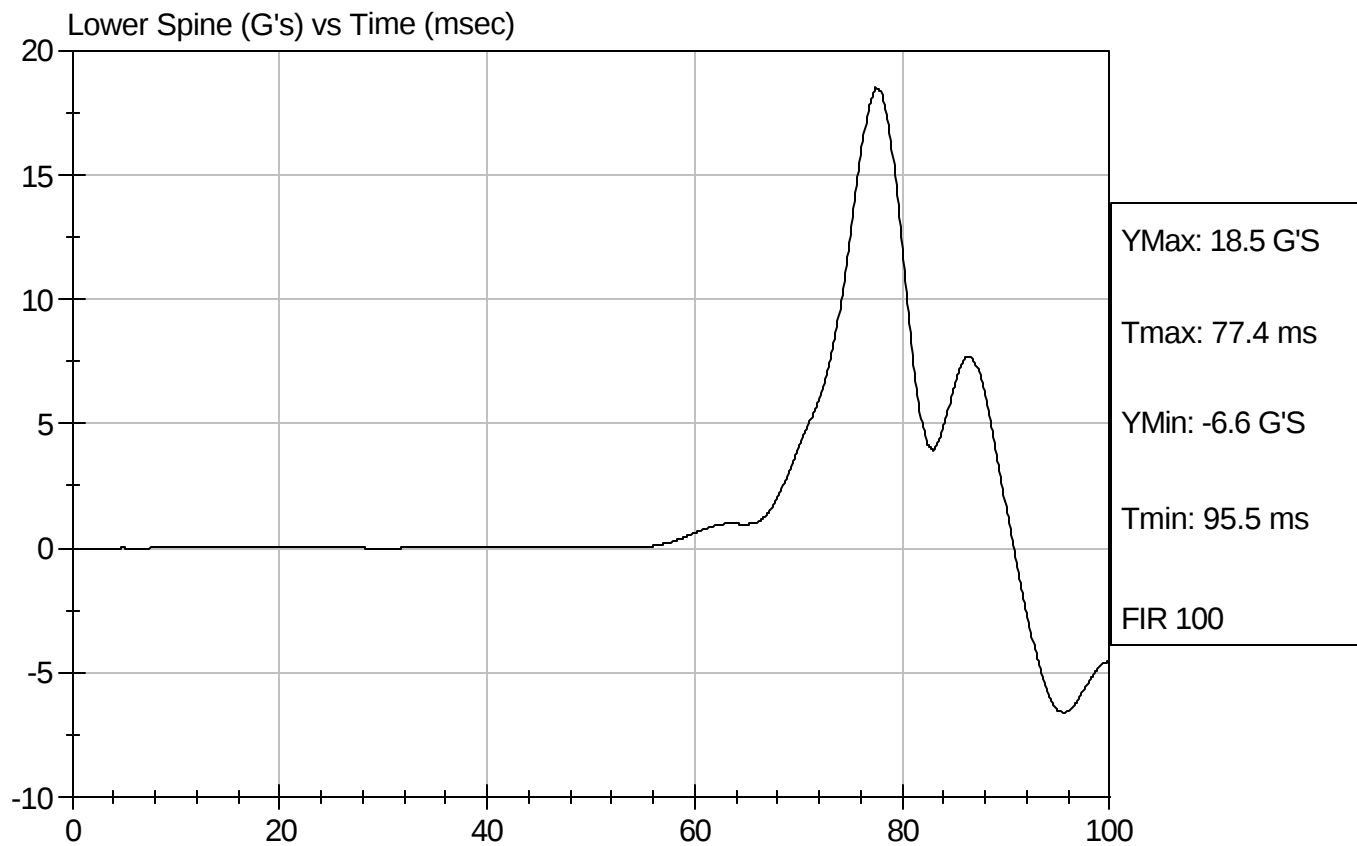
Test Date: 5/21/07
Speed: 14.00 ft/sec, 4.27 m/sec





Test Desc: Thorax Impact
Component ID: D071372

Test Date: 5/21/07
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: D071373

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	36	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

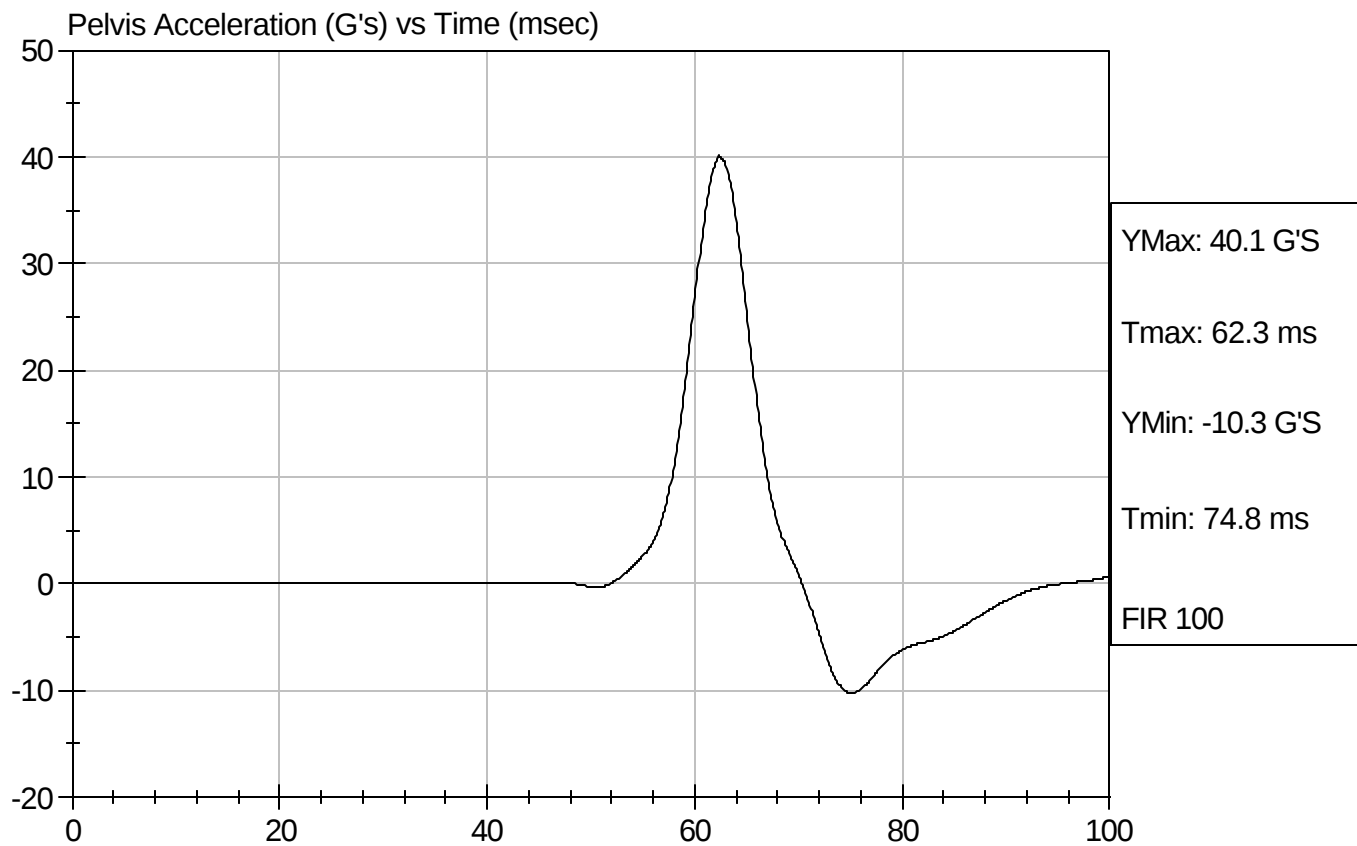
5/17/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D071373

Test Date: 5/17/07
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: 271

Test I.D: D071374

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Force At 12.7 mm	N	104 -162	136	Pass
Force At 19 mm	N	163 - 222	191	Pass
Force At 25.4 mm	N	222 - 280	255	Pass
Force At 33 mm	N	325 - 391	367	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By

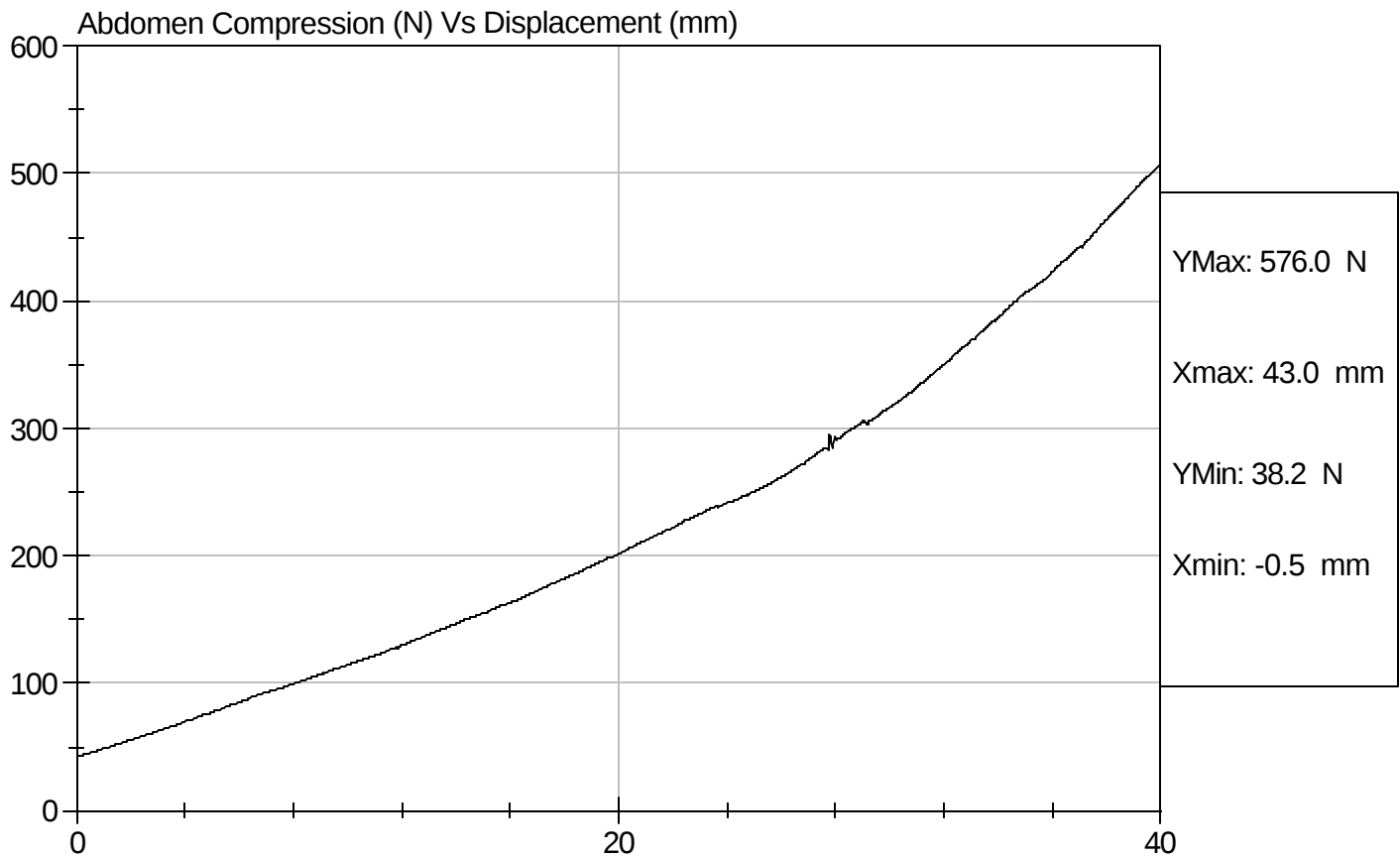


Test Description: Abdomen Compression

Test Date: 5/16/07

Component: D071374

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D: D071375

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	134.8	Pass
Force At 30 deg	N	151.2 - 204.6	191.5	Pass
Force At 40 deg	N	204.6 - 258.0	219.6	Pass
Return Angle	Deg	12 Maximum	5	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By

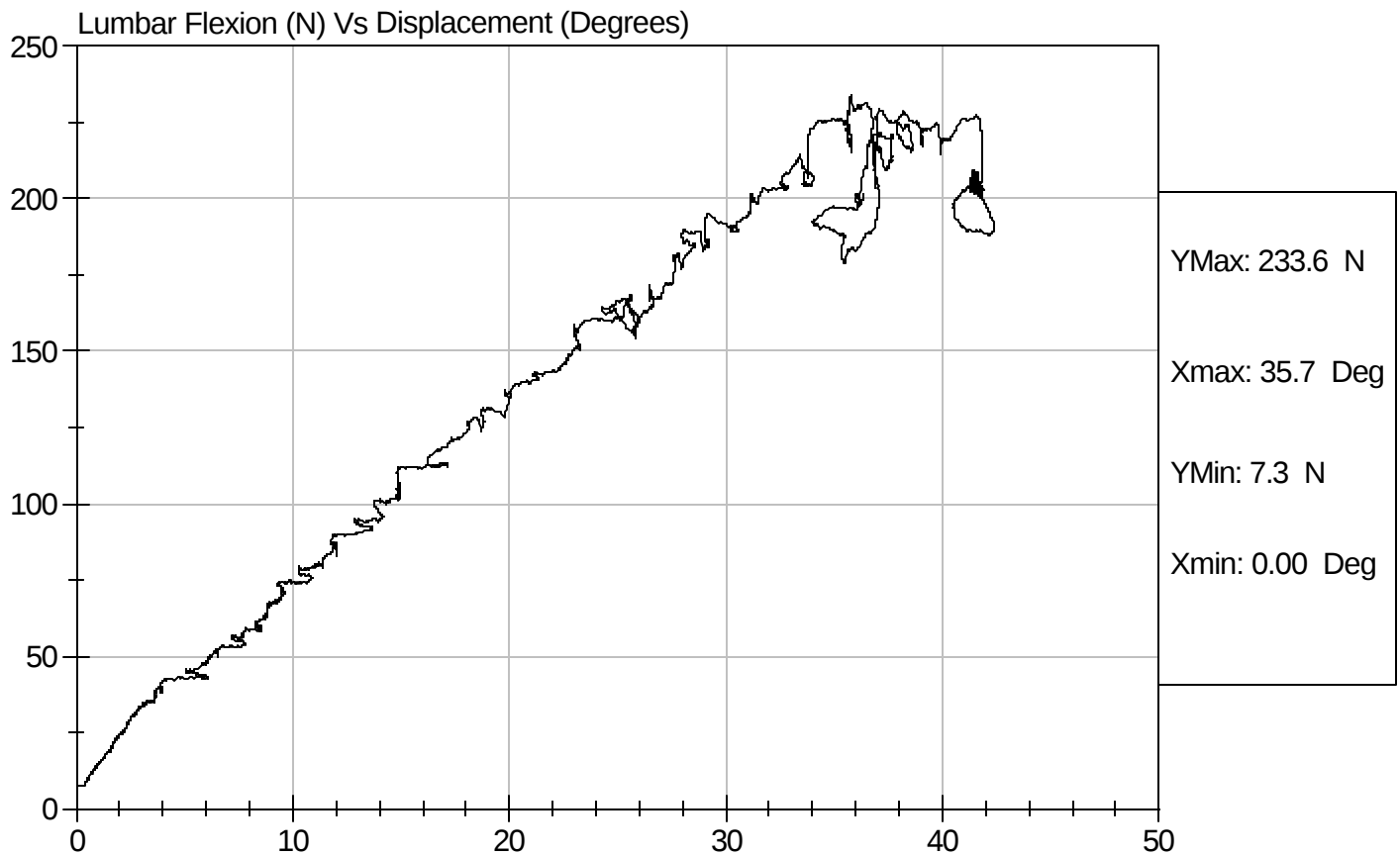


Test Description: Lumbar Flexion

Test Date: 5/16/07

Component: D071375

Speed: 0 ft/sec, 0 m/sec

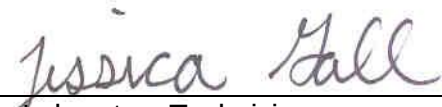


SID/HIII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 271

Test I.D: D071378

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	36	Pass
Impact Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.25	Pass
	20 msec	m/s	4.12 to 5.10	4.41	Pass
	30 msec	m/s	5.73 to 7.01	6.09	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.74	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	70	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	73	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

5/16/07

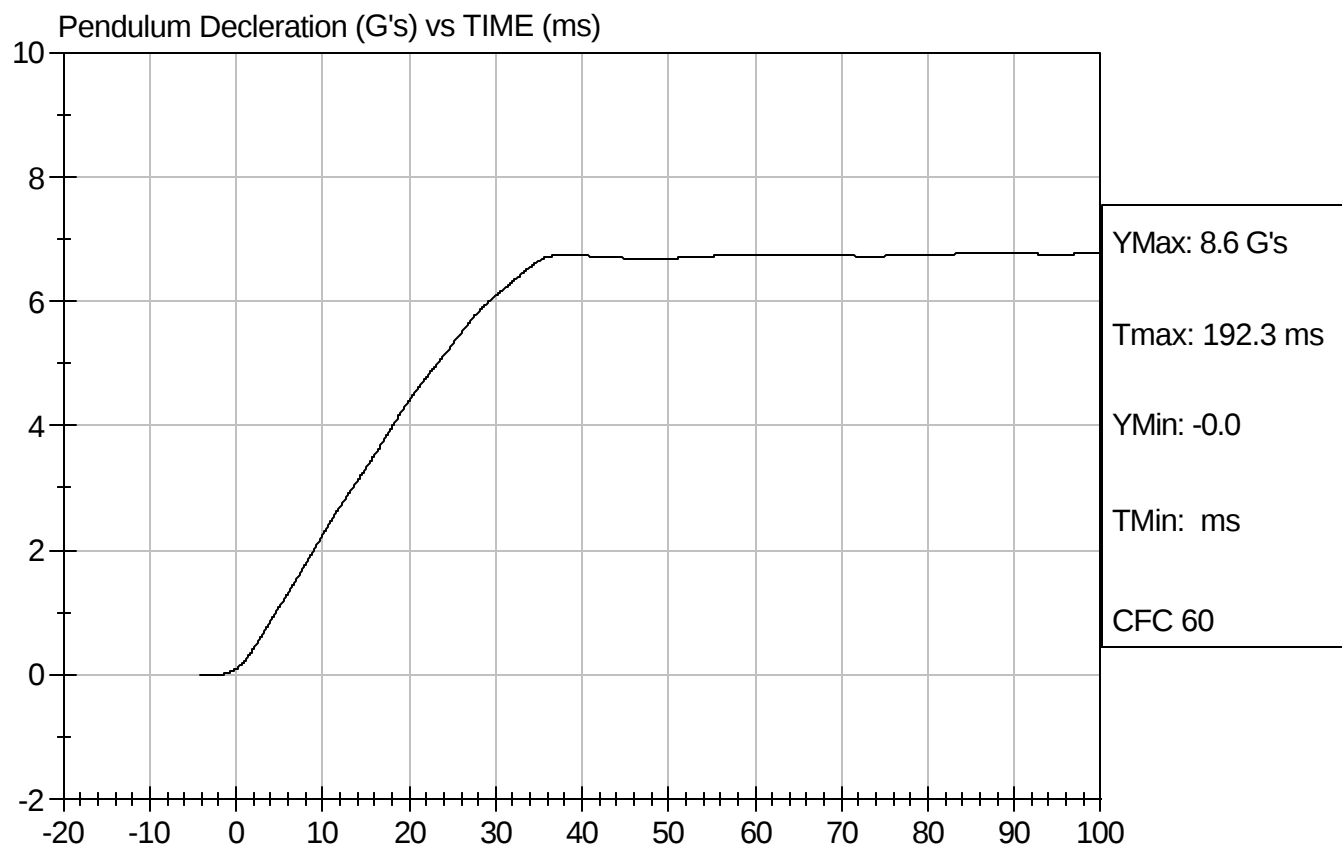
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D071378

