

REPORT NUMBER: NCAPSIDE-MGA-2006-010

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**TOYOTA MOTOR CORPORATION
2007 TOYOTA CAMRY
NHTSA NUMBER: M75101**

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



Test Date: May 15, 2006

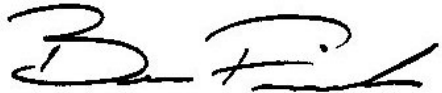
Report Date: June 23, 2006

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: 6/23/06

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Date: 6/23/06

Technical Report Documentation Page

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP side impact was conducted on the subject 2007 Toyota Camry 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 15, 2006. 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 271 mm at level 2. 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;">28.9</td> <td style="text-align: center;">56.1</td> </tr> <tr> <td>Left Lower Rib (LLR) Accel., g</td> <td style="text-align: center;">41.9</td> <td style="text-align: center;">54.5</td> </tr> <tr> <td>Lower Spine (T₁₂) Accel., g</td> <td style="text-align: center;">42.3</td> <td style="text-align: center;">53.6</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">42</td> <td style="text-align: center;">55</td> </tr> <tr> <td>Pelvis (PEV) Accel., g</td> <td style="text-align: center;">57.1</td> <td style="text-align: center;">51.0</td> </tr> <tr> <td>HIC</td> <td style="text-align: center;">224</td> <td style="text-align: center;">109</td> </tr> </tbody> </table>					<u>DRIVER</u>	<u>PASS.</u>	Left Upper Rib (LUR) Accel., g	28.9	56.1	Left Lower Rib (LLR) Accel., g	41.9	54.5	Lower Spine (T ₁₂) Accel., g	42.3	53.6	Thoracic Trauma Index (TTI)	42	55	Pelvis (PEV) Accel., g	57.1	51.0	HIC	224	109
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HIC	224	109																						
The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.																								
17. Key Words New Car Assessment Program (NCAP) Side Impact Side Impact Hybrid III Dummy (SID/HIII) Occupant Side Impact Protection		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, Room 5108 (NPO-230) 400 Seventh Street, S.W. Washington, D.C. 20590																						
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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the FY' 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 2007 Toyota Camry manufactured by Toyota Motor 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 2007 Toyota Camry 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 1676.1 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 15, 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 271 mm at level 2, 450 mm rearward of the left vertical impact point. The driver and passenger SID/HIIIs, Serial Nos. 904 and 272 respectively, were calibrated just prior to this test.

Appendix A contains the still photograph prints. Appendix B contains the SID/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	224	37.7	63.2	42	57.1
Passenger	109	38.9	74.9	55	51.0

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Information	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	No	None	
Side Torso Airbag	Yes	Yes	None	
Head Airbag	None		None	
Curtain Airbag	Yes	Yes	Yes	Yes

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

TEST NOTES

No valid data was collected for the following:

Driver Neck Force X
Right Front Sill Z
Left Front Sill Y – after 25 msec.
Driver Lower Rib Y Redundant – after 35 msec.

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

TEST VEHICLE INFORMATION

Make	Toyota
Model	Camry
Body Style	Sedan
NHTSA No.	M75101
VIN	JTNBE46K573013244
Color	Desert Sand Mica
Delivery Date	5/02/06
Odometer Reading (mile)	62
Dealer	Wilde Toyota
Transmission	Manual
Final Drive	Front
Number of Cylinders	4
Engine Displacement (L)	2.4
Engine Placement	Lateral
Automatic Door Locks (ADL)	Yes
Owner's Manual Details Instructions on Disabling ADLs	Yes

TEST VEHICLE OPTIONS

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Corporation
Date of Manufacture	03/06

GVWR (kg)	1937
GAWR Front (kg)	1210
GAWR Rear (kg)	1070

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Number Of Occupants	2	3		5
Capacity Wt. (VCW) (kg)				410
Cargo Wt. (RCLW) (kg)				69.8

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	426.8	300.3		469.5	404.6	
Right	kg	432.3	294.8		431.4	370.6	
Ratio	%	59.1	40.9		53.7	46.3	
Totals	kg	859.1	595.1	1454.2	900.9	775.2	1676.1

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1454.2
Weight of 2 P572M ATDs	kg	161.5
Rated Cargo/Luggage Weight (RCLW)	kg	69.8
Calculated Vehicle Target Weight (TVTW)	kg	1685.5

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

Weight of Ballast in Cargo Area: 34.0 kg

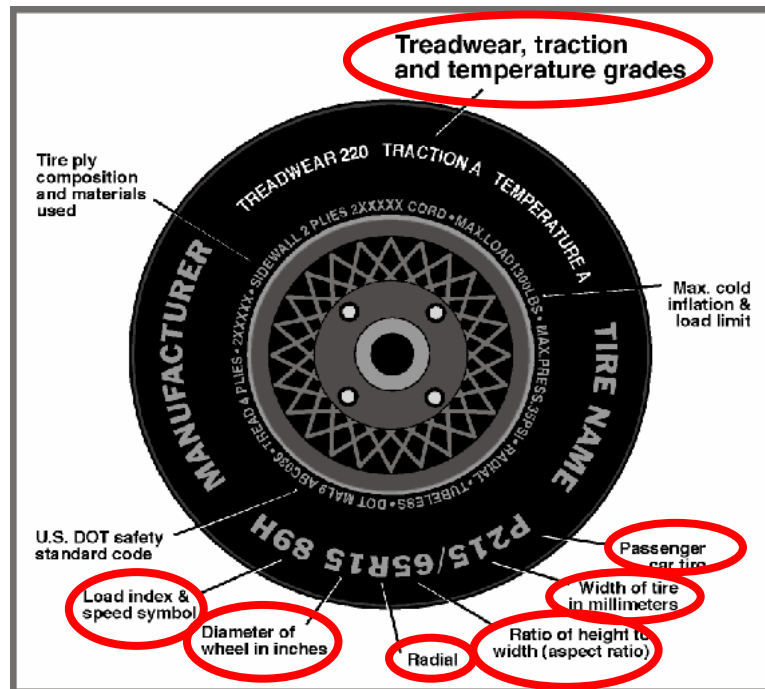
TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	726	727	726	726	1137
As Tested	mm	715	723	679	692	1285
Fully Loaded	mm	711	723	679	691	

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel Base	mm	2778
Target Impact Point Aft of Front Axle	mm	449
Actual Impact Point Aft of Front Axle	mm	463

TEST VEHICLE TIRE INFORMATION



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	350	350
Cold / Test Pressure (kPa)	210	210
Recommended Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Turanza	Turanza
Tire Type	M + S	M + S
Tire Width (mm)	215	215
Ratio of Height to Width (aspect ratio)	60	60
Radial	Yes	Yes
Wheel Diameter	16	16
Load Index & Speed Symbol	94V	94V
Treadwear	260	260
Traction Grade	A	A
Temperature Grade	A	A

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

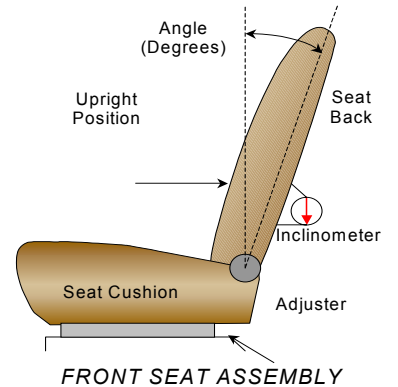
NHTSA No. M75101
 Test Date: 5/15/06

NORMAL DESIGN RIDING POSITION

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

Driver seat back angle: 5th detent, 1st as one

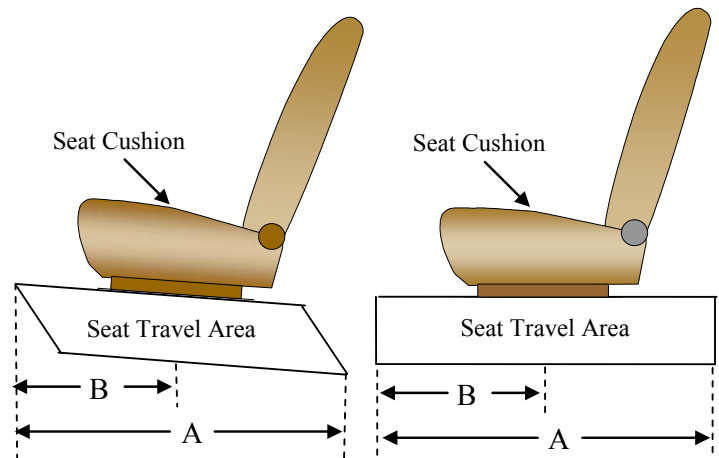
Passenger seat back angle: non adjustable



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	18 detents	9, first as 1
Rear Seat	non adjustable	non adjustable



DATA SHEET NO. 3 (CONTINUED)

TEST VEHICLE INFORMATION

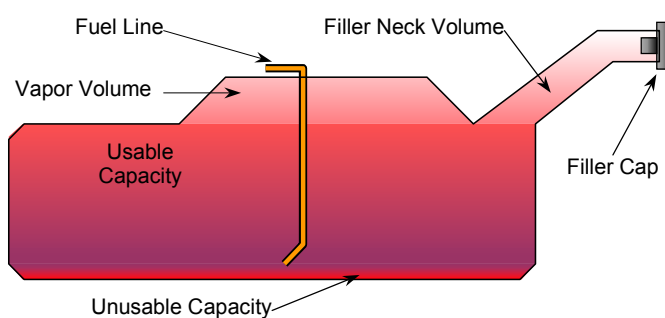
Test Vehicle: 2007 Toyota Camry
Test Program: NCAP Side Impact

NHTSA No. M75101
Test Date: 5/15/06

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	64.7
1/3 of Usable Capacity	23.3

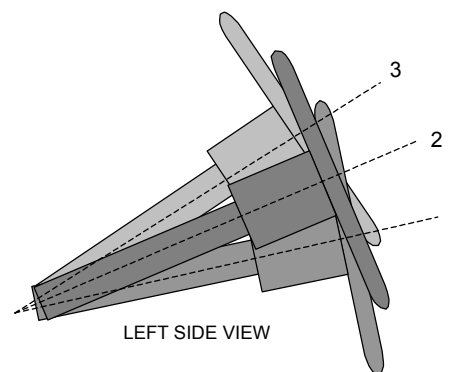
The vehicle is equipped with electric fuel pump.
The fuel pump is activated when the ignition is turned on.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



STEERING COLUMN ASSEMBLY

	Fore/Aft (mm)	Degrees
Lowermost position No. 1	0	23.0
Geometric center position No. 2	20	24.7
Uppermost position No. 3	40	26.4

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

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	62.0
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	89.8

POST TEST OBSERVATIONS
MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	14 right
Vertical Offset	mm	+/-20	3 up

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/HIII	Rear Seat SID/HIII
Dummy Type / Serial No.	SID HIII / 904	SID HIII / 272
Head Contact	Curtain Airbag, Headrest	Curtain Airbag, Headrest
Upper Torso Contact	Side Airbag, 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 Rear Passenger Window Broke
Other Notable Effects	None

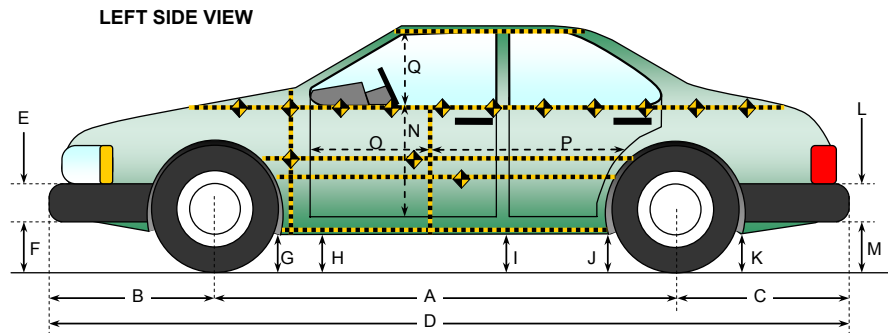
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Occupant Location 01		Occupant Location 04	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	No	None	
Side Torso Airbag	Yes	Yes	None	
Head Airbag	None		None	
Curtain Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes		None	
Seat Belt Load Limiter	Yes		None	

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



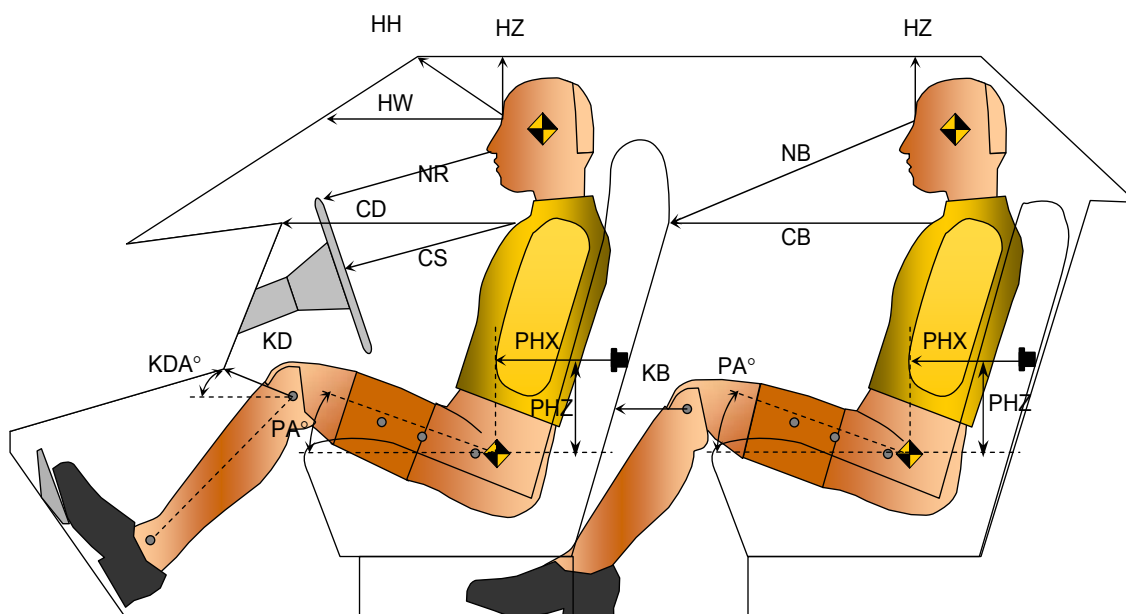
All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2778	2768	10
B	Front Axle to FSOV	928	918	10
C	Rear Axle to RSOV	1034	1081	-47
D	Total Length at Centerline	4740	4767	-27
E	Front Bumper Thickness	187	187	0
F	Front Bumper Bottom to Ground	385	395	-10
G	Sill Height at Front Wheel Well	178	165	13
H	Sill Height at Front Door Leading Edge	200	208	-8
I	Sill Height at "B" Pillar	208	218	-10
J1	Sill Height at Rear Wheel Well	159	151	8
J2	Pinch Weld Height at Rear Wheel Well	199	203	-4
K	Sill Height Aft of Rear Wheel Well	209	222	-13
L	Rear Bumper Thickness	250	250	0
M	Rear Bumper Bottom to Ground	375	382	-7
N	Sill Height to Window Bottom Sill	724	589	135
O	Front Door Leading Edge to Impact CL	867	820	47
P	Rear Door Trailing Edge to Impact CL	1275	1248	27
Q	Front Window Opening	446	415	31
R	Right Side Length	3885	3886	-1
S	Left Side Length	3884	3837	47
T	Vehicle Width at "B" Post	1806	1628	178

DATA SHEET NO. 7
SID/HII LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

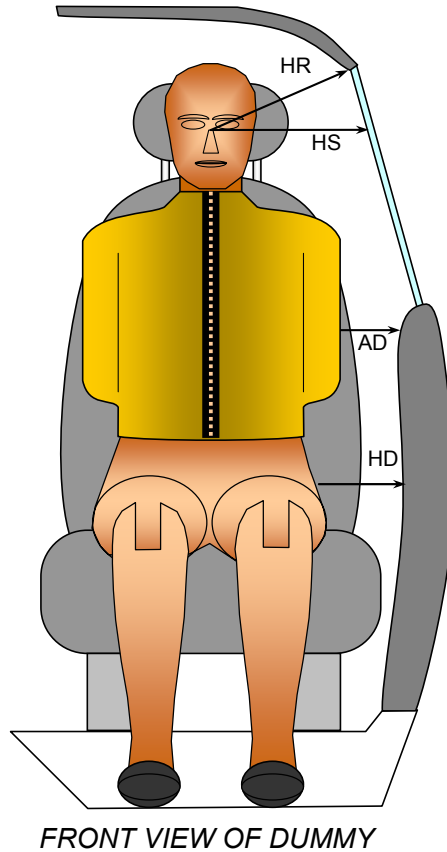


Driver Code	Pass. Code	Measurement Description	Driver S/N 904		Passenger S/N 272	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	403			
HW		Head to Windshield	677			
HZ	HZ	Head to Roof	172		143	
NR	NB	Nose to Rim/Nose to Seatback	491		640	
CD	CB	Chest to Dash or Seatback	571		558	
CS		Chest to Steering Wheel	372			
KDL	KBL	Left Knee to Dash or Seatback	172	15.2	212	25.5
KDR	KBR	Right Knee to Dash or Seatback	146	24.5	226	27.0
PA	PA	Pelvic Angle		24.3		24.5
PHX	PHX	H-Point to Striker (X-Axis)	202		384	
PHZ	PHZ	H-Point to Striker (Z-Axis)	263		355	

DATA SHEET NO. 8
SID/HIII LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

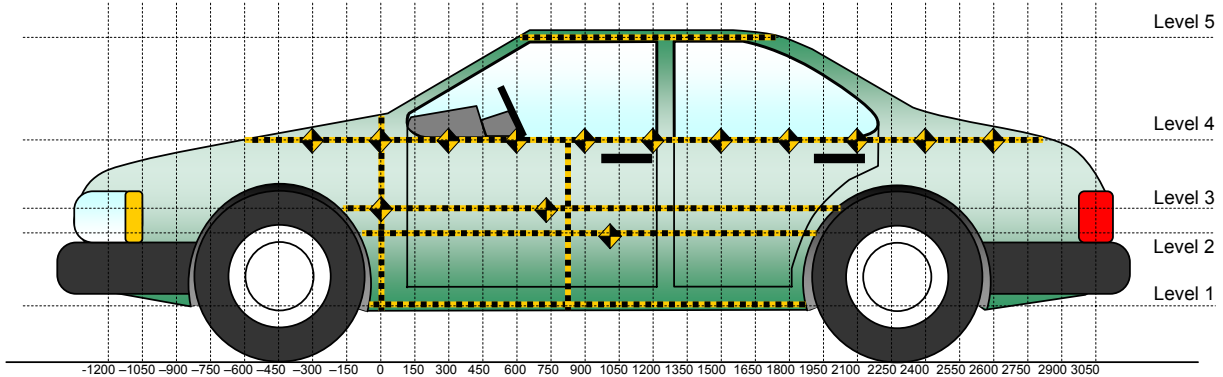


Code	Measurement Description	Units	Driver S/N 904	Passenger S/N 272
HR	Head to Side Header	mm	200	189
HS	Head to Side Window	mm	304	325
AD	Arm to Door	mm	81	128
HD	H-Point to Door	mm	151	152

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

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



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	58	1650	1380
4	Window Sill	149	1650	969
3	Mid Door	261	450	620
2	Occupant H-Point	271	450	570
1	Sill Top	135	300	290
	Maximum Penetration	271		

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-750				280					288					8	
-600				259					272					13	
-450				261					281					20	
-300				267					292					25	
-150			189	279				221	307				32	28	
0	211	197	199	279		257	335	331	310		46	138	132	31	
150	220	199	198	281		316	418	396	319		96	219	198	38	
300	224	196	195	276		359	453	447	346		135	257	252	70	
450	220	194	193	275		354	465	454	367		134	271	261	92	
600	219	192	191	271		351	461	449	382		132	269	258	111	
750	218	191	190	272	493	340	448	441	389	522	122	257	251	117	29
900	219	191	190	269	491	332	440	437	392	526	113	249	247	123	35
1050	221	192	190	271	494	320	436	429	396	531	99	244	239	125	37
1200	222	193	191	271	495	264	377	362	402	539	42	184	171	131	44
1350	227	196	194	274	497	247	390	377	405	547	20	194	183	131	50
1500	231	199	197	276	496	238	388	389	415	549	7	189	192	139	53
1650	235	204	200	278	495	234	365	373	427	553	-1	161	173	149	58
1800	231	206	204	282	495	287	353	364	396	540	56	147	160	114	45
1950		201	202	288	497		272	299	349	529		71	97	61	32
2100			190	283	502			271	329	530			81	46	28
2250				300					312					12	
2400				309					346					37	
2550				323					360					37	
2700				341					370					29	

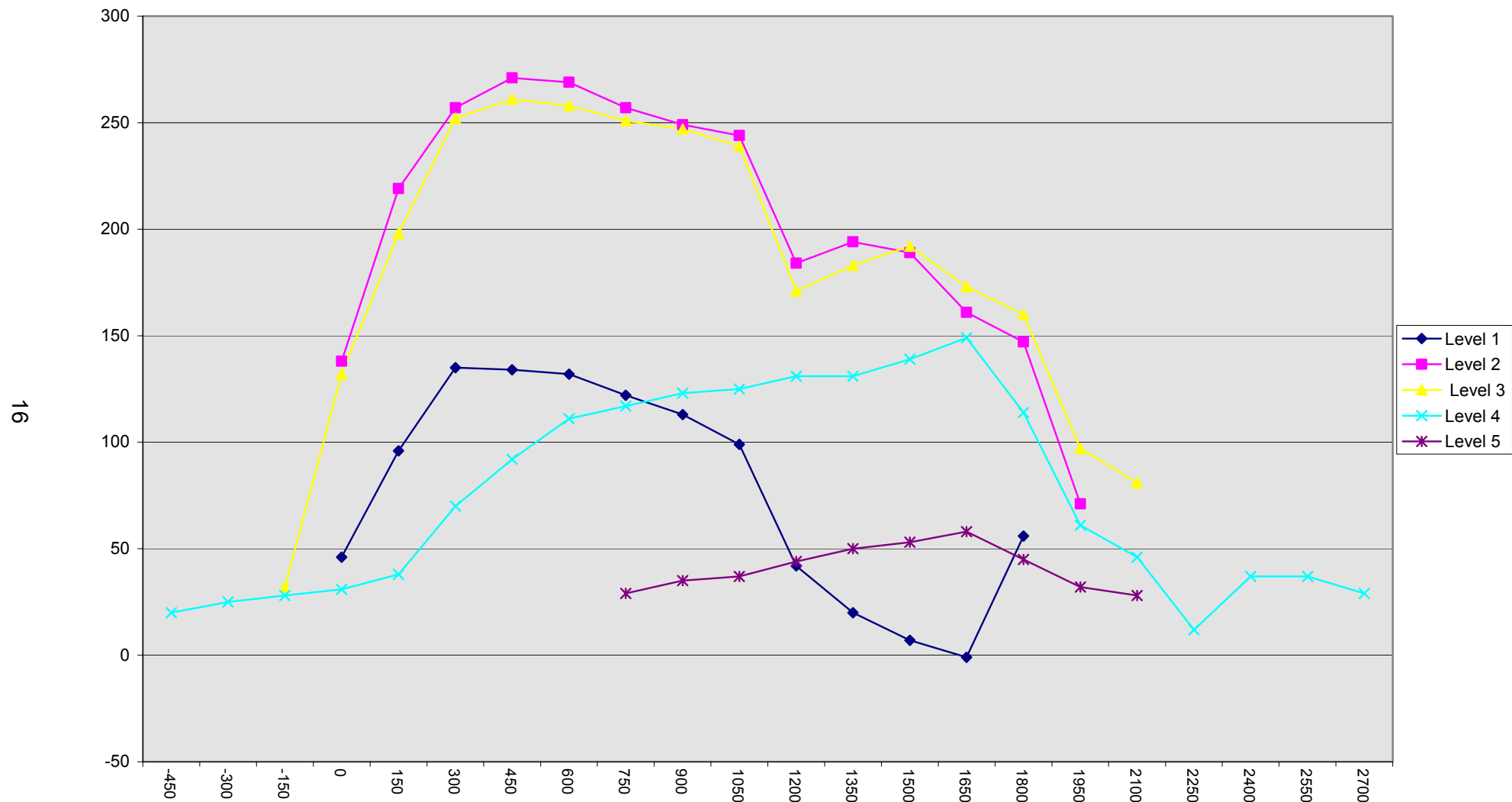
Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body

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

Test Vehicle: 2007 Toyota Camry
Test Program: NCAP Side Impact

NHTSA No. M75101
Test Date: 5/15/06

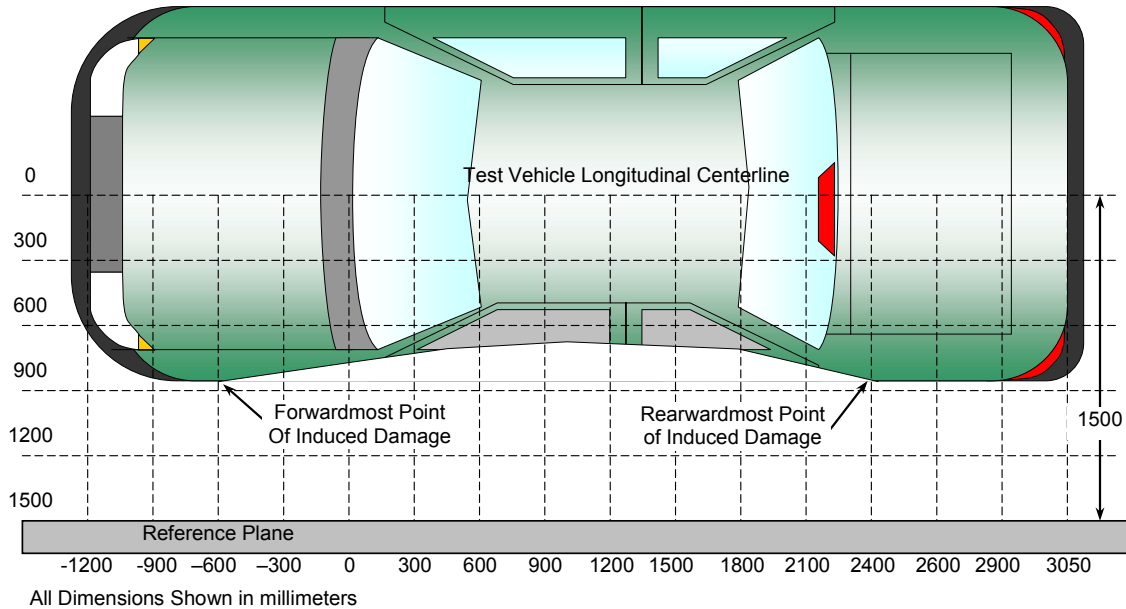


DATA SHEET NO. 11

VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	2700	4	341	370	29
2	2036	2	201	284	87
3	1293	2	194	388	194
4	640	2	191	459	268
5	-54	3	194	227	33
6	-750	4	280	288	8

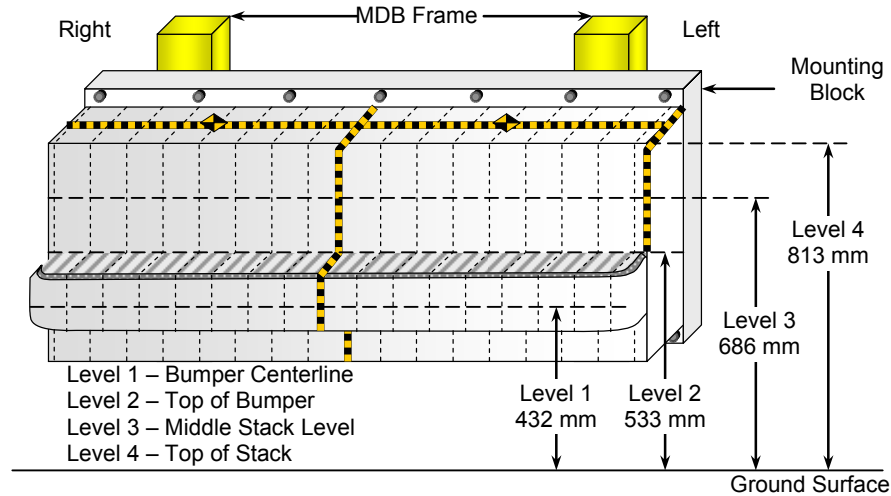
Reference plane is parallel to test vehicle longitudinal centerline.
 Given dimensions = Reference plane to car body.

