

REPORT NUMBER: NCAPSIDE-MGA-2006-008

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**GENERAL MOTORS CORPORATION
2006 PONTIAC G6 GT
NHTSA NUMBER: M60117**

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



Test Date: January 31, 2006

Report Date: March 9, 2006

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**

This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-03-D-12005.

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Date: 3/09/06

Technical Report Documentation Page

1. Report No. NCAPSIDE-MGA-2006-008	2. Government Accession No. No.	3. Recipient's Catalog No.																						
4. Title and Subtitle Final Report of New Car Assessment Program Side Impact Testing of 2006 Pontiac G6 GT NHTSA No.: M60117		5. Report Date March 9, 2006																						
		6. Performing Organization Code MGA																						
7. Author(s) Shefalika Naik, Project Engineer		8. Performing Organization Report No. NCAPSIDE-MGA-2006-008																						
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																						
		11. Contract or Grant No. DTNH22-03-D-12005																						
12. Sponsoring Agency Name and Address 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		13. Type of Report and Period Covered: Final Report 01/31/06 to 3/09/06																						
		14. Sponsoring Agency Code NVS-111																						
15. Supplementary Notes																								
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2006 Pontiac G6 GT to obtain new car assessment and research data indicant of FMVSS No. 214D performance. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on January 31, 2006. The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 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 262 mm at level 2. The test vehicle's occupant performance is as follows: <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>DRIVER</u></th> <th style="text-align: center;"><u>PASS.</u></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) Accel., g</td> <td style="text-align: center;">67.5</td> <td style="text-align: center;">52.1</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">72.4</td> <td style="text-align: center;">42.3</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">84.7</td> <td style="text-align: center;">48.1</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">78.6</td> <td style="text-align: center;">50.1</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">69.2</td> <td style="text-align: center;">41.2</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">385.0</td> <td style="text-align: center;">350.8</td> </tr> </tbody> </table>					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	67.5	52.1	Left Lower Rib (LLR) Accel., g	72.4	42.3	Lower Spine (T ₁₂) Accel., g	84.7	48.1	Thoracic Trauma Index (TTI)	78.6	50.1	Pelvis (PEV) Accel., g	69.2	41.2	HIC	385.0	350.8
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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																						
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 142	22. Price																					

Form DOT F1700.7 (8-72)

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 2006 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 2006 Pontiac G6 GT manufactured by General Motors Corporation.

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 2006 Pontiac G6 GT was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.1 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1760.5 kg and the test weight of the MDB was 1360.8 kg. The test was conducted at MGA Research Corporation in Burlington, Wisconsin, on January 31, 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/HIIIs) can be found in Appendix A. Two 50th percentile adult male SID/HIIIs were placed in the driver and left rear passenger designated seating positions according to instructions specified in the Laboratory Test Procedure for New Car Assessment Program Side Impact Testing dated November 2002. Each SID/HIII was instrumented in the following locations:

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

The test vehicle was instrumented with twenty (20) structural accelerometers and the MDB was instrumented with 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 262 mm at level 2, 600 mm rearward of the left vertical impact point. The driver and passenger SID/HIIIs, 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/HIII 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	385.0	46.5	79.8	78.6	69.2
Passenger	350.8	39.9	59.0	50.1	41.2

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Information	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	None	
Side Torso Airbag	None		None	
Head Airbag	None		None	
Curtain Airbag	None		None	

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

TEST NOTES

The MDB bumper separated from the barrier and remained lodged in the vehicle.

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

TEST VEHICLE INFORMATION

Make	Pontiac
Model	G6 GT
Body Style	2 Door Coupe
NHTSA No.	M60117
VIN	1G2ZH158364198325
Color	Stealth Gray Metallic
Delivery Date	1/16/06
Odometer Reading (mile)	37
Dealer	Lynch
Transmission	Automatic
Final Drive	Front
Number of Cylinders	6
Engine Displacement (L)	3.5
Engine Placement	Lateral
Automatic Door Locks (ADL)	Yes
Owner's Manual Details Instructions on Disabling ADLs	None

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Curtain Airbag	No
Driver Side Torso Airbag	No
Rear Passenger Side/Curtain Airbag	No
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	No
Power Seats	No
Pretensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corporation
Date of Manufacture	10/05

GVWR (kg)	1903
GAWR Front (kg)	1067
GAWR Rear (kg)	836

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Split Bench		
Number Of Occupants	2	2		4
Capacity Wt. (VCW) (kg)				336
Cargo Wt. (RCLW) (kg)				63.9

DATA SHEET NO. 1 (continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	481.0	293.0		530.0	384.0	
Right	kg	480.5	285.0		500.0	346.5	
Ratio	%	62.5	37.5		58.5	41.5	
Totals	kg	961.5	578.0	1539.5	1030.0	730.5	1760.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1539.5
Weight of 2 P572E ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	63.9
Calculated Vehicle Target Weight (TVTW)	kg	1764.9

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

Weight of Ballast in Cargo Area: 22.7 kg

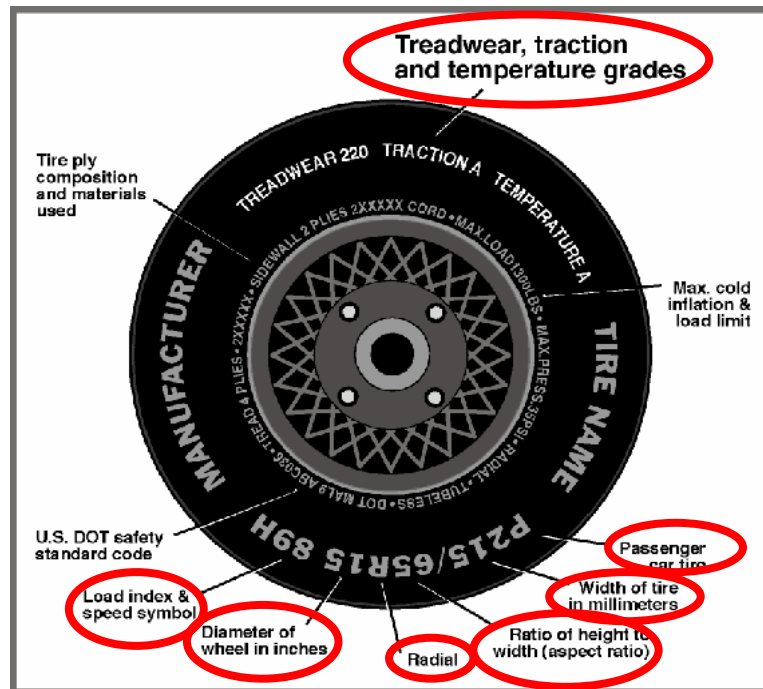
TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	704	708	724	722	1071
As Tested	mm	689	702	689	692	1183
Fully Loaded	mm	689	701	685	692	

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2852
Target Impact Point Aft of Front Axle	mm	486
Actual Impact Point Aft of Front Axle	mm	487

DATA SHEET NO. 2
TEST VEHICLE TIRE INFORMATION



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	210	210
Recommended Tire Size	P225/50R17	P225/50R17
Tire Size on Vehicle	P225/50R17	P225/50R17
Tire Manufacturer	Continental	Continental
Tire Name	Conti Touring Contact	Conti Touring Contact
Tire Type	M+S	M+S
Tire Width (mm)	225	225
Ratio of Height to Width (aspect ratio)	50	50
Radial	R	R
Wheel Diameter	17	17
Load Index & Speed Symbol	93V	93V
Treadwear	360	360
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 3
TEST VEHICLE INFORMATION

Test Vehicle: 2006 Pontiac G6 GT
Test Program: NCAP Side Impact

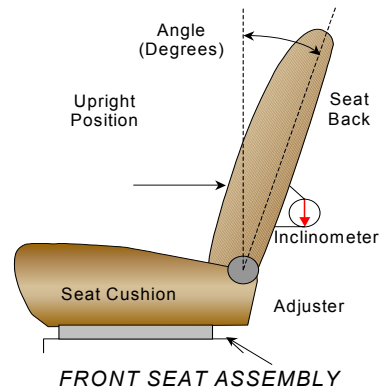
NHTSA No. M60117
Test Date: 01/31/06

NORMAL DESIGN RIDING POSITION

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

Driver seat back angle: 19.4° on seat back 12" up from pivot

Passenger seat back angle: non adjustable



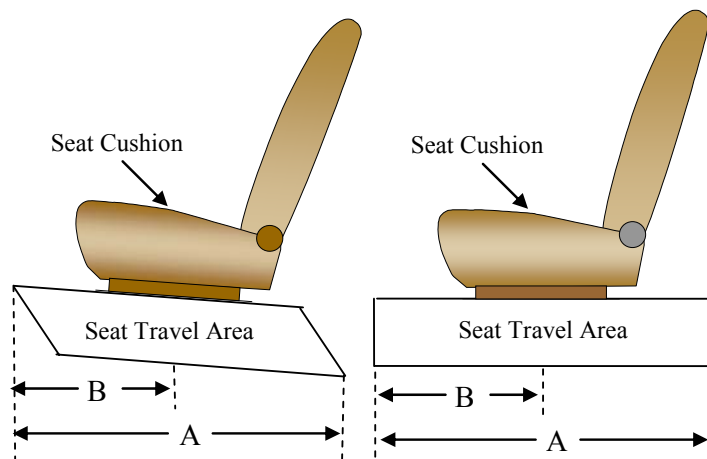
SEAT FORE/AFT POSITIONS

Forward-most measurements and rearward-most measurements should be taken from the bottom of the seat cushion (including the plastic base if applicable).

SEAT FORE/AFT POSITIONS

	Total Fore/Aft Travel	Placed in position #
Driver Seat	24 detents	10 th detent
Rear Seat	non adjustable	non adjustable

* forward-most detent defined as 0



DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

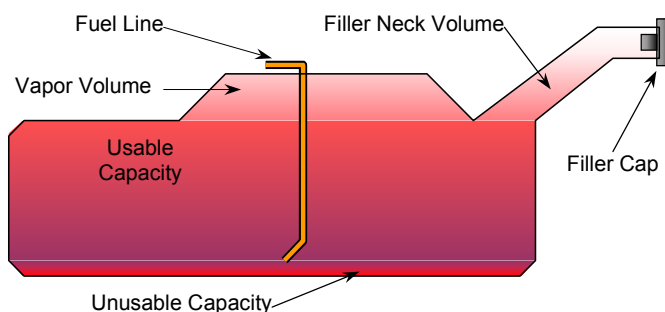
Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	61.7
Usable Capacity of "Optional" Tank	
92-94% of Usable Capacity	56.8 – 58.0
Actual Amount of Solvent used	56.8
1/3 of Usable Capacity	20.6

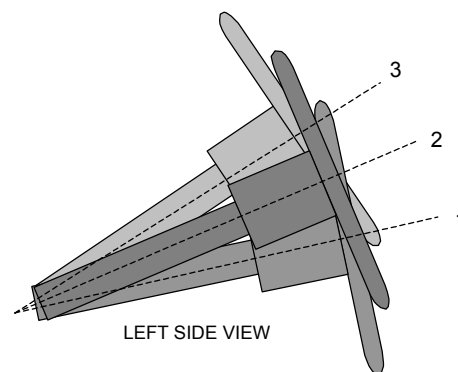
The vehicle is equipped with electric fuel pump. The pump operates normally when the vehicles electrical system is activated. Pump will run when the engine is running. Also, it will run for 3 seconds when the ignition key is turned to the "on" position without starting the engine.



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

	Degrees
Lowermost position No. 1	18.4
Geometric center position No. 2	20.3
Uppermost position No. 3	22.3

DATA SHEET NO. 4

MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS

Test Vehicle: 2006 Pontiac G6 GT
Test Program: NCAP Side Impact

NHTSA No. M60117
Test Date: 01/31/06

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	62.1
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.1
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	1 mm rear
Vertical Offset	mm	+/-20	8 mm up

DATA SHEET NO. 5

POST TEST OBSERVATIONS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

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	Header, Side Sill, Headrest	C-Pillar, Back Window, Headrest
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 Driver and Left Rear Passenger Window Broke
Other Notable Effects	The left front door outer trim came loose. See page A-36 for photos.

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

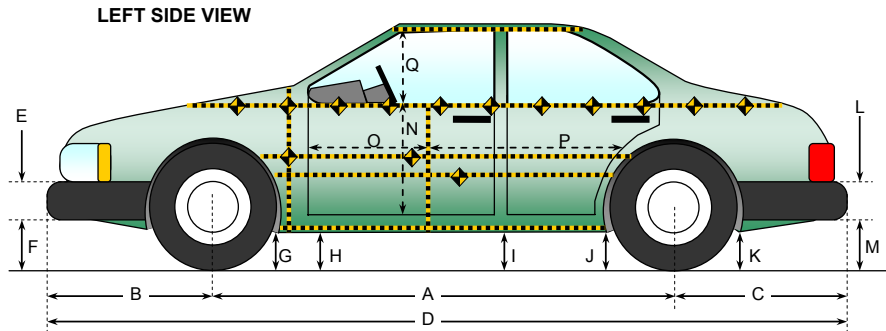
Restraint Type	Occupant Location 01		Occupant Location 04	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	Yes	None	
Side Airbag	None		None	
Head Airbag	None		None	
Curtain Airbag	None		None	
Seat Belt Pretensioner	Yes		None	
Seat Belt Load Limiter	Yes		None	

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



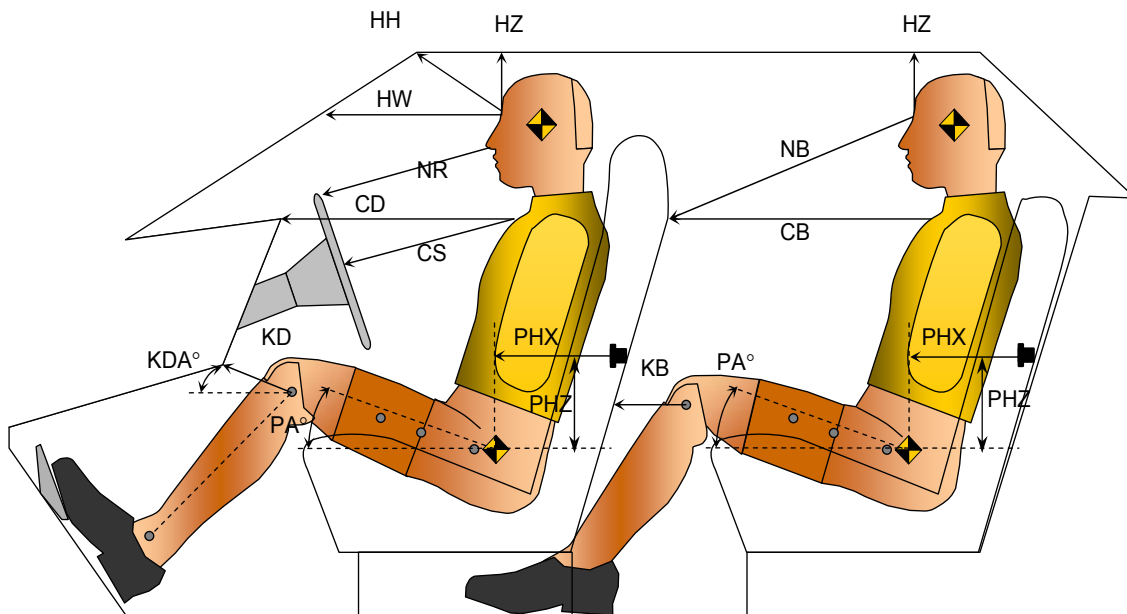
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2852	2843	9
B	Front Axle to FSOV	1014	957	57
C	Rear Axle to RSOV	924	932	-8
D	Total Length at Centerline	4790	4732	58
E	Front Bumper Thickness	138	138	0
F	Front Bumper Bottom to Ground	222	226	-4
G	Sill Height at Front Wheel Well	184	181	3
H	Sill Height at Front Door Leading Edge	182	185	-3
I	Sill Height at "B" Pillar	177	176	1
J1	Sill Height at Rear Wheel Well	173	168	5
J2	Pinch Weld Height at Rear Wheel Well	177	173	4
K	Sill Height Aft of Rear Wheel Well	242	236	6
L	Rear Bumper Thickness	164	164	0
M	Rear Bumper Bottom to Ground	322	300	22
N	Sill Height to Window Bottom Sill	727	566	161
O	Front Door Leading Edge to Impact CL	920	859	61
P	Rear Door Trailing Edge to Impact CL	524	516	8
Q	Front Window Opening	400	451	-51
R	Right Side Length	3846	3849	-3
S	Left Side Length	3845	3817	28
T	Vehicle Width at "B" Post	1782	1765	17

DATA SHEET NO. 7
SID/HIII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

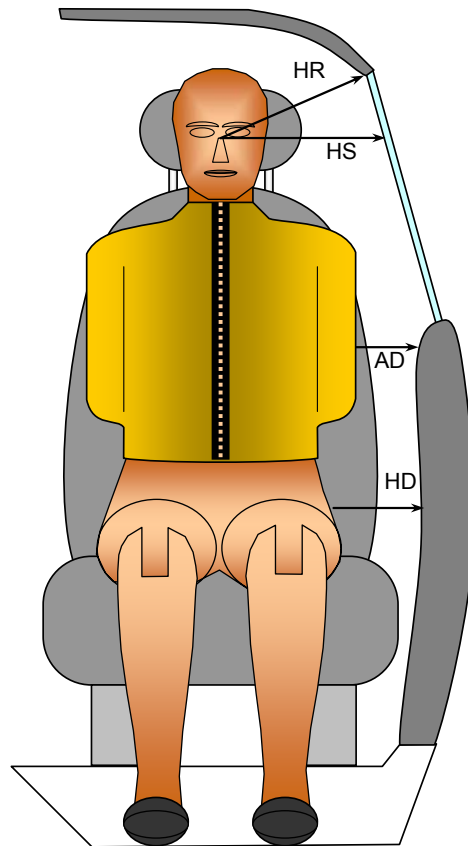


Driver Code	Pass. Code	Measurement Description	Driver S/N 271		Passenger S/N 904	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	342			
HW		Head to Windshield	352			
HZ	HZ	Head to Roof	156		69	
NR	NB	Nose to Rim/Nose to Seatback	456		582	
CD	CB	Chest to Dash or Seatback	553		534	
CS		Chest to Steering Wheel	362			
KDL	KBL	Left Knee to Dash or Seatback	182	34.1	244	15.9
KDR	KBR	Right Knee to Dash or Seatback	185	32.1	209	25.4
PA	PA	Pelvic Angle		23.5		23.6
PHX	PHX	H-Point to Striker (X-Axis)	471		491	
PHZ	PHZ	H-Point to Striker (Z-Axis)	153		126	

DATA SHEET NO. 8
SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



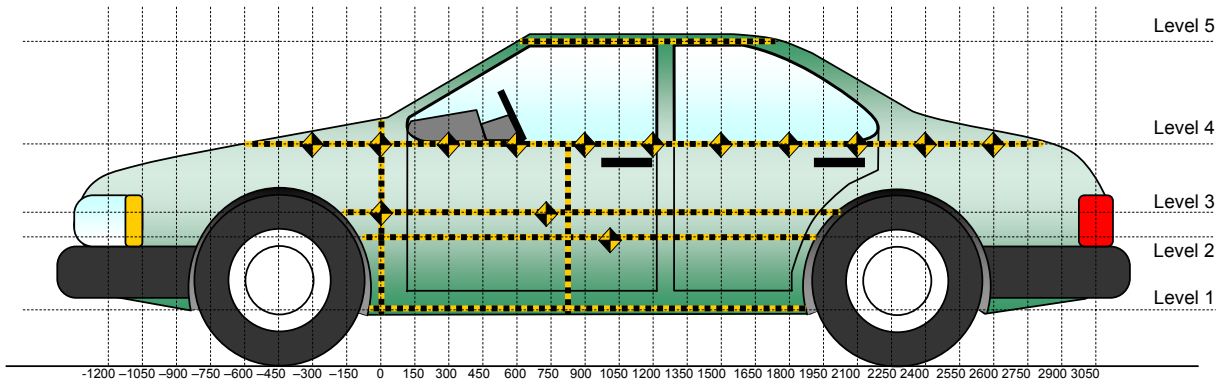
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver S/N 271	Passenger S/N 904
HR	Head to Side Header	mm	169	159
HS	Head to Side Window	mm	311	363
AD	Arm to Door	mm	127	73
HD	H-Point to Door	mm	125	148

DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2006 Pontiac G6 GT
Test Program: NCAP Side Impact

NHTSA No. M60117
Test Date: 01/31/06



All Measurements Shown in mm

LEFT SIDE VIEW

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

Level	Measurement Description	Maximum Exterior Static Crush	Distance From Impact	Height Above Ground
5	Window	35	1200	1322
4	Window Sill	141	1500	959
3	Mid Door	200	900	647
2	Occupant H-Point	262	600	454
1	Sill Top	30	1200	250
	Maximum Penetration	262		

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-750				295					304					9	
-600				281					286					5	
-450				268					277					9	
-300				263					275					12	
-150			198	259				213	272				15	13	
0	258	223	203	256		270	323	299	268		12	100	96	12	
150	274	228	202	255		292	416	371	292		18	188	169	37	
300	278	230	201	255		298	460	392	326		20	230	191	71	
450	281	231	201	258		301	490	394	348		20	259	193	90	
600	283	231	201	263	482	305	493	398	322	516	22	262	197	59	34
750	284	230	202	266	480	309	491	401	311	502	25	261	199	45	22
900	284	230	203	272	486	306	488	403	310	512	22	258	200	38	26
1050	285	229	205	278	492	309	465	404	309	524	24	236	199	31	32
1200	285	228	206	287	498	315	443	392	307	533	30	215	186	20	35
1350	282	226	208	295	500	310	345	359	326	535	28	119	151	31	35
1500	278	225	209	304	505	300	275	363	445	530	22	50	154	141	25
1650	275	223	209	311	515	290	332	393	426	534	15	109	184	115	19
1800	265	218	209	322	526	280	327	380	399	542	15	109	171	77	16
1950	244	208	208	332	538	268	257	313	378	556	24	49	105	46	18
2100			204	347				270	392				66	45	
2250			194	358				226	398				32	40	
2400			194	377				225	404				31	27	
2550			209	392				231	402				22	10	
2700			242	416				253	426				11	10	
2850															

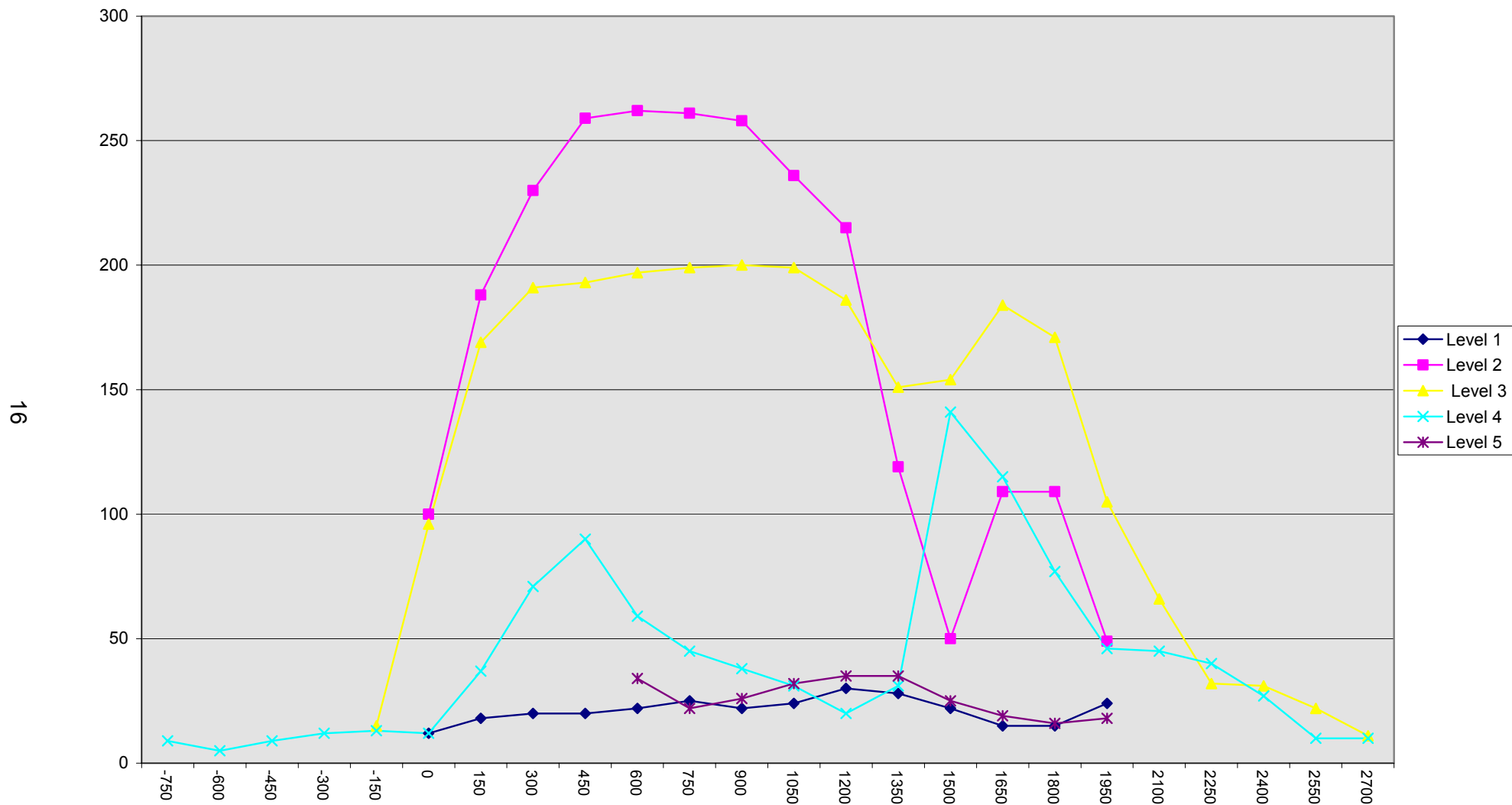
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

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

Test Vehicle: 2006 Pontiac G6 GT
Test Program: NCAP Side Impact

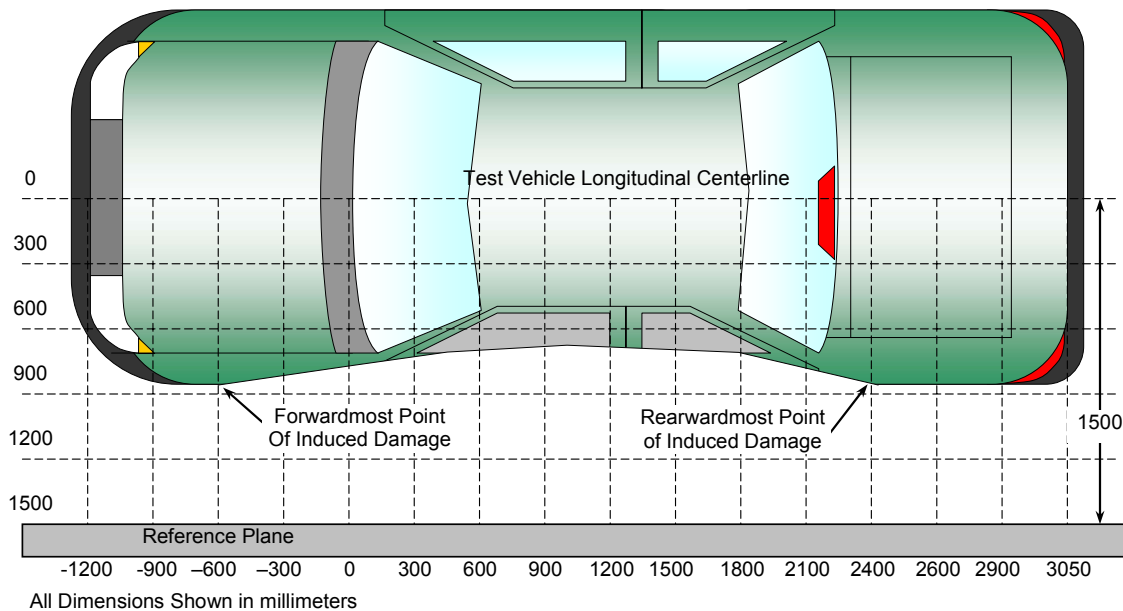
NHTSA No. M60117
Test Date: 01/31/06



DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2550	4	392	402	10
2	1900	3	208	339	131
3	1275	2	228	443	215
4	650	2	231	492	261
5	25	3	203	299	96
6	-600	4	281	286	5

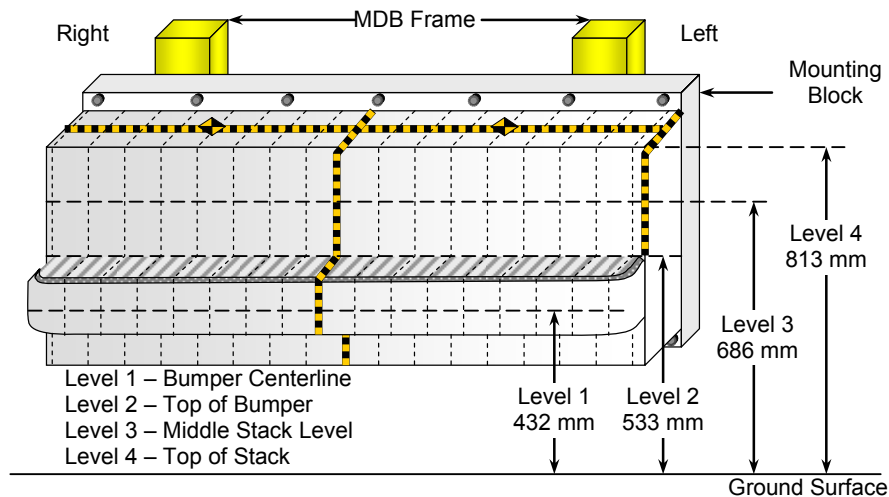
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



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	205	249	275	279	216	166	127	97	76	69	83	61	66	73	83	74	96
2	187	198	215	216	186	143	90	67	55	53	45	44	41	43	63	84	98
3	93	87	94	106	91	57	36	22	17	12	15	15	19	28	39	60	98
4	74	52	47	65	65	34	33	26	26	24	28	27	32	43	60	83	112

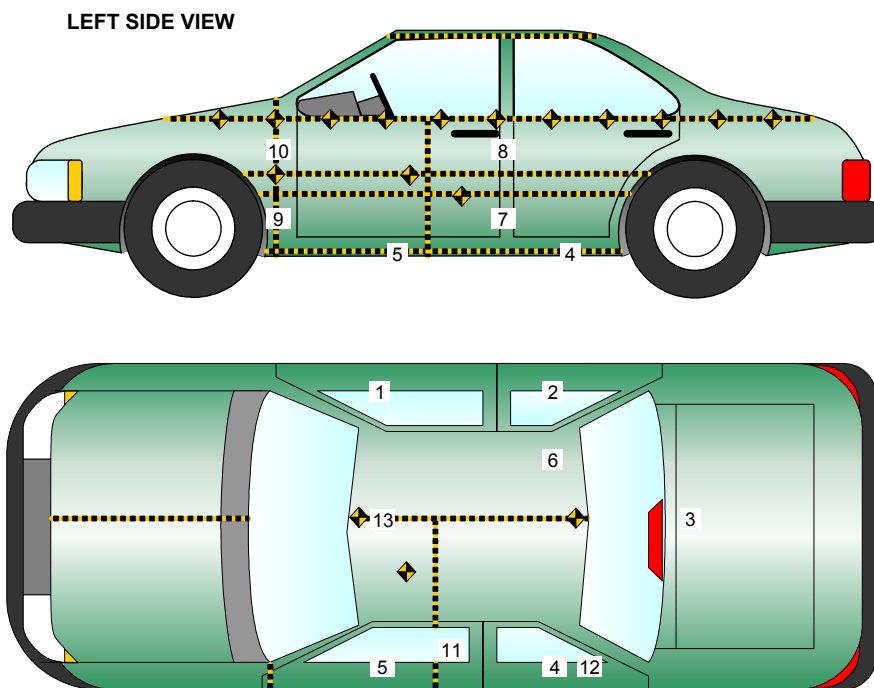
All Dimensions in mm

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



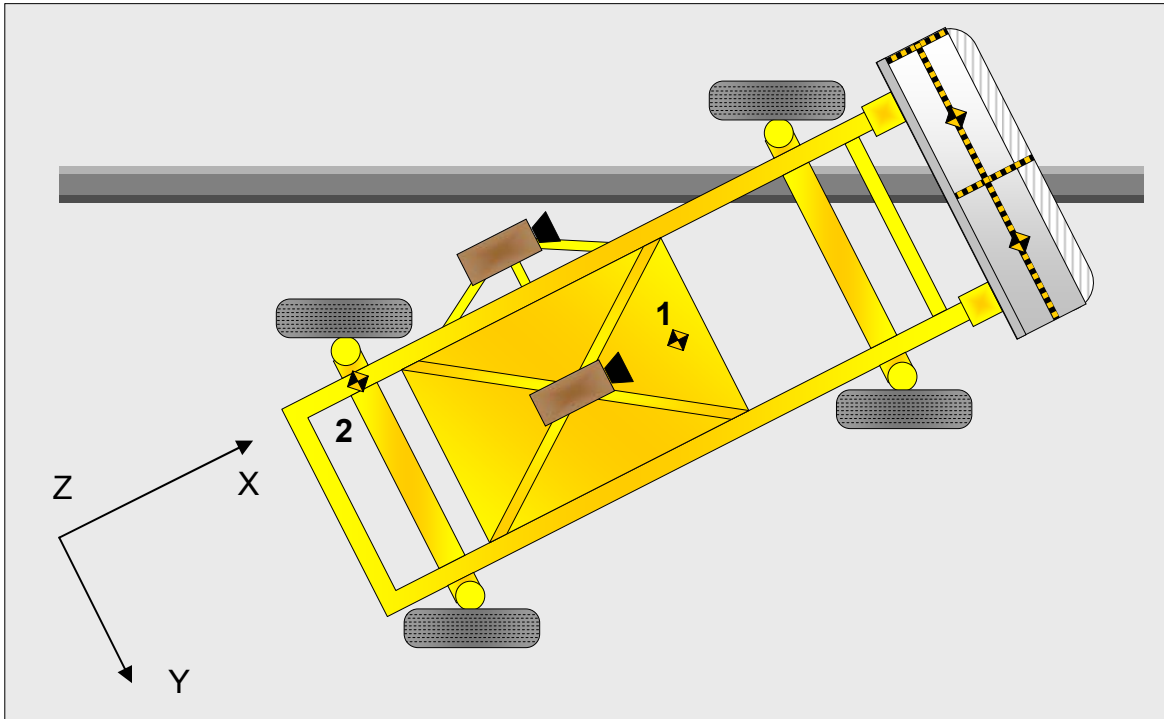
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2705	737	220
2	Right Sill at Rear Seat	1820	740	236
3	Rear Floorpan Above Axle	928	0	586
4	Left Sill at Rear Door	1798	-740	235
5	Left Sill at Front Door	2701	-737	221
6	Rear Occupant Compartment	1936	332	361
7	Left Lower B-Post	2000	-735	530
8	Left Middle B-Post	1968	-732	782
9	Left Lower A-Post	3261	-820	527
10	Left Middle A-Post	3278	-816	712
11	Front Seat Track	2310	-624	293
12	Rear Seat Track or Structure			
13	Vehicle CG	2695	-23	379

