

REPORT NUMBER: SPNCAP-CAL-11-028

**NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST**

**Ford Motor Company
2011 Ford Edge
Utility Vehicle**

NHTSA NUMBER: MB0200

**PREPARED BY:
CALSPAN CORPORATION
P.O. BOX 400
BUFFALO, NEW YORK 14225**



February 1, 2011

FINAL REPORT

**PREPARED FOR:
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OFFICE OF CRASHWORTHINESS STANDARDS
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Prepared by: _____ Date: _____
Bethany Koetje, Project Engineer

Reviewed by: _____ Date: _____
David J. Travale, Program Manager

FINAL REPORT ACCEPTANCE BY OCWS:

Division Chief, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards
Date: _____

COTR, New Car Assessment Program
NHTSA, Office of Crashworthiness Standards
Date: _____

Technical Report Documentation Page

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15. Supplementary Notes																						
16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2011 Ford Edge Utility Vehicle in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted at the Calspan Corporation Crash Test Facility in Buffalo, New York, on 11/22/2010. The impact velocity was 32.15 km/h, and the ambient temperature at the struck (driver's) side of the vehicle was 22°C. The test vehicle post-test maximum crush was 479 mm at level 3. The test vehicle's occupant performance is as follows:																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 45%;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="width: 15%;">Units</th> <th style="width: 15%;">Threshold</th> <th style="width: 25%;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₈)</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">375.39</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">Gs</td> <td style="text-align: center;">82</td> <td style="text-align: center;">52.61</td> </tr> <tr> <td>Combined Acetabular and Iliac Pelvic Force</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">3858.60</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₈)	N/A	1000	375.39	Resultant Lower Spine Acceleration	Gs	82	52.61	Combined Acetabular and Iliac Pelvic Force	N	5525	3858.60
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The two 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 Pole Part 572V SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Adm. Technical Ref. Division, 1200 New Jersey Ave. SE Washington, D.C. 20590																				
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Test Procedure	1-1
2	Summary of NCAP Side Impact Test	2-1
3	Occupant and Vehicle Information	3-1
 <u>Data Sheet No.</u>		 <u>Page No.</u>
1	General Test and Vehicle Parameter Data	3-2
2	Seat, Seat Belt, Steering Wheel Adjustment and fuel Systems Data	3-5
3	Dummy Longitudinal Clearance Dimensions	3-7
4	Dummy Lateral Clearance Dimensions	3-8
5	Camera and instrumentation Data	3-9
6	Vehicle Accelerometer Data	3-10
7	Rigid Pole Load Data	3-11
8	Post Test Observations	3-12
9	Vehicle Profile Measurements	3-13
10	Vehicle Exterior Crush Measurements	3-14
11	FMVSS 301 Fuel System Integrity Post-Impact Data	3-17
12	Dummy/Vehicle Temperature Stabilization Data	3-18
 <u>Appendix</u>		 <u>Page No</u>
A	Photographs	A-1
B	Vehicle and Dummy Response Data Plots	B-1
C	Dummy Configuration and Performance Verification Data	C-1

SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the MY 2011 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00126. The purpose of this test is to generate comparative side impact performance in a 2011 Ford Edge Utility Vehicle manufactured by Ford Motor Company. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated January 2010.

SECTION 2

SUMMARY OF NCAP SIDE IMPACT TEST

A rigid pole side test was conducted on a 2011 Ford Edge Utility Vehicle. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.15 km/h. The test was conducted by Calspan Corporation Transportation Research Group on 11/22/2010. Pre-test and post test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated January 2010. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) Dummy was instrumented accordingly:

Head CG Triaxial Accelerometers
Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
Abdomen Upper and Lower Rib Displacement Potentiometers
Lower Spine Triaxial Accelerometers
Iliac Load Cell
Acetabulum Load Cell

Appendix B contains the dummy response data. Dummy configuration and performance verification data can be found in Appendix C of this report.

The following table summarizes the results of the test:

Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)
SID-IIs 5th percentile female	375.39	52.61	Iliac Wing = 1097.07
			Acetabular = 3025.03
			Sum = 3858.60

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	Deployed
Frontal Airbag	Yes	No
Side Curtain Airbag	Yes	Yes
Side Torso Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	Yes
Seat Belt Load Limiter	Yes	No

GENERAL COMMENTS:

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

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

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0200	Anti-Lock Brakes	Yes
Model Year	2011	All-Wheel Drive	No
Make	Ford	Power Steering	Yes
Model	Edge	Driver Front Airbag	Yes
Body Style	Utility Vehicle	Driver Curtain Airbag	Yes
VIN	2FMDK3GC6BBA26094	Driver Head/Torso Airbag	No
Body Color	Light gray/silver	Driver Torso Airbag	Yes
Delivery Date	11/5/2010	Driver Torso/Pelvis Airbag	No
Odometer Reading (km/mi)	56 / 35	Driver Pelvis Airbag	No
Dealer	West Herr	Driver Knee Airbag	No
Transmission	6-Speed	Rear Pass. Curtain Airbag	Yes
Final Drive	Front Wheel Drive	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	V6	Rear Pass. Torso Airbag	No
Engine Displacement (L)	3.5	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Transverse	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Pretensioners	Yes
Sunroof/T-Top	No	Load Limiters	Yes
Tinted Glass	Yes	Automatic Door Locks	Yes
Traction Control	Yes	Bucket Seats	Yes
Power Brakes	Yes	Tilt Steering	Yes
Front Disc	Yes	Other	--
Rear Disc	Yes	Other	

Does owner's manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2440
Date of Manufacture	9/10	GAWR Front (kg)	1297
		GAWR Rear (kg)	1157

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3		5
Vehicle Capacity Weight (VCW) (kg)				412
DSC X 68.04 kg				340
Rated Cargo and Luggage Weight (RCLW) (kg)				72*

(A)

(B)

(A-B)

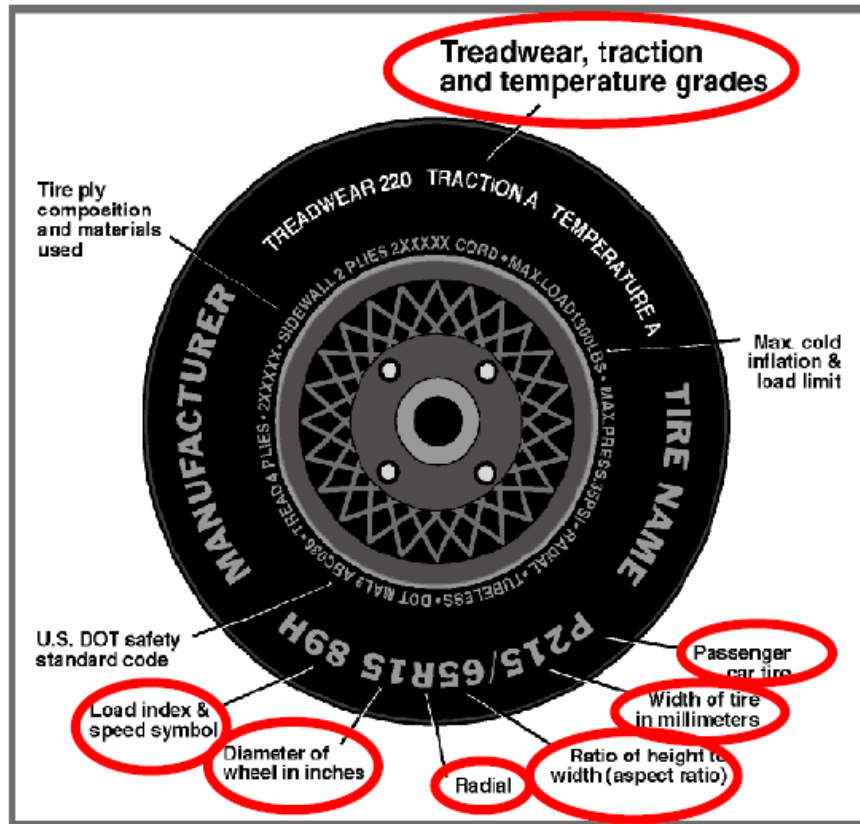
* Maximum allowable RCLW is 136

VEHICLE SEAT TYPE

	Type of Seat Pan				Type of Seat Back		
Seating Location	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat			X			X	

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

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	P235/65R17	P235/65R17
Tire Size on Vehicle	P235/65R17	P235/65R17
Tire Model	Dynapro AS	Dynapro AS
Tire Manufacturer	Hankook	Hankook
Treadwear	440	440
Traction	b	b
Temperature Grades	a	a
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 steel, 2 polyester, 1 nylon	2 steel, 2 polyester, 1 nylon
Load Index/Speed Symbol	103T	103T
Tire Material	Rubber	Rubber
DOT Safety Code Right	5M7CPJNH1510	5M7CPJNH1510
DOT Safety Code Left	5M7CPJNH1510	5M7CPJNH1510

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

Test Vehicle: 2011 Ford Edge NHTSA No: MB0200
 Test Program: Side Pole NCAP Test Date: 11/22/2010

TEST VEHICLE AXLE WEIGHTS

	Unit	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	552.0	378.0		572.0	428.5		573.0	434.0	
Right	kg	544.0	352.5		544.0	397.0		551.0	395.0	
Ratio	%	60	40		57	43		58	42	
Total	kg	1096.0	730.5	1826.5	1116.0	825.5	1941.5	1124.0	829.0	1953.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1826.5	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	51.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	72.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1949.8	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.4	-0.2	-0.1
Front Passenger Sill Angle (front-to-rear)*	Deg.	0.3	0.1	0.2
Front Bumper Angle (left-to-right)**	Deg.	0.1	0.0	0.1
Rear Bumper Angle (left-to-right)**	Deg.	-0.3	0.1	-0.3
Vehicle CG (Aft of Front Axle)	mm	2065	2137	2135
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-17	-28	-28

* Front up is positive

** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	46.8
Weight of Vehicle Components Removed	kg	0

Vehicle parts removed to make Target Vehicle Test Weight:
 None

TEST VEHICLE IMPACT POINT DATA

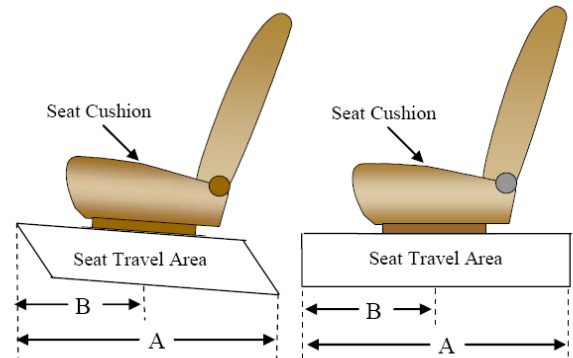
Measured Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1074
Actual Impact Point (Aft of Front Axle)	mm	1064
Impact Point Difference (- forward / + rearward)	mm	-10

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle: 2011 Ford Edge NHTSA No: MB0200
 Test Program: Side Pole NCAP Test Date: 11/22/2010

SEAT FORE/AFT POSITIONS

Seat moved to the forward most position of Fore/Aft travel

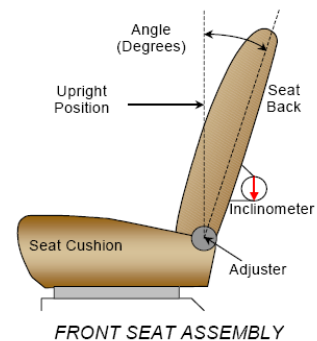


SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	242	0

SEAT BACK ANGLE POSITION

Seat back adjusted to position which allowed for a 0 degree head angle on the SID-II's driver dummy



SEAT BACK ANGLE

	Degrees	Detent
Driver Seat Back Angle with Seated Dummy	1.1	-

SEAT BELT UPPER ANCHORAGES

The driver's upper belt anchorage was moved to the uppermost of four possible positions

SEAT BELT UPPER ANCHORAGE POSITIONING

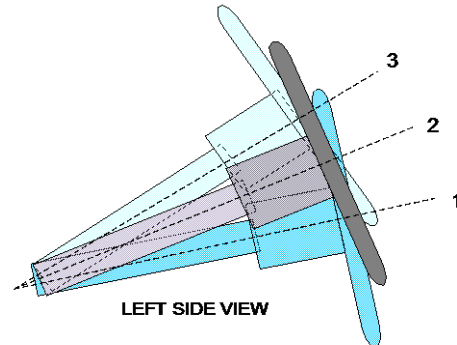
	Total # of Positions	Placed in Position #
Driver Seat	4	0

DATA SHEET NO. 2 (CONTINUED)
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

STEERING COLUMN ADJUSTMENT

Steering column adjusted to mid point of tilt and mid-point of telescoping travel (if applicable)



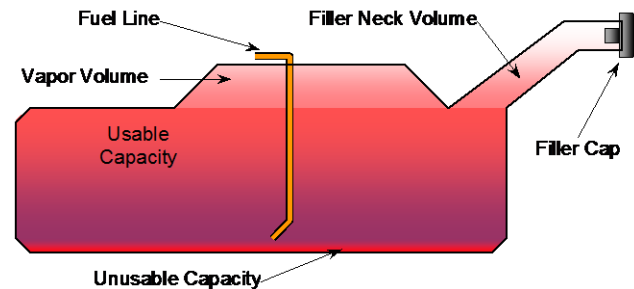
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	58.7	
Geometric Center, Position No. 2	61.5	
Uppermost, Position No. 3	64.2	
Telescoping Steering Wheel Travel		40
Test Position	61.5	20

FUEL PUMP

Fuel was evacuated from the vehicle using manufacturer specifications listed in Form 1



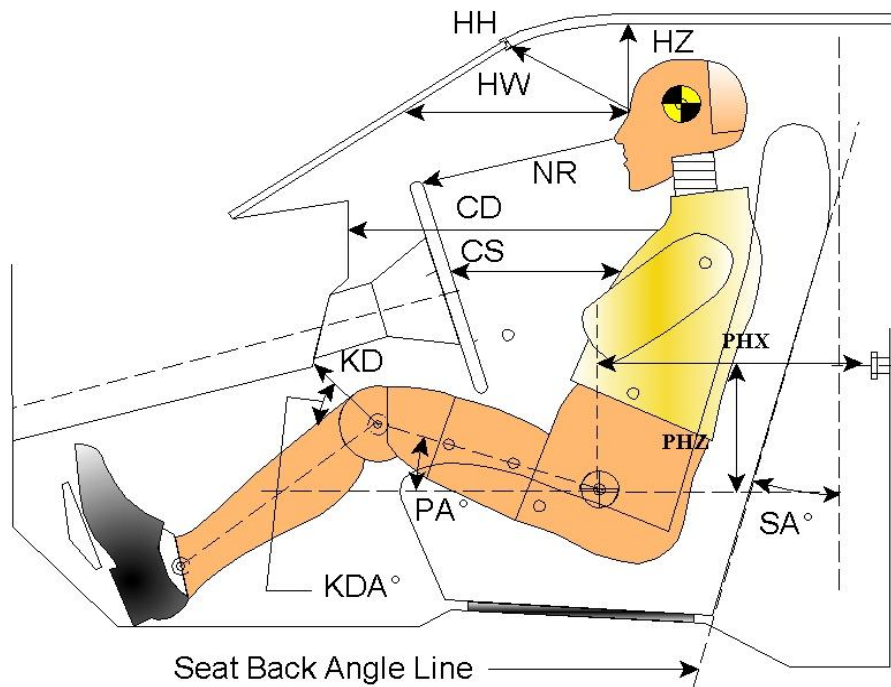
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	69.3
92-94% of Usable Capacity	63.7 - 65.1
Actual Amount of Solvent Used in Test	63.7
1/3 of Usable Capacity	6.1

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



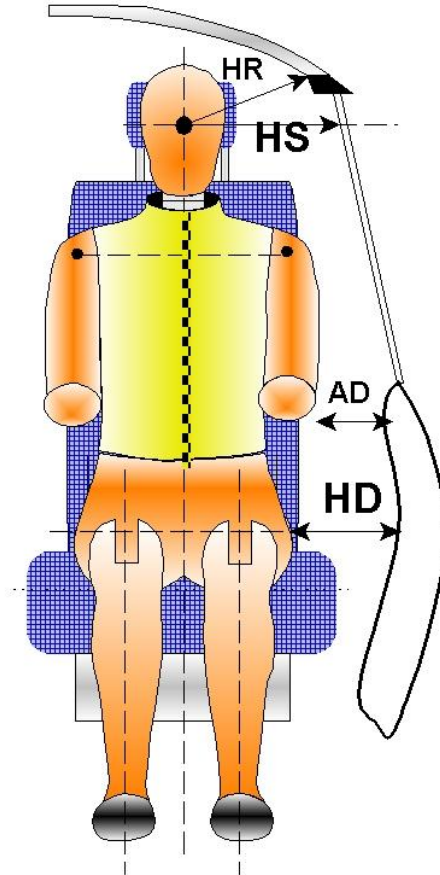
DUMMY ID# 300

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	272	
HW	Head to Windshield	624	
HZ	Head to Roof	187	
NR	Nose to Rim	242	
CD	Chest to Dash	403	
CS	Chest to Steering Wheel	176	
KDL/KDAL°	Left Knee to Dash	75	15
KDR/KDAR°	Right Knee to Dash	70	15
PA°	Pelvic Angle		19.8
PHX	H-Point to Striker (X-Axis)	405	
PHZ	H-Point to Striker (Z-Axis)	-135	
SA°	Seat Back Angle		1.1

* Measured from Head-restraint post

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

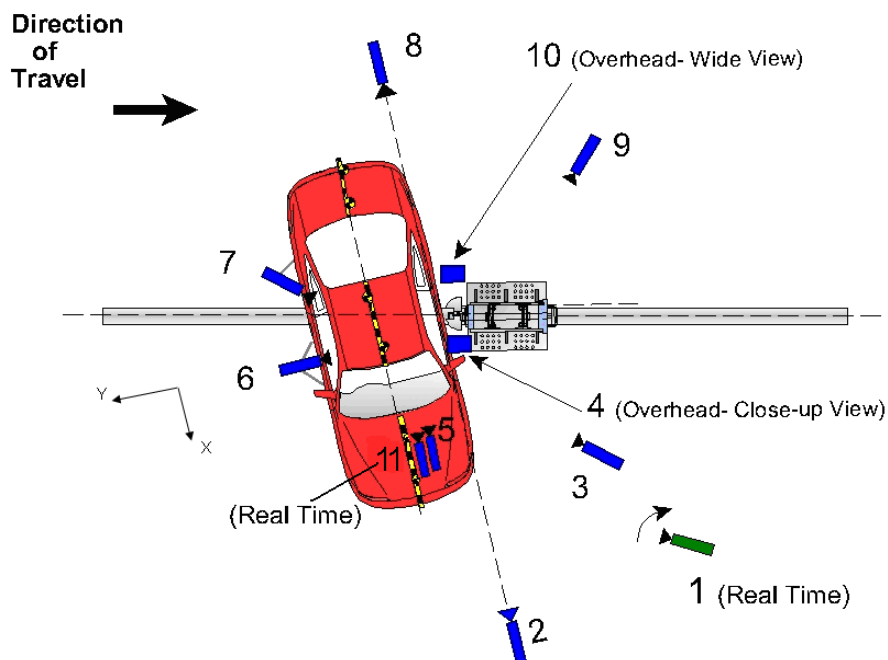


DUMMY ID# 300

Code	Measurement Description	Length (mm)
HR	Head To Side Header	271
HS	Head to Side Window	428
AD	Arm to Door	161
HD	H-Point to Door	155

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



REFERENCE (from Point of Impact for X and Y; from Ground for Z):
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real time (24-30 fps) pan view of impact	-	-	-	-	24
2	Front ground level - impact view	1400	6000	-1130	28	1000
3	Impact side 45° - forward pole view	2600	1960	-1780	28	1000
4	Overhead Close-up view of impact					1000
5	Onboard – dummy front view					500
6	Onboard – dummy side view					500
7	Onboard – dummy rear oblique view					500
8	Rear ground level – impact view	7406	1100	-960	24	1000
9	Impact side 45° - rearward pole view	2850	3320	1320	24	1000
10	Overhead wide-view of impact					1000
11	Real-time (24-30 fps) – dummy front view	-	-	-	-	24

* All measurements accurate to ± 6 mm.

NOTE: Vehicle was at a 15° angle to the rigid pole.