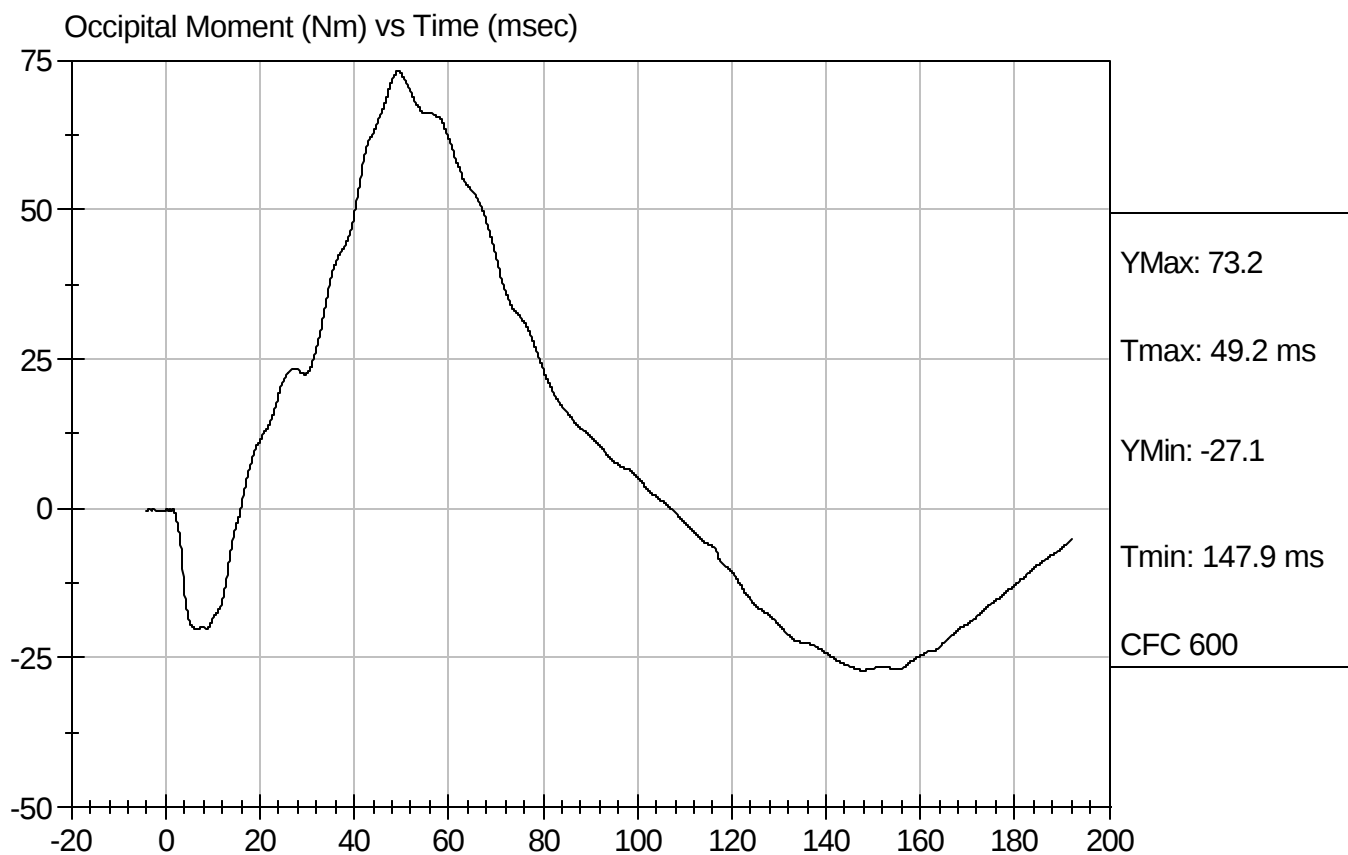
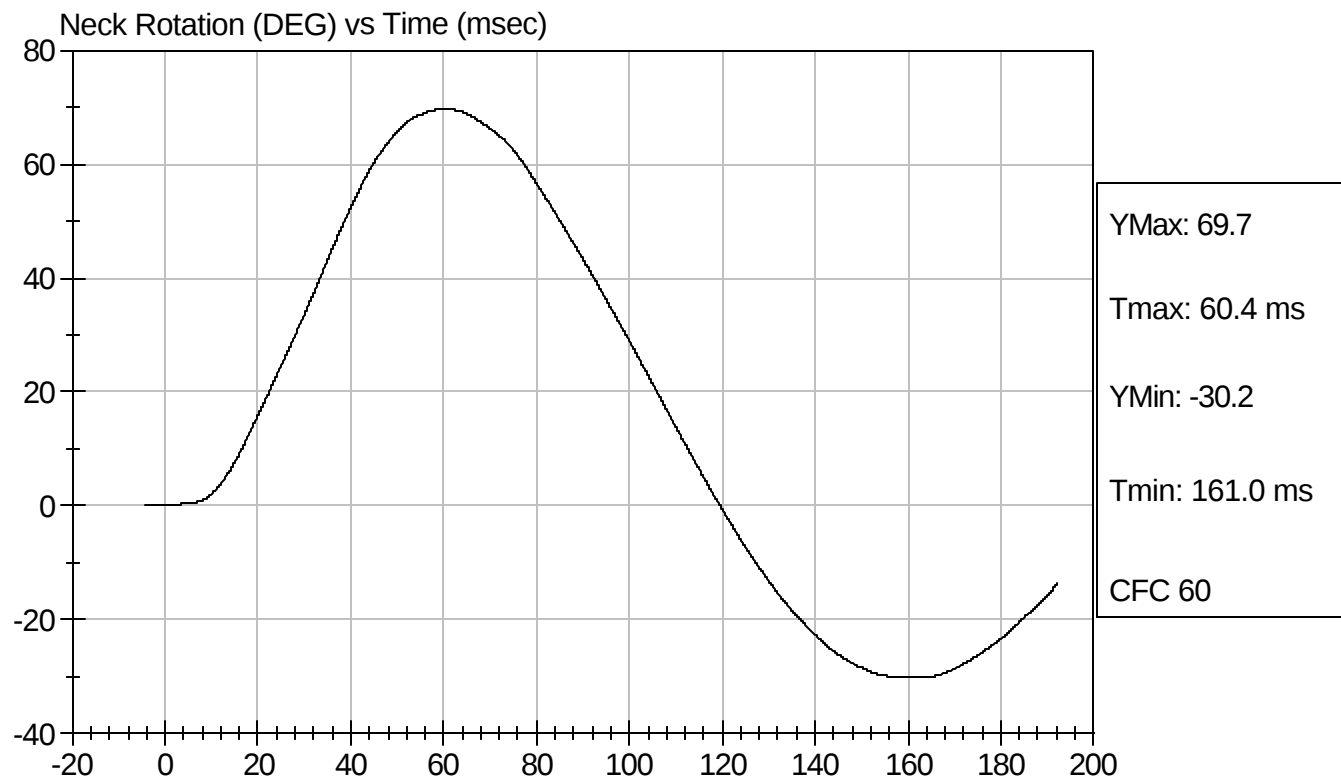
Test Date: 5/16/07
Speed: 22.83 ft/sec, 6.96 m/sec





Test Desc: Neck Bending
Component ID: D071378

Test Date: 5/16/07
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.

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

ATD Serial No: 271

Test I.D: D071451

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	45	Pass
Peak Resultant Acceleration	G's	120 to 150	140	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-14.1	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By



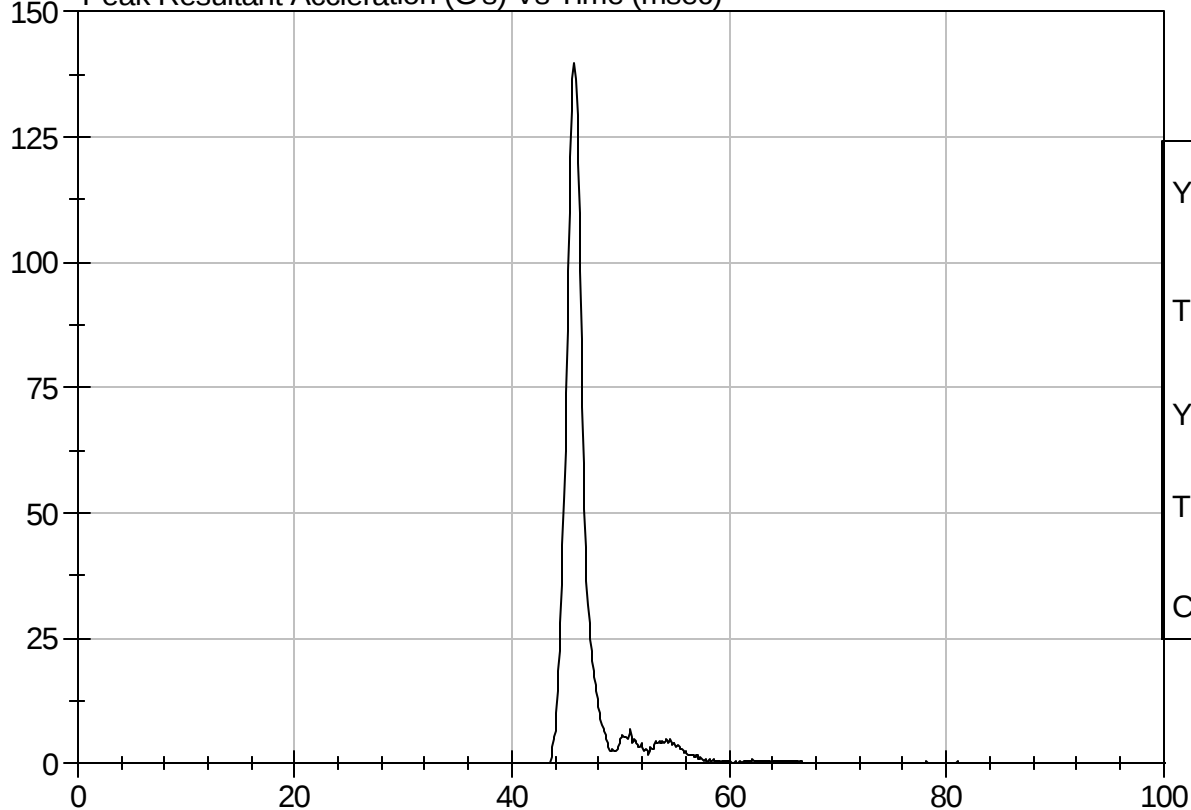
Test Description: Head Drop

Test Date: 5/23/07

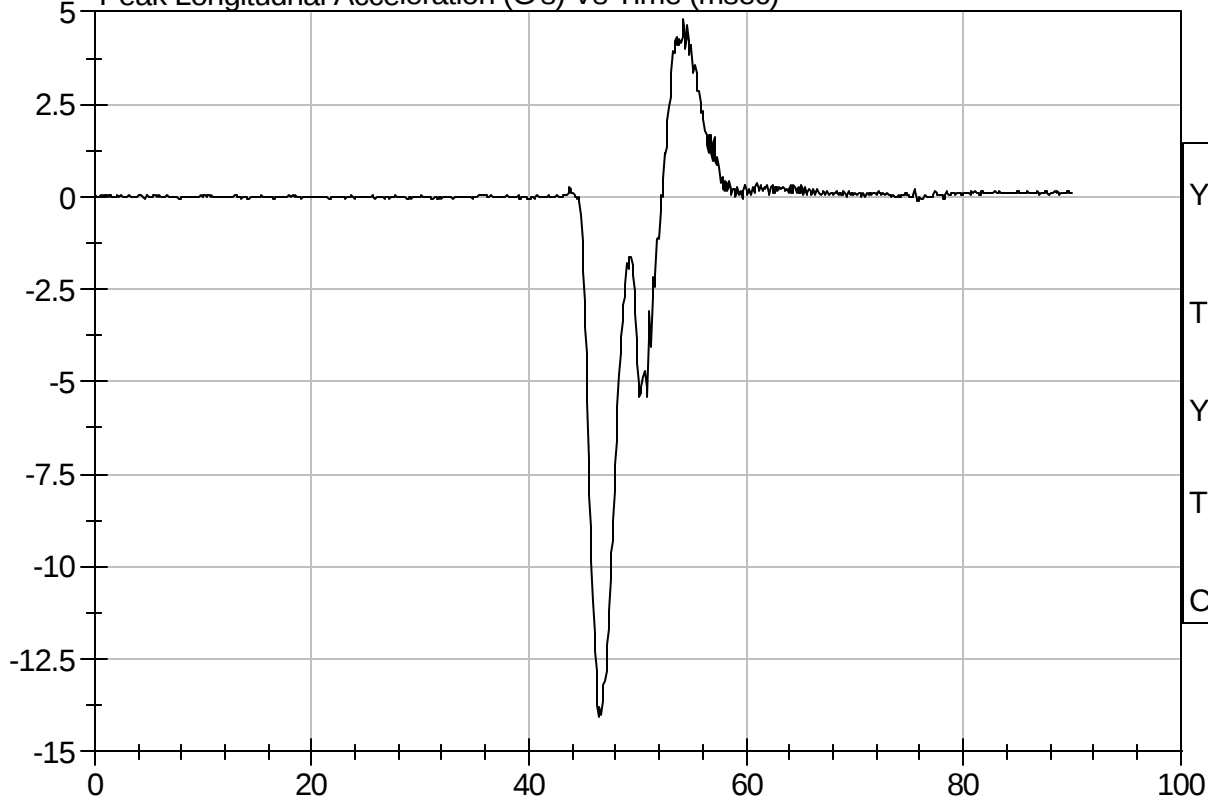
Component: D071451

Speed: 0 ft/s, 0 m/s

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



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

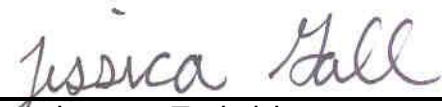


SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D: D071452

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/s	4.22 - 4.31	4.23	Pass
Upper Rib	G's	37 - 46	46	Pass
Lower Rib	G's	37 - 46	44	Pass
Lower Spine	G's	15 - 22	20	Pass
Overall Test Results				Pass


Laboratory Technician

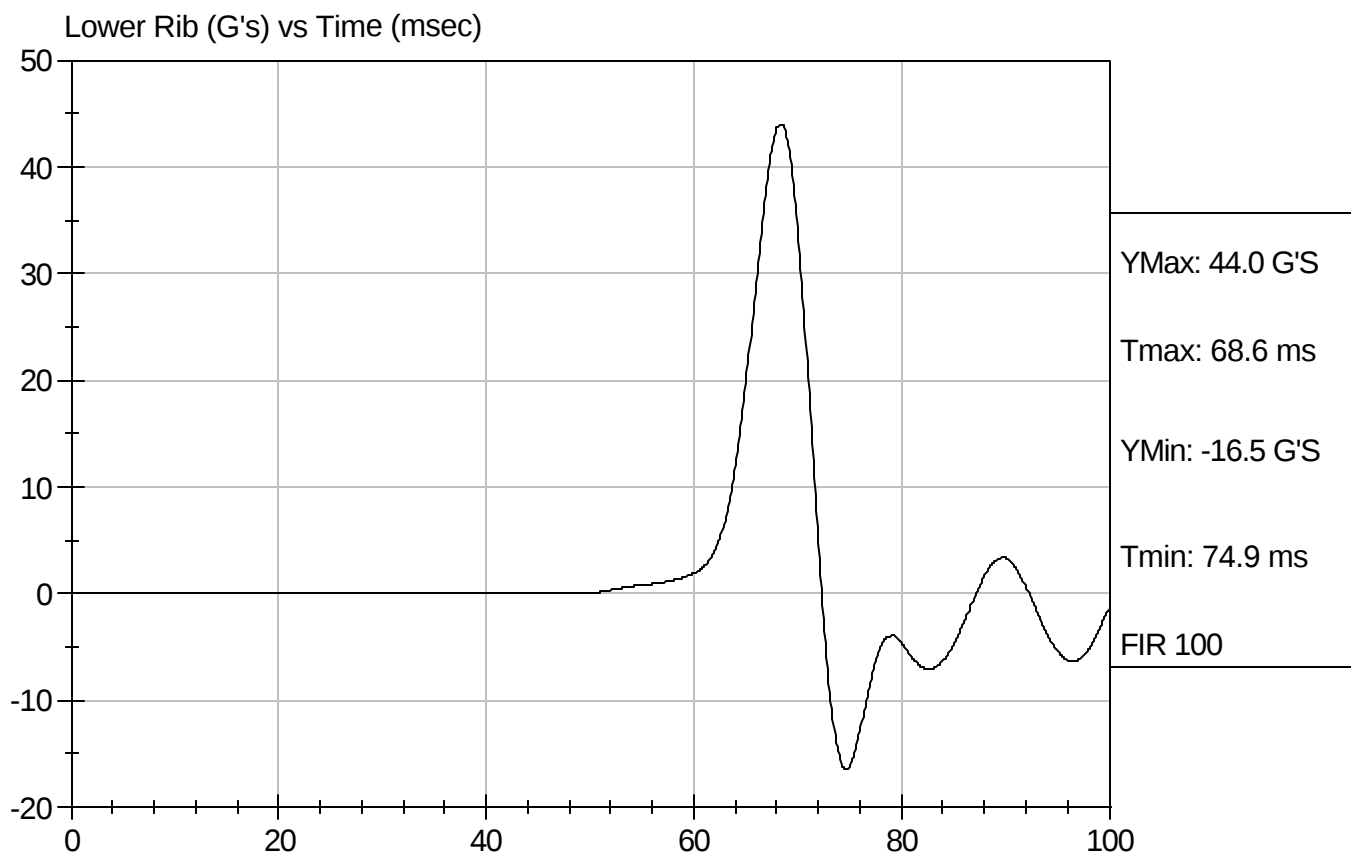
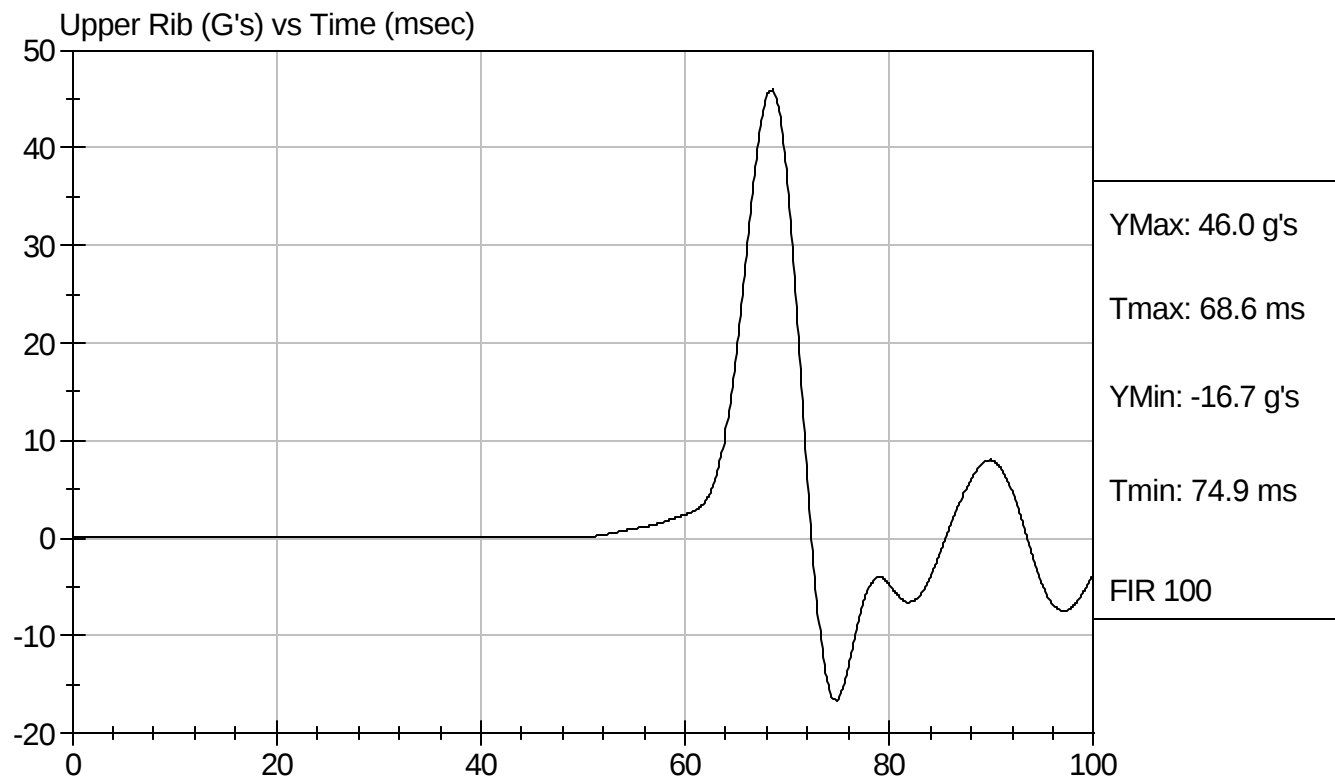
5/23/07
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D071452