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

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



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: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

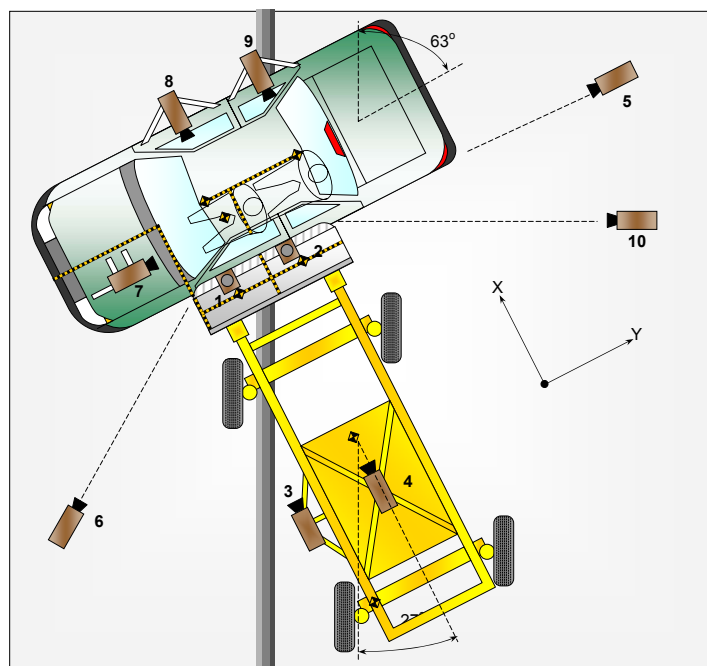
	Elements	Pre-Test (mm)
1	Total Length	4790
2	Total Width	1782
3	Bumper Top Height	510
4	Bumper Bottom Height	378
5	Longitudinal Member Top Height	162
6	Distance between Longitudinal Members	592
7	Longitudinal Member Width	64
8	Engine Top Height	855
9	Engine Bottom Height	180
10	Engine and gearbox width	465
11	Front bumper-engine distance	650
12	Front shock absorber fixing height	847
13	Bonnet leading edge height	720
14	Front shock absorber fixing width	1140
15	Front bumper – front axle distance	1014
16	Front axle – a pillar distance	430
17	A-pillar – B-pillar distance	1430
18	B-Pillar – rear axle distance	985
19	B-pillar – C-pillar distance	810
20	Roof sill bottom height	1352
21	Roof sill top height	1421
22	Floor sill bottom height	280
23	Floor sill top height	313

DATA SHEET NO. 16

HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Close-up	685	-40	4840	50	1000
2	Overhead Overall	0	1220	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	-3310	7985	1345	35	1000
6	Left Side, Ground Level, Overall	2285	-3765	1460	19	1000
7	Vehicle Onboard Front SID/HIII, Front				12.5	500
8	Vehicle Onboard Front SID/HIII, Side				8	500
9	Vehicle Onboard Rear SID/HIII, Side				8	500
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: 2006 Pontiac G6 GT
 Test Program: NCAP Side Impact

NHTSA No. M60117
 Test Date: 01/31/06

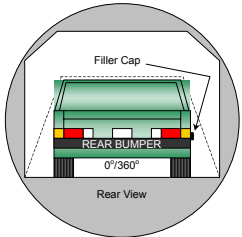
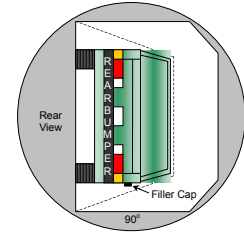
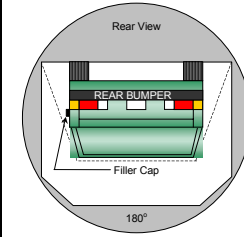
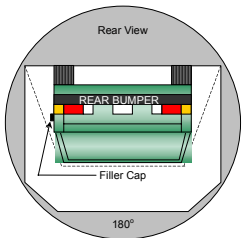
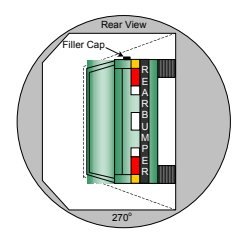
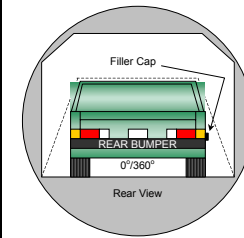
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 11:08 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

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

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage Collection Time (min)	Spillage (oz.)
0° to 90°	160	300	First 5	0
90° to 180°	152	300	First 5	0
180° to 270°	145	300	First 5	0
270° to 360°	161	300	First 5	0

APPENDIX A
PHOTOGRAPHS

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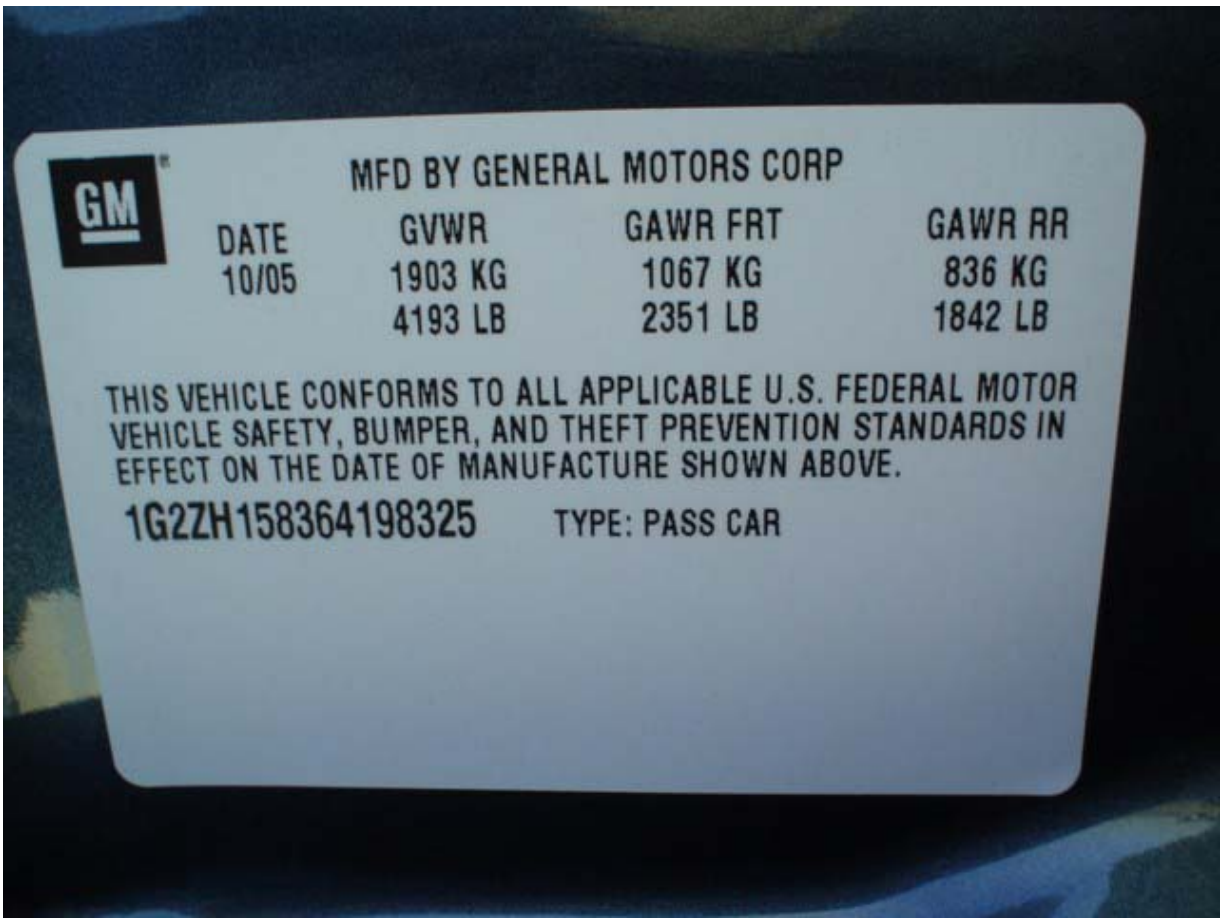
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Left Front $\frac{3}{4}$ View, As Received



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 ¾ View



Post-Test Left Front ¾ View



Pre-Test Left Side View



Post-Test Left Side View



Pre-Test Left Rear 3/4 View



Post-Test Left Rear 3/4 View



Pre-Test Rear View



Post-Test Rear View



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



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



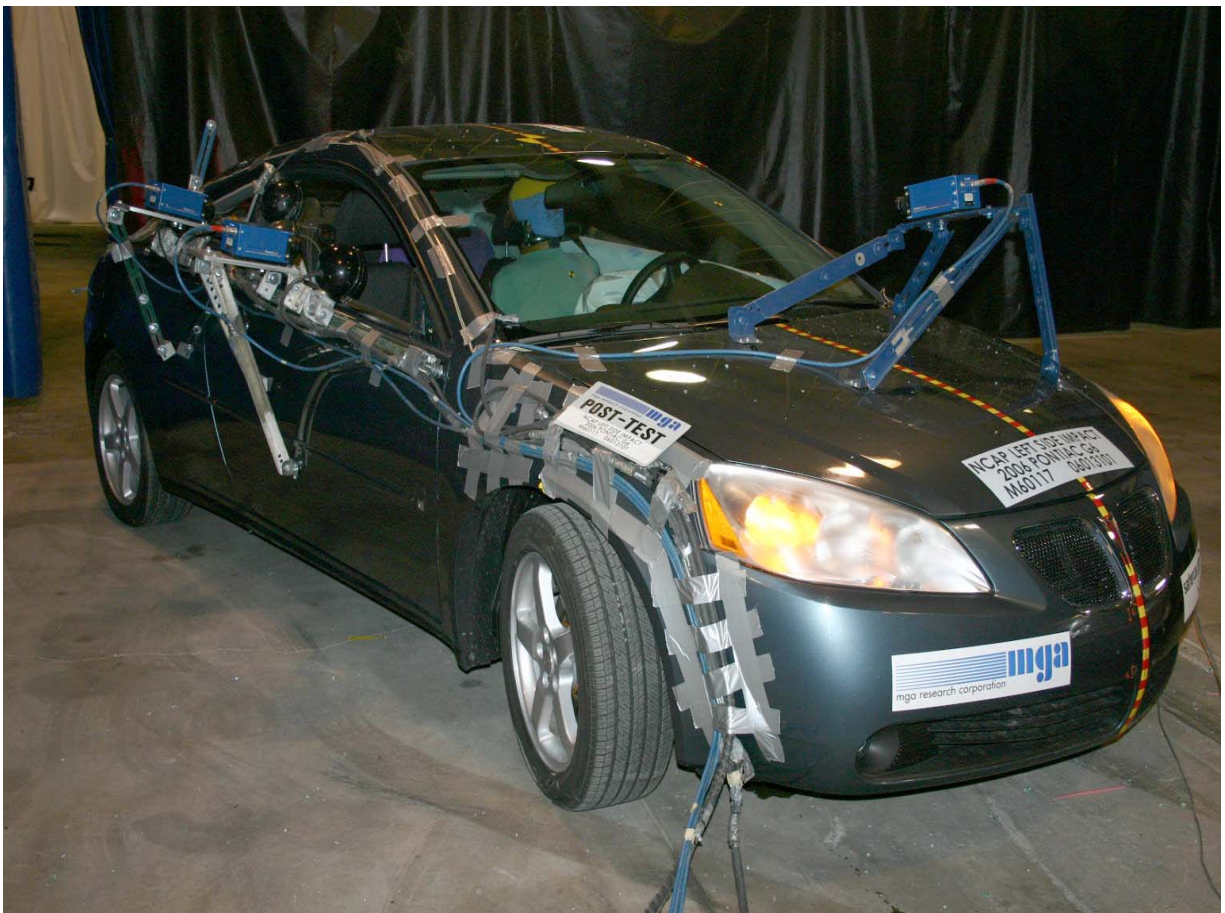
Pre-Test Right Side View



Post-Test Right Side View



Pre-Test Right Front 3/4 View



Post-Test Right Front 3/4 View



Pre-Test Overhead View



Post-Test Overhead View



Pre-Test Overhead Close-up View



Post-Test Overhead Close-up View



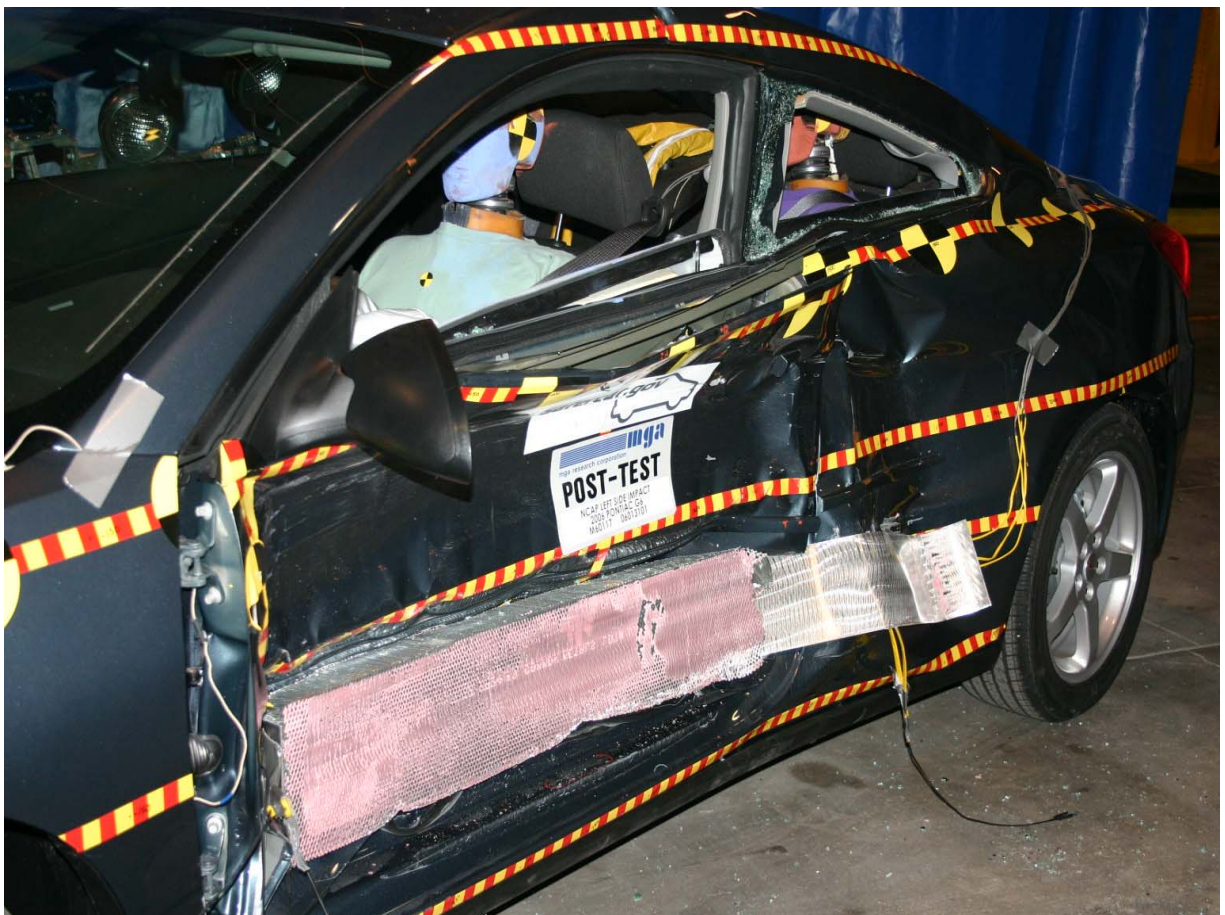
Pre-Test Left Impact Point



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 3/4 View of Left Side Door



Post-Test Rear 3/4 View of Left Side Door



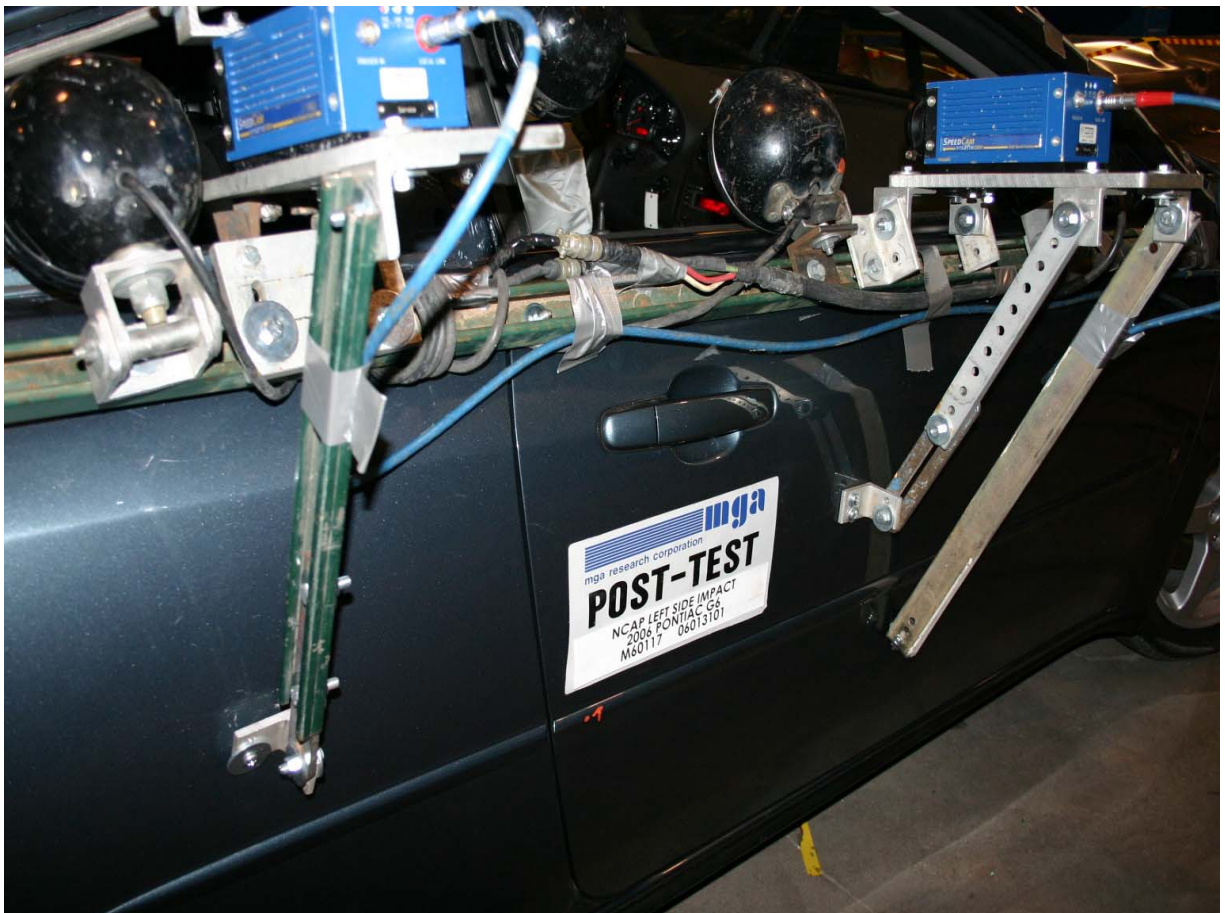
Pre-Test Left Door



Post-Test Left Door



Pre-Test Right Door



Post-Test Right Door



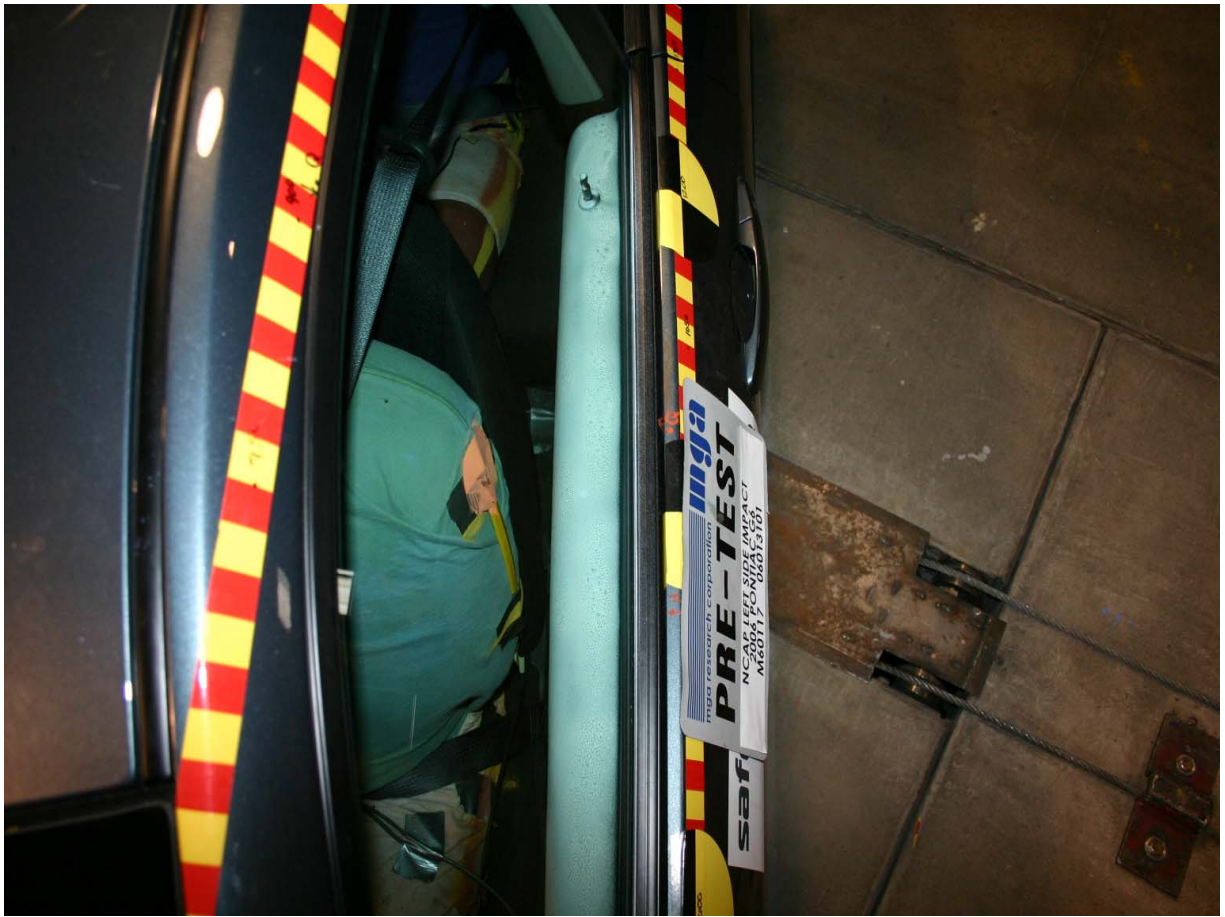
Pre-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



Pre-Test Driver Dummy Clearance From Door



Post-Test Driver Dummy Clearance From Door



Pre-Test Driver Dummy Right Side View



Post-Test Driver Dummy Right Side View



Pre-Test Passenger Dummy (Through Window)



Post-Test Passenger Dummy (Through Window)



Pre-Test Passenger Dummy Clearance From Door



Post-Test Passenger Dummy Clearance From Door



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



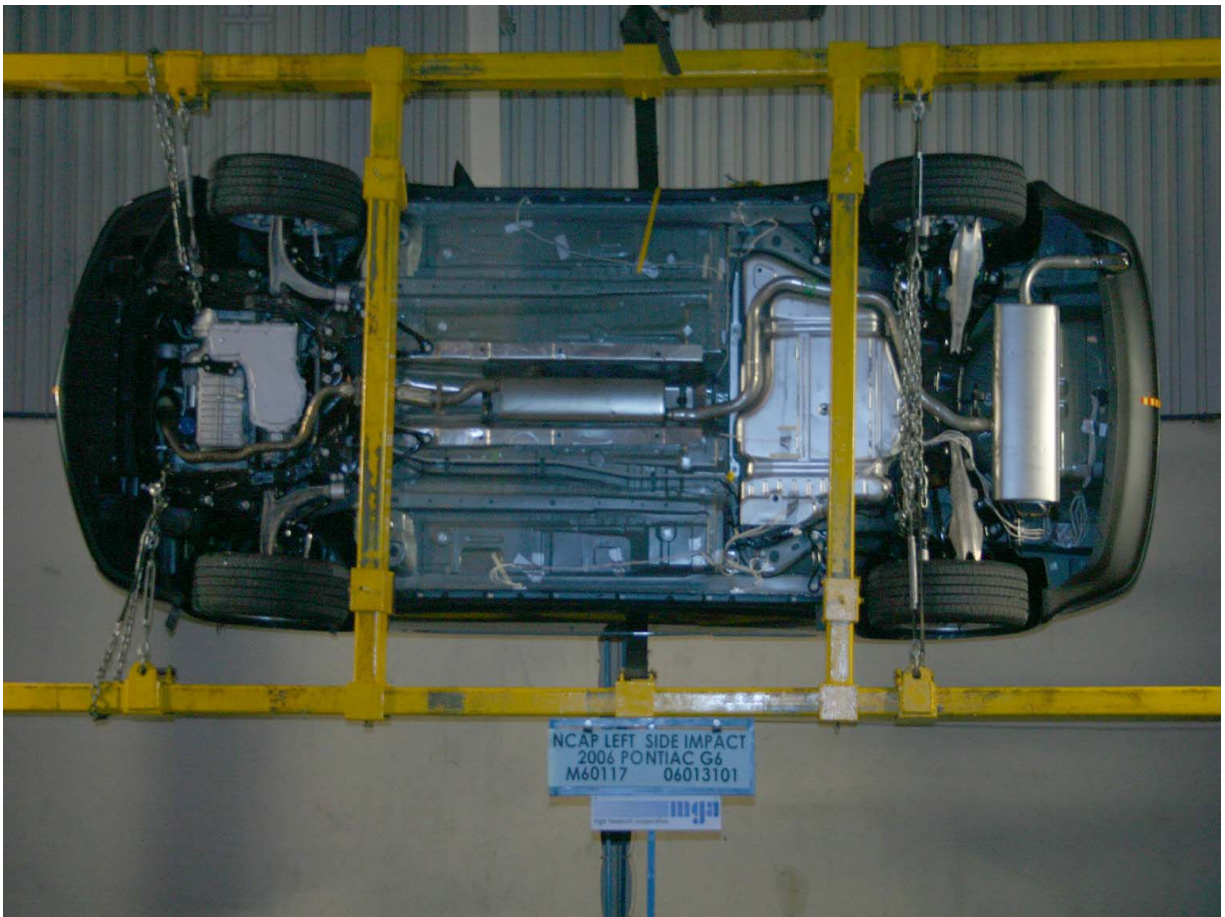
Post-Test Right Side View of Deformable Barrier



Pre-Test Left Side View of Deformable Barrier



Post-Test Left Side View of Deformable Barrier



Vehicle on Rollover Device (90 Degrees)



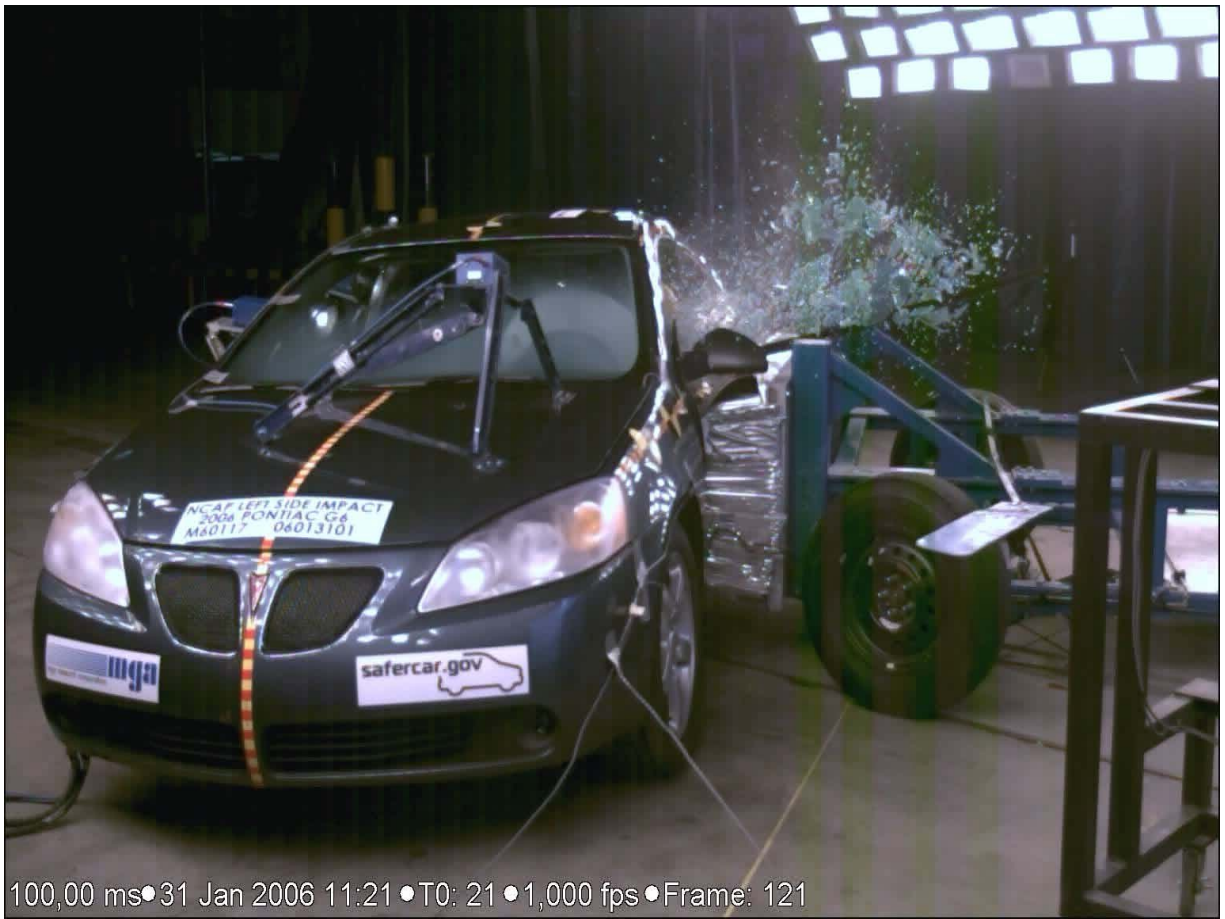
Vehicle on Rollover Device (180 Degrees)



Vehicle on Rollover Device (270 Degrees)



Vehicle on Rollover Device (360 Degrees)