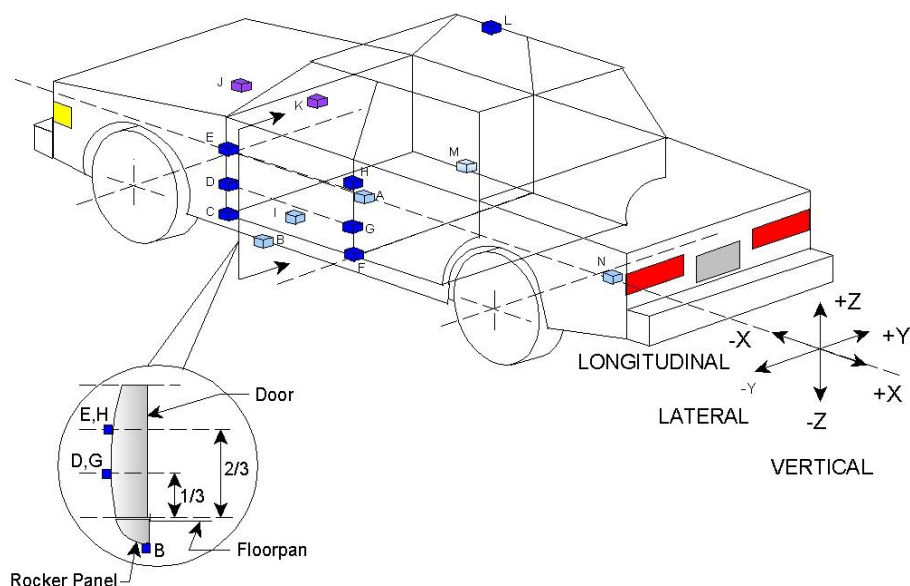
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	6
Contact Switches	0
Total No. of Data Channels	40

** Vehicle manufacturer requested that contact switches not be installed on ATD.

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



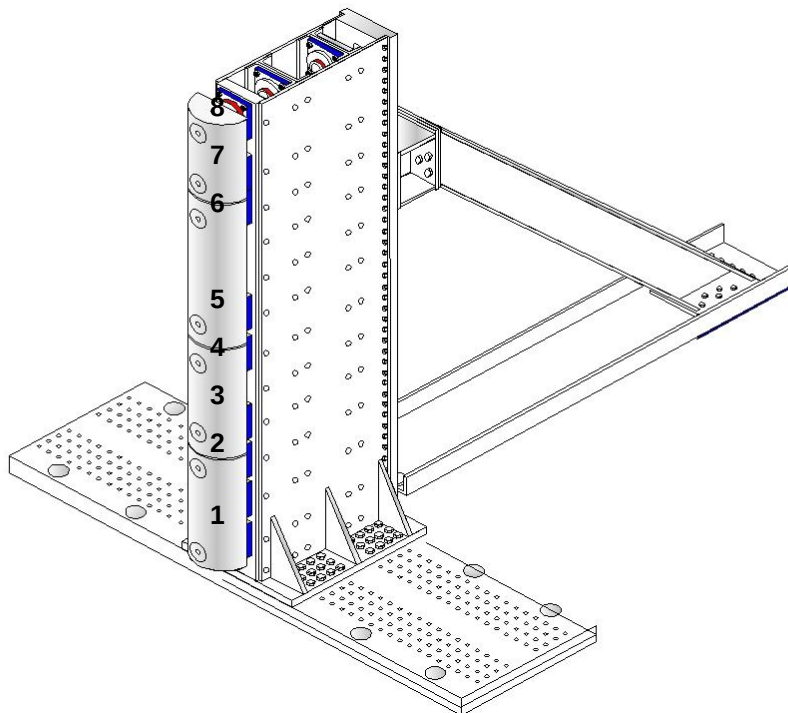
X = + Forward
Y = + to Right
Z = + Down

	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
	Vehicle CG Accel.	2739	25	811
A	Vehicle CG Sensor	2739	25	811
B	Left Floor Sill	2984	-680	420
C	A Pillar Sill	3157	-676	430
D	A Pillar Low	3181	-629	645
E	A Pillar Mid	3120	-700	1195
F	B Pillar Sill	2052	-694	490
G	B Pillar Low	2167	-690	558
H	B Pillar Mid	2126	-684	1120
I	Driver Seat	2267	-524	453
L	Engine Top	4031	155	853
J	Firewall	3751	-13	990
K	Right Roof	2292	554	1651
M	Right Floor Sill	3042	700	443
N	Rear Floorpan	1199	-13	757

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Ground (mm)
1	200
2	590
3	750
4	1075
5	1260
6	1740
7	1920
8	2300

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2011 Ford Edge NHTSA No: MB0200
Test Program: Side Pole NCAP Test Date: 11/22/2010

TEST DUMMY INFORMATION AND CONTACT

Description	Driver Dummy
Dummy Type/Serial No.	SID-IIs / 300
Head Contact	Curtain Airbag
Upper Torso Contact	Torso Airbag
Lower Torso Contact	Door Trim Panel
Left Knee Contact	Door Trim Panel
Right Knee Contact	

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Doors	Jammed Shut	Jammed Shut
Right Side Doors	Closed & Operational	Closed & Operational
Hatch and Other Doors	-	Closed & Operational
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Intruded some due to side impact
Sill Separation	None
Windshield Damage	Damaged and separated along left edge
Window Damage	Damaged
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

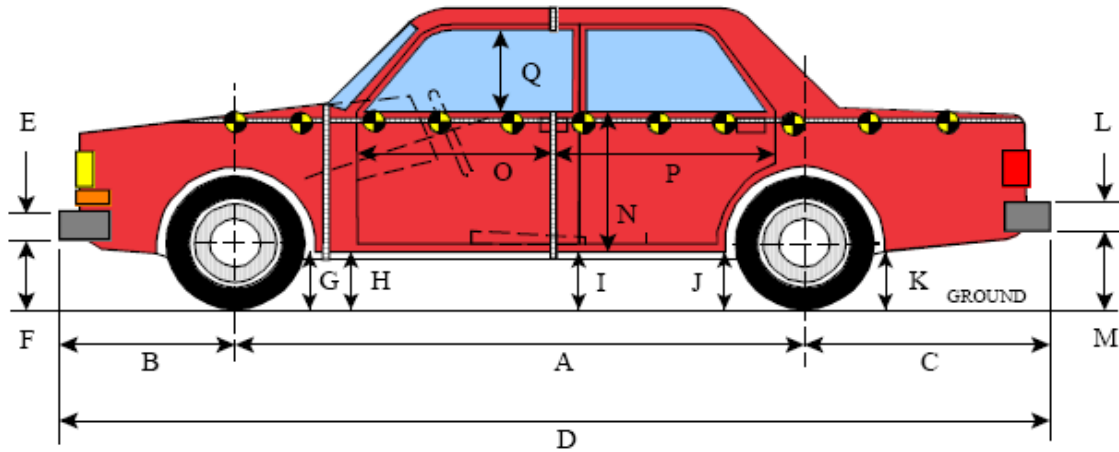
Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	Deployed
Frontal Airbag	Yes	No
Knee Airbag	NA	NA
Side Curtain Airbag	Yes	Yes
Side Torso Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	Yes
Seat Belt Load Limiter	Yes	No

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	-10
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.15
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.25

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



LEFT SIDE VIEW

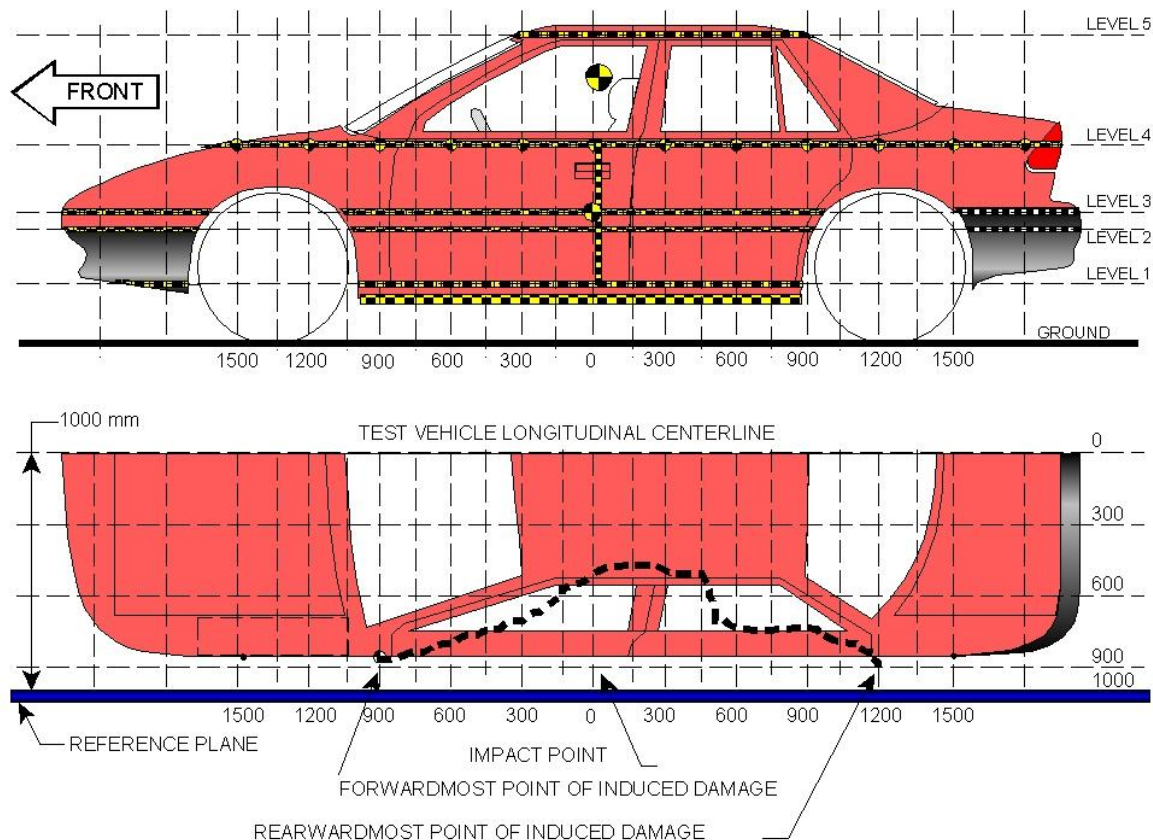
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2820	2701	-119
B	Front Axle to FSOV	927	997	70
C	Rear Axle to RSOV	939	930	-9
D1	Total Vehicle Length at Left Side	4573	4454	-119
D2	Total Vehicle Length at Centerline	4686	4566	-120
D3	Total Vehicle Length at Right Side	4576	4511	-65
E	Front Bumper Thickness	250	250	0
F	Front Bumper Bottom to Ground	207	249	42
G	Sill Height at Front Wheel Well	240	239	-1
H	Sill Height at Front Door Leading Edge	247	231	-16
I	Sill Height at B Pillar	245	248	3
J1	Sill Height at Rear Wheel Well	248	271	23
J2	Pinch Weld Height at Rear Wheel Well	242	261	19
K	Sill Height Aft of Rear Wheel Well	256	260	4
L	Rear Bumper Thickness	380	380	0
M	Rear Bumper Bottom to Ground	341	334	-7
N	Sill Height to Window Bottom Sill	830	827	-3
O	Front Door Leading Edge to Impact CL	605	609	4
P	Rear Door Trailing Edge to Impact CL	1423	1367	-56
Q	Front Window Opening	475	452	-23
R	Right Side Length	4515	4511	-4
S	Left Side Length	4514	4394	-120
T	Vehicle Width at B Post	1890	1754	-136

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	297
2	Occupant H-Point	665
3	Mid-Door	750
4	Window Sill	1085
5	Window Top	1626

NOTE: The above measurements should be taken along the vertical impact reference line. Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1200	--	--	--	811	--	--	--	--	912	--	--	--	--	-101	--
-1050	--	--	--	841	--	--	--	--	911	--	--	--	--	-70	--
-900	--	--	--	862	--	--	--	--	901	--	--	--	--	-39	--
-750	--	--	961	875	--	--	--	955	872	--	--	--	6	3	--
-600	828	951	945	880	--	770	910	905	846	--	58	41	40	34	--
-450	828	932	936	892	--	696	790	796	766	--	132	142	140	126	--
-300	827	933	939	898	--	615	686	689	676	--	212	247	250	222	--
-150	826	934	940	904	--	525	575	577	574	--	301	359	363	330	--
0	826	935	941	909	--	448	461	462	473	--	378	474	479	436	--
150	824	935	942	916	624	547	497	496	495	456	277	438	446	421	168
300	823	935	942	922	635	646	625	622	617	505	177	310	320	305	130
450	824	935	942	925	639	705	746	748	736	543	119	189	194	189	96
600	823	932	940	928	641	737	808	818	806	572	86	124	122	122	69
750	822	930	938	928	641	760	817	834	830	596	62	113	104	98	45
900	819	928	935	927	642	782	830	842	852	609	37	98	93	75	33
1050	817	925	932	925	643	803	848	853	872	620	14	77	79	53	23
1200	819	931	932	922	643	822	883	870	882	628	-3	48	62	40	15
1350	--	947	948	903	641	--	924	917	894	631	--	23	31	9	10
1500	--	--	--	913	636	--	--	--	928	628	--	--	--	-15	8

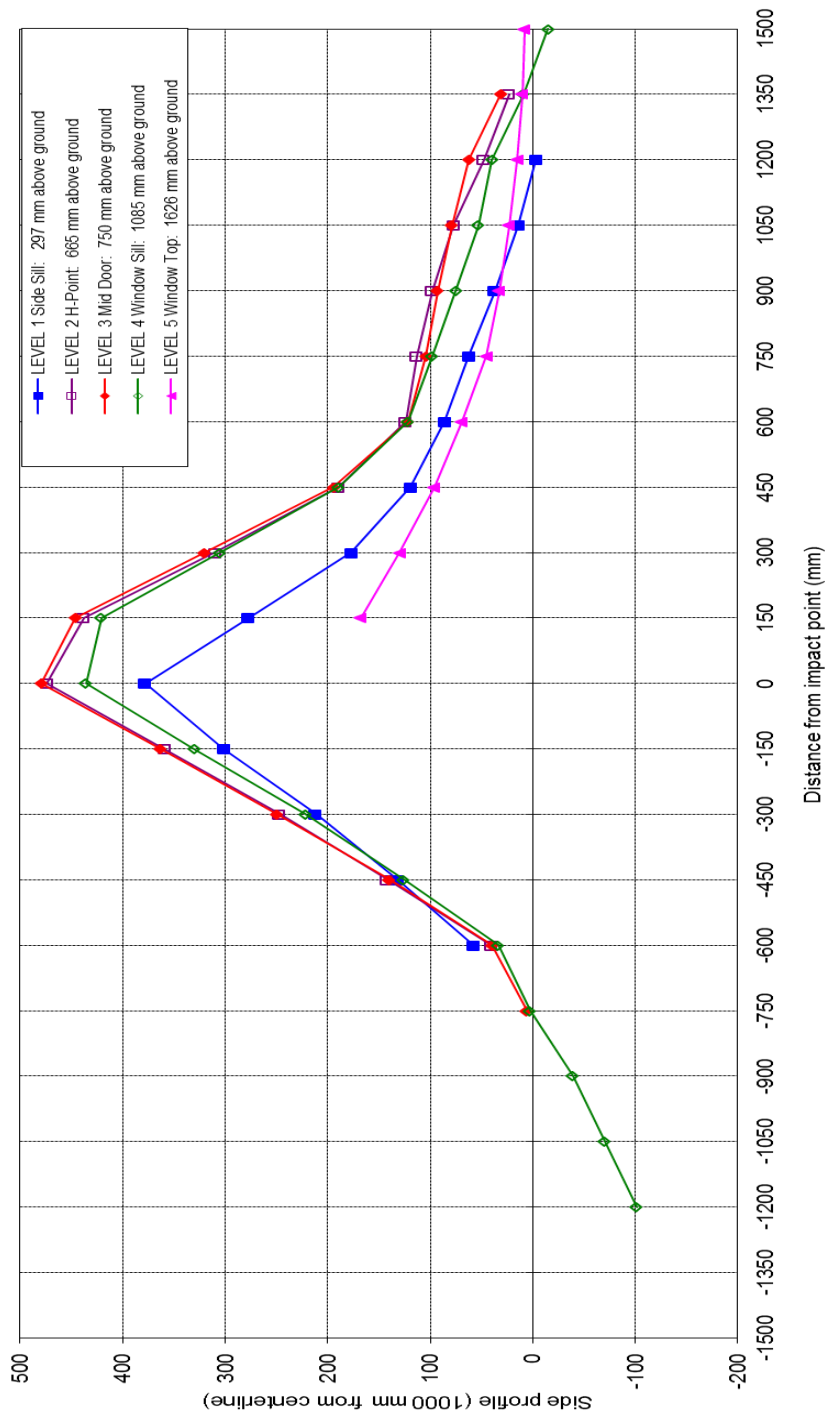
MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	378	474	479	436	168
Distance From Impact (mm)	0	0	0	0	150

NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to test based on an estimated impact point. The final distance to impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010



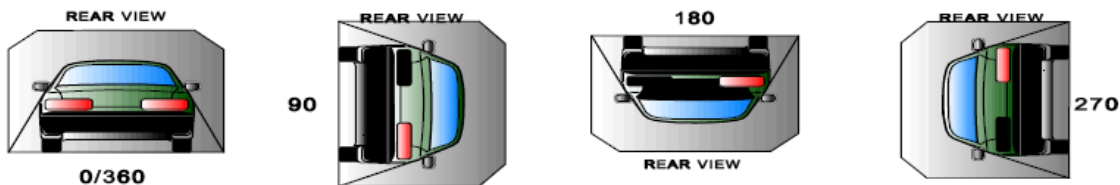
DATA SHEET NO. 11
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle: 2011 Ford Edge NHTSA No: MB0200
 Test Program: Side Pole NCAP Test Date 11/22/2010

Test Time: 15:15 Temperature: 12.2° C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	1:15	5:00	6:15
90 to 180	1:07	5:00	6:07
180 to 270	1:08	5:00	6:08
270 to 360	1:12	5:00	6:12

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	NA	NA
90 to 180	0	0	NA	NA
180 to 270	0	0	NA	NA
270 to 360	0	0	NA	NA

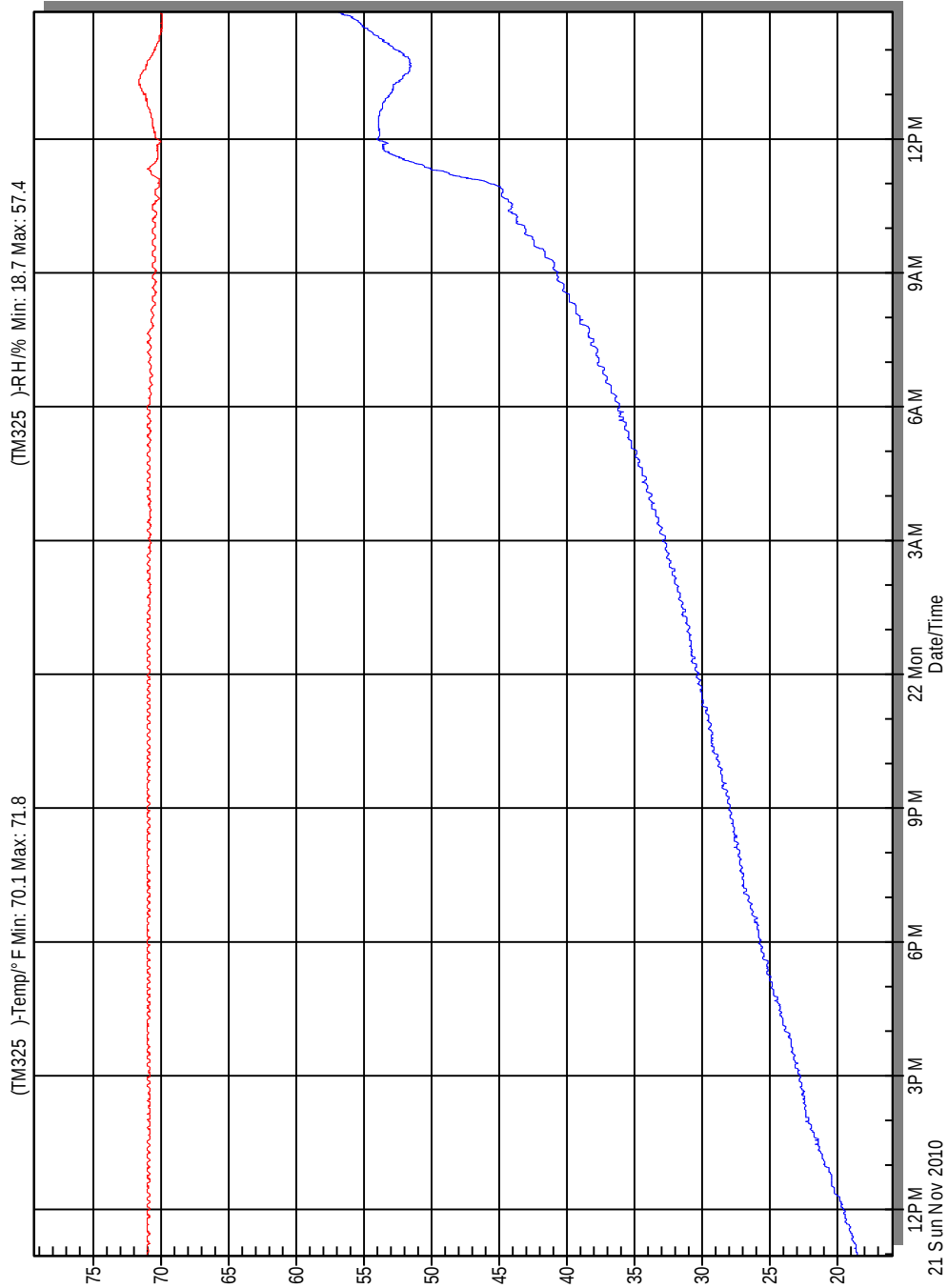
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0 to 90	None
90 to 180	None
180 to 270	None
270 to 360	None

DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle:	2011 Ford Edge	NHTSA No:	MB0200
Test Program:	Side Pole NCAP	Test Date	11/22/2010

Downloaded Data - Tuesday, November 23, 2010



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS		
No.		Page
1	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-5
2	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
3	Pre-Test Frontal View of Test Vehicle	A-6
4	Post-Test Frontal View of Test Vehicle	A-6
5	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
6	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-7
7	Pre-Test Left Side View of Test Vehicle	A-8
8	Post-Test Left Side View of Test Vehicle	A-8
9	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-9
10	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-9
11	Pre-Test Rear View of Test Vehicle	A-10
12	Post-Test Rear View of Test Vehicle	A-10
13	Pre-Test Right Side View of Test Vehicle	A-11
14	Post-Test Right Side View of Test Vehicle	A-11
15	Pre-Test Overhead View of Test Vehicle and Pole	A-12
16	Post-Test Overhead View of Test Vehicle and Pole	A-12
17	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point	A-13
18	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point	A-13
19	Pre-Test Close-Up View of Impact Point Target	A-14
20	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-14
21	Pre-Test Front Close-Up View of Dummy	A-15
22	Post-Test Front Close-Up View of Dummy	A-15
23	Pre-Test Left Side View of Dummy Showing Belt, Chalking, and Contact Switches (Door Open)	A-16
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-16
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-17
26	Pre-Test Frontal View of Seat Back Prior to Dummy Positioning	A-17
27	Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint	A-18
28	Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning	A-18