DATA SHEET NO. 12

DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



DEFORMABLE BARRIER STATIC CRUSH

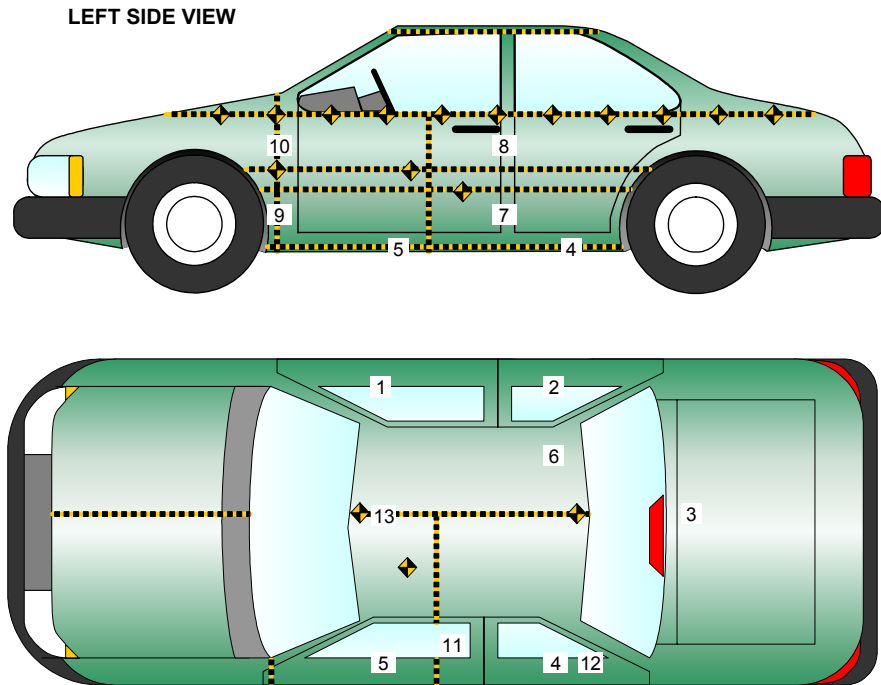
Stack Level	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
1	178	167	158	142	132	128	123	123	117	112	108	103	107	106	109	113	117
2	111	106	101	83	67	47	43	45	45	43	43	45	48	51	53	59	70
3	65	29	16	17	22	27	43	57	30	17	16	15	16	18	29	41	67
4	67	25	9	10	24	45	80	88	58	38	32	31	33	43	70	96	122

All Dimensions in mm

DATA SHEET NO. 13
VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



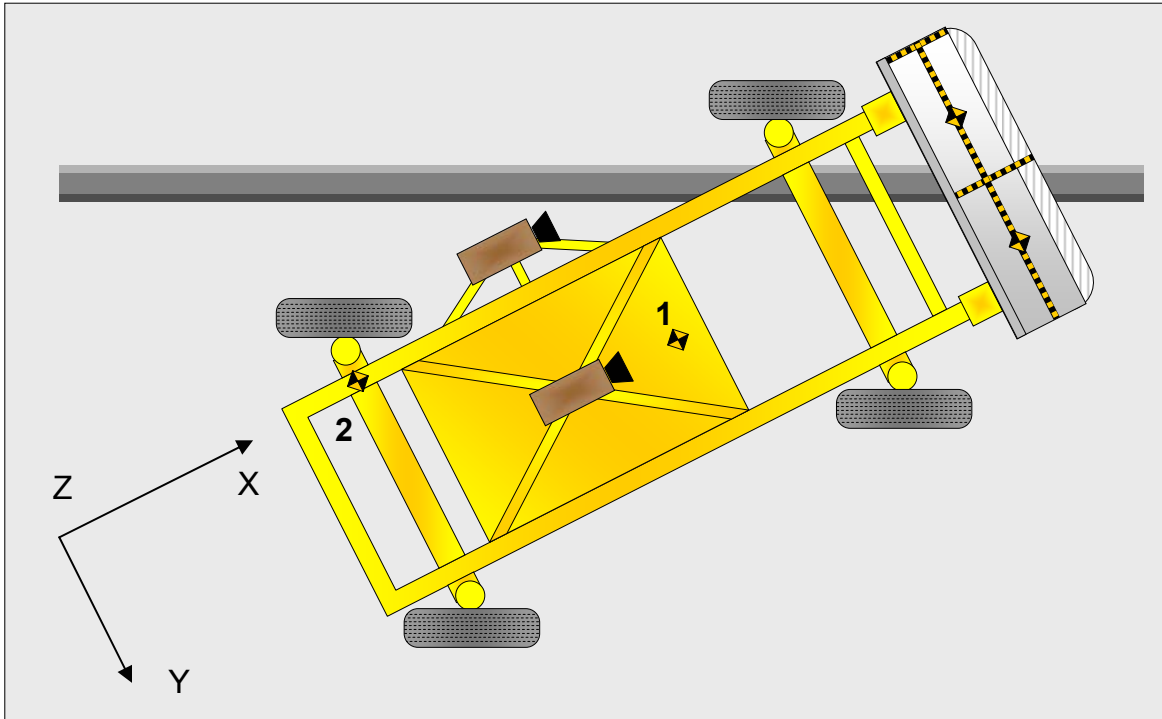
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Right Sill at Front Seat	2768	730	234
2	Right Sill at Rear Seat	1785	720	262
3	Rear Floorpan Above Axle	1075	0	560
4	Left Sill at Rear Door	1816	-730	260
5	Left Sill at Front Door	2775	-720	245
6	Rear Occupant Compartment	1853	335	385
7	Left Lower B-Post	2174	-505	503
8	Left Middle B-Post	2172	-805	807
9	Left Lower A-Post	3260	-724	381
10	Left Middle A-Post	3278	-754	883
11	Front Seat Track			
12	Rear Seat Track or Structure			
13	Vehicle CG	2665	0	290

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

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



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: 2007 Toyota Camry
Test Program: NCAP Side Impact

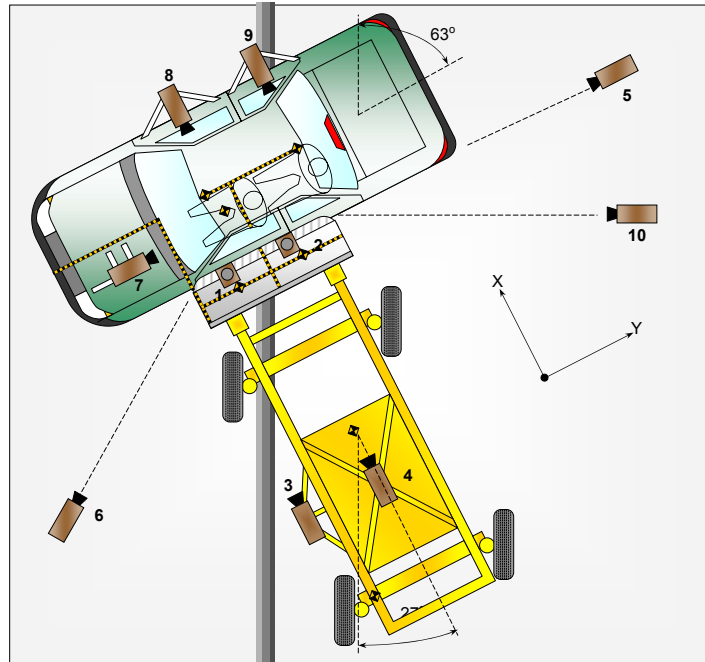
NHTSA No. M75101
Test Date: 5/15/06

	Elements	Pre-Test (mm)
1	Total Length	4740
2	Total Width	1806
3	Bumper Top Height	572
4	Bumper Bottom Height	385
5	Longitudinal Member Top Height	550
6	Distance between Longitudinal Members	1114
7	Longitudinal Member Width	870
8	Engine Top Height	855
9	Engine Bottom Height	198
10	Engine and gearbox width	850
11	Front bumper-engine distance	446
12	Front shock absorber fixing height	949
13	Bonnet leading edge height	828
14	Front shock absorber fixing width	1198
15	Front bumper – front axle distance	930
16	Front axle – a pillar distance	423
17	A-pillar – B-pillar distance	1160
18	B-Pillar – rear axle distance	1177
19	B-pillar – C-pillar distance	1122
20	Roof sill bottom height	1433
21	Roof sill top height	1470
22	Floor sill bottom height	221
23	Floor sill top height	318

DATA SHEET NO. 16
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06



No.	Camera View	Location (mm)			Lens (mm)	Film Speed (fps)
		X	Y	Z		
1	Overhead Close-up	675	150	4840	24	1000
2	Overhead Overall	-275	1095	4840	24	1000
3	MDB Onboard, Impact Point Close-up				50	1000
4	MDB Onboard, Centerline of Impact				25	1000
5	Right Side, Ground Level, Overall	-2275	6090	1390	35	1000
6	Left Side, Ground Level, Overall	2125	-3820	1420	19	1000
7	Vehicle Onboard Front SID/HIII, Front				12.5	1000
8	Vehicle Onboard Front SID/HIII, Side				8	1000
9	Vehicle Onboard Rear SID/HIII, Side				8	1000
10	Real Time Coverage				13	24

Reference Points X - Impact Line
 Y - MDB Left Edge Impact Point
 Z - Ground Plane

DATA SHEET NO. 17
SUMMARY OF FMVSS 301 DATA

Test Vehicle: 2007 Toyota Camry
 Test Program: NCAP Side Impact

NHTSA No. M75101
 Test Date: 5/15/06

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21° C Test Time: 12:24 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	300	First 5	0
90° to 180°	108	300	First 5	0
180° to 270°	112	300	First 5	0
270° to 360°	112	300	First 5	0

APPENDIX A
PHOTOGRAPHS

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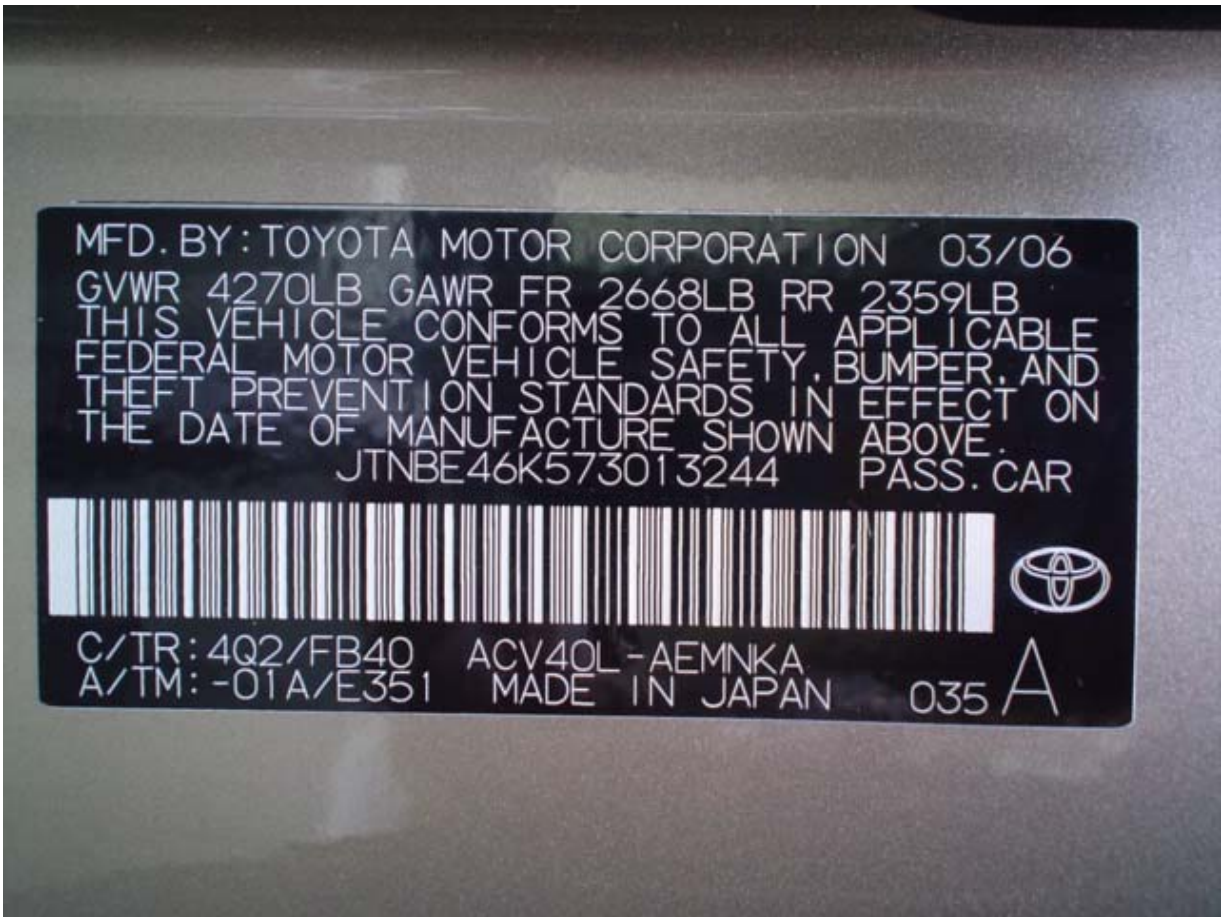
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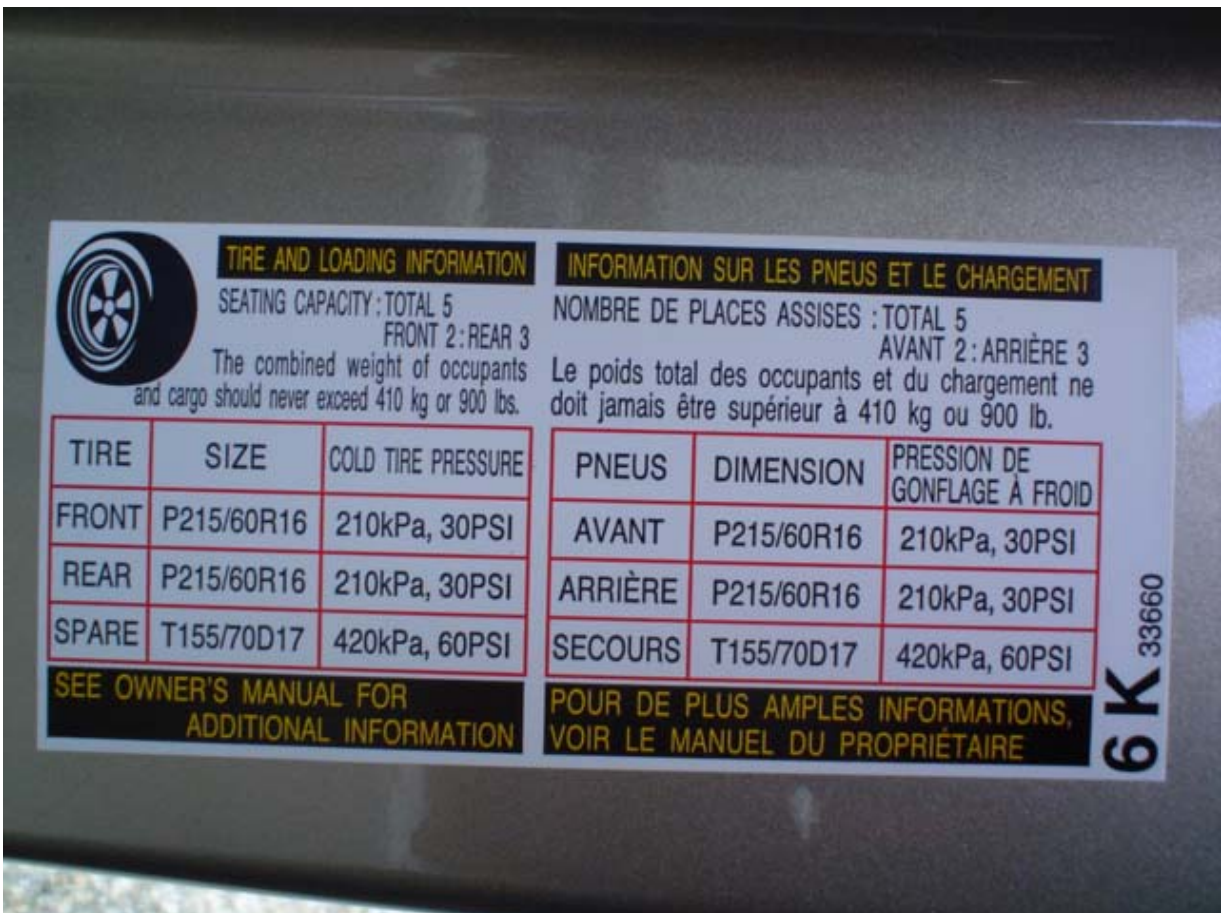
Left Front $\frac{3}{4}$ View, As Received



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



Manufacturer's Label



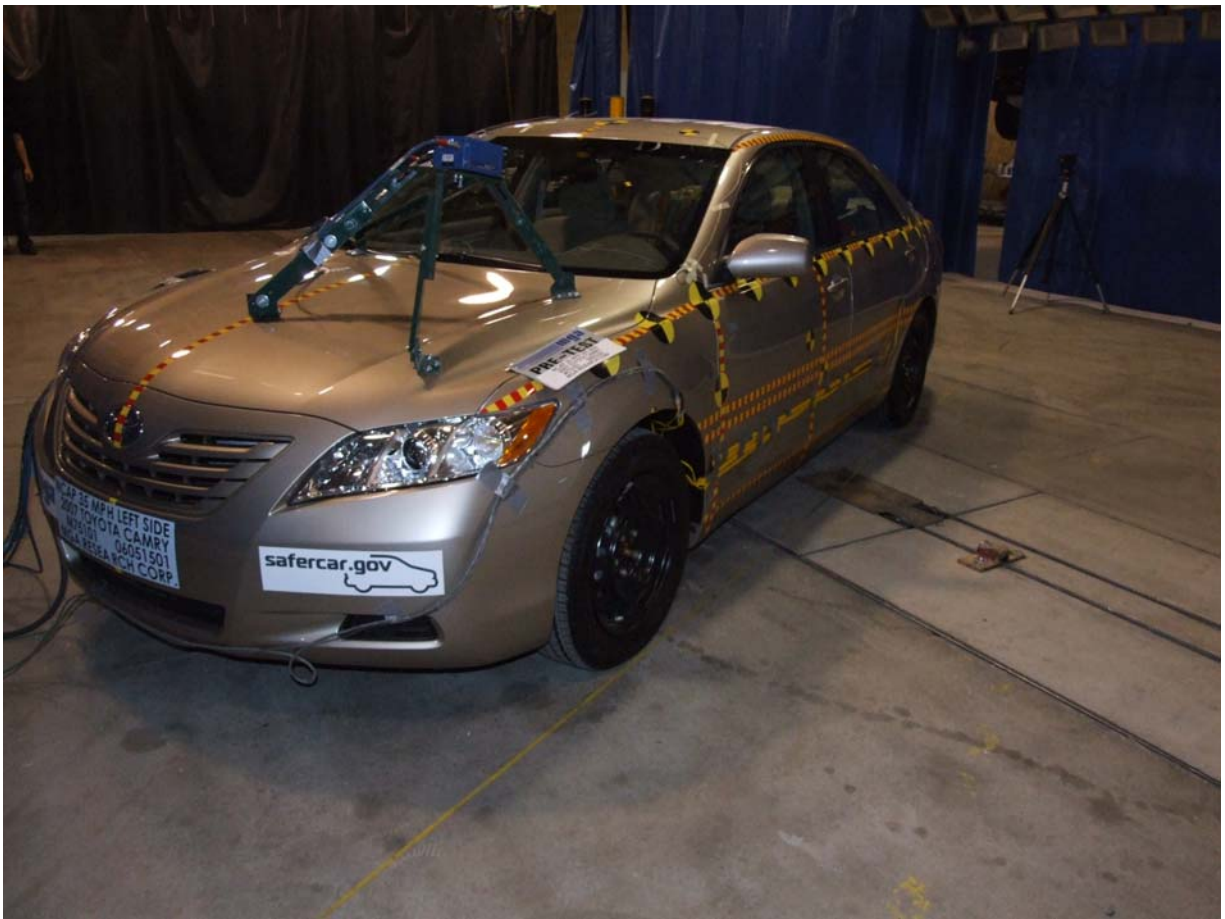
Tire Placard



Pre-Test Front View



Post-Test Front View



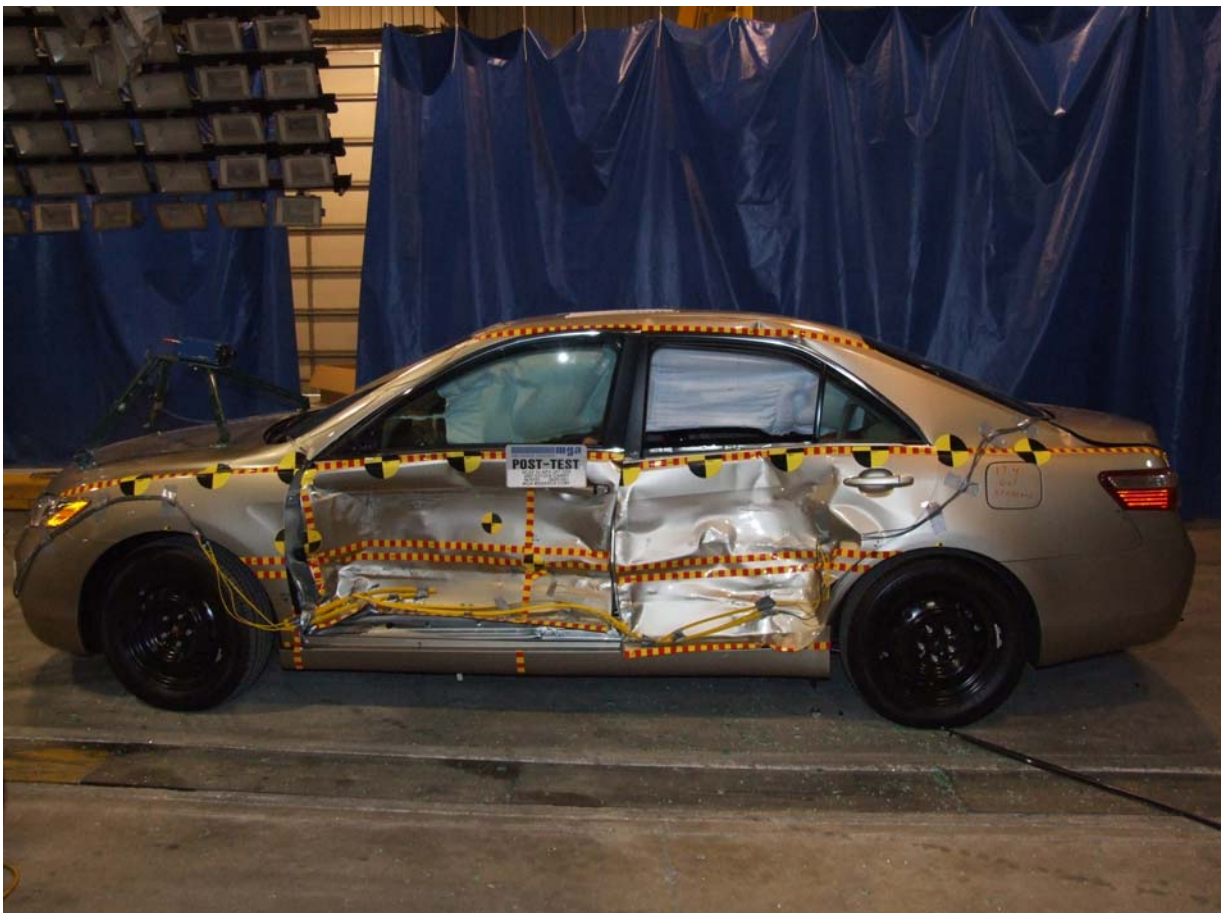
Pre-Test Left Front $\frac{3}{4}$ View



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



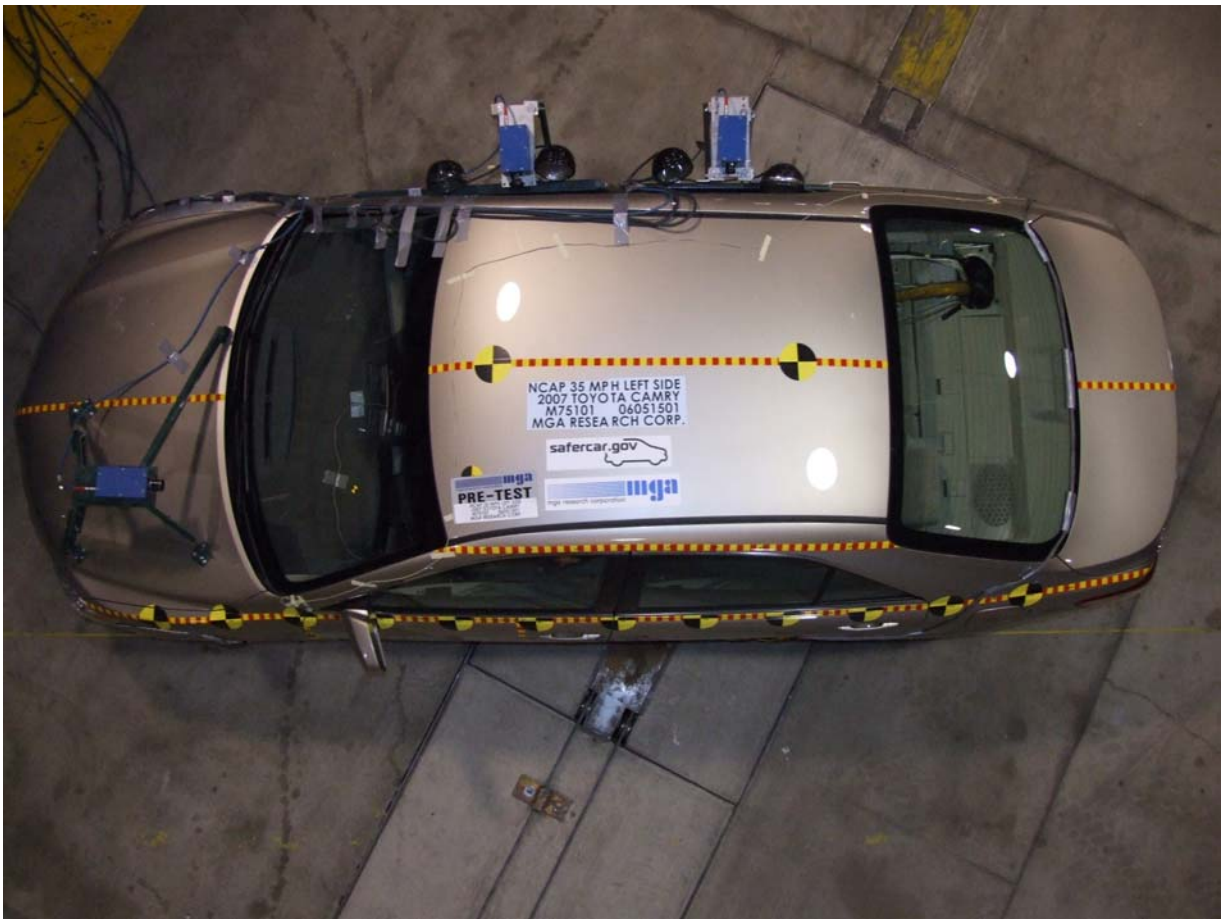
Post-Test Right Side View



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 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



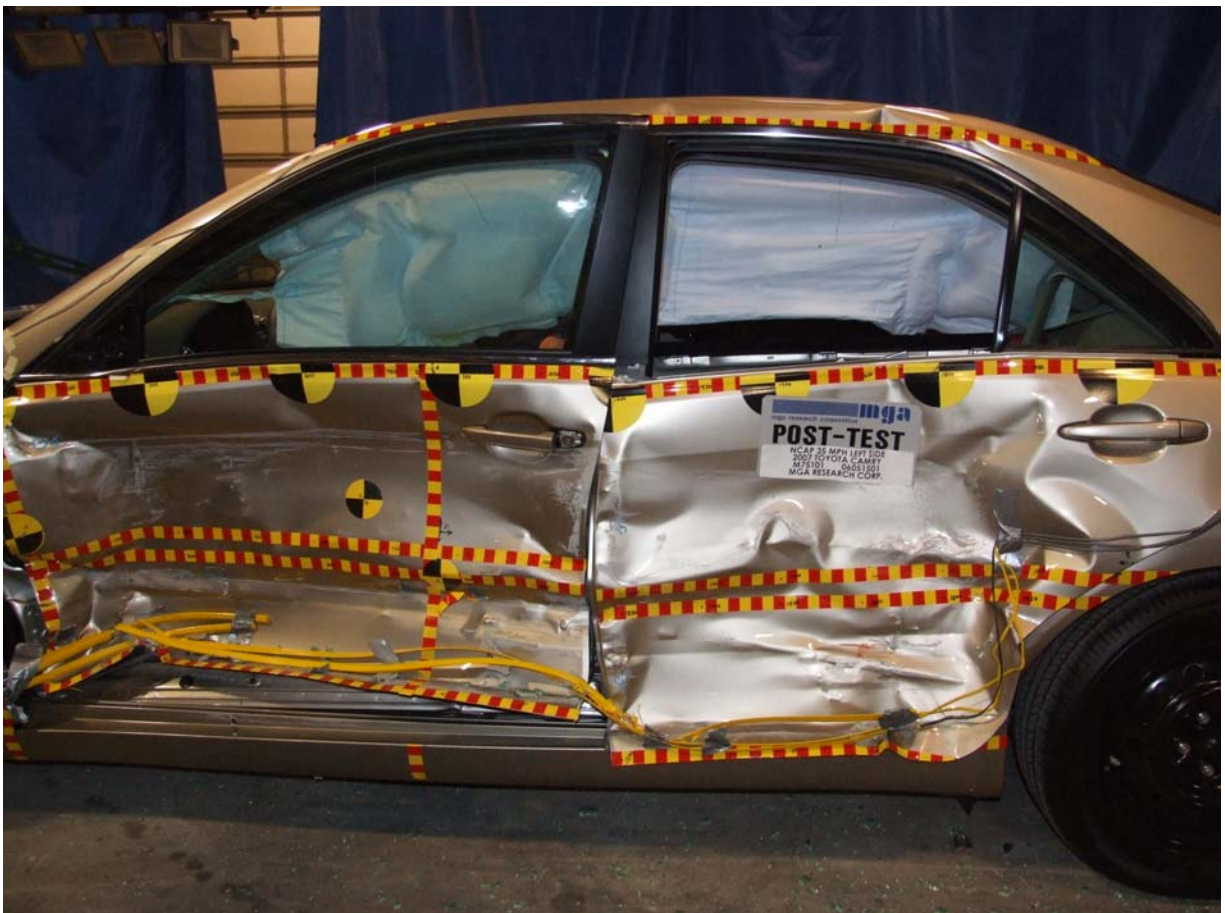
Pre-Test Rear $\frac{3}{4}$ View of Left Side Door



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



Pre-Test Left Side Impact Close-up



Post-Test Left Side Impact Close-up



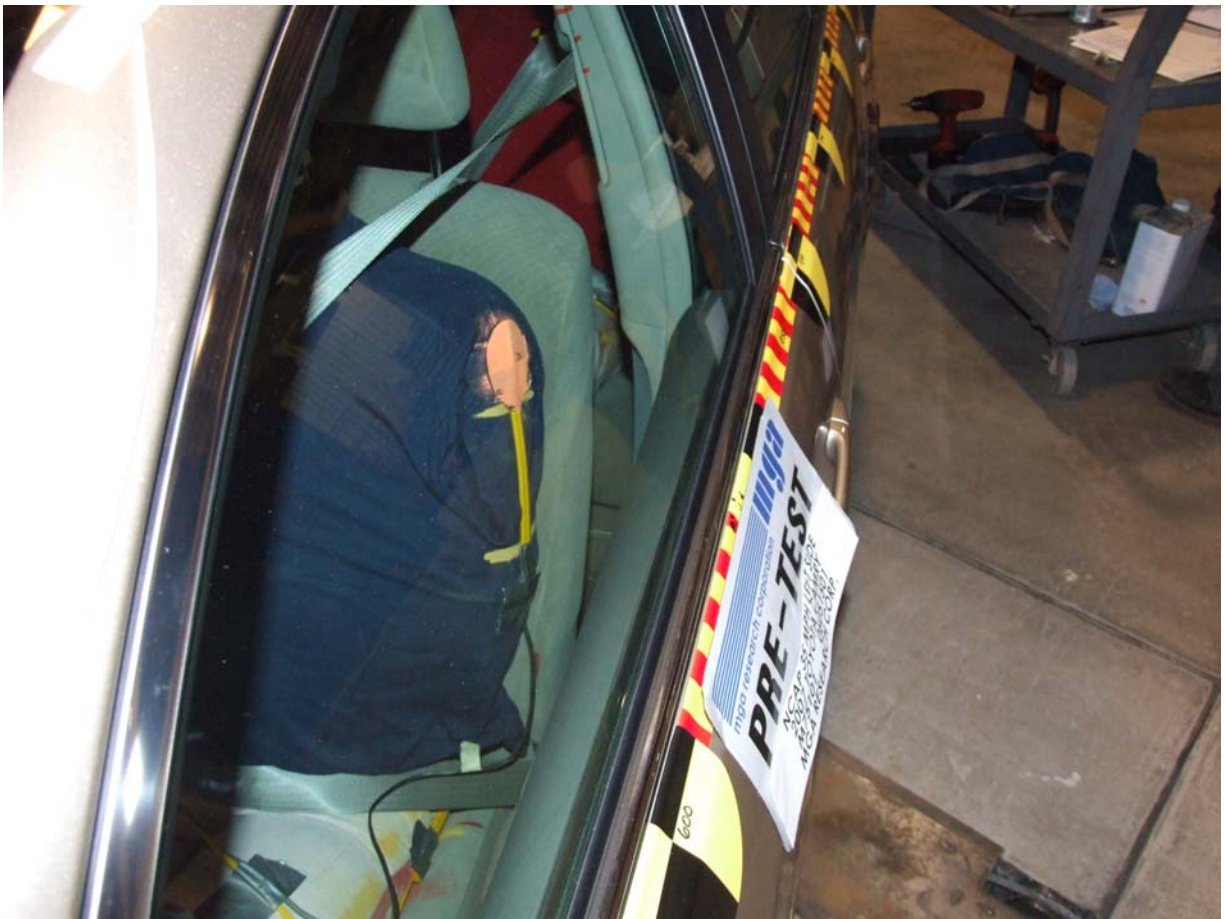
Pre-Test Driver Dummy (Door Open)



Pre-Test Driver Dummy (Through Window)



Post-Test Driver Dummy (Through Window)



Pre-Test Driver Dummy Clearance From Door



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 (Door Open)



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



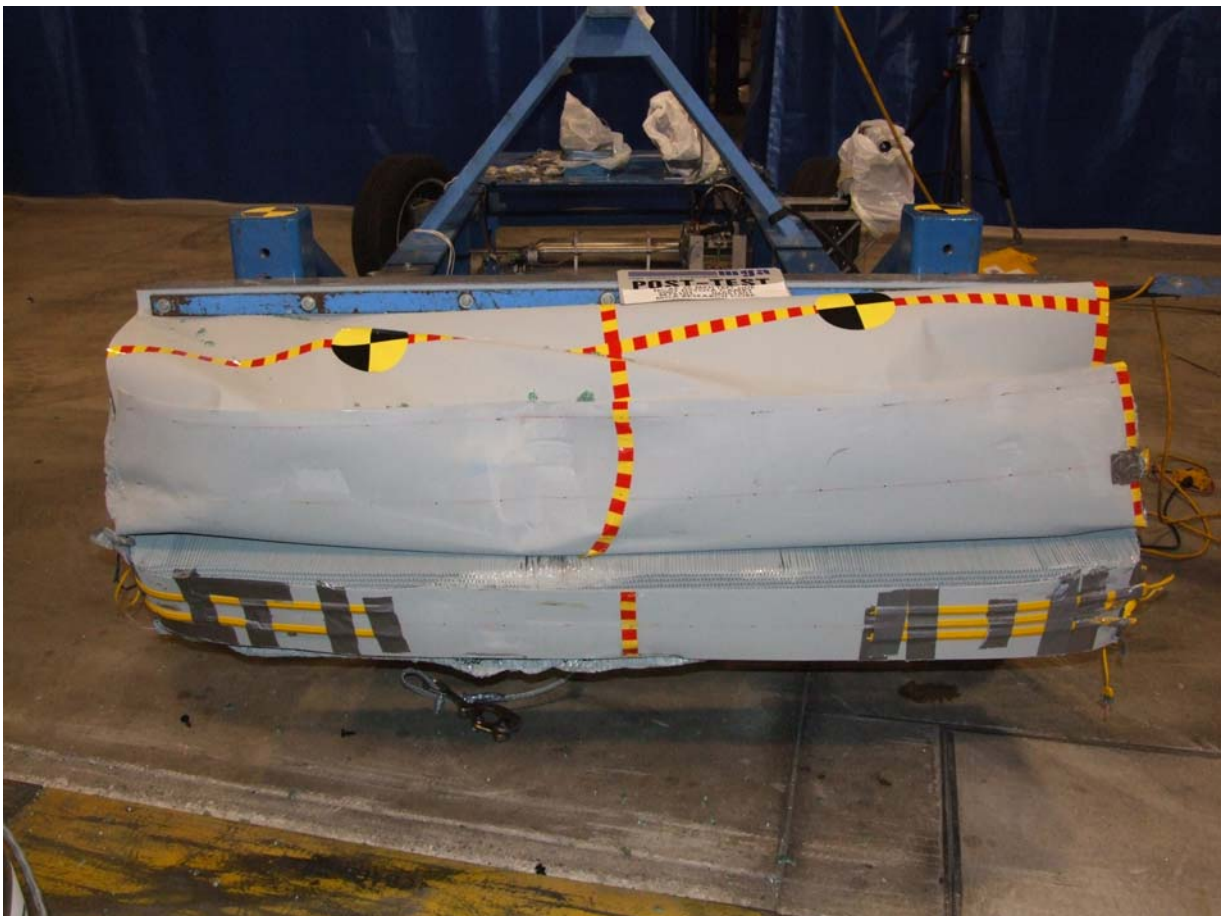
Pre-Test Passenger Dummy Right Side View