100,00 ms • 31 Jan 2006 11:21 • T0: 21 • 1,000 fps • Frame: 121

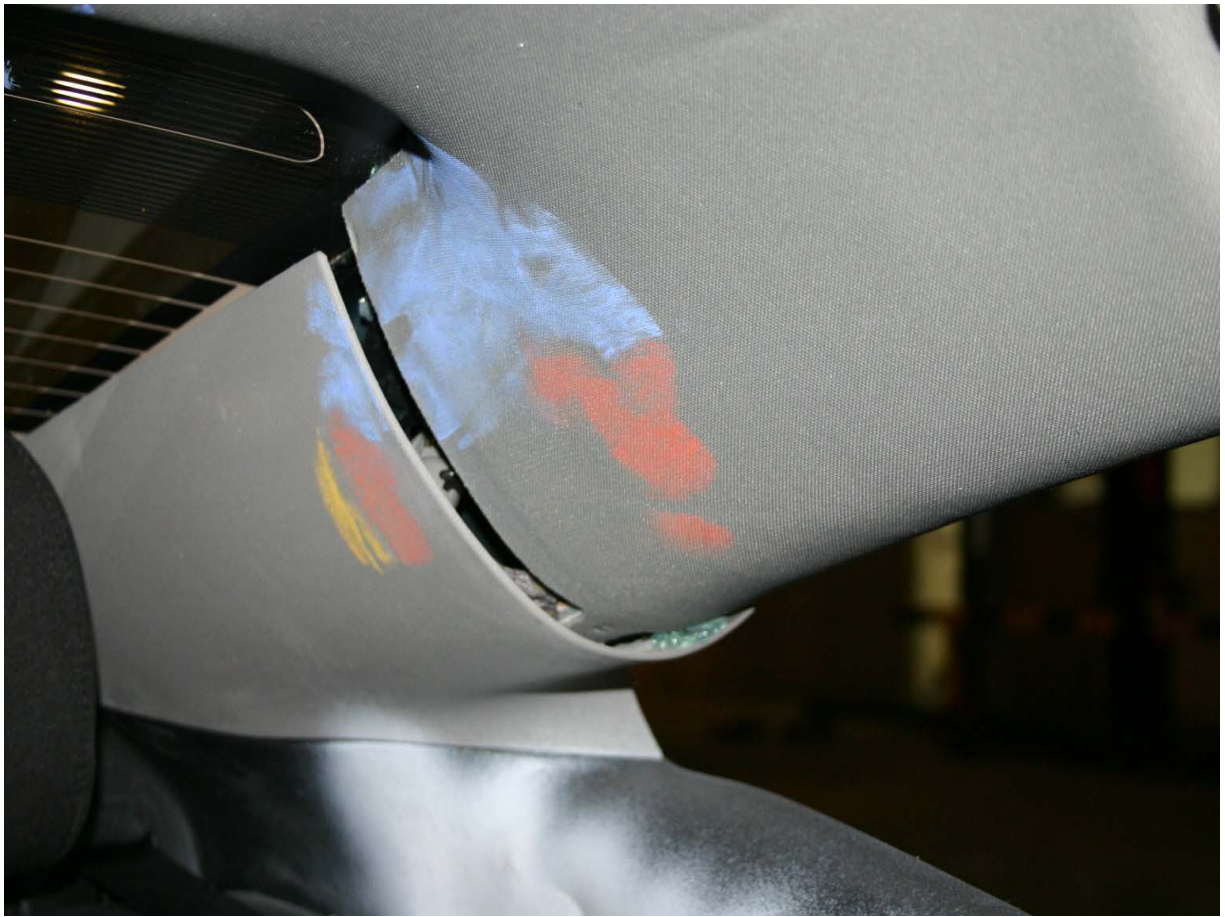
Vehicle Impact



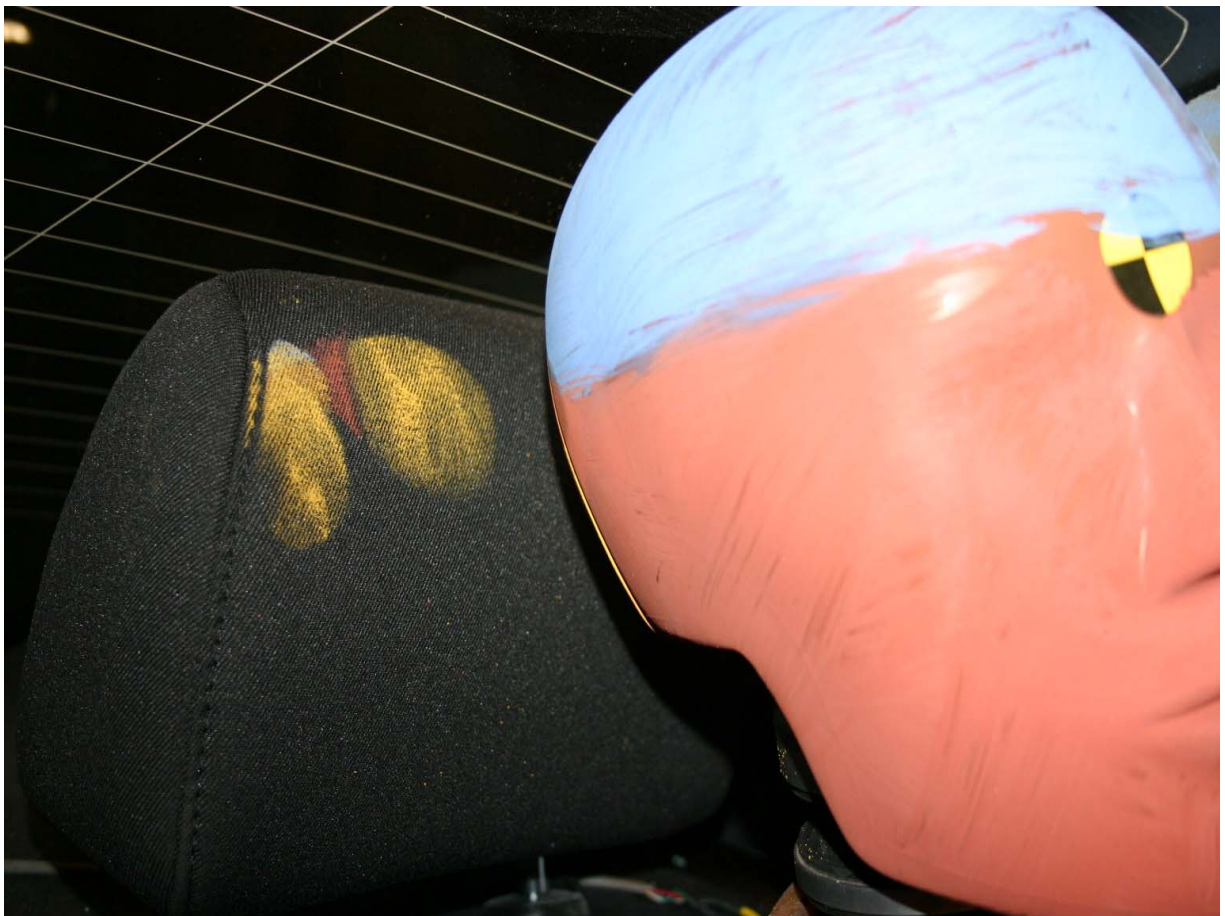
Post-Test Driver Dummy Head Contact



Post-Test Driver Dummy Torso Contact



Post-Test Passenger Dummy Head Contact



Post-Test Passenger Dummy Head Contact



Post-Test Passenger Dummy Torso Contact



Pre-Test Driver Door Interior



Post-Test Driver Door Interior



Left Door Outer Trim View #1



Left Door Outer Trim View #2

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

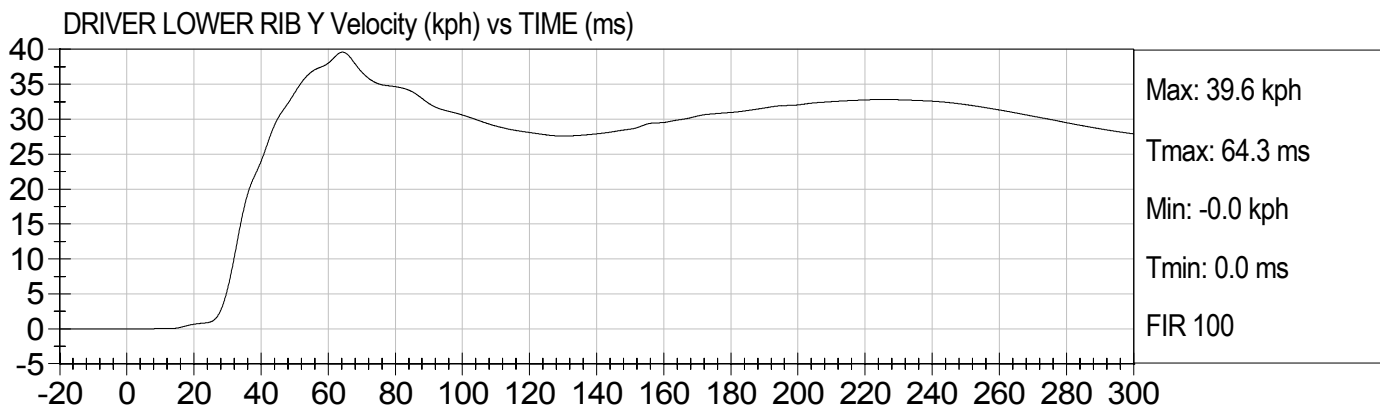
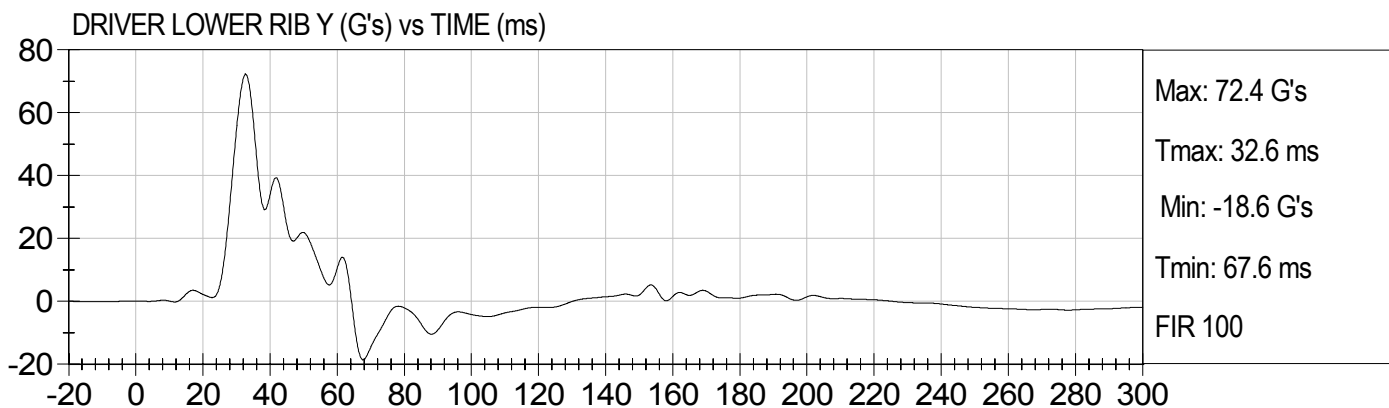
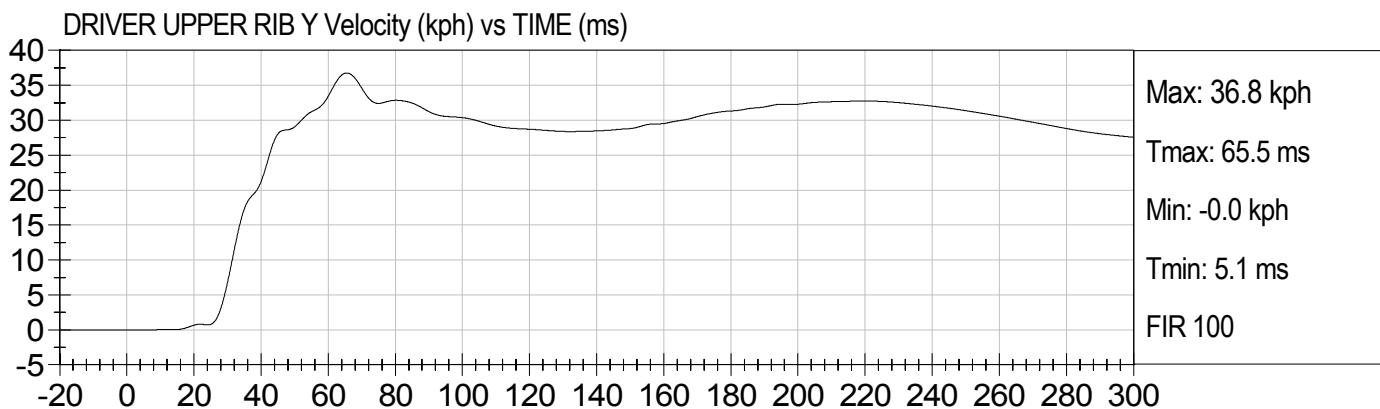
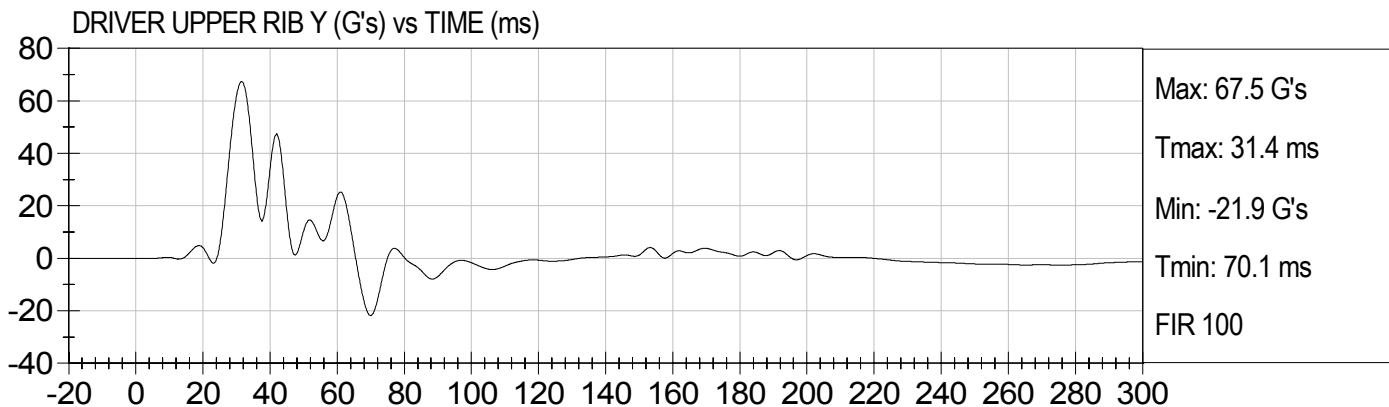
Driver Upper Neck Force Y

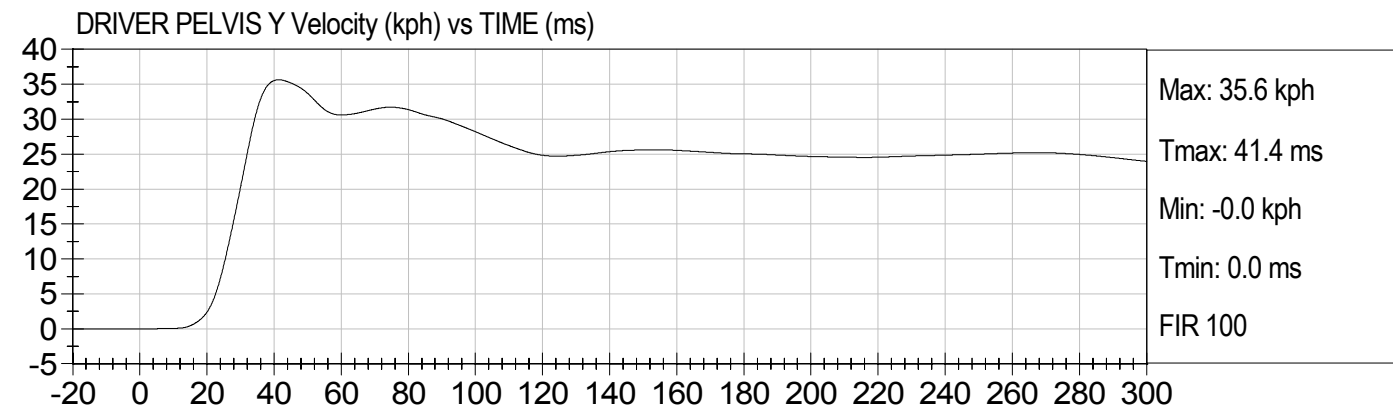
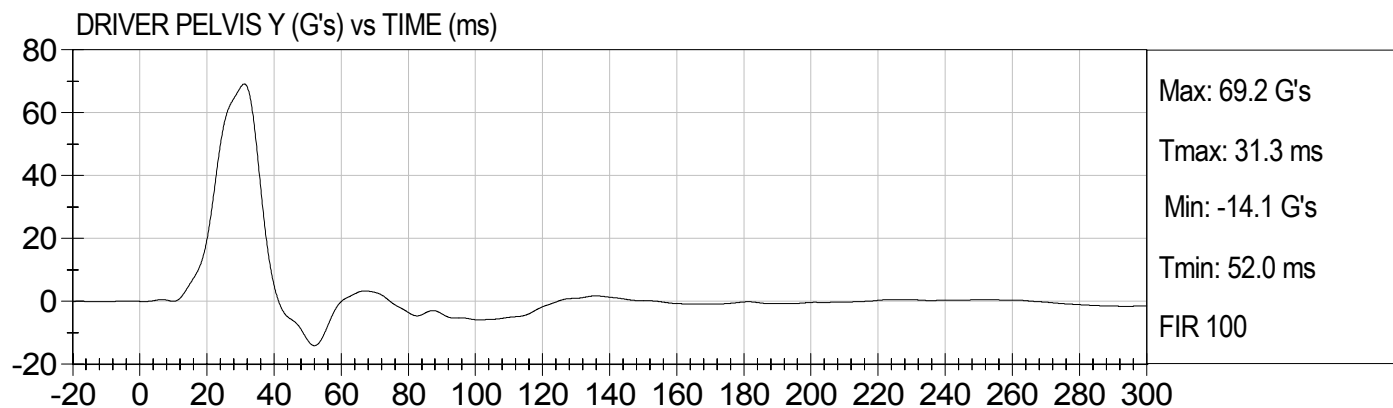
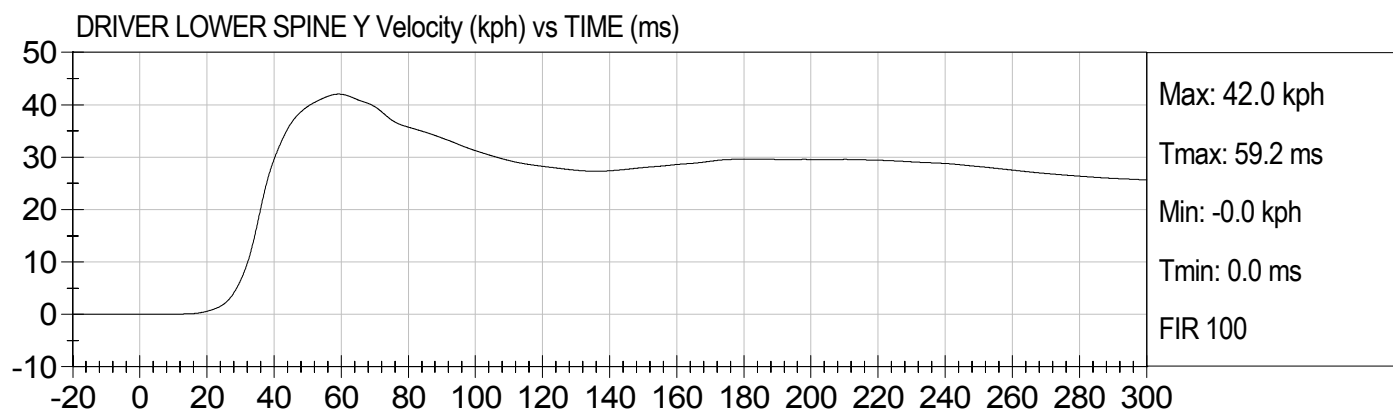
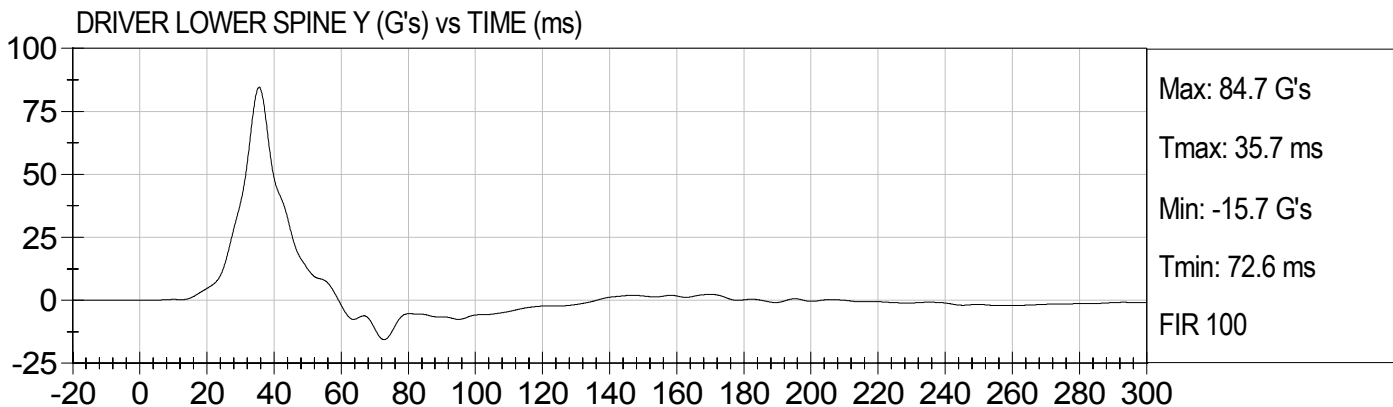
Driver Upper Neck Force Z

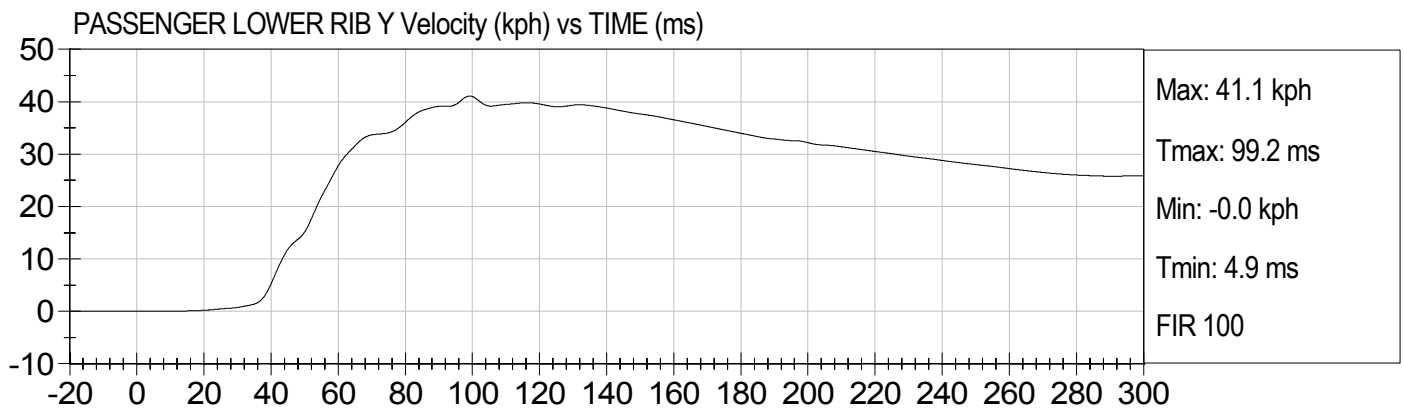
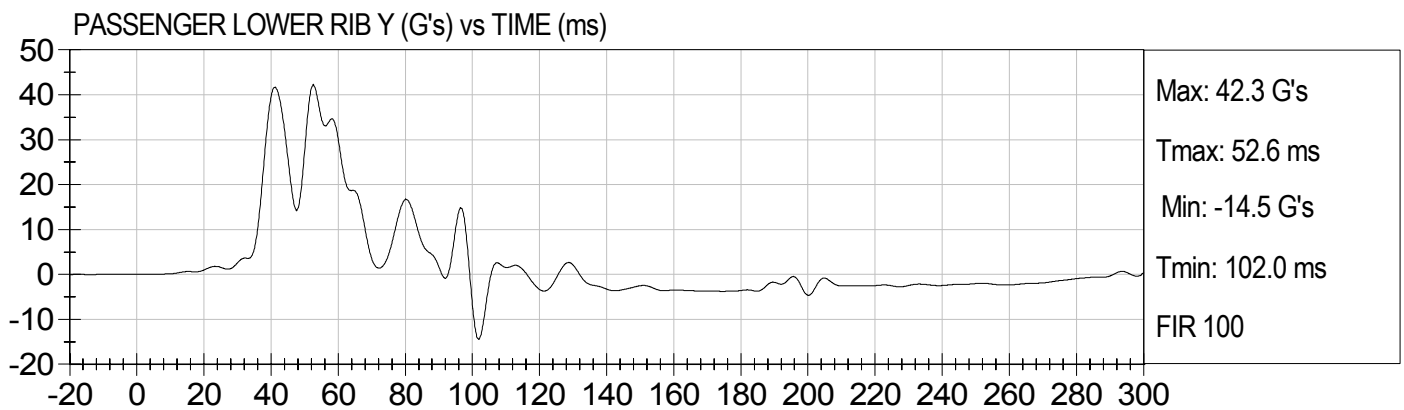
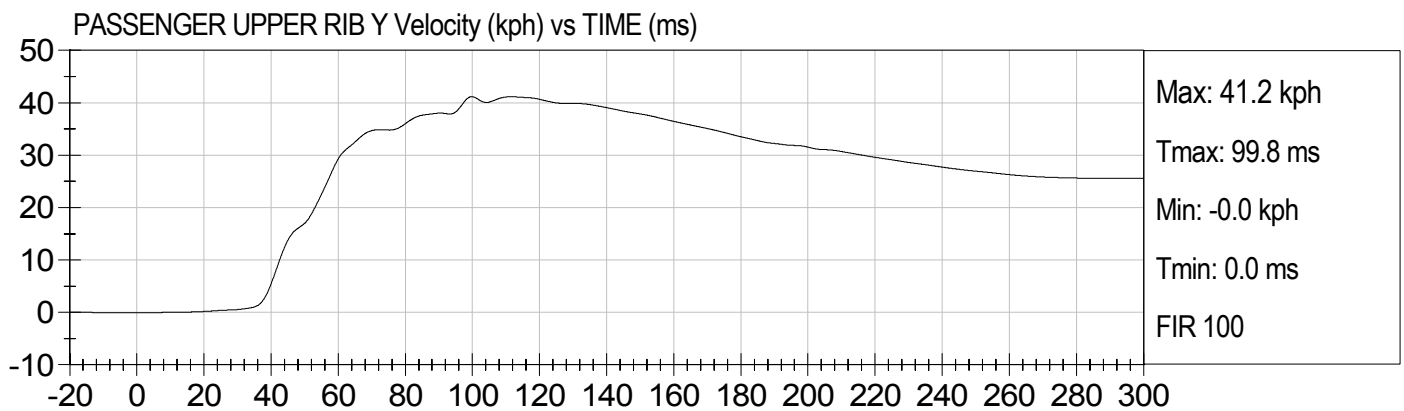
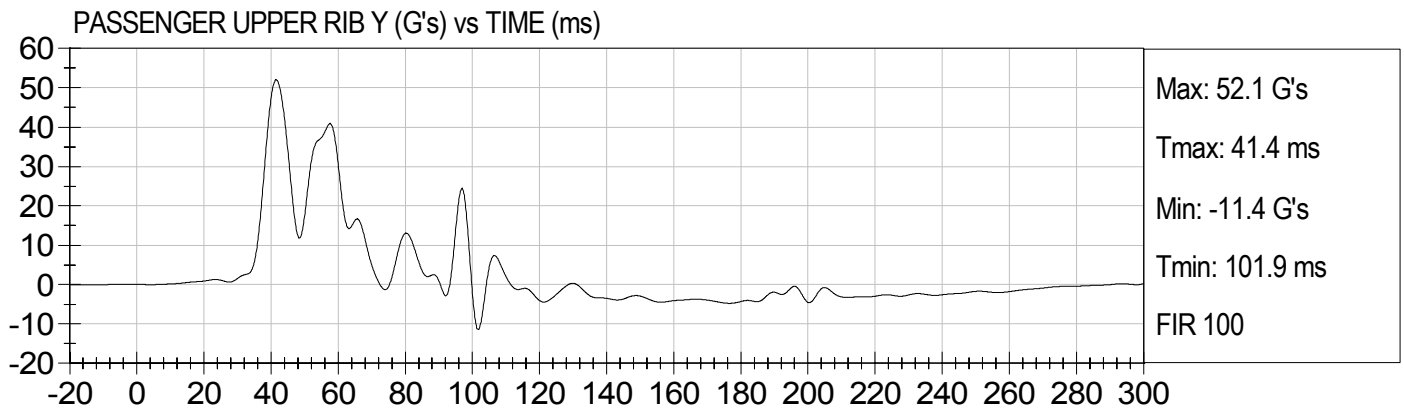
Driver Upper Neck Moment X

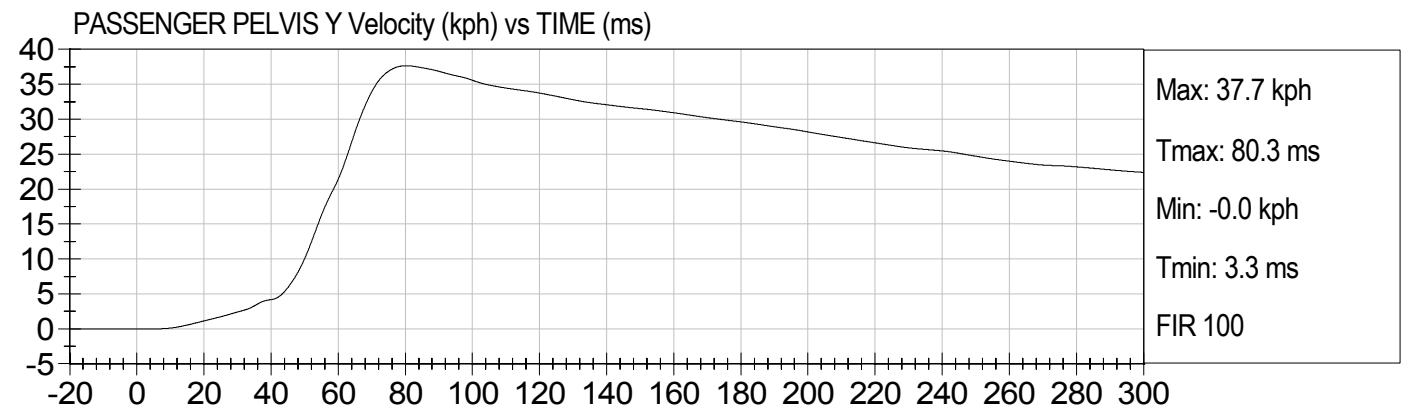
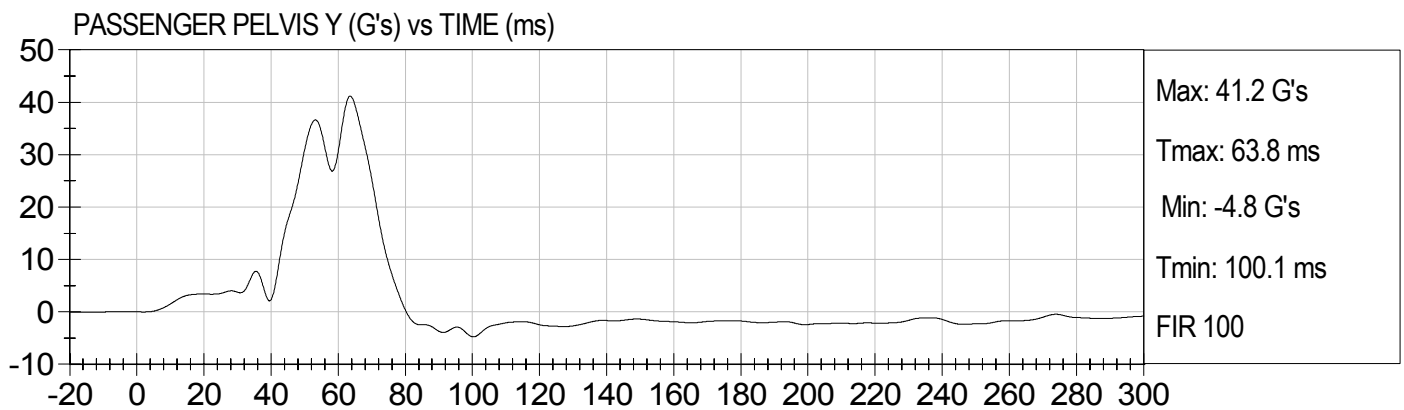
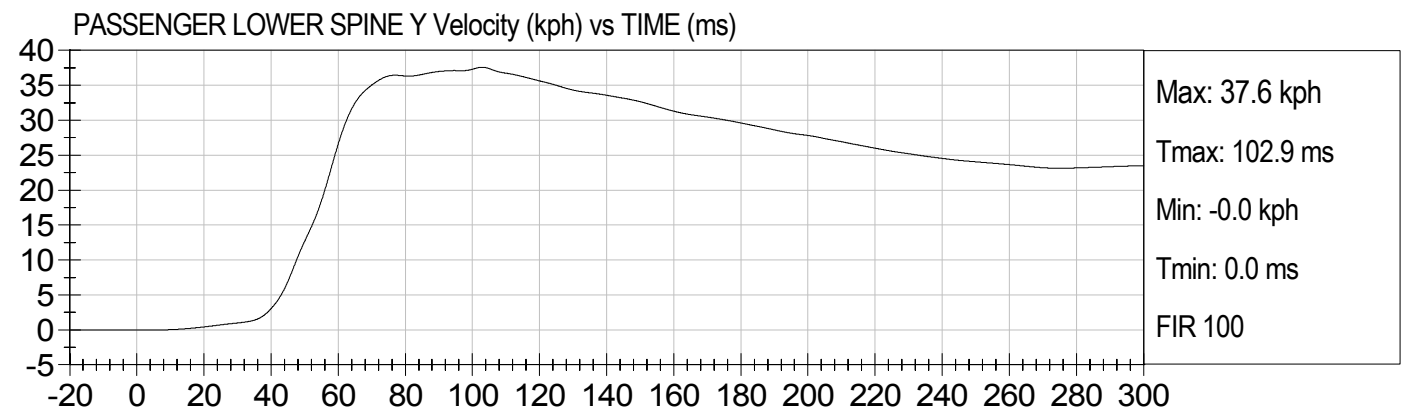
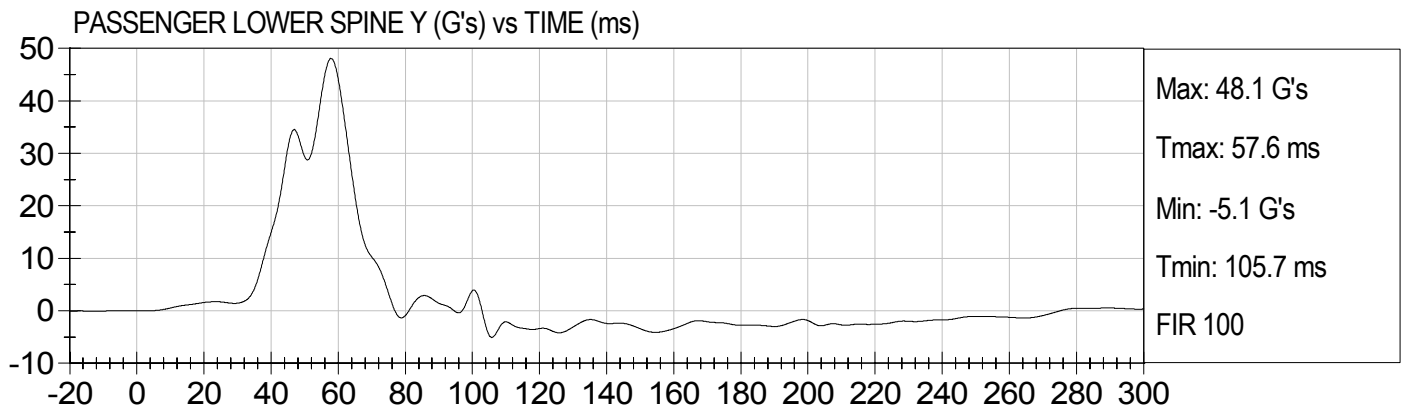
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head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