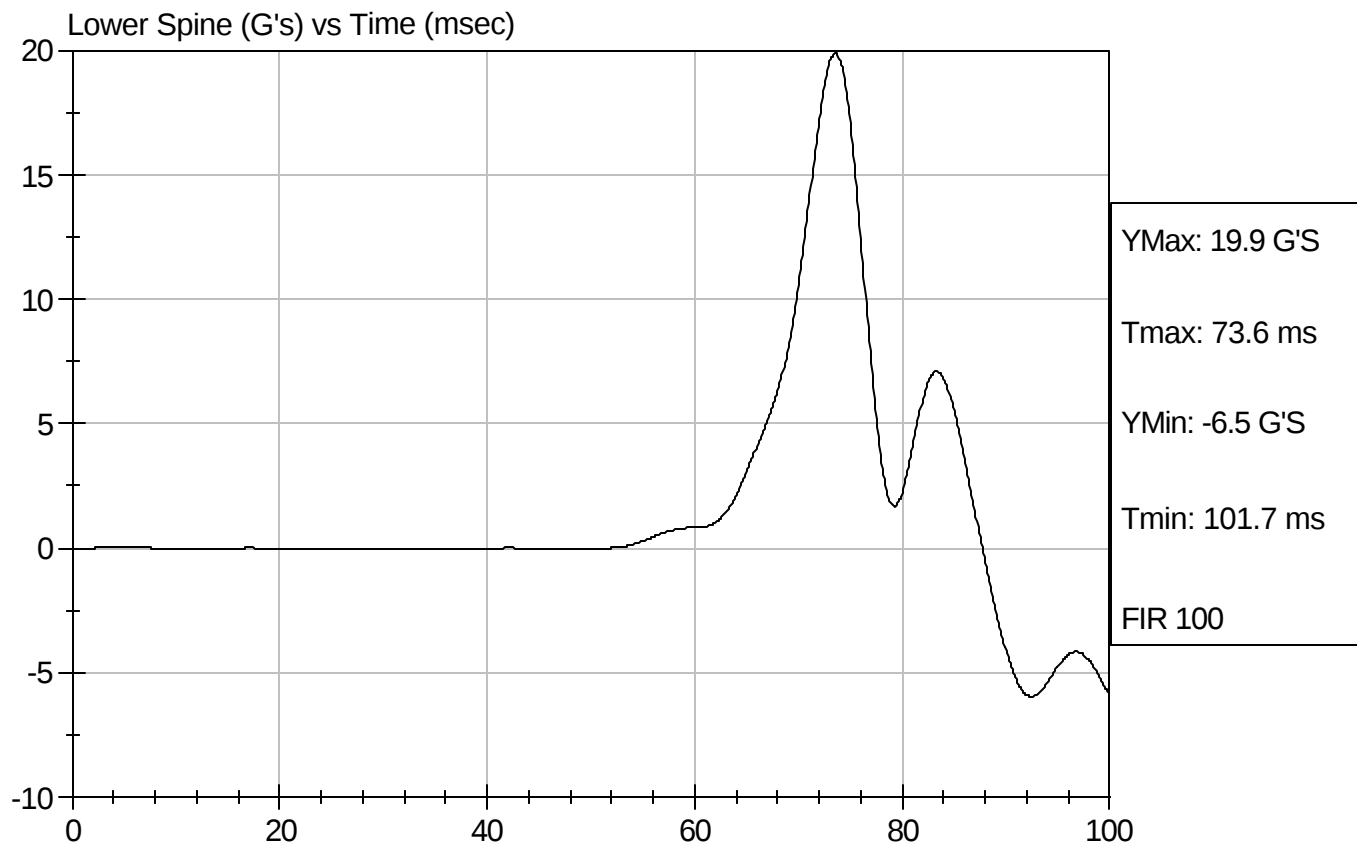
Test Date: 5/23/07
Speed: 13.89 ft/sec, 4.23 m/sec





Test Desc: Thorax Impact
Component ID: D071452

Test Date: 5/23/07
Speed: 13.89 ft/sec, 4.23 m/sec



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

ATD Serial No: 271

Test I.D: D071453

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/s	4.27 - 4.33	4.32	Pass
Pelvis Acceleration	G's	40 - 60	45	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

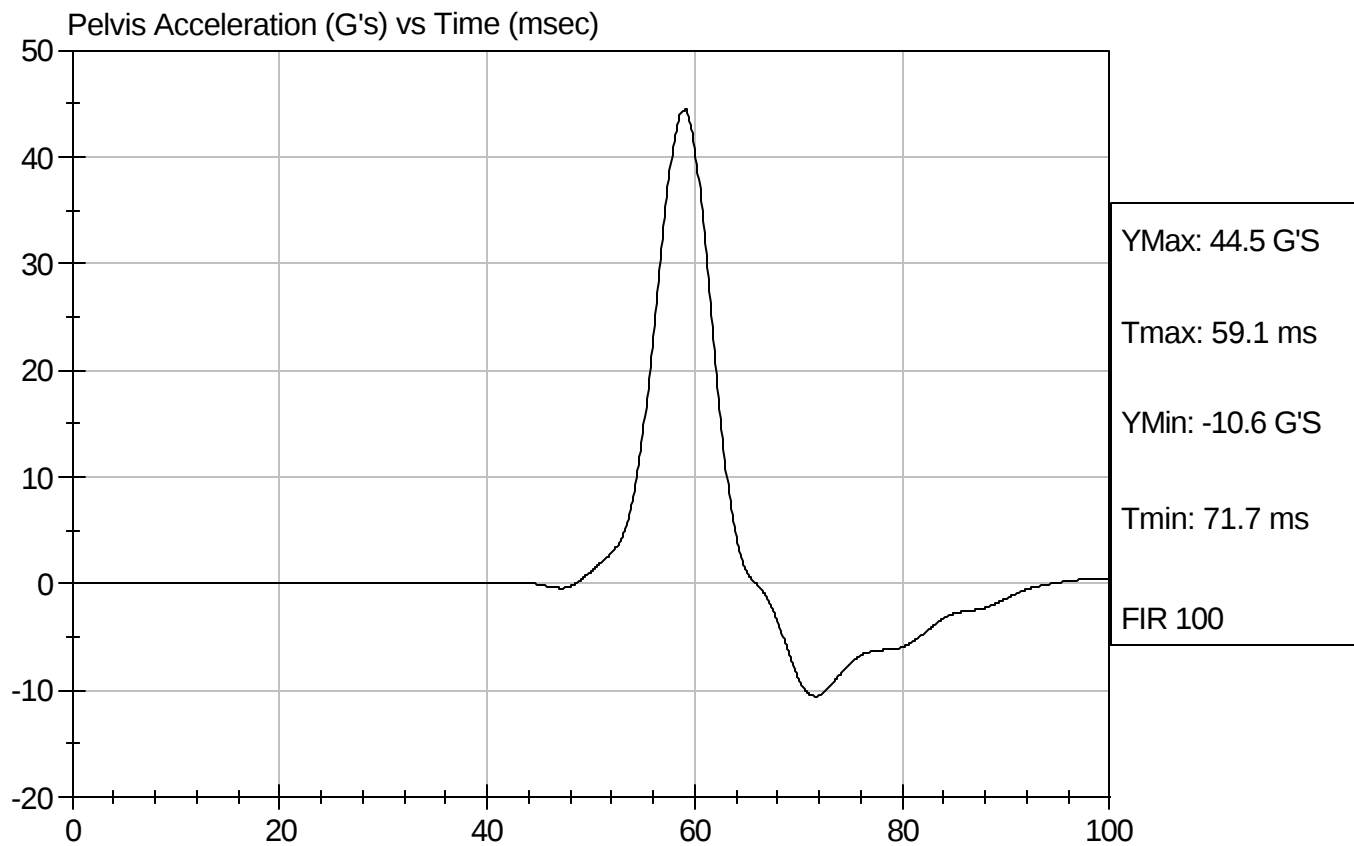
5/23/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D071453

Test Date: 5/23/07
Speed: 14.18 ft/sec, 4.32 m/sec



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

ATD Serial No: 271

Test I.D: D071454

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 12.7 mm	N	104 -162	147	Pass
Force At 19 mm	N	163 - 222	208	Pass
Force At 25.4 mm	N	222 - 280	279	Pass
Force At 33 mm	N	325 - 391	385	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By

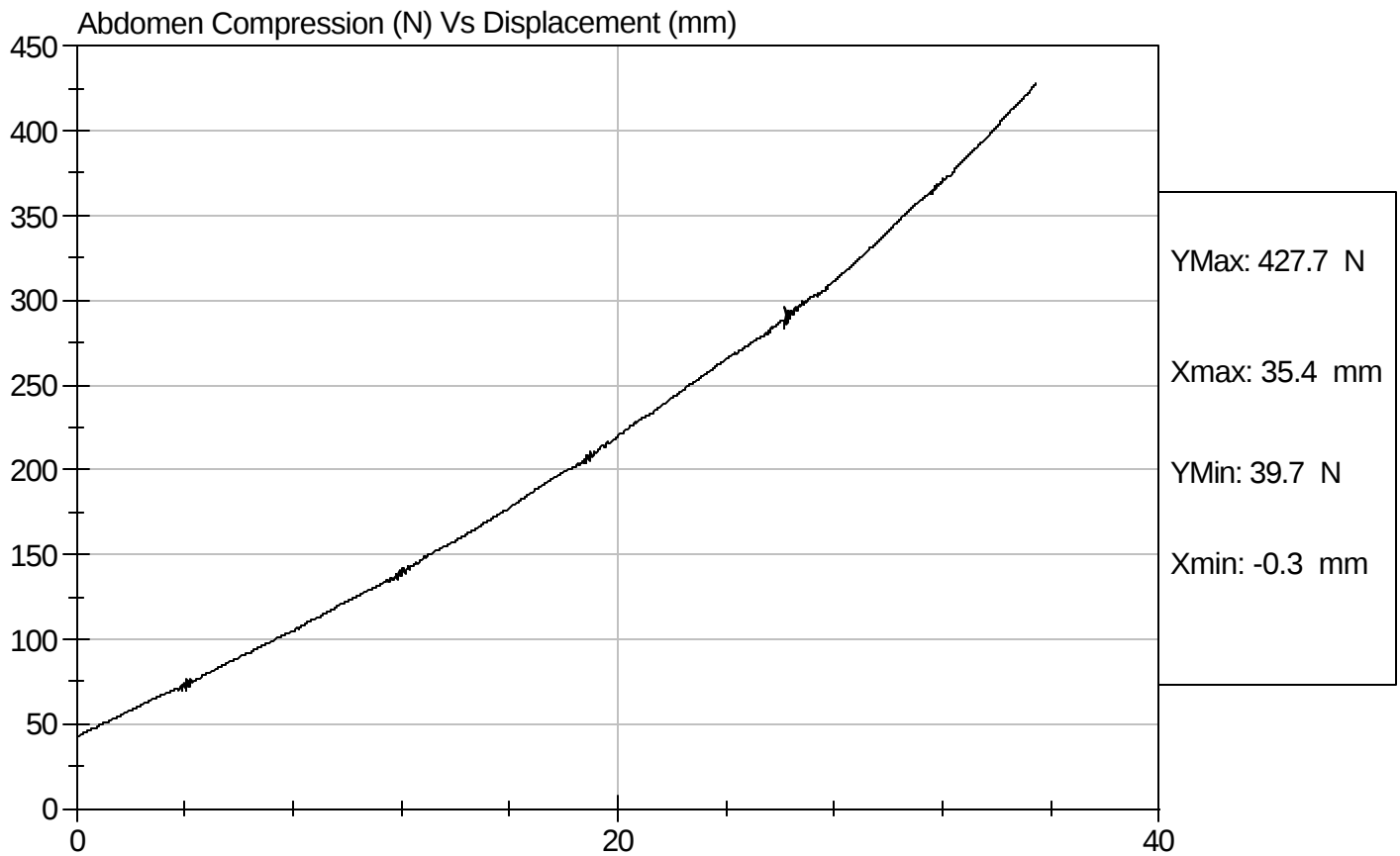


Test Description: Abdomen Compression

Test Date: 5/23/07

Component: D071454

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D.: D071455

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	132.1	Pass
Force At 30 deg	N	151.2 - 204.6	192.9	Pass
Force At 40 deg	N	204.6 - 258.0	248.5	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By

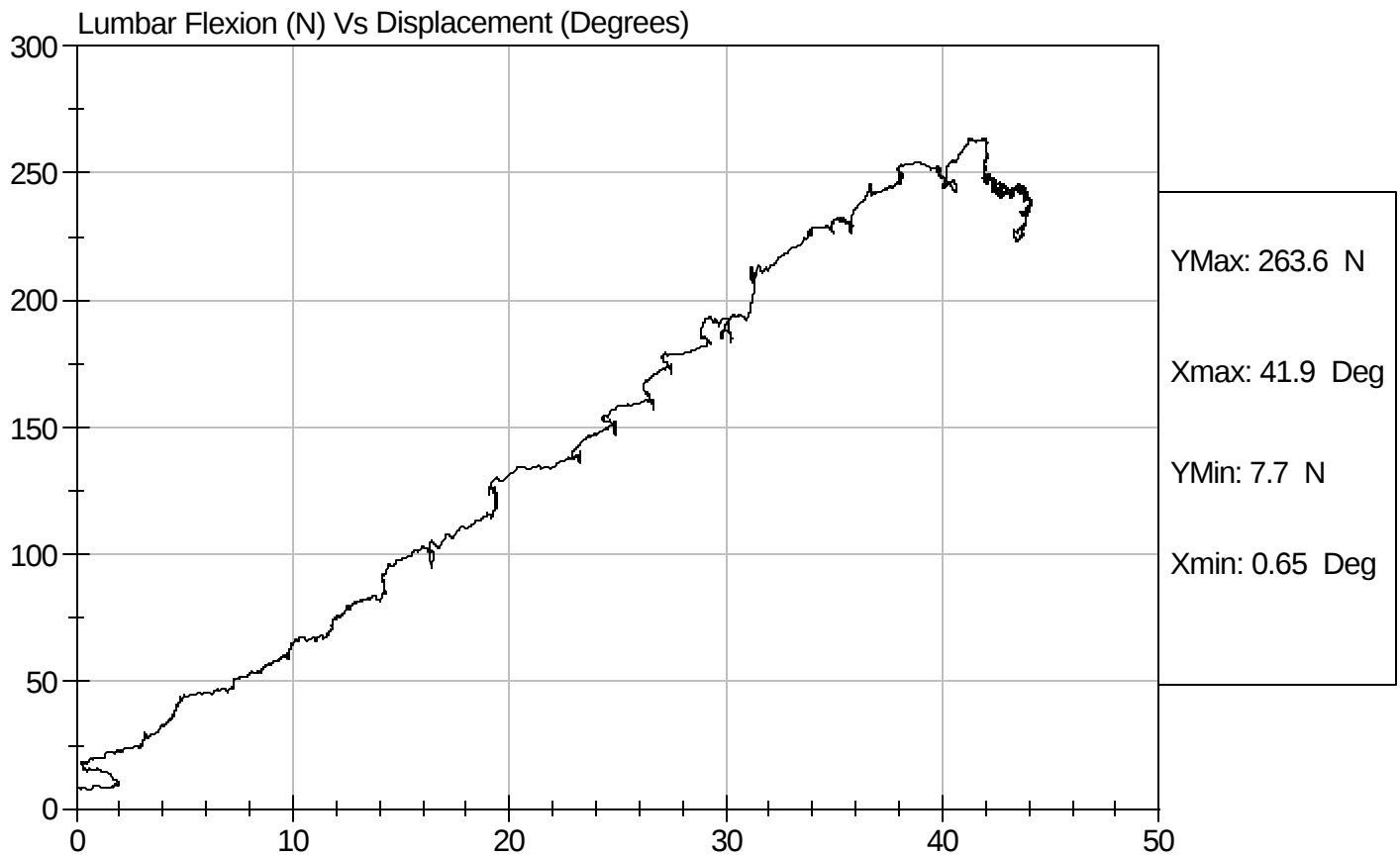


Test Description: Lumbar Flexion

Test Date: 5/23/07

Component: D071455

Speed: 0 ft/sec, 0 m/sec

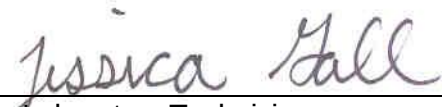


SID/HIII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 271

Test I.D: D071459

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	46	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.39	Pass
	20 msec	m/s	4.12 to 5.10	4.58	Pass
	30 msec	m/s	5.73 to 7.01	6.30	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	62	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	75	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	56	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	10	Pass