29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-19
30	Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-19
31	Pre-Test View of Dummy's Head Showing Dummy's Head is Level	A-20
32	Pre-Test Placement of Dummy's Feet	A-20
33	Pre-Test View of Belt Anchorage for Dummy to Show Position	A-21
34	Pre-Test Left Side View of Steering Wheel to Show Position	A-21
35	Pre-Test View of Parking Brake	A-22
36	Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position	A-22
37	Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position	A-23
38	Pre-Test Close-Up View of Driver Seat Back or Head Restraint Showing Seat Back Test Position	A-23
39	Pre-Test Dummy and Door Clearance View	A-24
40	Post-Test Dummy and Door Clearance View	A-24
41	Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-25
42	Post-Test Right Side View of Dummy and Front Seat Occupant Compartment	A-25
43	Pre-Test Inner Door Panel View	A-26
44	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-26
45	Post-Test Dummy Close-Up Head Contact with Vehicle View	A-27
46	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-27
47	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
48	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-28
49	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
50	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
51	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
52	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
53	Close-Up View of Vehicle's Certification Label	A-31
54	Close-Up View of Vehicle's Tire Information Placard or Label	A-31
55	Pre-Test Pole Barrier Front View	A-32
56	Post-Test Pole Barrier Front View	A-32
57	Pre-Test Pole Barrier Side View	A-33
58	Post-Test Pole Barrier Side View	A-33
59	Pre-Test Ballast View	A-34

60	Post-Test Primary and Redundant Speed Trap Read-Out	A-34
61	FMVSS No. 031/305 Rollover 0°	A-35
62	FMVSS No. 031/305 Rollover 90°	A-35
63	FMVSS No. 031/305 Rollover 180°	A-36
64	FMVSS No. 031/305 Rollover 270°	A-36
65	FMVSS No. 031/305 Rollover 360°	A-37
66	Impact Event (Impact Side)	A-37
67	Monroney Label	A-38
68	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-39



Figure A-1: As Delivered Right Front 3/4 View of Test Vehicle



Figure A-2: As Delivered Left Rear 3/4 View of Test Vehicles



Figure A-3: Pre-Test Frontal View of Test Vehicle



Figure A-4: Post-Test Frontal View of Test Vehicle



Figure A-5: Pre-Test Left $\frac{3}{4}$ Front View of Test Vehicle

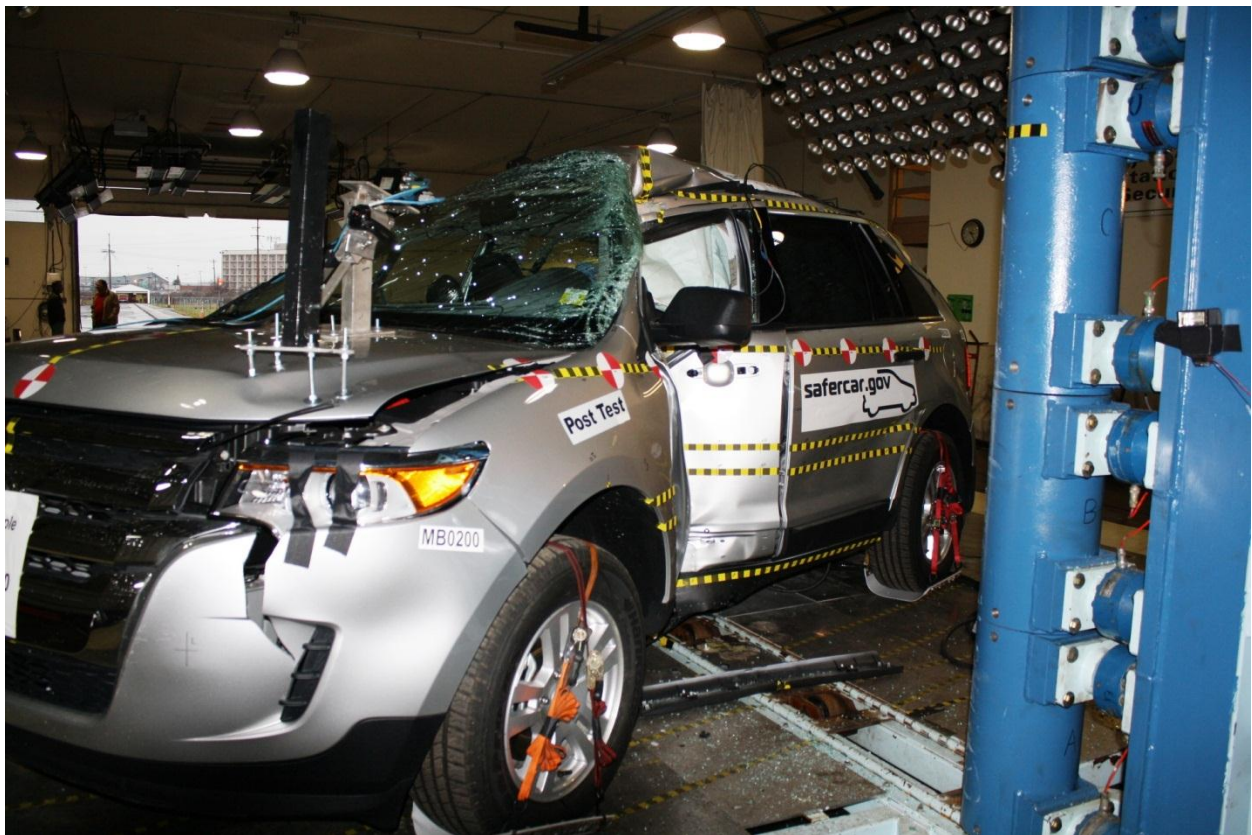


Figure A-6: Post-Test Left $\frac{3}{4}$ Front View Test Vehicle



Figure A-7: Pre-Test Left Side View of Test Vehicle



Figure A-8: Post-Test Left Side View of Test Vehicle



Figure A-9: Pre-Test Left $\frac{3}{4}$ Rear View of Test Vehicle



Figure A-10: Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Figure A-11: Pre-Test Rear View of Test Vehicle



Figure A-12: Post-Test Rear View of Test Vehicle

Photo Not Available

Figure A-13: Pre-Test Right Side View of Test Vehicle



Figure A-14: Post-Test Right Side View of Test Vehicle



Figure A-15: Pre-Test Overhead View of Test Vehicle and Pole



Figure A-16: Post-Test Overhead View of Test Vehicle and Pole

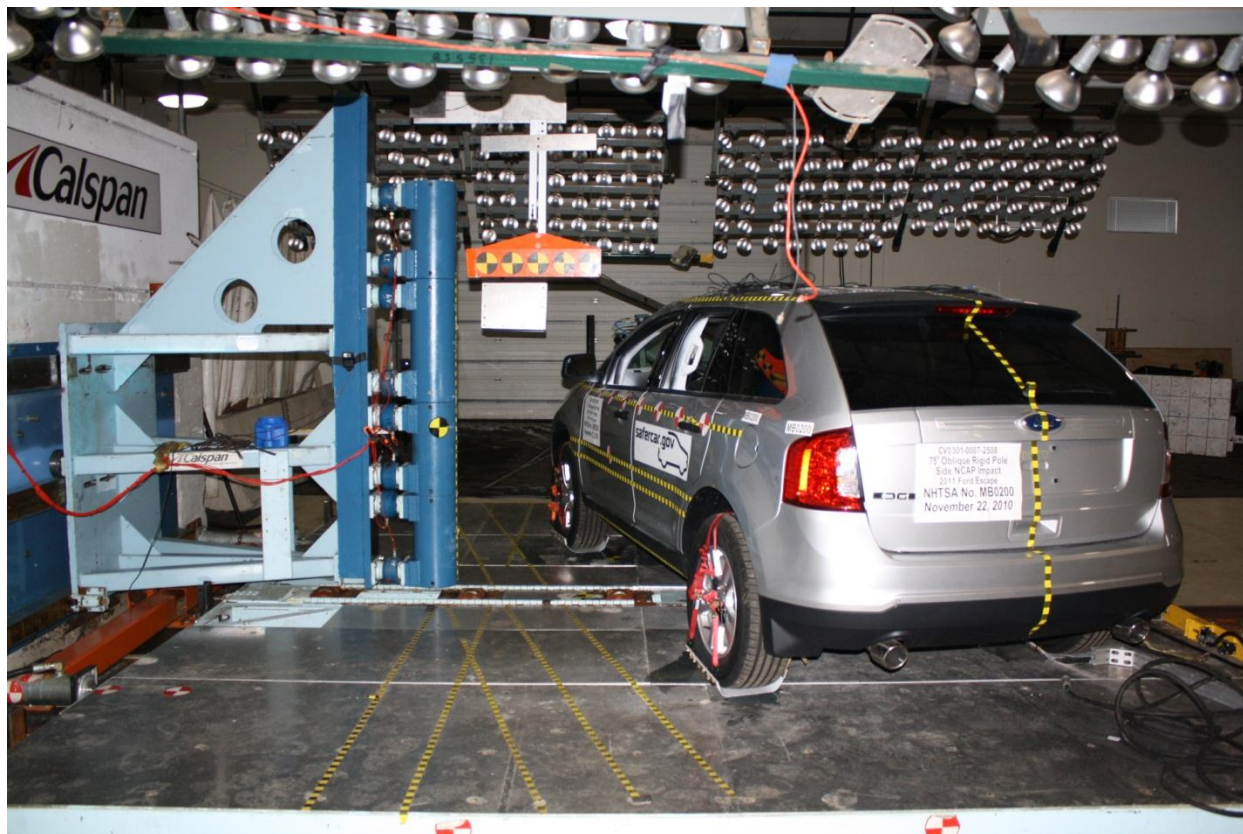


Figure A-17: Pre-Test Right Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point



Figure A-18: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point

Photo Not Available

Figure A-19: Pre-Test Close-Up View of Impact Point Target



Figure A-20: Post-Test Close-Up View of Impact Point Target Showing Impact Location



Figure A-21: Pre-Test Front Close-Up View of Dummy



Figure A-22: Post-Test Front Close-Up View of Dummy



Figure A-23. Pre-Test Left Side View of Dummy Showing Belt, Chalking, and Contact Switches



Figure A-24: Pre-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-25: Post-Test Left Side View of Dummy Shoulder and Door Top View



Figure A-26: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



Figure A-27: Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint



Figure A-28: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning



Figure A-29: Pre-Test Overhead View of Dummy Thighs on Seat Pan



Figure A-30: Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket

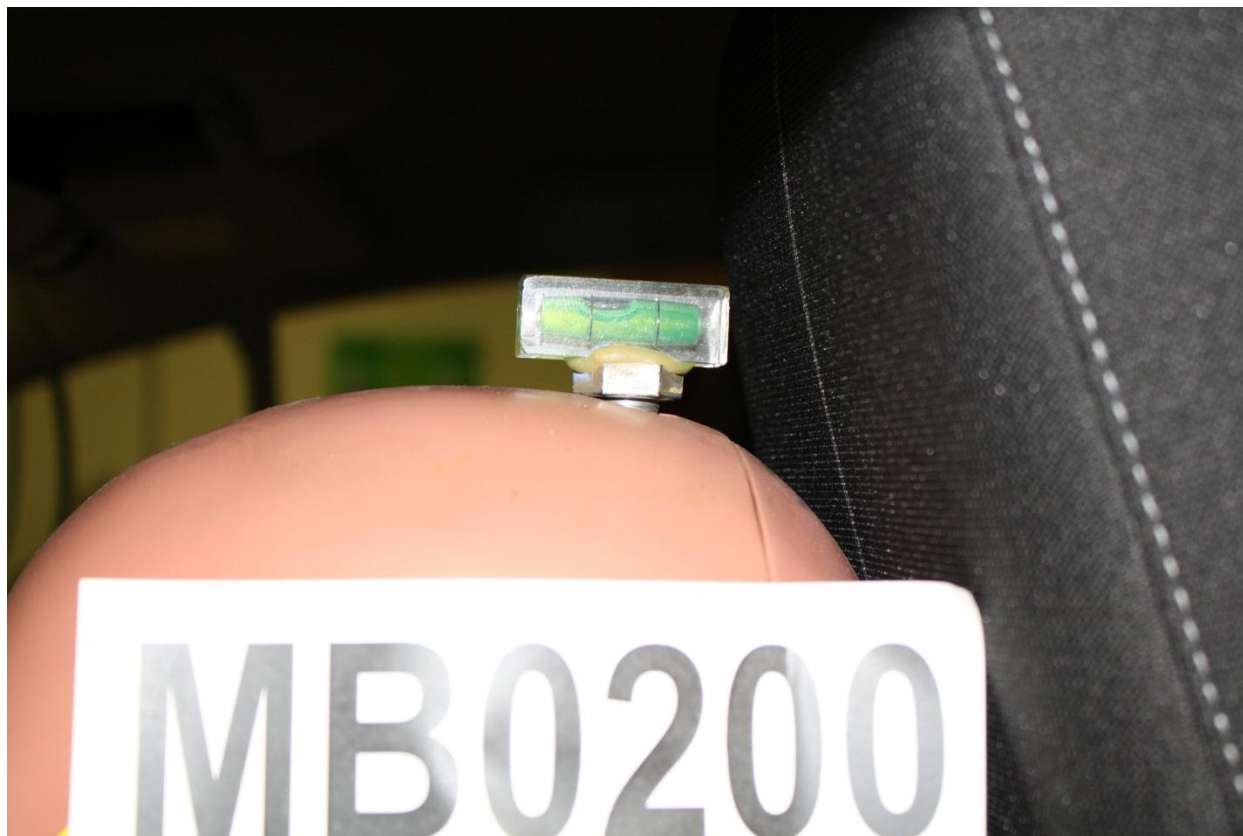


Figure A-31: Pre-Test View of Dummy's Head Showing Dummy's Head is Level



Figure A-32: Pre-Test Placement of Dummy's Feet

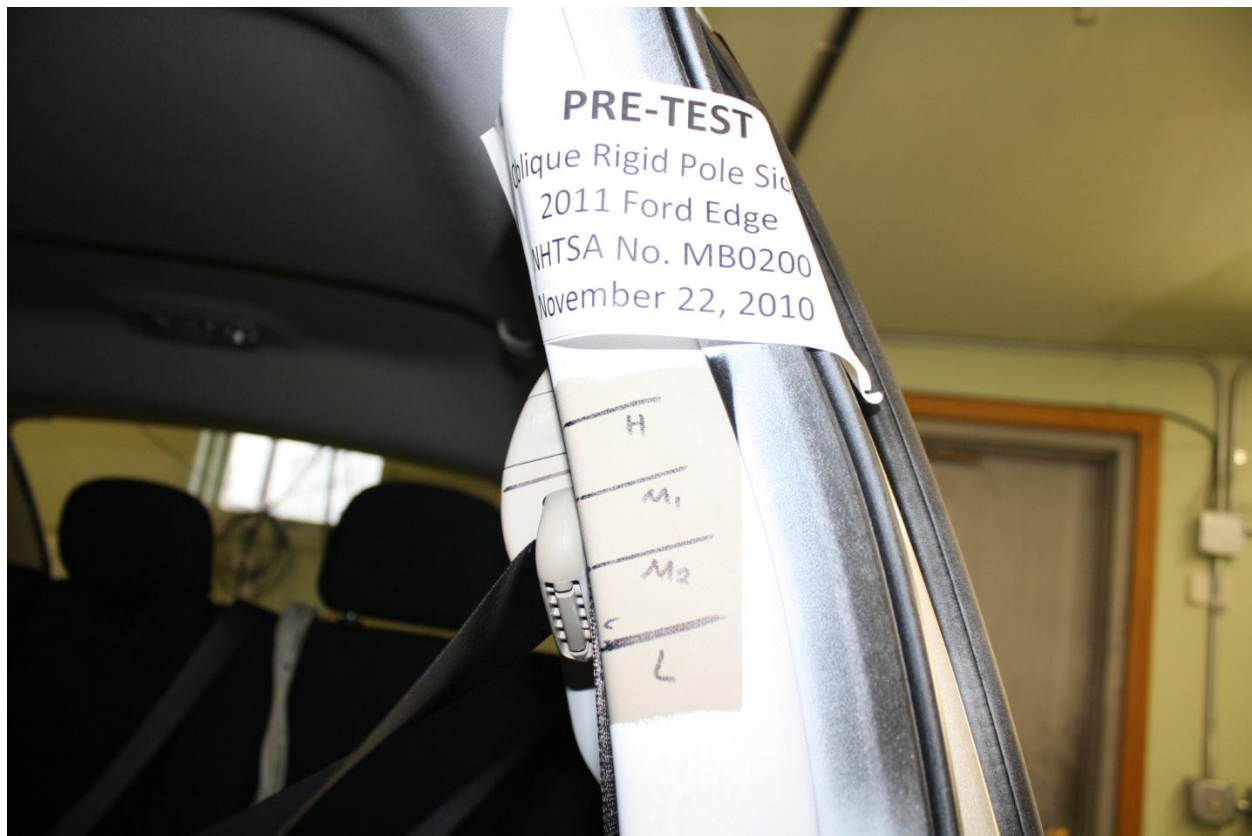


Figure A-33: Pre-Test View of Belt Anchorage for Dummy to Show Position



Figure A-34: Pre-Test Left Side View of Steering Wheel to Show Position



Figure A-35: Pre-Test View of Parking Brake



Figure A-36: Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position



Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position



Figure A-38: Pre-Test Close-Up View of Driver Seat Back or Head Restraint Showing Seat Back Test Position



Figure A-39: Pre-Test Dummy and Door Clearance View



Figure A-40: Post-Test Dummy and Door Clearance View



Figure A-41: Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment



Figure A-42: Post-Test Right Side View of Dummy and Front Seat Occupant



Figure A-43: Pre-Test Inner Door Panel View



Figure A-44: Post-Test Inner Door Panel View Showing Dummy Contact Location

Photo Not Applicable

Figure A-45: Post-Test Dummy Close-Up Head Contact with Vehicle View



Figure A-46: Post-Test Dummy Close-Up Head Contact with Side Airbag View

Photo Not Applicable

Figure A-47: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-48: Post-Test Dummy Close-Up Torso Contact with Side Airbag View



Figure A-49: Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

Photo Not Applicable

Figure A-50: Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-51: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-52: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