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.: D0615

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

Jessica Hall
 Laboratory Technician

1/18/2006
 Test Date

David Winkelbauer
 Approved By

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

ATD Serial No: 271

Test I.D: D06151

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	23	Pass
Peak Resultant Acceleration	G's	120 to 150	139	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 Hall
 Laboratory Technician

01/17/2006
 Test Date

David Winkelbauer
 Approved By

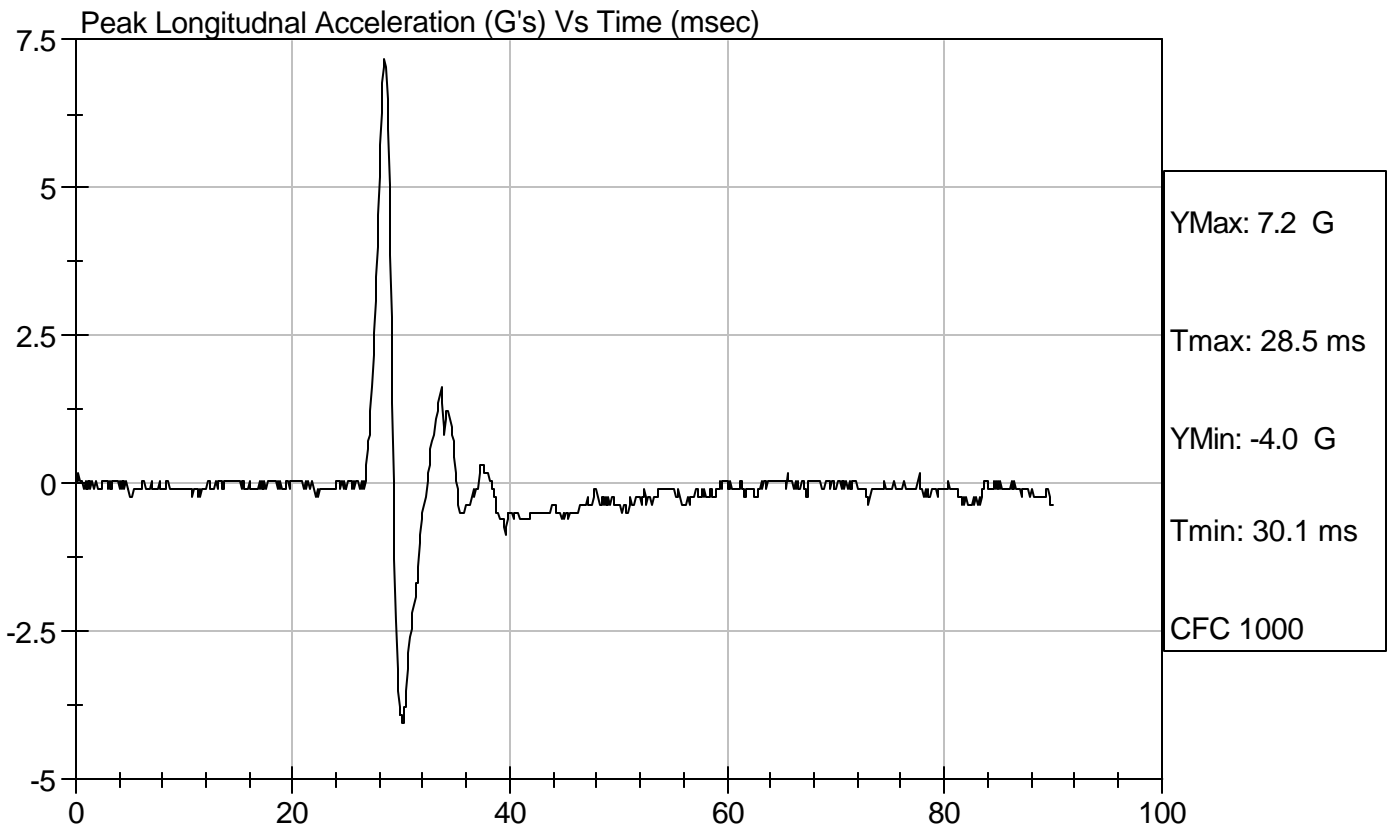
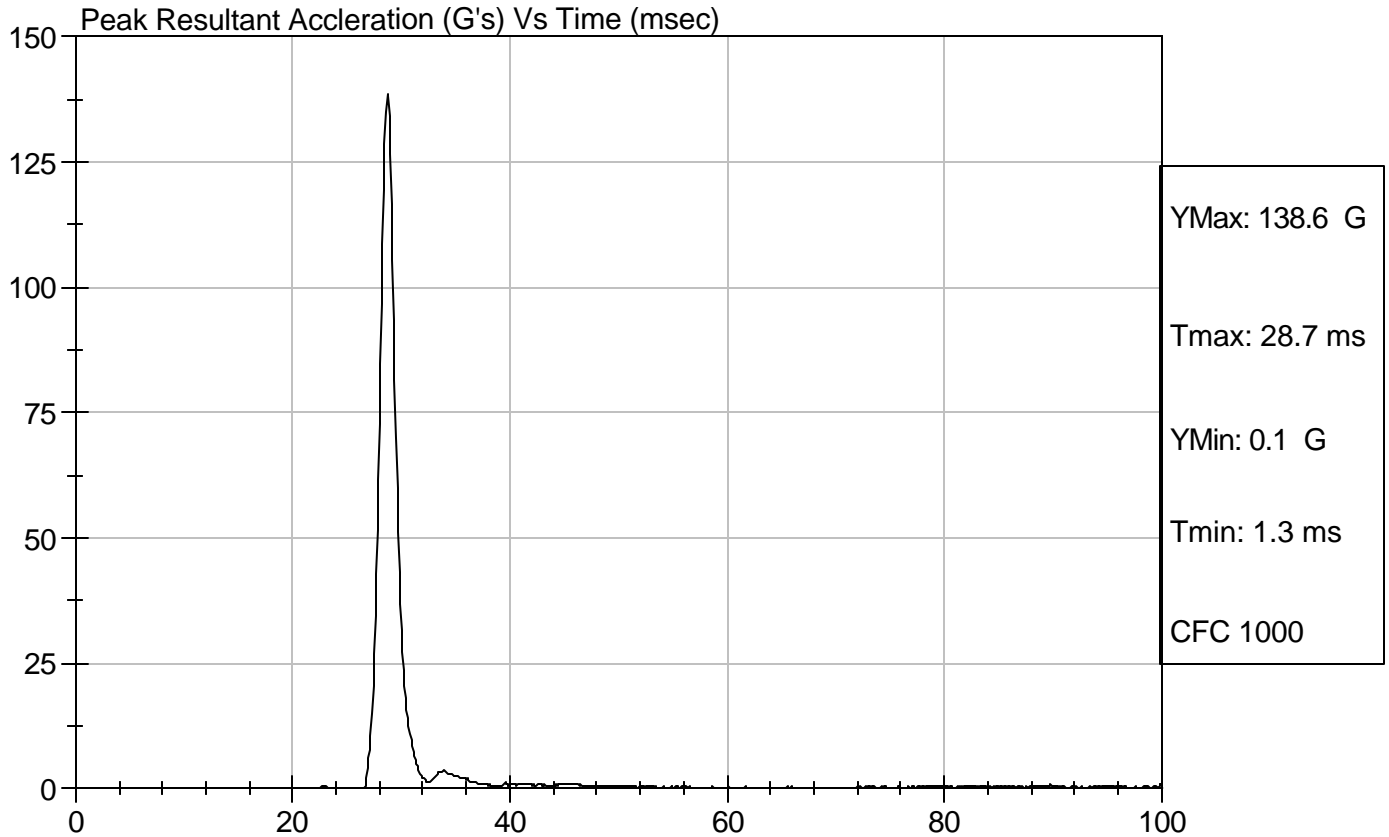


Test Description: Head Drop

Test Date: 01/17/2006

Component: D06151

Speed: 0 ft/s, 0.00 m/s



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D.: D06152

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Velocity	m/s	4.22 - 4.31	4.30	Pass
Upper Rib	G's	37 - 46	42	Pass
Lower Rib	G's	37 - 46	41	Pass
Lower Spine	G's	15 - 22	19	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

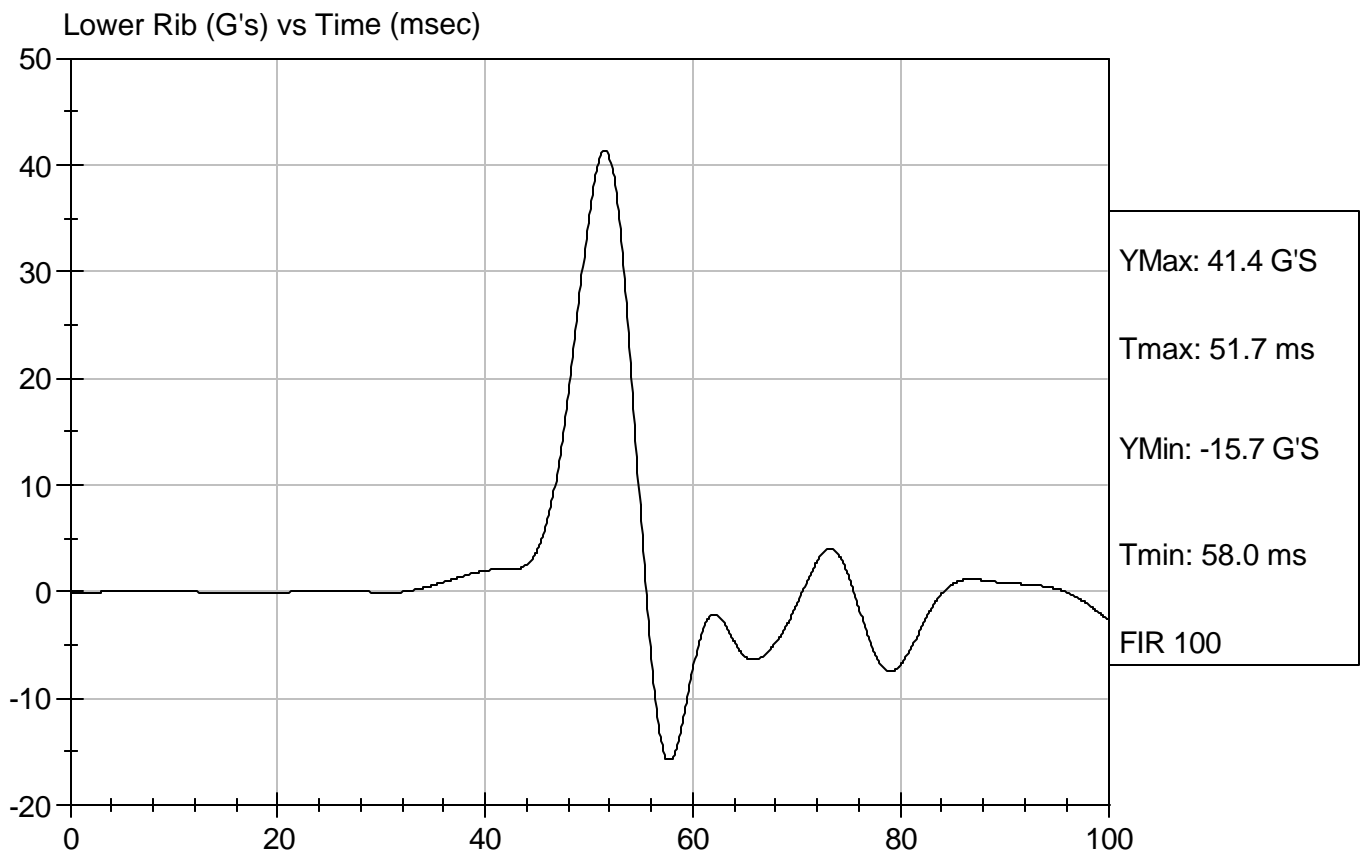
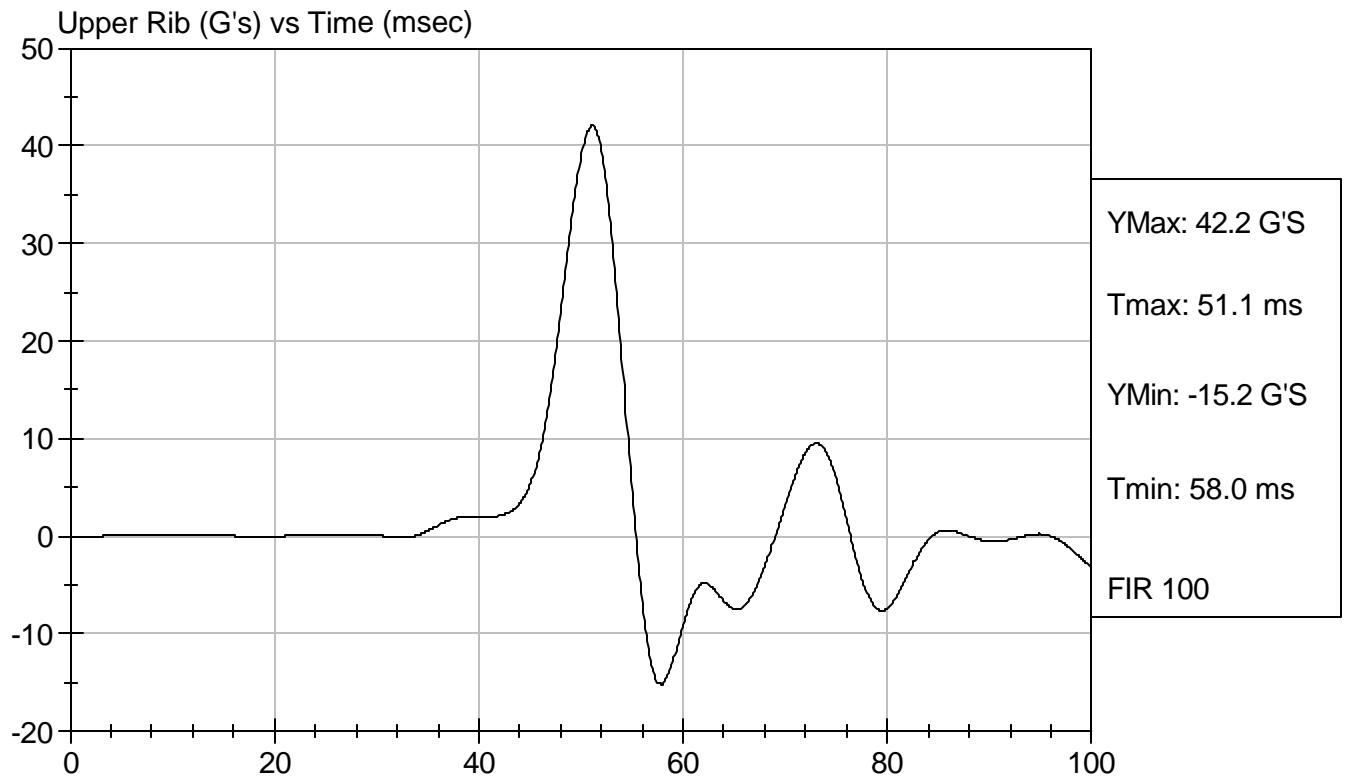
01/17/2006
 Test Date

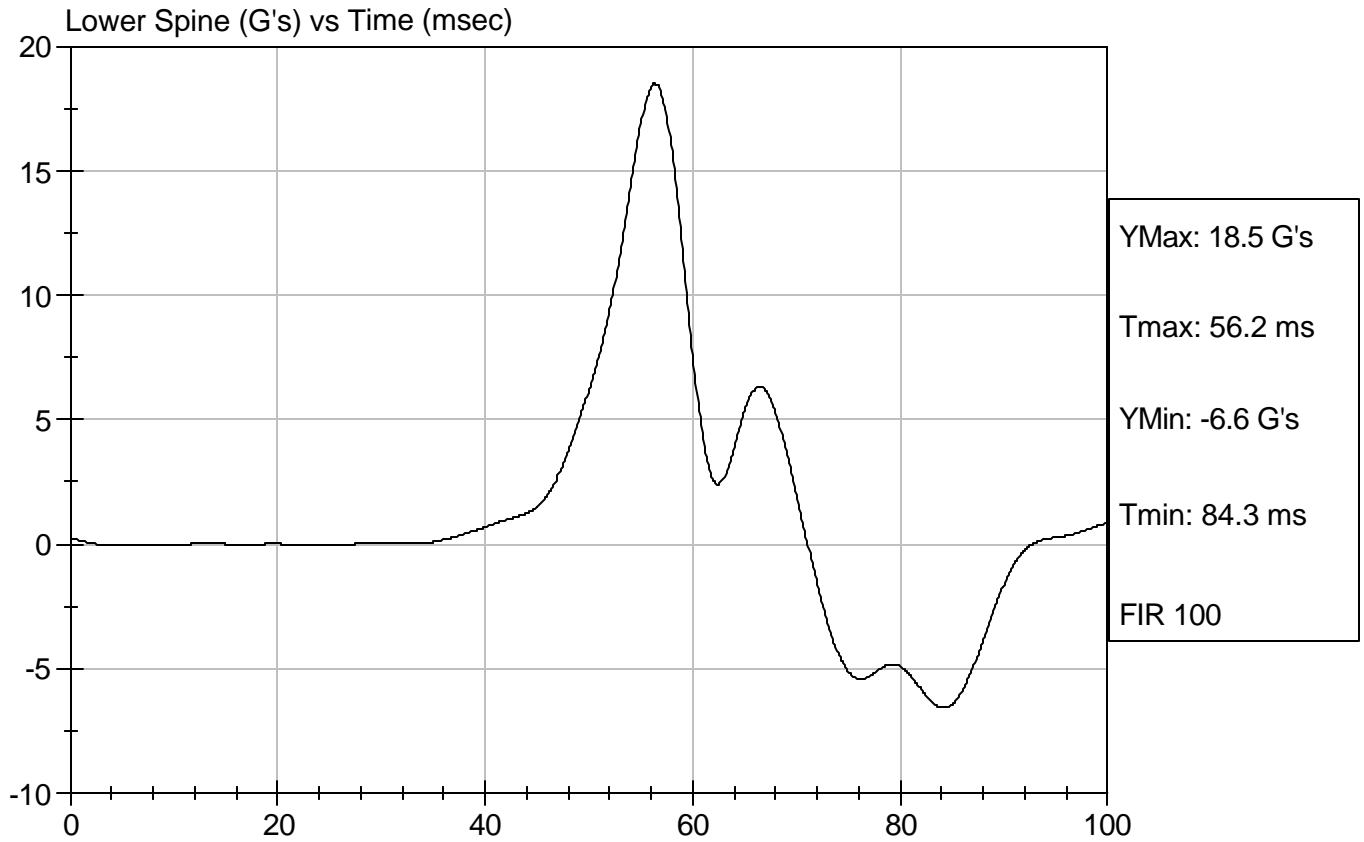
David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D06152

Test Date: 01/17/2006
Speed: 14.11 ft/sec, 4.30 m/sec





SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

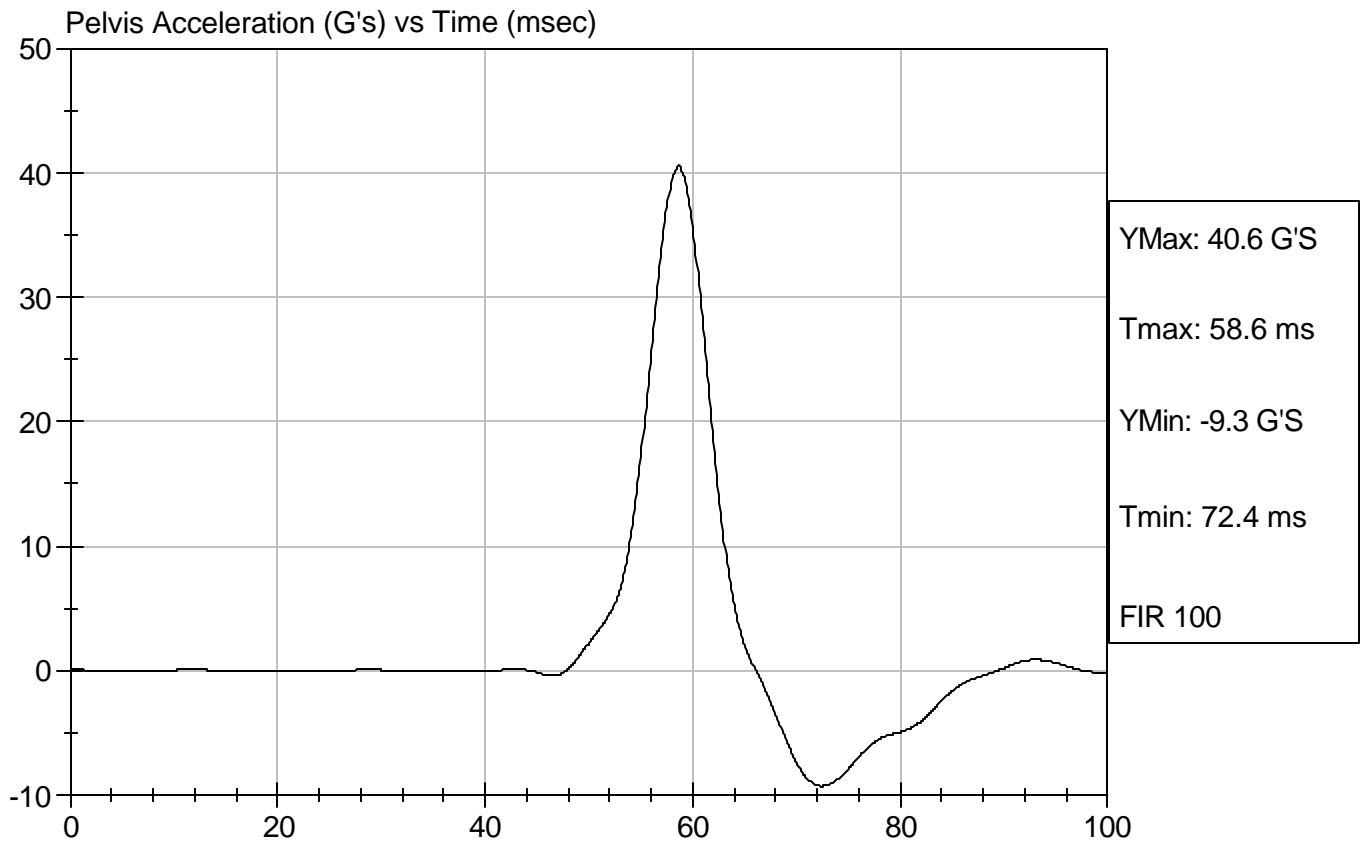
Test I.D.: D06153

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	41	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

01/17/2006
Test Date

David Winkelbauer
Approved By



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

ATD Serial No: 271

Test I.D: D06154

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.4	Pass
Laboratory Relative Humidity	%	10 to 70	13	Pass
Force At 12.7 mm	N	104 - 162	143	Pass
Force At 19 mm	N	163 - 222	203	Pass
Force At 25.4 mm	N	222 - 280	278	Pass
Force At 33 mm	N	325 - 391	386	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

01/18/2006
 Test Date

David Winkelbauer
 Approved By

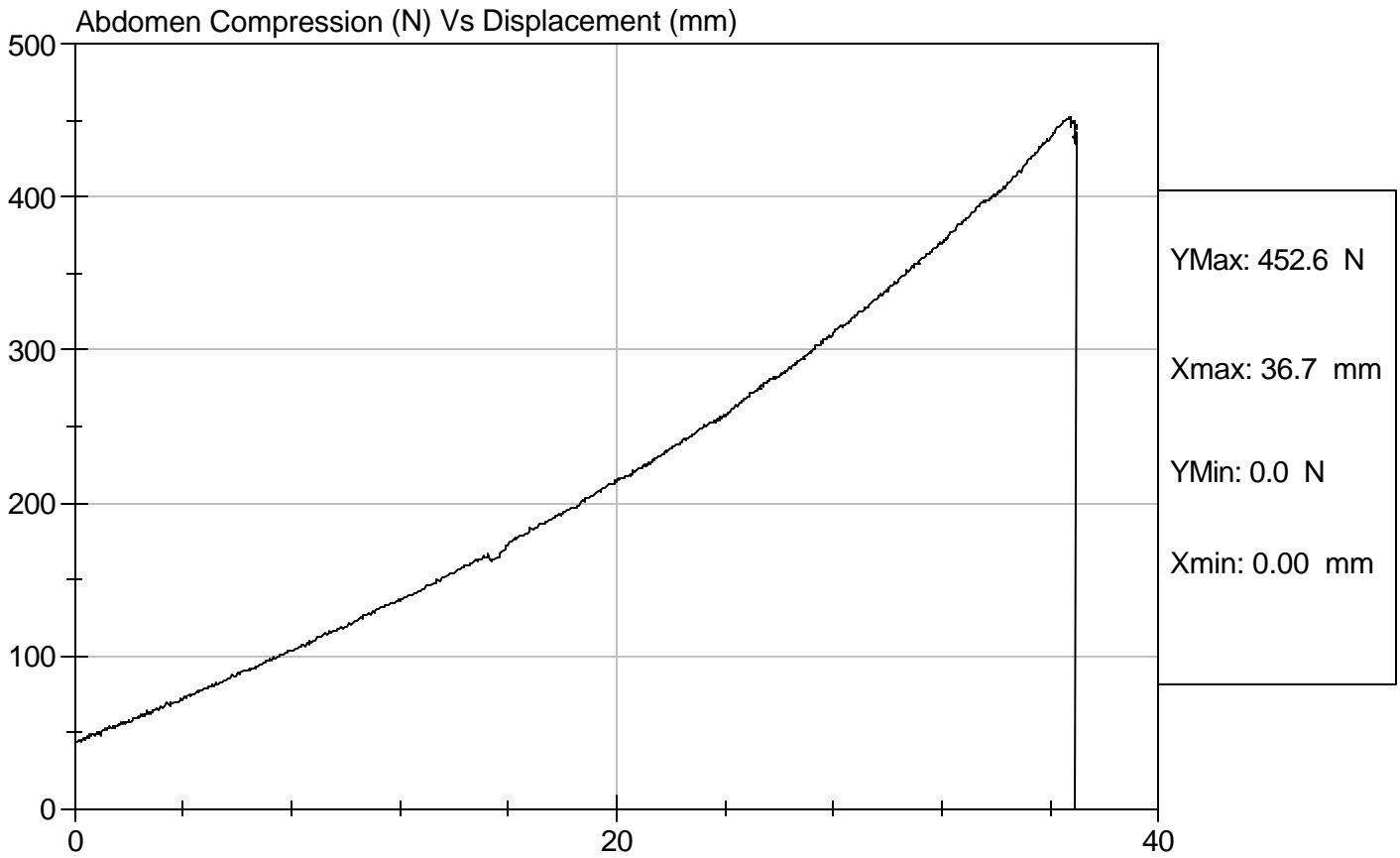


Test Description: Abdomen Compression

Test Date: 01/18/2006

Component: D06154

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D: D06155

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	116.5	Pass
Force At 30 deg	N	151.2 - 204.6	160.7	Pass
Force At 40 deg	N	204.6 - 258.0	204.9	Pass
Return Angle	Deg	12 Maximum	4	Pass
			Overall Test Results	Pass

Jessica Hall
 Laboratory Technician

01/17/2006
 Test Date

David Winkelbauer
 Approved By

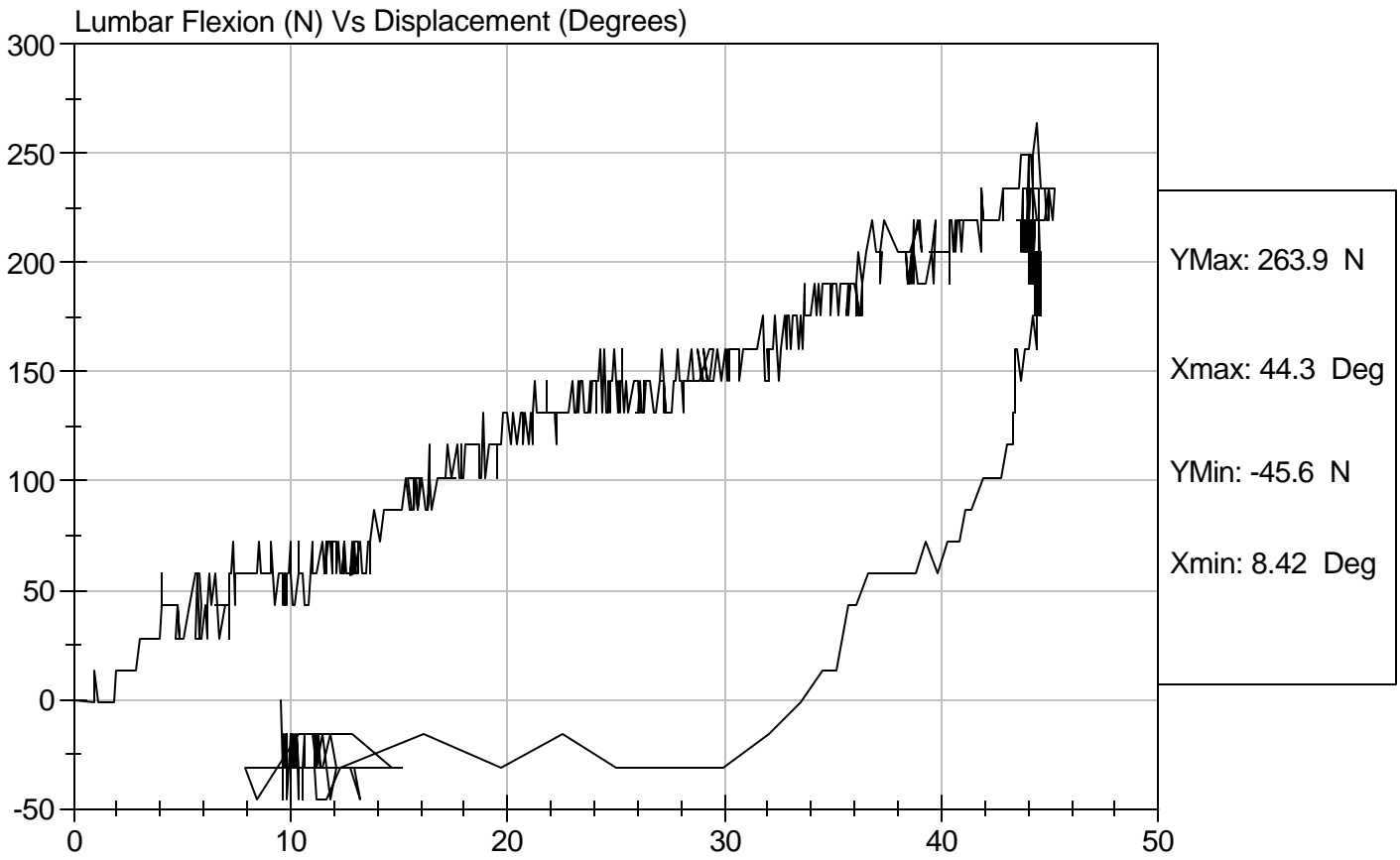


Test Description: Lumbar Flexion

Test Date: 01/17/2006

Component: D06155

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 271

Test I.D.: D06159

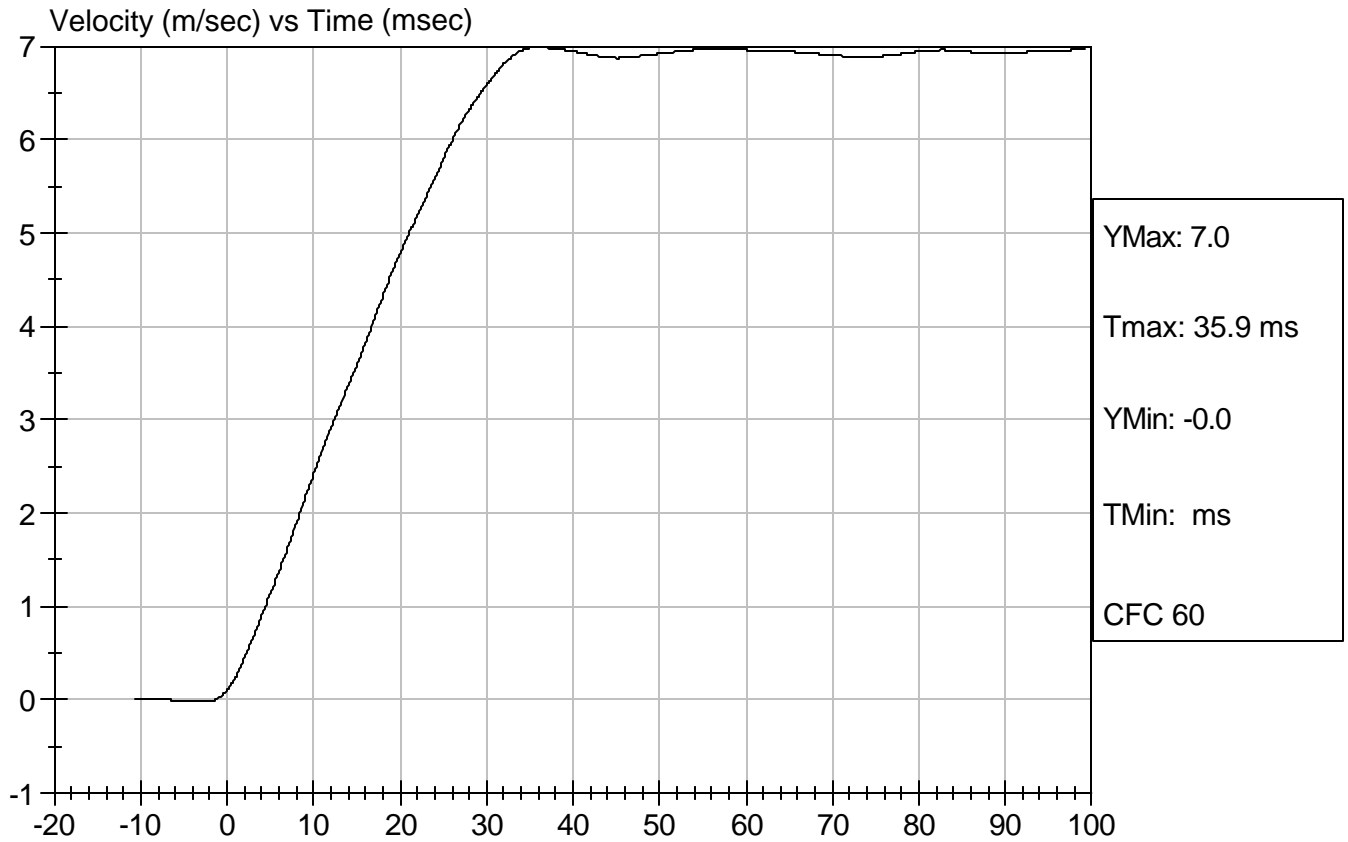
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity		%	10 to 70	14	Pass
Impact Velocity		m/s	6.89 to 7.13	7.07	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.42	Pass
	20 msec	m/s	4.12 to 5.10	4.79	Pass
	30 msec	m/s	5.73 to 7.01	6.59	Pass
	40 to 70 msec	m/s	6.27 to 7.64	6.97	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	74	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	60	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	76	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	59	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	12	Pass