 Laboratory Technician

5/23/07

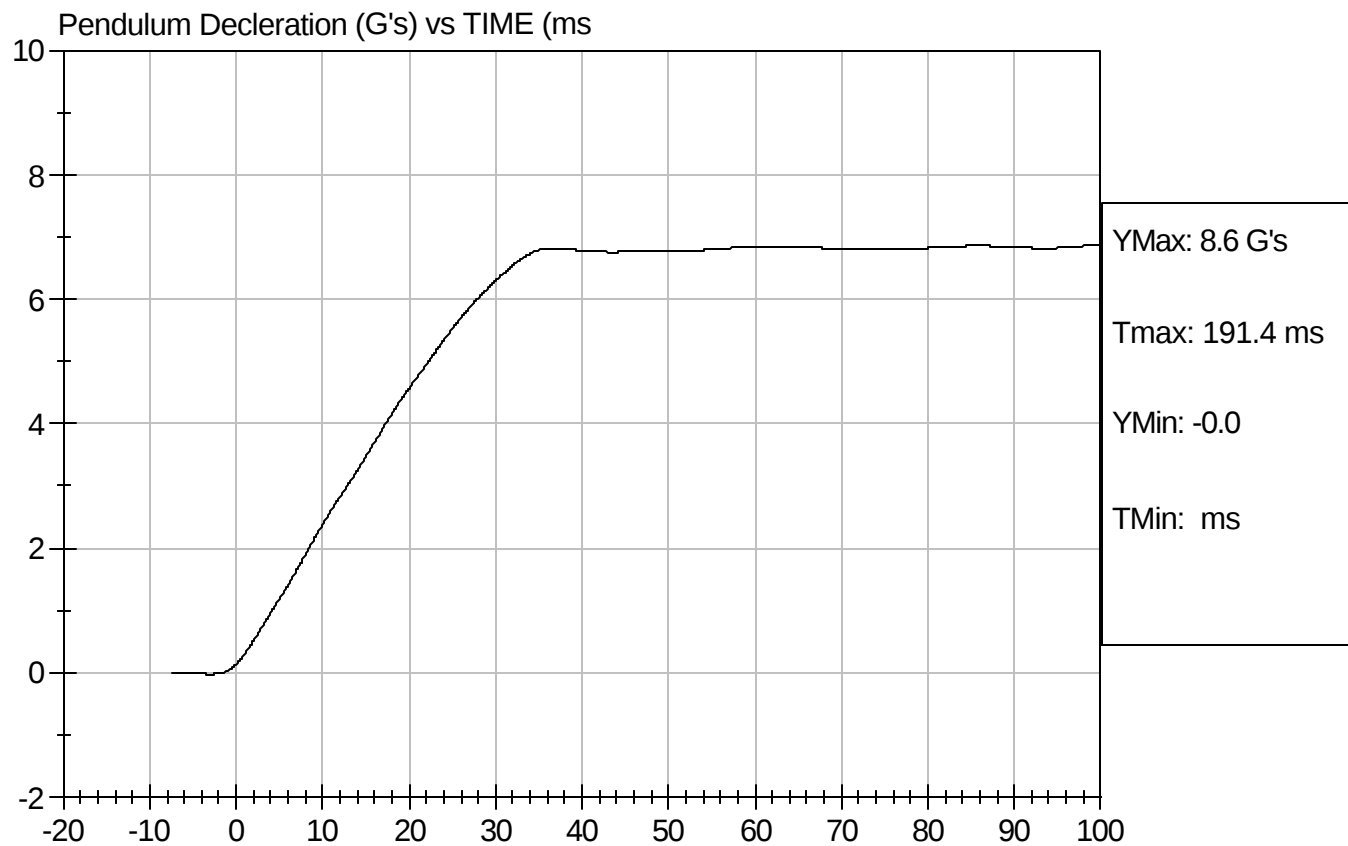
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D071459

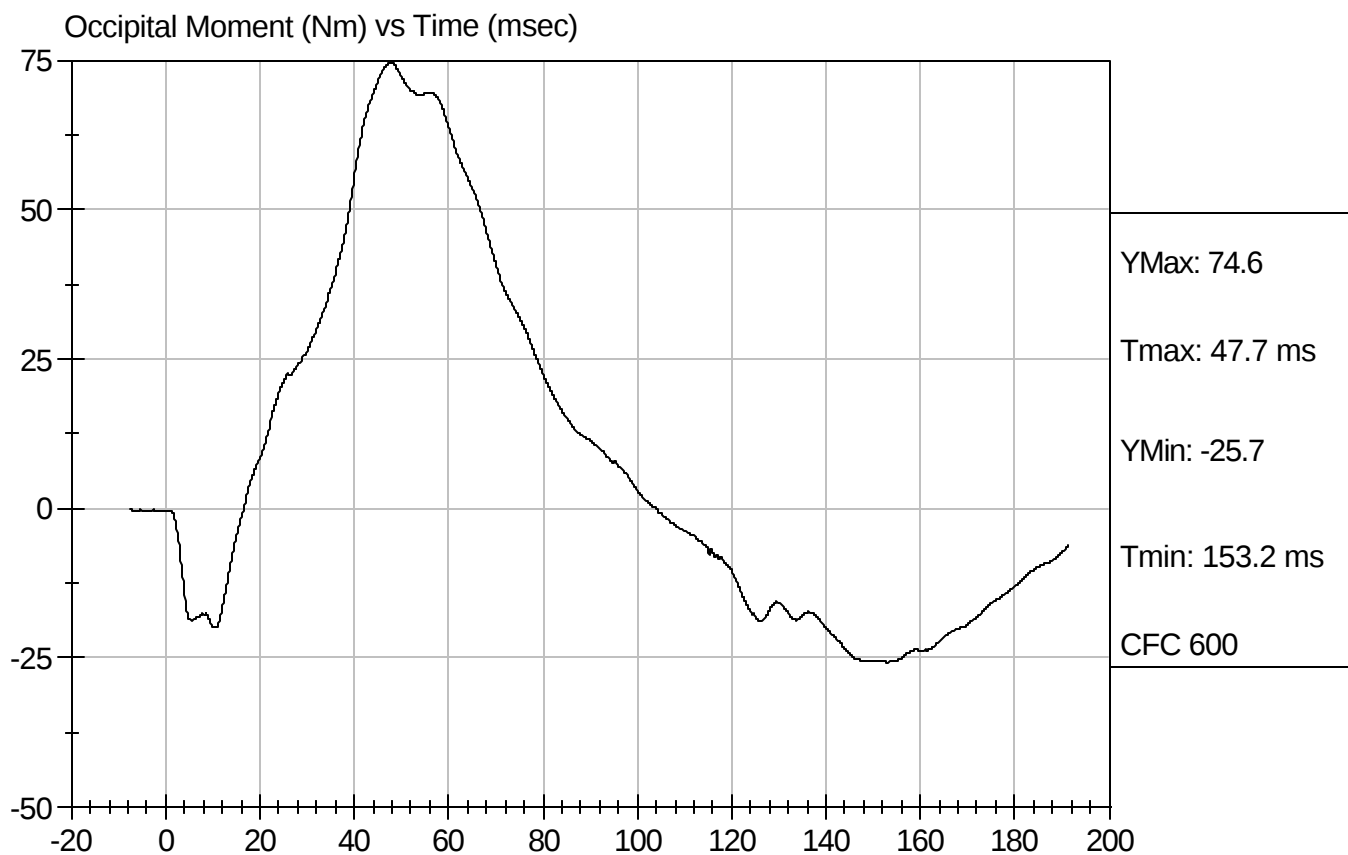
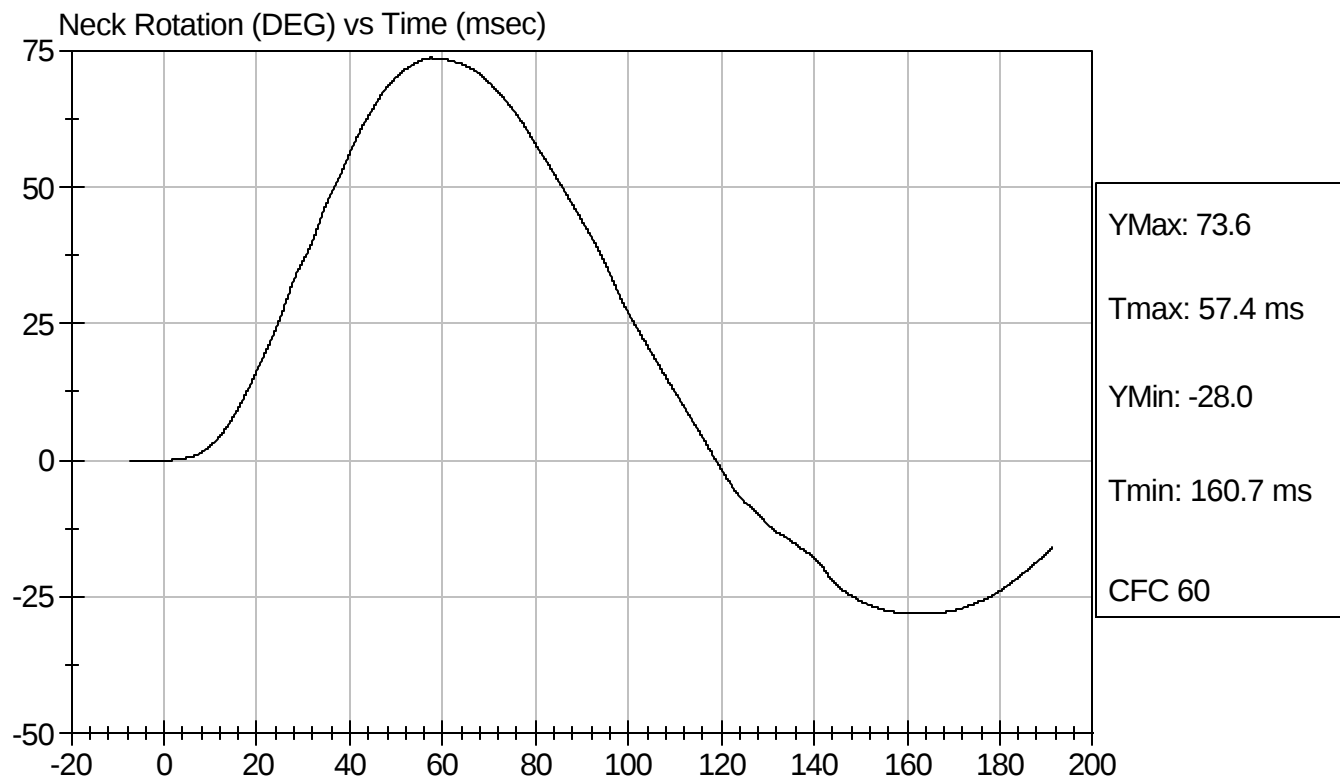
Test Date: 5/23/07
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D071459

Test Date: 5/23/07
Speed: 23.15 ft/sec, 7.06 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

5/23/2007
Test Date

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: D07138

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

5/17/2007
Test Date

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

ATD Serial No: 904

Test I.D: D071381

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	38	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	-7	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By



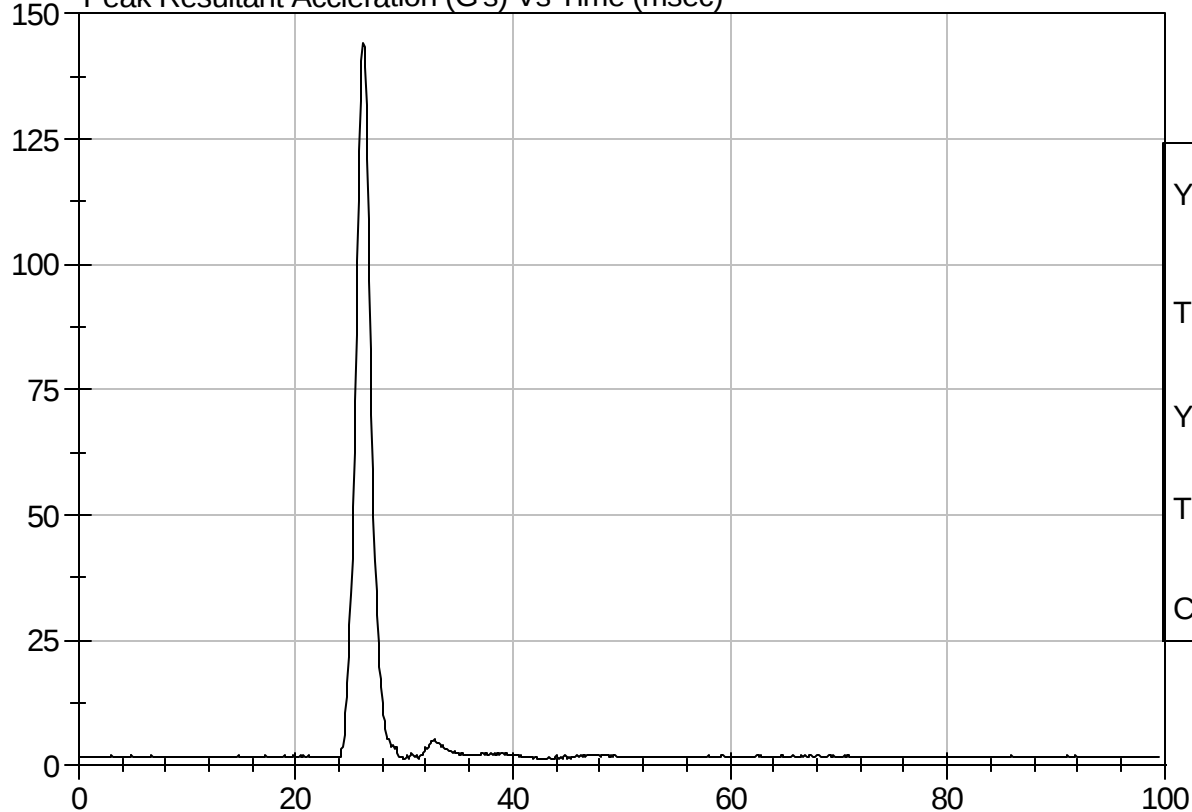
Test Description: Head Drop

Test Date: 5/16/07

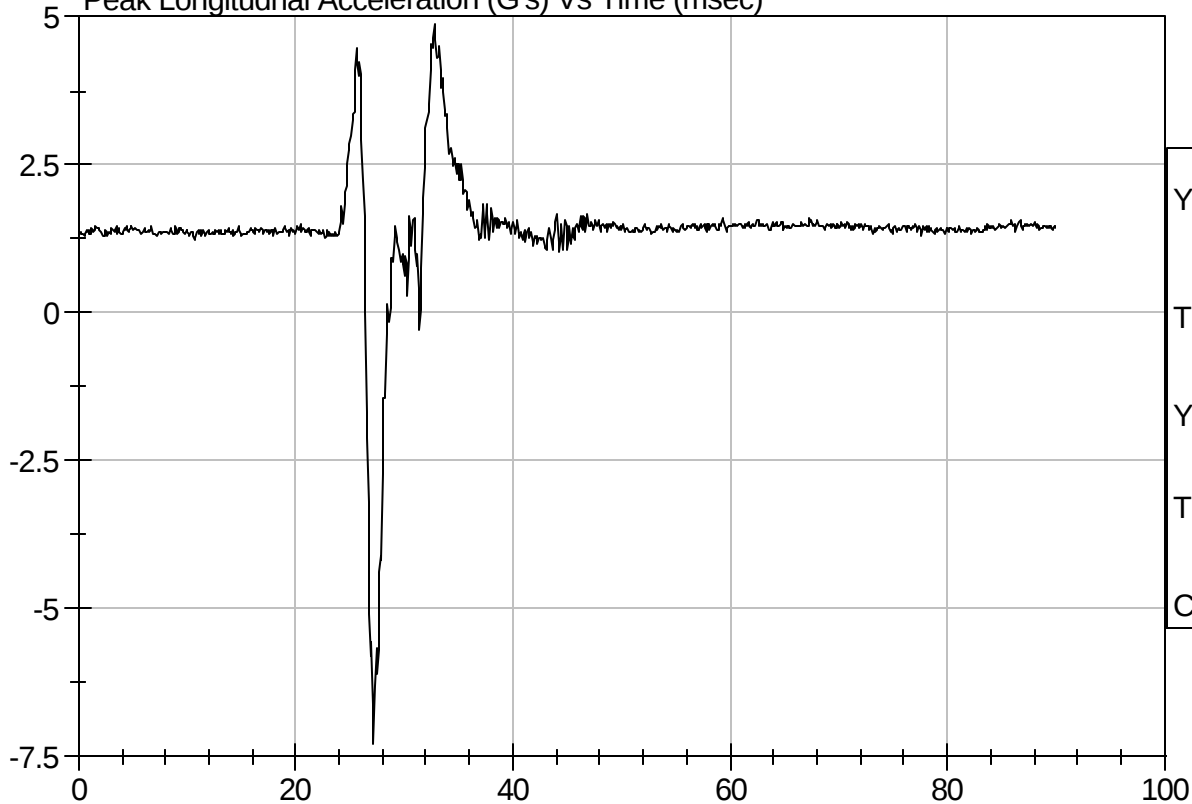
Component: D071381

Speed: 0 ft/s, 0 m/s

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



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

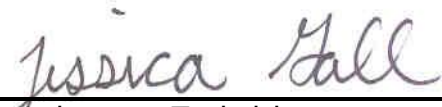


SID/HIII Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D: D071382

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Probe Velocity	m/s	4.22 - 4.31	4.23	Pass
Upper Rib	G's	37 - 46	44	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass