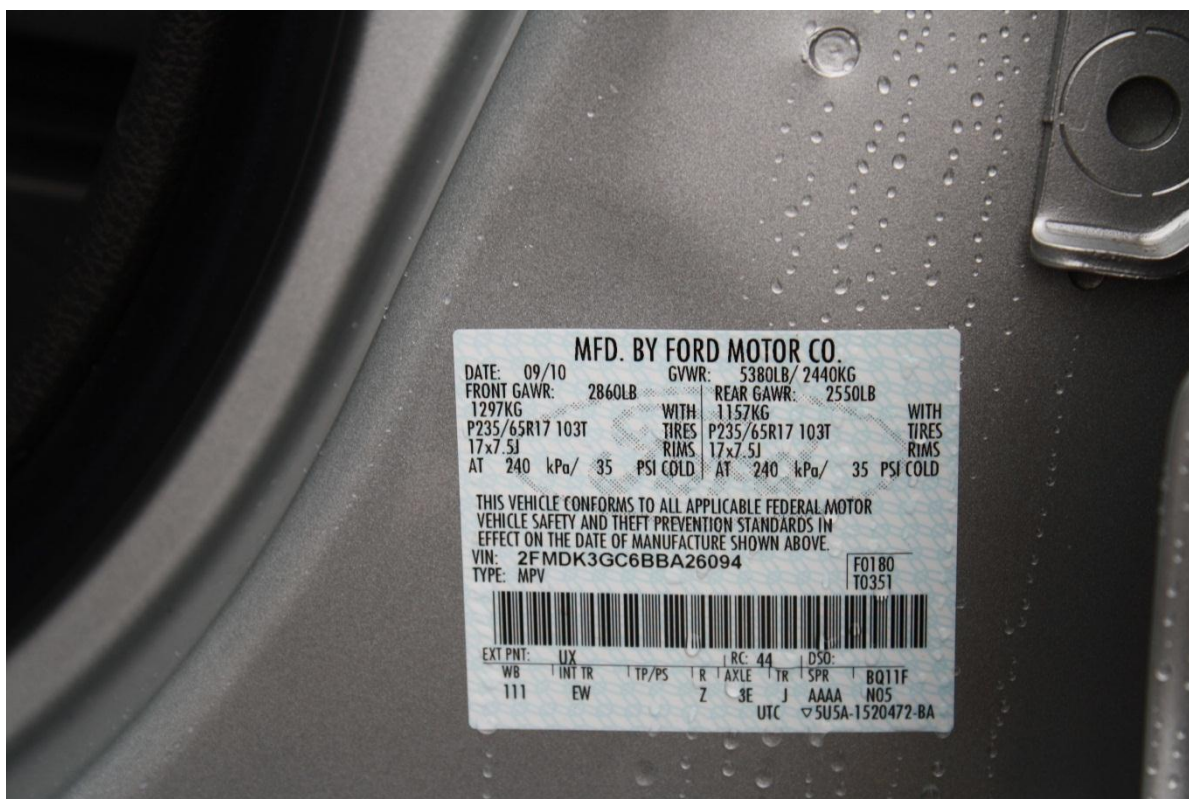


Figure A-53: Close-Up View of Vehicle's Certification Label



Figure A-54: Close-Up View of Vehicle's Tire Information Placard or Label



Figure A-55: Pre-Test Pole Barrier Front View



Figure A-56: Post-Test Pole Barrier Front View

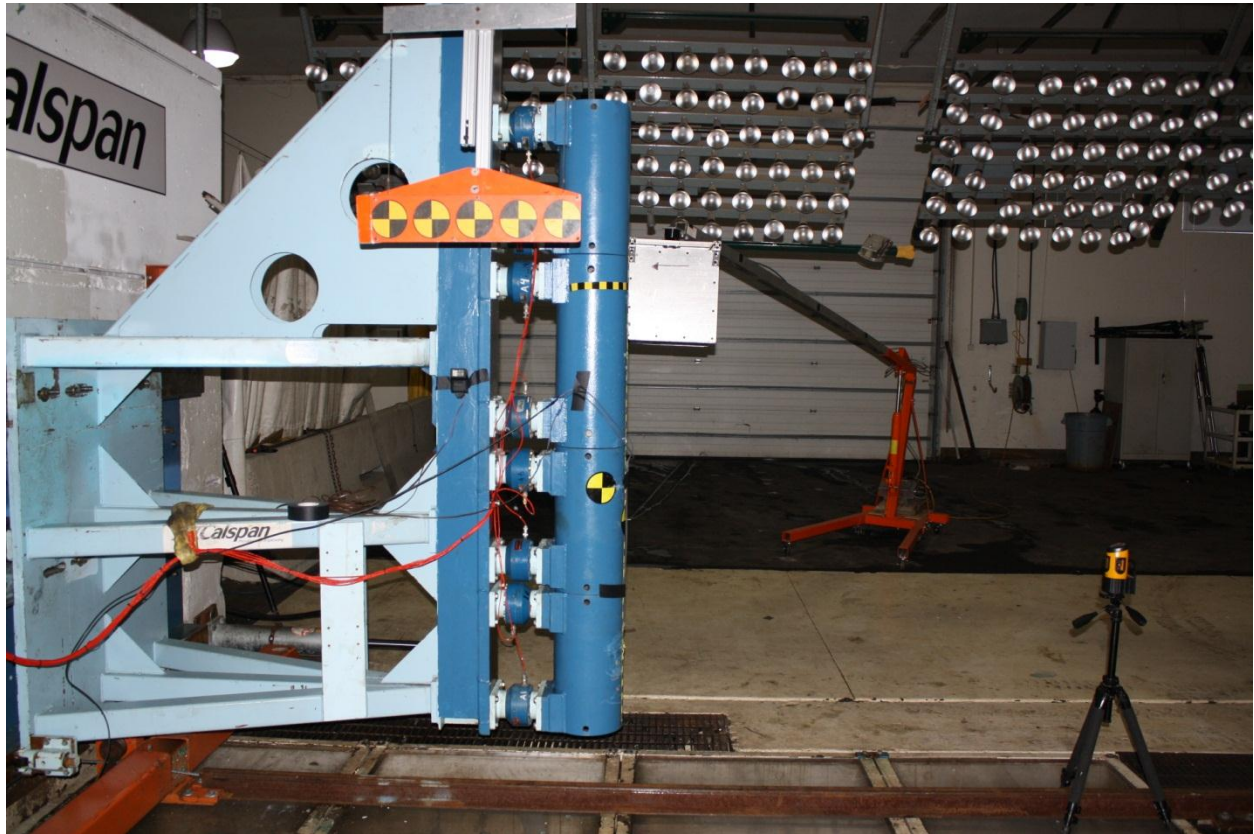


Figure A-57: Pre-Test Pole Barrier Side View

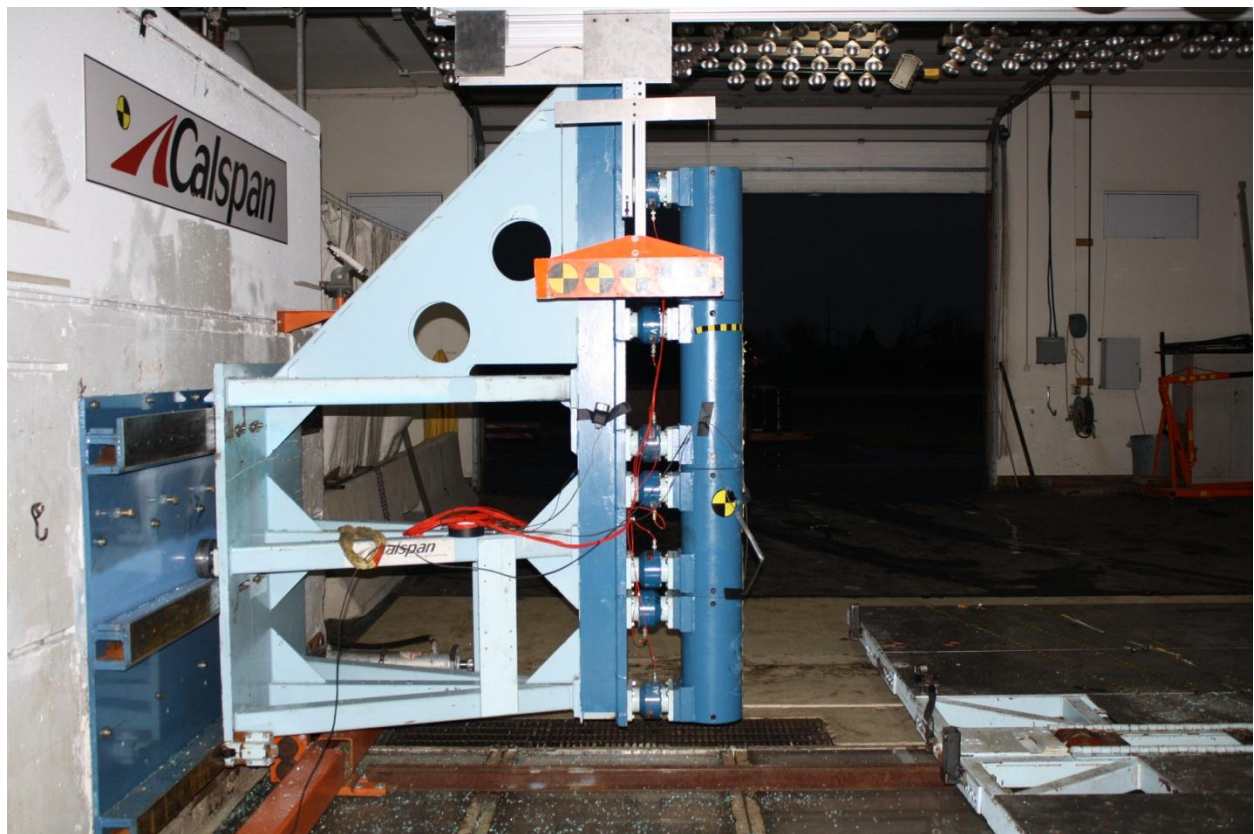


Figure A-58: Post-Test Pole Barrier Side View



Figure A-59a: Pre-Test Ballast View



Figure A-60: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-61: FMVSS No. 301 Rollover 0°

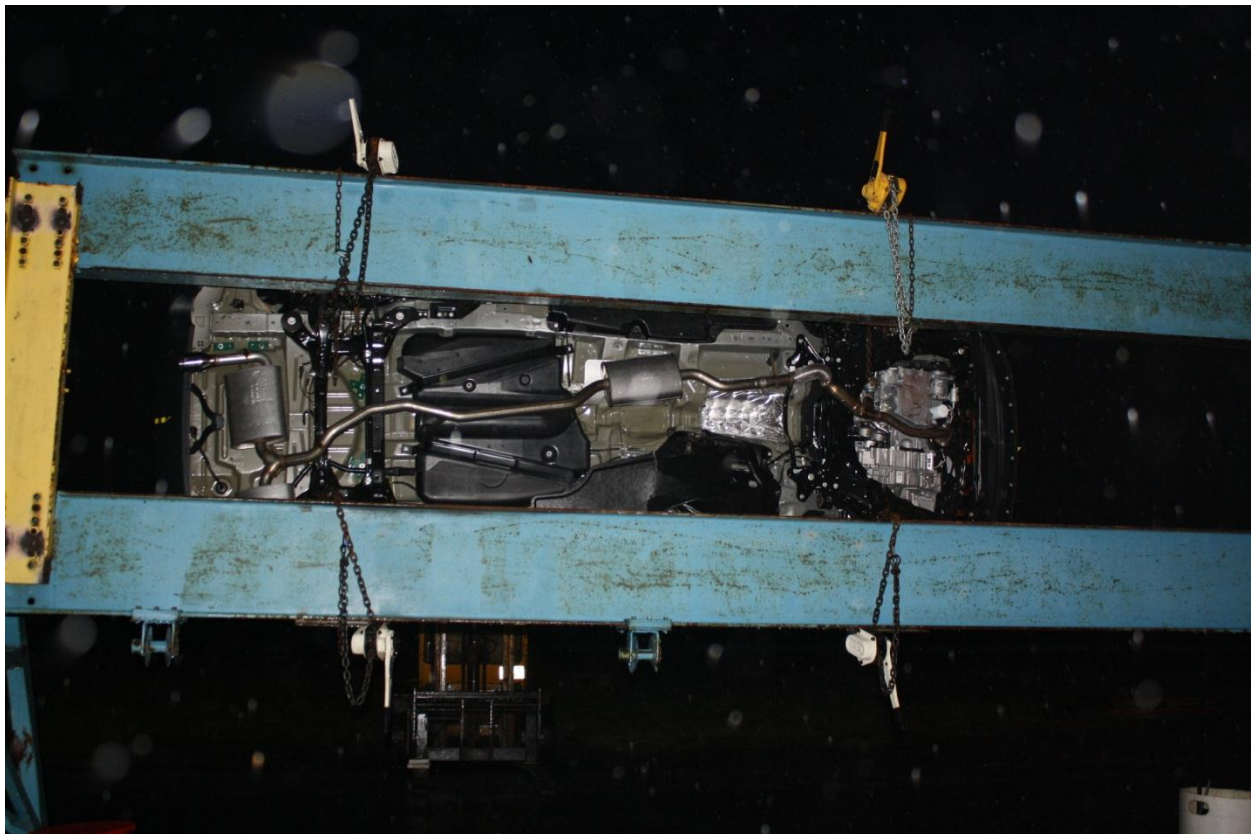


Figure A-62: FMVSS No. 301 Rollover 90°

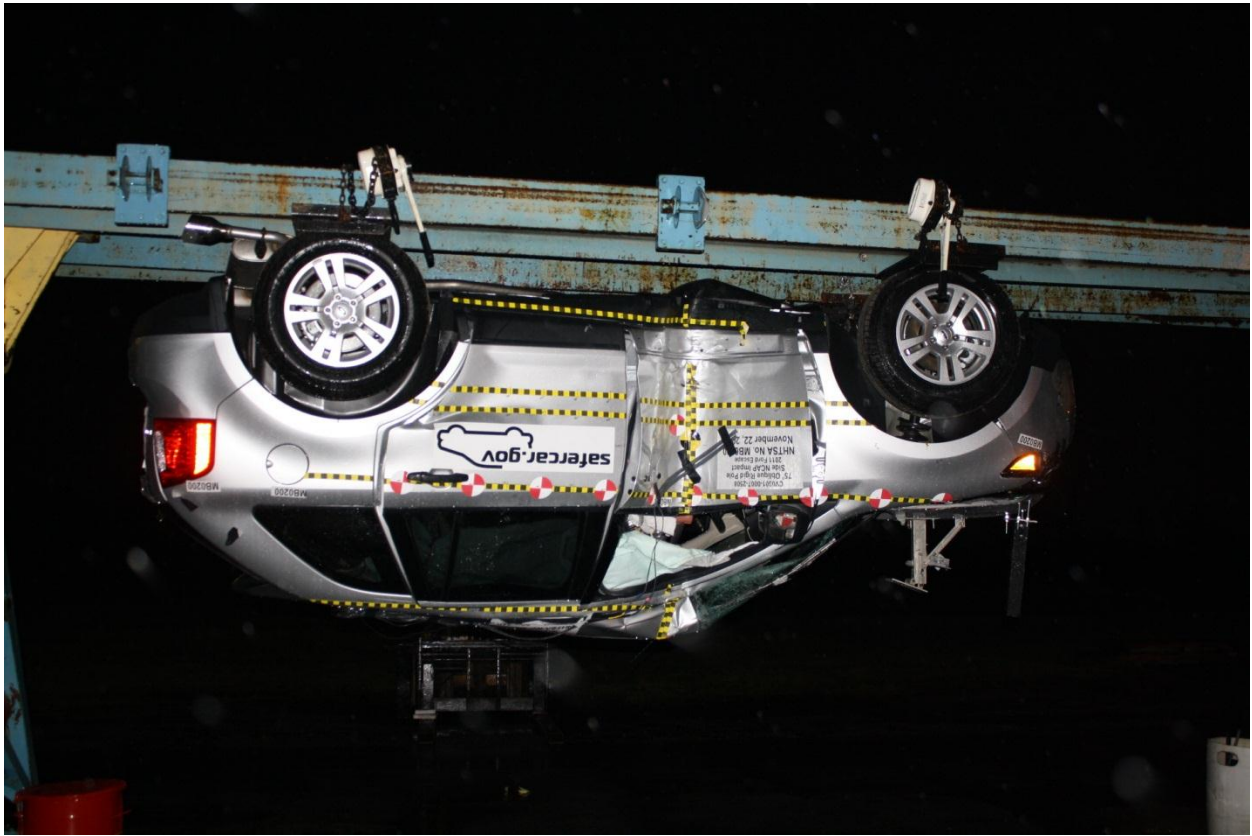


Figure A-63: FMVSS No. 301 Rollover 180°



Figure A-64: FMVSS No. 301 Rollover 270°



Figure A-65: FMVSS No. 301 Rollover 360°

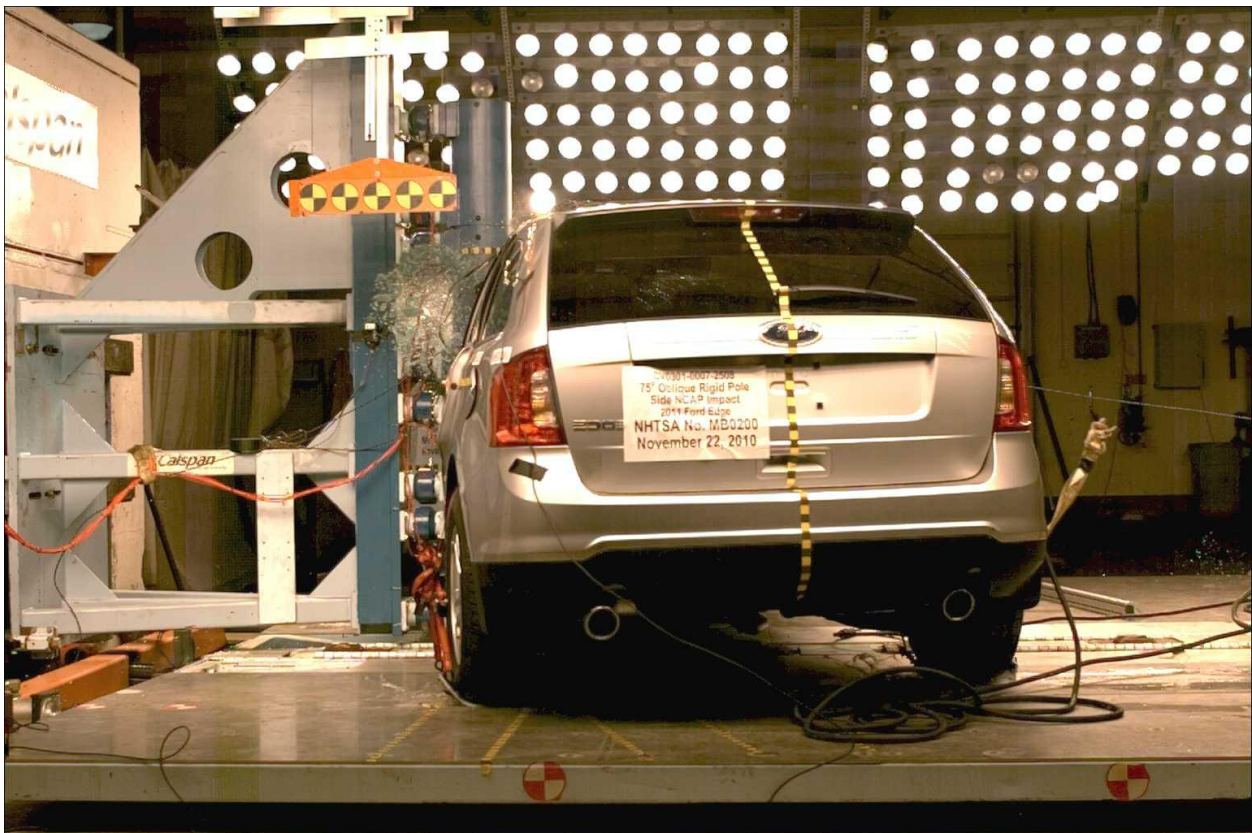


Figure A-66: Impact Event

Ford
www.fordvehicles.com

VEHICLE DESCRIPTION
EDGE

2011 FORD EDGE-SE FWD
8-PASSENGER
3.5L TI-VCT V6 ENGINE
6-SPD AUTOMATIC TRANS

EXTERIOR
INGOT SILVER METALLIC
INTERIOR
BLACK CLOTH

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR

- 17" ALUMINUM WHEELS
- PROJECTOR BEAM HALOGEN HEADLAMPS
- DUAL POWER MIRRORS
- EASY FUEL CAPLESS FILLER
- DUAL EXHAUST W/BRIGHT TIPS
- REAR SPOILER - MIC BLACK

INTERIOR

- AIR CONDITIONING - MANUAL
- CLOTH BUCKET FRONT SEATS
- CLOTH 2ND ROW 60/40 BENCH
- FOLD FLAT W/MAN RECLINE
- MYFORD
- AM/FM SINGLE CD/MP3, 6SPKR
- AUXILIARY AUDIO INPUT JACK
- STEERING WHL W/SPEED/AUD & 5-WAY SWITCH CLUSTER CNTR
- TILT/TELE STEERING COLUMN
- POWER DOOR LOCKS & WINDOWS

FUNCTIONAL

- INDEP. FR & RR SUSPENSION
- POWER POINTS (4)
- POWER STEERING
- INTEGRATED KEY FOB
- WIPERS FRONT INTERMITTENT
- SPEED SENSITIVE
- MYKEY

SAFETY/SECURITY

- 4-WHEEL DISC BRAKES W/ABS
- ADVANCETRAC W/RSC
- PERSONAL SAFETY SYSTEM
- SIDE AIRBAGS/SAFETY CANOPY
- SOS POST CRASH ALERT SYS
- SIDE IMPACT DOOR BEAMS
- TIRE PRESSURE MONITOR SYS

WARRANTY

- 5YR/36,000 BUMPER / BUMPER
- 5YR/60,000 POWERTRAIN
- 5YR/60,000 ROADSIDE ASSIST

EPA Fuel Economy Estimates

CITY MPG **19**
Expected range for most drivers 15 to 23 MPG

Estimated Annual Fuel Cost **\$2,142**
based on 15,000 miles at \$3.00 per gallon

Combined Fuel Economy This Vehicle **21**
10 21 32 All SUVs

HIGHWAY MPG **26**
Expected range for most drivers 21 to 31 MPG

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

SOLD TO 44G 120
West-Herr Ford Inc
5025 Camp Road
Hamburg NY 14075

ONE
CA60

DEALER NO.
44G 120

METHOD OF TRANSP.
CONVOY

ITEM #:
44-8009 O/T 2

SHIP TO (IF OTHER THAN SOLD TO)
TWO

2FMDK3GC6BBA26094

SHIP THROUGH
OAKVILLE

FINAL ASSEMBLY POINT
OAKVILLE

AJ131 N RB 2X 115 000359 09 13 10

EXTENDED SERVICE PLAN
Ford Extended Service Plan is the only service contract backed by Ford and honored at all Ford and Lincoln Mercury Dealers. Ask your dealer for prices and additional details or see our website at www.ford-esp.com.

PRICE INFORMATION

STANDARD VEHICLE PRICE
INCLUDED ON THIS VEHICLE
RAPID SPEC 100A

OPTIONAL EQUIPMENT
FRONT LICENSE PLATE BRACKET
CALIFORNIA/GREEN STATES EMISS
TOTAL OPTIONS

NO CHARGE
NO CHARGE
00

TOTAL VEHICLE & OPTIONS
DESTINATION & DELIVERY

27,220.00
775.00

Manufacturer Suggested Retail Price
\$27,220.00

27,995.00

TOTAL MSRP \$27,995.00

GOVERNMENT SAFETY RATINGS

Frontal Crash Driver Passenger To Be Rated To Be Rated
Star ratings based on the risk of injury in a frontal impact. Frontal ratings should ONLY be compared to other vehicles of similar size and weight.

Side Crash Front seat Rear seat To Be Rated To Be Rated
Star ratings based on the risk of injury in a side impact.

Rollover ★★★★★
Star ratings based on the risk of rollover in a single vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA).

www.safercar.gov or call 1-888-327-4236

Figure A-67: Monroney Label

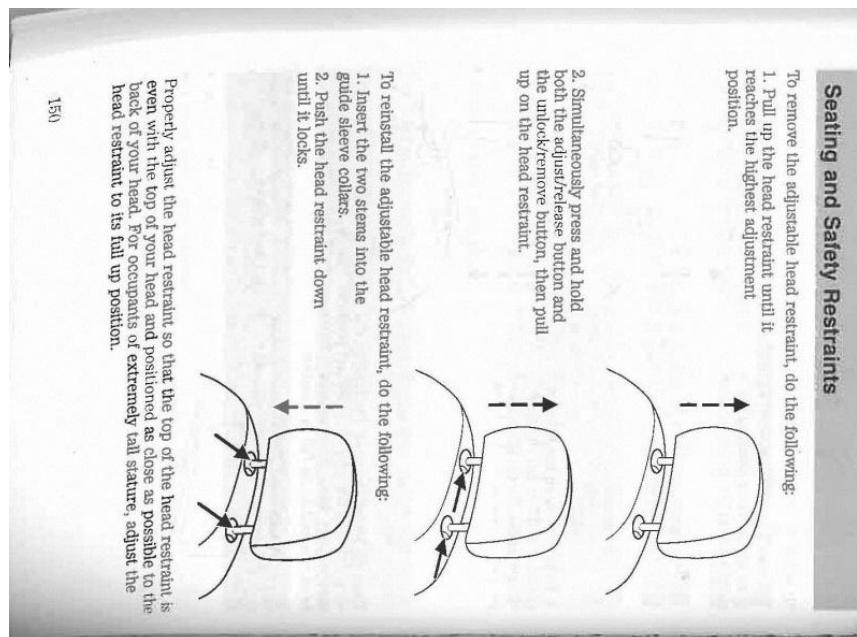


Figure A-68: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

No.		Page
	Driver Dummy Instrumentation Plots	
1	Driver Head Acceleration (X) Primary vs. Time	B-5
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration(Z) Primary vs. Time	B-6
4	Driver Head Resultant Primary vs. Time	B-6
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-7
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-7
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-8
8	Driver Lower Spine Y12 Resultant Acceleration vs. Time	B-8
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-9
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-9
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-10

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov.