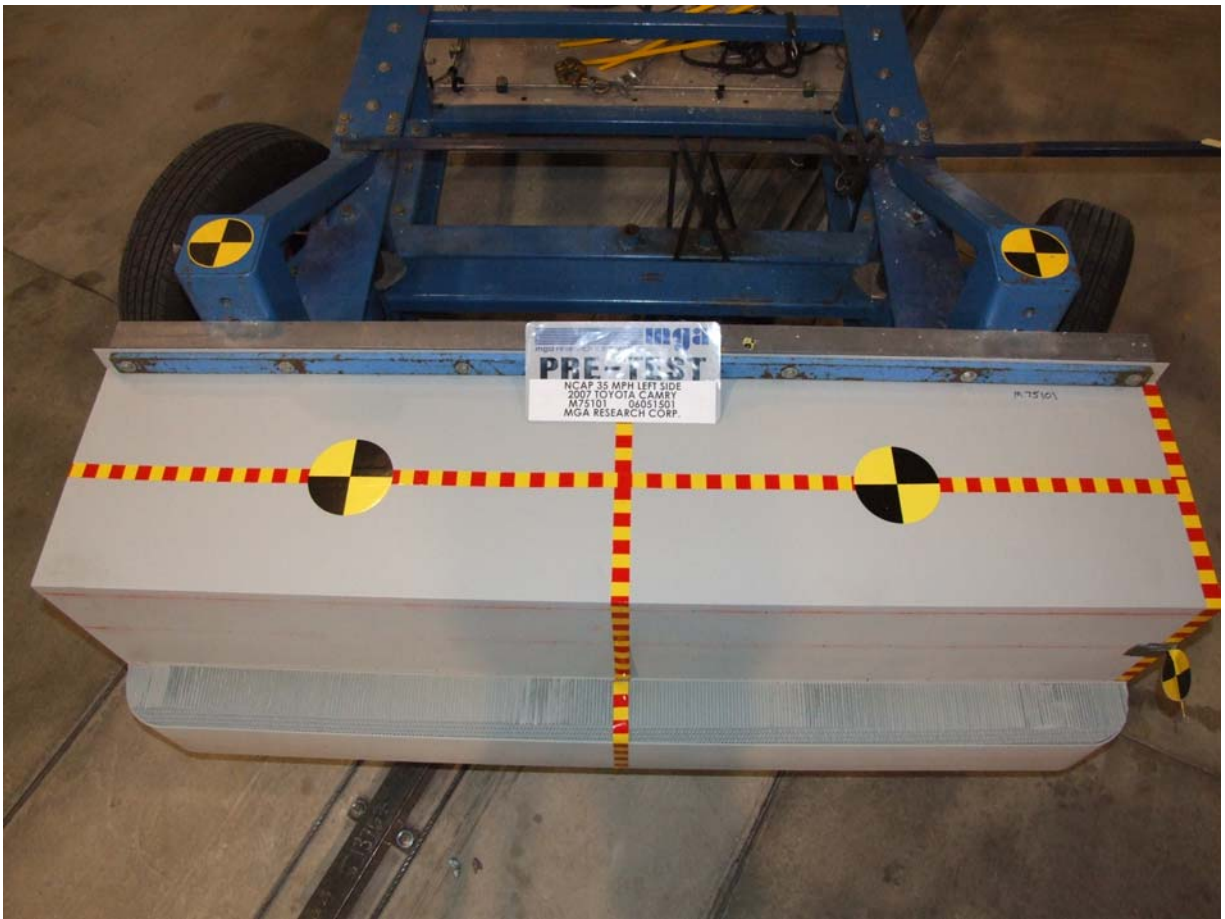
Post-Test Passenger Dummy Right Side View



Pre-Test Front View of Deformable Barrier



Post-Test Front View of Deformable Barrier



Pre-Test Top View of Deformable Barrier



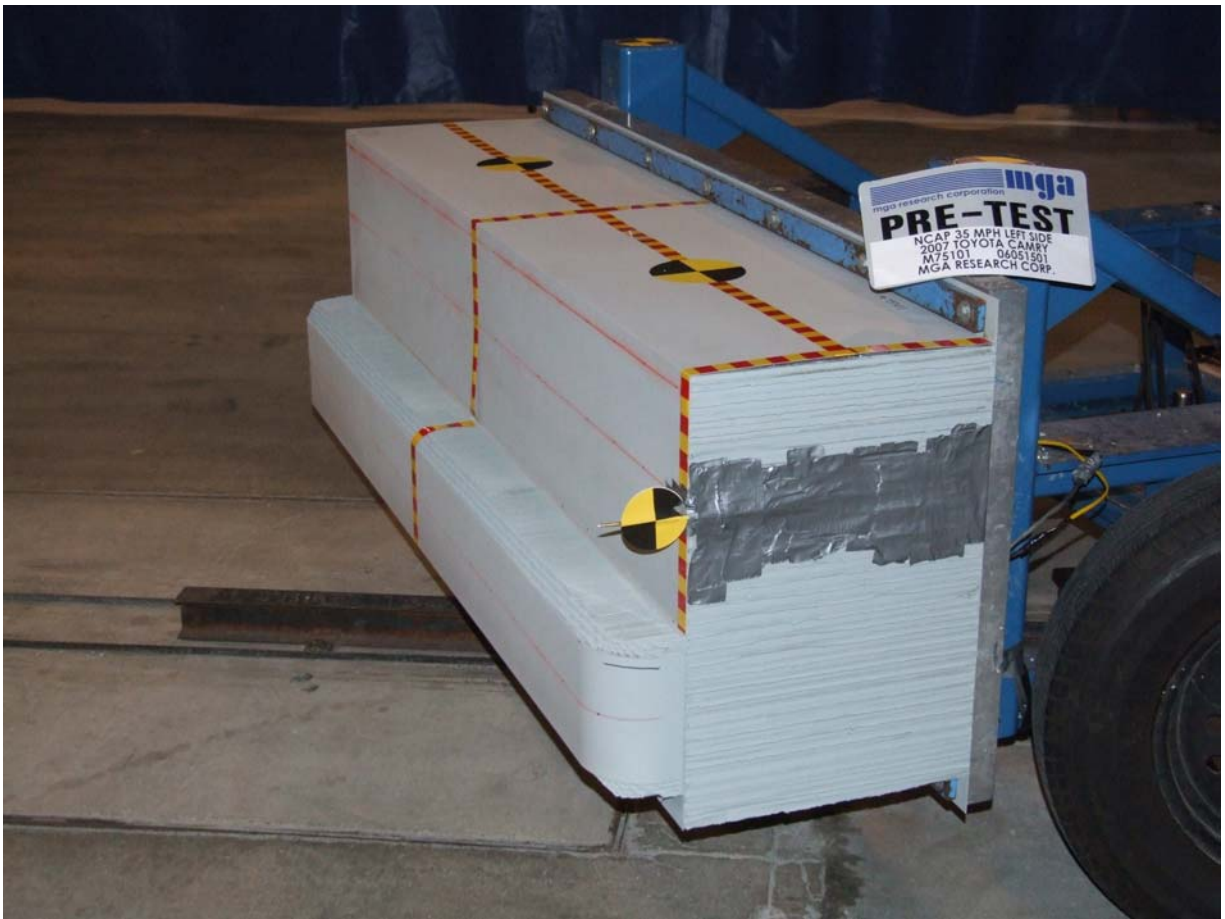
Post-Test Top View of Deformable Barrier



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)



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 Contact

APPENDIX B

SID/HIII RESPONSE DATA TRACES

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

Driver Head X Primary

Driver Head Y Primary

Driver Head Z Primary

Driver Head X Redundant

Driver Head Y Redundant

Driver Head Z Redundant

Driver Upper Neck Force X

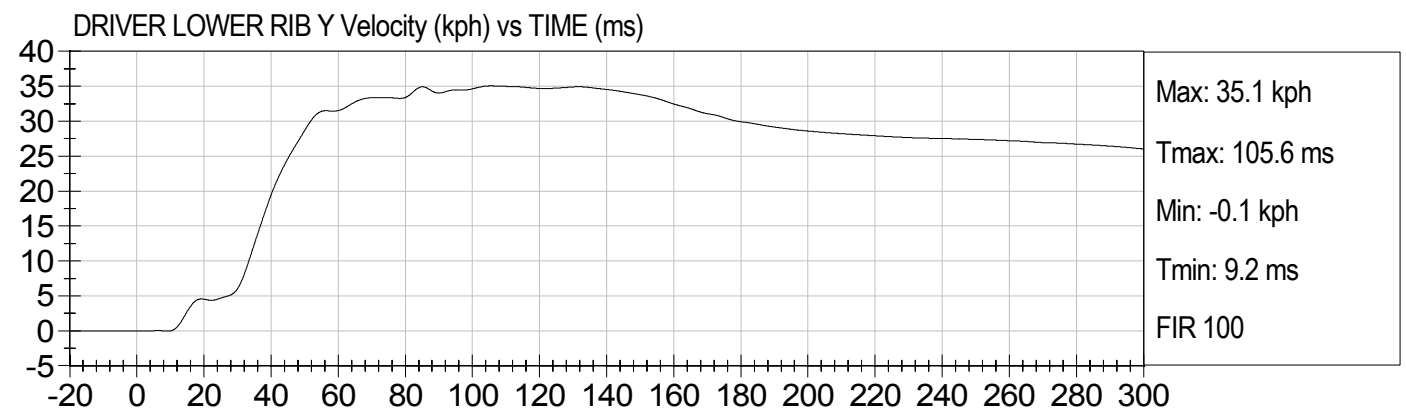
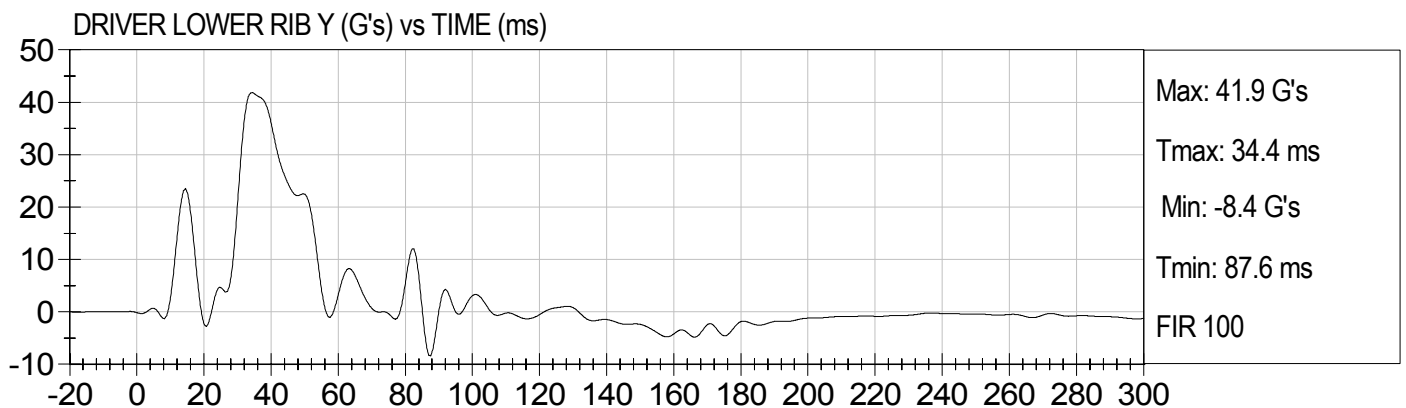
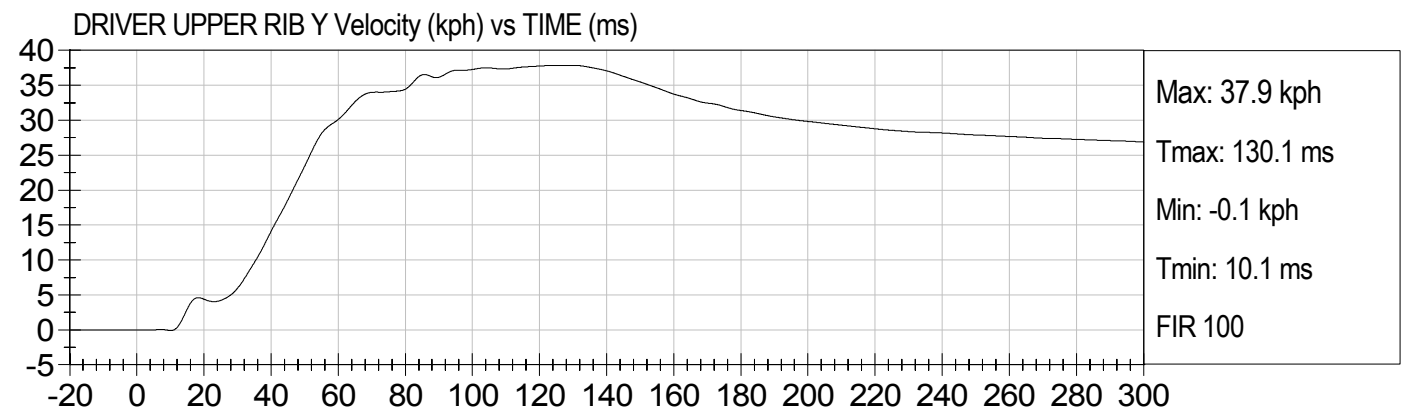
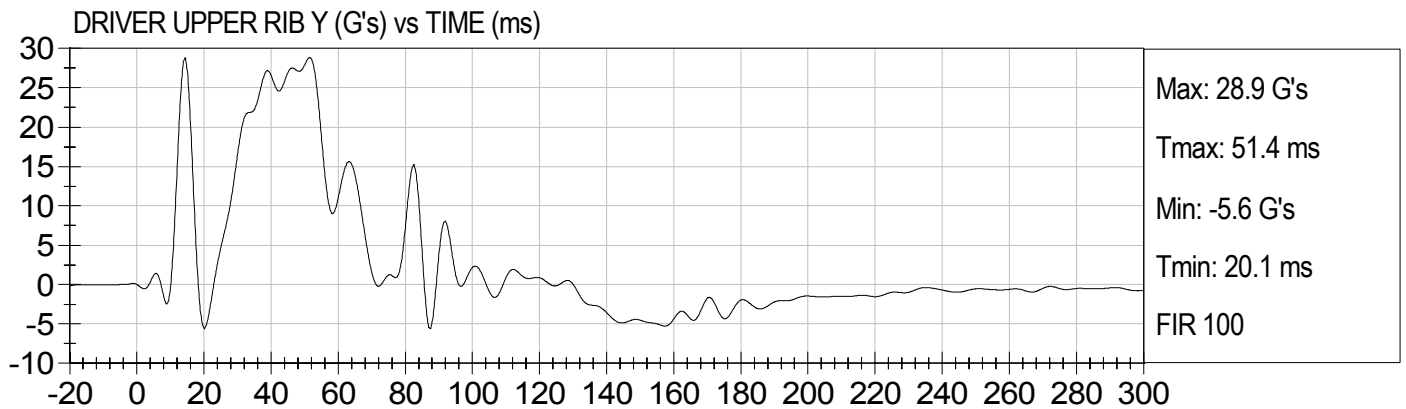
Driver Upper Neck Force Y

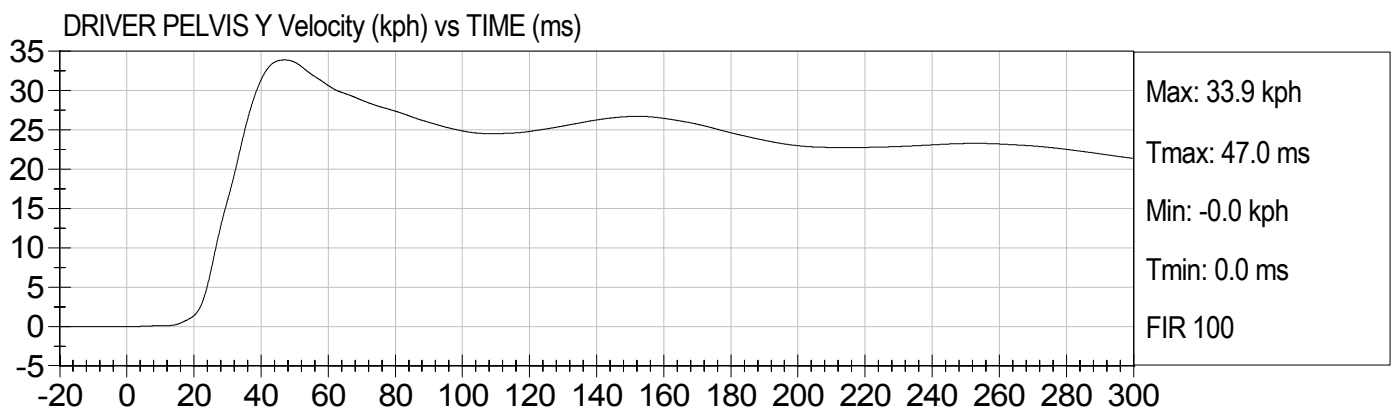
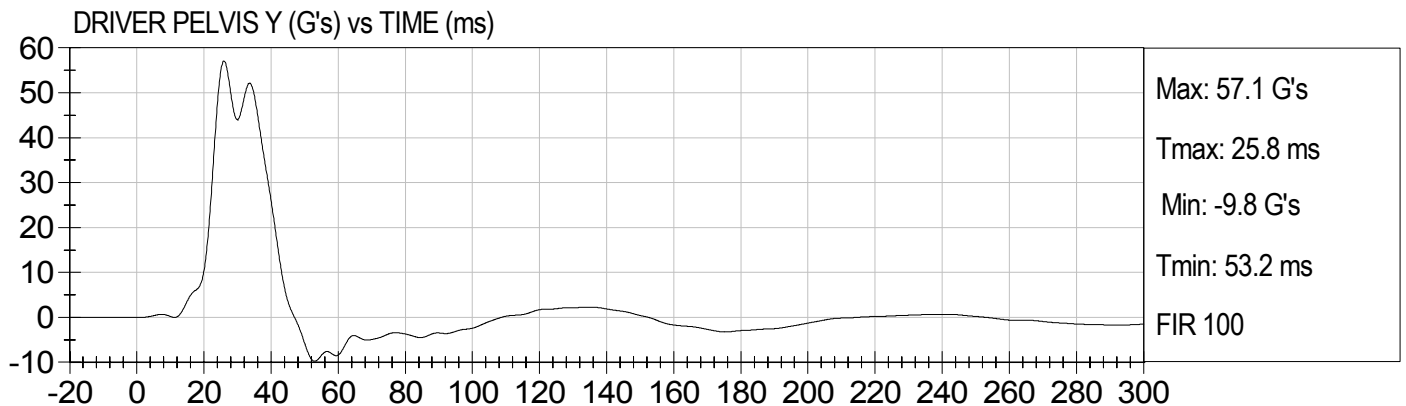
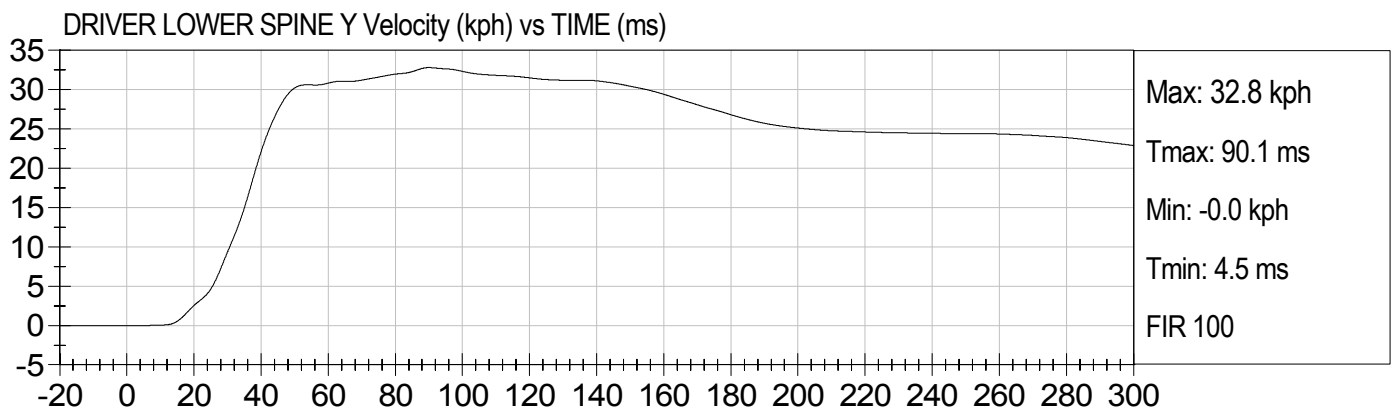
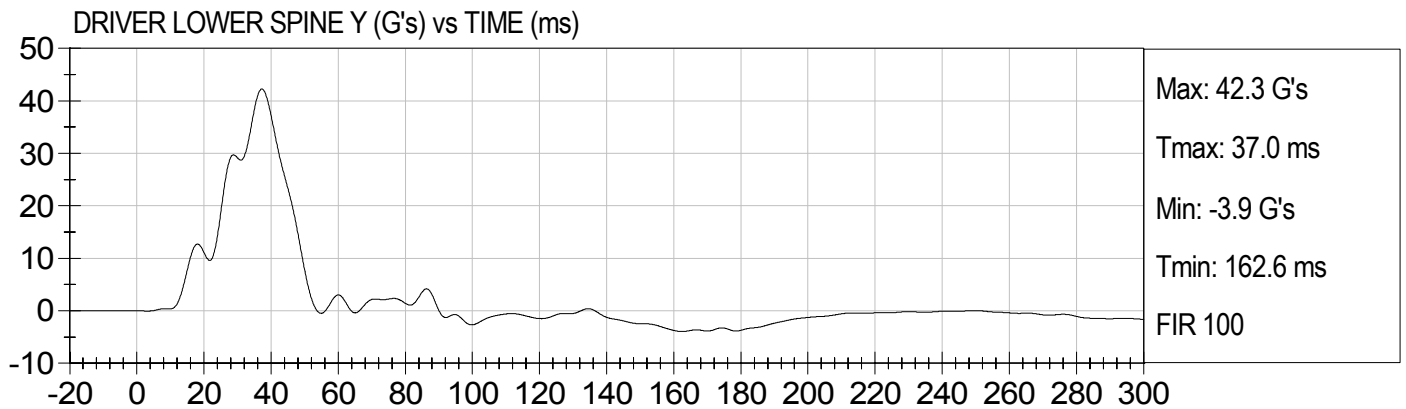
Driver Upper Neck Force Z

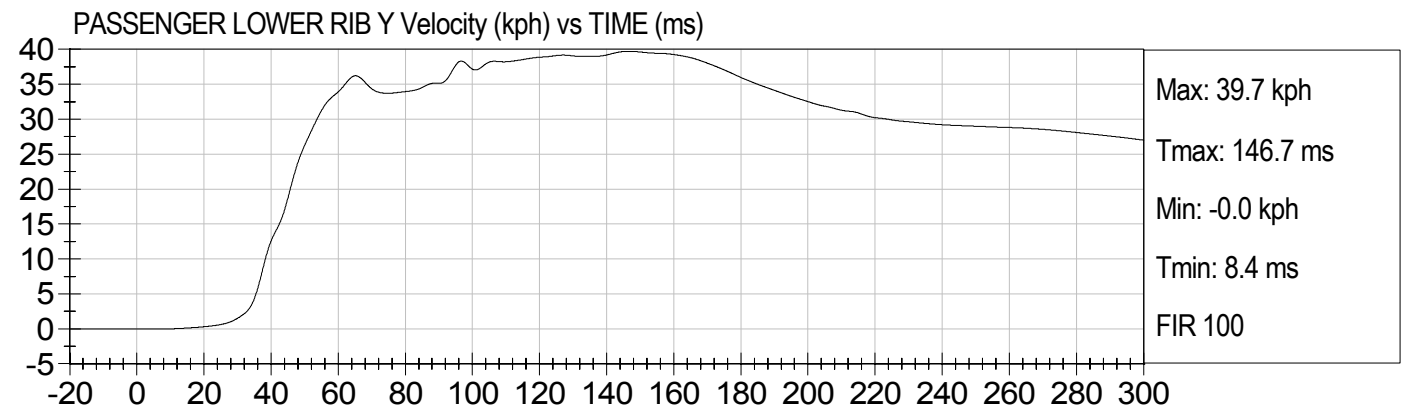
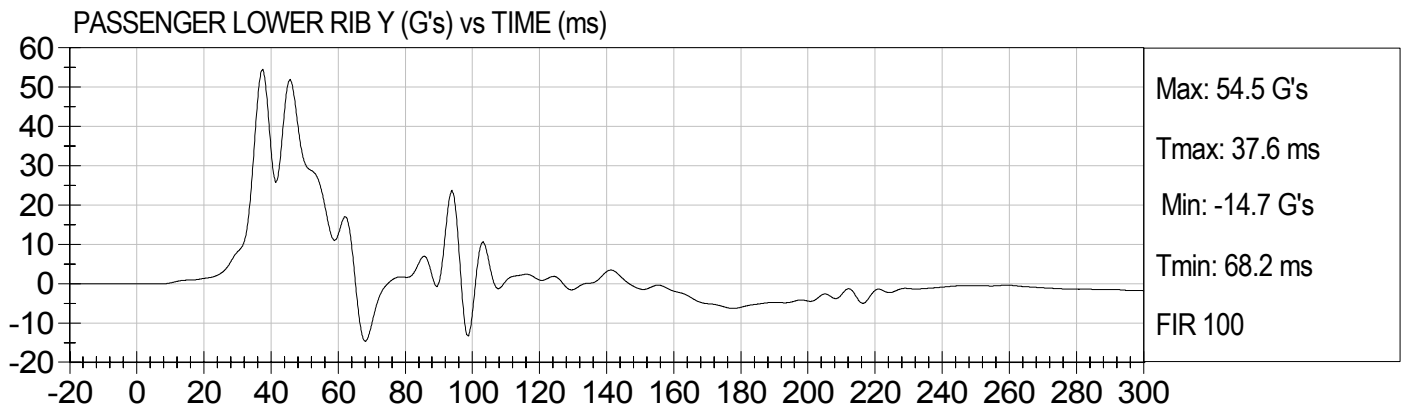
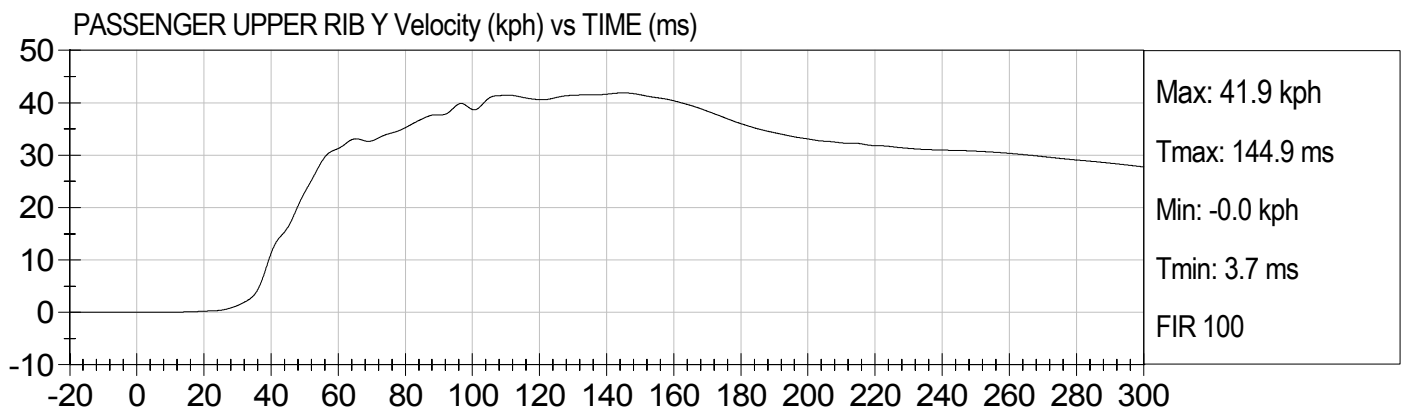
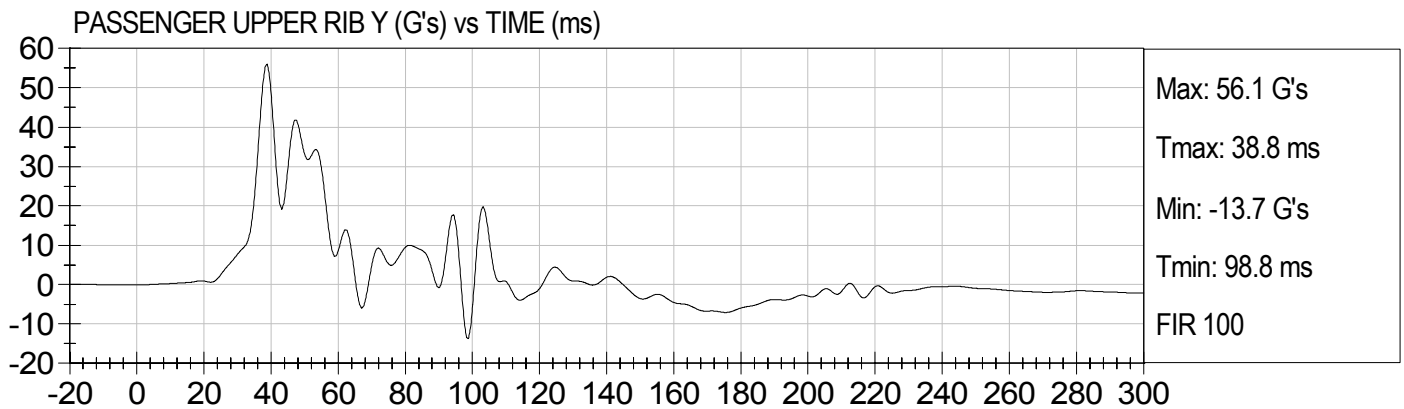
Driver Upper Neck Moment X

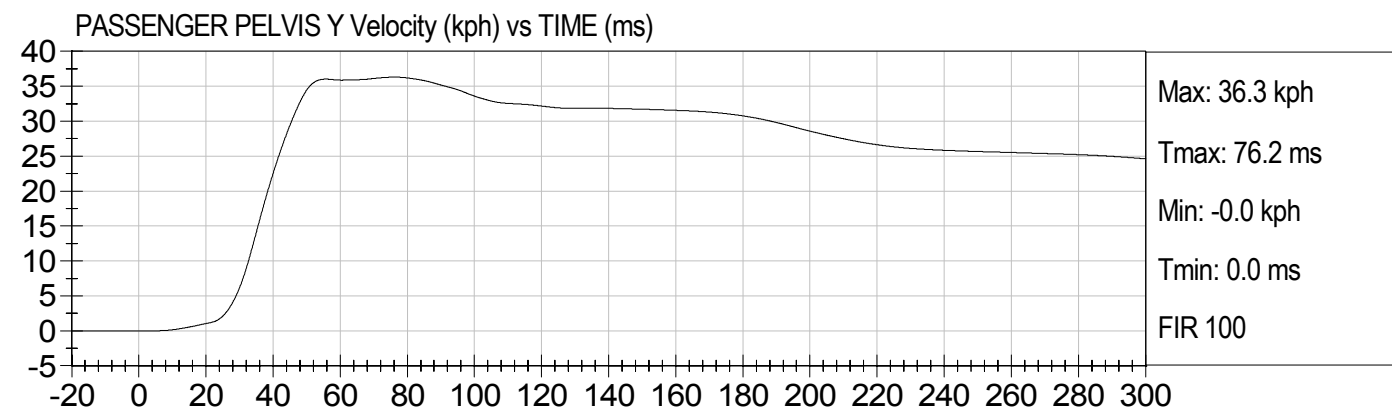
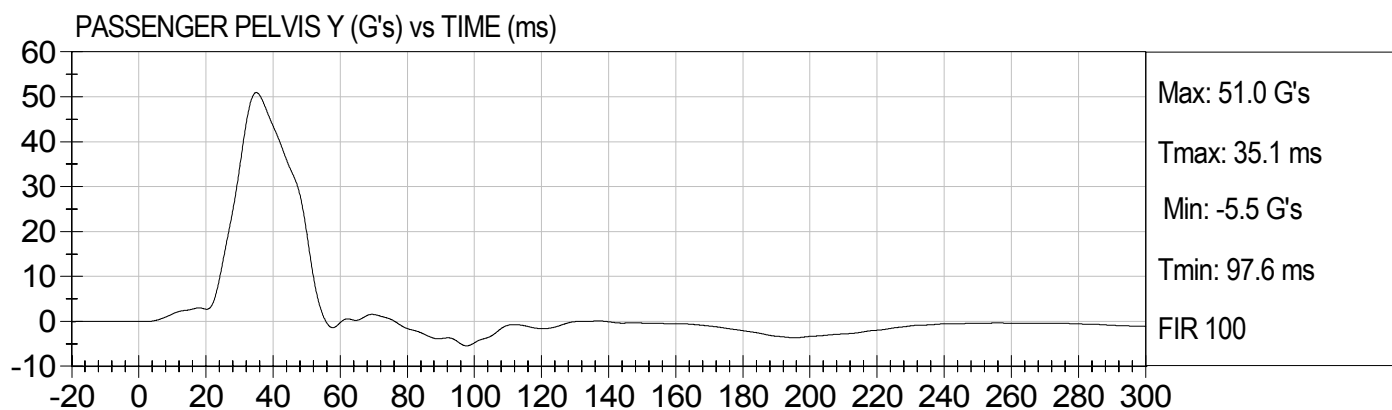
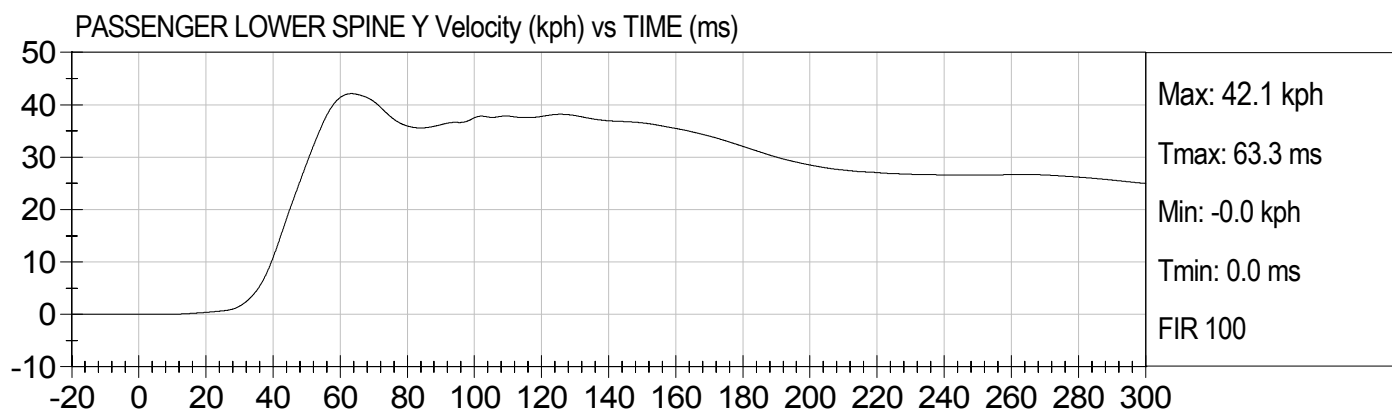
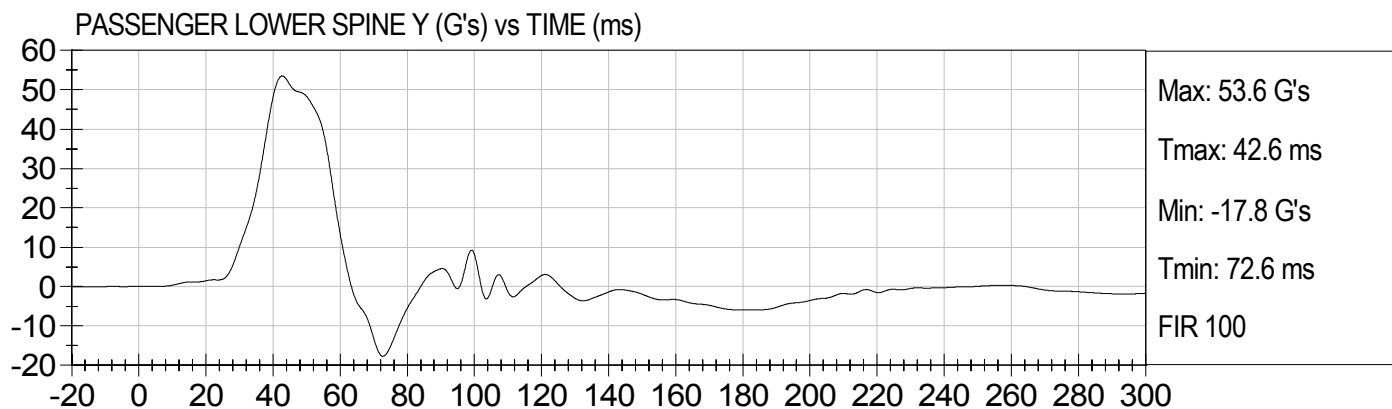
Driver Upper Neck Moment Y
Driver Upper Neck Moment Z
Driver Upper Rib Redundant Y
Driver Lower Rib Redundant Y
Driver Lower Spine Redundant Y
Driver Pelvis Redundant Y
Driver Thorax Contact
Driver Pelvis Contact
Passenger Head X Primary
Passenger Head Y Primary
Passenger Head Z Primary
Passenger Head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