 Laboratory Technician

01/18/2006

Test Date

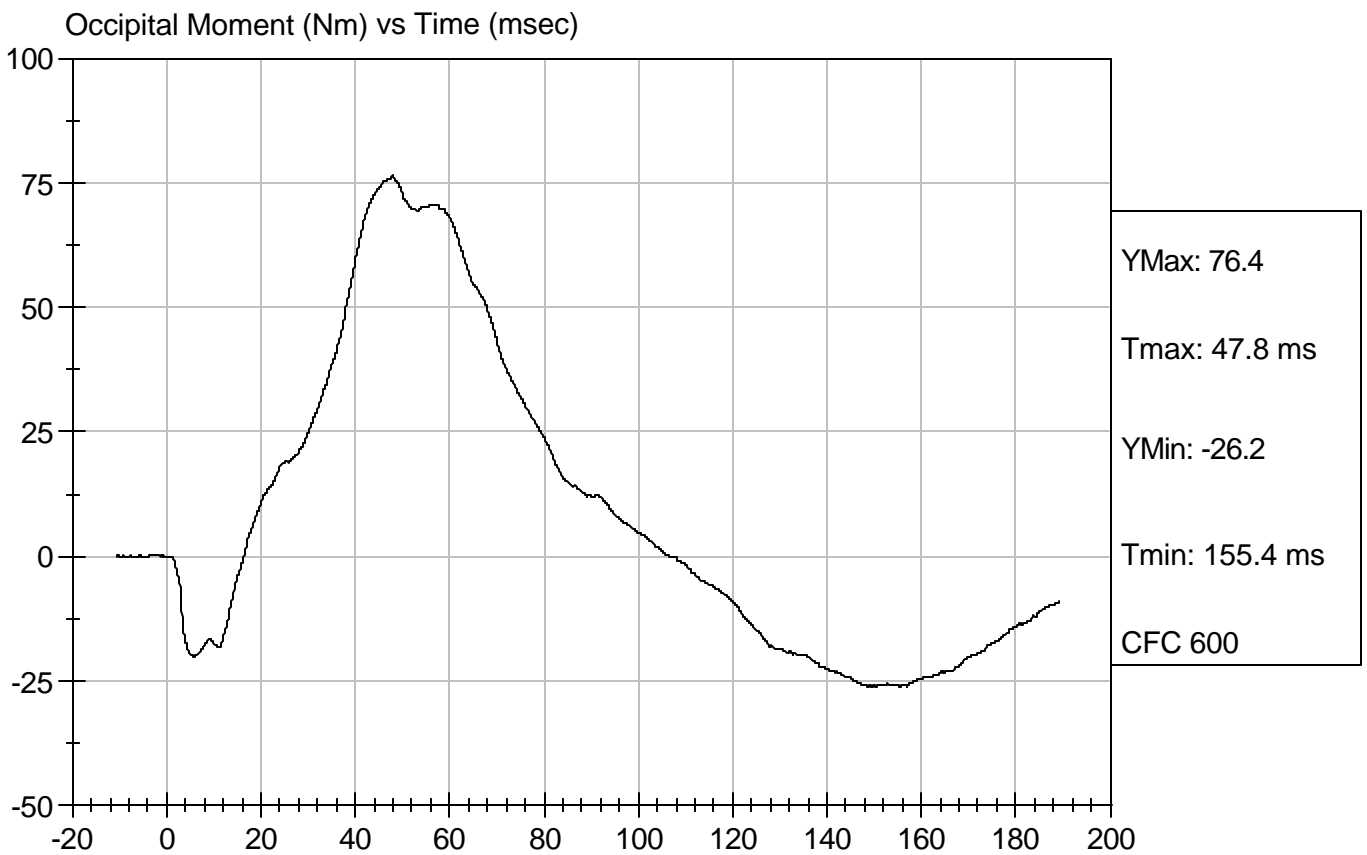
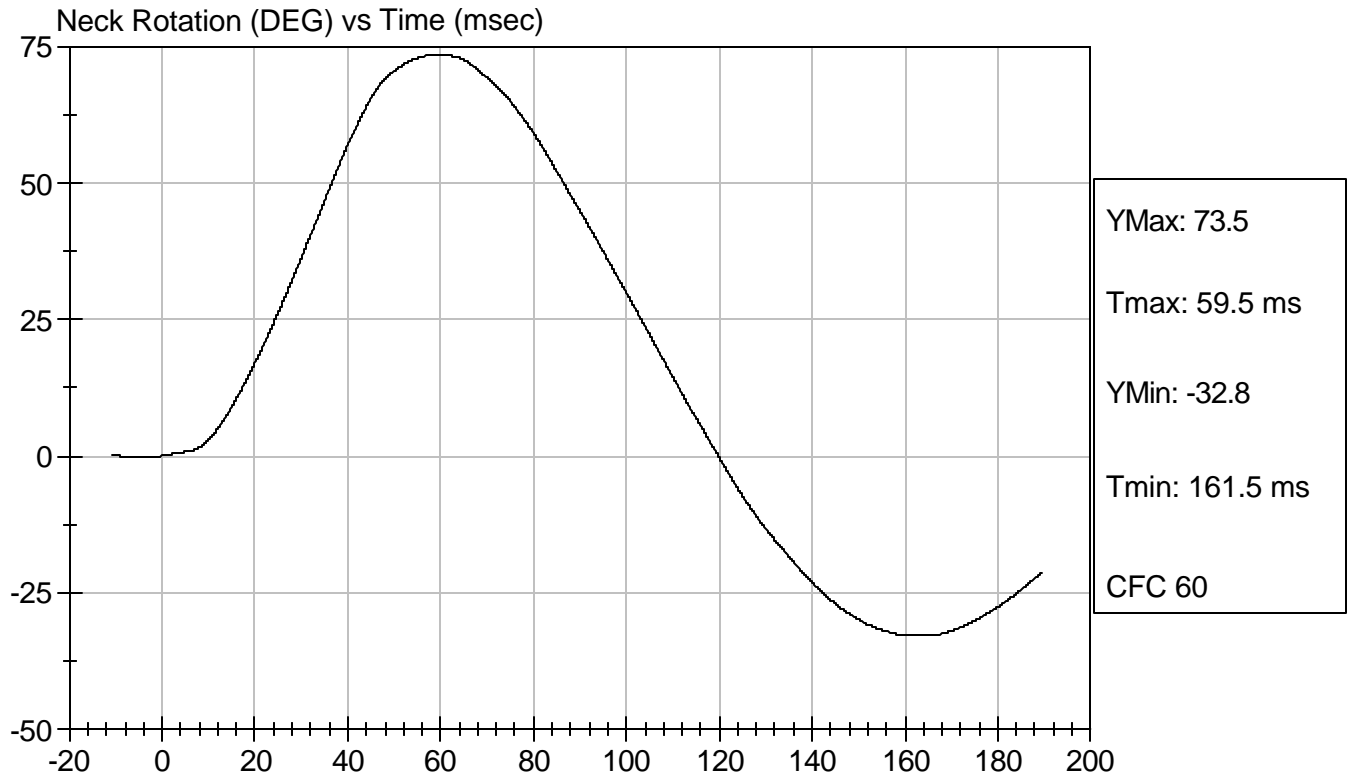

 Approved By





Test Desc: Neck Bending
Component ID: D06159

Test Date: 01/18/2006
Speed: 23.21 ft/sec, 7.07 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 Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 271

Test I.D: D06241

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	25	Pass
Peak Resultant Acceleration	G's	120 to 150	132	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-8	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

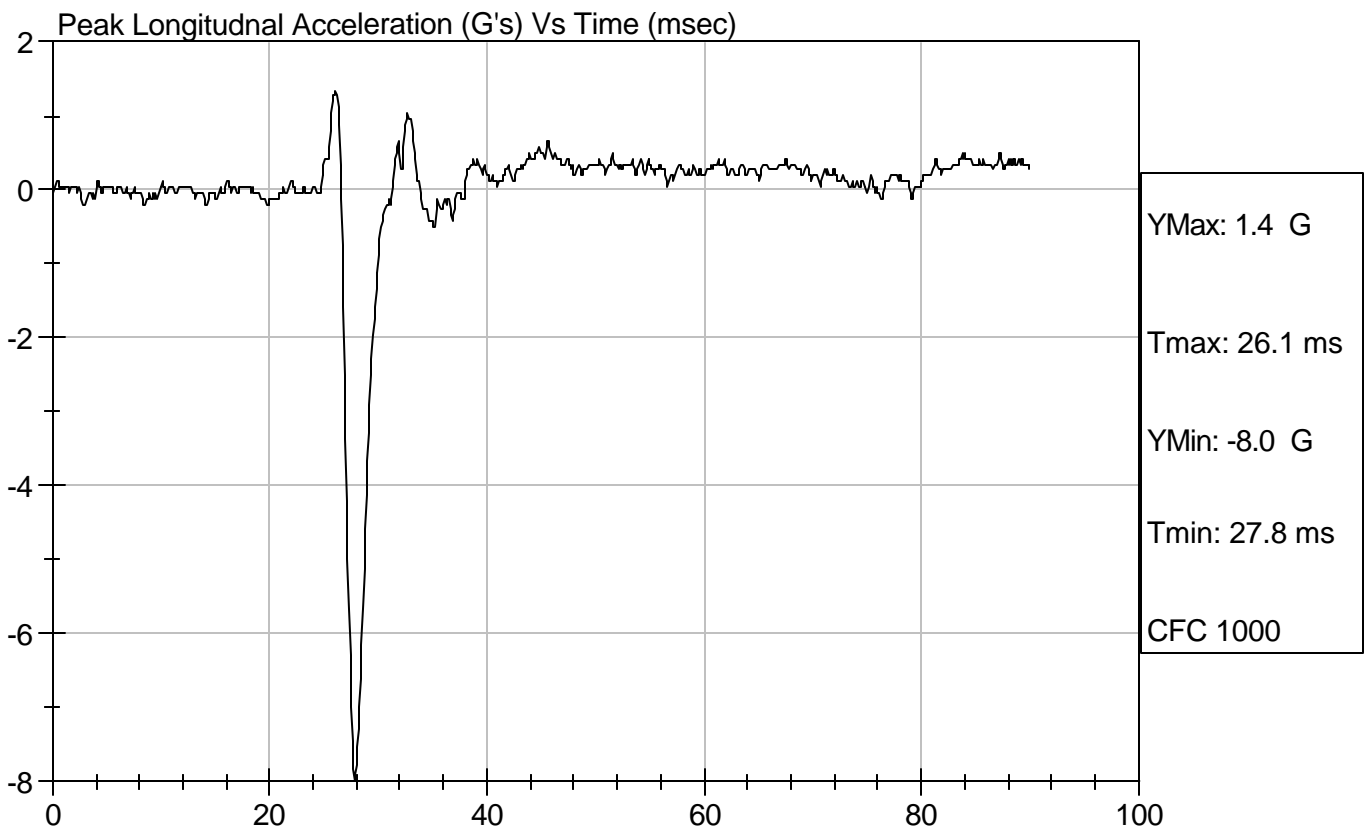
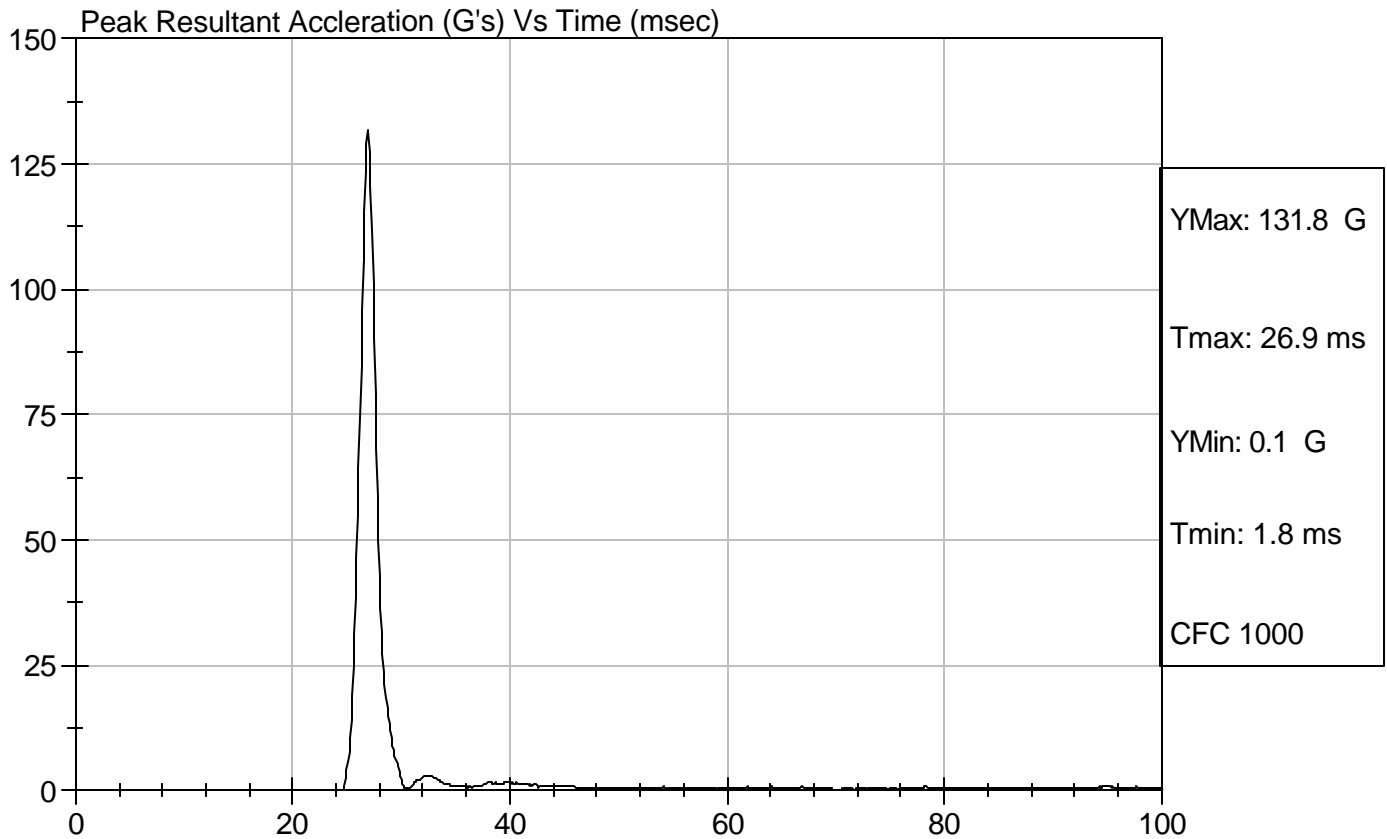


Test Description: Head Drop

Test Date: 02/01/2006

Component: D06241

Speed: 0 ft/s, 0.00 m/s



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 271

Test I.D.: D06242

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Velocity	m/s	4.22 - 4.31	4.24	Pass
Upper Rib	G's	37 - 46	46	Pass
Lower Rib	G's	37 - 46	46	Pass
Lower Spine	G's	15 - 22	19	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

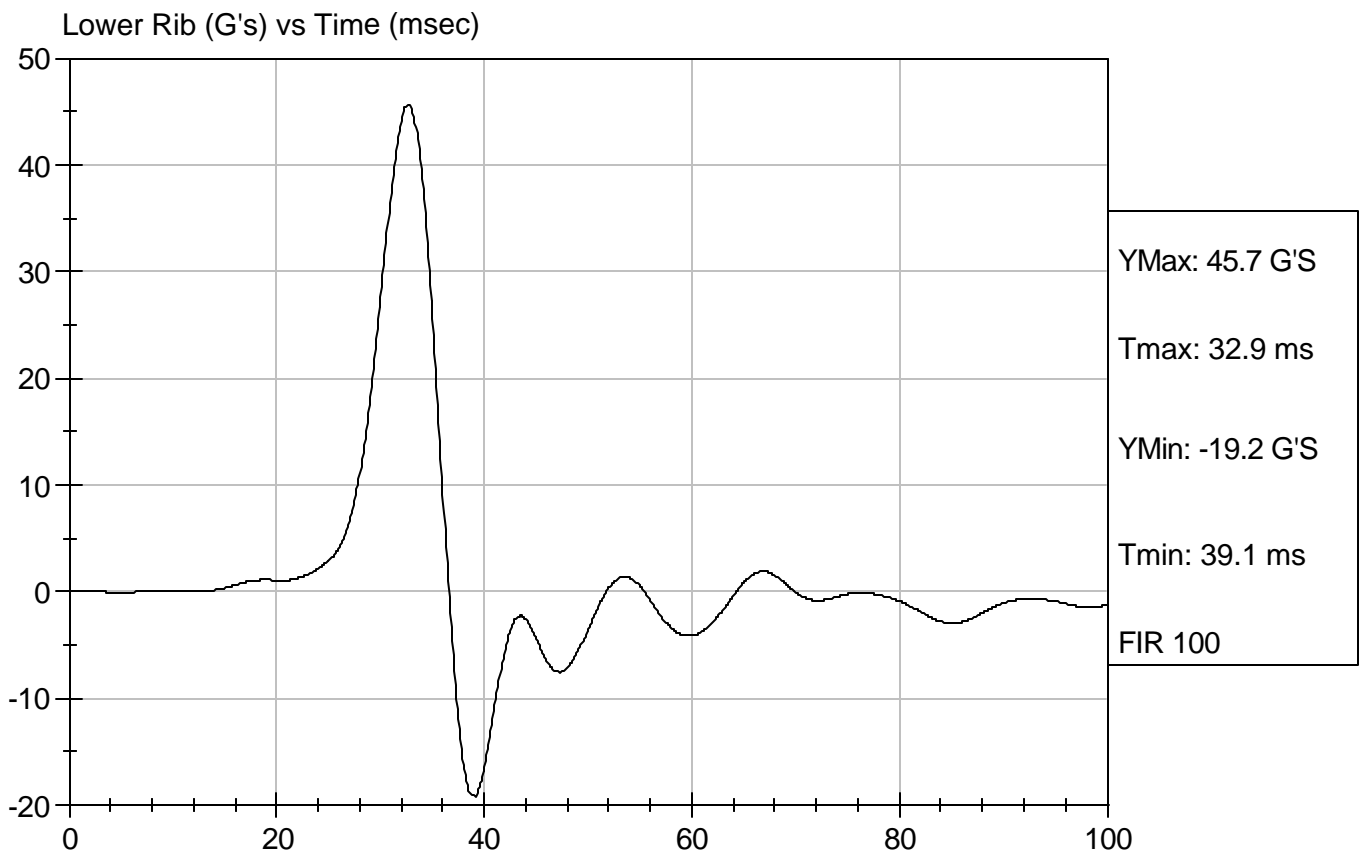
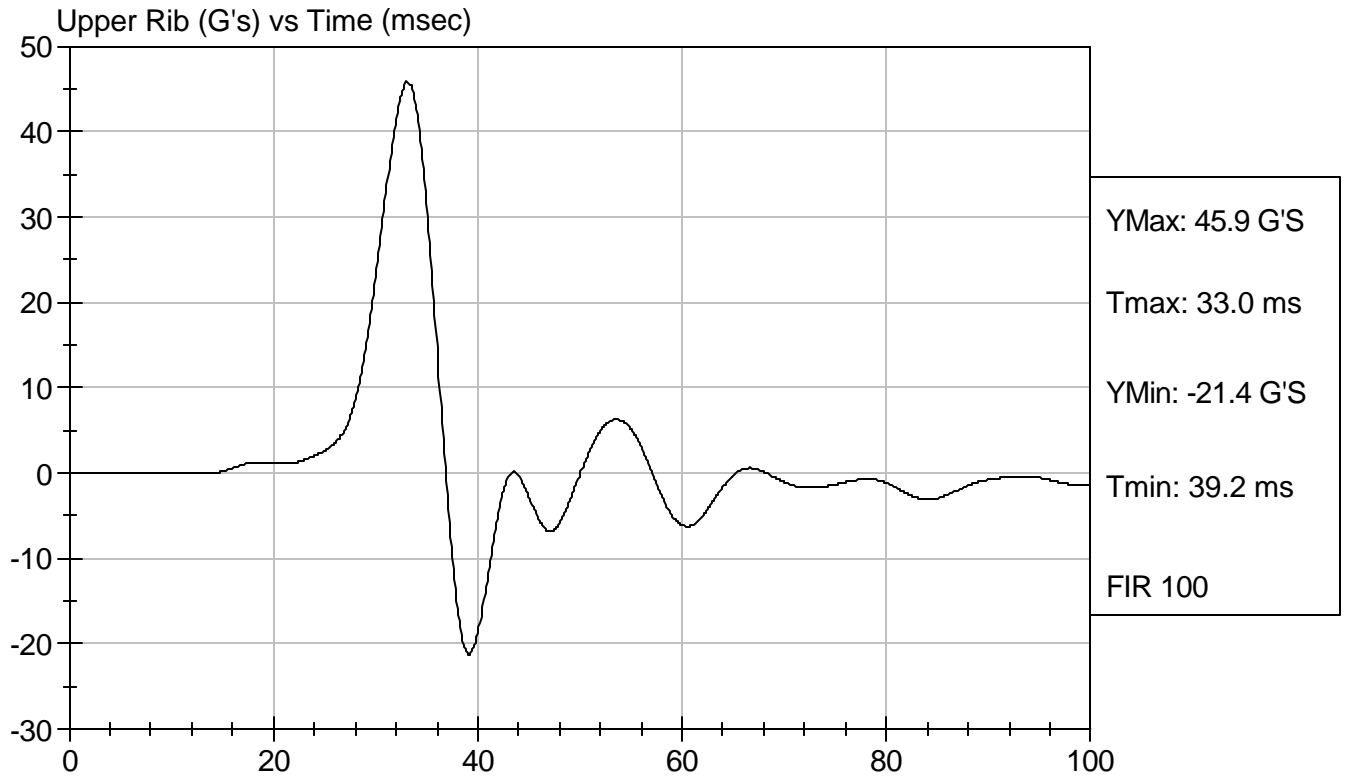
02/02/2006
 Test Date

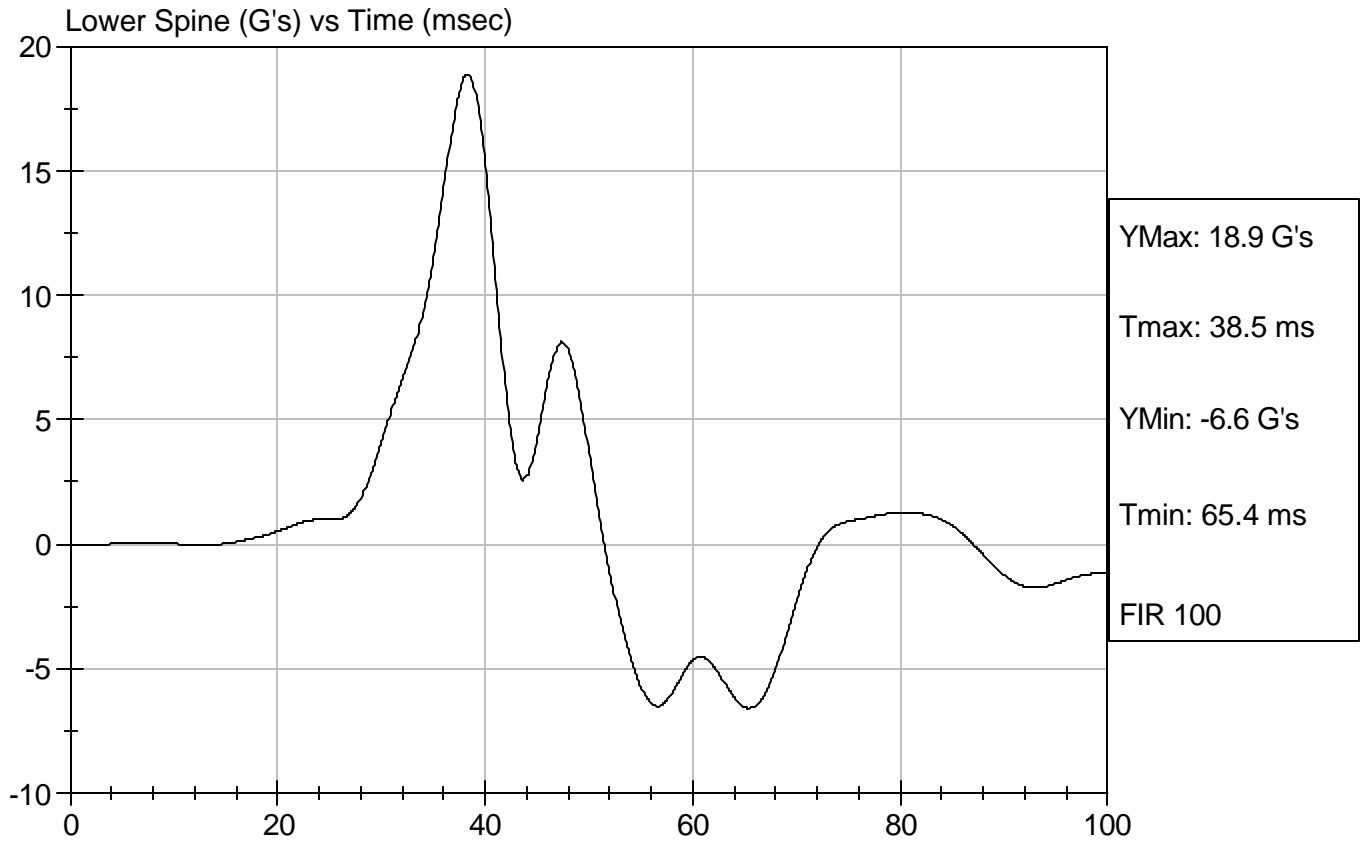
David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D06242

Test Date: 02/02/2006
Speed: 13.92 ft/sec, 4.24 m/sec





SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 271

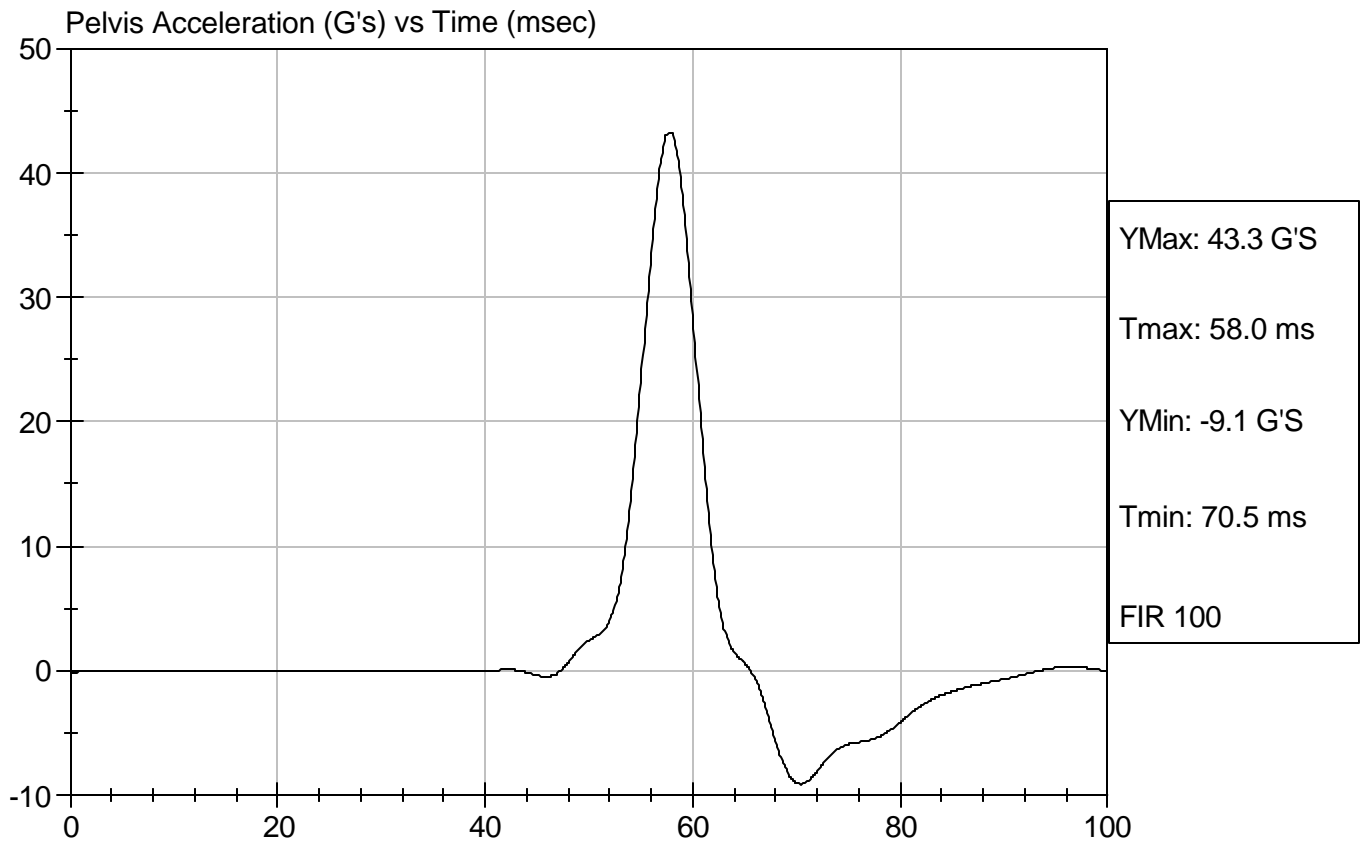
Test I.D.: D06243

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	27	Pass
Probe Velocity	m/s	4.27 - 4.33	4.28	Pass
Pelvis Acceleration	G's	40 - 60	43	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

02/01/2006
Test Date

David Winkelbauer
Approved By



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

ATD Serial No: 271

Test I.D.: D06244

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Force At 12.7 mm	N	104 - 162	158	Pass
Force At 19 mm	N	163 - 222	216	Pass
Force At 25.4 mm	N	222 - 280	278	Pass
Force At 33 mm	N	325 - 391	374	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