Laboratory Technician

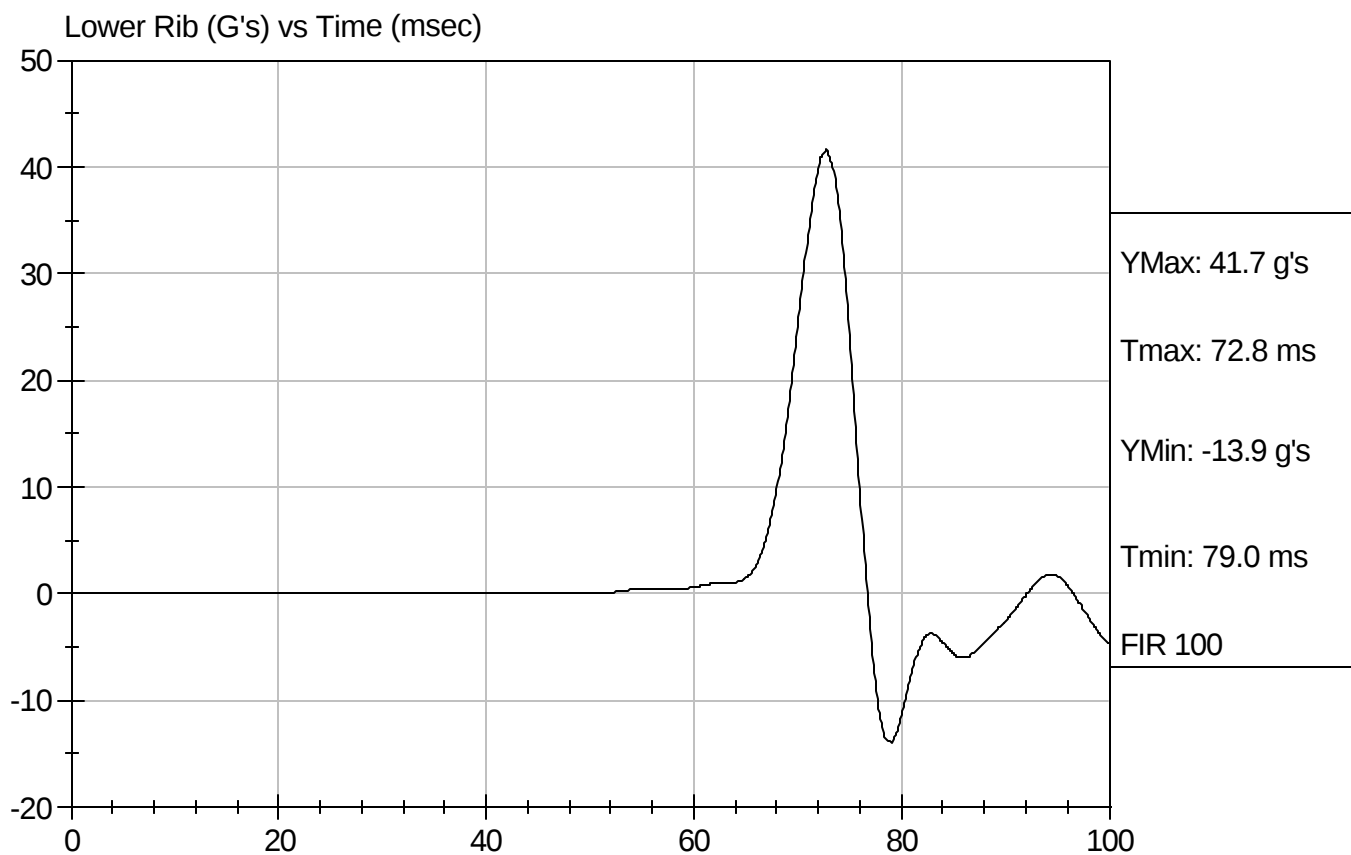
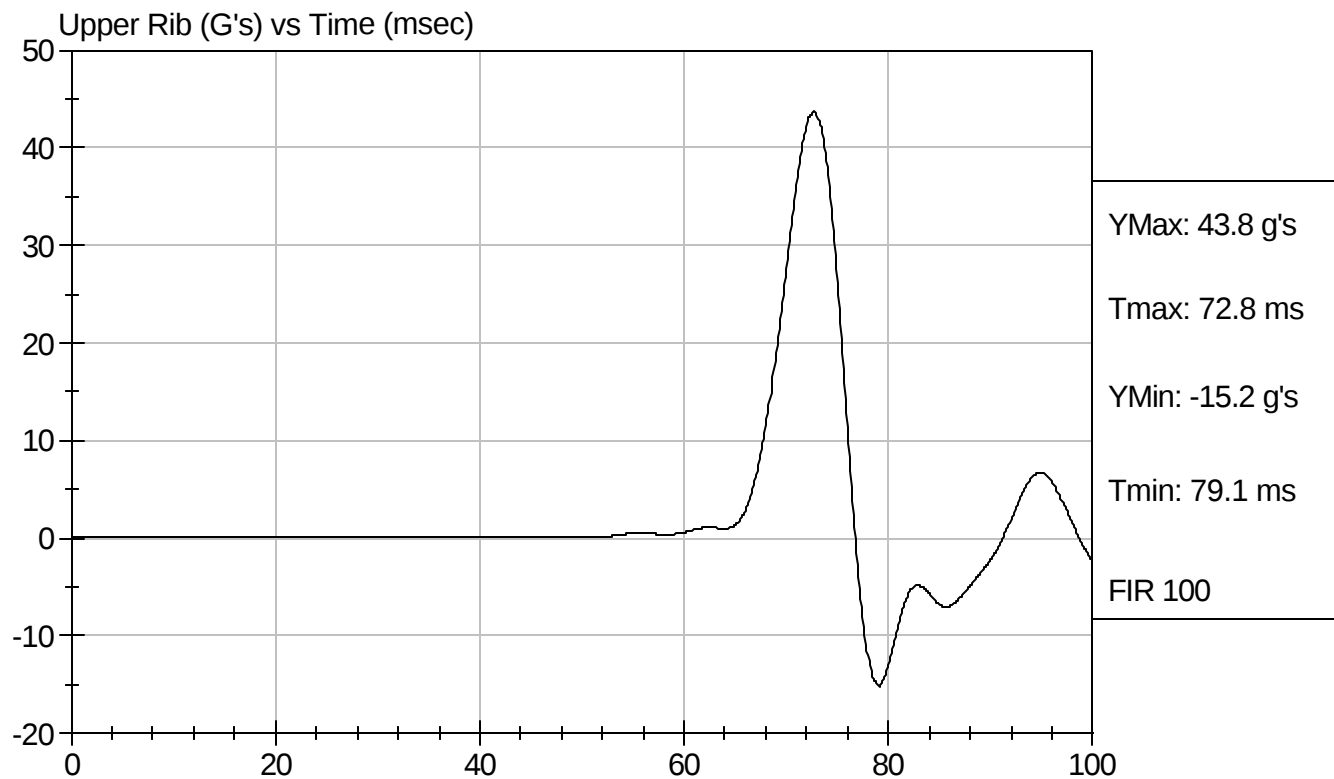
5/21/07
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D071382

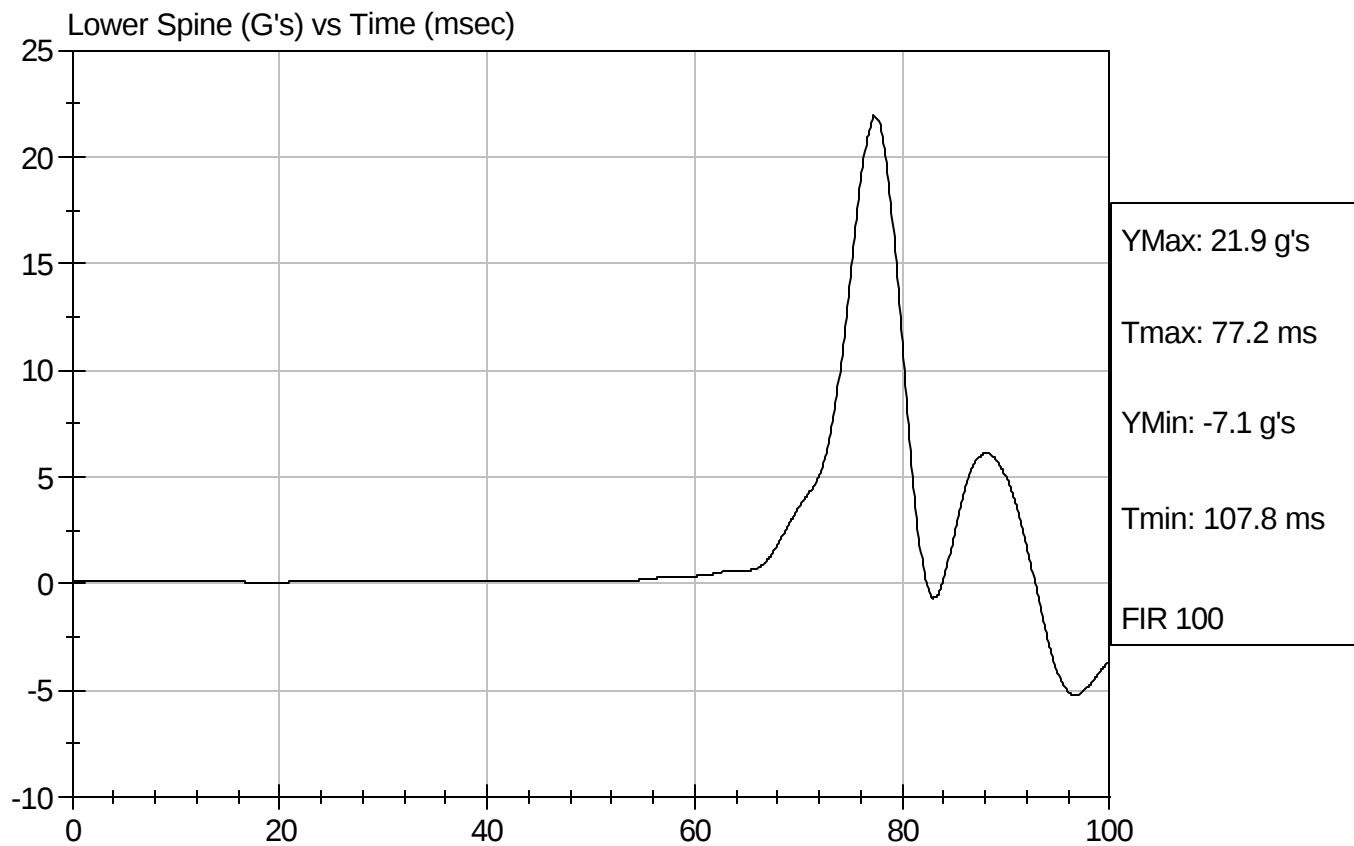
Test Date: 5/21/07
Speed: 13.89 ft/sec, 4.23 m/sec





Test Desc: Thorax Impact
Component ID: D071382

Test Date: 5/21/07
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: D071383

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	45	Pass
Overall Test Results			Pass	

Jessica Gall
Laboratory Technician

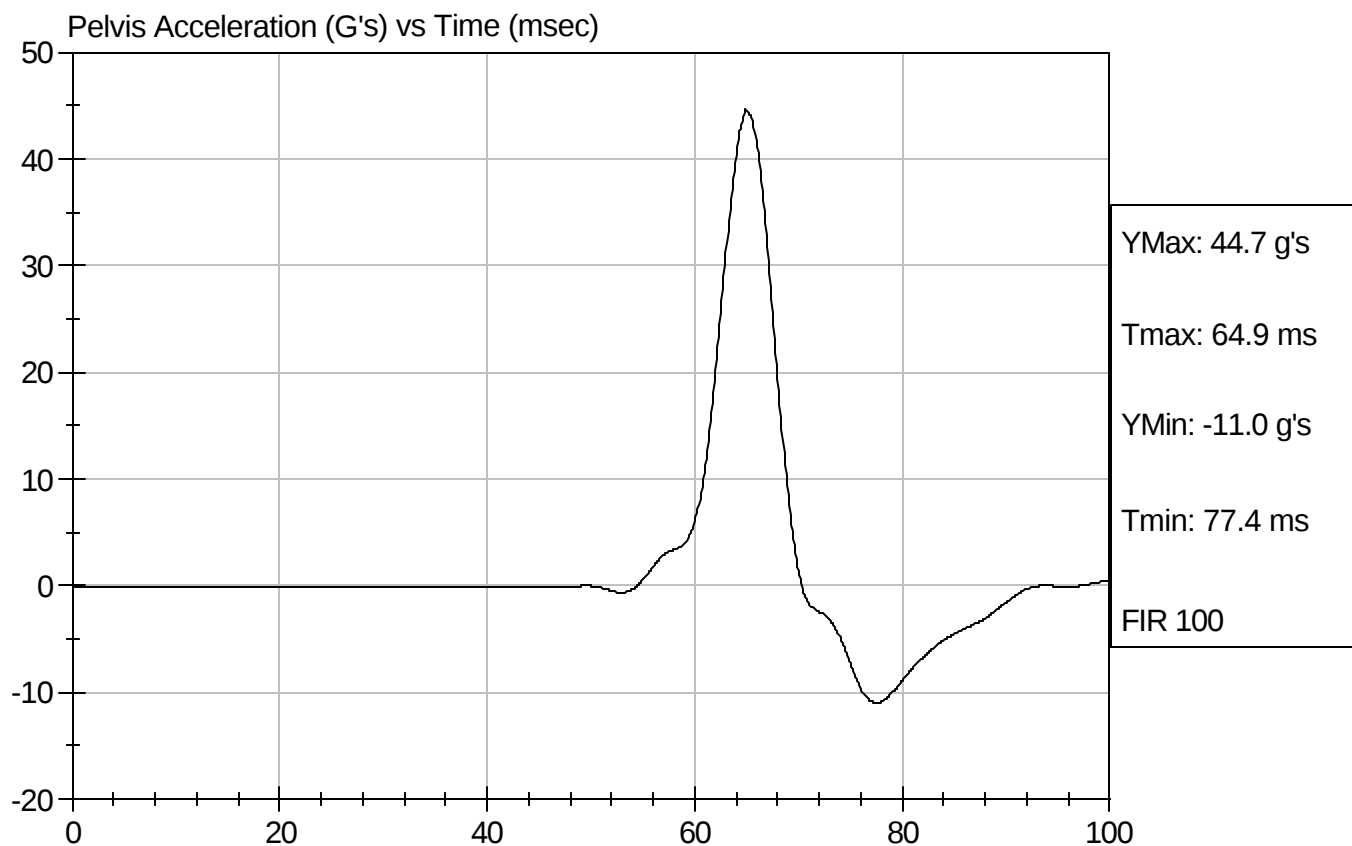
5/17/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D071383

Test Date: 5/17/07
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: D071384

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Force At 12.7 mm	N	104 -162	133	Pass
Force At 19 mm	N	163 - 222	182	Pass
Force At 25.4 mm	N	222 - 280	241	Pass
Force At 33 mm	N	325 - 391	326	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By

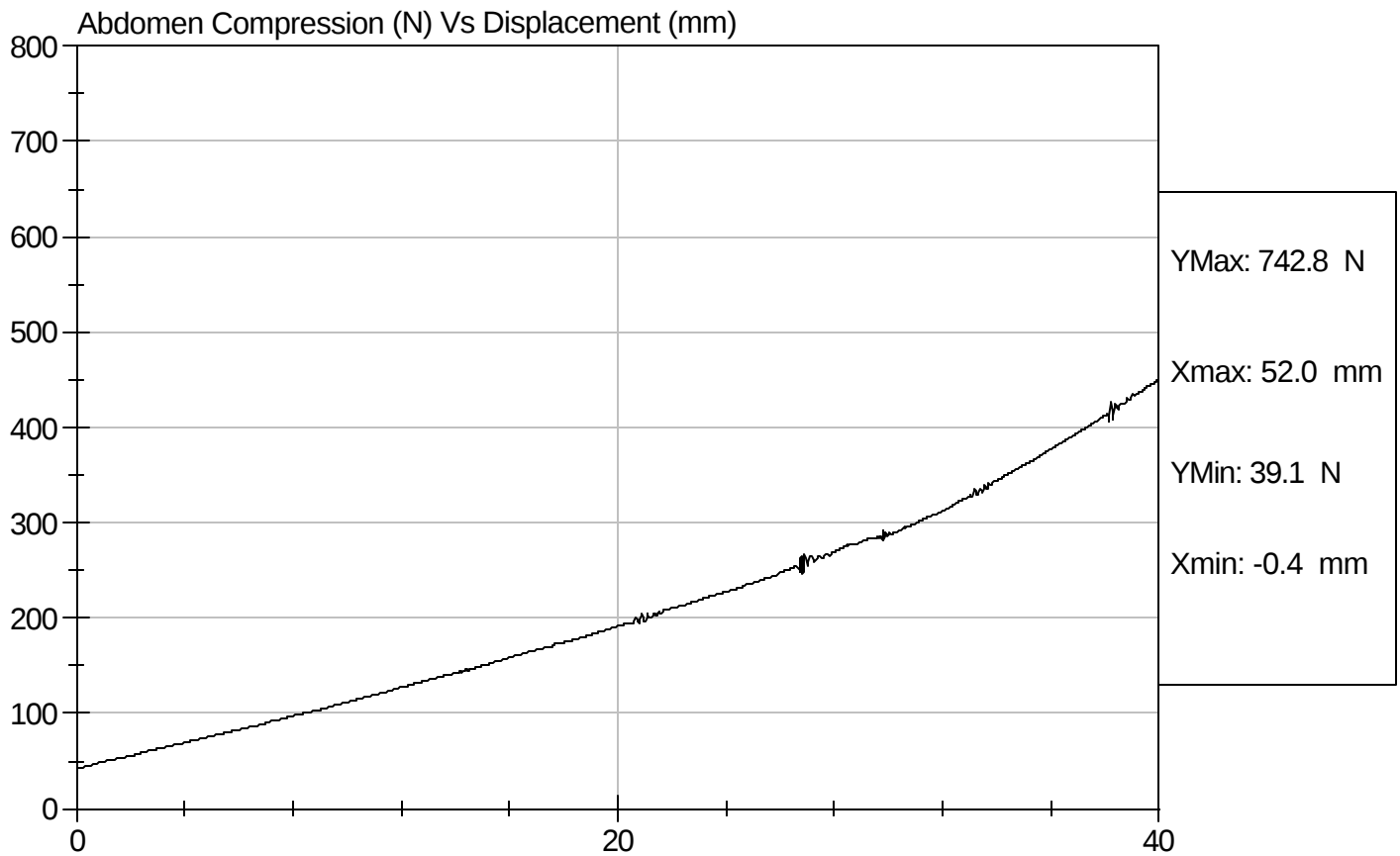


Test Description: Abdomen Compression

Test Date: 5/16/07

Component: D071384

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D.: D071385

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	37	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	148.3	Pass
Force At 30 deg	N	151.2 - 204.6	176.4	Pass
Force At 40 deg	N	204.6 - 258.0	239.1	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