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









APPENDIX C
DUMMY CALIBRATION DATA

CERTIFICATION DATA

Dummy Serial Number: 904

Calibration Test Results Summary

Dummy Serial Number: 904

Pre-Test Calibration

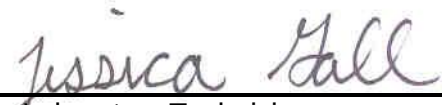
External Dimensions:	The dummy passed all external dimension requirements.
Head Drop Test:	The head passed all drop test requirements.
Neck Pendulum Test:	The neck passed all pendulum test requirements.
Thorax Impact Test:	The thorax passed all impact test requirements.
Pelvic Impact Test:	The pelvis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

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 904

Test I.D: D06126

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	


Laboratory Technician

05/09/2006
Test Date


Approved By

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

ATD Serial No: 904

Test I.D: D061321

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Peak Resultant Acceleration	G's	120 to 150	126	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

05/11/2006

Test Date

David Winkelbauer
Approved By



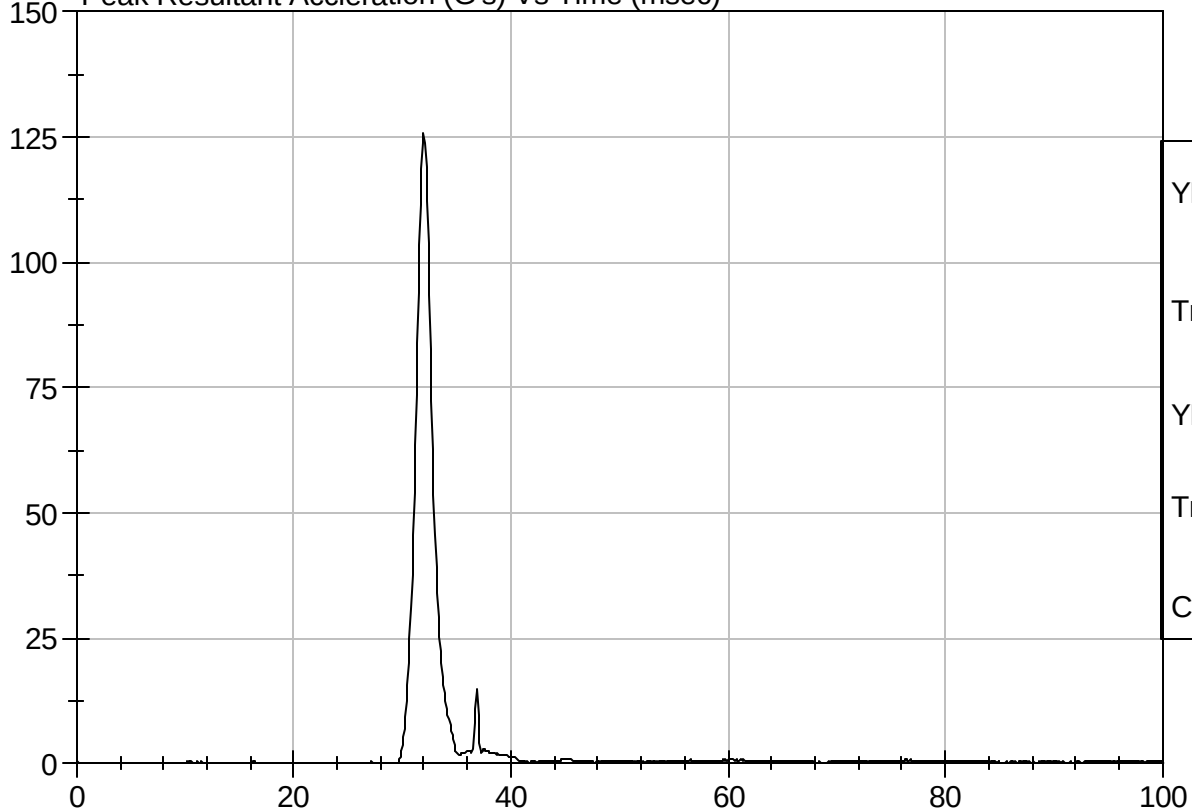
Test Description: Head Drop

Test Date: 05/11/2006

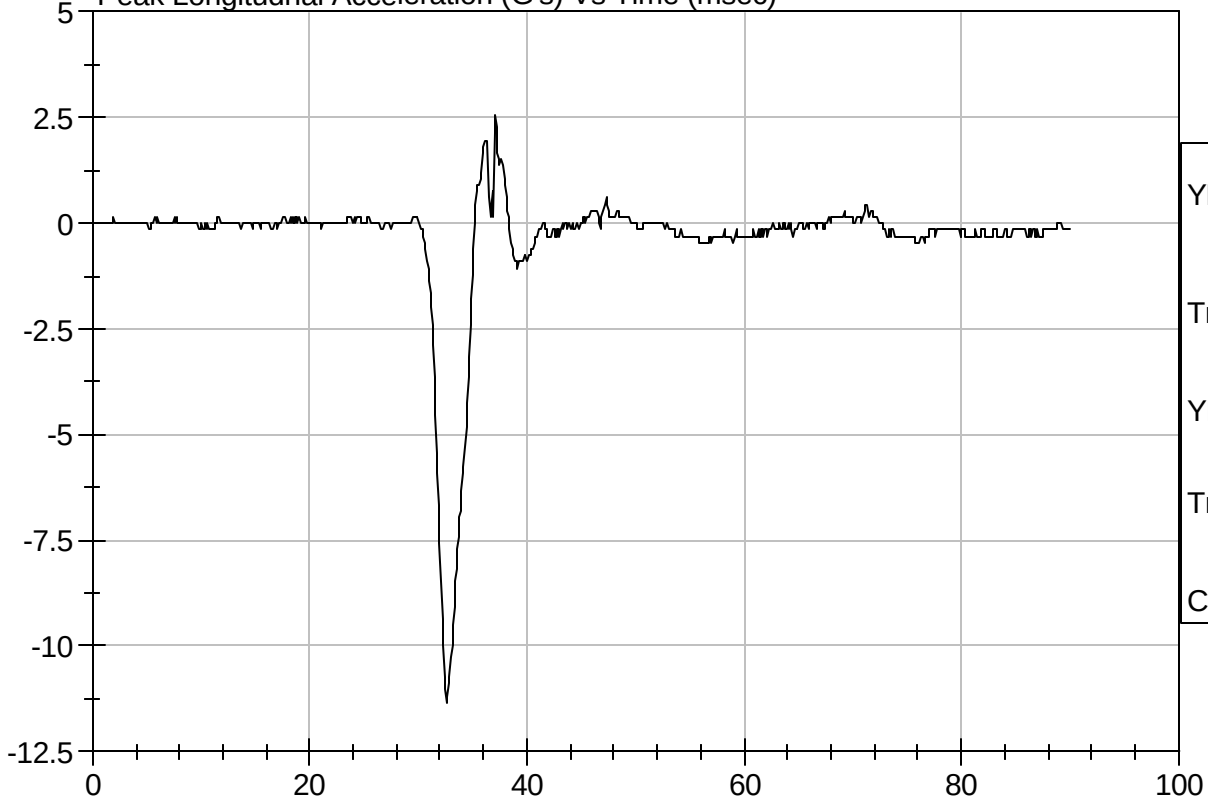
Component: D061321

Speed: 0 ft/s, 0.00 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D: D061322

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Probe Velocity	m/s	4.22 - 4.31	4.29	Pass
Upper Rib	G's	37 - 46	39	Pass
Lower Rib	G's	37 - 46	38	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass


Laboratory Technician

05/12/2006

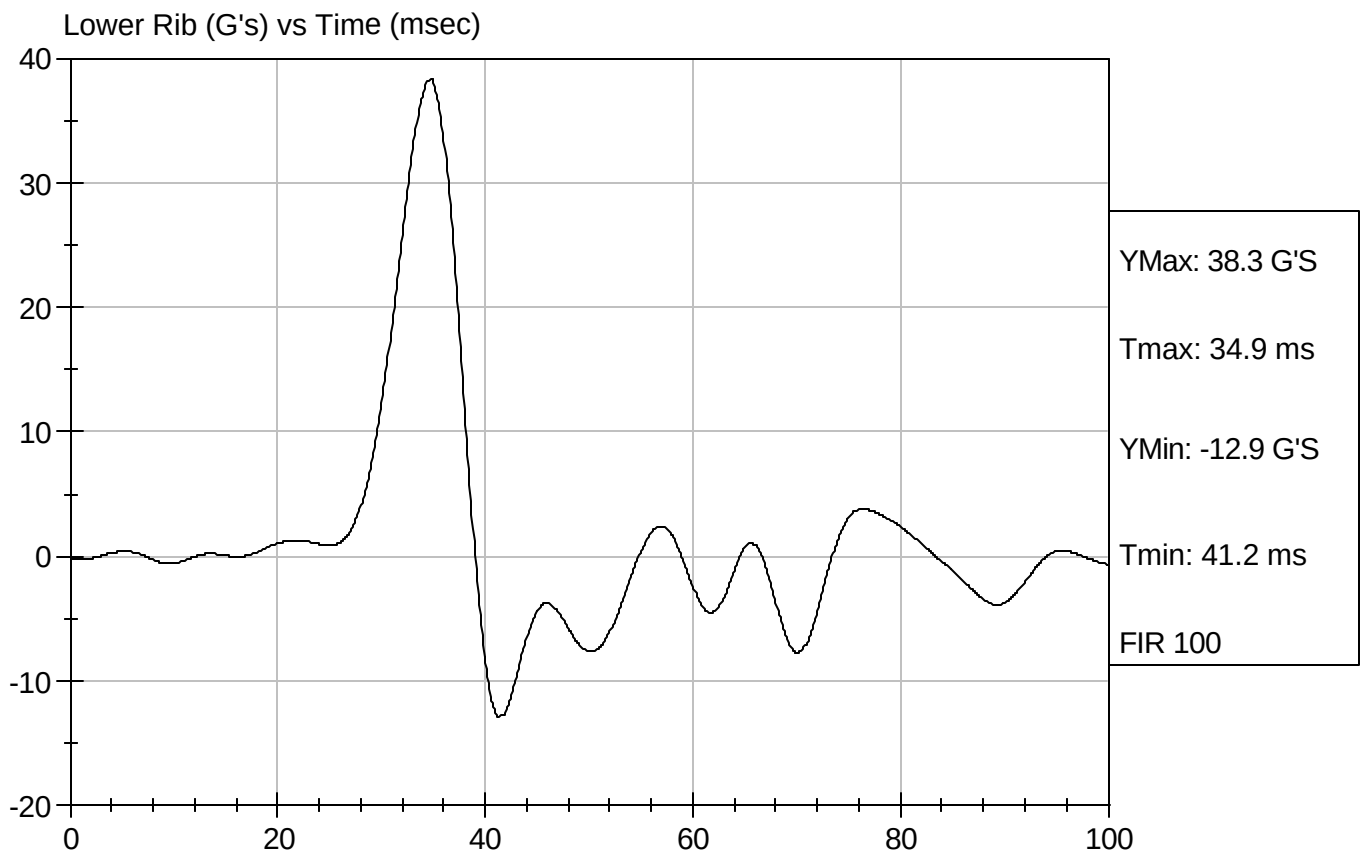
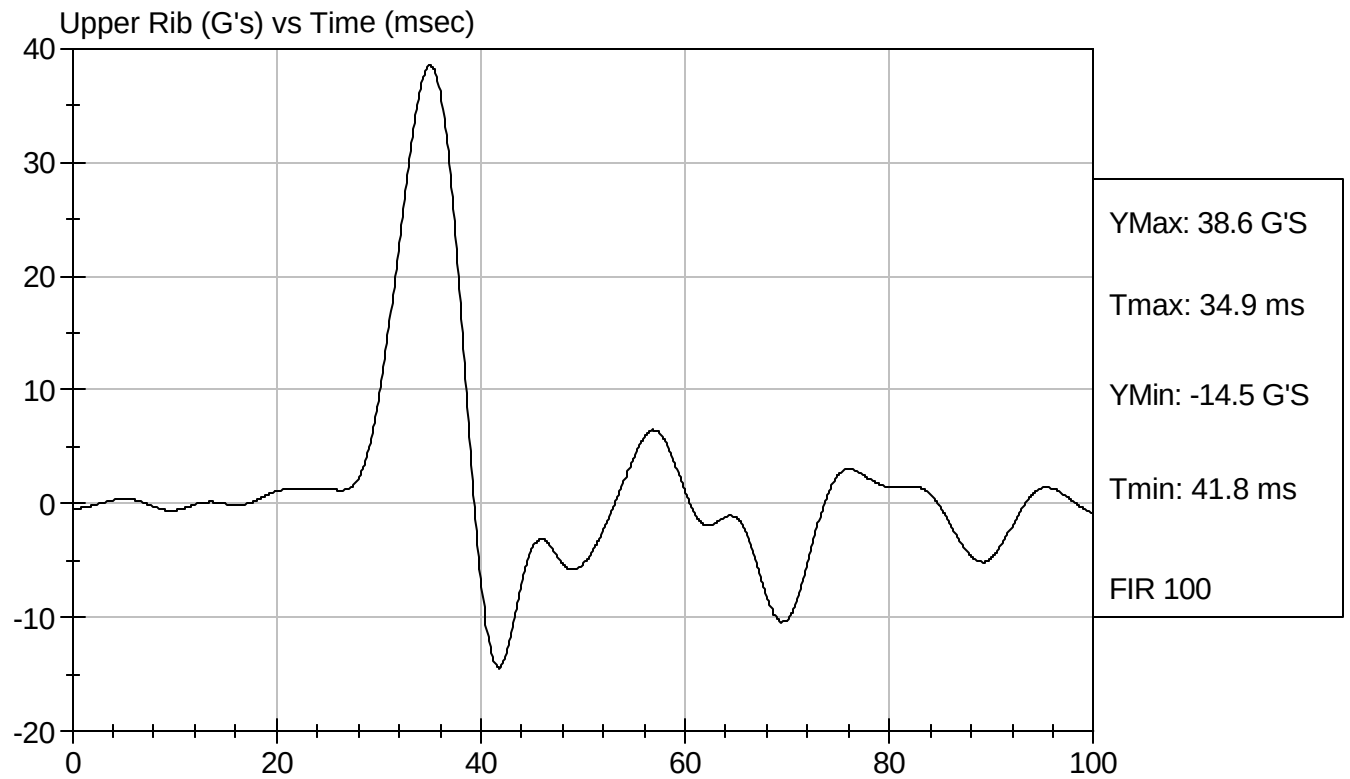
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D061322

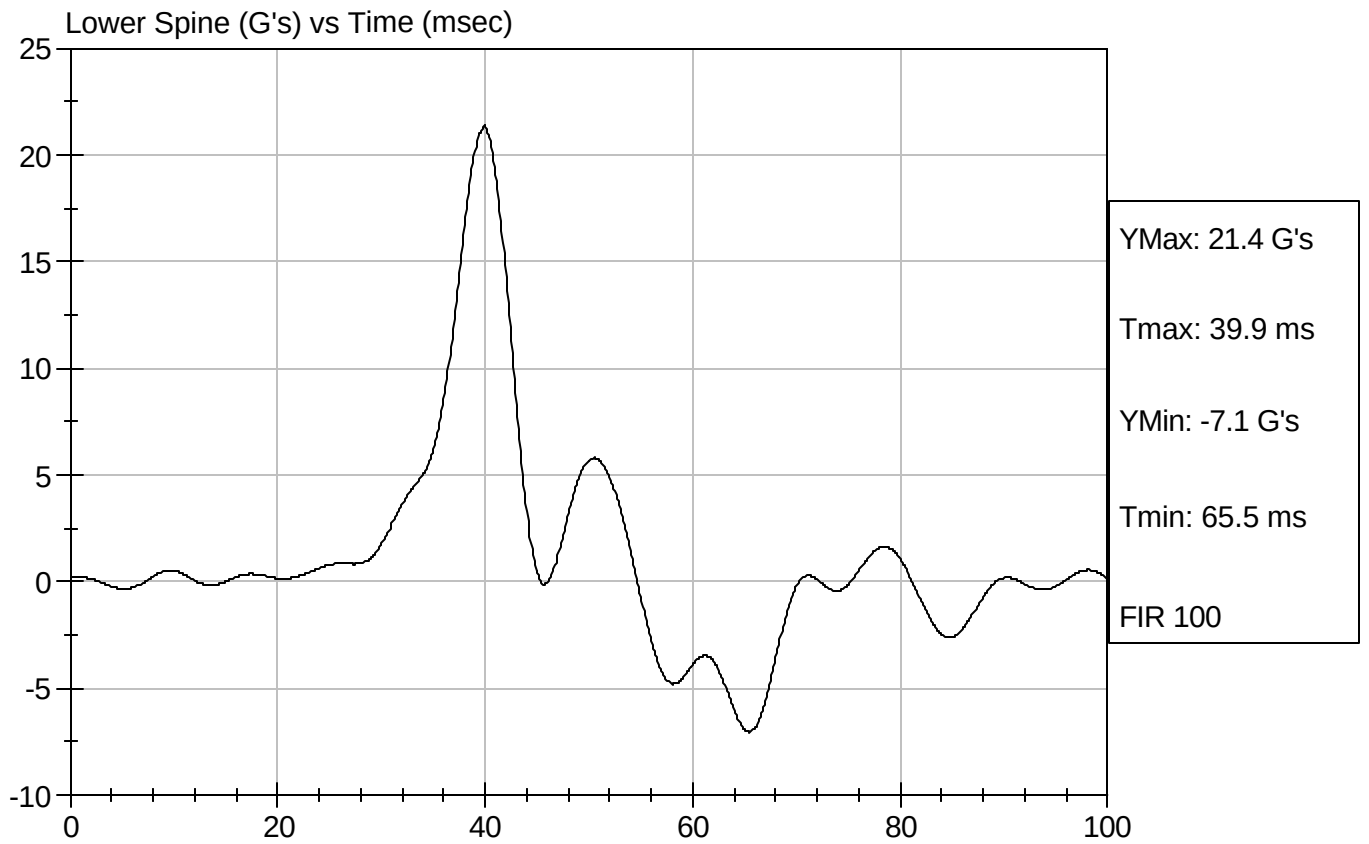
Test Date: 05/12/2006
Speed: 14.08 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D061322

Test Date: 05/12/2006
Speed: 14.08 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D: D061323

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	36	Pass
Probe Velocity	m/s	4.27 - 4.33	4.29	Pass
Pelvis Acceleration	G's	40 - 60	47	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

05/12/2006

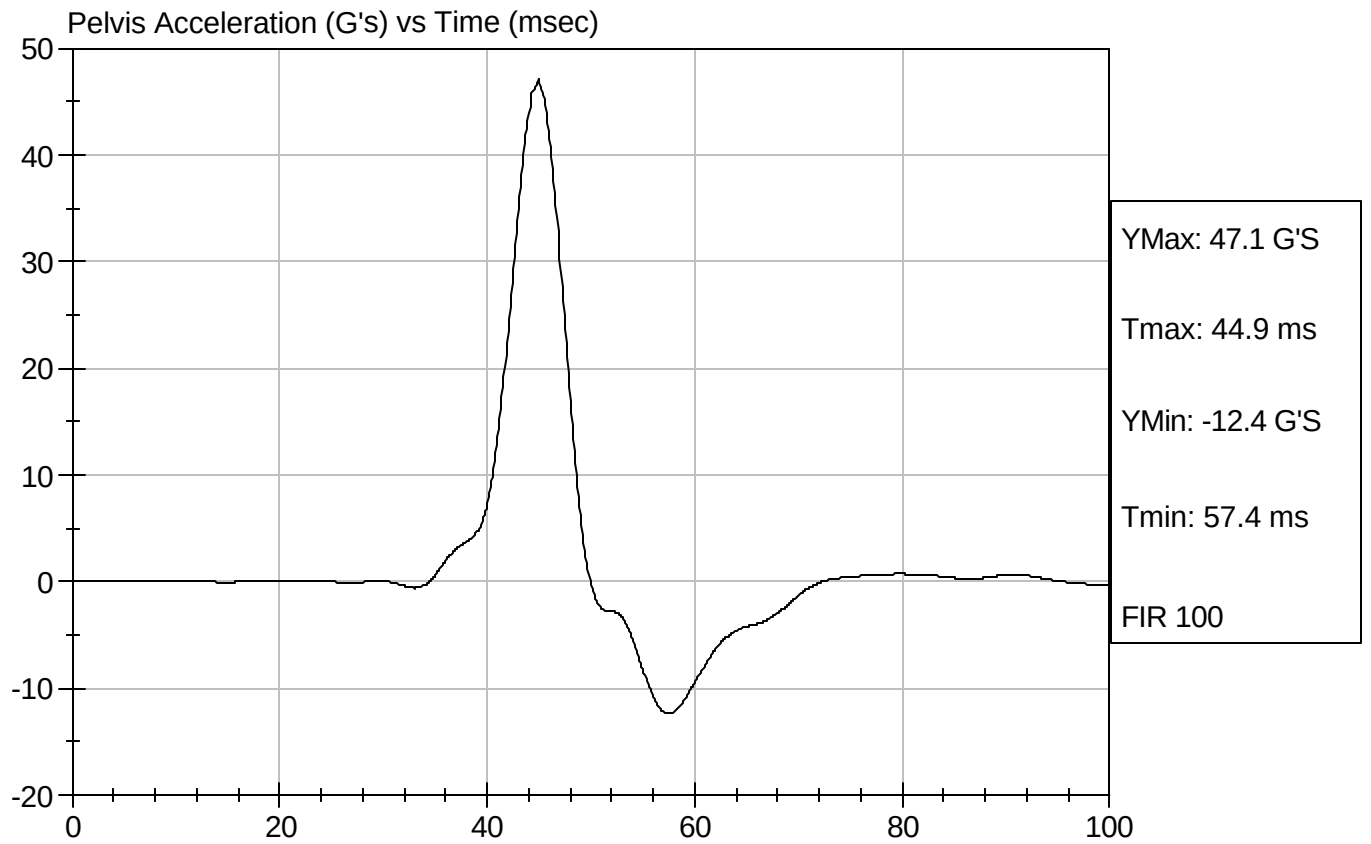
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D061323

Test Date: 05/12/2006
Speed: 14.06 ft/sec, 4.29 m/sec



SID Calibration Data Sheet

Side Impact Dummy

Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 904

Test I.D: D061324

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Force At 12.7 mm	N	104 -162	146	Pass
Force At 19 mm	N	163 - 222	202	Pass
Force At 25.4 mm	N	222 - 280	267	Pass
Force At 33 mm	N	325 - 391	374	Pass
Overall Test Results			Pass	

Jessica Gall
Laboratory Technician

05/12/2006
Test Date

David Winkelbauer
Approved By



Test Description: Abdomen Compression Test Date: 05/12/2006

Component: D061324

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D061325

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	130.5	Pass
Force At 30 deg	N	151.2 - 204.6	180.1	Pass
Force At 40 deg	N	204.6 - 258.0	238.0	Pass
Return Angle	Deg	12 Maximum	3	Pass
			Overall Test Results	Pass


Laboratory Technician

05/12/2006

Test Date


Approved By

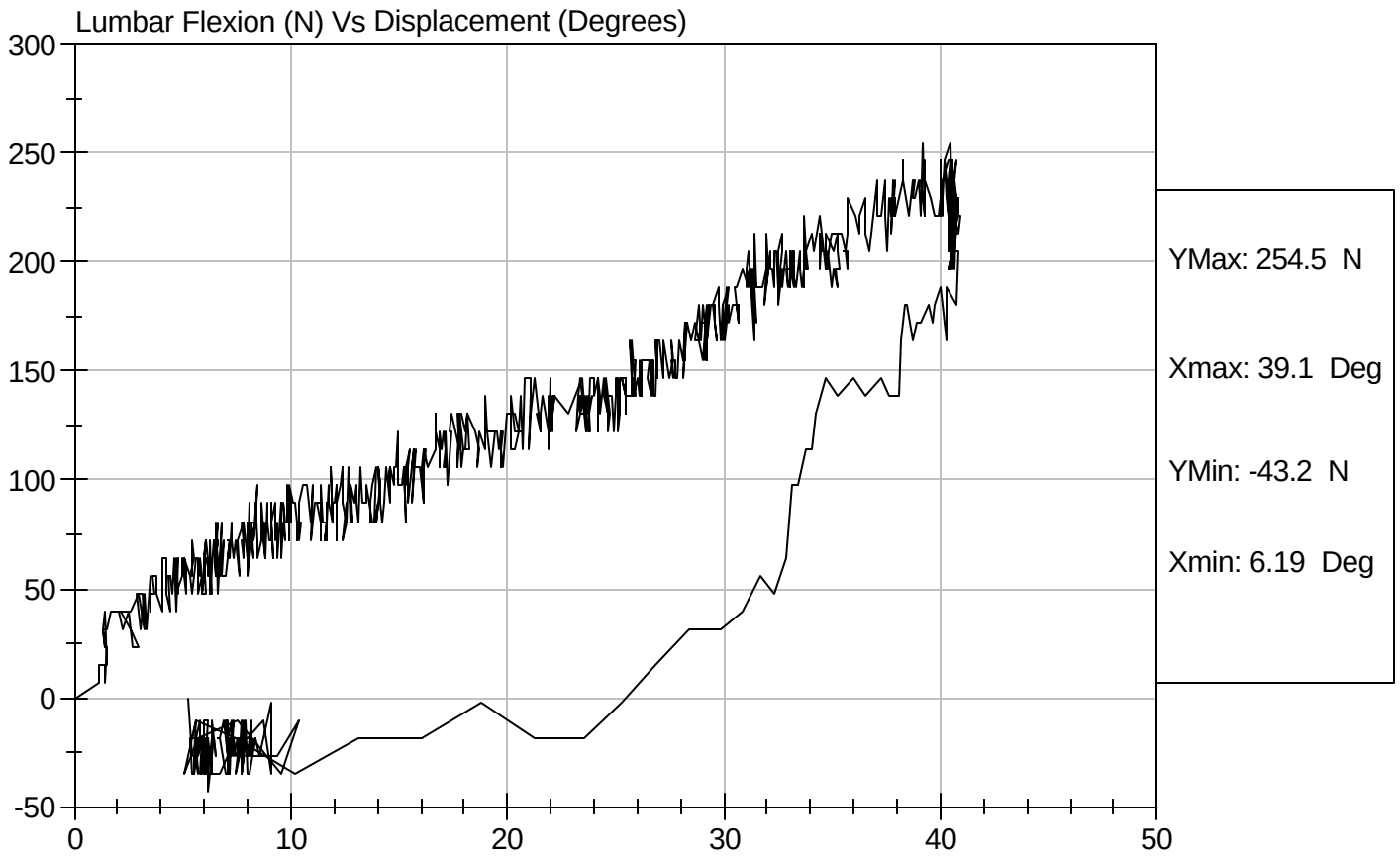


Test Description: Lumbar Flexion

Test Date: 05/12/2006

Component: D061325

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: D061329

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	33	Pass
Impact Velocity		m/s	6.89 to 7.13	6.93	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.30	Pass
	20 msec	m/s	4.12 to 5.10	4.59	Pass
	30 msec	m/s	5.73 to 7.01	6.51	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.18	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	75	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	60	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	78	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

05/12/2006

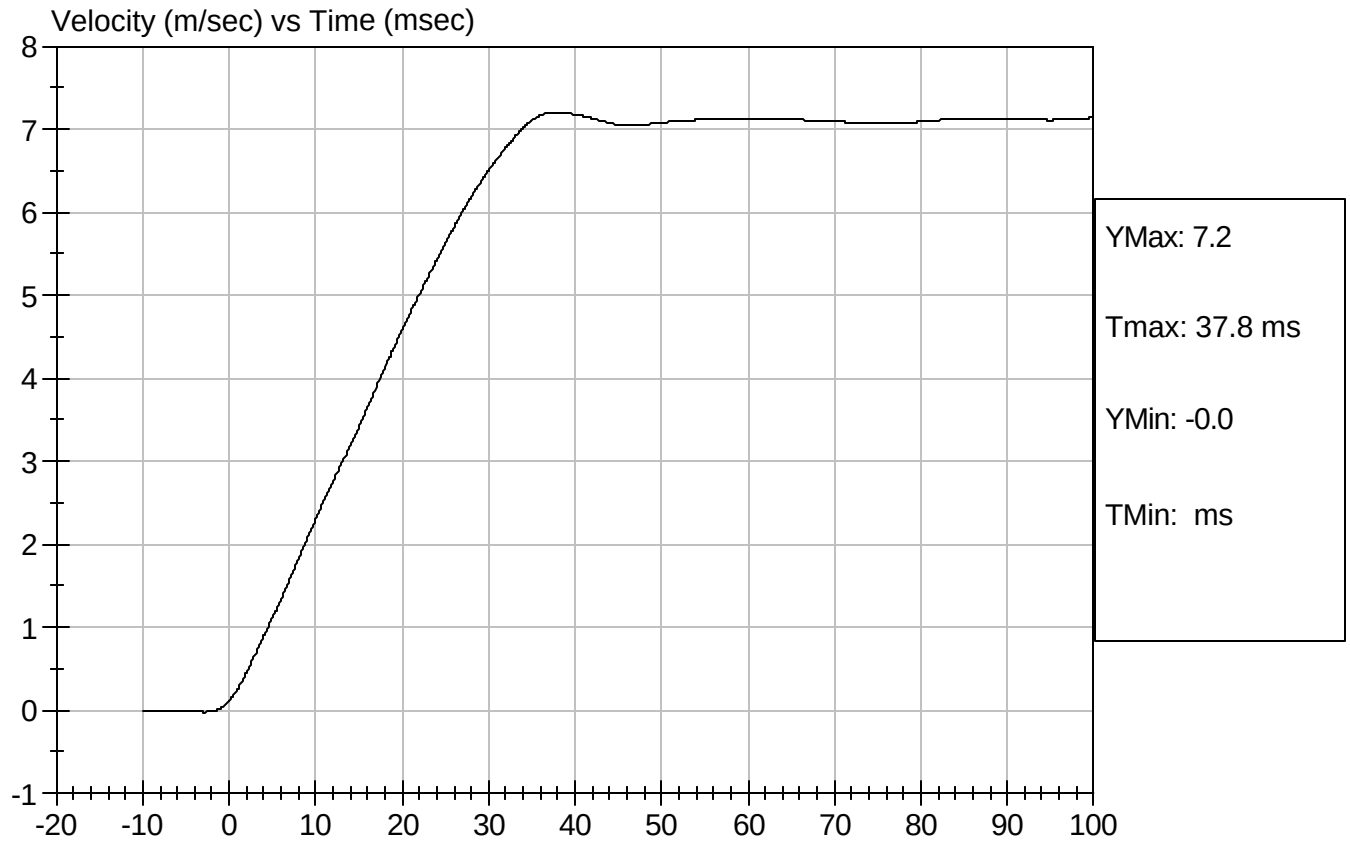
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D061329