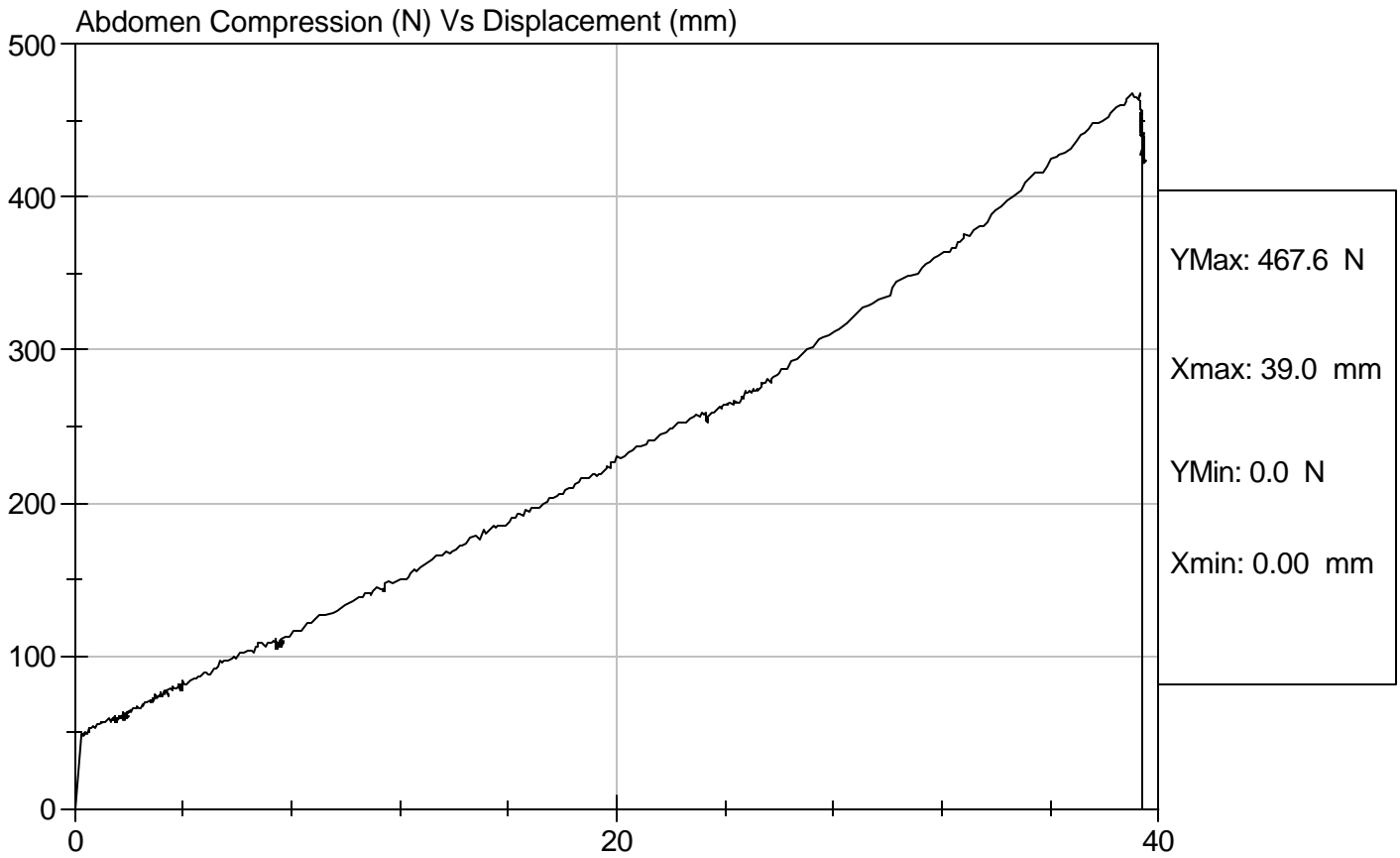


Test Description: Abdomen Compression

Test Date: 02/01/2006

Component: D06244

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 271

Test I.D: D06245

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	134.9	Pass
Force At 30 deg	N	151.2 - 204.6	203.9	Pass
Force At 40 deg	N	204.6 - 258.0	255.7	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

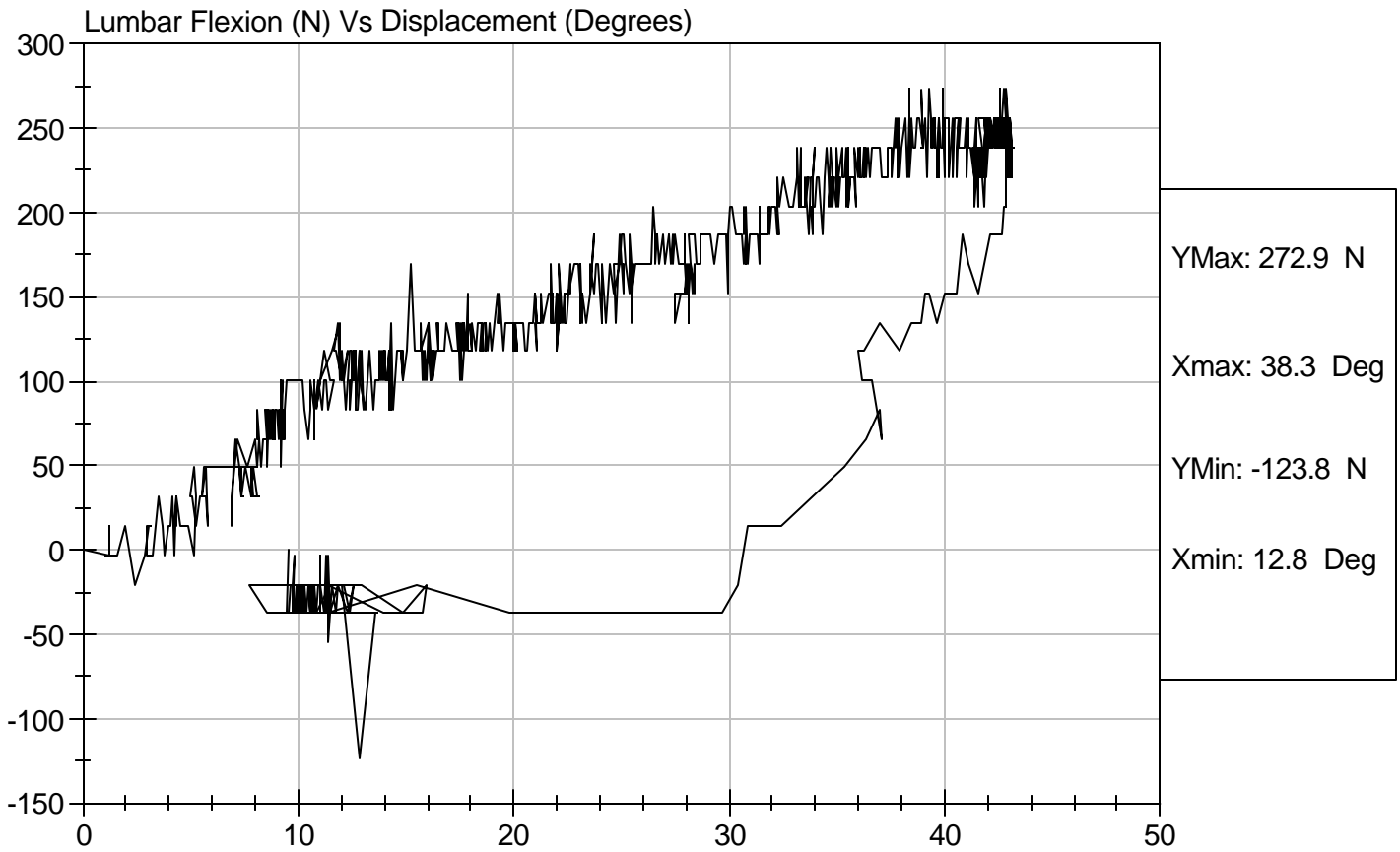


Test Description: Lumbar Flexion

Test Date: 02/01/2006

Component: D06245

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 271

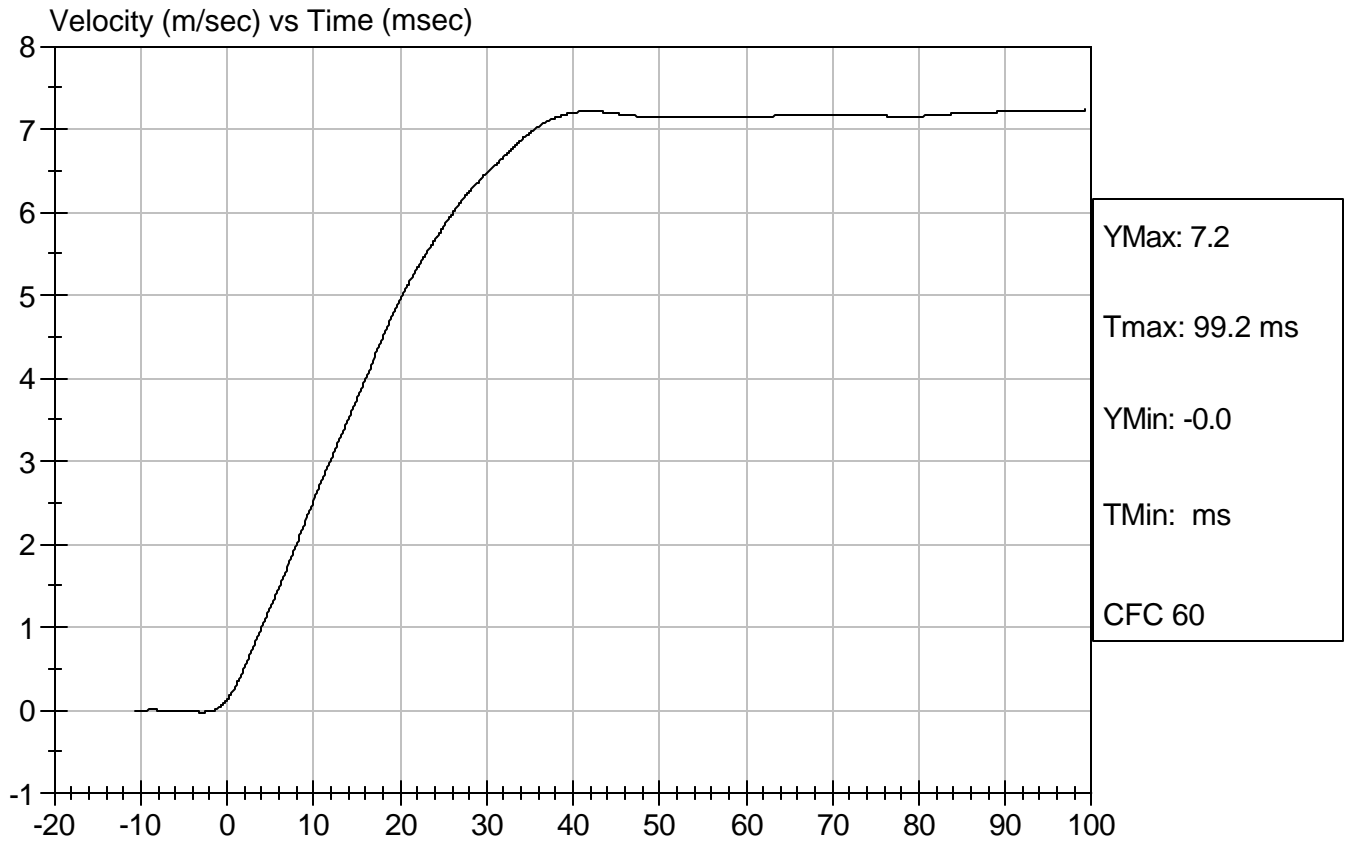
Test I.D.: D06249

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	26	Pass
Impact Velocity		m/s	6.89 to 7.13	7.13	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.53	Pass
	20 msec	m/s	4.12 to 5.10	4.95	Pass
	30 msec	m/s	5.73 to 7.01	6.47	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.22	Pass
Midsaggital Plane Max Rotation		deg	66 to 82	76	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	61	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	9	Pass


 Laboratory Technician

02/01/2006
 Test Date


 Approved By

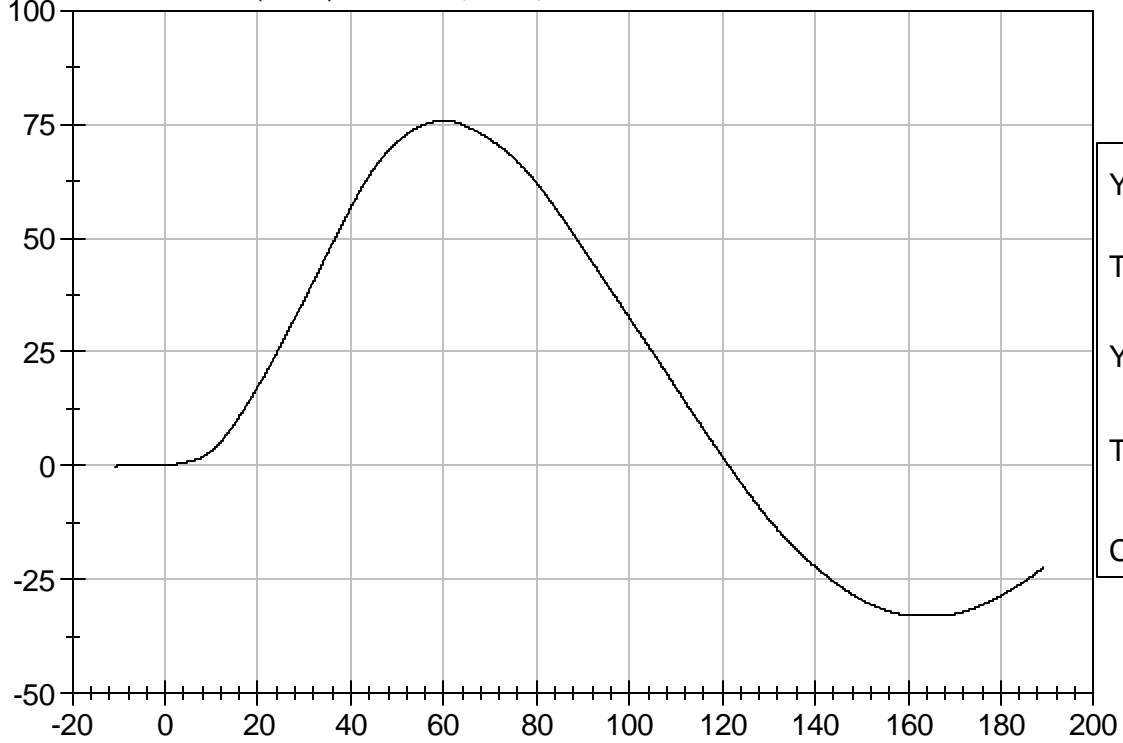




Test Desc: Neck Bending
Component ID: D06249

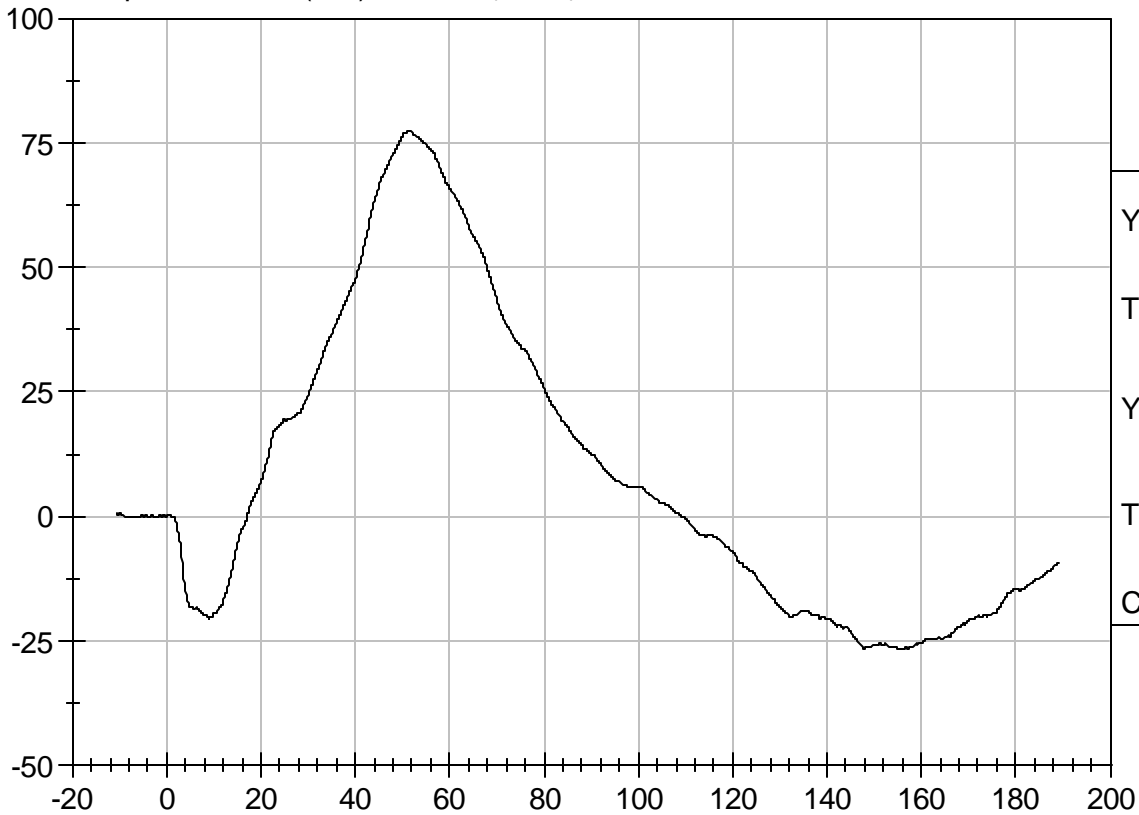
Test Date: 02/01/2006
Speed: 23.38 ft/sec, 7.13 m/sec

Neck Rotation (DEG) vs Time (msec)



YMax: 75.9
Tmax: 60.1 ms
YMin: -33.0
Tmin: 164.4 ms
CFC 60

Occipital Moment (Nm) vs Time (msec)



YMax: 77.4
Tmax: 51.3 ms
YMin: -26.7
Tmin: 156.2 ms
CFC 600

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

02/02/2006
 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.: D0616

Tested Parameter	Units	Specification	Result	Pass/Fail
SH - Seated Height	mm	889 - 909	903	Pass
RH - Rib Height	mm	501 - 521	509	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	525	Pass
SW - Knee Pivot to Floor	mm	490 - 505	500	Pass
HW - Hip Width	mm	356 - 391	368	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

1/18/2006
 Test Date

David Winkelbauer
 Approved By

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

ATD Serial No: 904

Test I.D: D06161

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	20.4	Pass
Laboratory Relative Humidity	%	10 to 70	14	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	-11	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

01/18/2006
 Test Date

David Winkelbauer
 Approved By

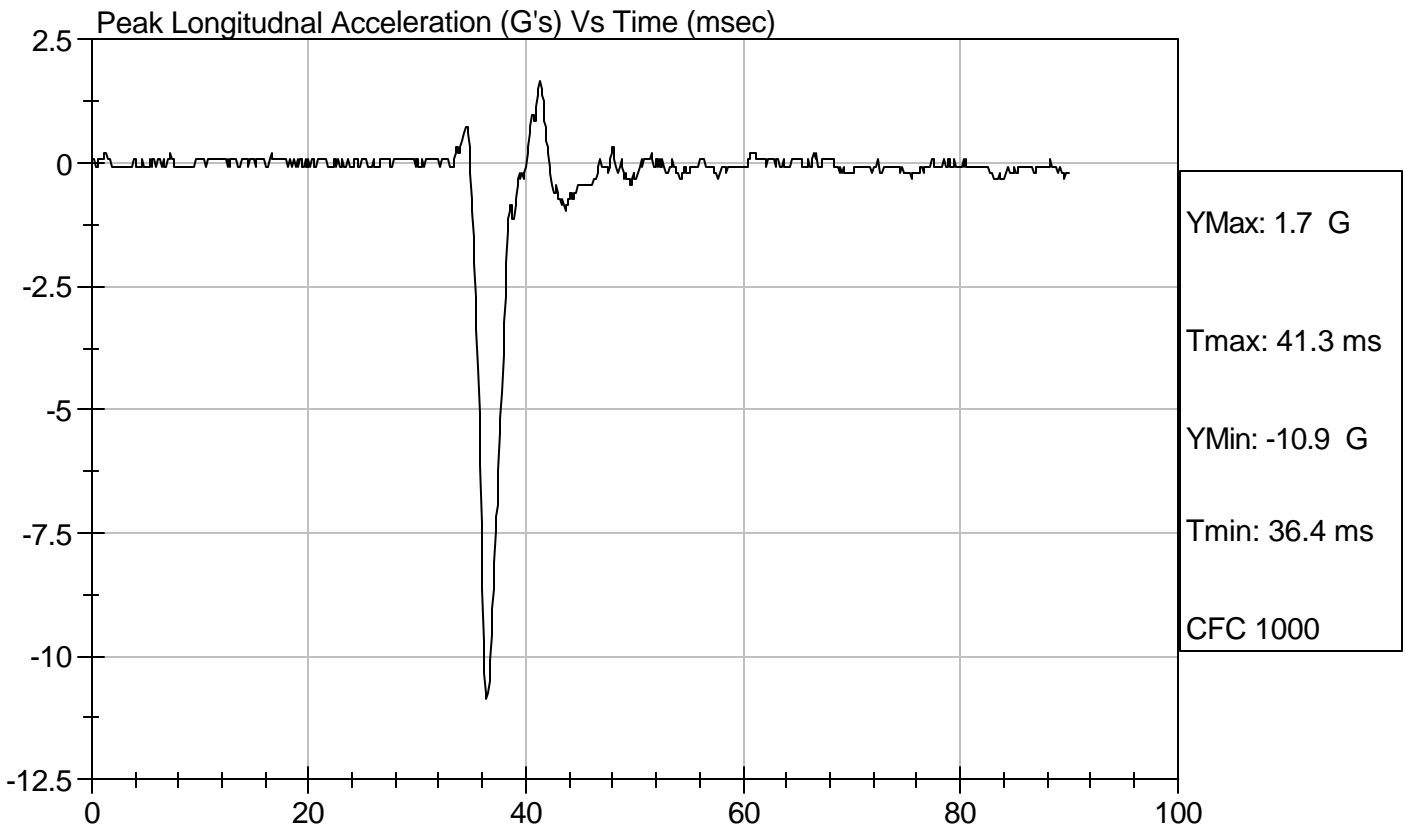
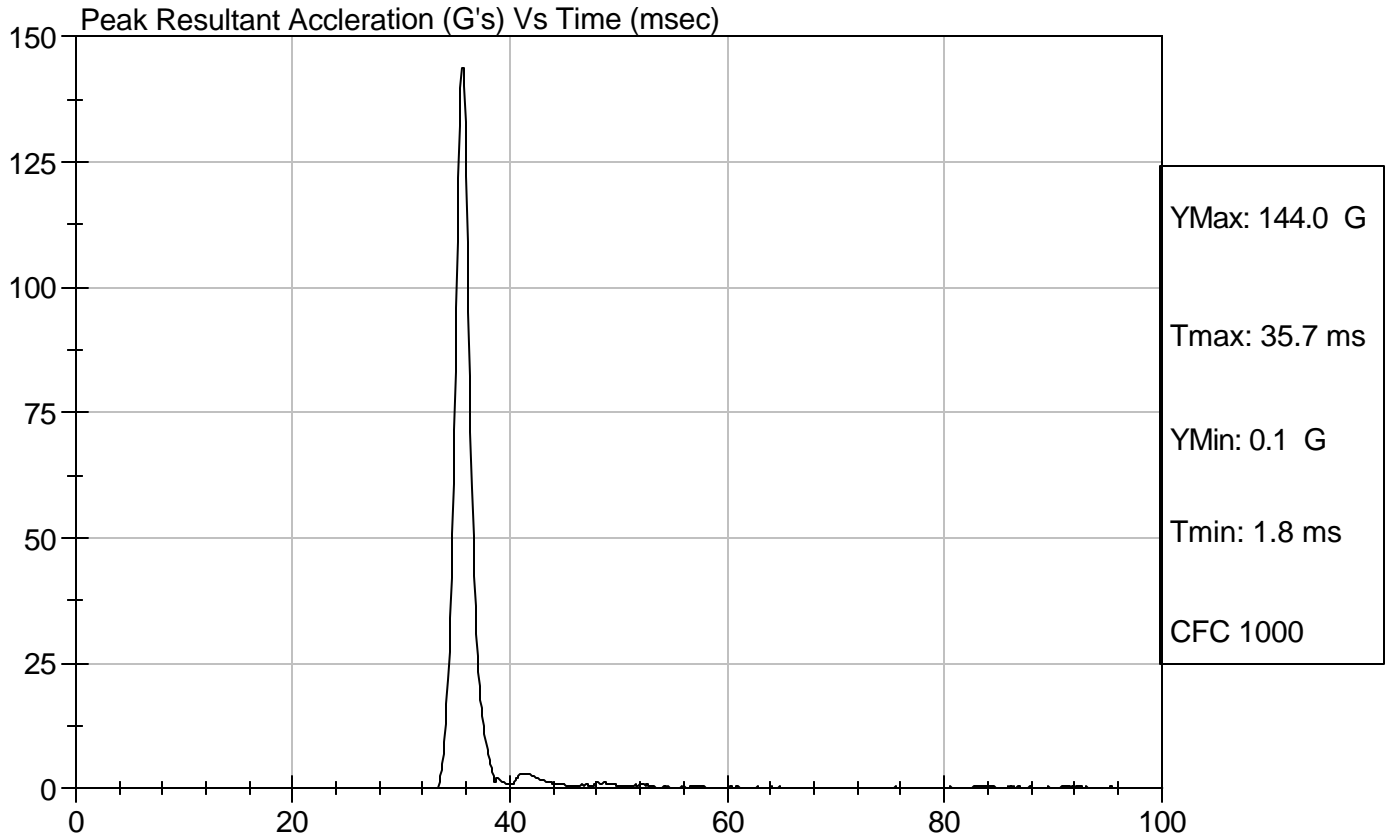


Test Description: Head Drop

Test Date: 01/18/2006

Component: D06161

Speed: 0 ft/s, 0.00 m/s



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D.: D06162

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.7	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Velocity	m/s	4.22 - 4.31	4.23	Pass
Upper Rib	G's	37 - 46	39	Pass
Lower Rib	G's	37 - 46	37	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

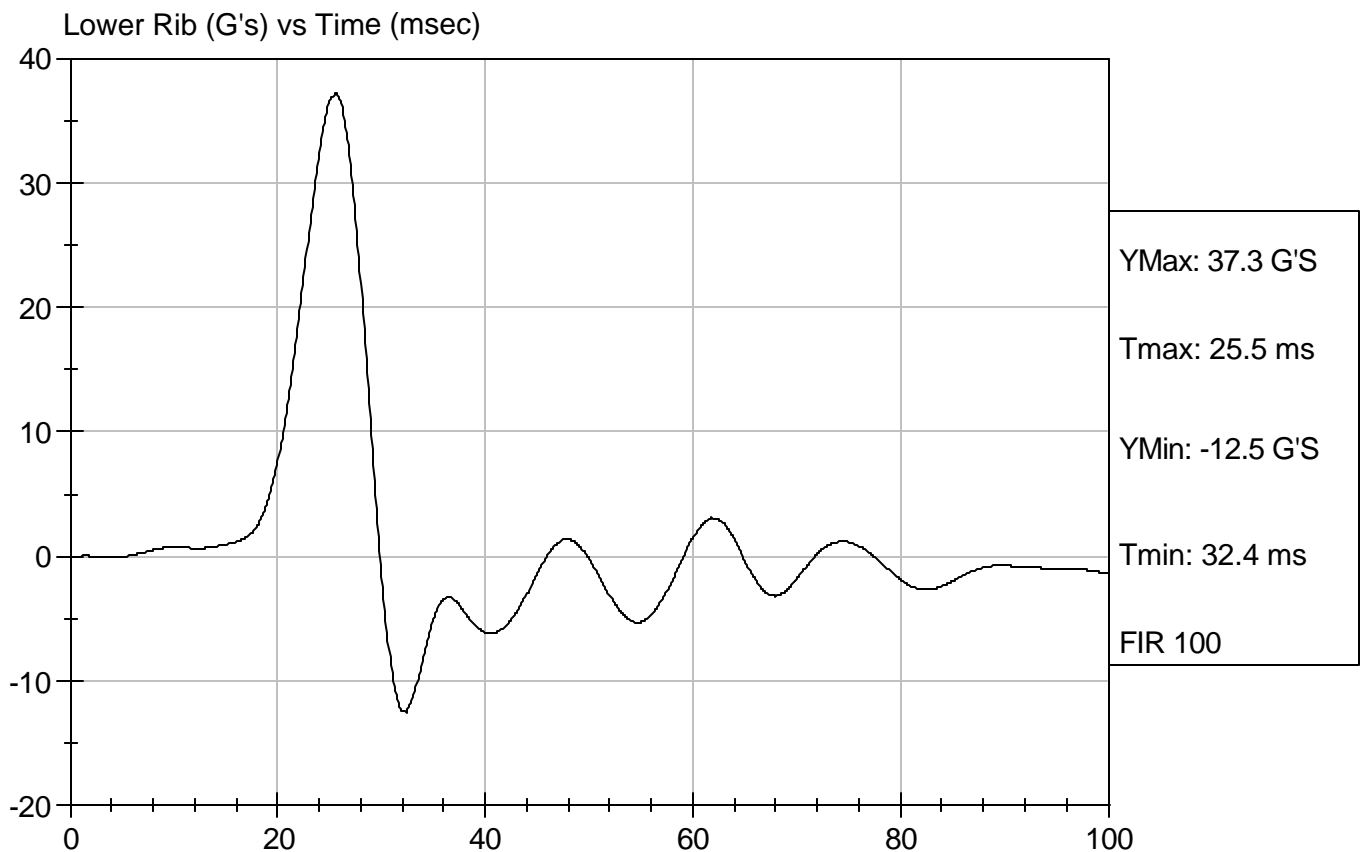
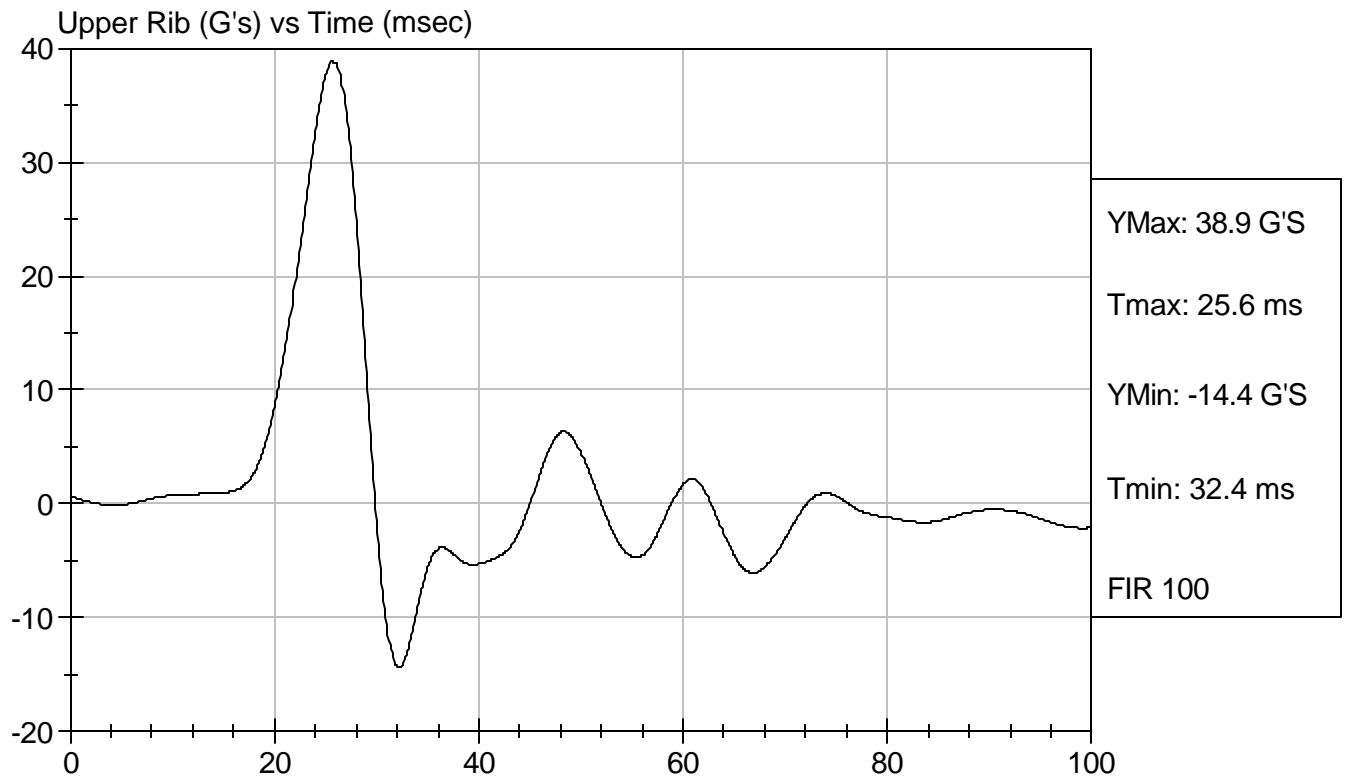
01/17/2006
 Test Date