Additional Driver Dummy Instrumentation Data

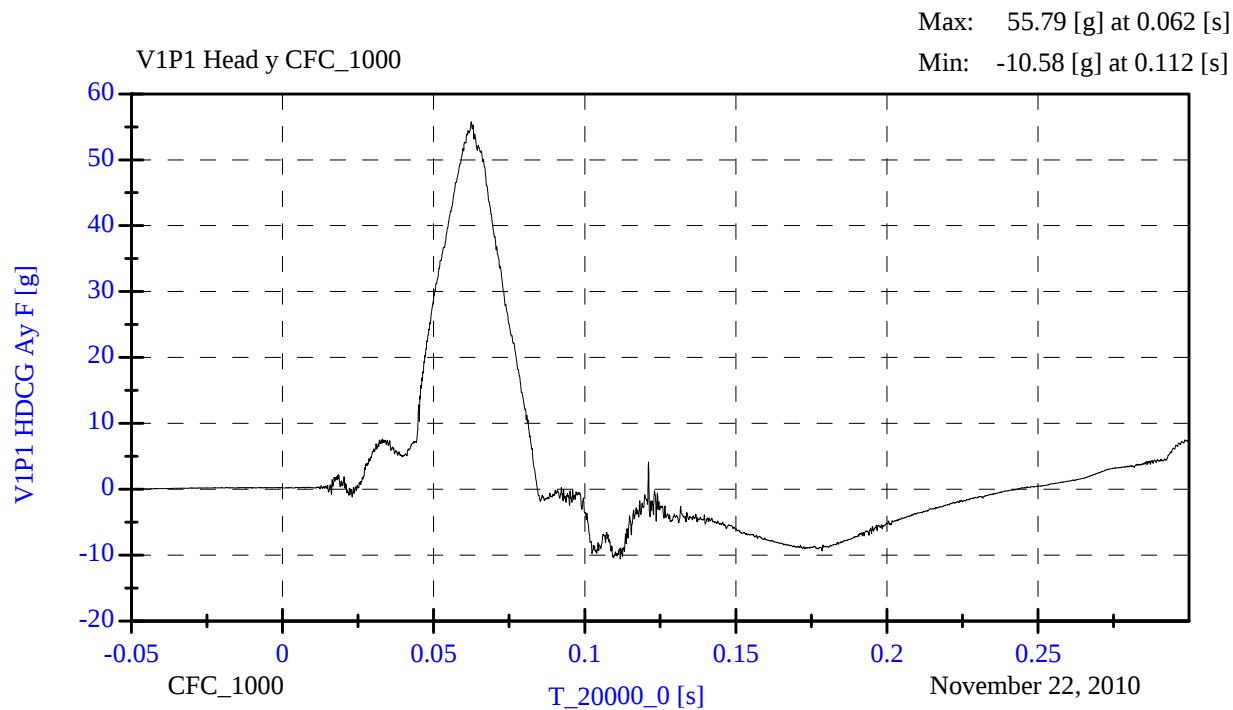
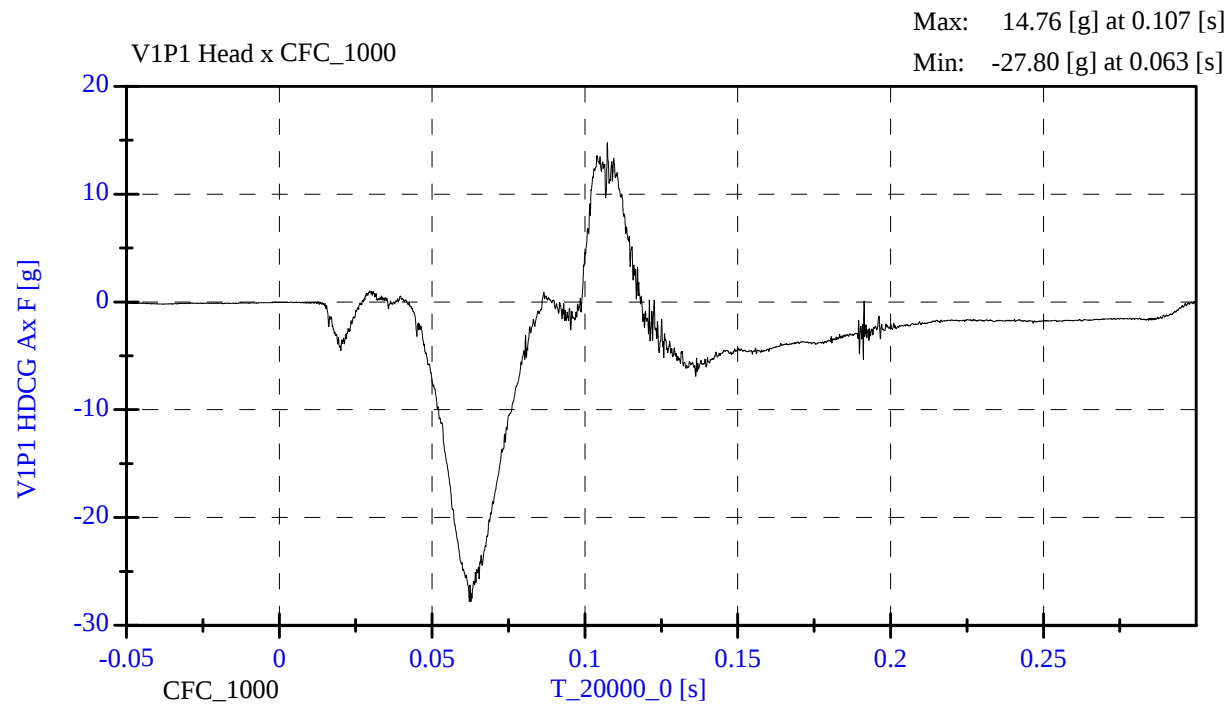
Driver Head Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper Abdomen Rib Deflection (Y)
Driver Lower Abdomen Rib Deflection (Y)
Driver Shoulder Contact Switch
Driver Torso Contact Switch
Driver Pelvis Contact Switch

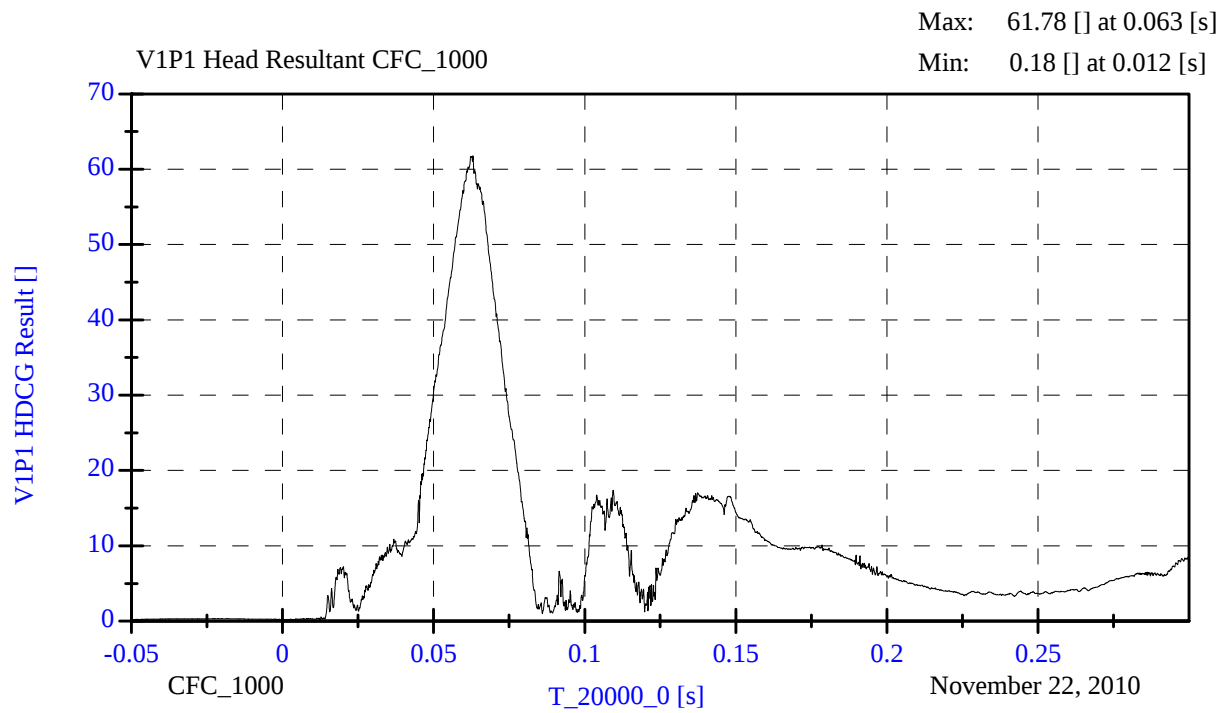
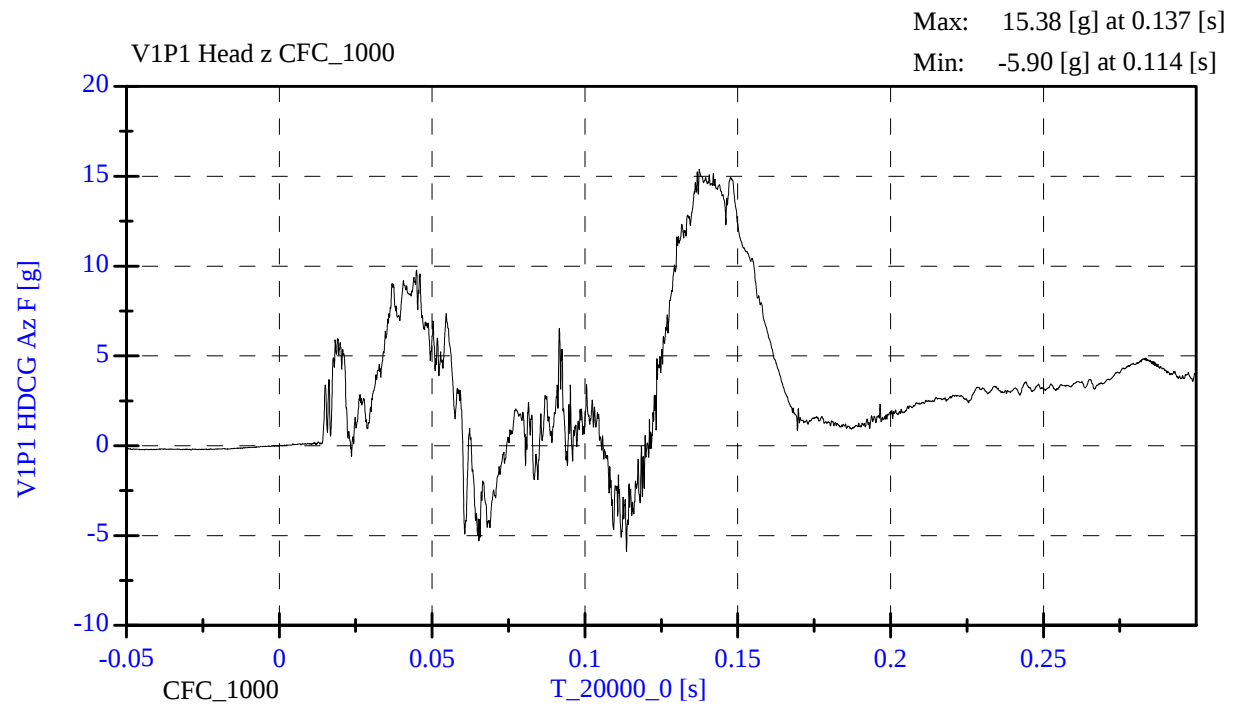
Vehicle Instrumentation Data

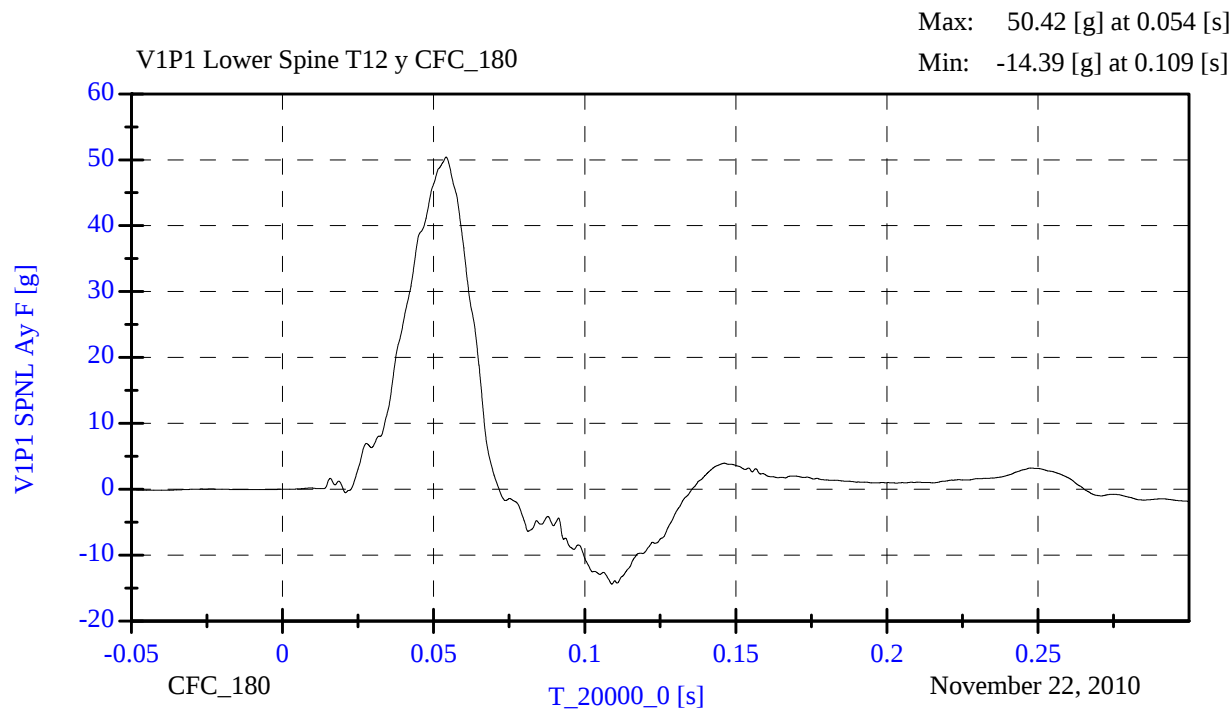
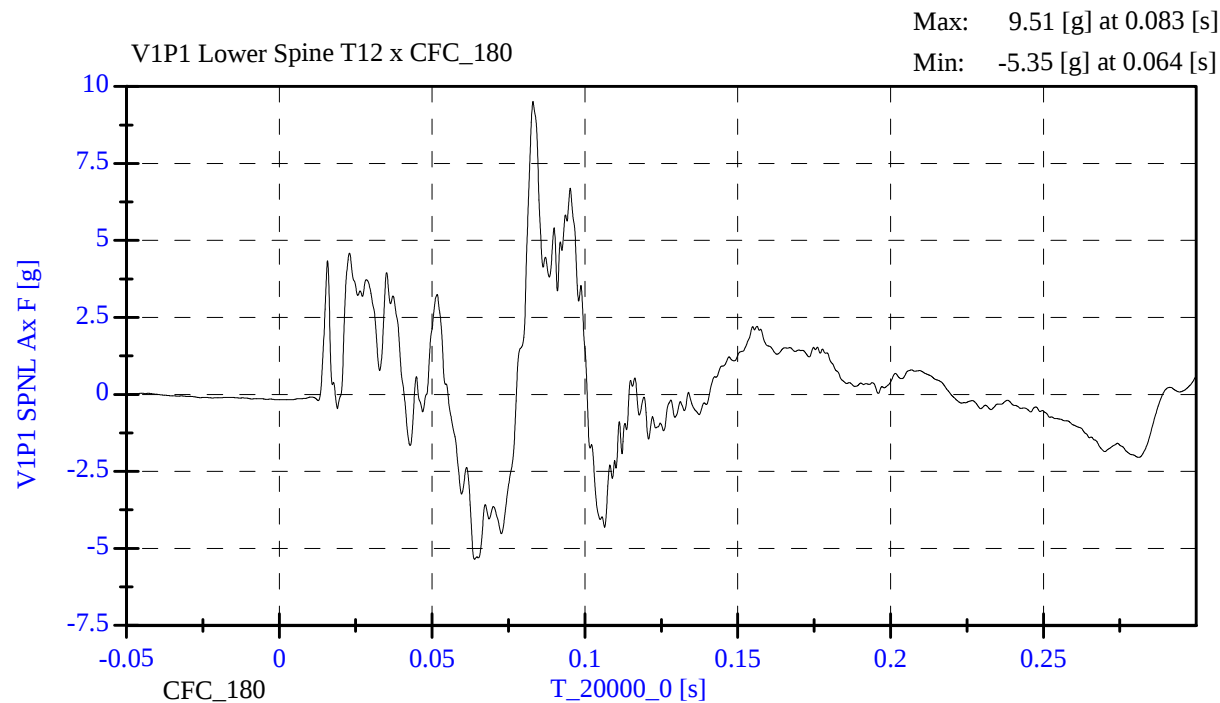
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)
Left B-Pillar Sill Acceleration (Y)
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy H-Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration (Y)
Right Sill at Vertical Impact Reference Line Acceleration (Y)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)
Driver Side Airbag Timing
Driver Side Curtain Airbag Timing

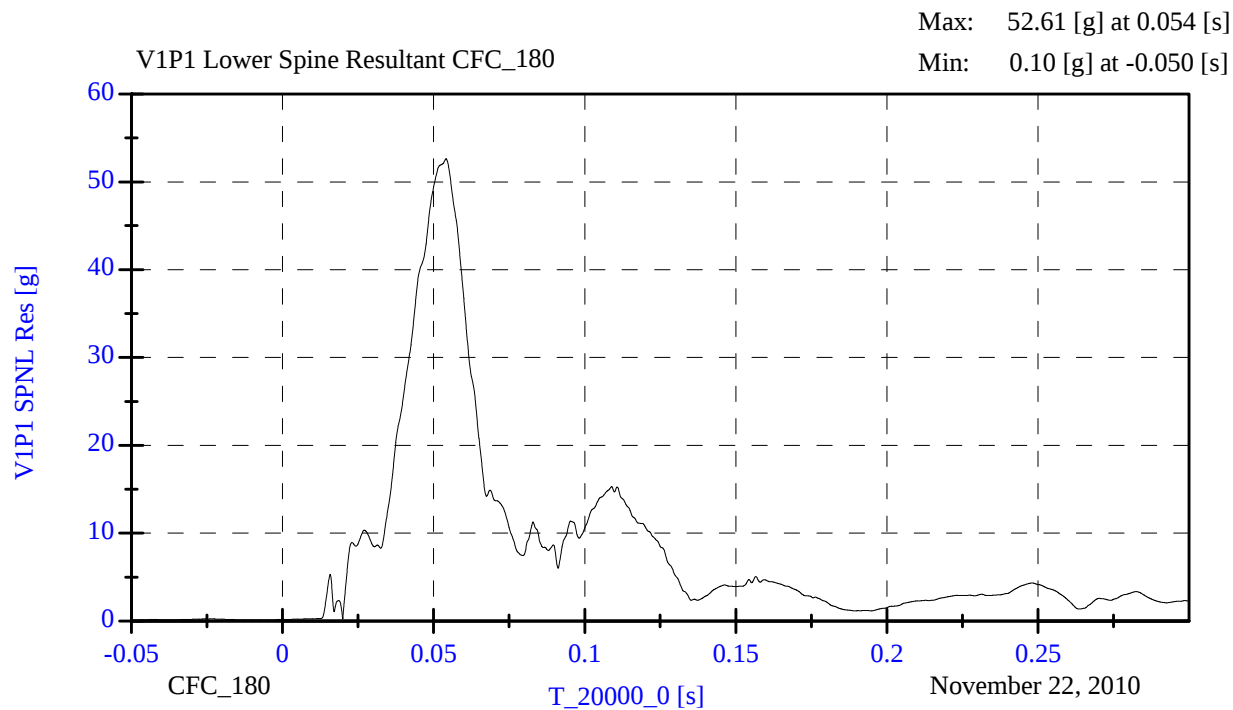
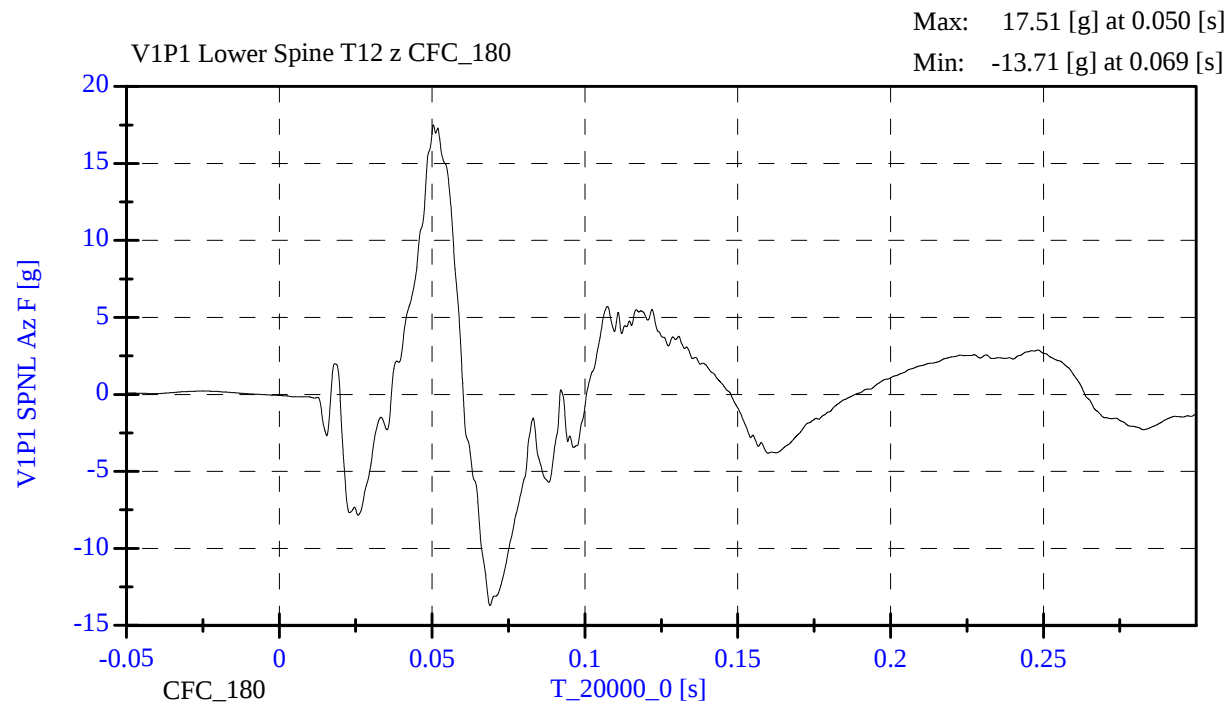
Pole Instrumentation Data