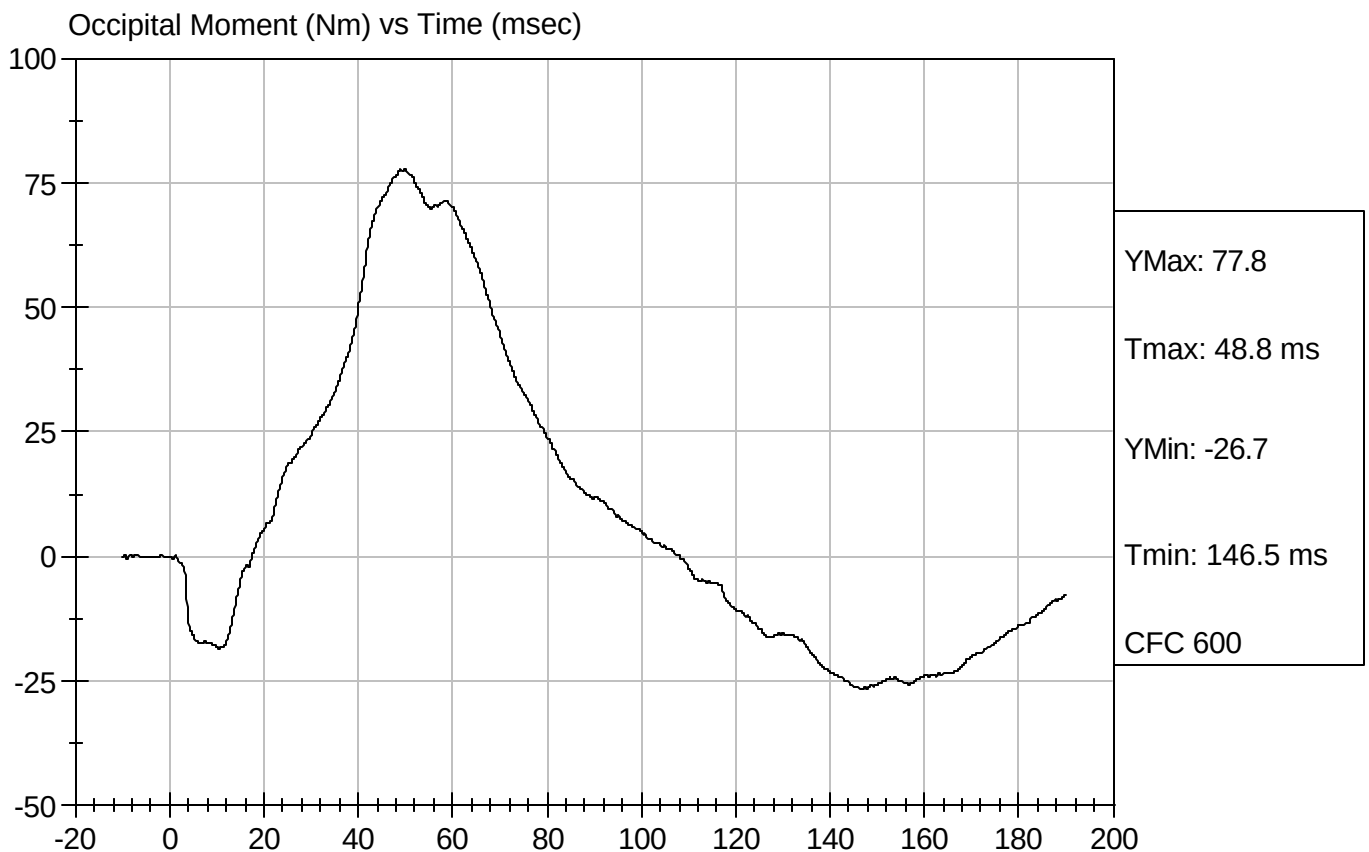
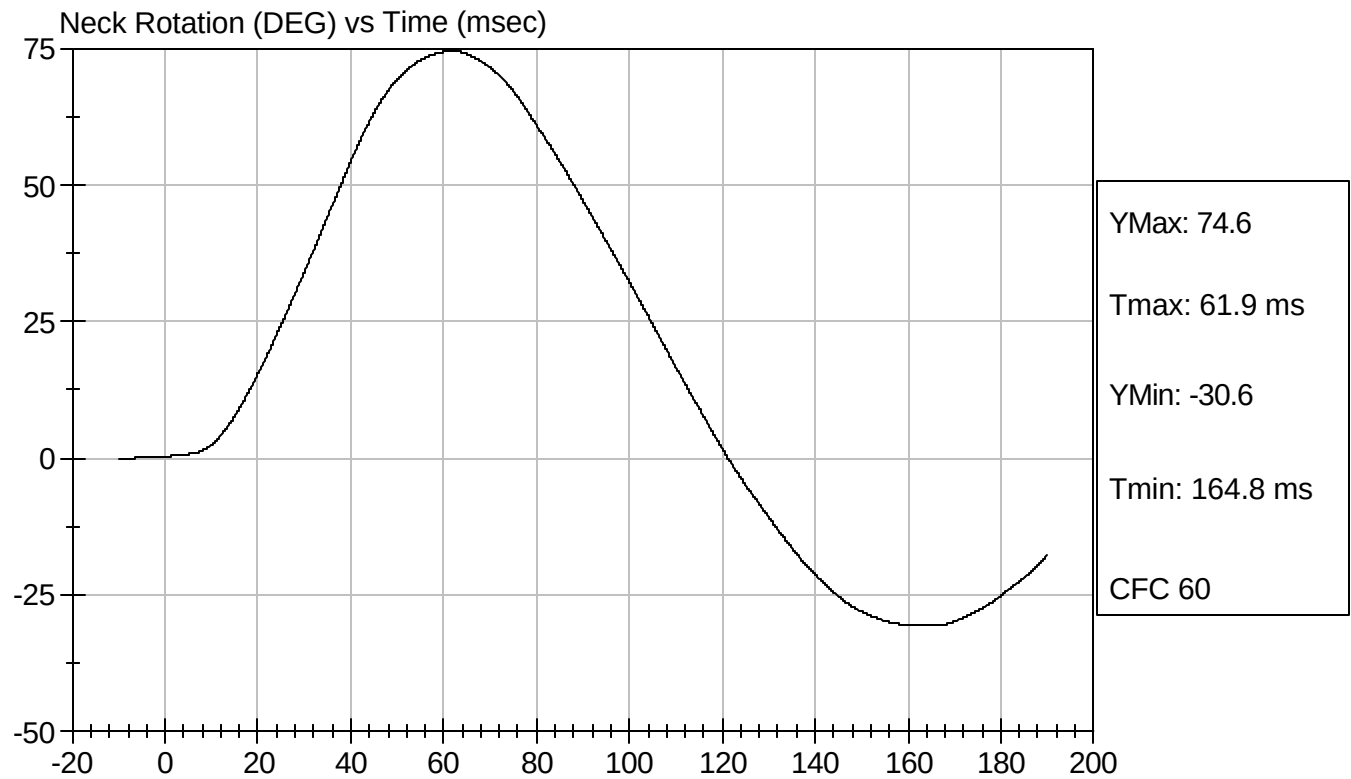
Test Date: 05/12/2006
Speed: 22.73 ft/sec, 6.93 m/sec





Test Desc: Neck Bending
Component ID: D061329

Test Date: 05/12/2006
Speed: 22.73 ft/sec, 6.93 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: D061371

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Peak Resultant Acceleration	G's	120 to 150	141	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

05/15/2006

Test Date

David Winkelbauer
Approved By



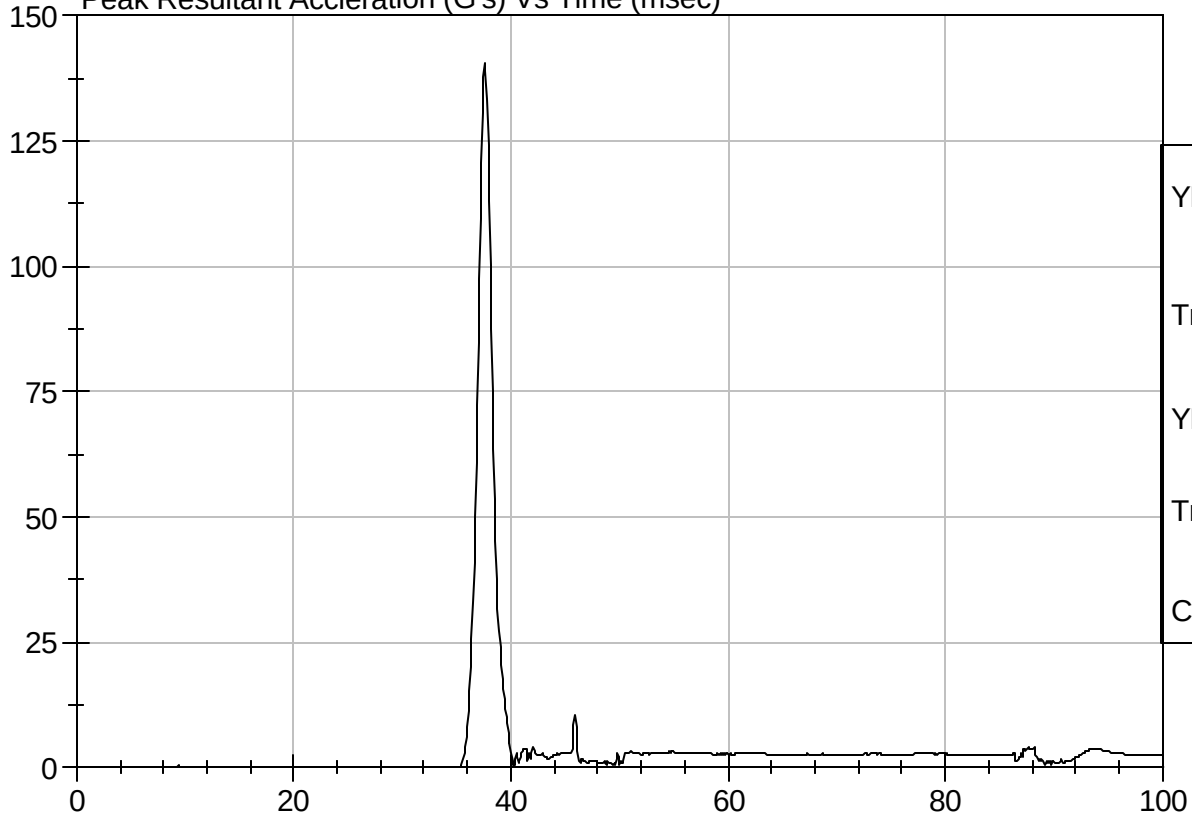
Test Description: Head Drop

Test Date: 05/15/2006

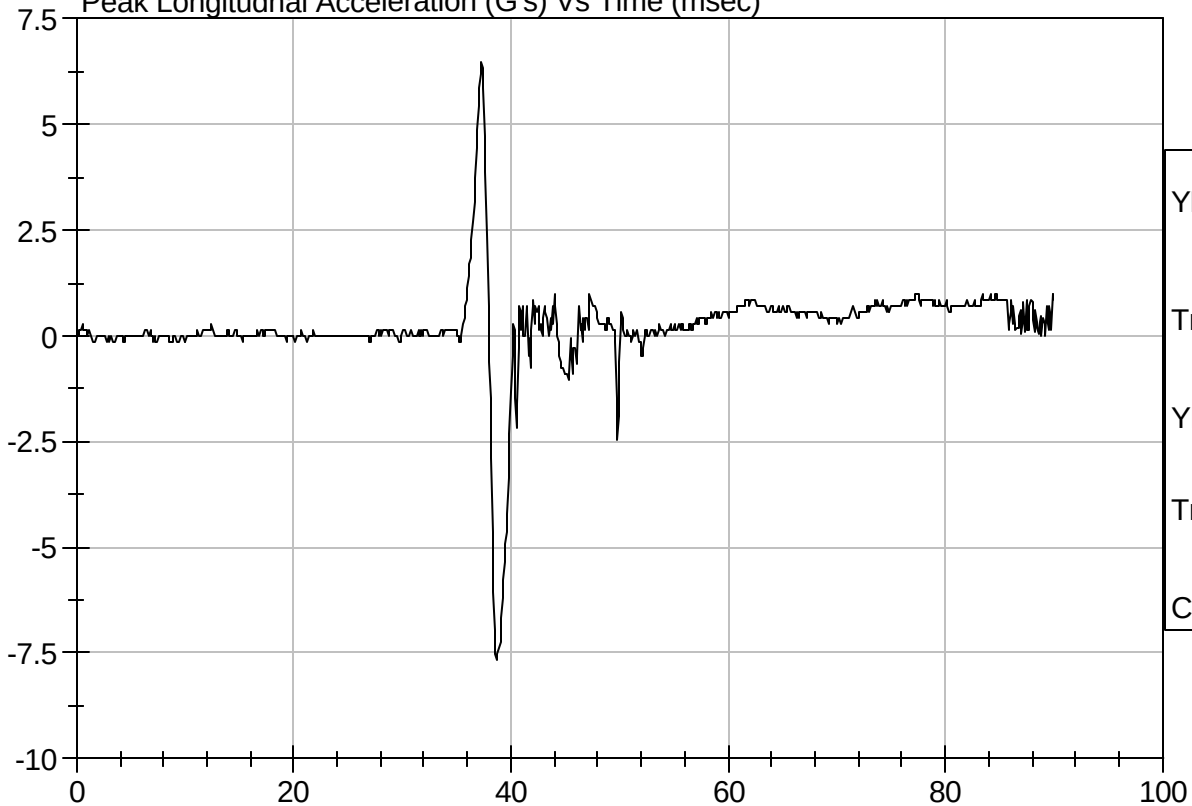
Component: D061371

Speed: 0 ft/s, 0.00 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 904

Test I.D: D061372

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Velocity	m/s	4.22 - 4.31	4.30	Pass
Upper Rib	G's	37 - 46	41	Pass
Lower Rib	G's	37 - 46	40	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

05/15/2006

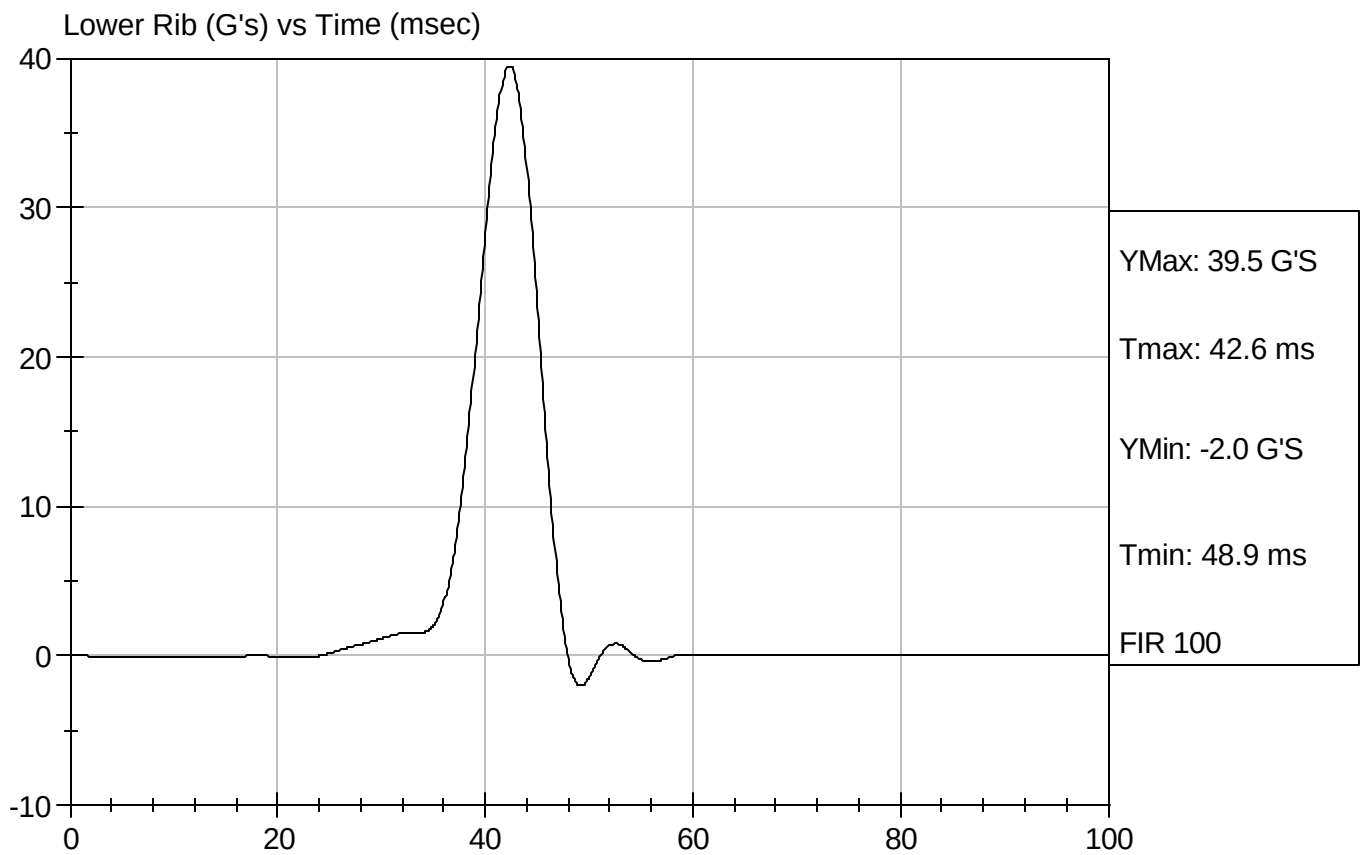
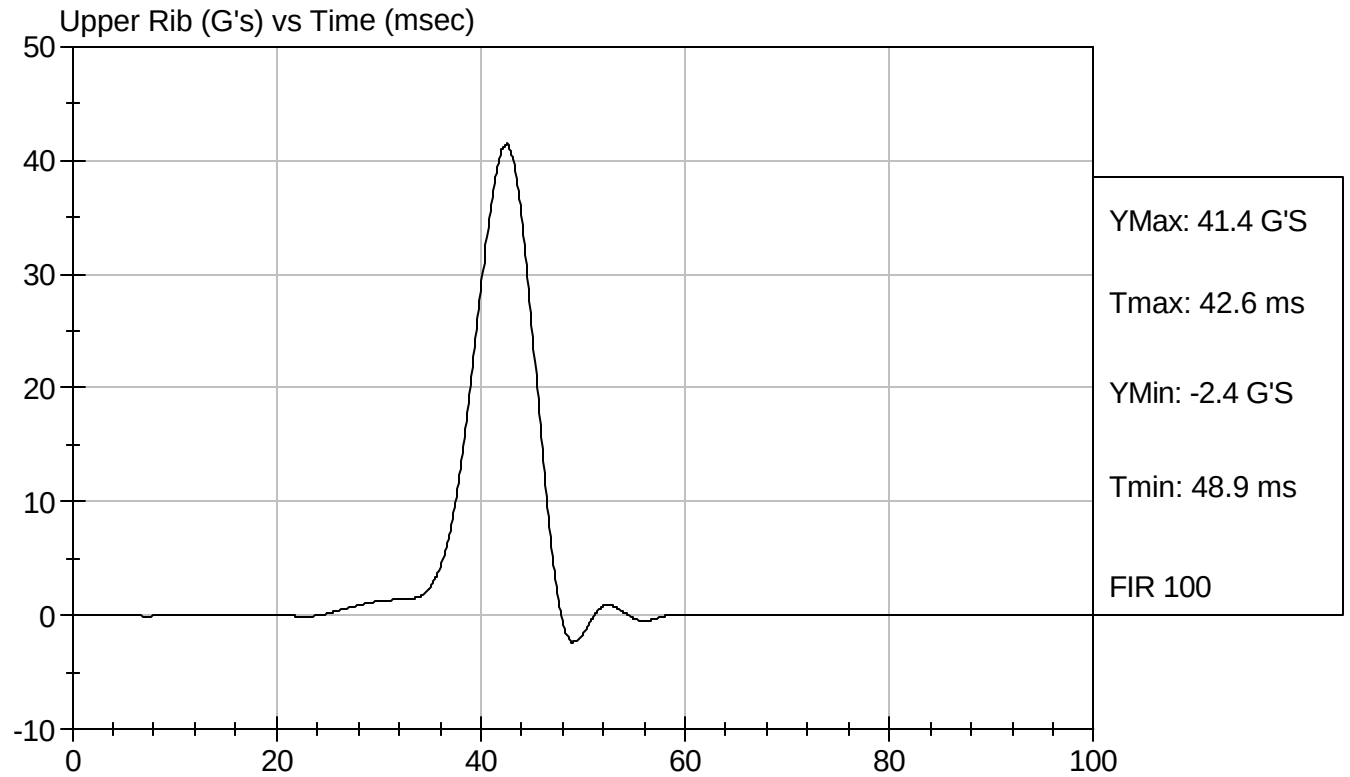
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Impact
Component ID: D061372

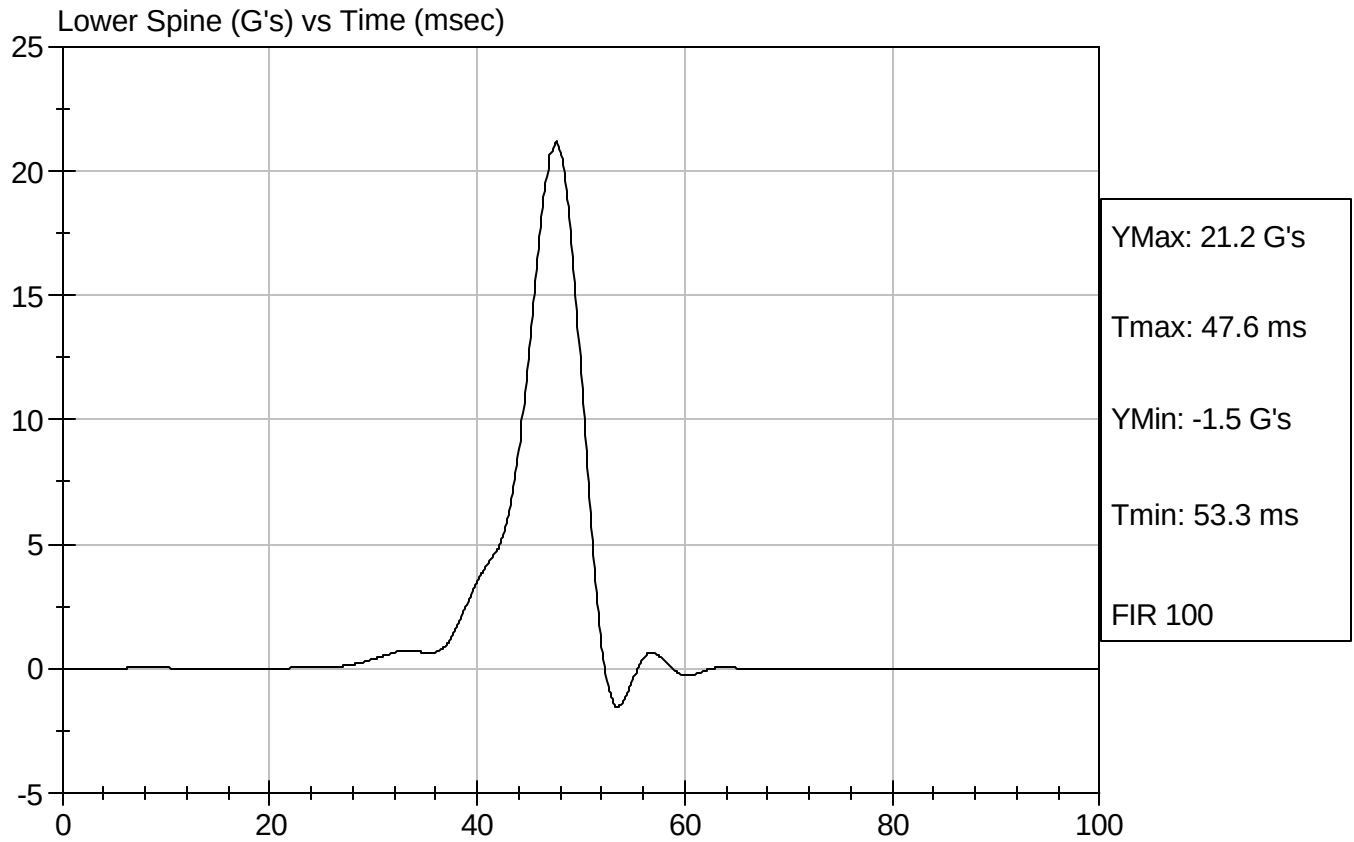
Test Date: 05/15/2006
Speed: 14.12 ft/sec, 4.30 m/sec





Test Desc: Thorax Impact
Component ID: D061372

Test Date: 05/15/2006
Speed: 14.12 ft/sec, 4.30 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 904

Test I.D: D061373

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Velocity	m/s	4.27 - 4.33	4.32	Pass
Pelvis Acceleration	G's	40 - 60	49	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

05/15/2006

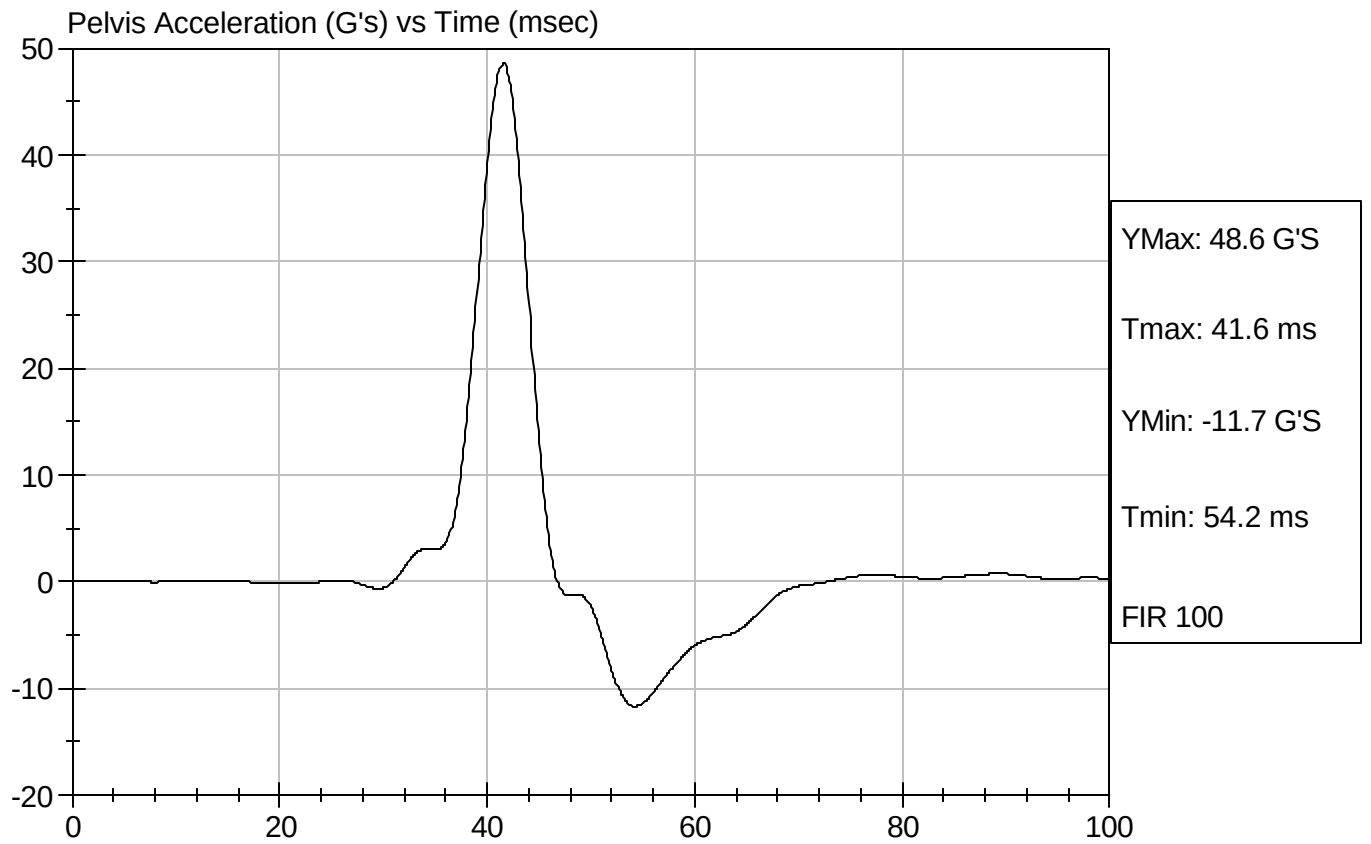
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D061373

Test Date: 05/15/2006
Speed: 14.17 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: D061374

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Force At 12.7 mm	N	104 -162	142	Pass
Force At 19 mm	N	163 - 222	198	Pass
Force At 25.4 mm	N	222 - 280	266	Pass
Force At 33 mm	N	325 - 391	364	Pass
Overall Test Results				Pass


Laboratory Technician

05/16/2006
Test Date


Approved By

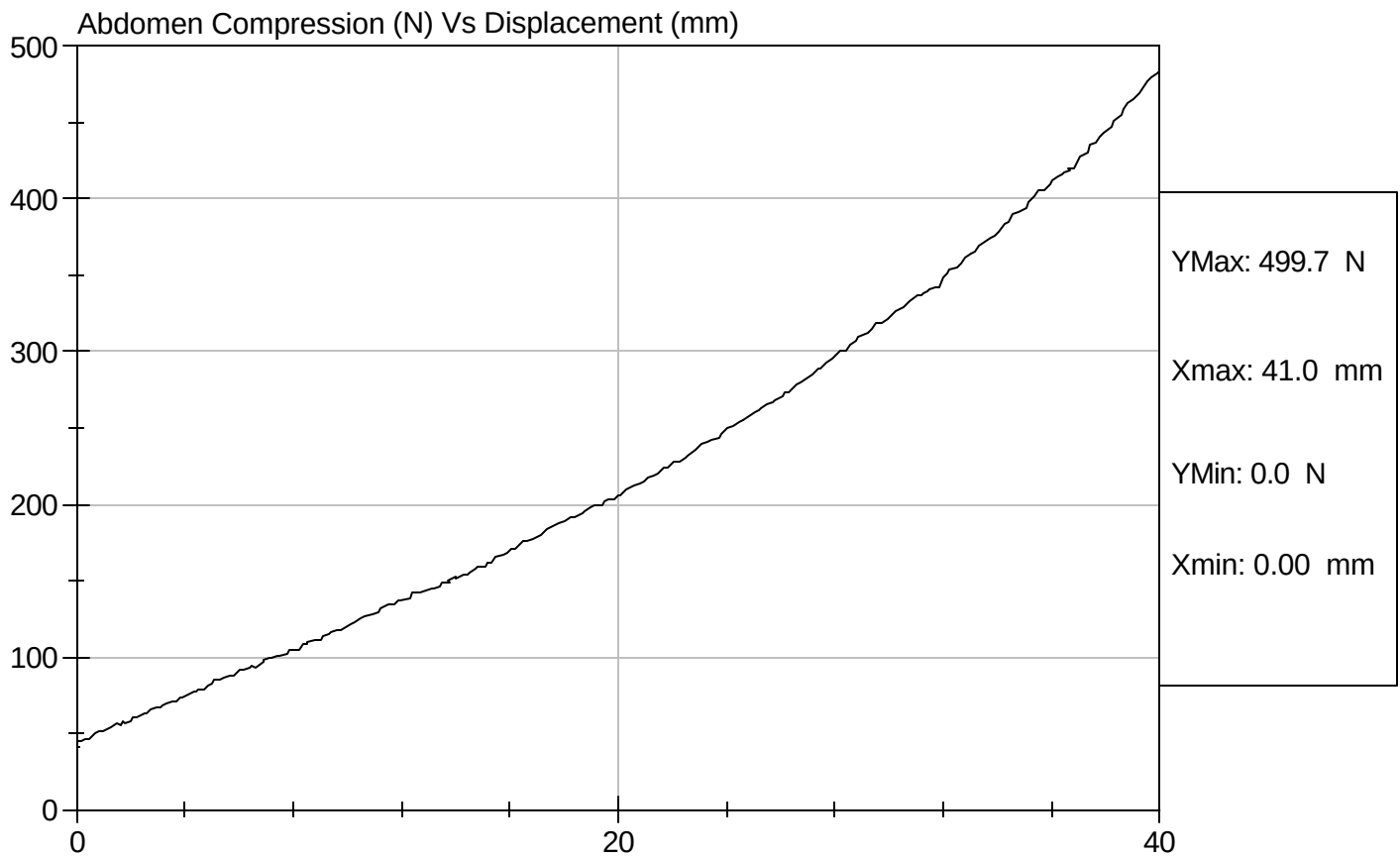


Test Description: Abdomen Compression

Test Date: 05/16/2006

Component: D061374

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 904

Test I.D: D061375

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	106.2	Pass
Force At 30 deg	N	151.2 - 204.6	164.1	Pass
Force At 40 deg	N	204.6 - 258.0	205.4	Pass
Return Angle	Deg	12 Maximum	6	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