5/16/07
Test Date

David Winkelbauer
Approved By

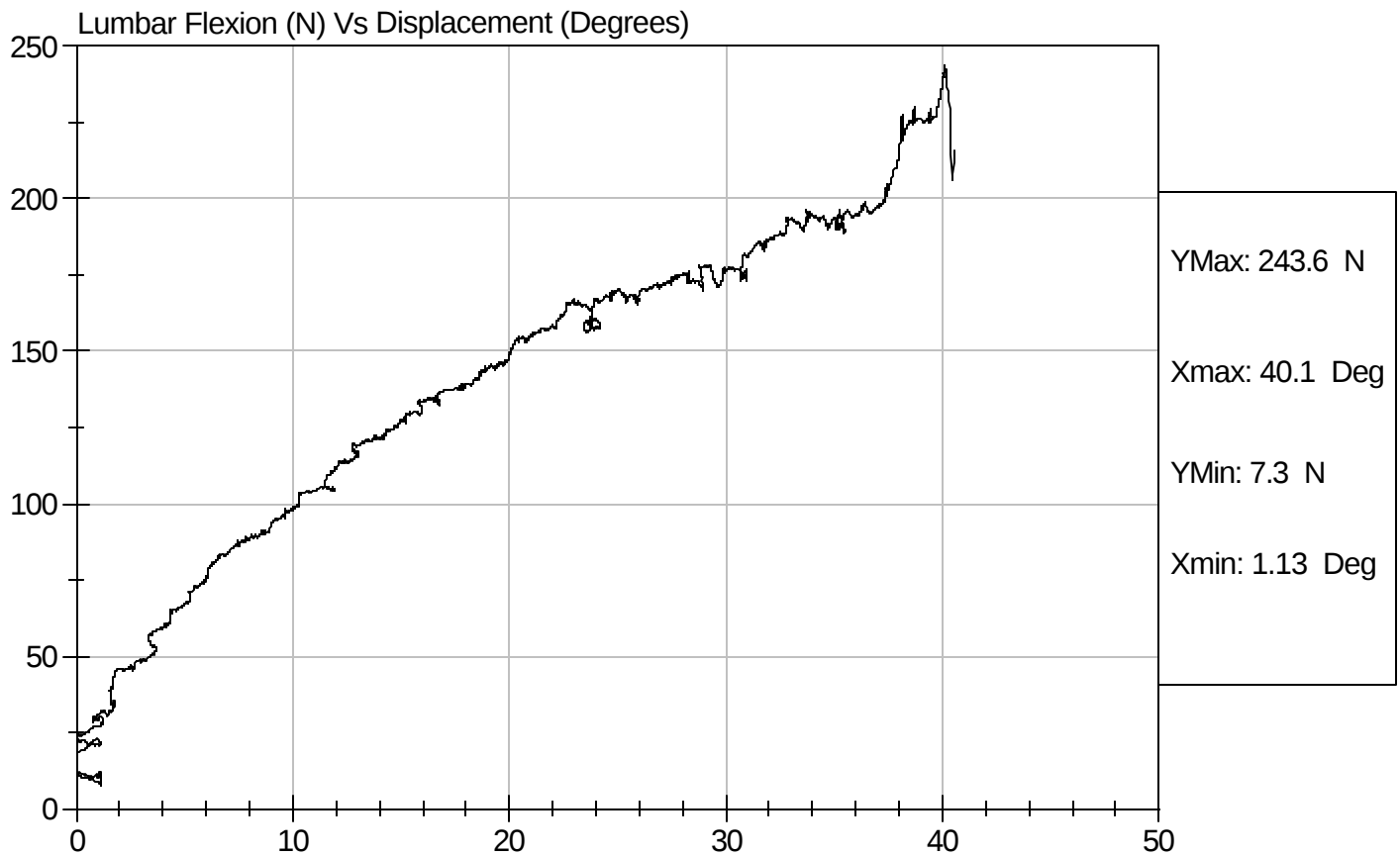


Test Description: Lumbar Flexion

Test Date: 5/16/07

Component: D071385

Speed: 0 ft/sec, 0 m/sec

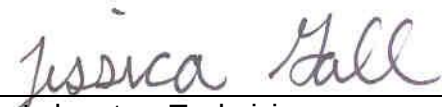


SID/HIII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D071388

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	37	Pass
Impact Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.40	Pass
	20 msec	m/s	4.12 to 5.10	4.59	Pass
	30 msec	m/s	5.73 to 7.01	6.15	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.71	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	73	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	77	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

5/17/07

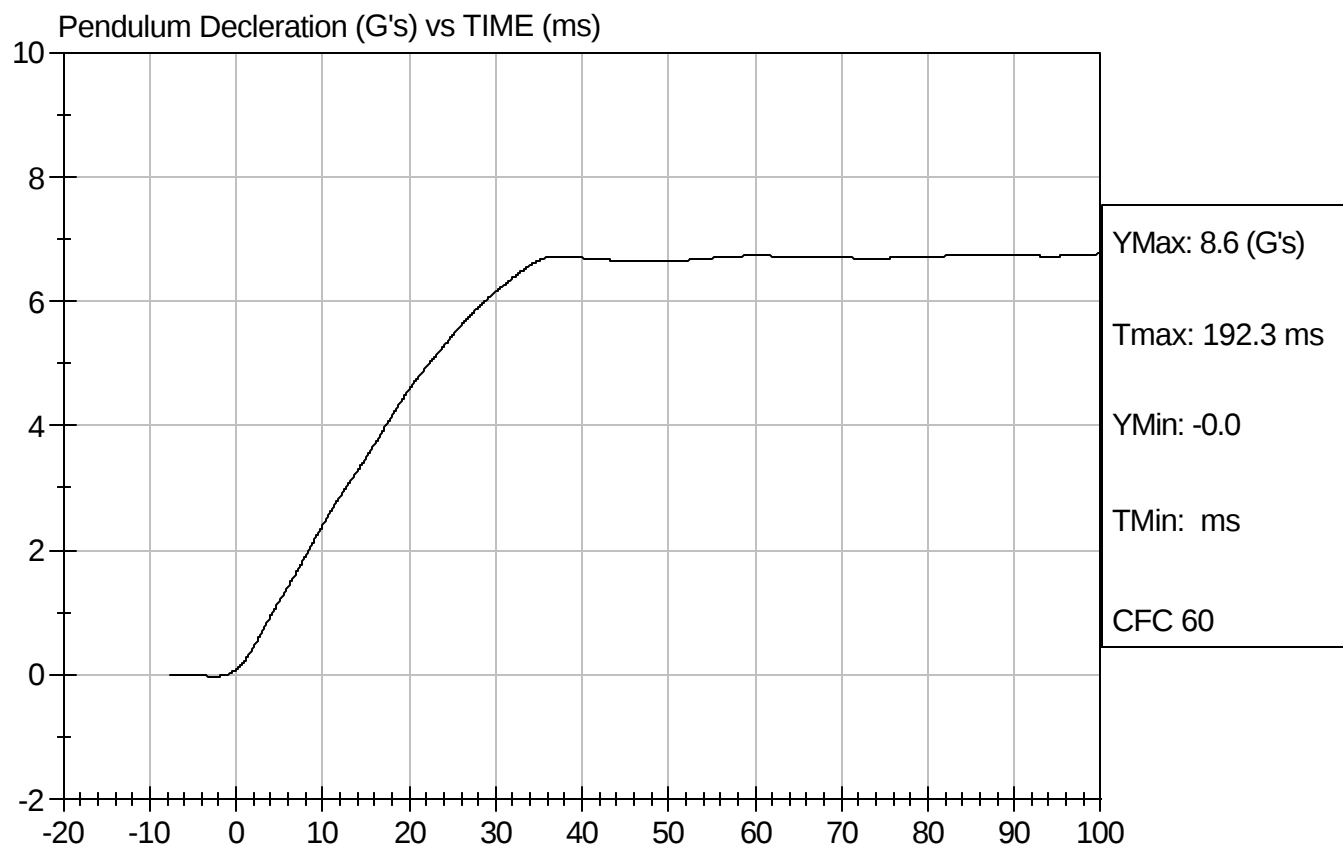
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D071388

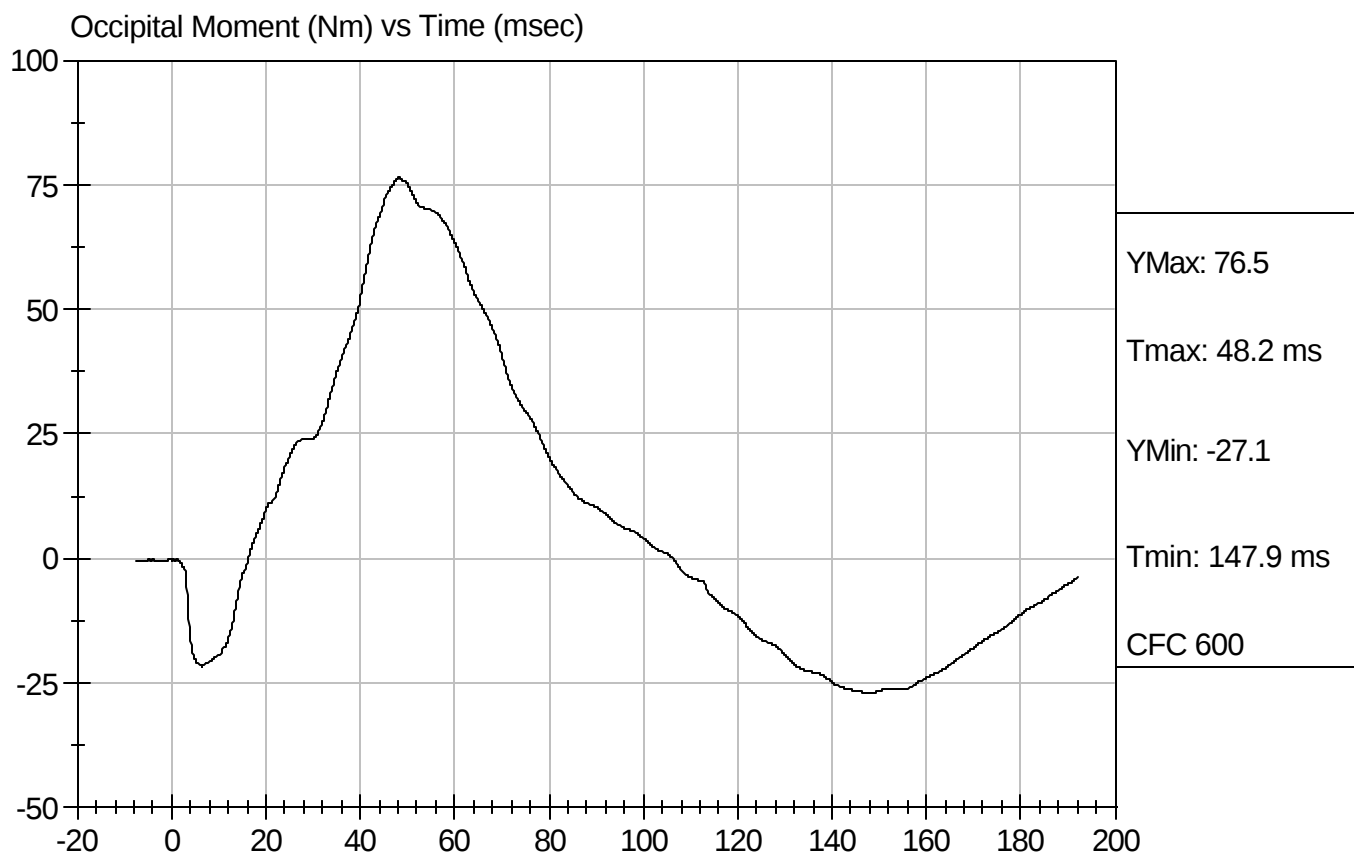
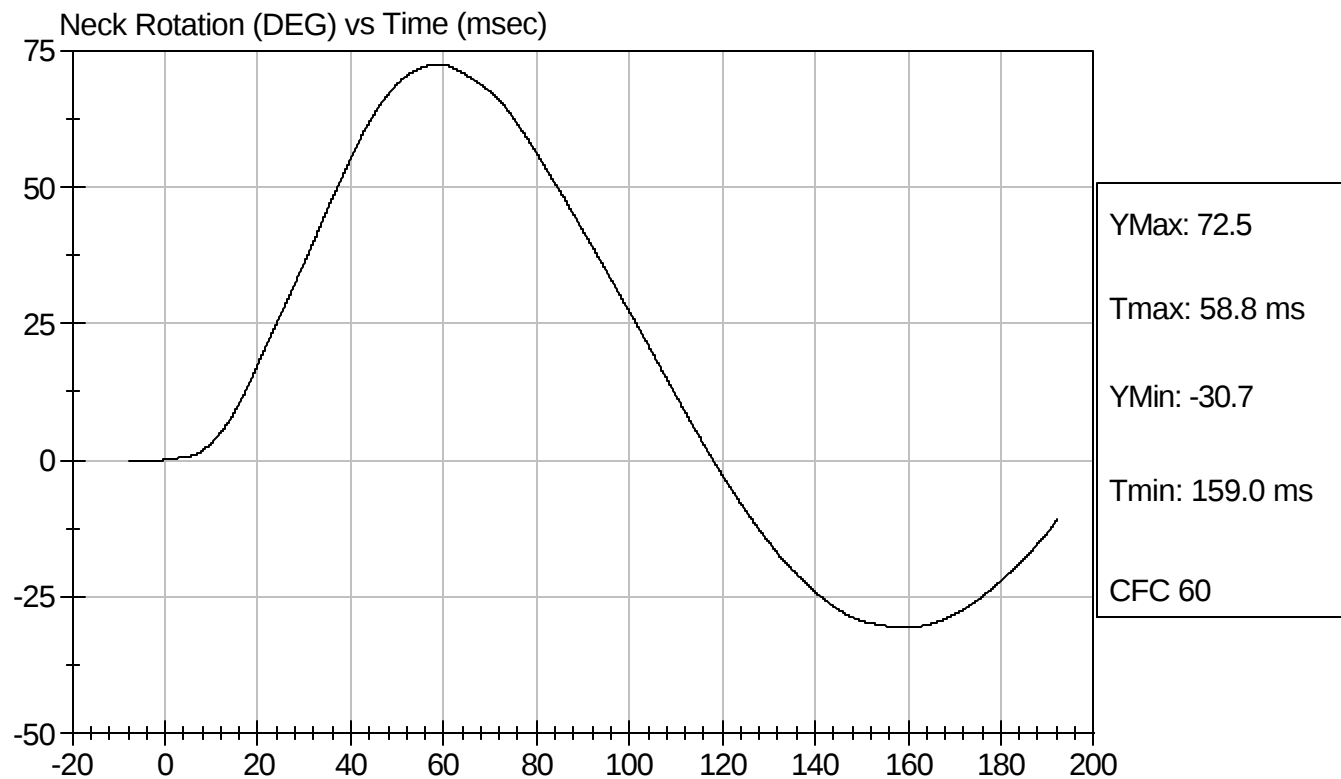
Test Date: 5/17/07
Speed: 22.8 ft/sec, 6.96 m/sec





Test Desc: Neck Bending
Component ID: D071388

Test Date: 5/17/07
Speed: 22.8 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: D071461

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	45	Pass
Peak Resultant Acceleration	G's	120 to 150	148	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-9.3	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By