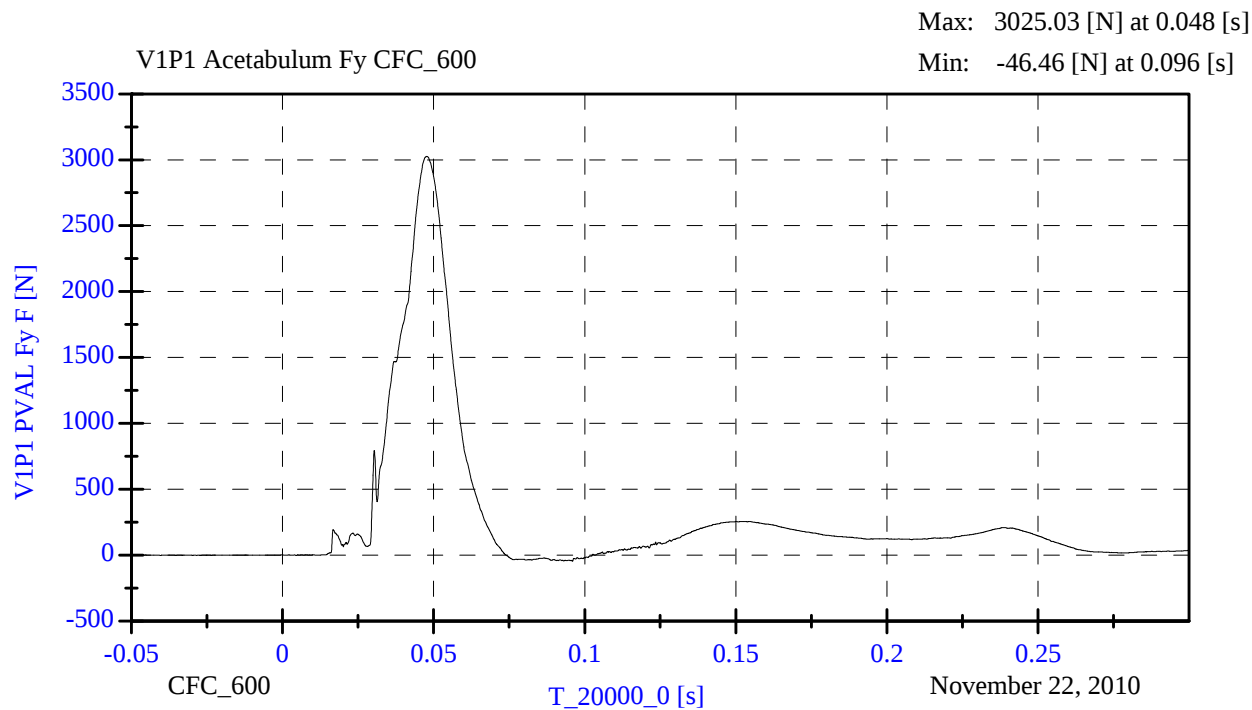
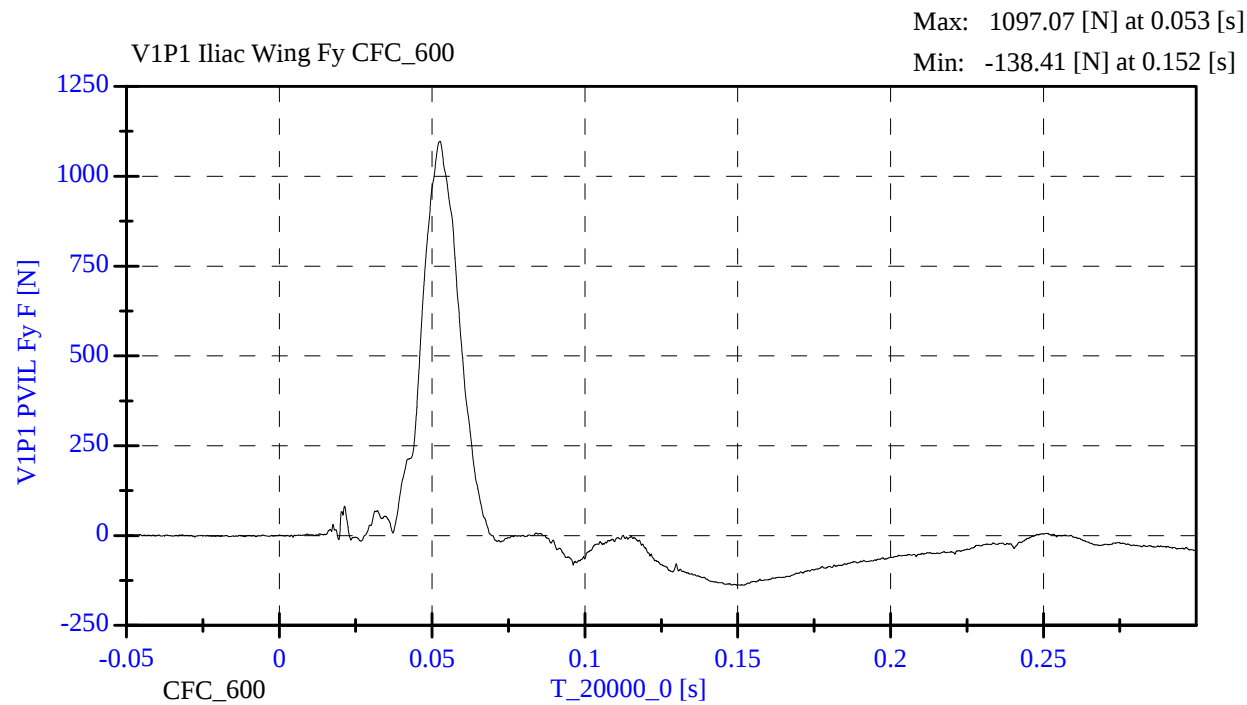
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

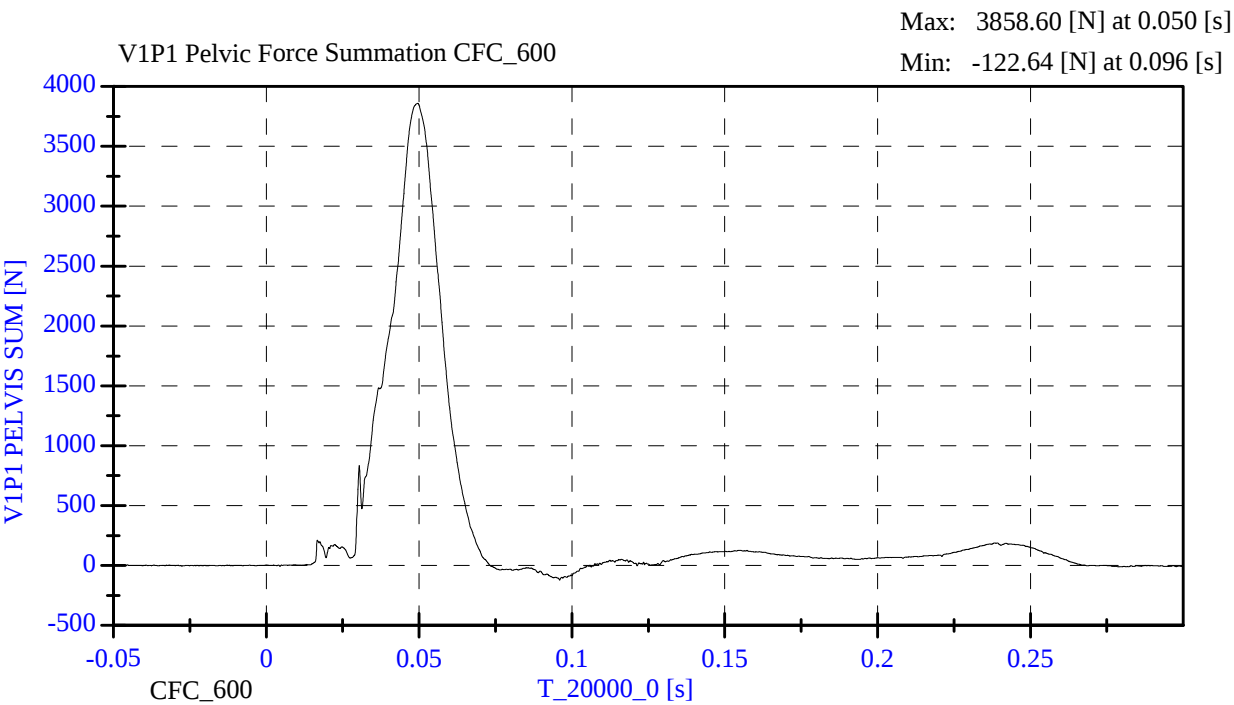












November 22, 2010

APPENDIX C
DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT

SID-IIsD External Measurements

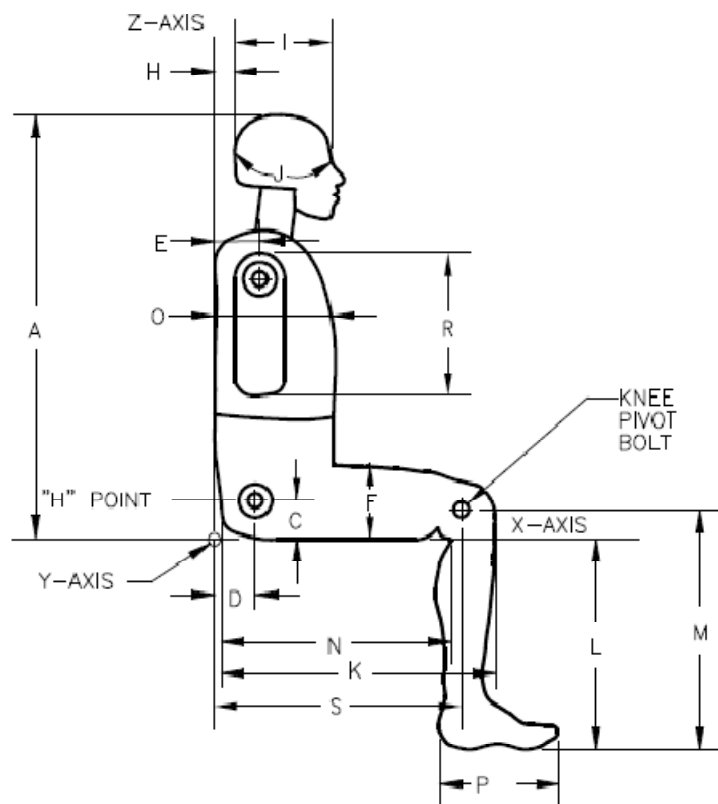
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	145	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	125	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	42	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	523	Yes
L	Popliteal Height	343.0 - 369.0	365	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	475	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	353	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	773	Yes

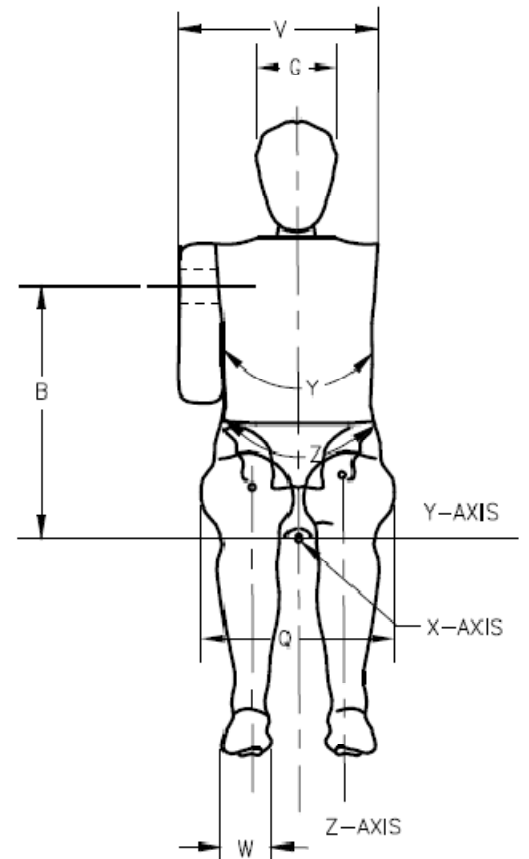
Technician: SZ

Date: 11/17/2010

SID-IIIsD External Dimension Reference Diagram



SIDE VIEW



FRONT VIEW



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	11/17/2010
Test Number:	1	Test Time:	8:50:47 AM

Component Part Number	Component Serial Number
Head Skin - 180-1002	1355

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	42 %RH P
Resultant Acceleration	115.0 -- 137.0	129.8 g P
Oscillation	0.0 -- 15.0	1.7 % P
Fore-Aft Acceleration	-15.0 -- 15.0	2.9 g P

All test parameters are within specifications

Technician: A. Rudniski Signature: _____
Supervisor: D. Travale Signature: _____

Test ID: **Head Drop**

Test Time: **8:50:47 AM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P66926	10/25/2010
Endevco	7264-2000	P66931	10/25/2010
Endevco	7264-2000	P66943	10/25/2010

Test ID: **Head Drop**

Test Time: **8:50:47 AM**

Test Date: **11/17/2010**

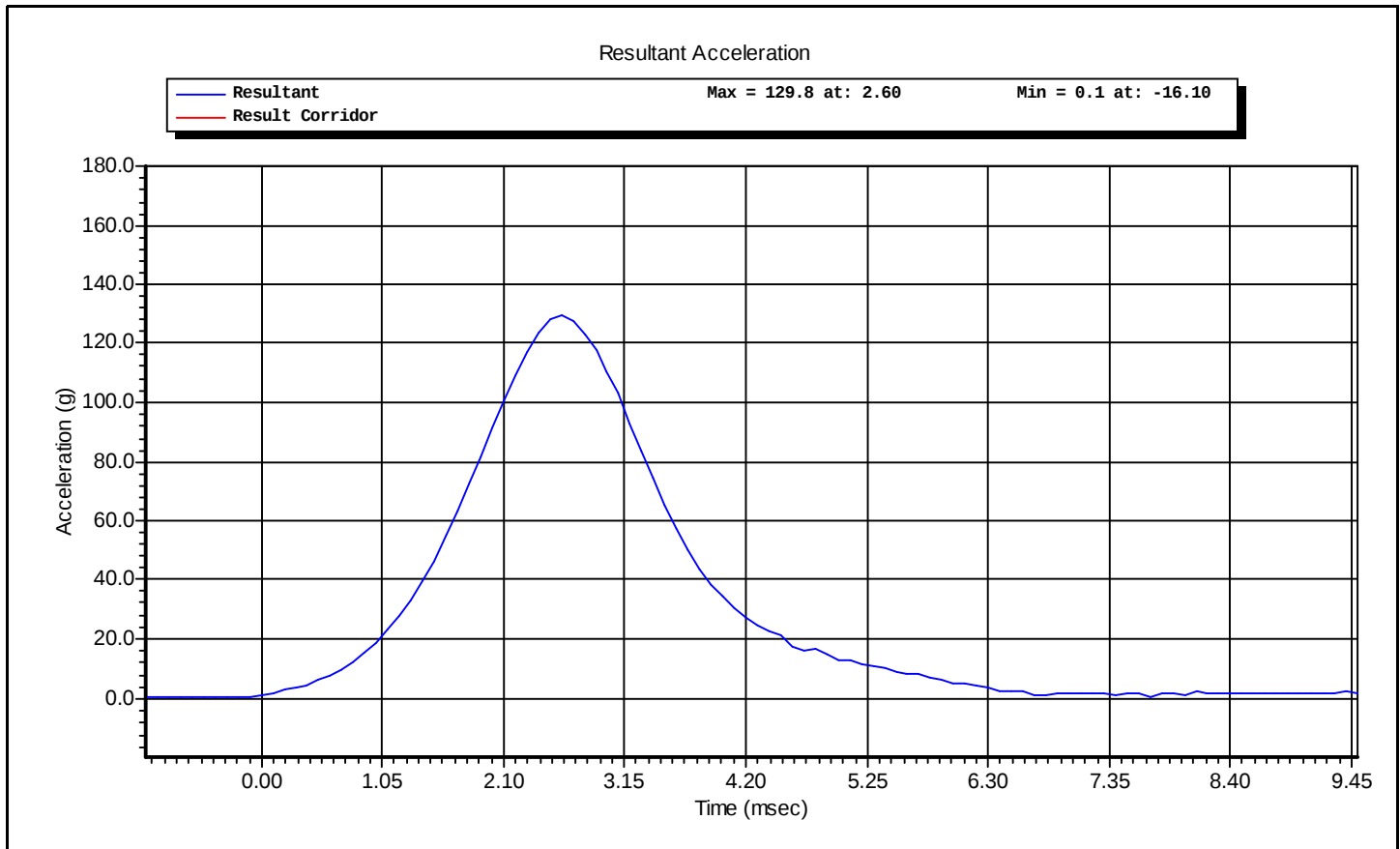


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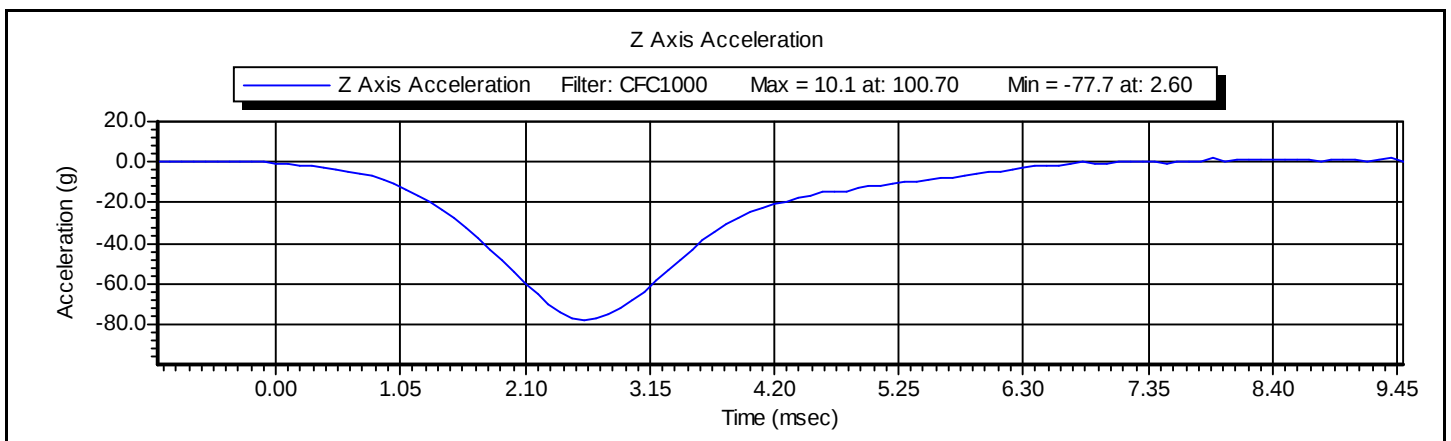
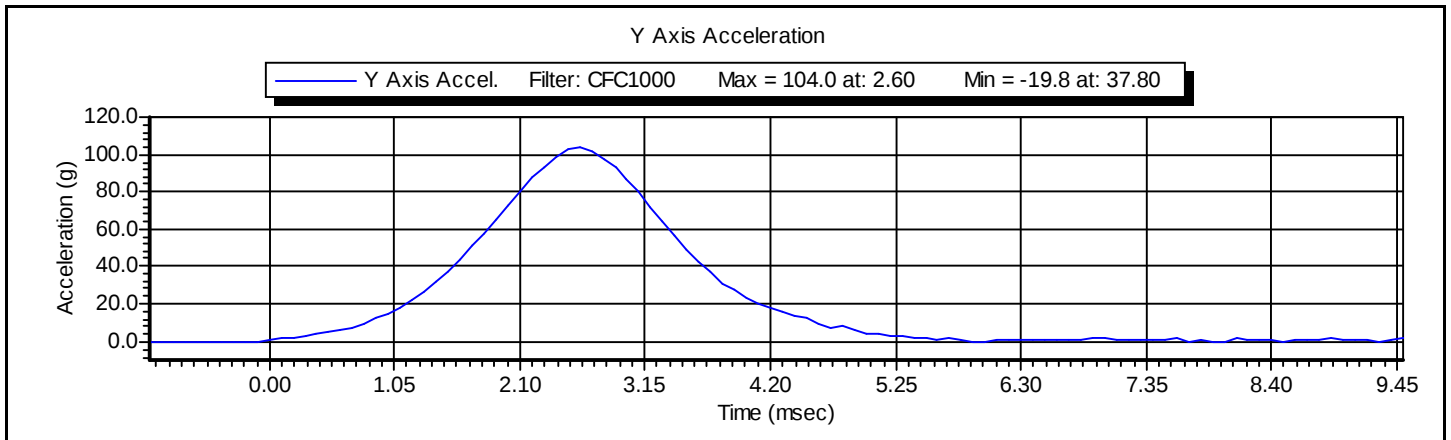
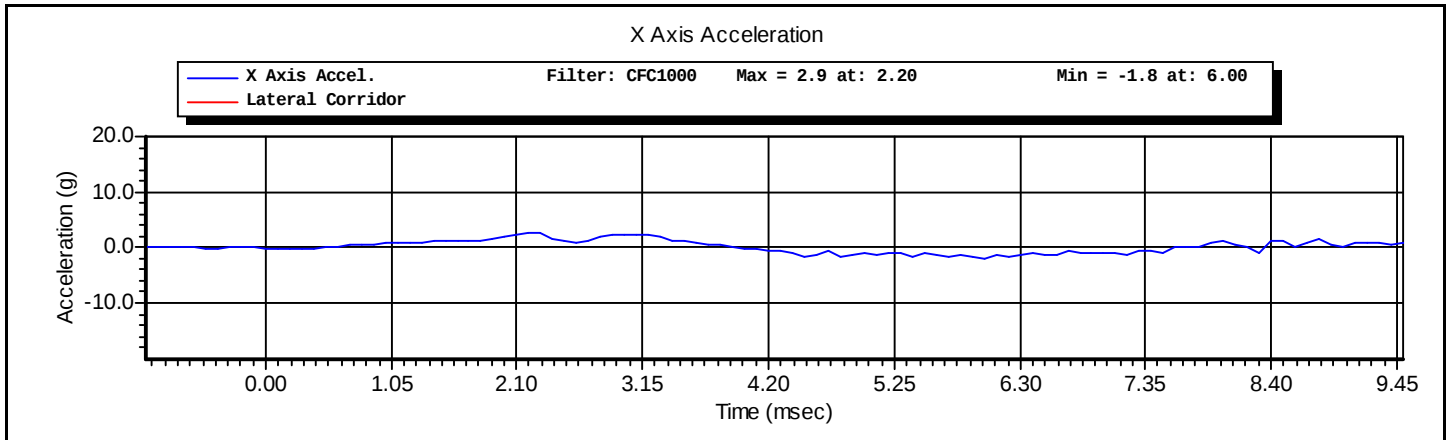
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	11/17/2010
Test Number:	1	Test Time:	8:50:47 AM