05/16/2006

Test Date

David Winkelbauer
Approved By

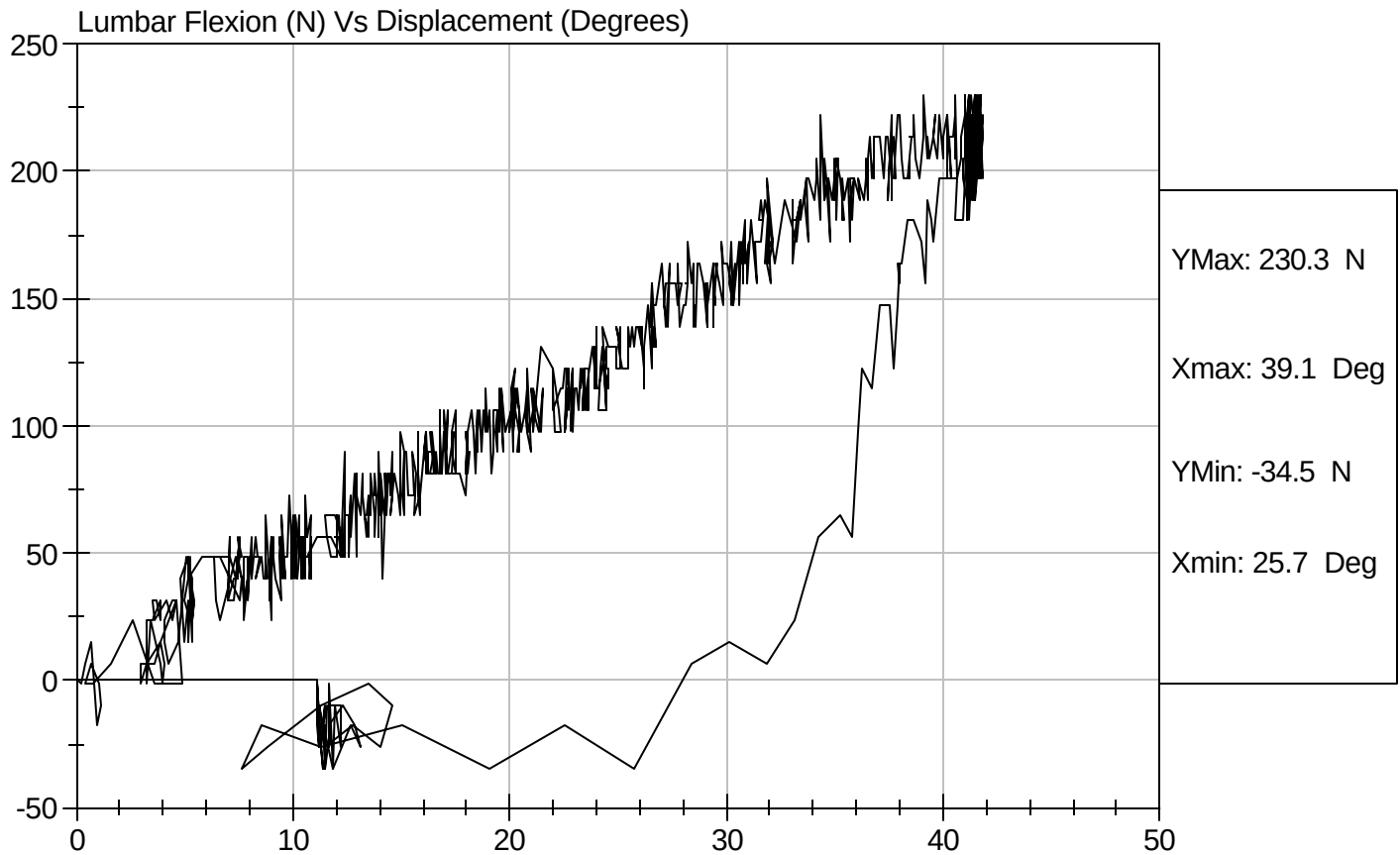


Test Description: Lumbar Flexion

Test Date: 05/16/2006

Component: D061375

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: D061379

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.5	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	2.28	Pass
	20 msec	m/s	4.12 to 5.10	4.48	Pass
	30 msec	m/s	5.73 to 7.01	6.22	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.21	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	78	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	58	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician

05/16/2006

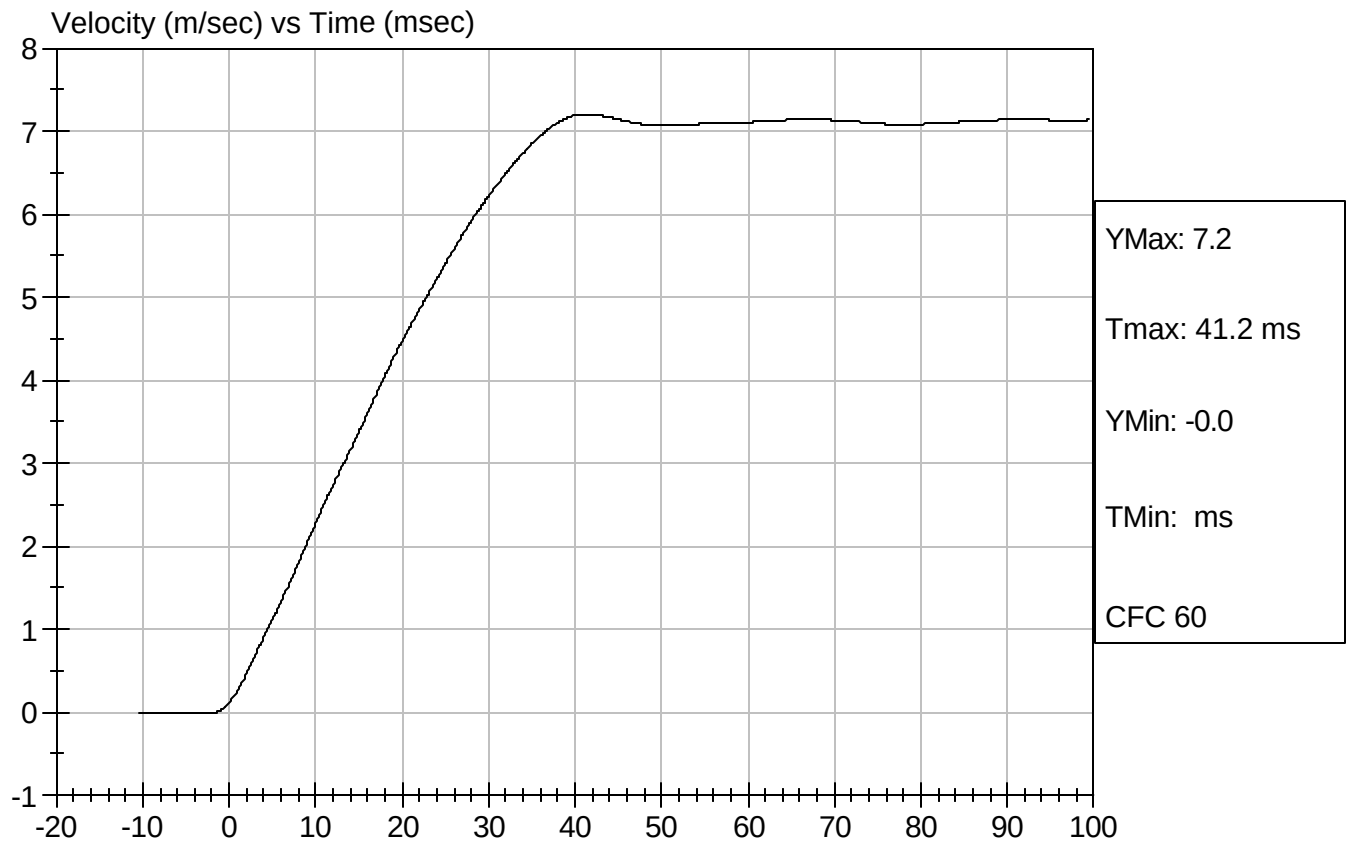
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D061379

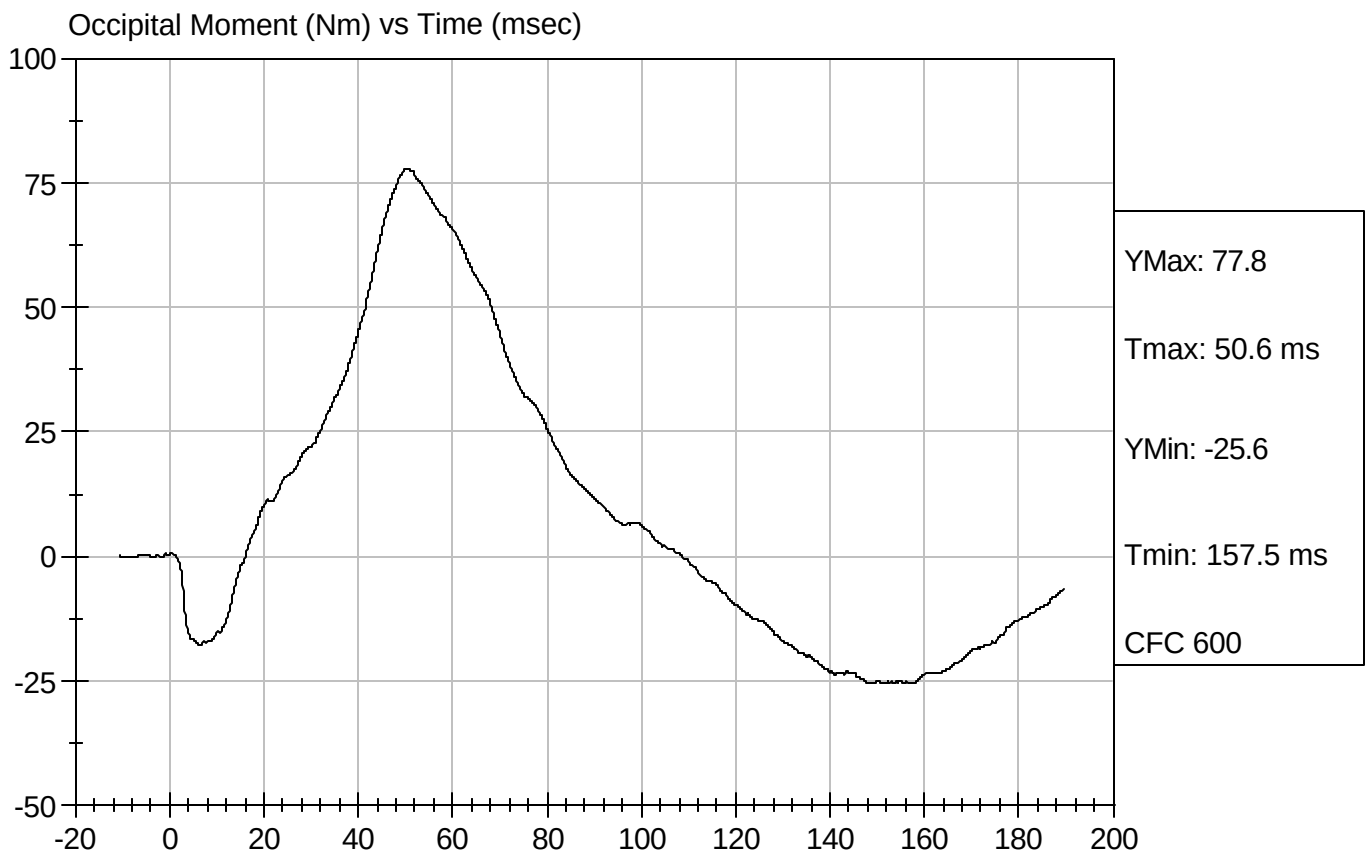
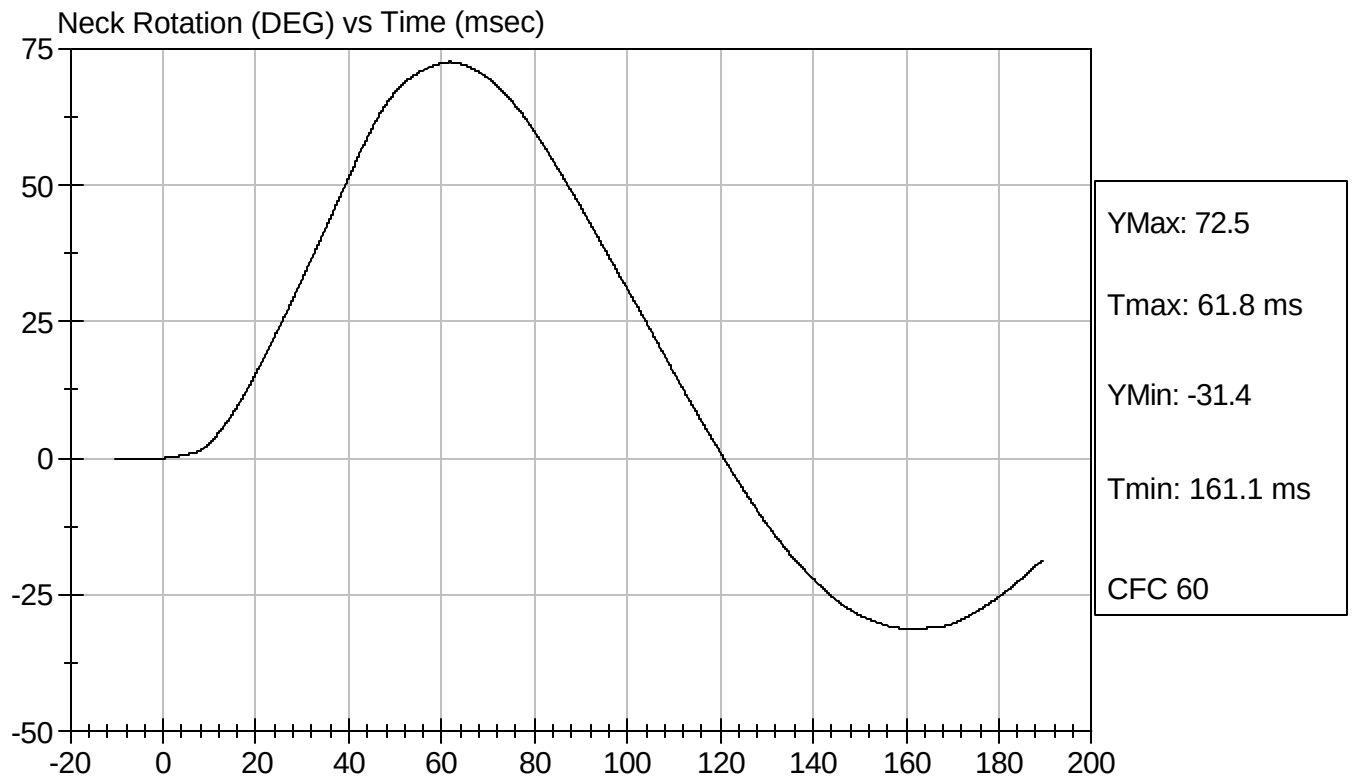
Test Date: 05/16/2006
Speed: 23.15 ft/sec, 7.06 m/sec





Test Desc: Neck Bending
Component ID: D061379

Test Date: 05/16/2006
Speed: 23.15 ft/sec, 7.06 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 904

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

Jessica Hall
Laboratory Technician
David Winkelbauer
Approved By

05/16/2006
Test Date

CERTIFICATION DATA

Dummy Serial Number: 272

Calibration Test Results Summary

Dummy Serial Number: 272

Pre-Test Calibration

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

SID Calibration Data Sheet
Side Impact Dummy
External Measurements

ATD Serial No: 272

Test I.D: D06125

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

Jessica Hall
Laboratory Technician

05/09/2006

Test Date

David Winkelbauer
Approved By

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

ATD Serial No: 272

Test I.D: D061311

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.8	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Peak Resultant Acceleration	G's	120 to 150	122	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

05/12/2006

Test Date

David Winkelbauer
Approved By



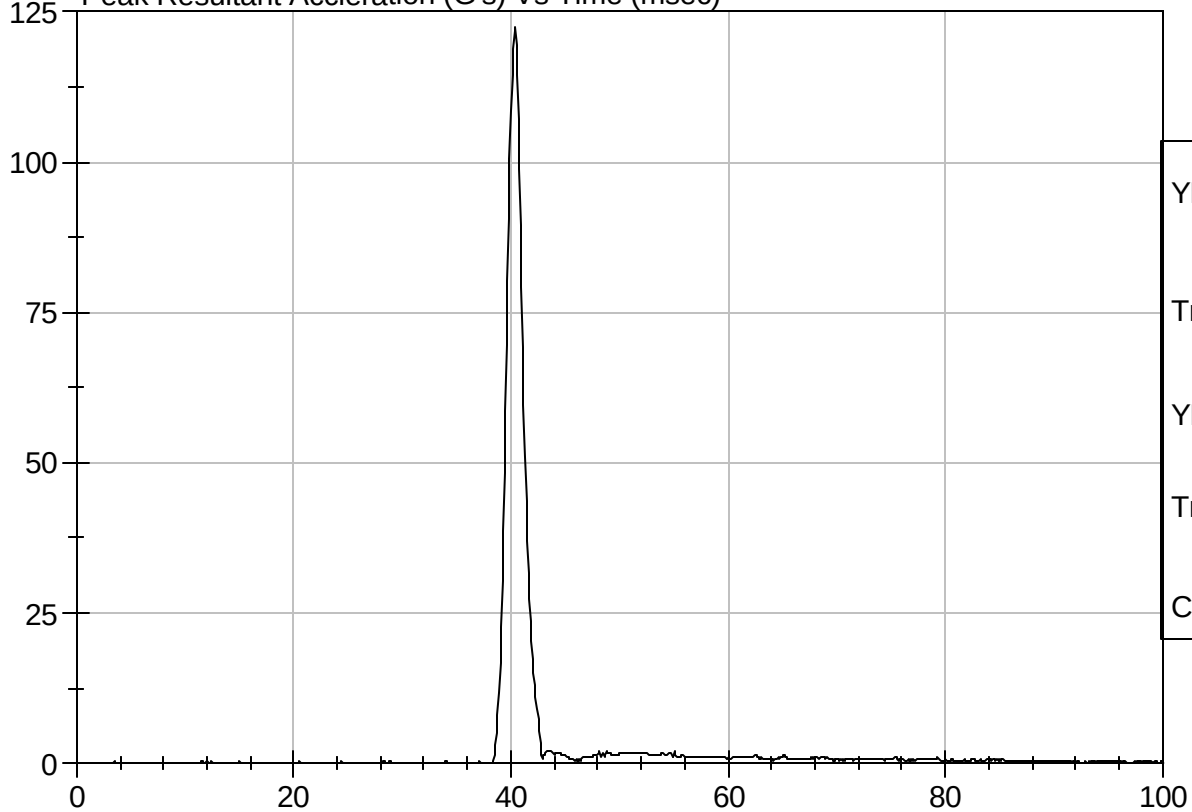
Test Description: Head Drop

Test Date: 05/12/2006

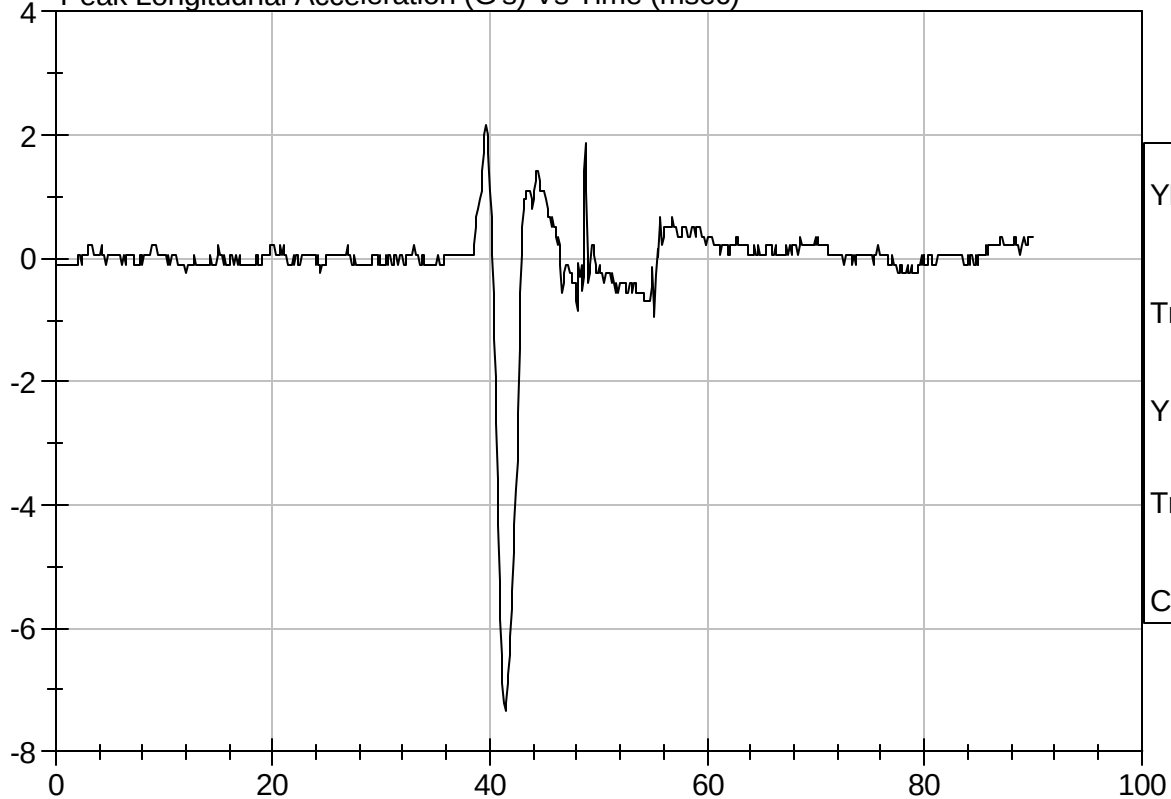
Component: D061311

Speed: 0 ft/s, 0.00 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 272

Test I.D: D061312

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Probe Velocity	m/s	4.22 - 4.31	4.29	Pass
Upper Rib	G's	37 - 46	43	Pass
Lower Rib	G's	37 - 46	45	Pass
Lower Spine	G's	15 - 22	22	Pass
Overall Test Results				Pass


Laboratory Technician

05/12/2006

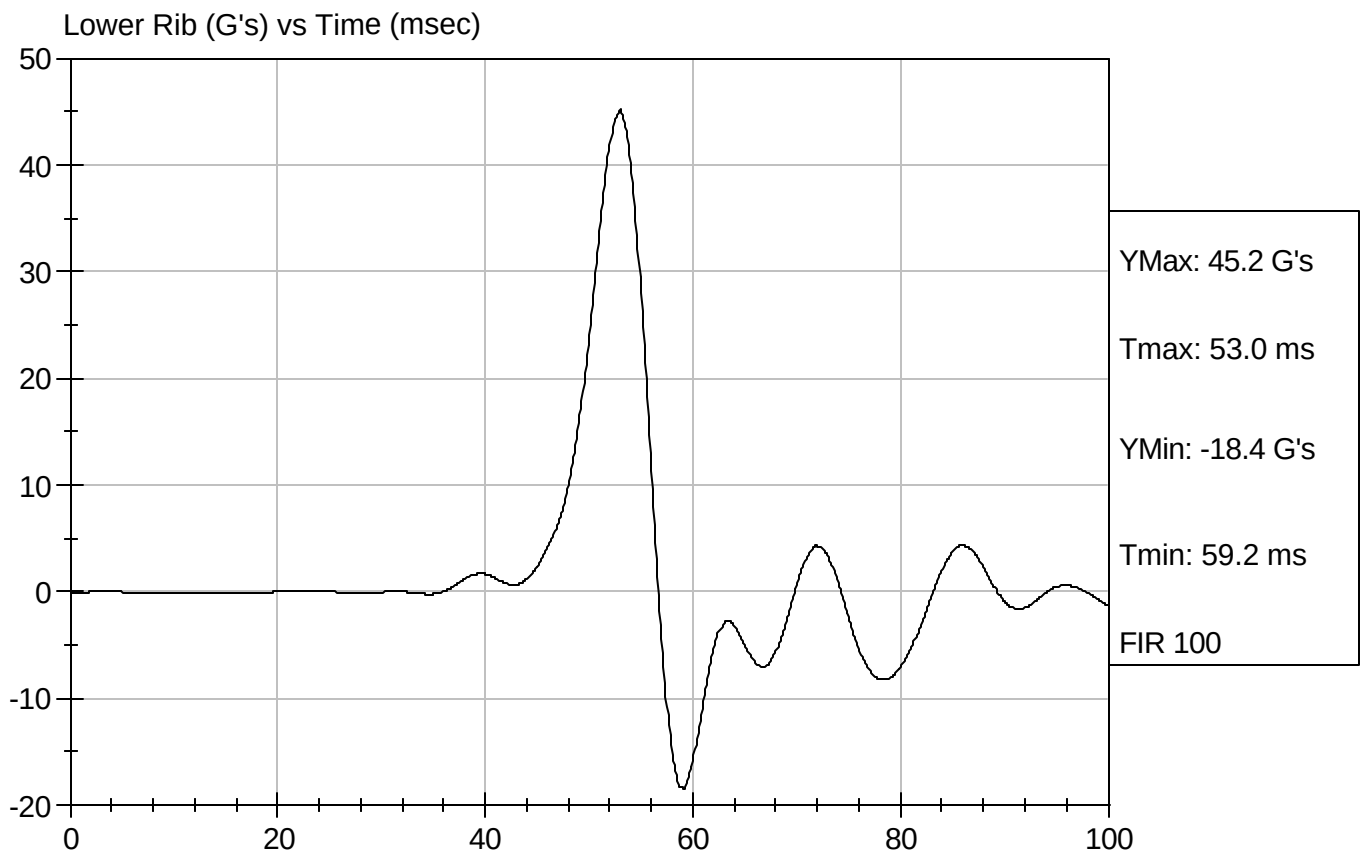
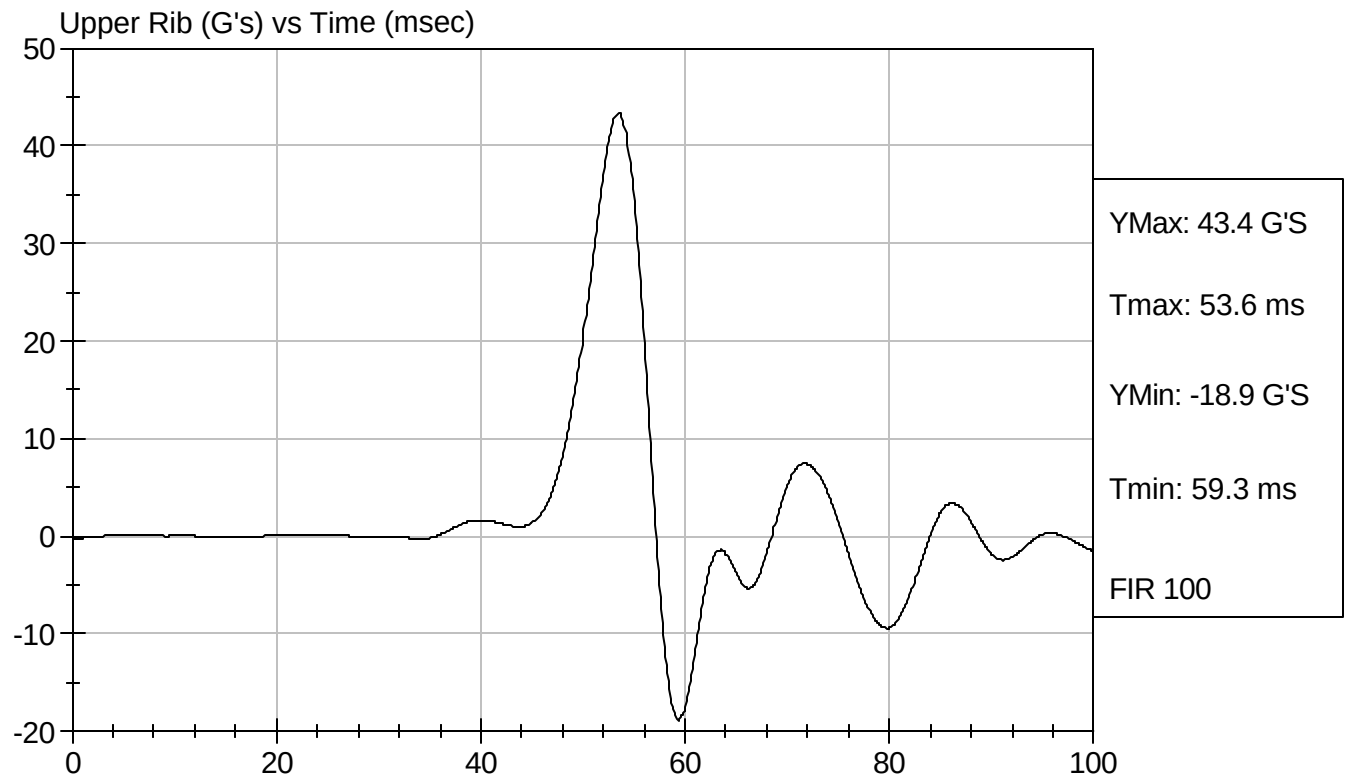
Test Date


Approved By



Test Desc: Thorax Impact
Component ID: D061312

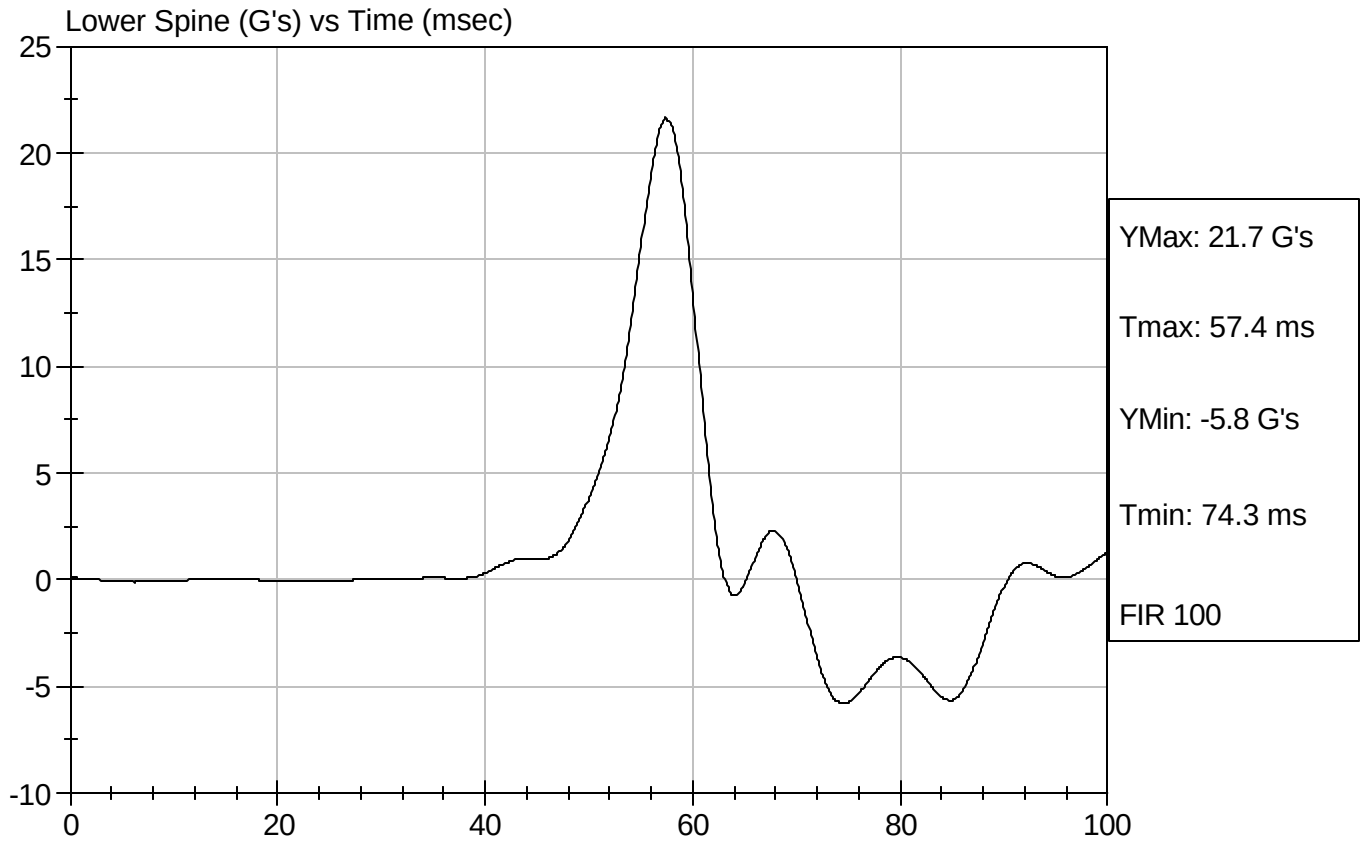
Test Date: 05/12/2006
Speed: 14.07 ft/sec, 4.29 m/sec