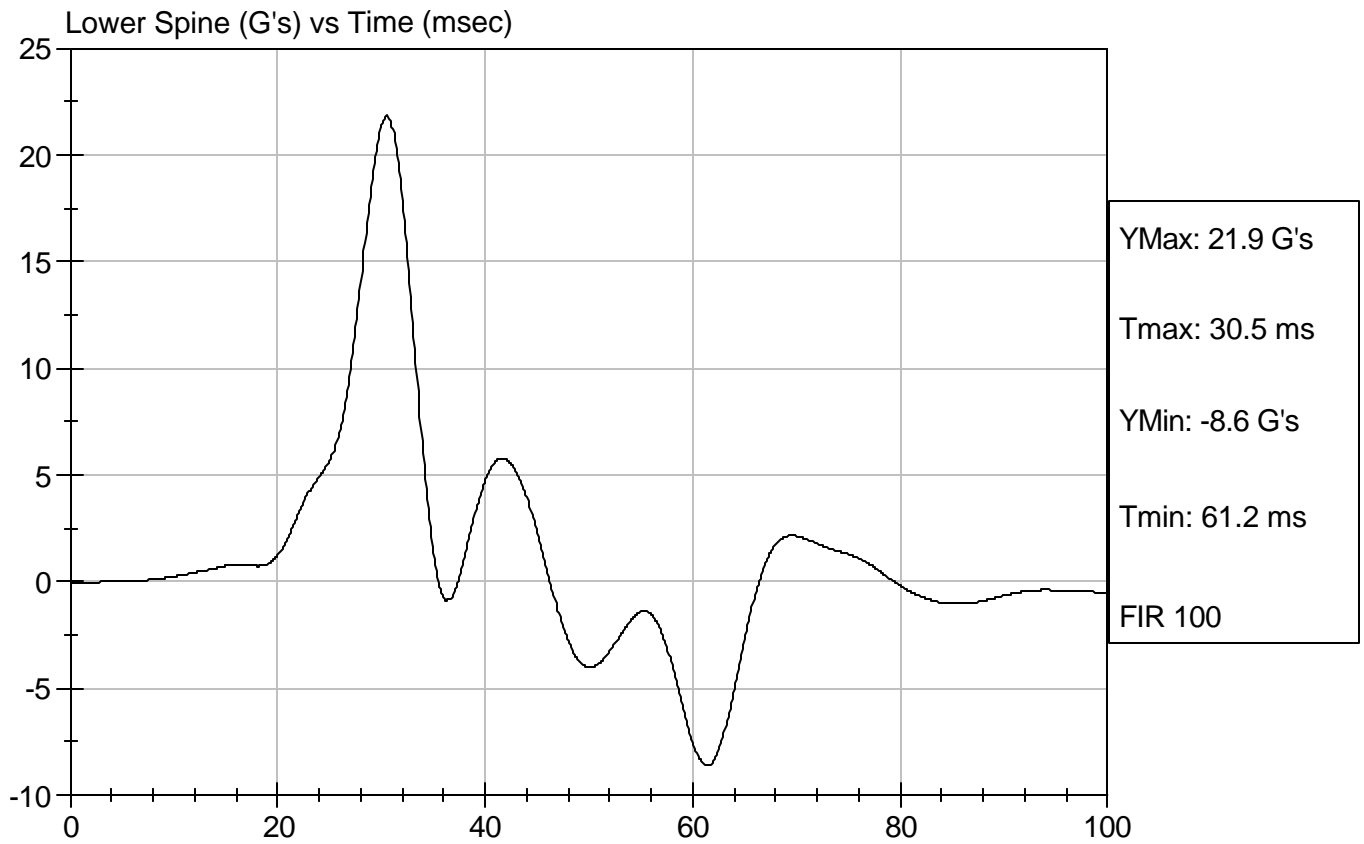
David Winkelbauer
 Approved By



Test Desc: Thorax Impact
Component ID: D06162

Test Date: 01/17/2006
Speed: 13.89 ft/sec, 4.23 m/sec





SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

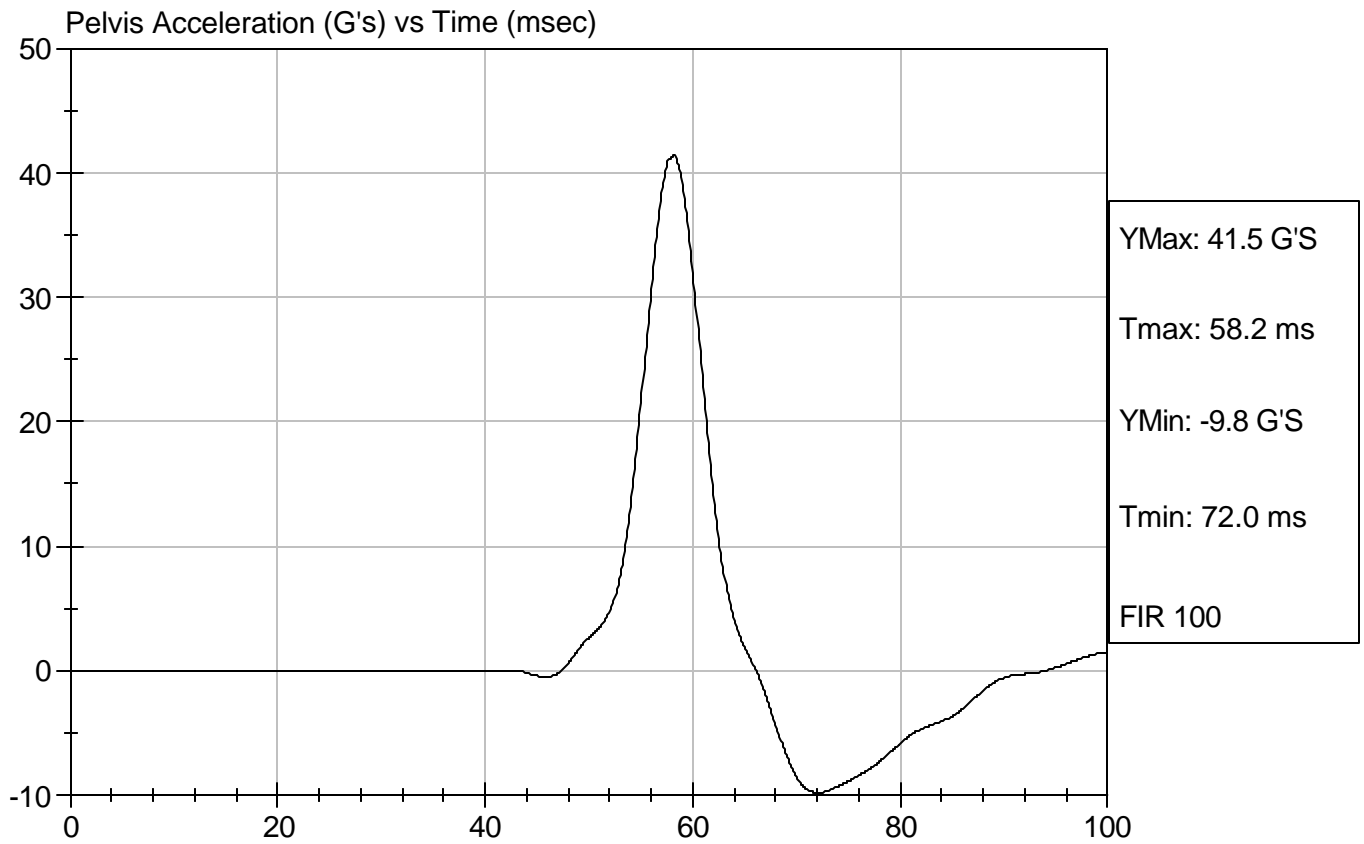
Test I.D.: D06163

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	24	Pass
Probe Velocity	m/s	4.27 - 4.33	4.30	Pass
Pelvis Acceleration	G's	40 - 60	42	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

01/17/2006
Test Date

David Winkelbauer
Approved By



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

ATD Serial No: 904

Test I.D: D06164

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.5	Pass
Laboratory Relative Humidity	%	10 to 70	14	Pass
Force At 12.7 mm	N	104 - 162	136	Pass
Force At 19 mm	N	163 - 222	189	Pass
Force At 25.4 mm	N	222 - 280	257	Pass
Force At 33 mm	N	325 - 391	353	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

01/18/2006
 Test Date

David Winkelbauer
 Approved By

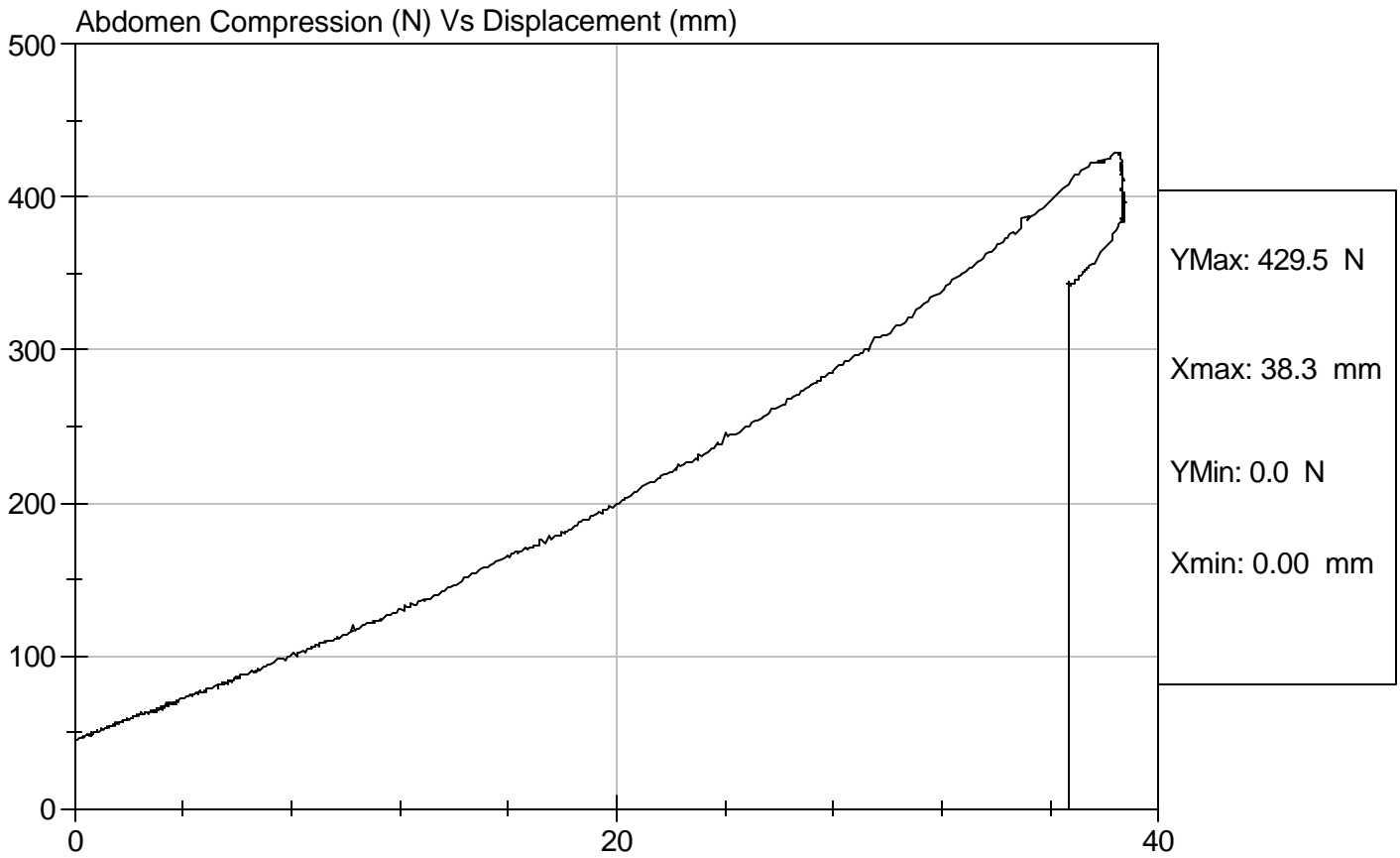


Test Description: Abdomen Compression

Test Date: 01/18/2006

Component: D06164

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D06165

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	20.8	Pass
Laboratory Relative Humidity	%	10 to 70	14	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	107.4	Pass
Force At 30 deg	N	151.2 - 204.6	181.1	Pass
Force At 40 deg	N	204.6 - 258.0	225.3	Pass
Return Angle	Deg	12 Maximum	4	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

01/18/2006
 Test Date

David Winkelbauer
 Approved By

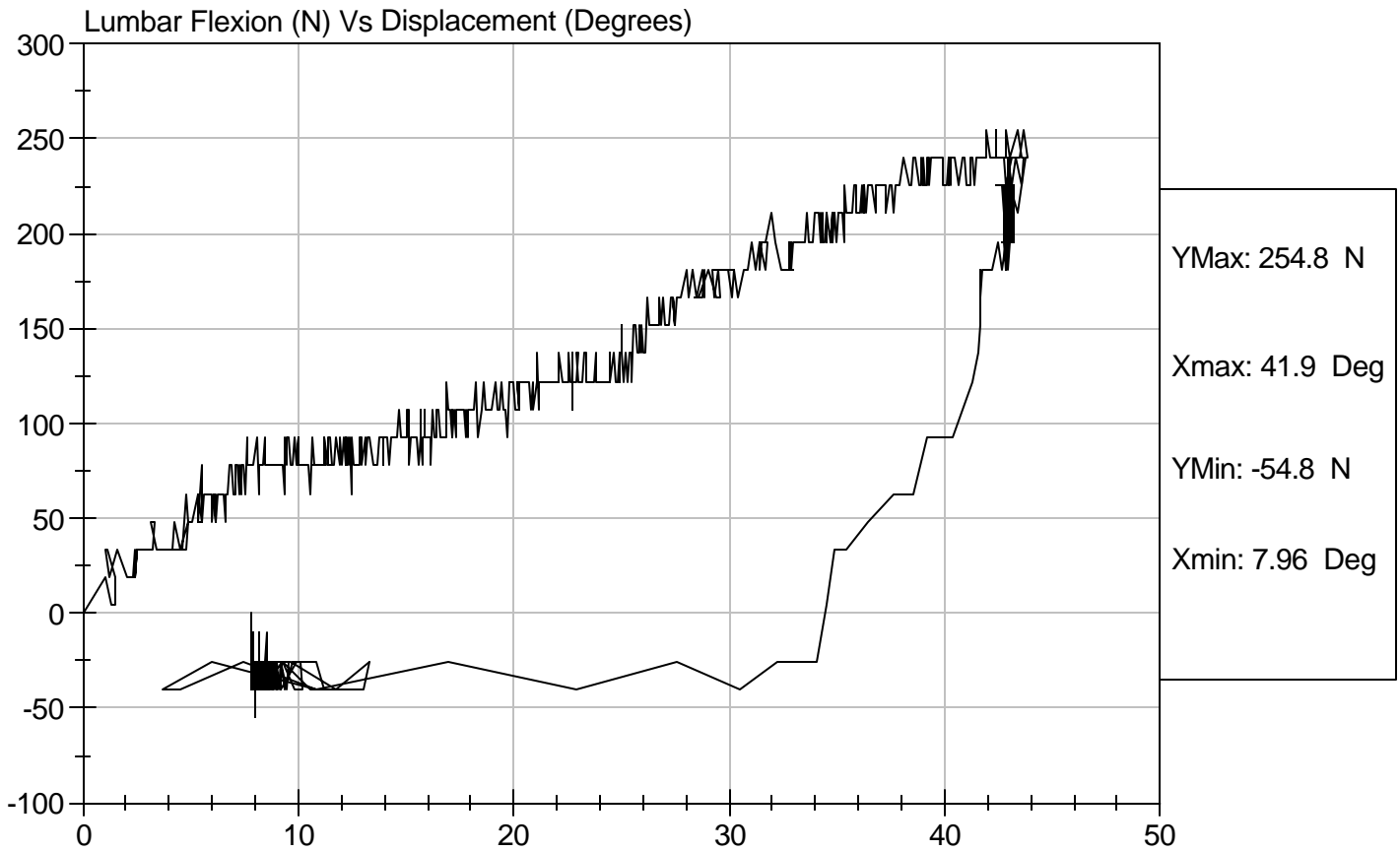


Test Description: Lumbar Flexion

Test Date: 01/18/2006

Component: D06165

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 904

Test I.D: D06169

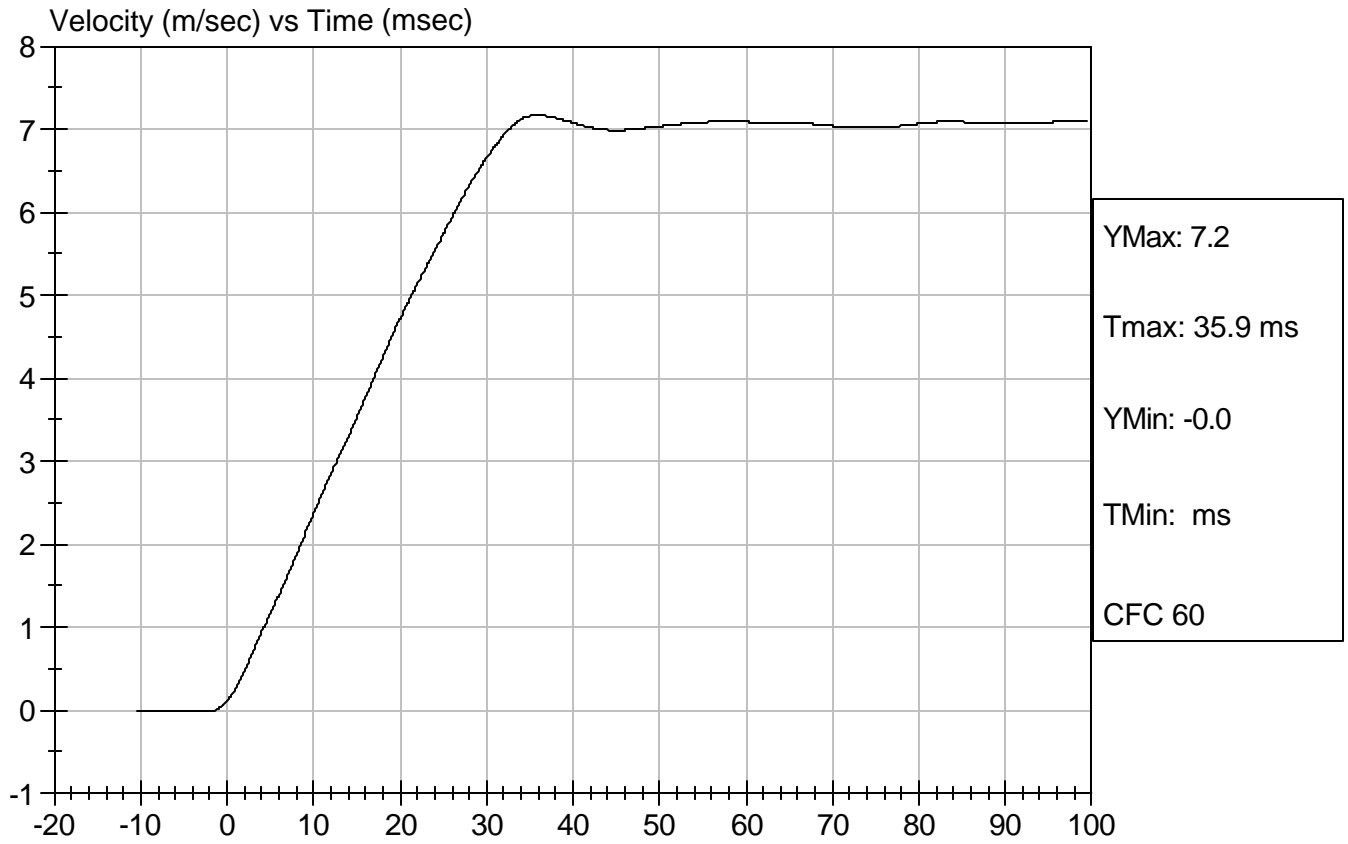
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.7	Pass
Laboratory Relative Humidity		%	10 to 70	14	Pass
Impact Velocity		m/s	6.89 to 7.13	7.10	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.38	Pass
	20 msec	m/s	4.12 to 5.10	4.73	Pass
	30 msec	m/s	5.73 to 7.01	6.66	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.09	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	76	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	61	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	15	Pass


 Laboratory Technician

01/18/2006

Test Date

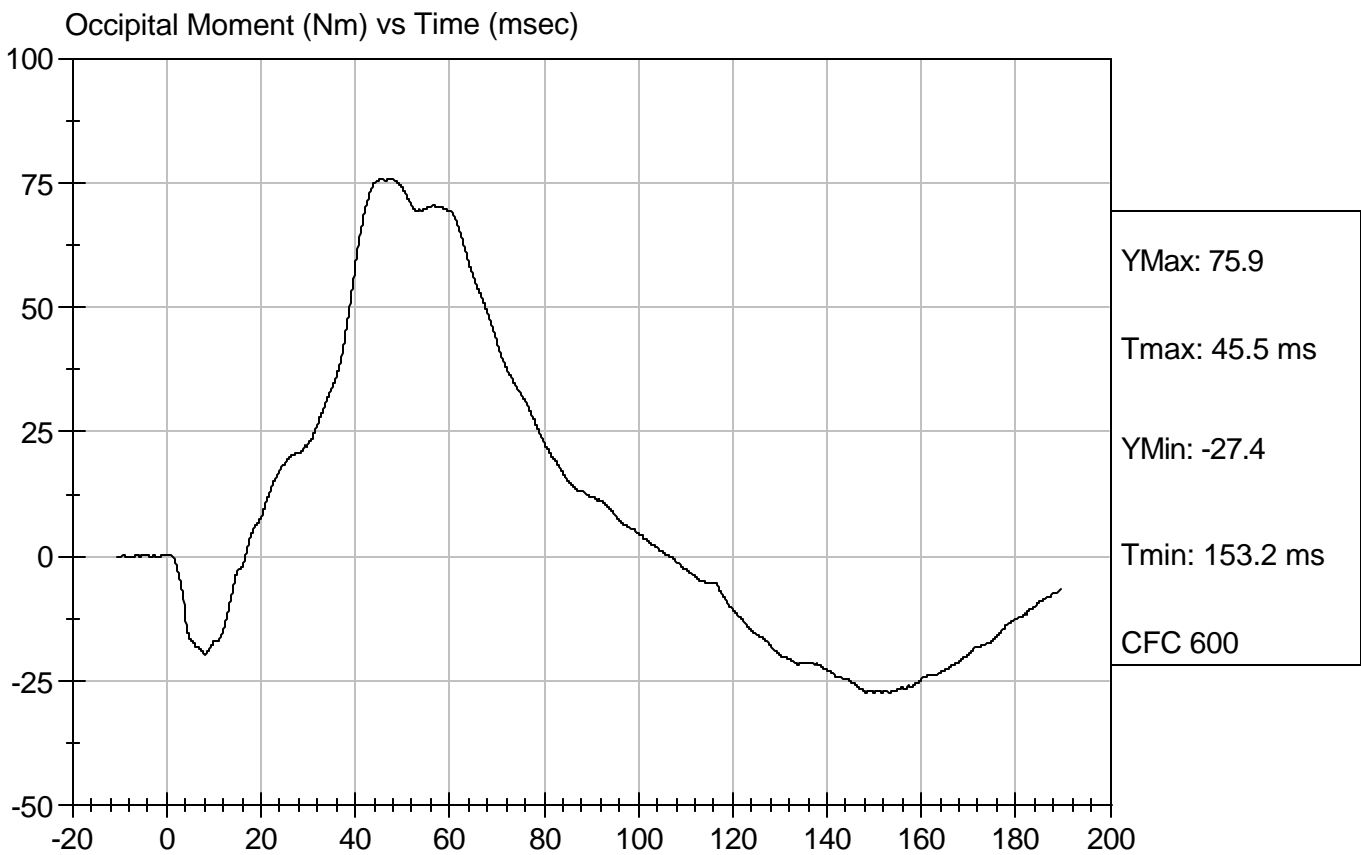
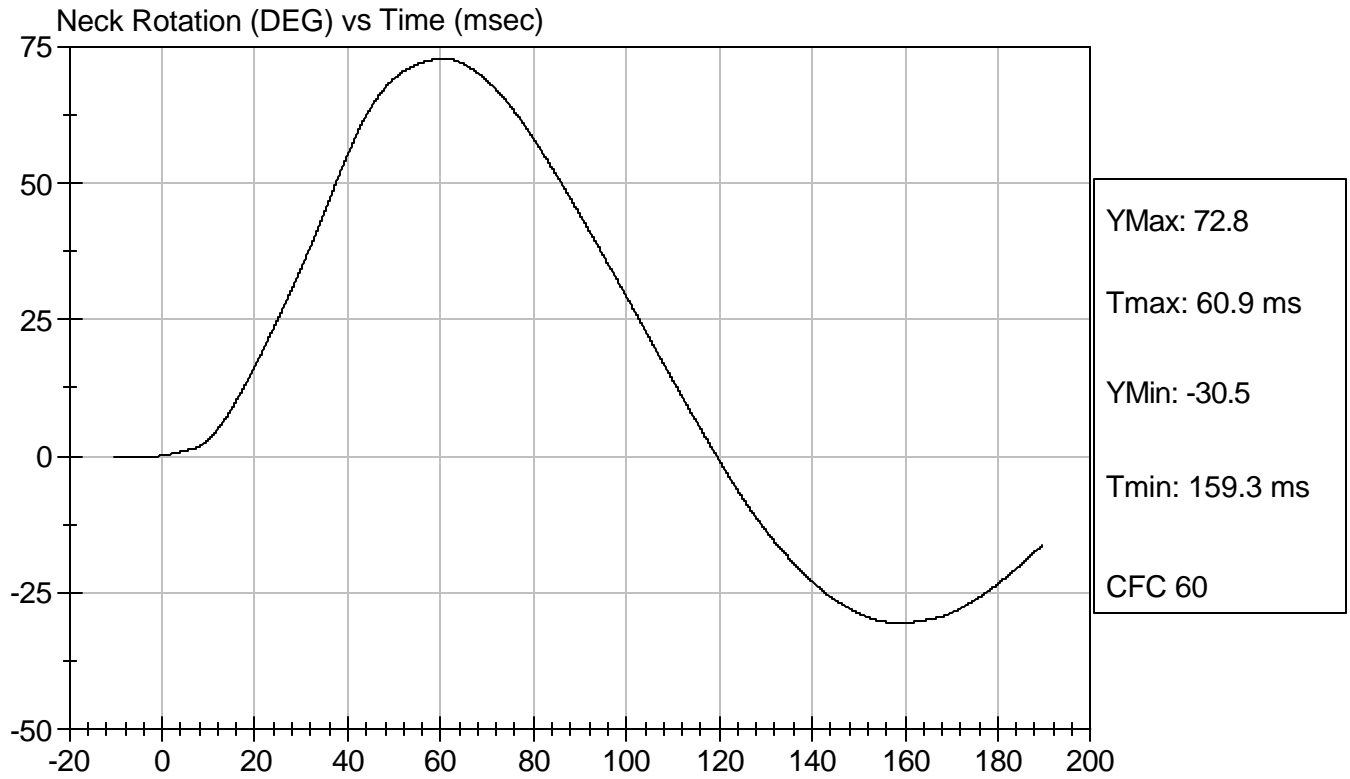

 Approved By





Test Desc: Neck Bending
Component ID: D06169

Test Date: 01/18/2006
Speed: 23.3 ft/sec, 7.10 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 Calibration Data Sheet
Side Impact Dummy
Head Drop Calibration (Lateral)

ATD Serial No: 904

Test I.D: D06251

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	25.0	Pass
Peak Resultant Acceleration	G's	120 to 150	145	Pass
Is Resultant Curve Unimodal?	Yes/No	15% of peak	Yes	Pass
Peak Longitudnal Acceleration	G's	+/- 15	-9	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

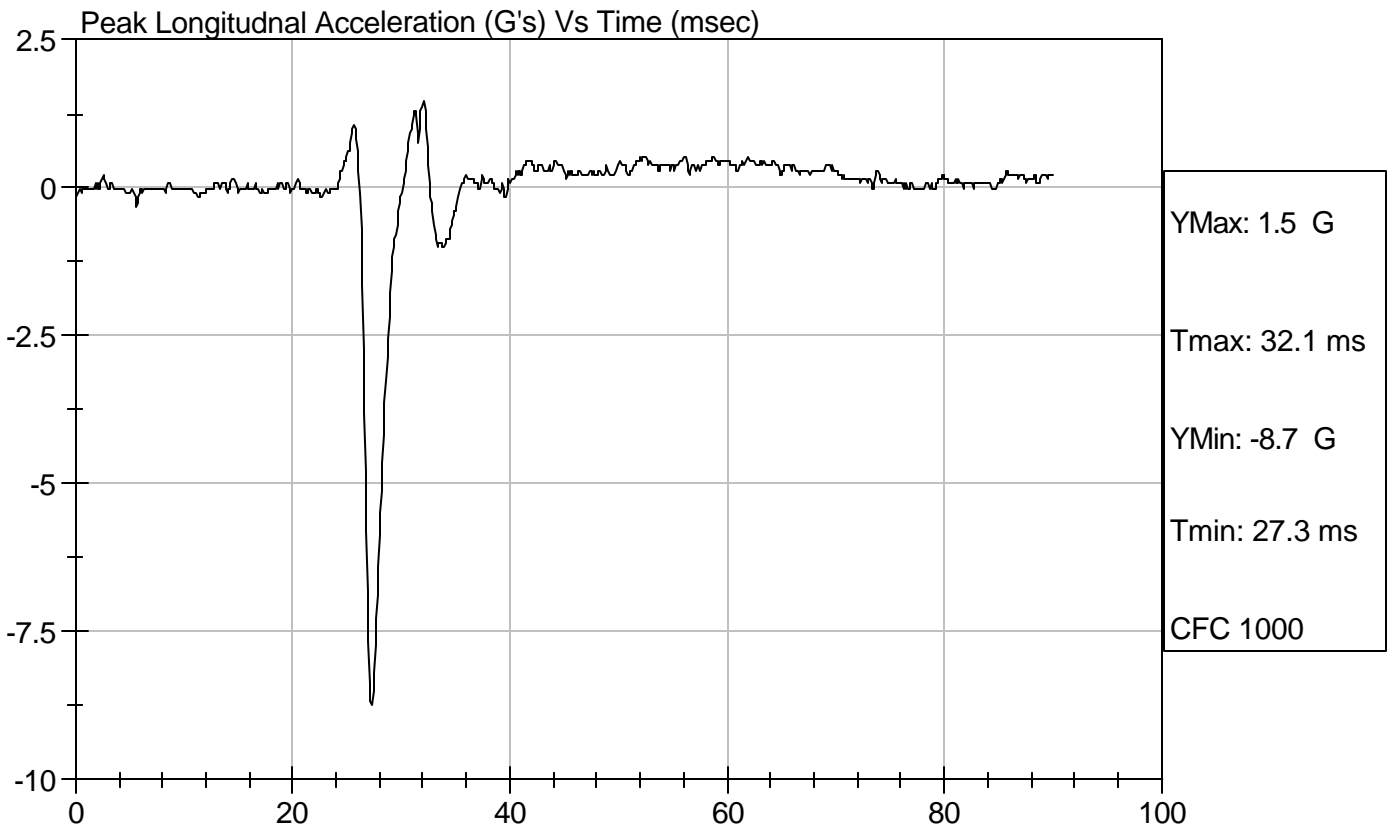
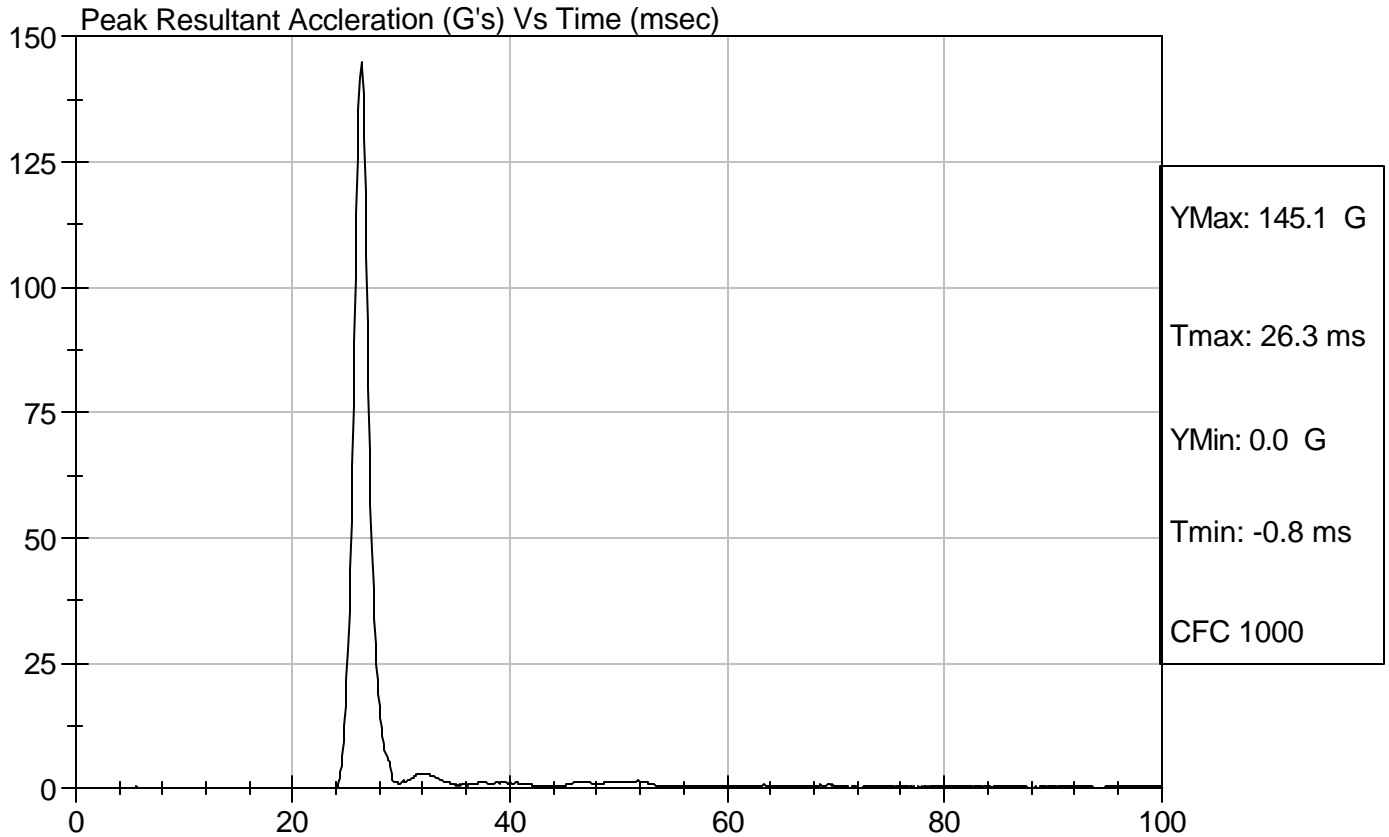


Test Description: Head Drop

Test Date: 02/01/2006

Component: D06251

Speed: 0 ft/s, 0.00 m/s



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D.: D06252

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Probe Velocity	m/s	4.22 - 4.31	4.25	Pass
Upper Rib	G's	37 - 46	39	Pass
Lower Rib	G's	37 - 46	37	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