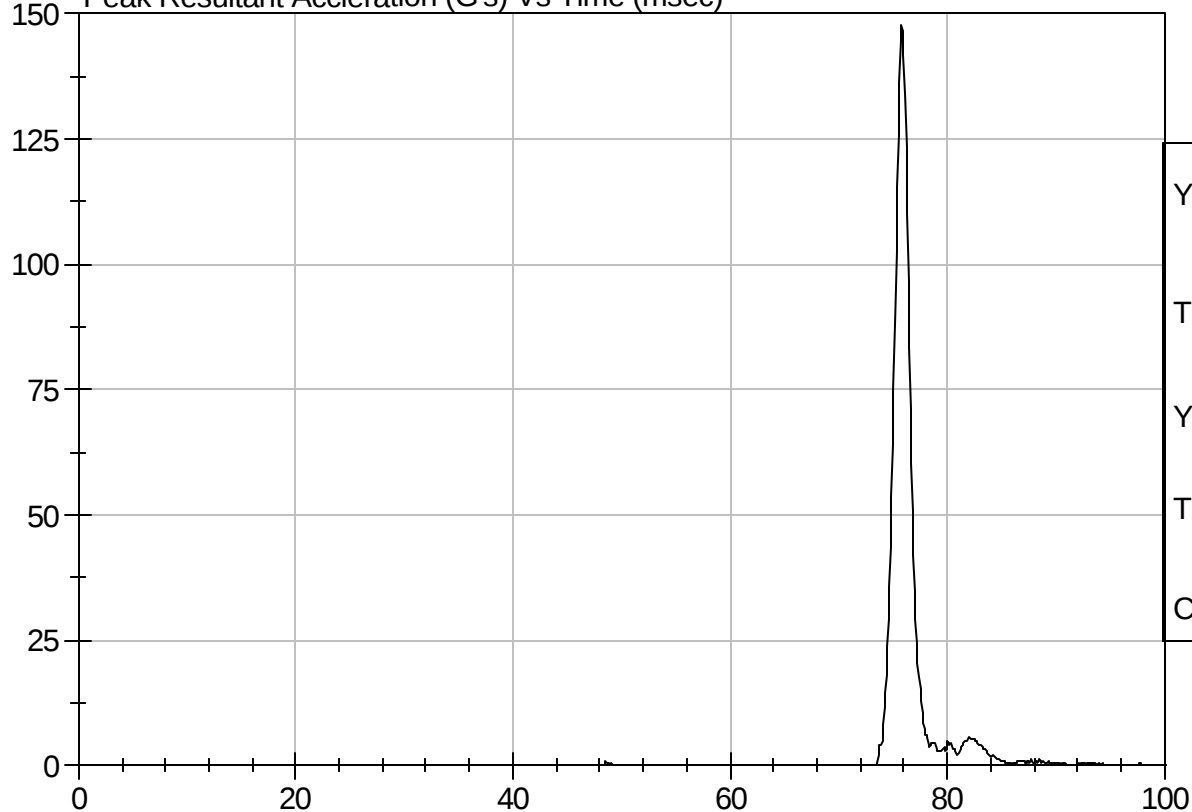
Test Description: Head Drop

Test Date: 5/23/07

Component: D071461

Speed: 0 ft/s, 0 m/s

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



YMax: 147.8 G

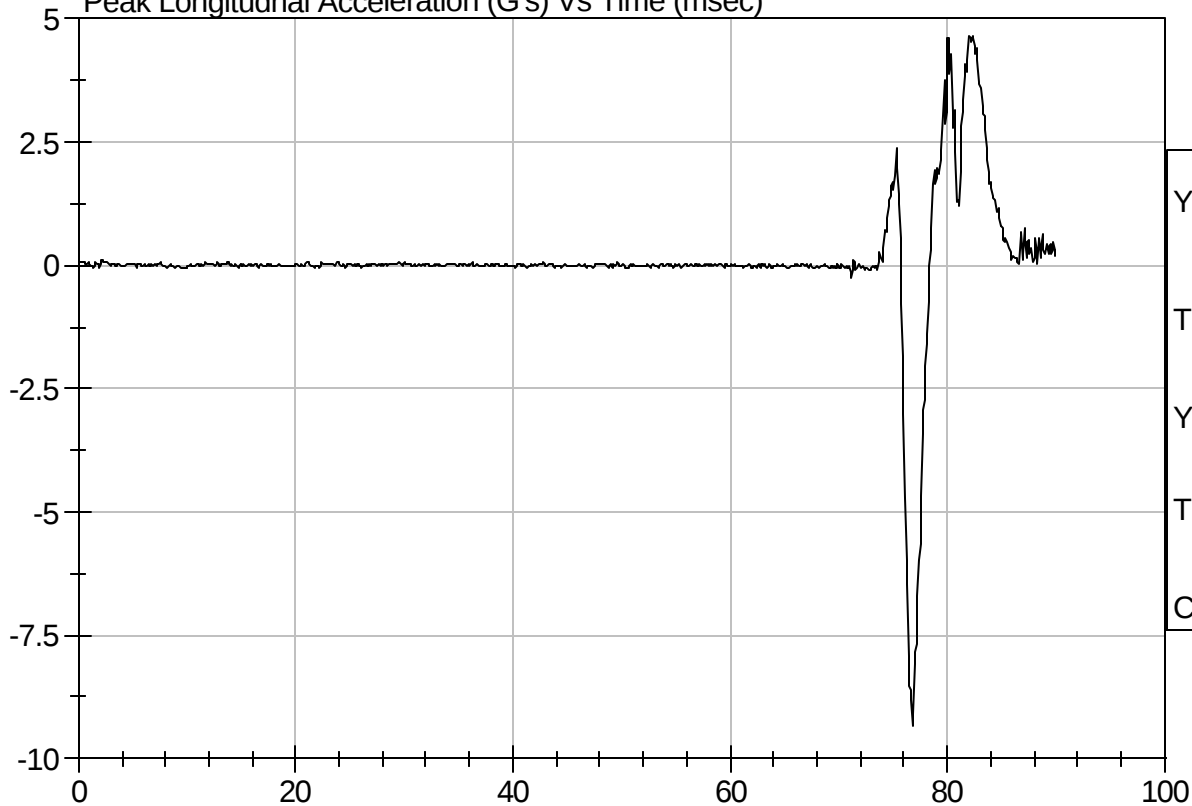
Tmax: 75.8 ms

YMin: 0.0 G

Tmin: 4.2 ms

CFC 1000

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



YMax: 4.7 G

Tmax: 82.0 ms

YMin: -9.3 G

Tmin: 76.8 ms

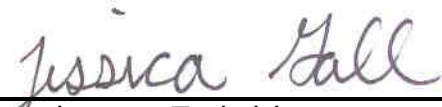
CFC 1000

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

ATD Serial No: 904

Test I.D: D071462

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	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	40	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass


Laboratory Technician

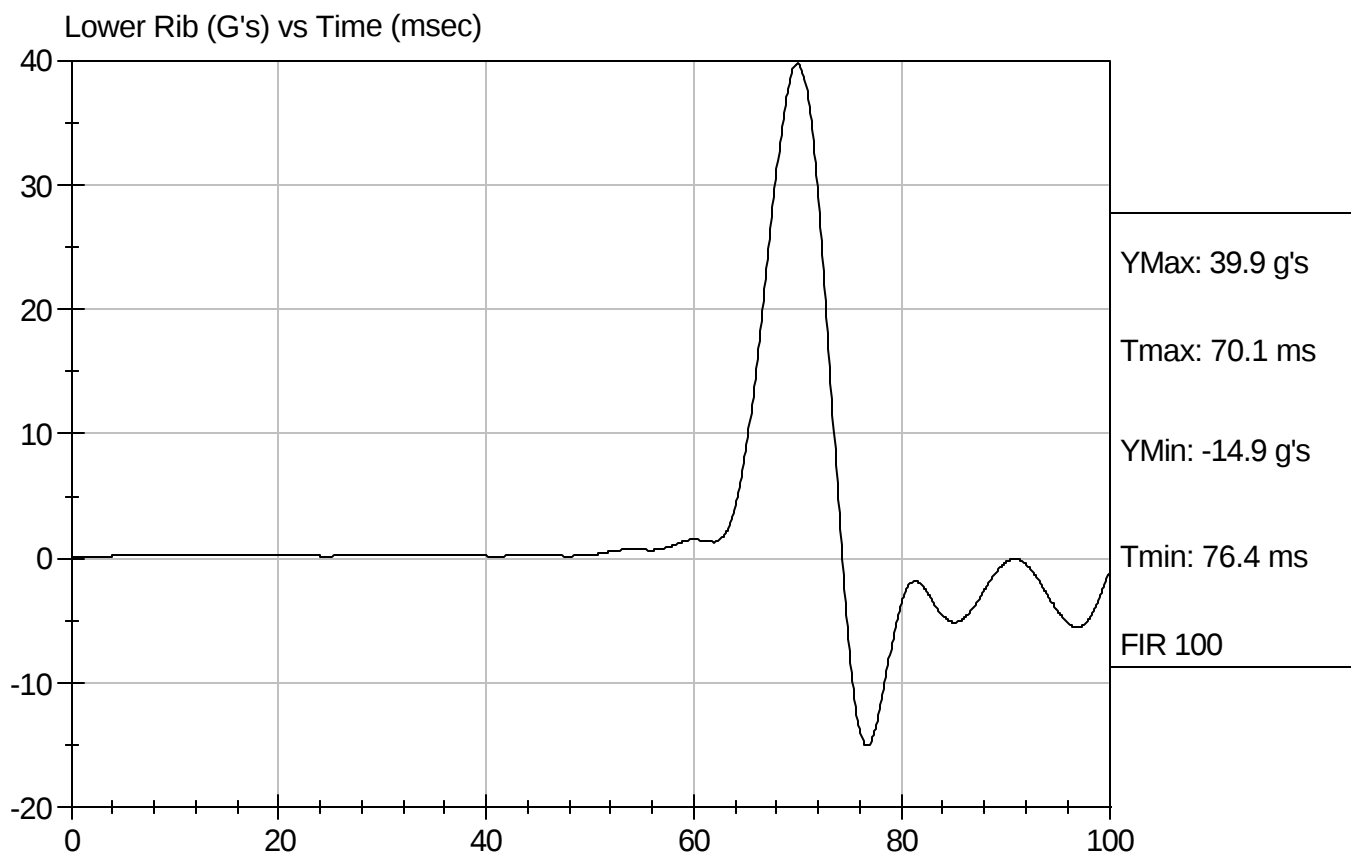
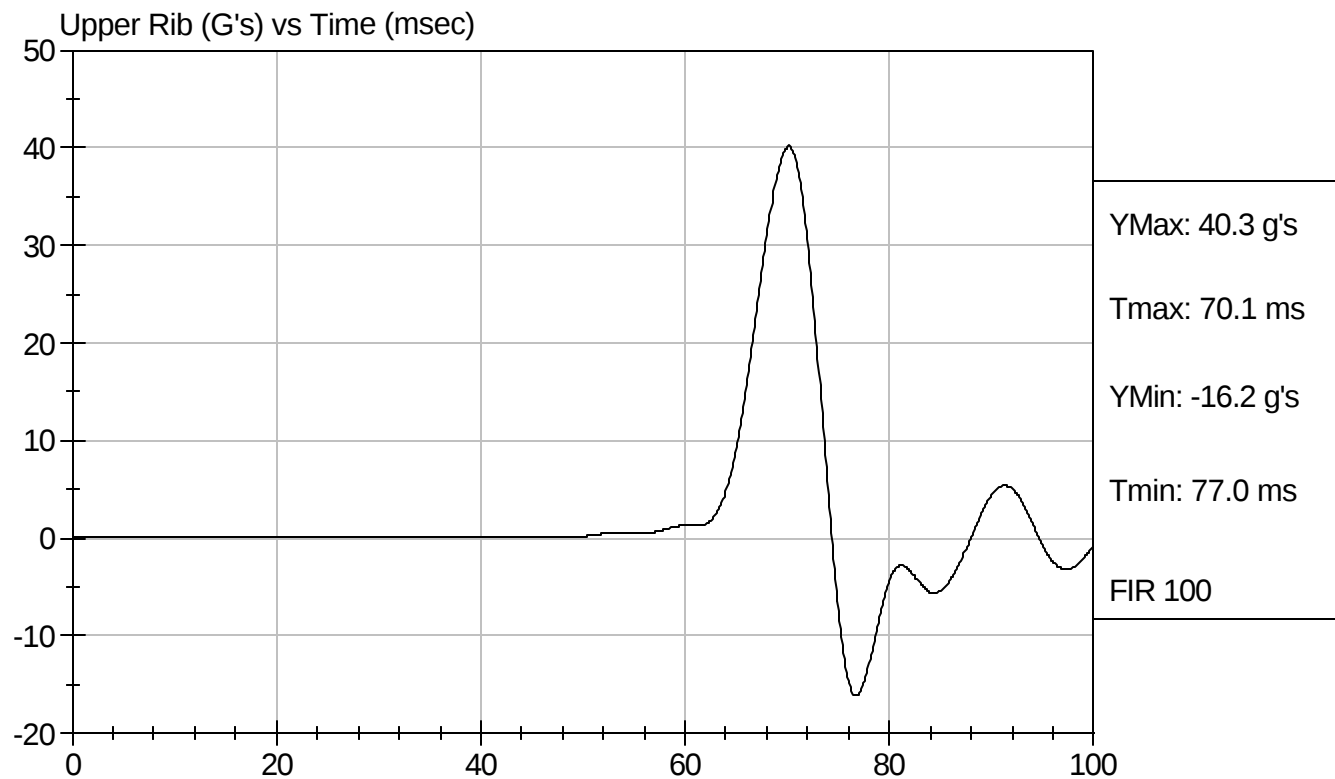
5/23/07
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D071462

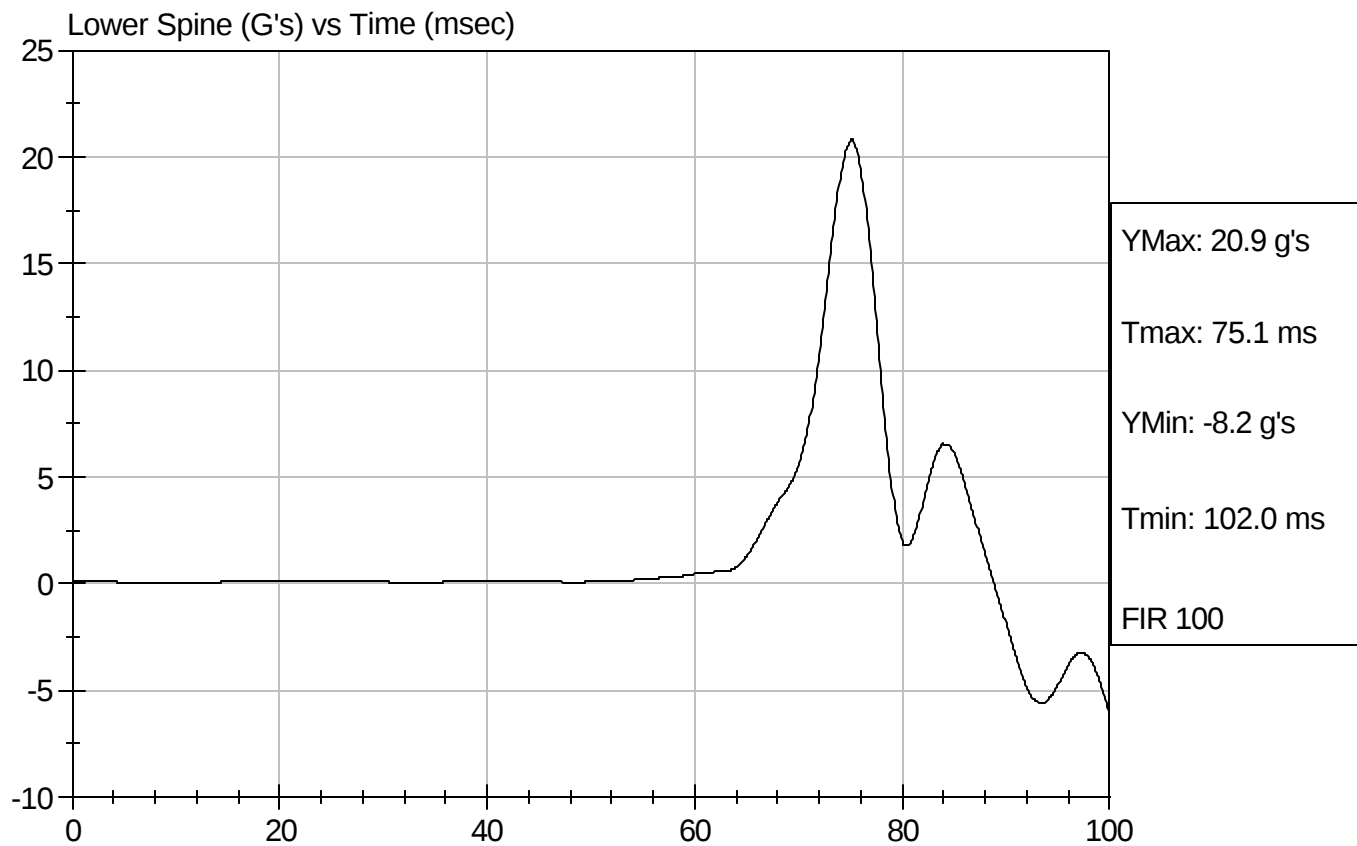
Test Date: 5/23/07
Speed: 13.89 ft/sec, 4.23 m/sec





Test Desc: Thorax Impact
Component ID: D071462

Test Date: 5/23/07
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: D071463

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/s	4.27 - 4.33	4.32	Pass
Pelvis Acceleration	G's	40 - 60	43	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

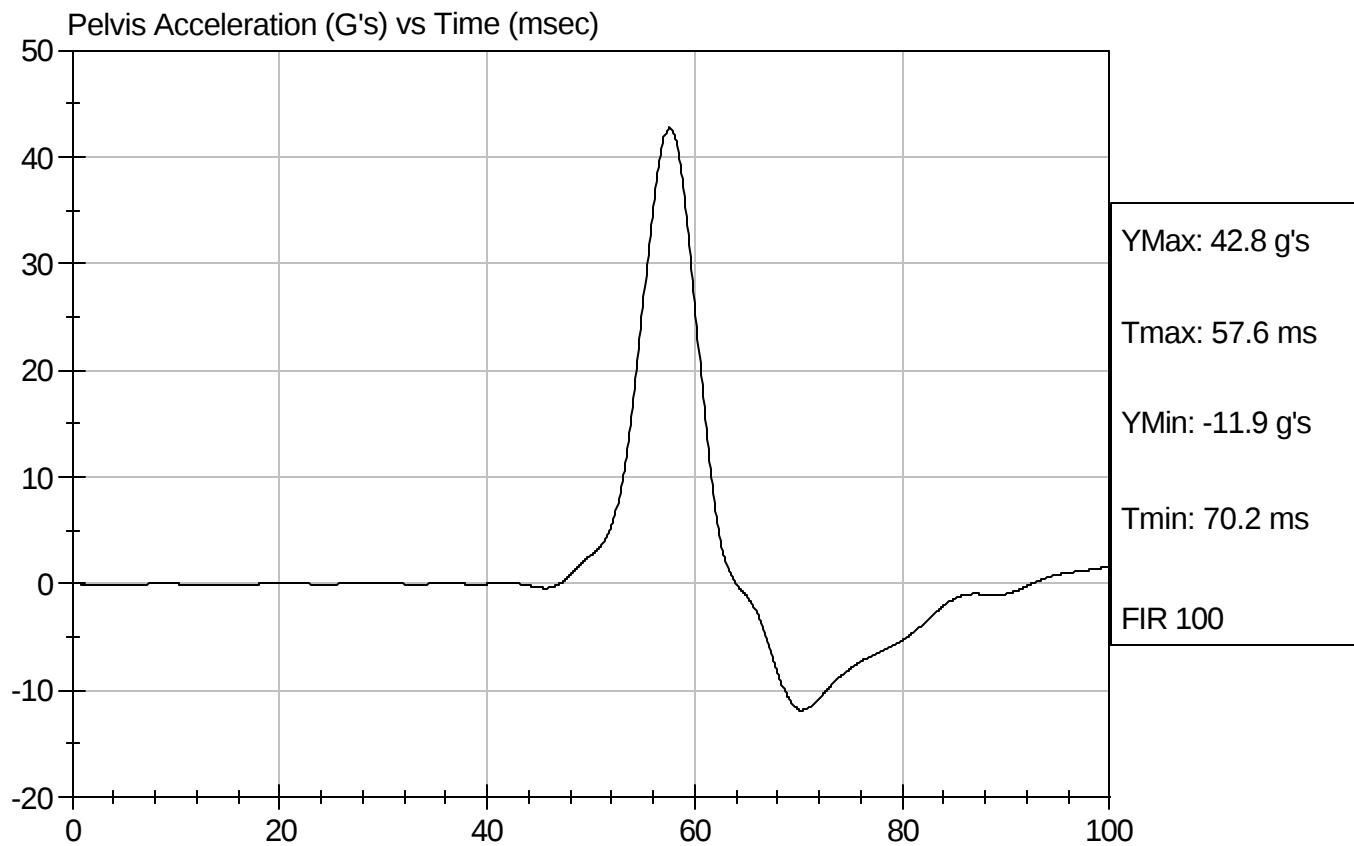
5/23/07
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D071463

Test Date: 5/23/07
Speed: 14.184 ft/sec, 4.32 m/sec



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

ATD Serial No: 904

Test I.D: D071464

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 12.7 mm	N	104 -162	137	Pass
Force At 19 mm	N	163 - 222	192	Pass
Force At 25.4 mm	N	222 - 280	263	Pass
Force At 33 mm	N	325 - 391	368	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By