Test Desc: Thorax Impact
Component ID: D061312

Test Date: 05/12/2006
Speed: 14.07 ft/sec, 4.29 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 272

Test I.D: D061313

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	34	Pass
Probe Velocity	m/s	4.27 - 4.33	4.31	Pass
Pelvis Acceleration	G's	40 - 60	44	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

05/12/2006

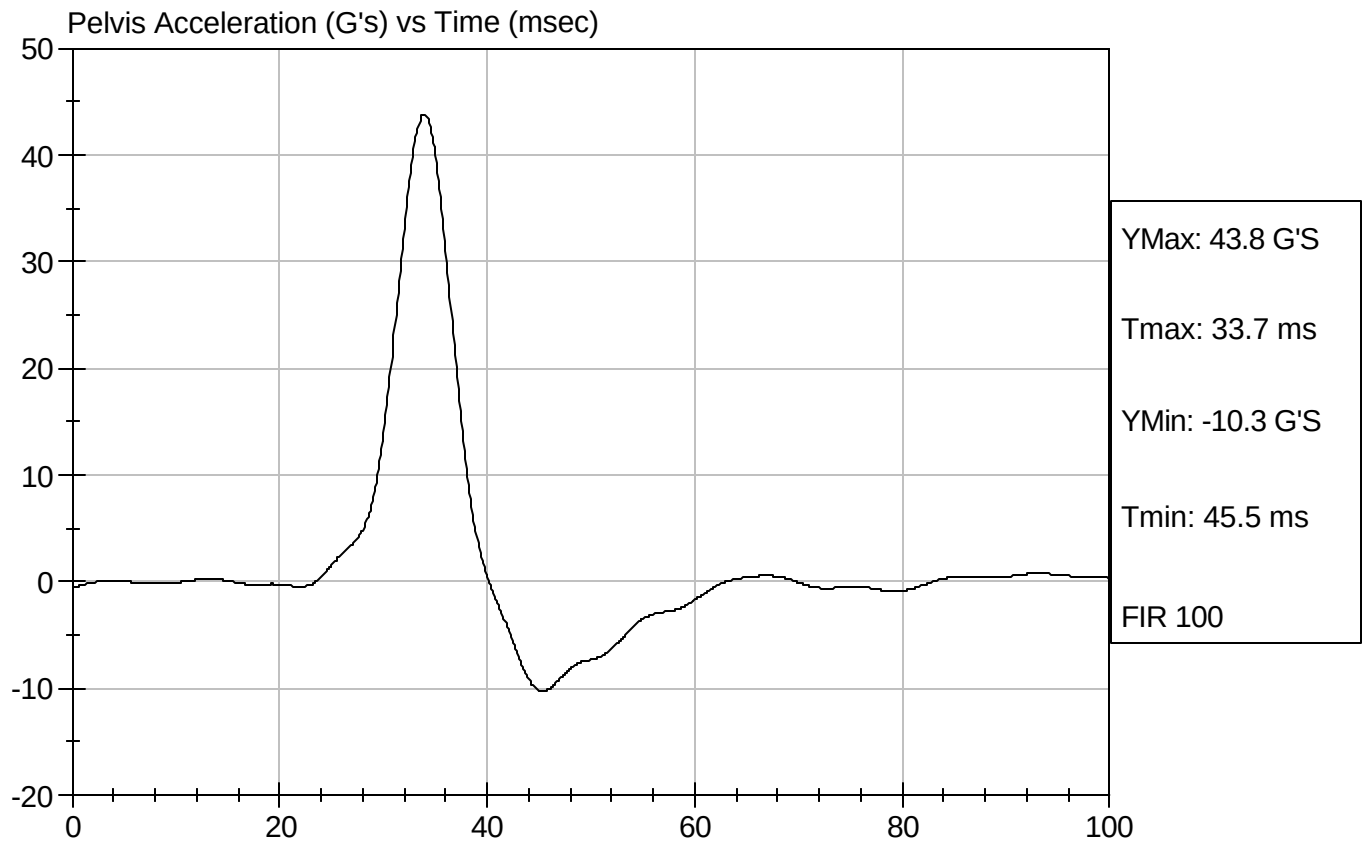
Test Date

David Winkelbauer
Approved By



Test Desc: Pelvis Impact
Component ID: D061313

Test Date: 05/12/2006
Speed: 14.13 ft/sec, 4.31 m/sec



SID Calibration Data Sheet

Side Impact Dummy

Abdominal Compression Calibration (Pre-Load = 10 lbs)

ATD Serial No: 272

Test I.D: D061314

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Force At 12.7 mm	N	104 -162	139	Pass
Force At 19 mm	N	163 - 222	194	Pass
Force At 25.4 mm	N	222 - 280	263	Pass
Force At 33 mm	N	325 - 391	367	Pass
Overall Test Results			Pass	

Jessica Hall
Laboratory Technician

05/12/2006
Test Date

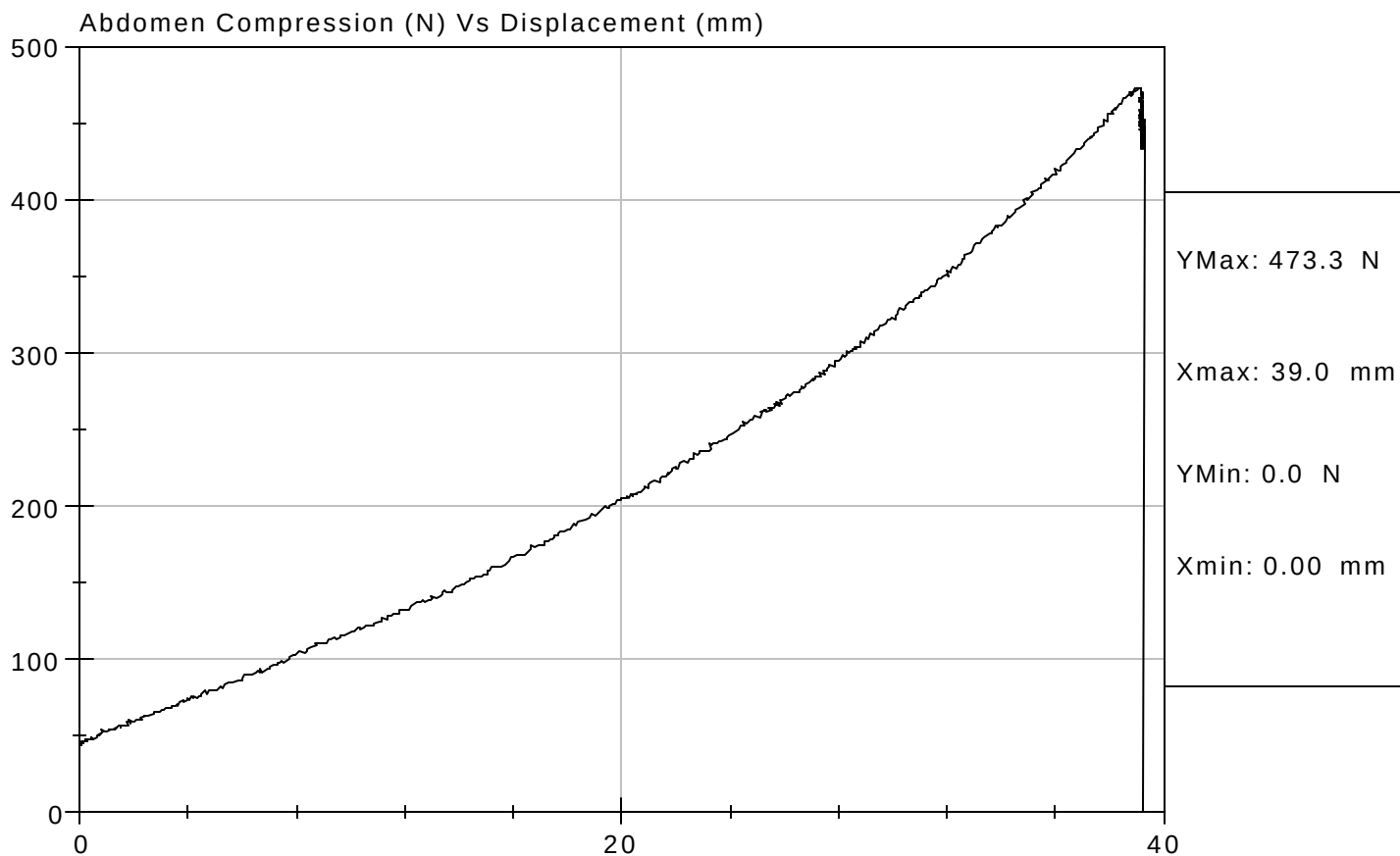
David Winkelbauer
Approved By



Test Description: Abdomen Compression Test Date: 05/12/2006

Component: D061314

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 272

Test I.D: d061315

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	112.5	Pass
Force At 30 deg	N	151.2 - 204.6	178.7	Pass
Force At 40 deg	N	204.6 - 258.0	236.6	Pass
Return Angle	Deg	12 Maximum	4	Pass
			Overall Test Results	Pass

Jessica Hall
Laboratory Technician

05/12/2006

Test Date

David Winkelbauer
Approved By

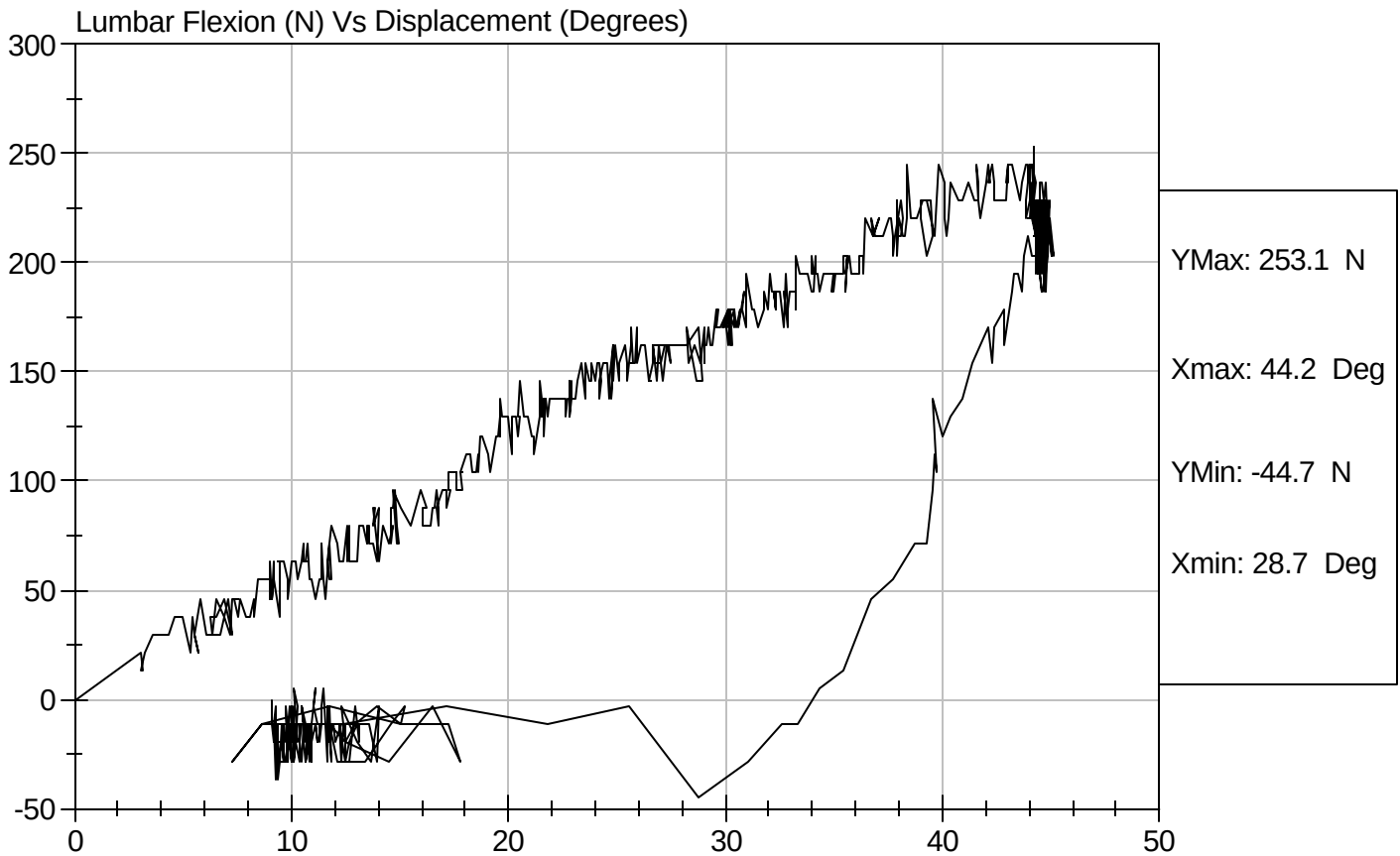


Test Description: Lumbar Flexion

Test Date: 05/12/2006

Component: d061315

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 272

Test I.D: D061319

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	40	Pass
Impact Velocity		m/s	6.89 to 7.13	7.04	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.35	Pass
	20 msec	m/s	4.12 to 5.10	4.64	Pass
	30 msec	m/s	5.73 to 7.01	6.46	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.24	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	74	Pass
Head Rotation Peak to Zero - Decay Time		msec	58 to 67	59	Pass
Max. Mx at Occipital Condyles		Nm	73 to 88	80	Pass
Mx Peak To Zero - Decay Time		msec	49 to 64	54	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	11	Pass


 Laboratory Technician

05/11/2006

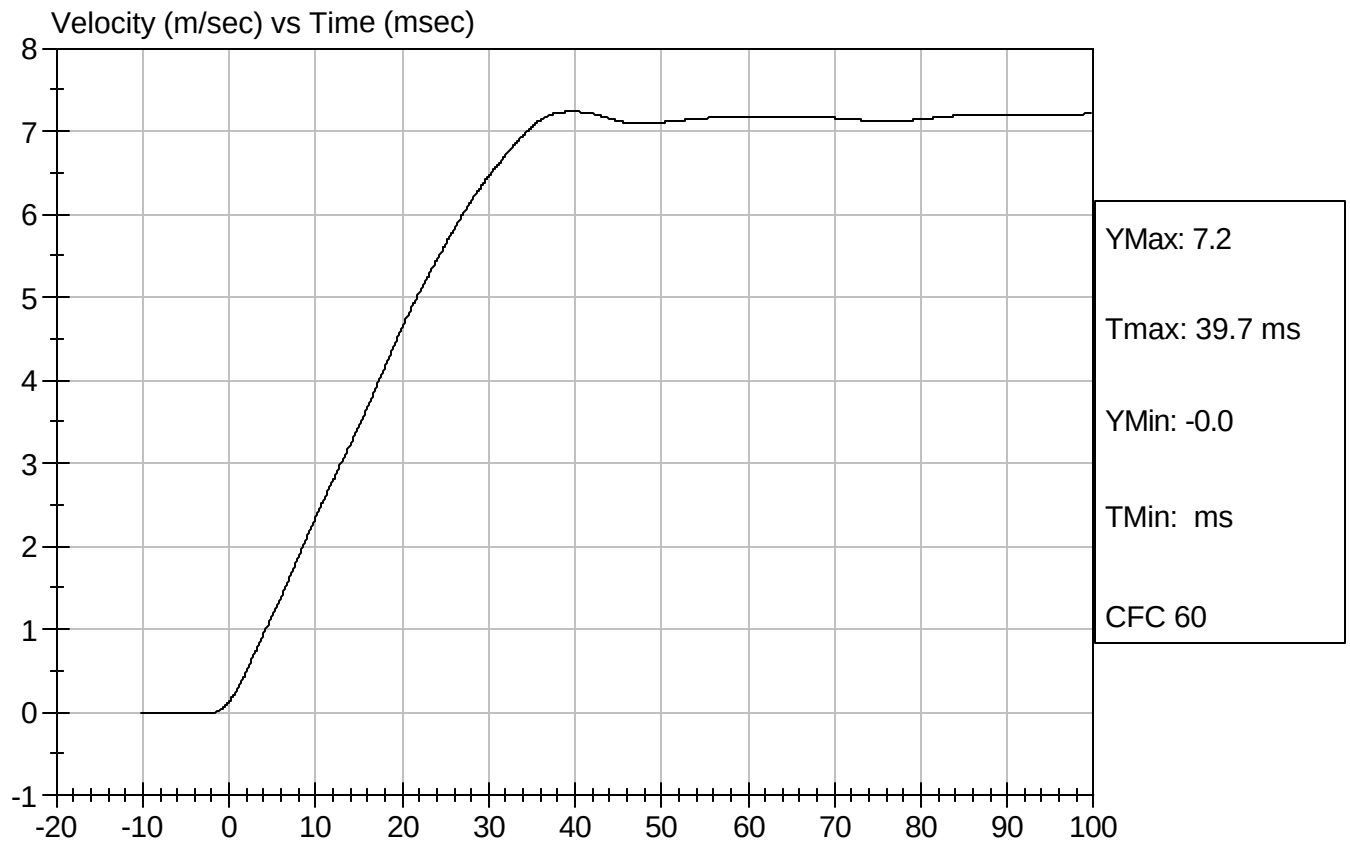
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D061319

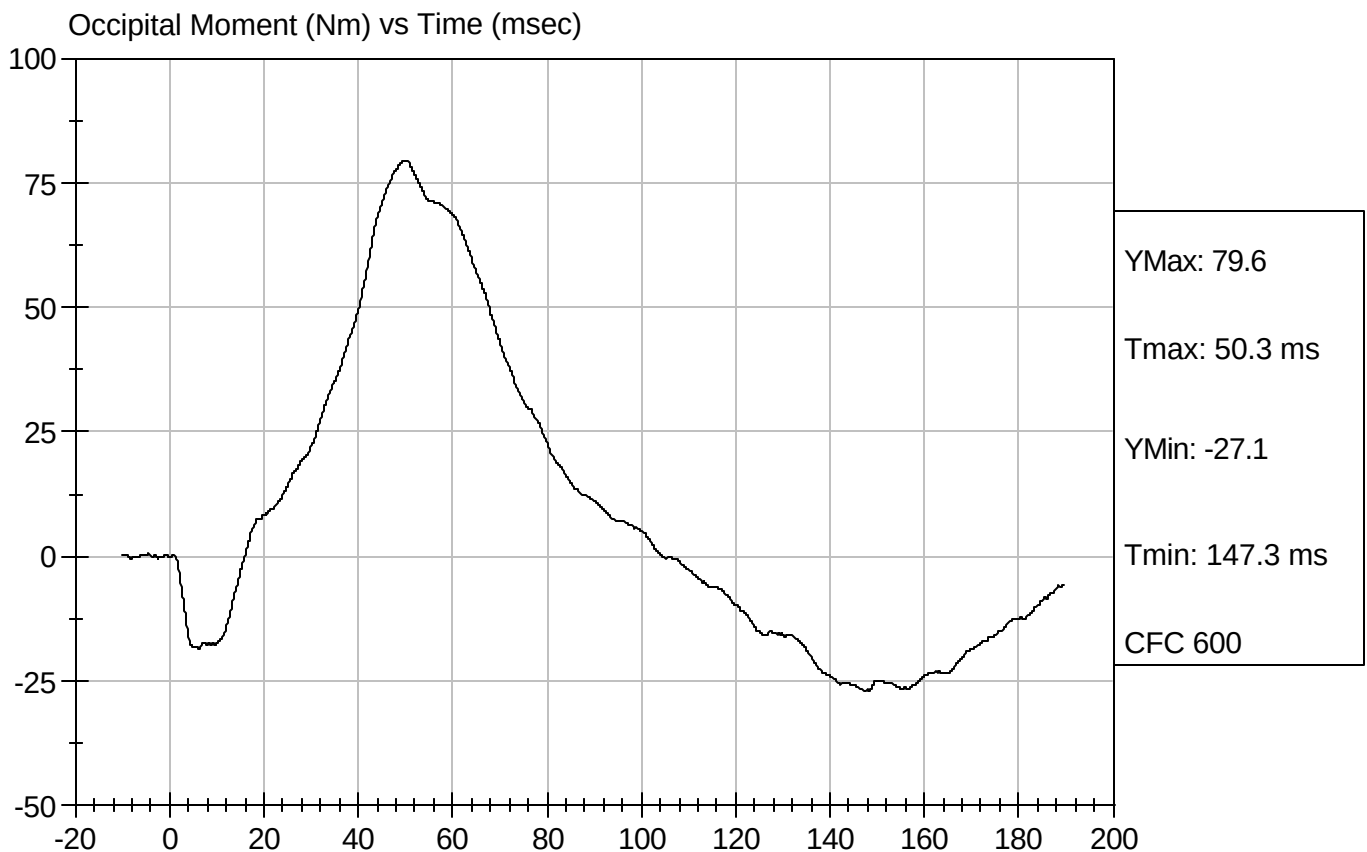
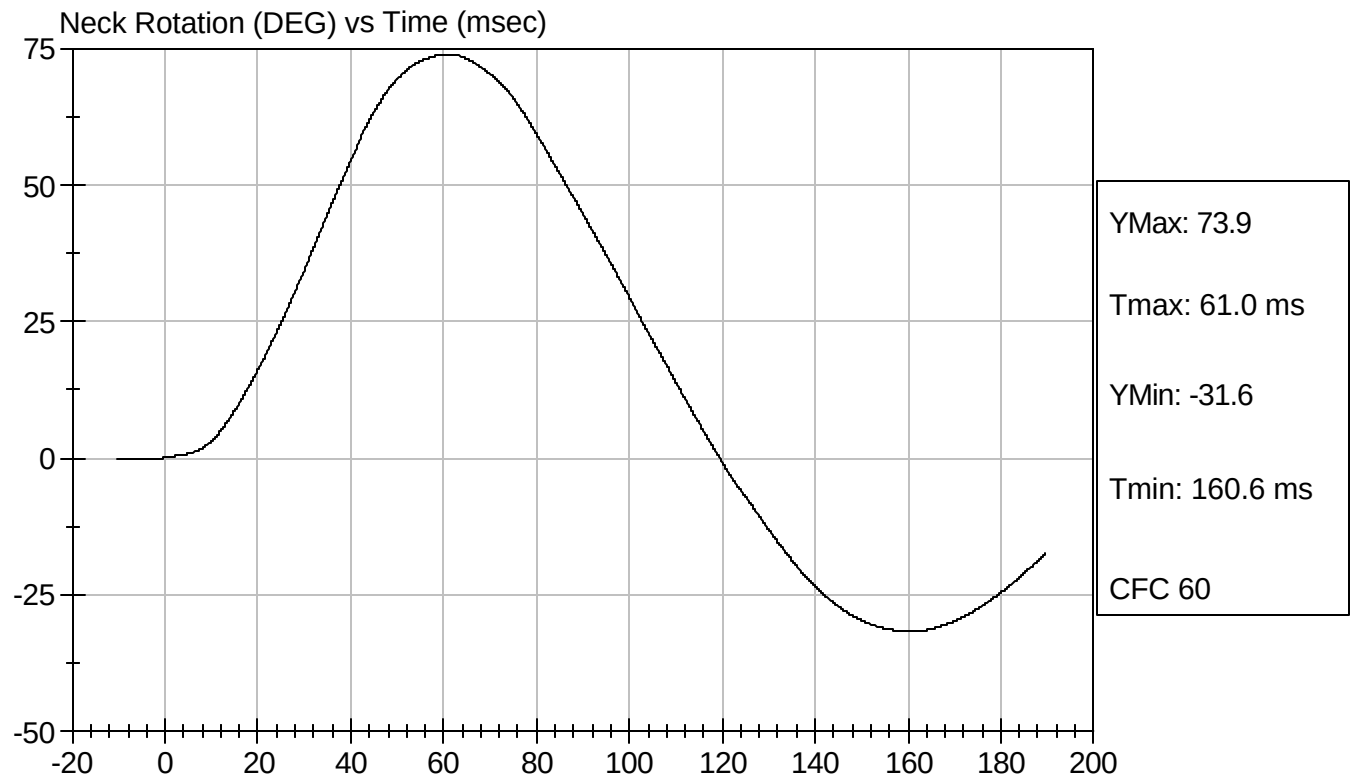
Test Date: 05/11/2006
Speed: 23.1 ft/sec, 7.04 m/sec





Test Desc: Neck Bending
Component ID: D061319

Test Date: 05/11/2006
Speed: 23.1 ft/sec, 7.04 m/sec



Calibration Test Results Summary

Dummy Serial Number: 272

Post-Test Calibration

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

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

ATD Serial No: 272

Test I.D: D061361

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	44	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	-6	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

05/15/2006

Test Date

David Winkelbauer
Approved By



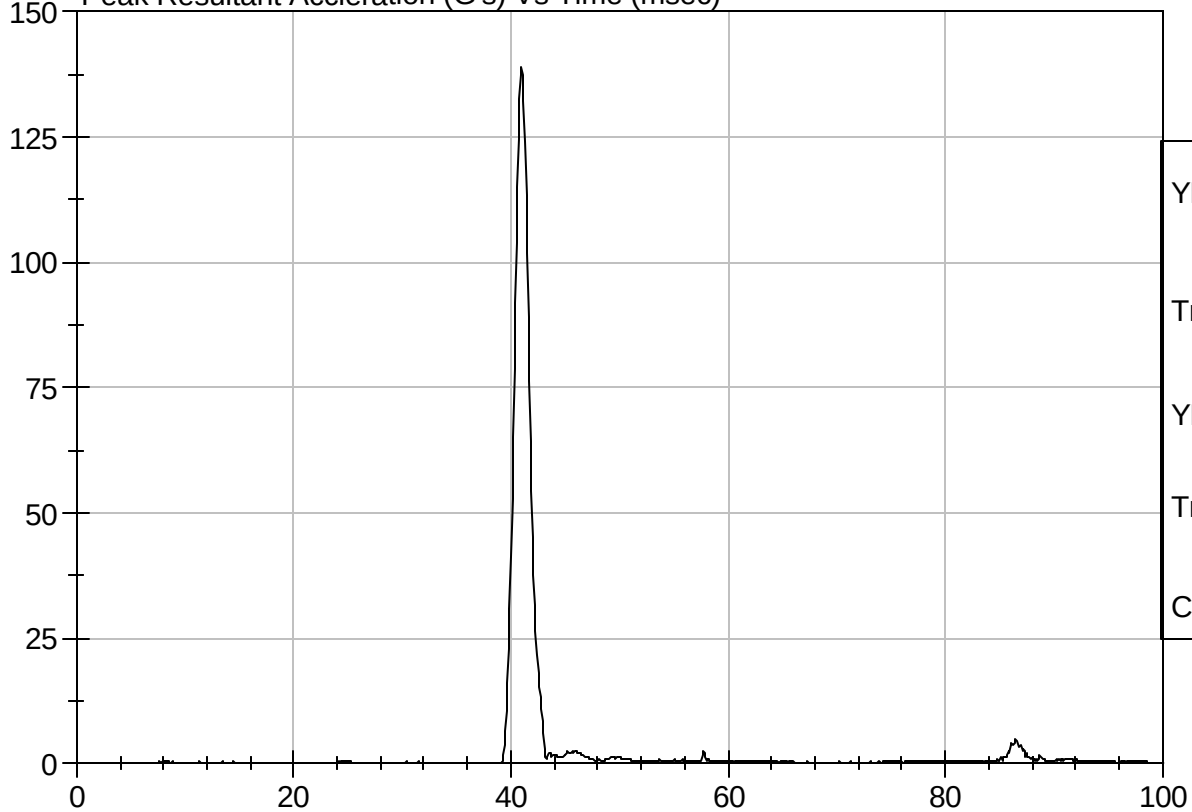
Test Description: Head Drop

Test Date: 05/15/2006

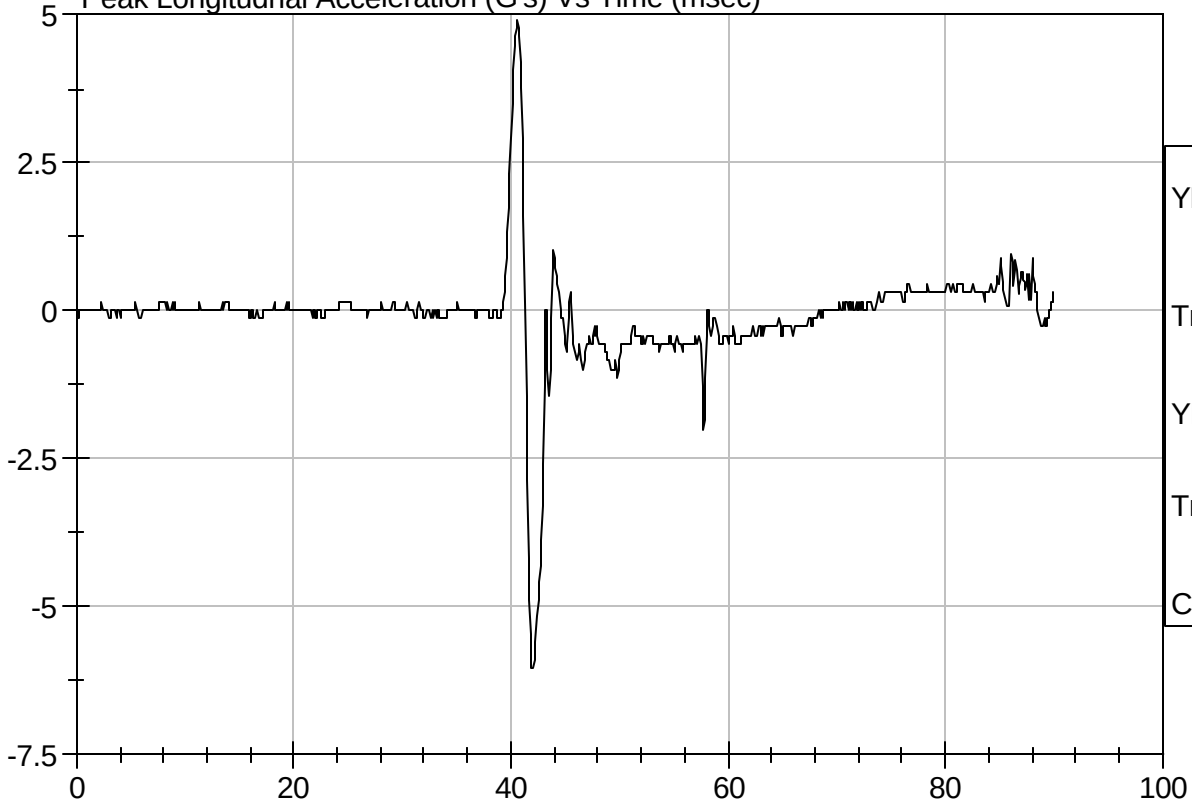
Component: D061361

Speed: 0 ft/s, 0.00 m/s

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



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



SID Calibration Data Sheet
Side Impact Dummy
Thorax Impact Test

ATD Serial No: 272

Test I.D: D061362

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Probe Velocity	m/s	4.22 - 4.31	4.30	Pass
Upper Rib	G's	37 - 46	43	Pass
Lower Rib	G's	37 - 46	42	Pass
Lower Spine	G's	15 - 22	21	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