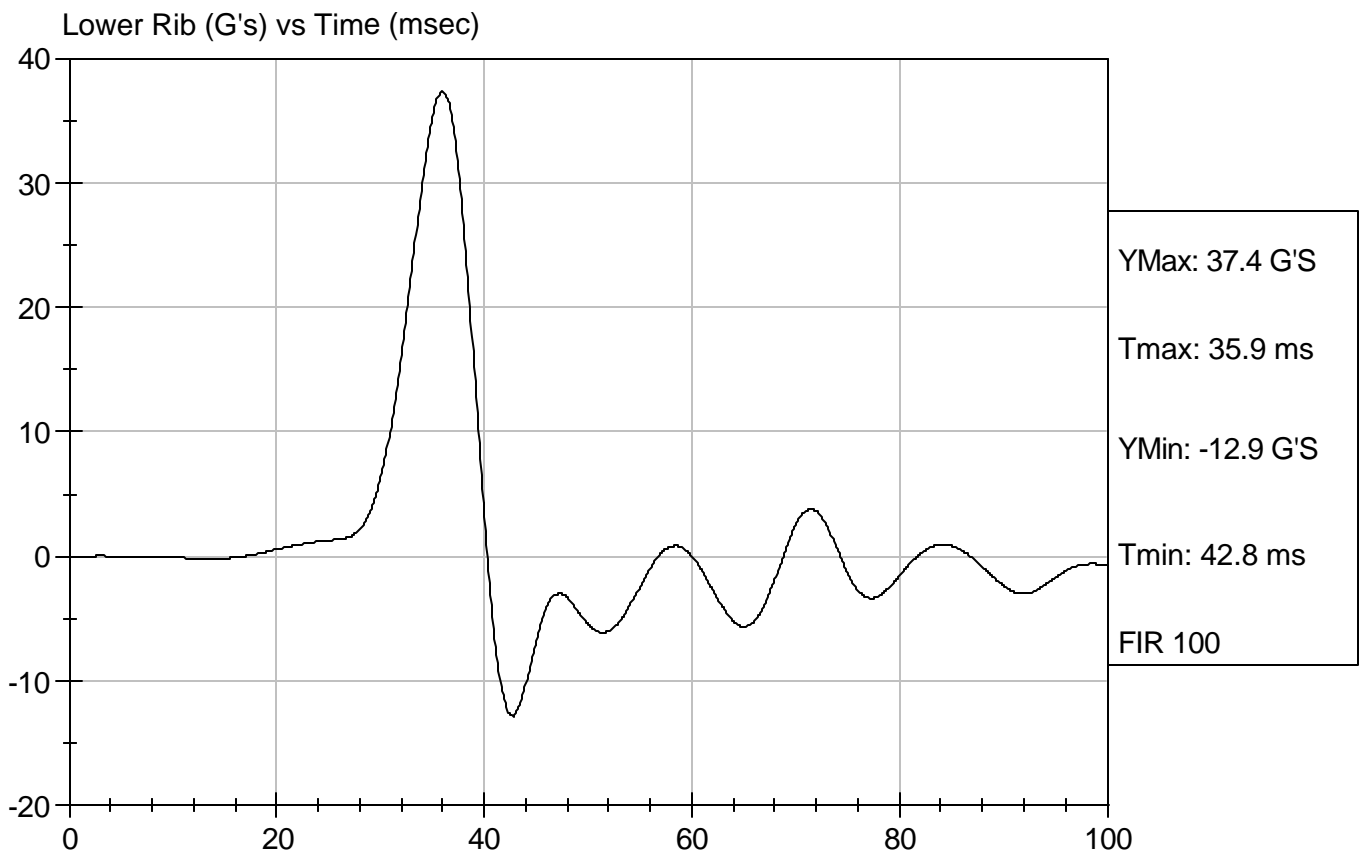
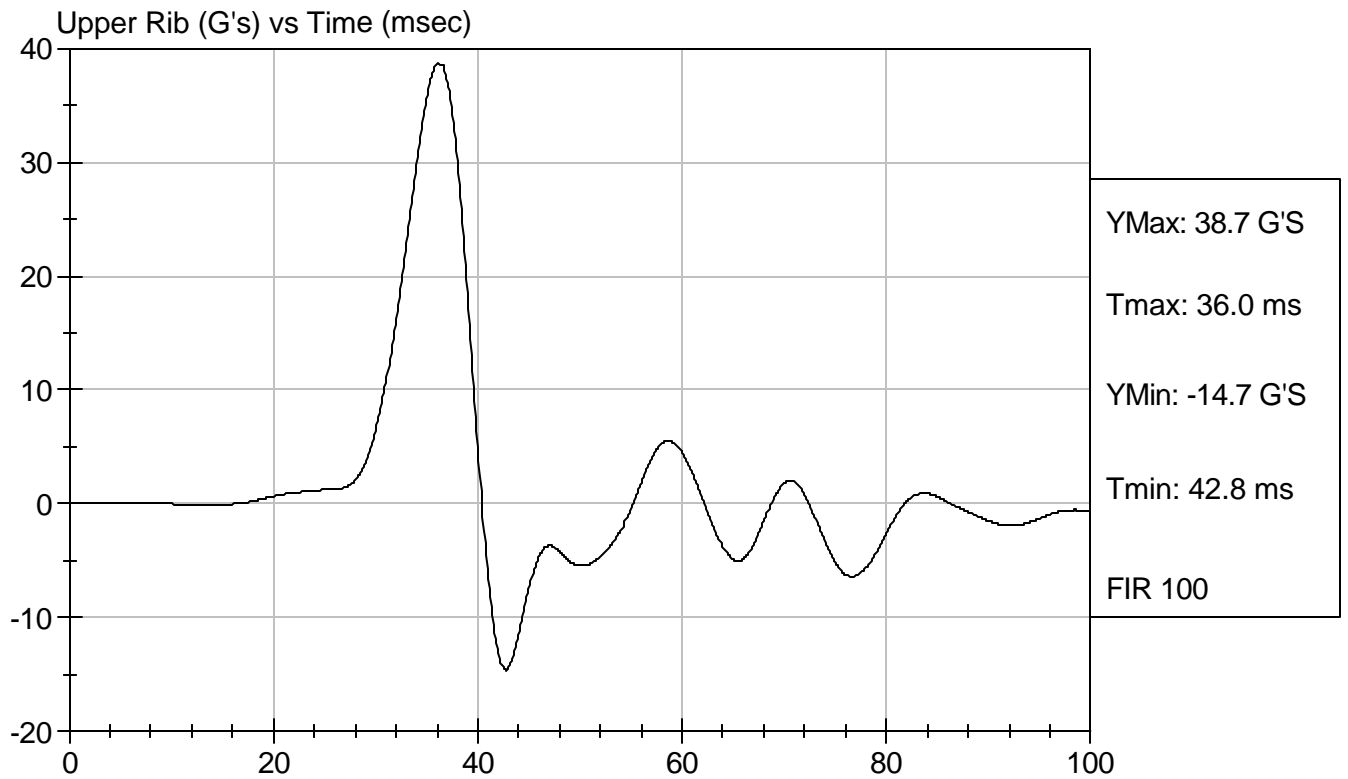
02/02/2006
Test Date

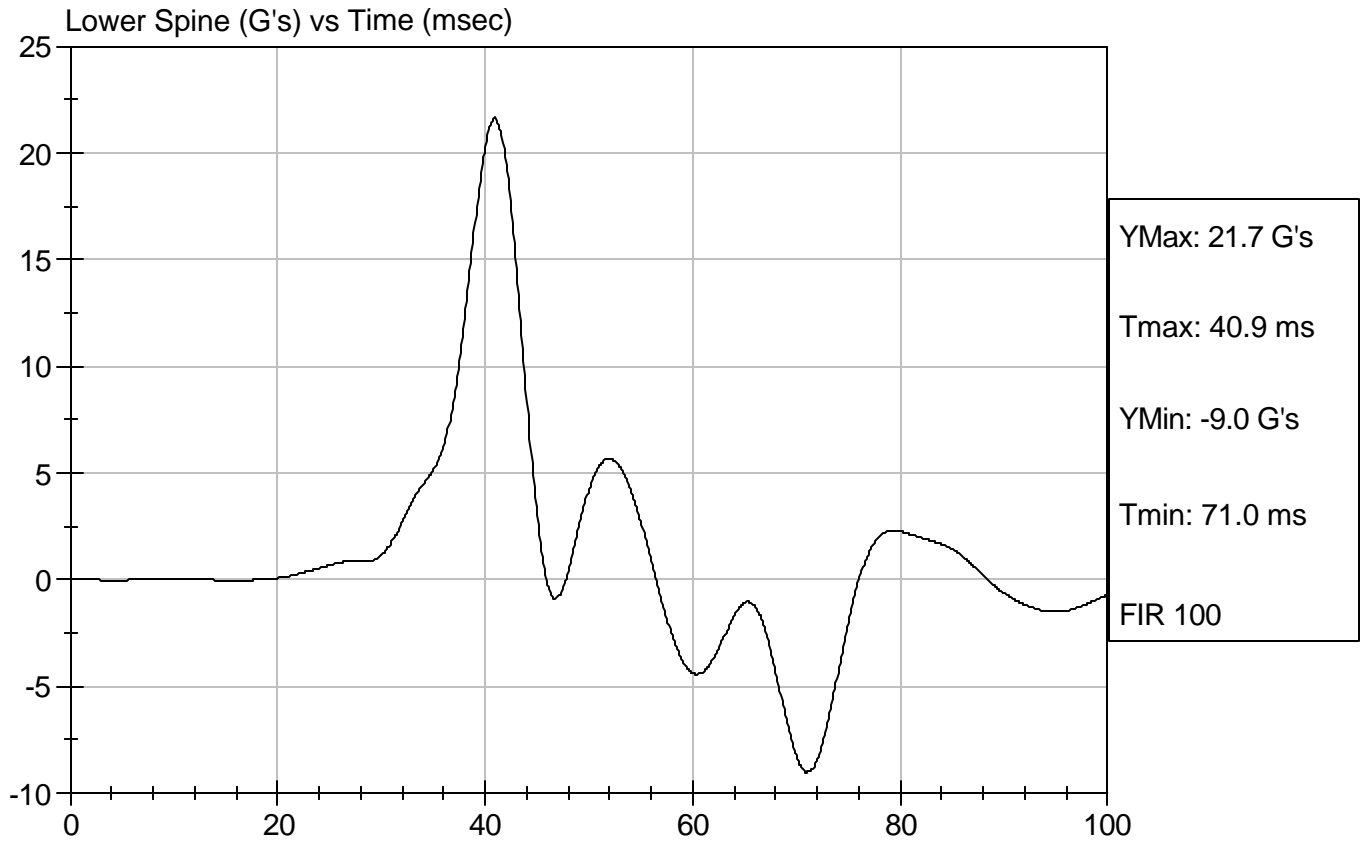
David Winkelbauer
Approved By



Test Desc: Thorax Impact
Component ID: D06252

Test Date: 02/02/2006
Speed: 13.93 ft/sec, 4.25 m/sec





SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

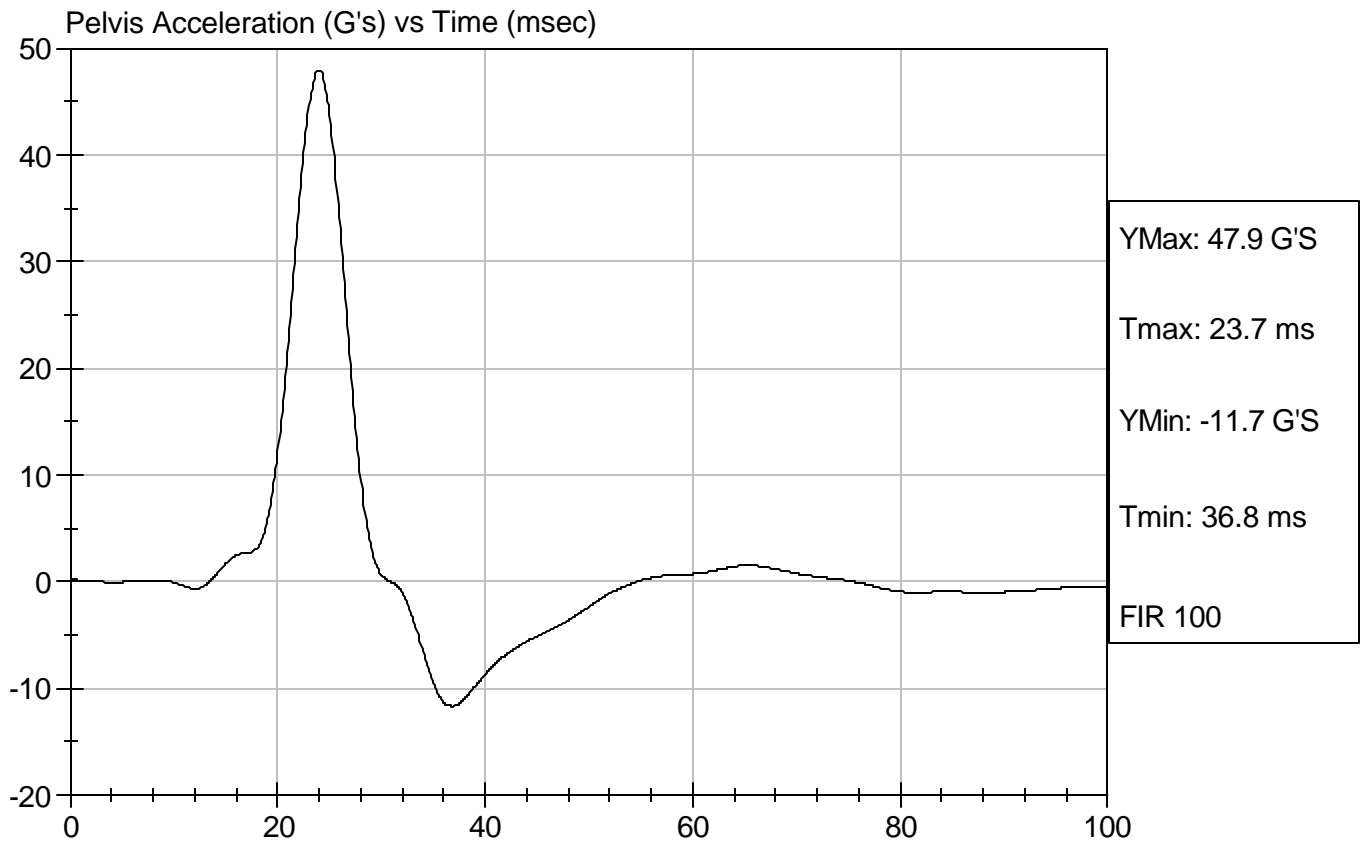
Test I.D: D06253

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	22	Pass
Probe Velocity	m/s	4.27 - 4.33	4.33	Pass
Pelvis Acceleration	G's	40 - 60	48	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

02/02/2006
Test Date

David Winkelbauer
Approved By



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

ATD Serial No: 904

Test I.D: D06254

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Force At 12.7 mm	N	104 - 162	122	Pass
Force At 19 mm	N	163 - 222	177	Pass
Force At 25.4 mm	N	222 - 280	249	Pass
Force At 33 mm	N	325 - 391	349	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

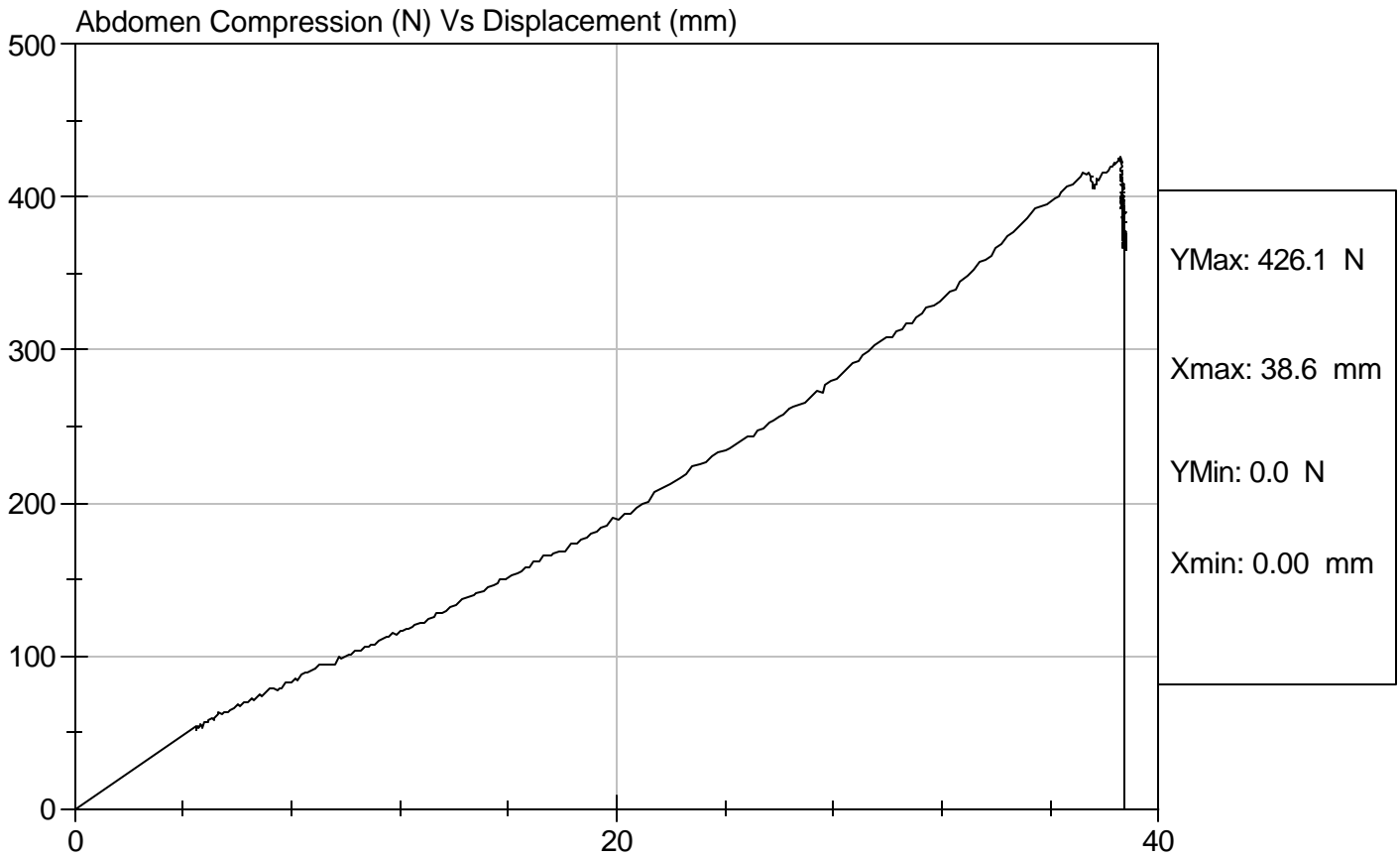


Test Description: Abdomen Compression

Test Date: 02/01/2006

Component: D06254

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D.: D06255

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	26	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	119.9	Pass
Force At 30 deg	N	151.2 - 204.6	188.9	Pass
Force At 40 deg	N	204.6 - 258.0	240.6	Pass
Return Angle	Deg	12 Maximum	3	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

02/01/2006
 Test Date

David Winkelbauer
 Approved By

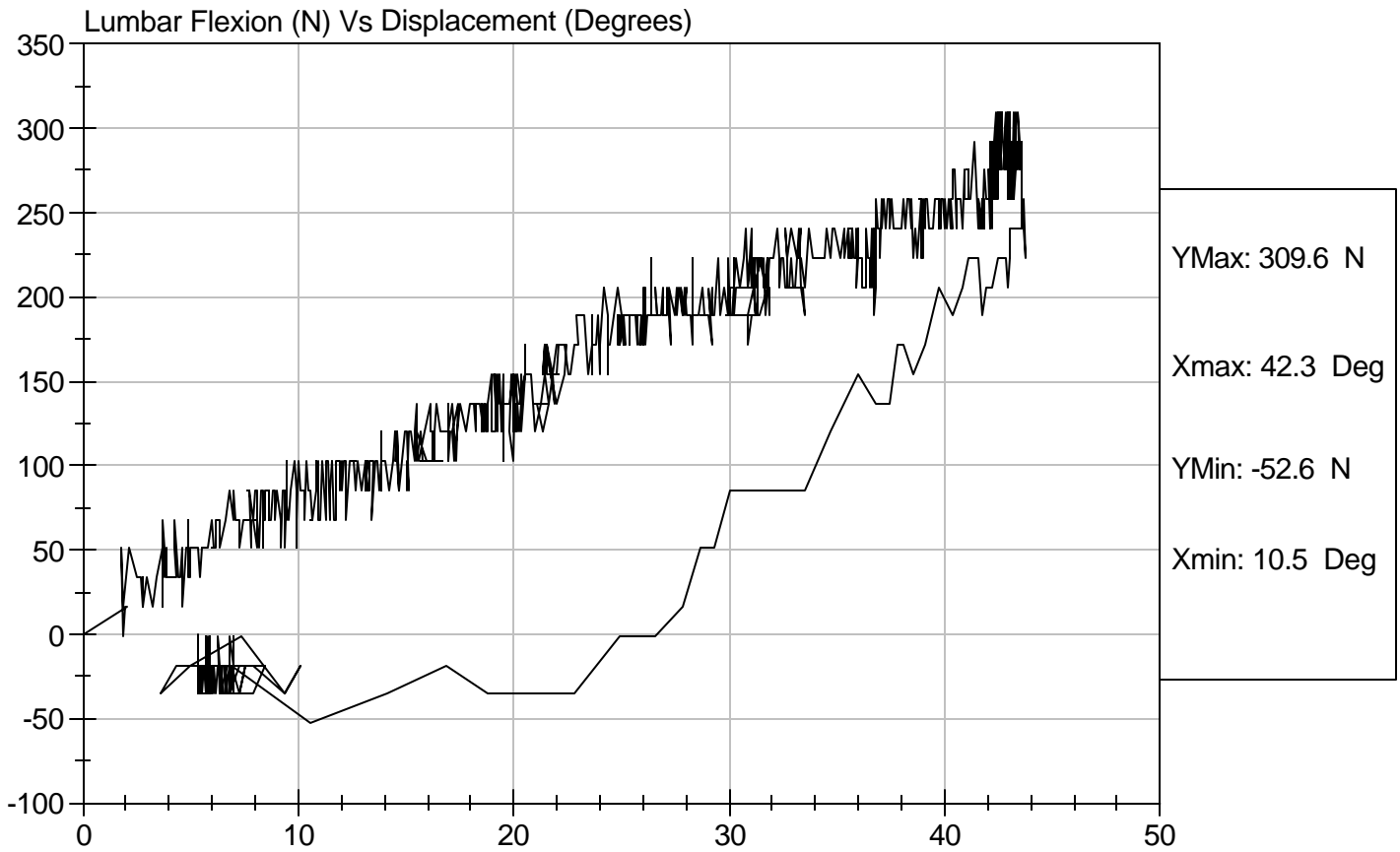


Test Description: Lumbar Flexion

Test Date: 02/01/2006

Component: D06255

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 904

Test I.D.: D06259

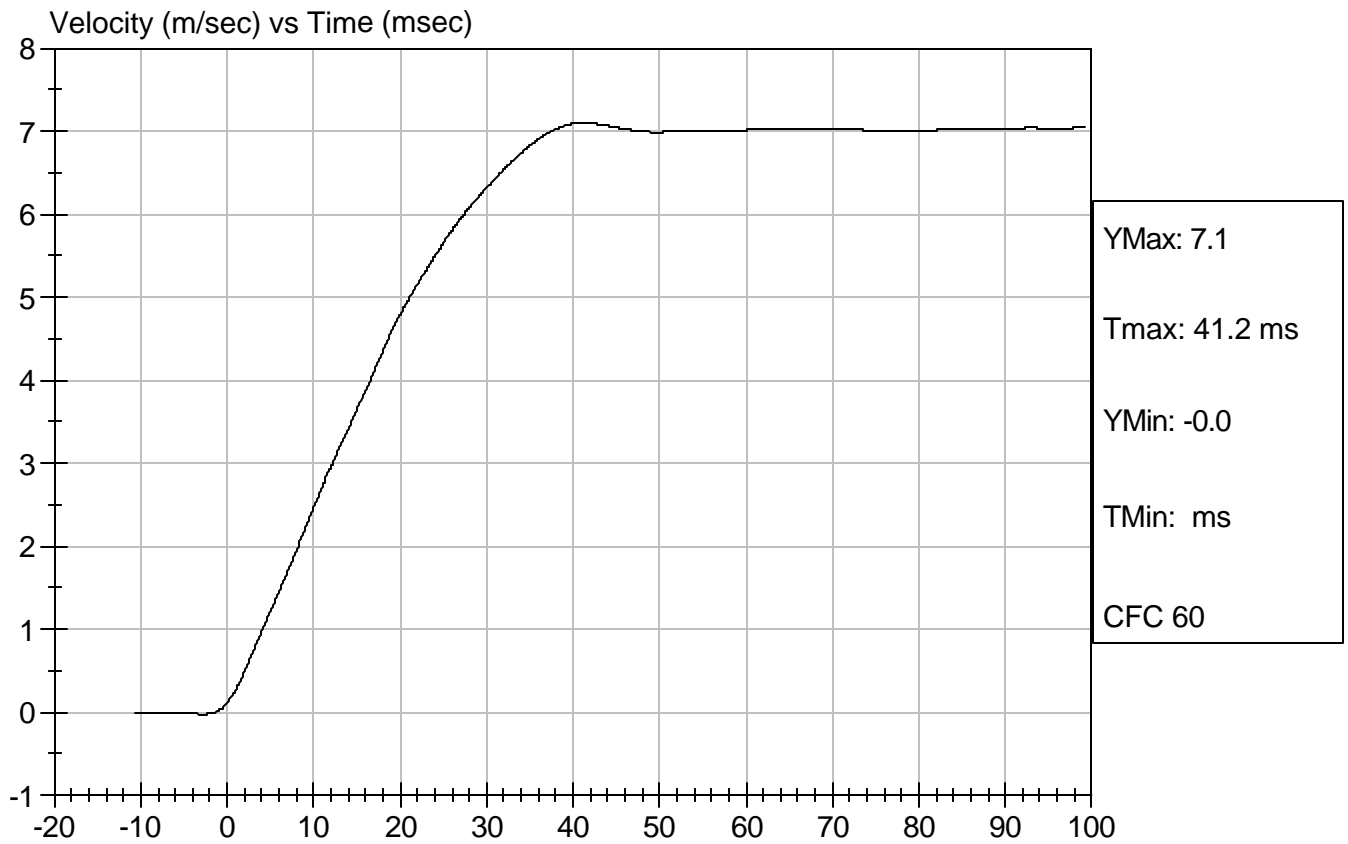
Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	20.9	Pass
Laboratory Relative Humidity		%	10 to 70	26	Pass
Impact Velocity		m/s	6.89 to 7.13	7.11	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.47	Pass
	20 msec	m/s	4.12 to 5.10	4.80	Pass
	30 msec	m/s	5.73 to 7.01	6.32	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.10	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	71	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	58	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	10	Pass


 Laboratory Technician

02/01/2006

Test Date

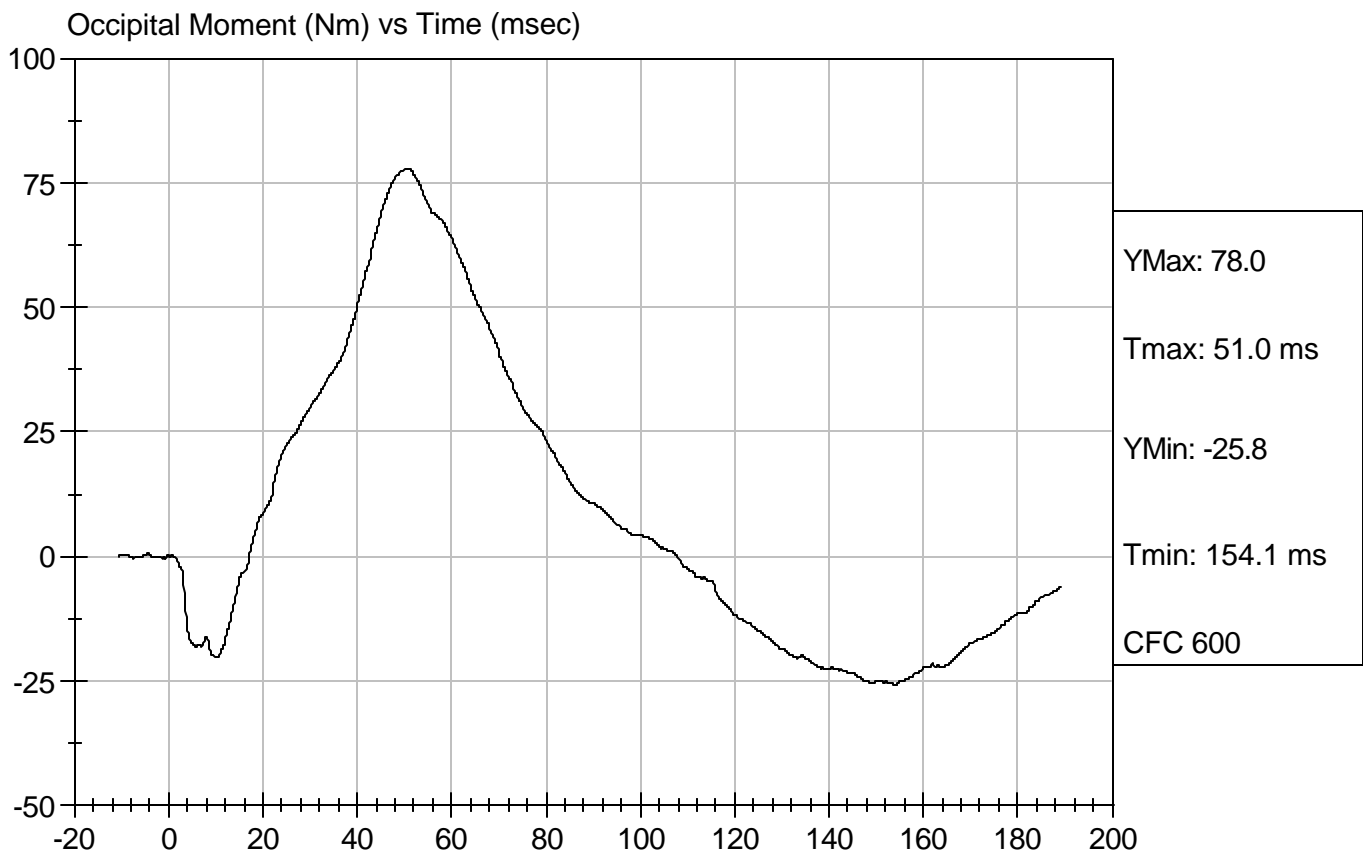
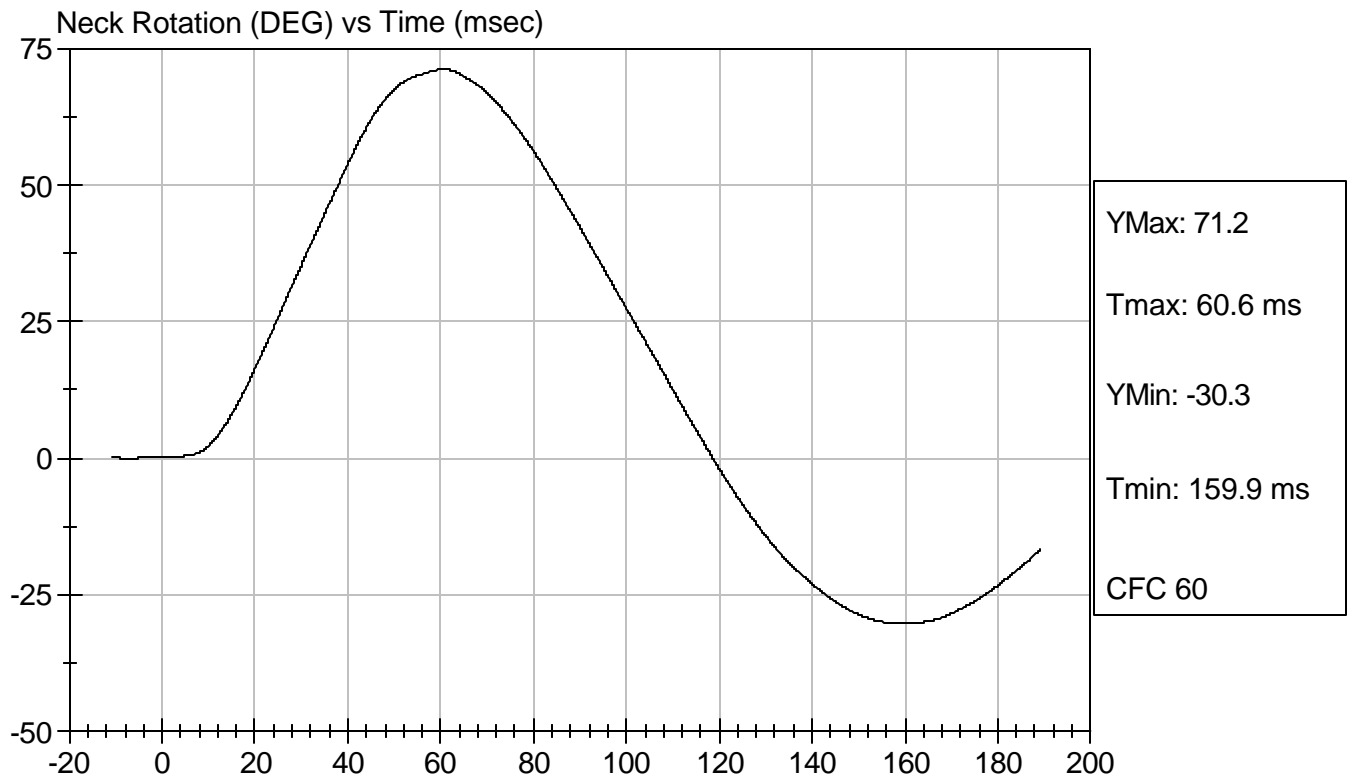

 Approved By





Test Desc: Neck Bending
Component ID: D06259

Test Date: 02/01/2006
Speed: 23.33 ft/sec, 7.11 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 904

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

Jessica Hall

 Laboratory Technician

David Winkelbauer

 Approved By

02/02/2006

 Test Date