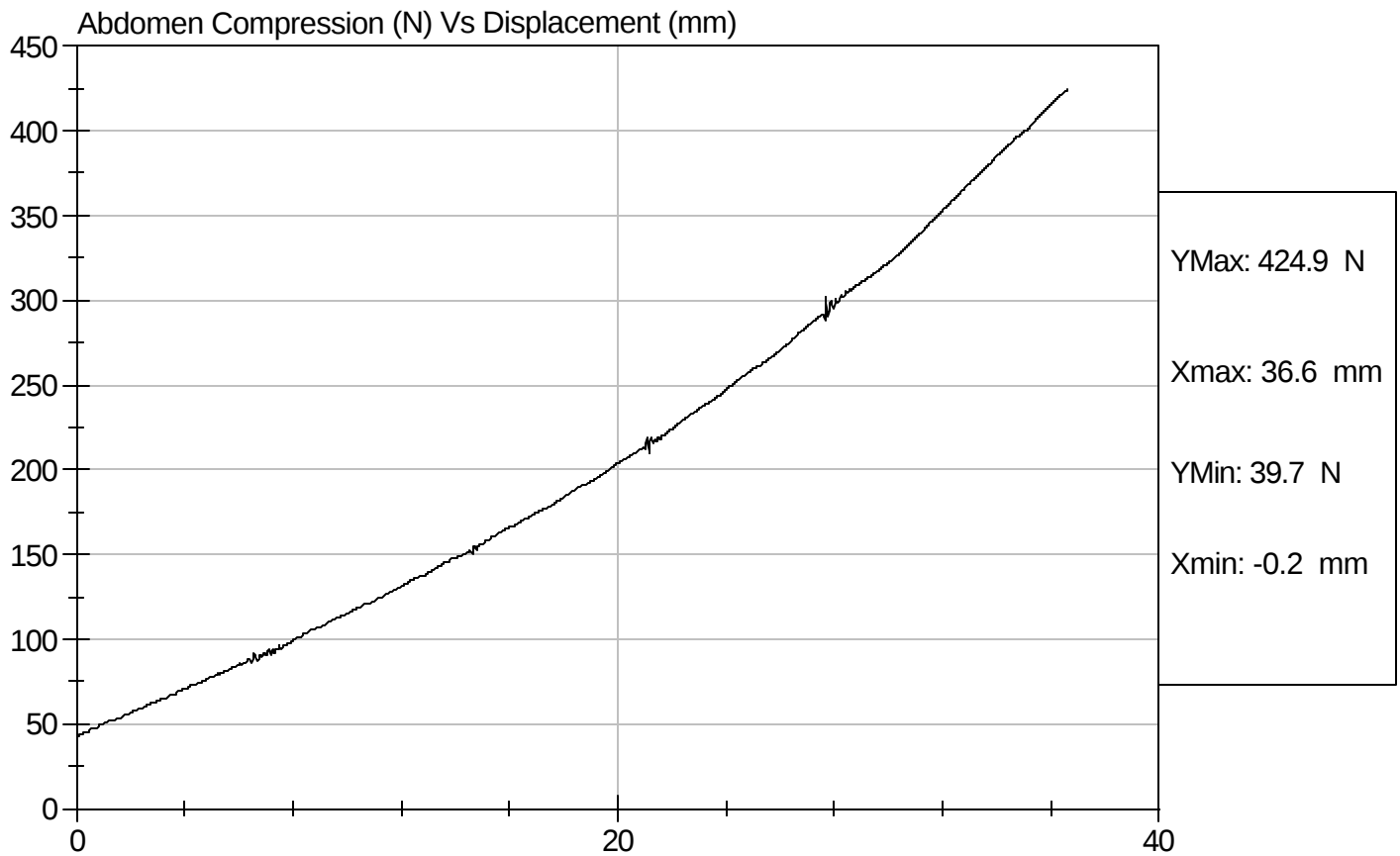


Test Description: Abdomen Compression

Test Date: 5/23/07

Component: D071464

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D071465

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 0 deg	N	0 - 26.7	0	Pass
Force At 20 deg	N	97.9 - 151.2	138.2	Pass
Force At 30 deg	N	151.2 - 204.6	188.5	Pass
Force At 40 deg	N	204.6 - 258.0	230.0	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

5/23/07
Test Date

David Winkelbauer
Approved By

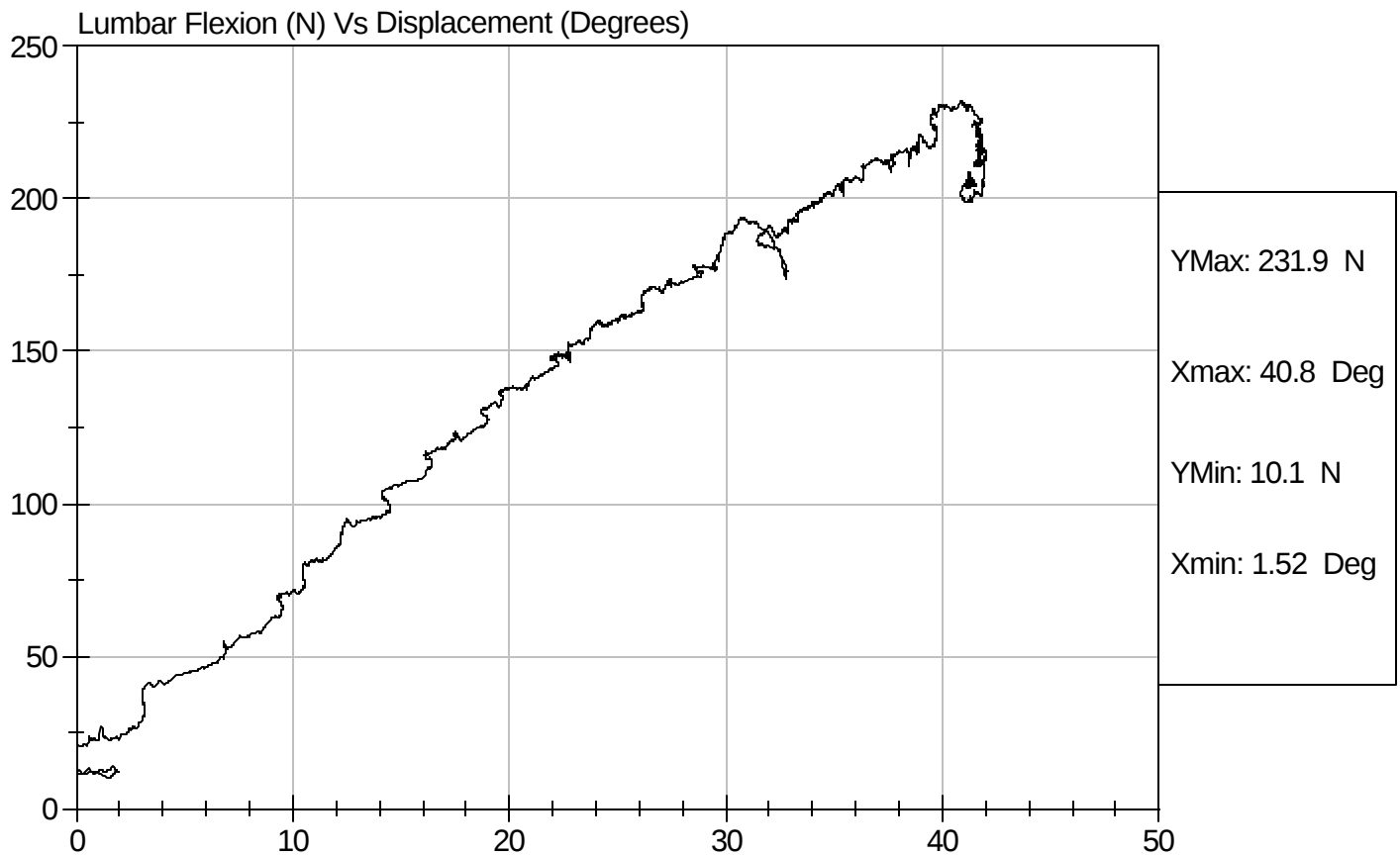


Test Description: Lumbar Flexion

Test Date: 5/23/07

Component: D071465

Speed: 0 ft/sec, 0 m/sec

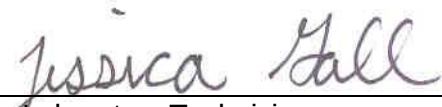


SID/HIII Calibration Data Sheet
Side Impact Dummy (SID)
Neck Pendulum Test

ATD Serial No: 904

Test I.D: D071469

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	45	Pass
Impact Velocity		m/s	6.89 to 7.13	7.06	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.27	Pass
	20 msec	m/s	4.12 to 5.10	4.62	Pass
	30 msec	m/s	5.73 to 7.01	6.42	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.77	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	73	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	74	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	59	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	13	Pass


 Laboratory Technician

5/23/07

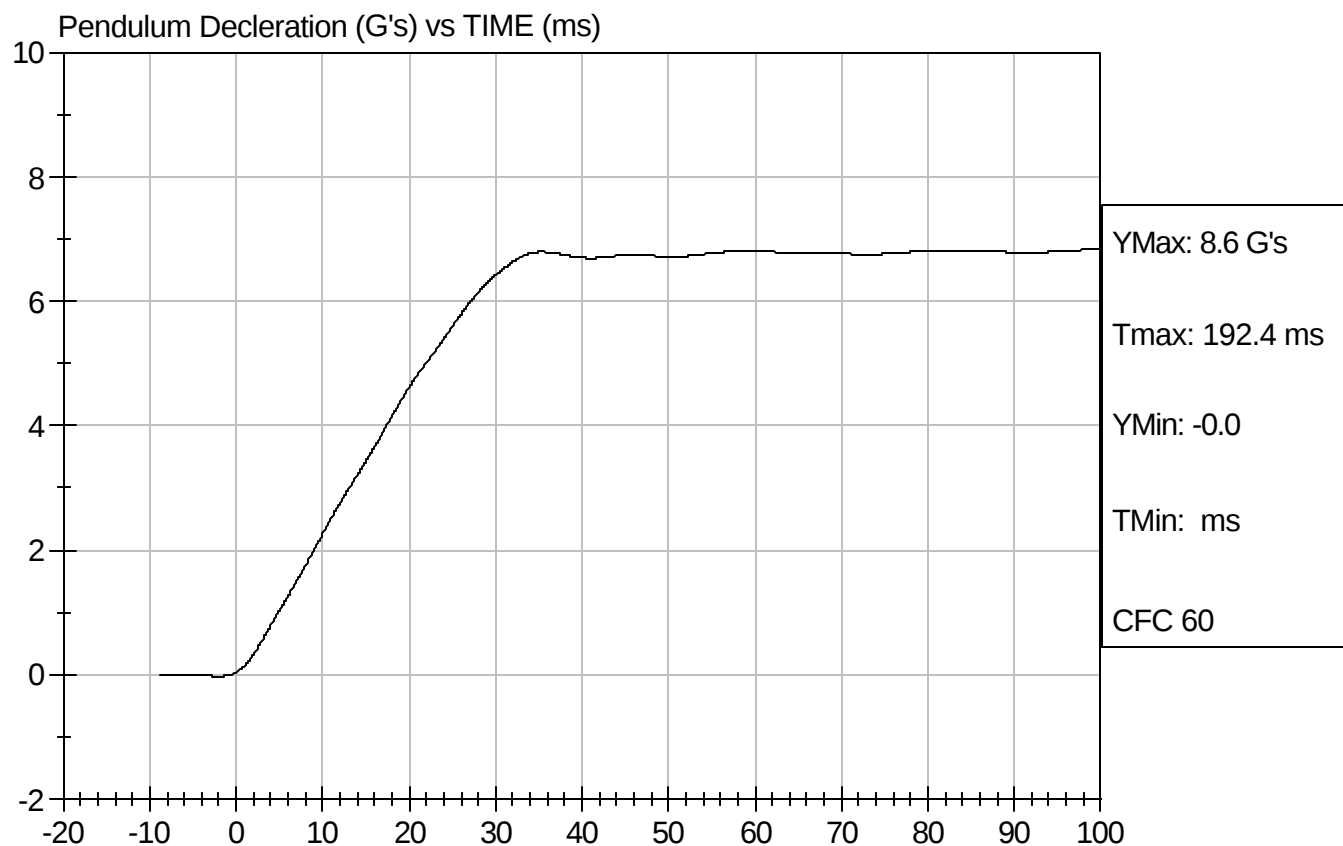
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D071469

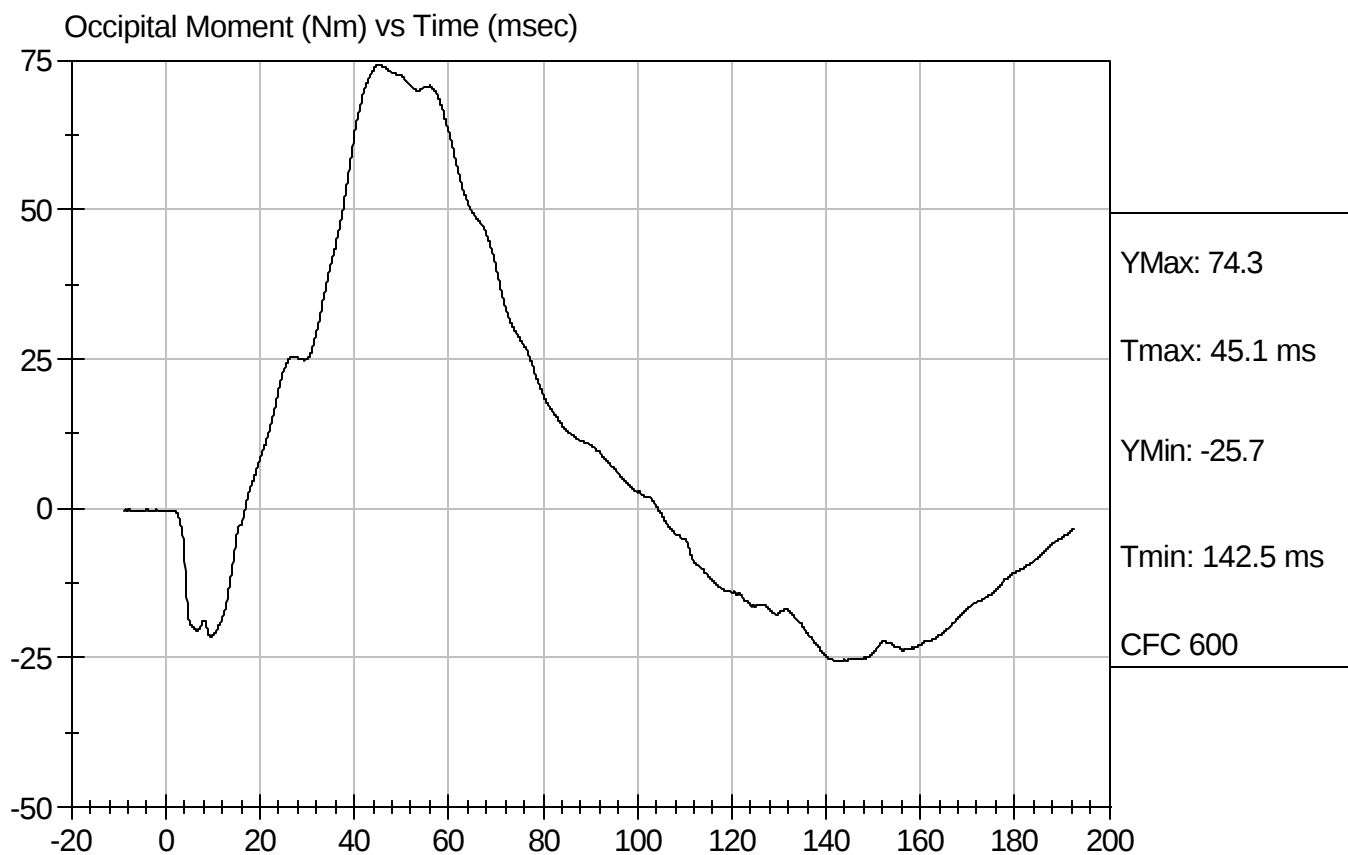
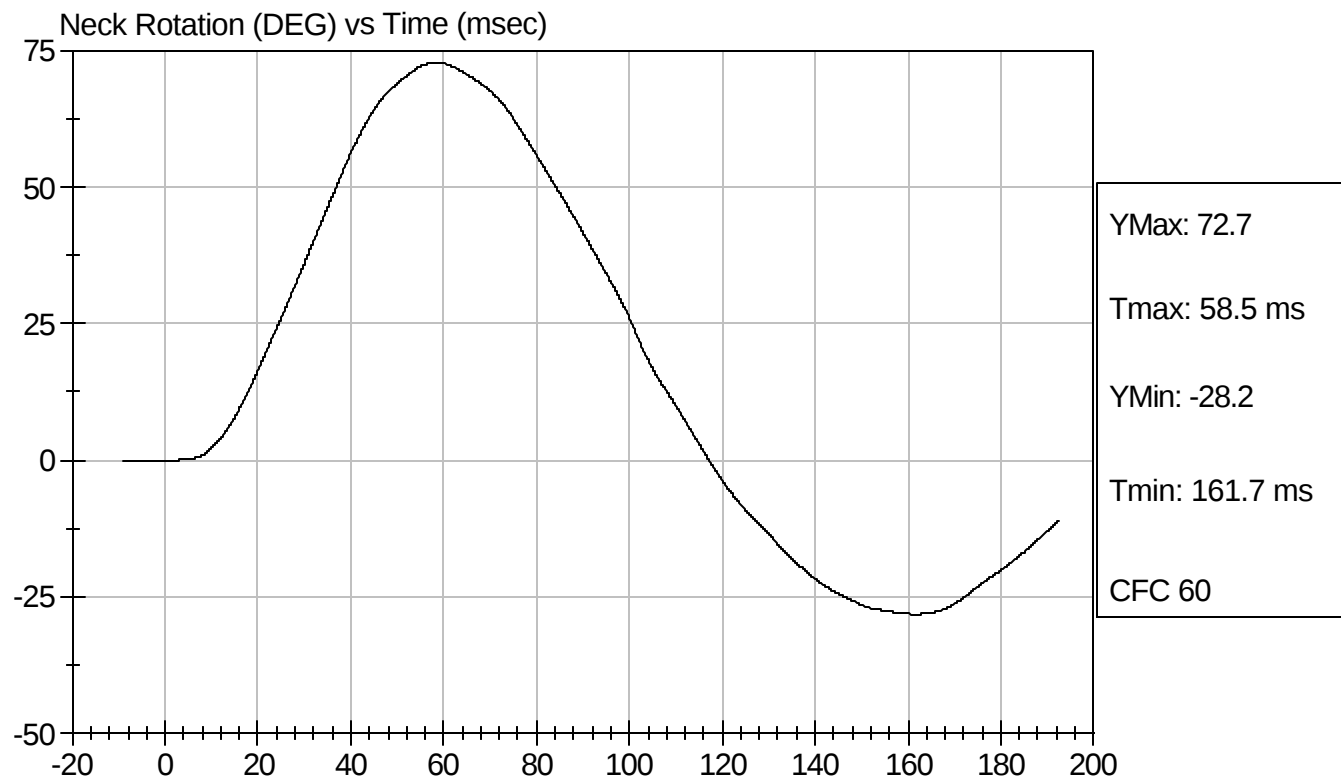
Test Date: 5/23/07
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D071469

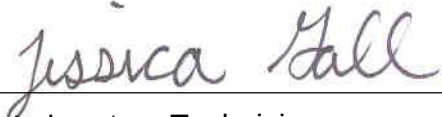
Test Date: 5/23/07
Speed: 23.15 ft/sec, 7.06 m/sec



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


Laboratory Technician

Approved By

5/23/2007

Test Date