05/15/2006

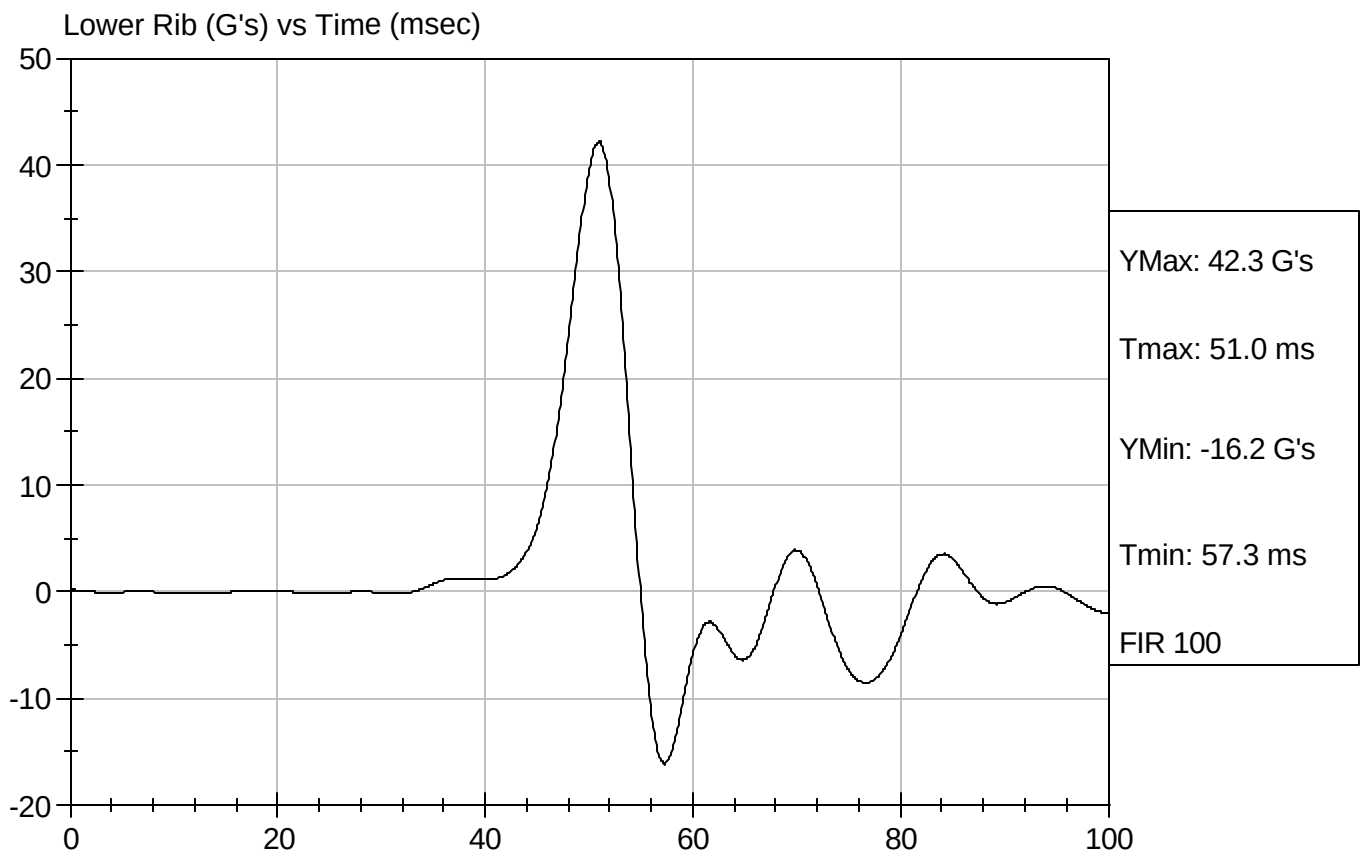
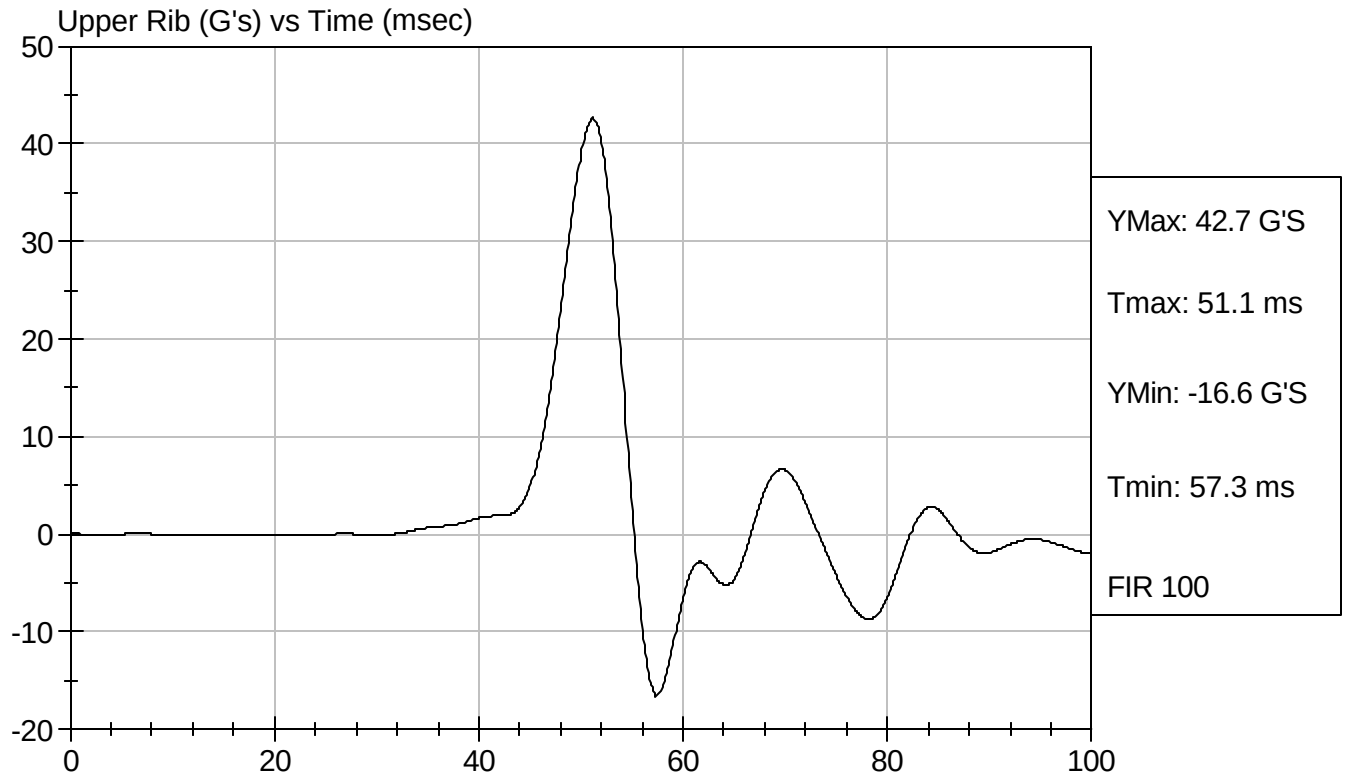
Test Date

David Winkelbauer
Approved By



Test Desc: Thorax Impact
Component ID: D061362

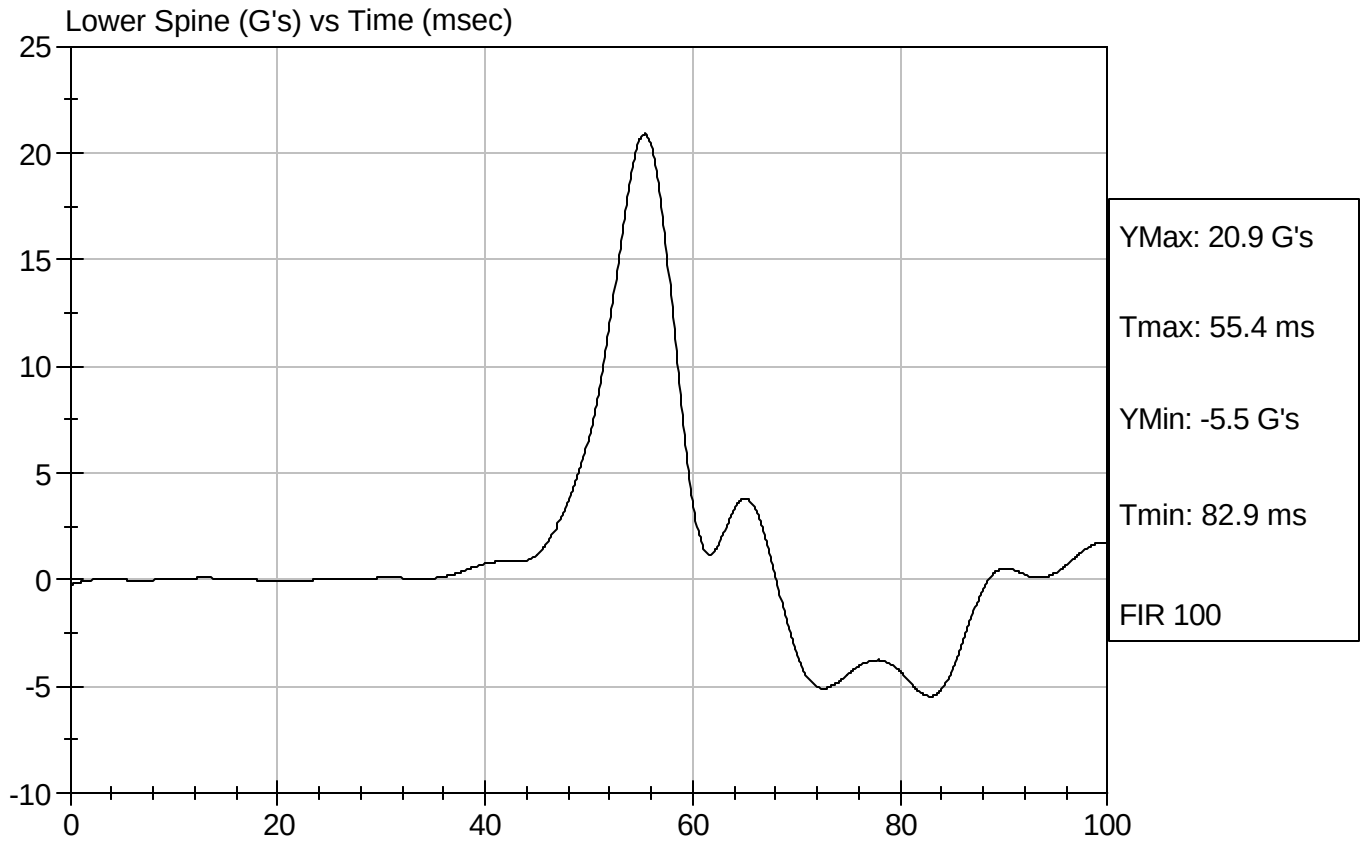
Test Date: 05/15/2006
Speed: 14.12 ft/sec, 4.30 m/sec





Test Desc: Thorax Impact
Component ID: D061362

Test Date: 05/15/2006
Speed: 14.12 ft/sec, 4.30 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Pelvis Impact Test

ATD Serial No: 272

Test I.D: D061363

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	43	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

05/15/2006

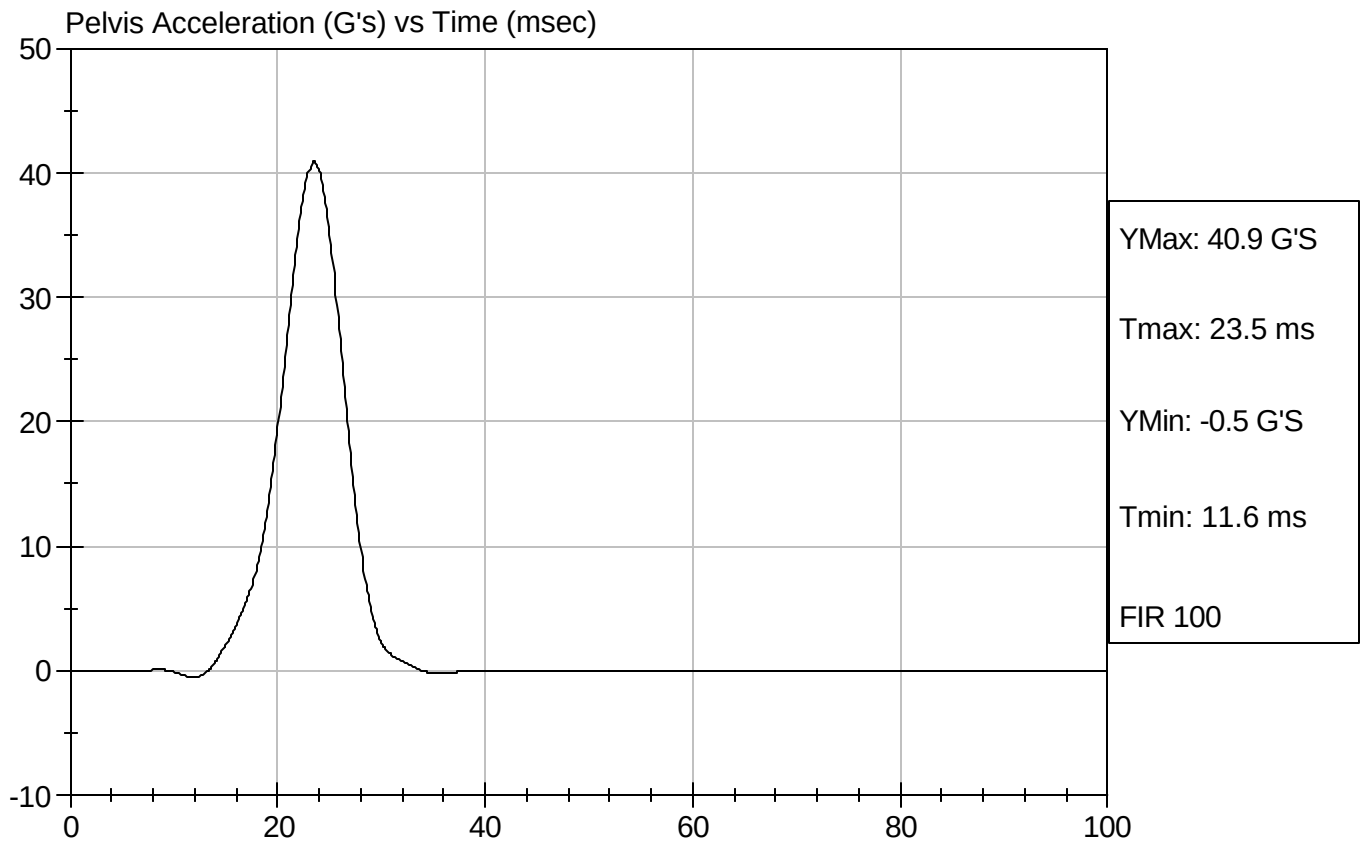
Test Date

David Winkelbauer
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Test Desc: Pelvis Impact
Component ID: D061363

Test Date: 05/15/2006
Speed: 14.11 ft/sec, 4.30 m/sec



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

ATD Serial No: 272

Test I.D: D061364

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	48	Pass
Force At 12.7 mm	N	104 -162	138	Pass
Force At 19 mm	N	163 - 222	194	Pass
Force At 25.4 mm	N	222 - 280	264	Pass
Force At 33 mm	N	325 - 391	377	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

05/16/2006

Test Date

David Winkelbauer
Approved By

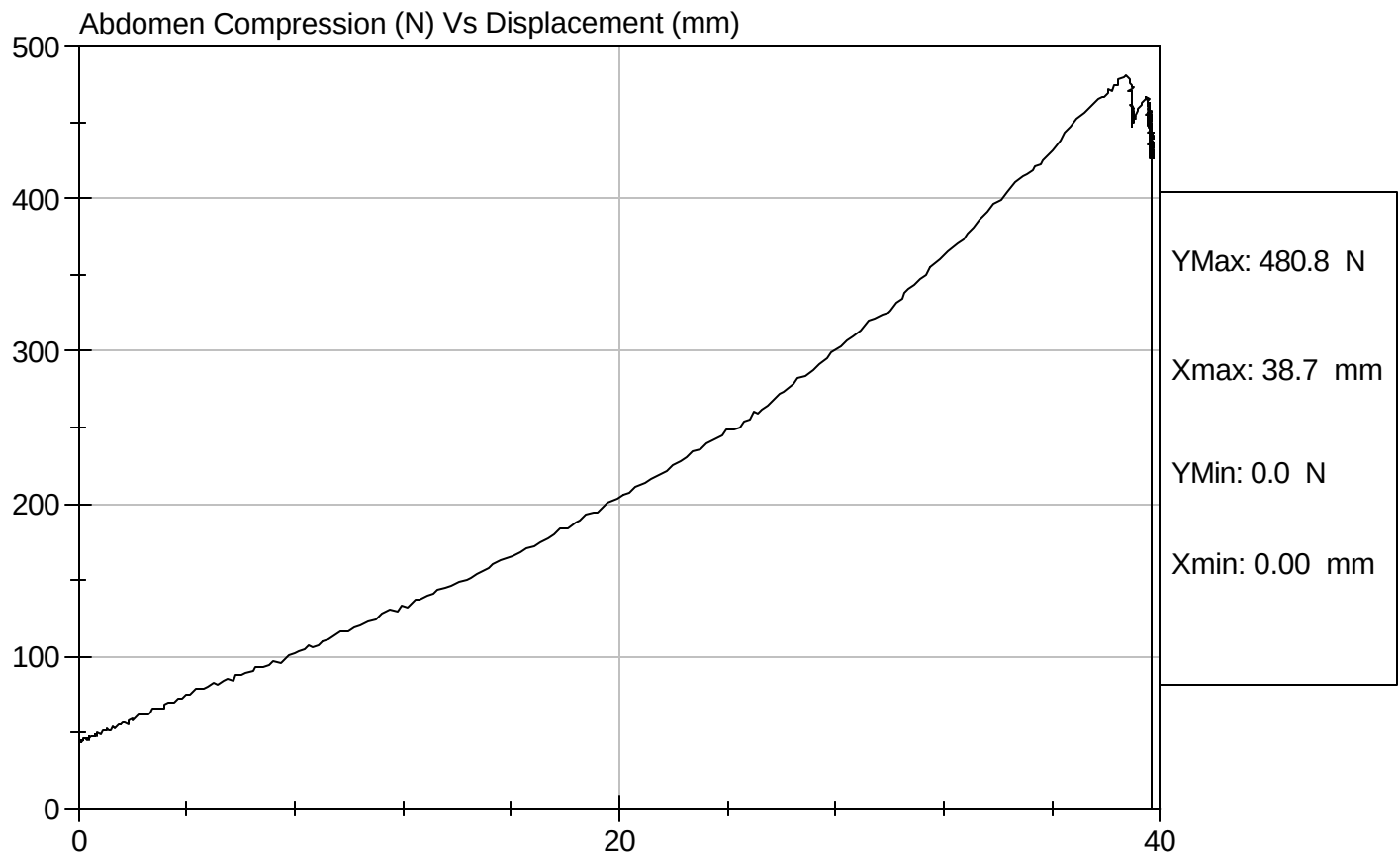


Test Description: Abdomen Compression

Test Date: 05/16/2006

Component: D061364

Speed: 0 ft/sec, 0 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Lumbar Flexion Calibration

ATD Serial No: 272

Test I.D: D061365

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 - 25.5	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Force At 0 deg	N	0 - 26.7	0.0	Pass
Force At 20 deg	N	97.9 - 151.2	124.8	Pass
Force At 30 deg	N	151.2 - 204.6	166.2	Pass
Force At 40 deg	N	204.6 - 258.0	224.1	Pass
Return Angle	Deg	12 Maximum	6	Pass
			Overall Test Results	Pass


Laboratory Technician

05/16/2006

Test Date


Approved By

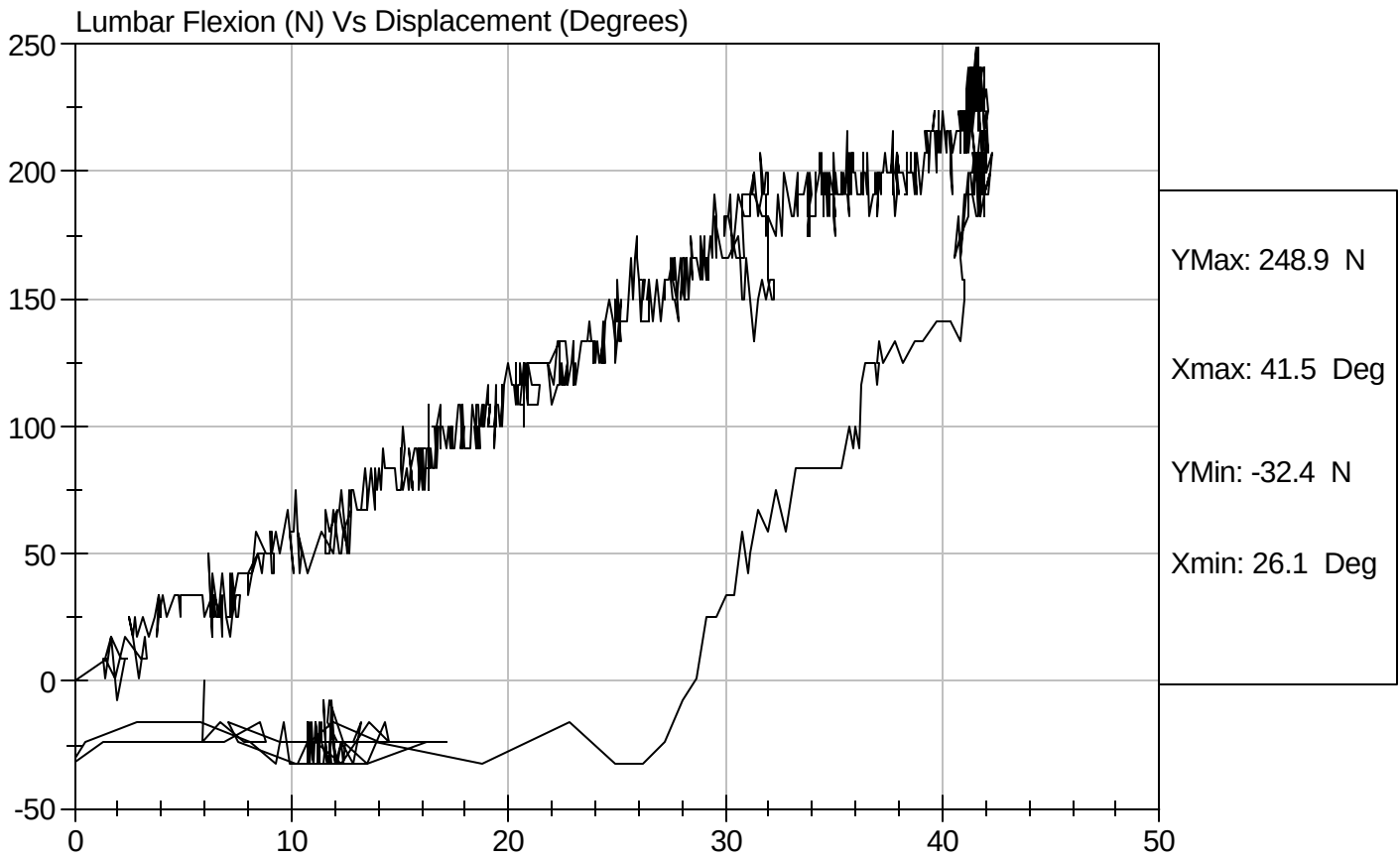


Test Description: Lumbar Flexion

Test Date: 05/16/2006

Component: D061365

Speed: 0 ft/sec, 0 m/sec



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

ATD Serial No: 272

Test I.D: D061369

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	44	Pass
Impact Velocity		m/s	6.89 to 7.13	7.05	Pass
Pendulum Deceleration	10 msec	m/s	1.96 to 2.55	2.22	Pass
	20 msec	m/s	4.12 to 5.10	4.30	Pass
	30 msec	m/s	5.73 to 7.01	5.96	Pass
	40 to 70 msec	m/s	6.27 to 7.64	7.20	Pass
Midsagittal Plane Max Rotation		deg	66 to 82	72	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	54	Pass
Mx Peak to Max. Head Rotation		msec	2 to 16	7	Pass


 Laboratory Technician

05/16/2006

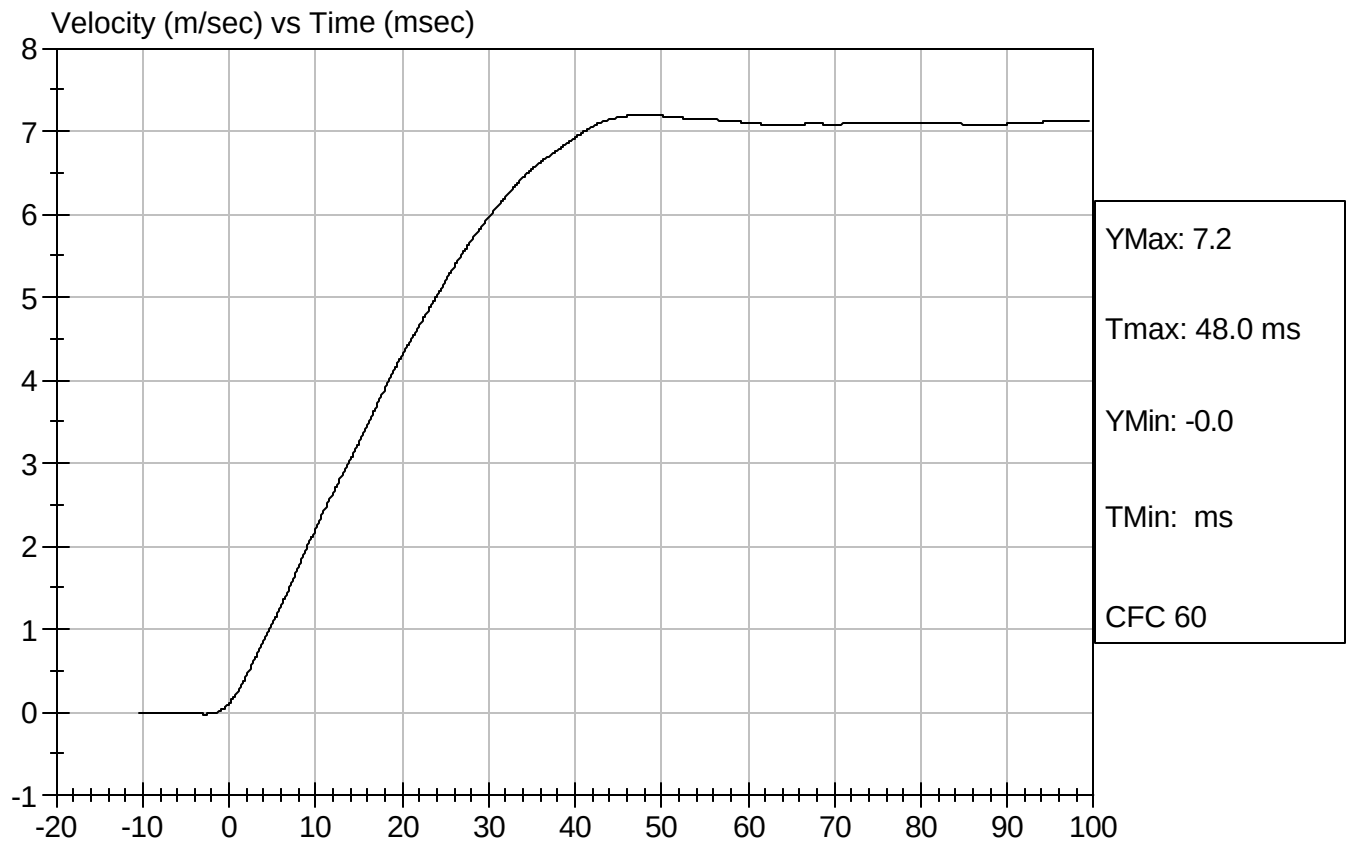
Test Date


 Approved By



Test Desc: Neck Bending
Component ID: D061369

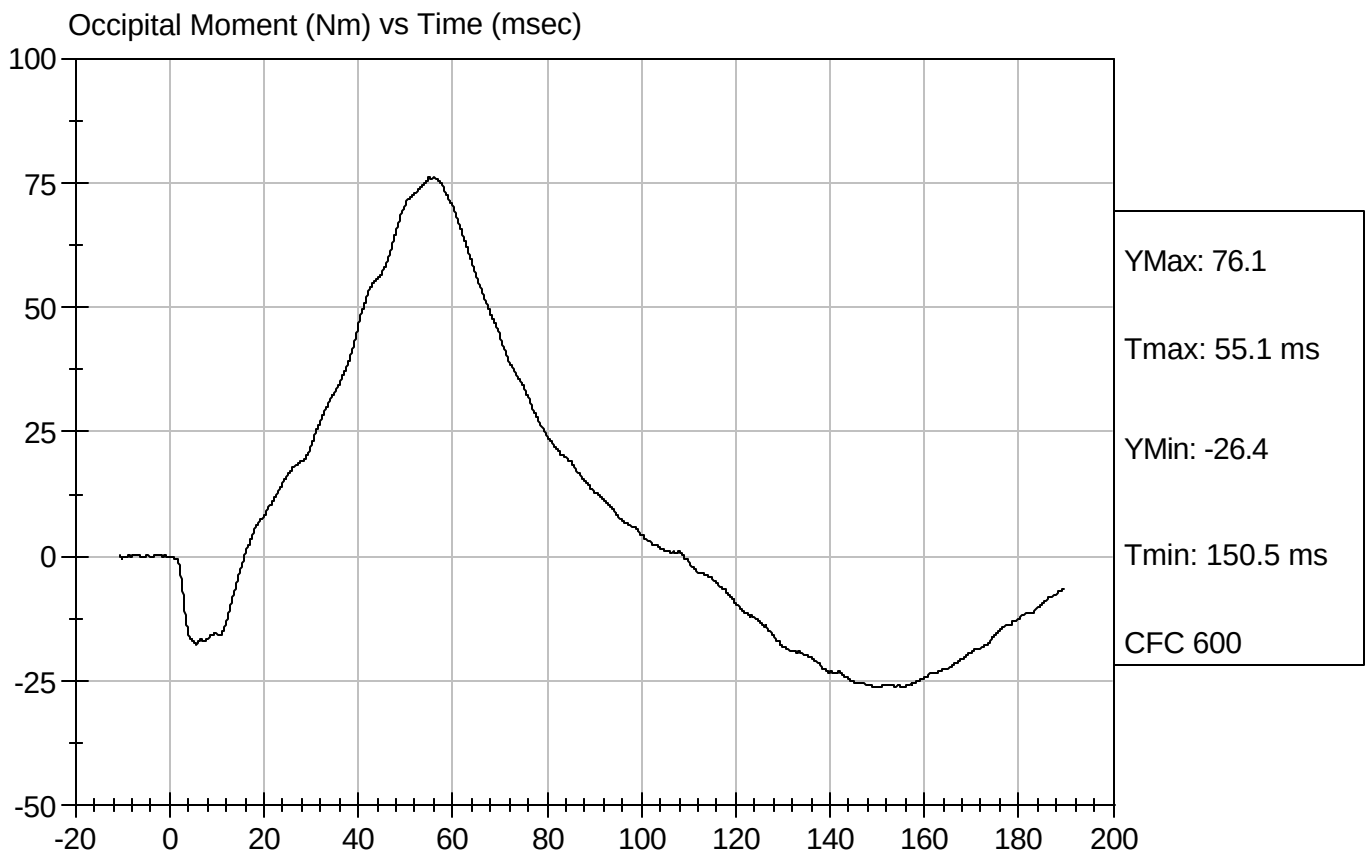
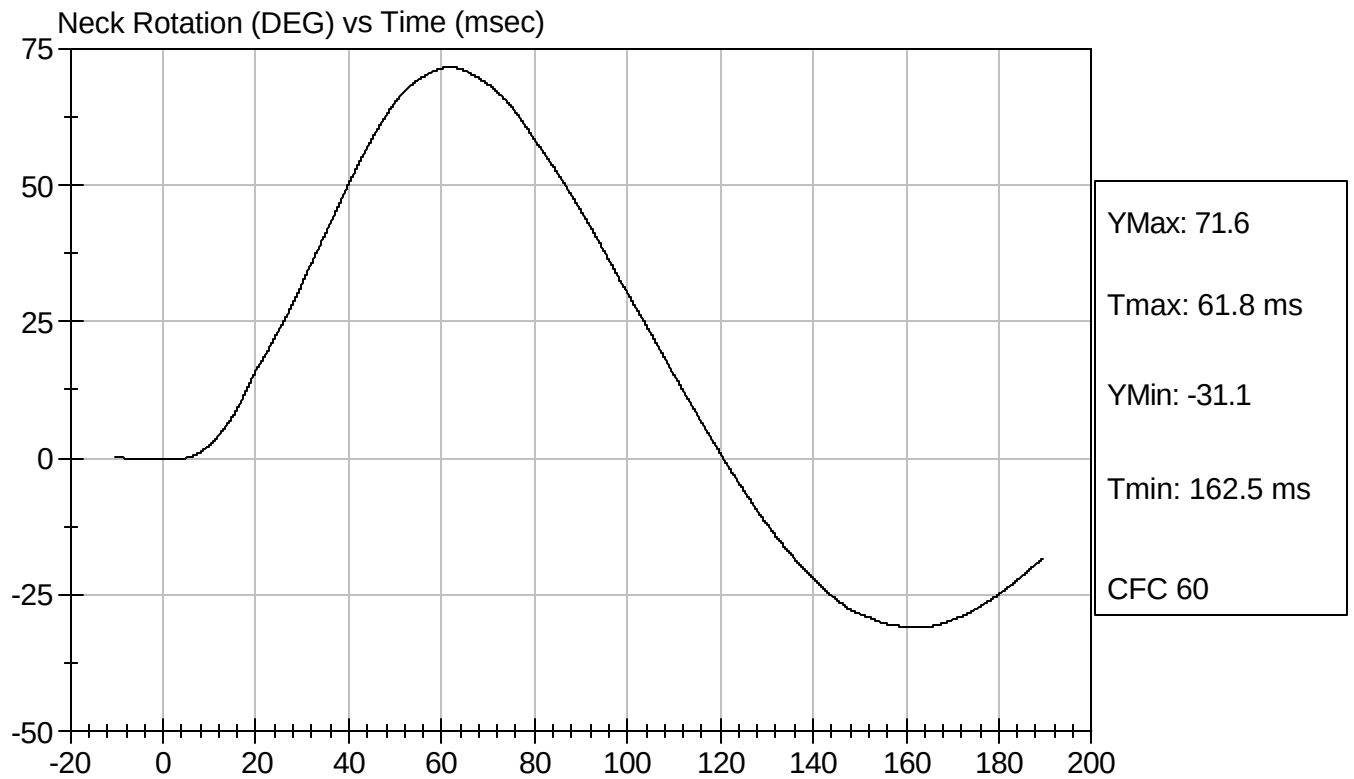
Test Date: 05/16/2006
Speed: 23.13 ft/sec, 7.05 m/sec





Test Desc: Neck Bending
Component ID: D061369

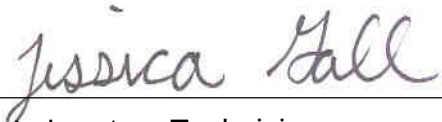
Test Date: 05/16/2006
Speed: 23.13 ft/sec, 7.05 m/sec



SID Calibration Data Sheet
Side Impact Dummy
Inspection Checklist

ATD Serial No: 272

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


Laboratory Technician

Approved By

05/16/2006

Test Date