Test ID: Head Drop

Test Time: 8:50:47 AM

Test Date: 11/17/2010





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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	11/17/2010
Test Number:	2	Test Time:	10:13:23 AM

Component Part Number	Component Serial Number
Neck - 180-2000	787

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	5.51 -- 5.63	5.53 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.58 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.72 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	5.04 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.84 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.88 m/s P
Max D Plane Rotation	71.0 -- 81.0	75.7 degrees P
Time at Max Rotation	50.0 -- 70.0	60.9 ms P
Moment about OC	-44.0 -- -36.0	-42.7 Nm P
Moment Decay to Zero	102.0 -- 126.0	114.2 ms P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Neck Flexion**

Test Time: **10:13:23 AM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7231CT	C16510	10/21/2010
Denton	1716A	LC-576 Fy	2/15/2010
Denton	1716A	LC-576 Mx	2/15/2010
DentonATD	78051-342	184	4/30/2010
DentonATD	78051-342	174	4/30/2010
DentonATD	78051-342	185	4/30/2010

Test ID: **Neck Flexion**

Test Time: **10:13:23 AM**

Test Date: **11/17/2010**



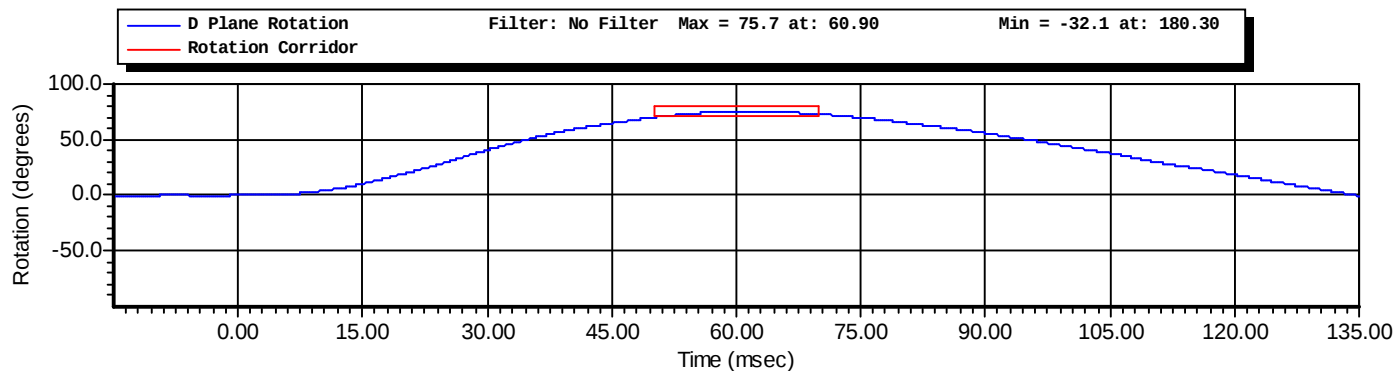
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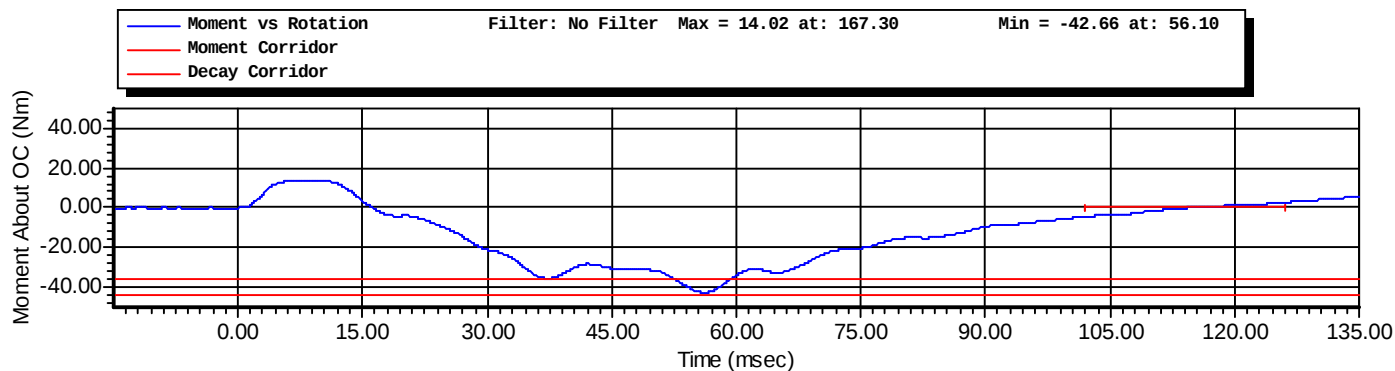
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	11/17/2010
Test Number:	2	Test Time:	10:13:23 AM

D Plane Rotation



Moment About Occipital Condyle

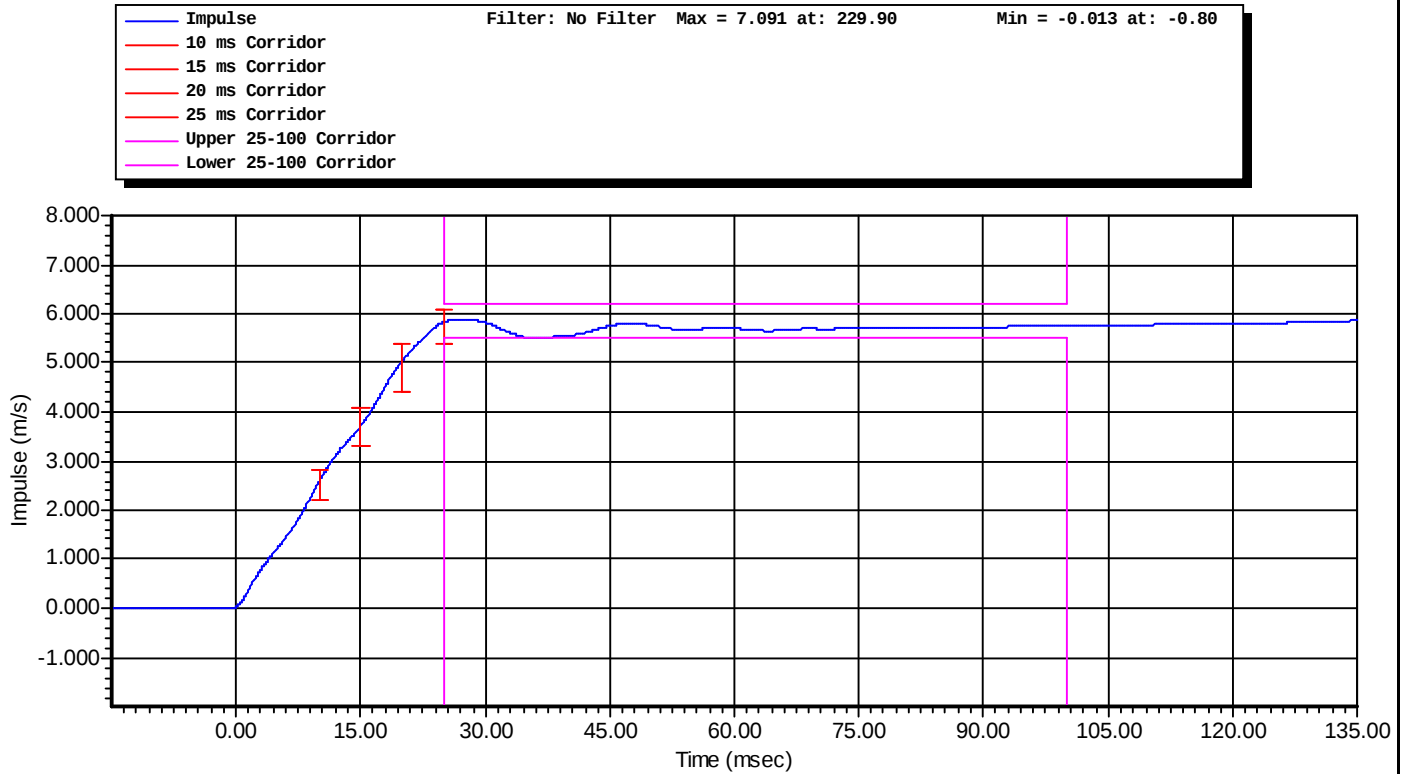


Test ID: Neck Flexion

Test Time: 10:13:23 AM

Test Date: 11/17/2010

Pendulum Impulse





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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Shoulder	Test Date:	11/17/2010
Test Number:	1	Test Time:	2:05:32 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.80 deg C	P
Humidity	10.0	--	70.0	40.0 %RH	P
Velocity	4.20	--	4.40	4.32 m/s	P
Probe Acceleration	13.0	--	18.0	16.7 g	P
Shoulder Deflection	28.0	--	37.0	31.8 mm	P
T1 Acceleration	17.0	--	22.0	20.0 g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

Test ID: **Shoulder**

Test Time: **2:05:32 PM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1063	4/7/2010
Endevco	7264-2000	P51927	10/8/2010

Test ID: **Shoulder**

Test Time: **2:05:32 PM**

Test Date: **11/17/2010**

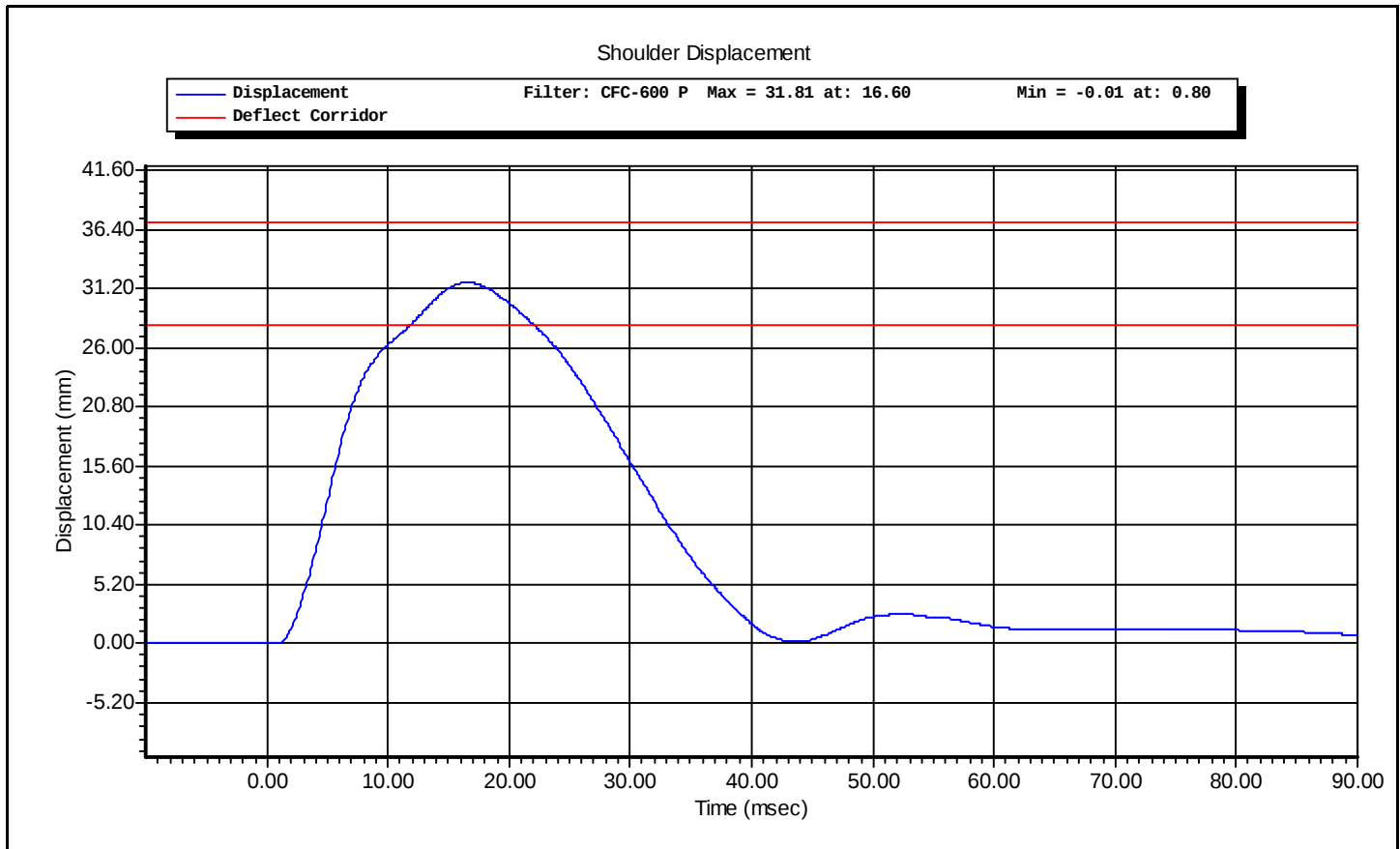


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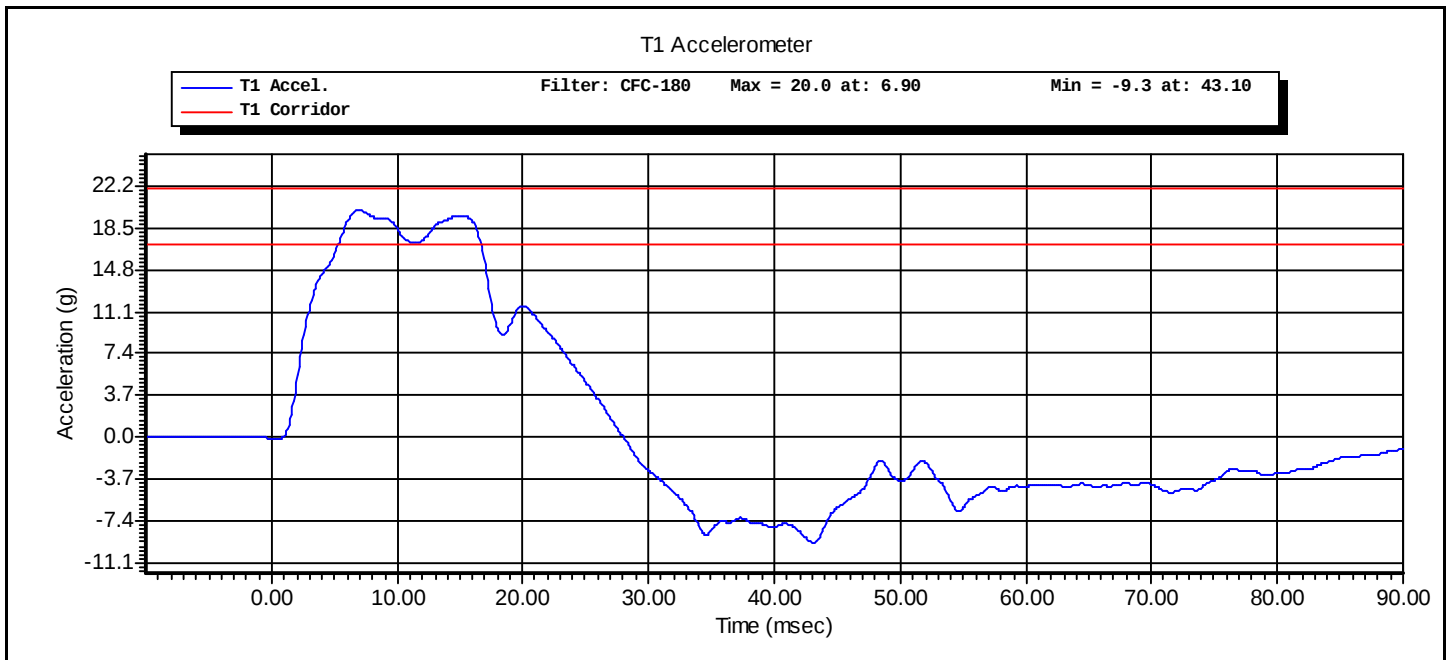
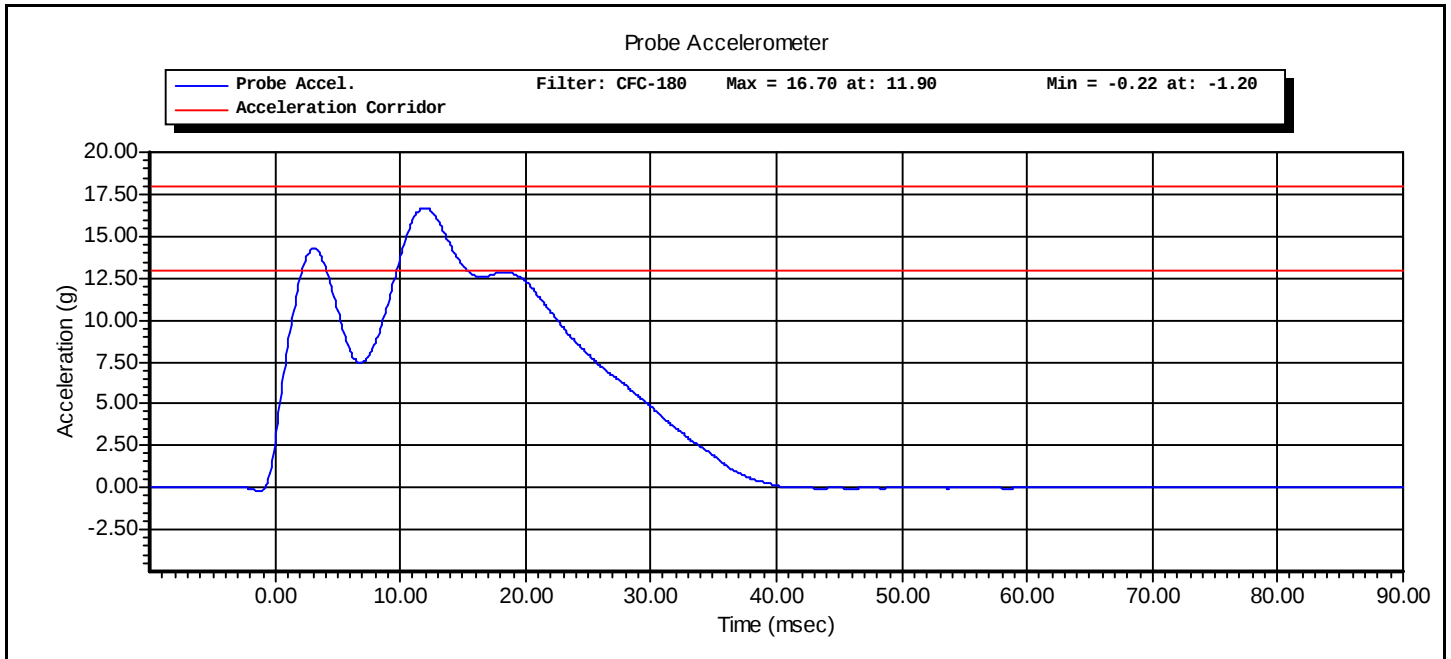
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	11/17/2010
Test Number:	1	Test Time:	2:05:32 PM



Test ID: **Shoulder**

Test Time: **2:05:32 PM**

Test Date: **11/17/2010**





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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Thorax Without Arm	Test Date:	11/17/2010
Test Number:	2	Test Time:	3:27:29 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.1 deg C	P
Humidity	10	--	70	39 %RH	P
Velocity	4.20	--	4.40	4.32 m/s	P
Probe Acceleration	14.0	--	18.0	16.4 g	P
Upper Thorax Rib Deflection	32.0	--	40.0	34.8 mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	41.1 mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	40.4 mm	P
Upper Spine Acceleration T1	13.0	--	17.0	16.4 g	P
Lower Spine Acceleration T12	7.0	--	11.0	10.0 g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Thorax Without Arm** Test Time: **3:27:29 PM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P51927	10/8/2010
Endevco	7264-2000	P64147	9/20/2010

Test ID: **Thorax Without Arm** Test Time: **3:27:29 PM**

Test Date: **11/17/2010**

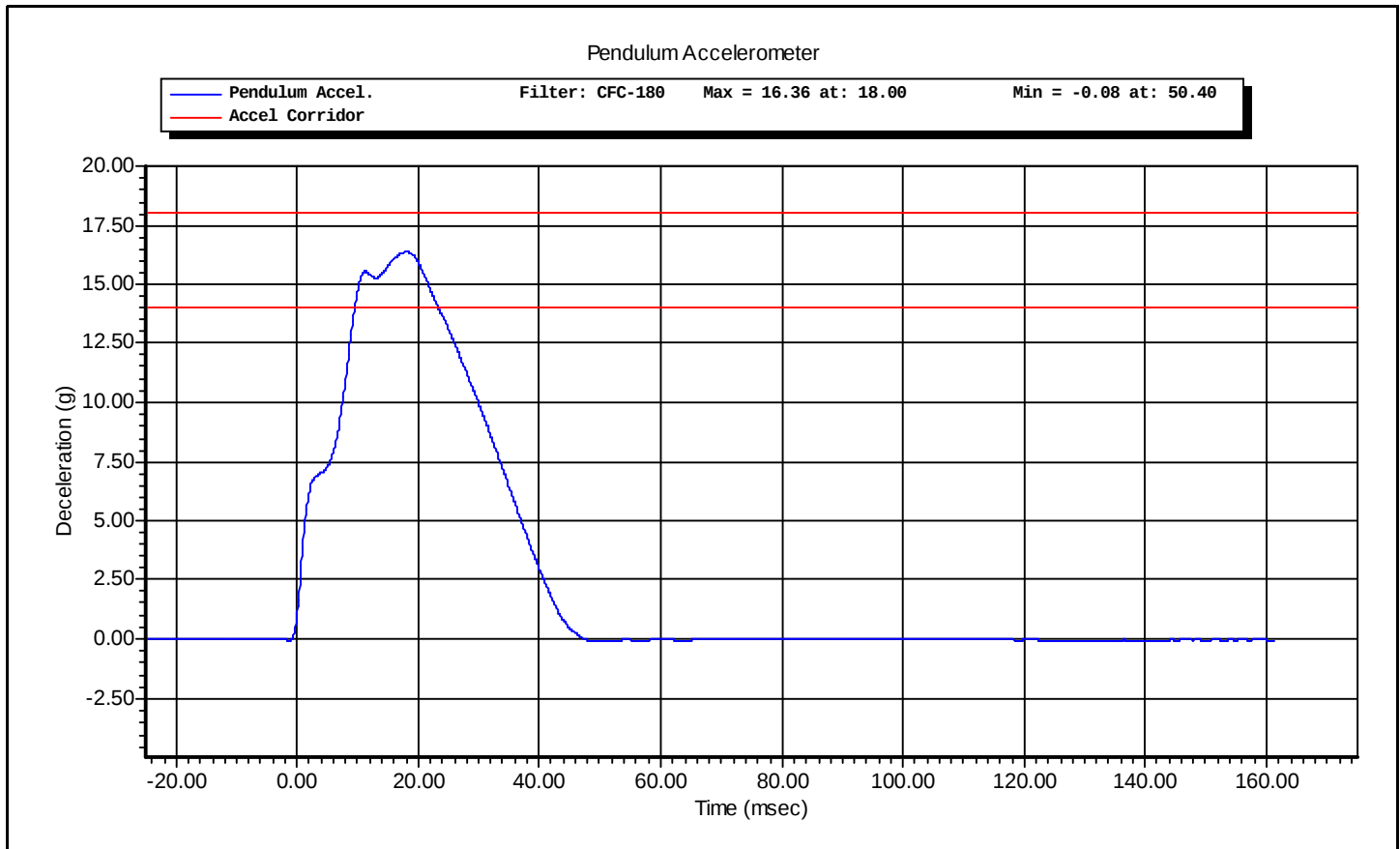


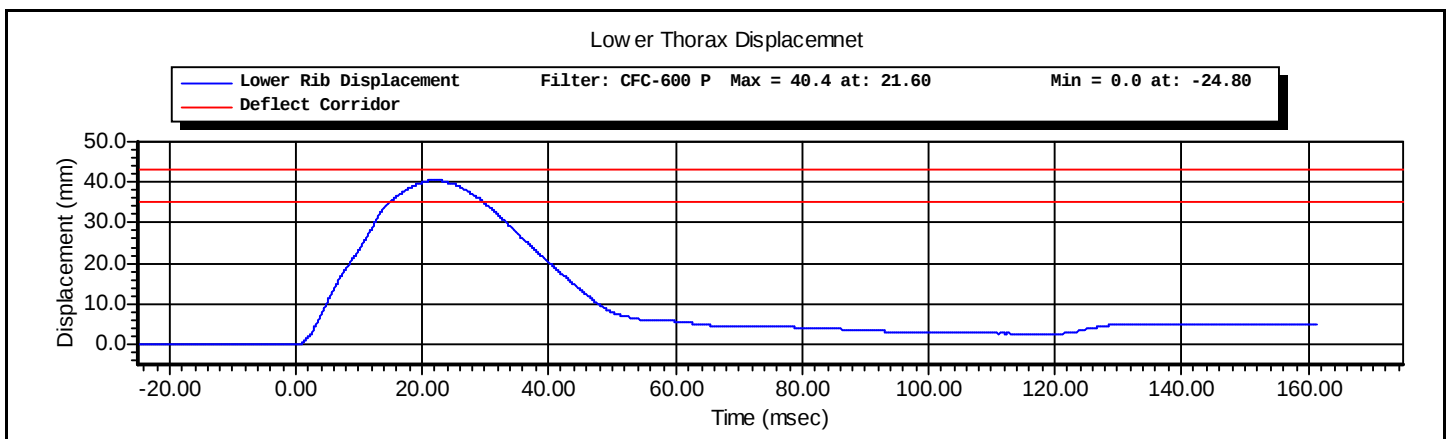
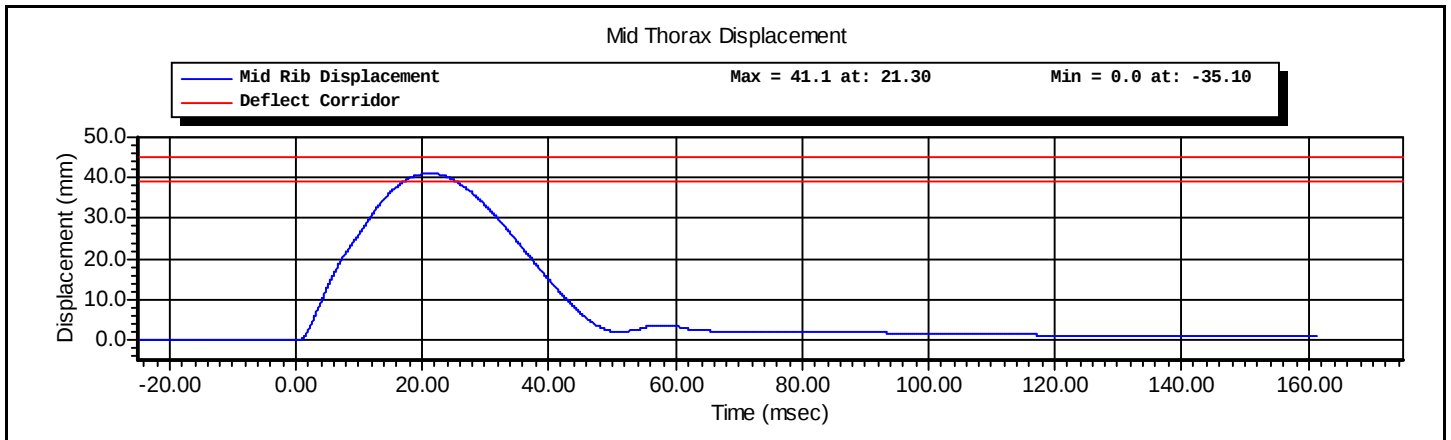
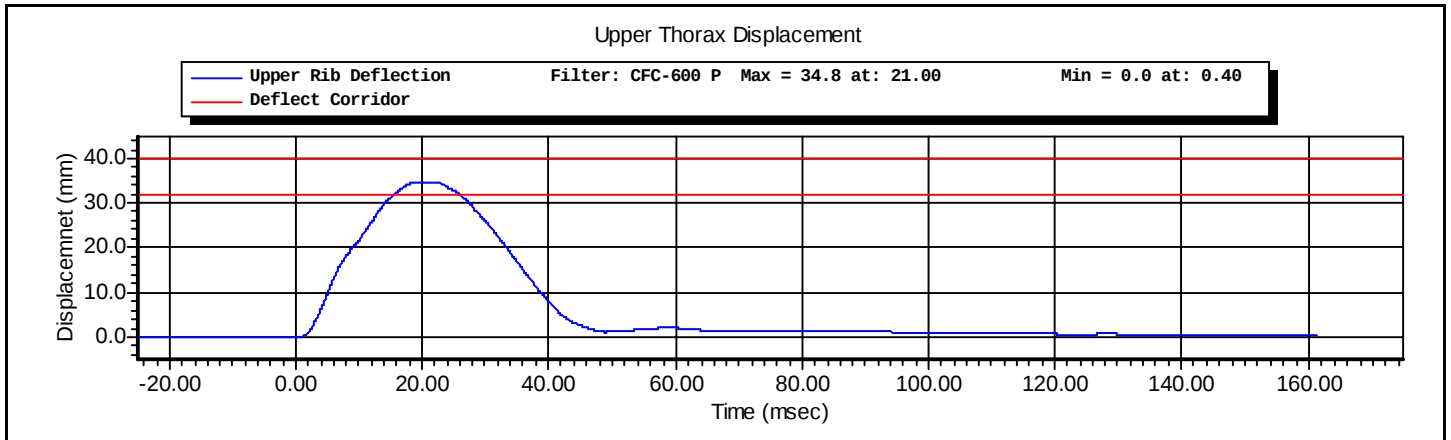
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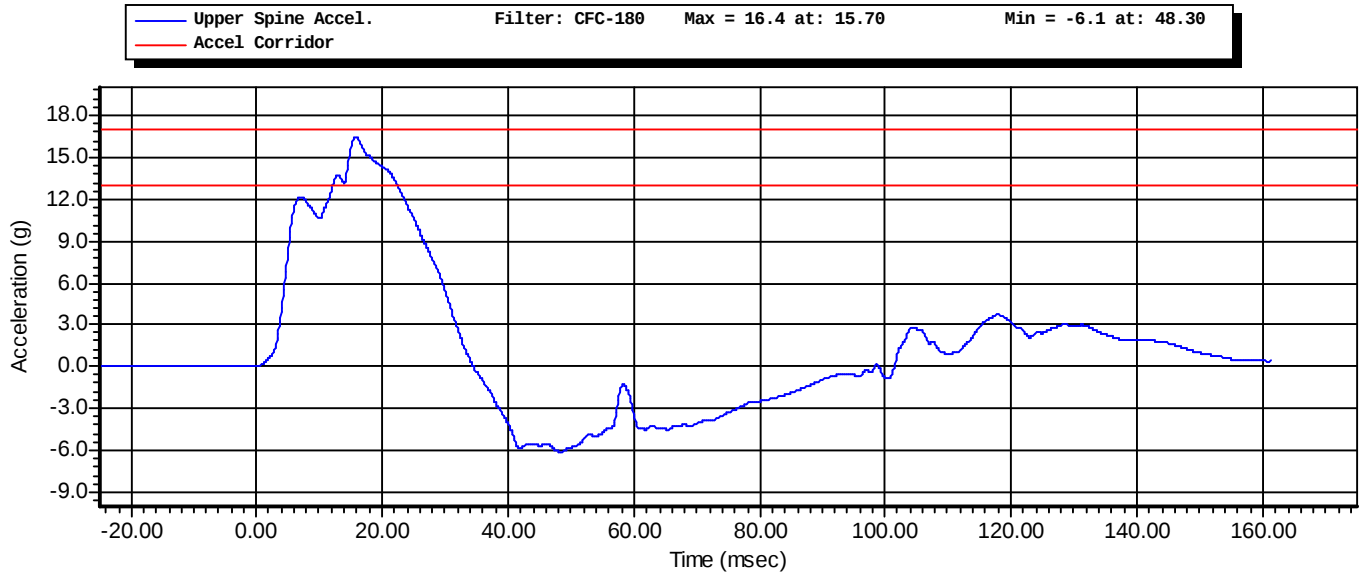
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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax Without Arm	Test Date:	11/17/2010
Test Number:	2	Test Time:	3:27:29 PM

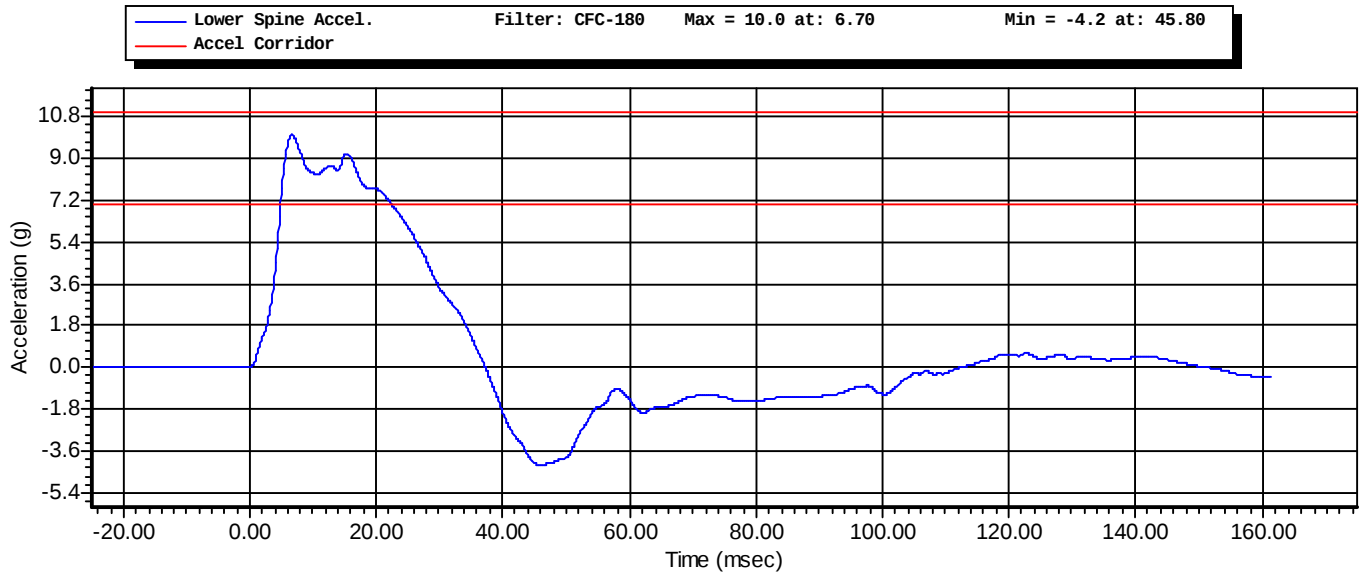




Upper Spine Acceleration



Lower Spine Acceleration





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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Thorax With Arm	Test Date:	11/17/2010
Test Number:	1	Test Time:	4:09:33 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.7 deg C	P
Humidity	10	--	70	39 %RH	P
Velocity	6.60	--	6.80	6.69 m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	35.0 g	P
Upper Thorax Rib Deflection	25.0	--	32.0	26.2 mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	31.2 mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	34.7 mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	39.9 g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	36.2 g	P
Shoulder Deflection	31.0	--	40.0	36.1 mm	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Thorax With Arm** Test Time: **4:09:33 PM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P51927	10/8/2010
Endevco	7264-2000	P64147	9/20/2010
Servo	180-3885	DS-1063	4/7/2010

Test ID: **Thorax With Arm** Test Time: **4:09:33 PM**

Test Date: **11/17/2010**

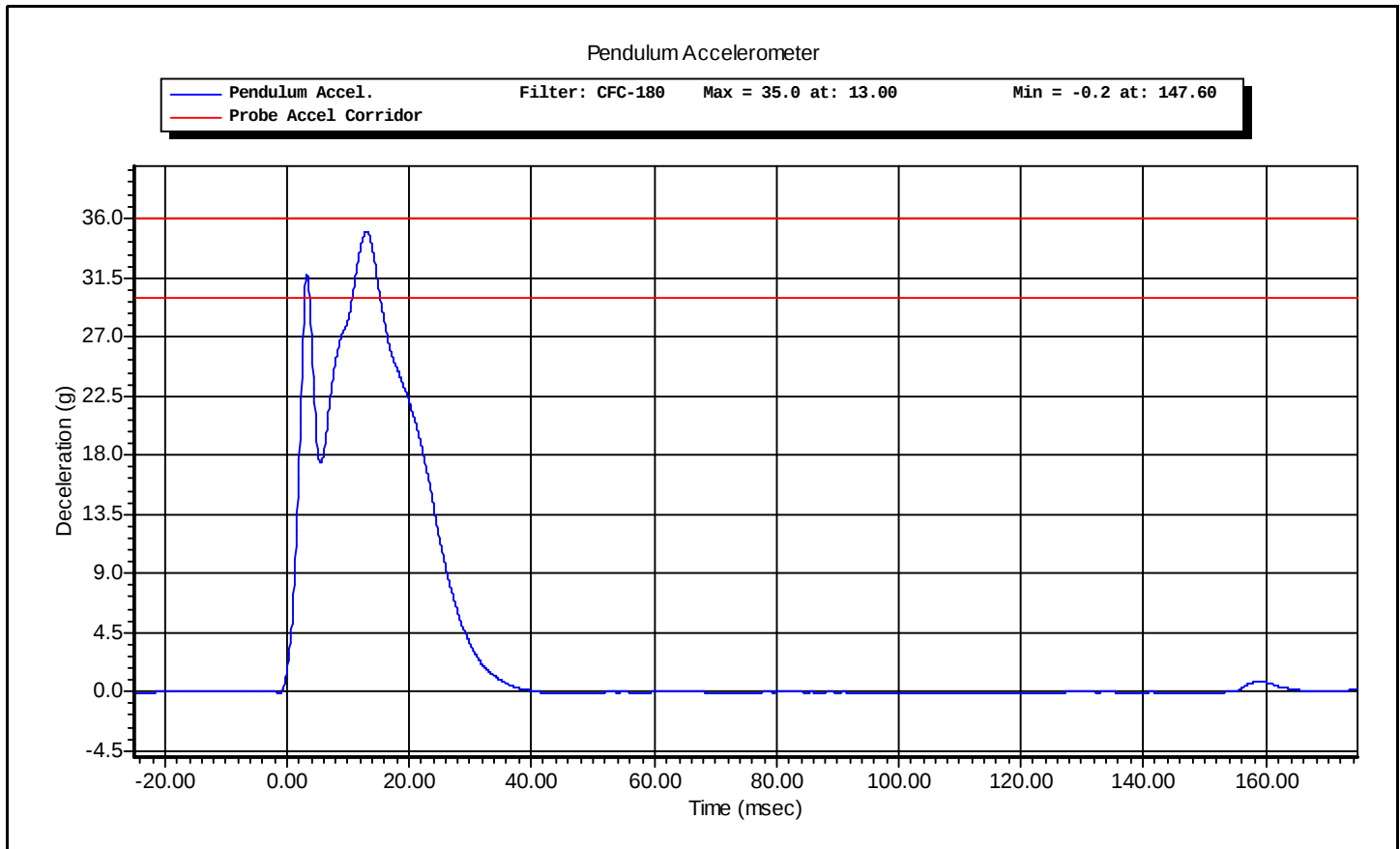


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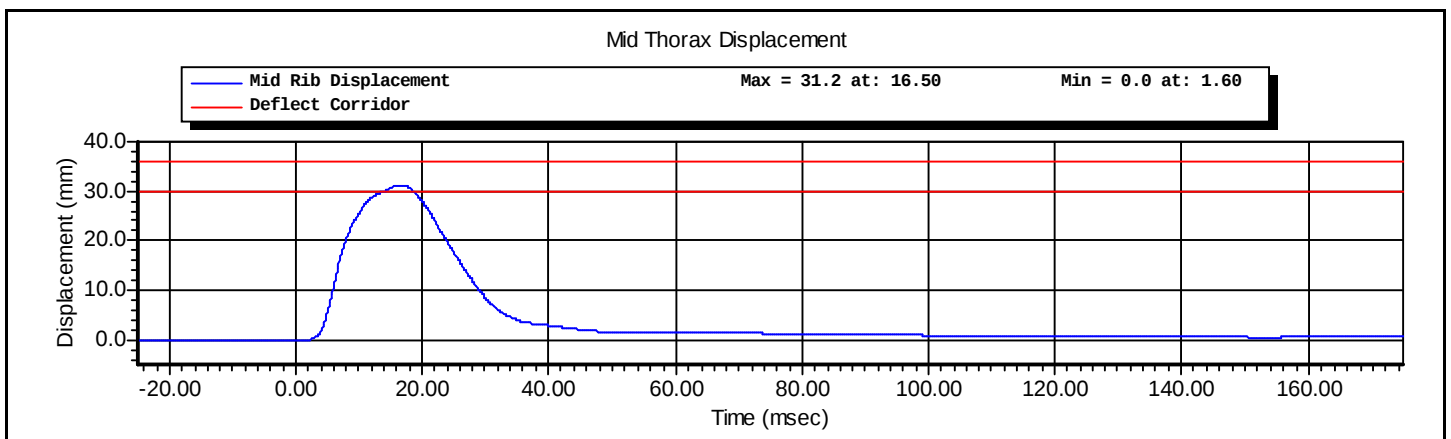
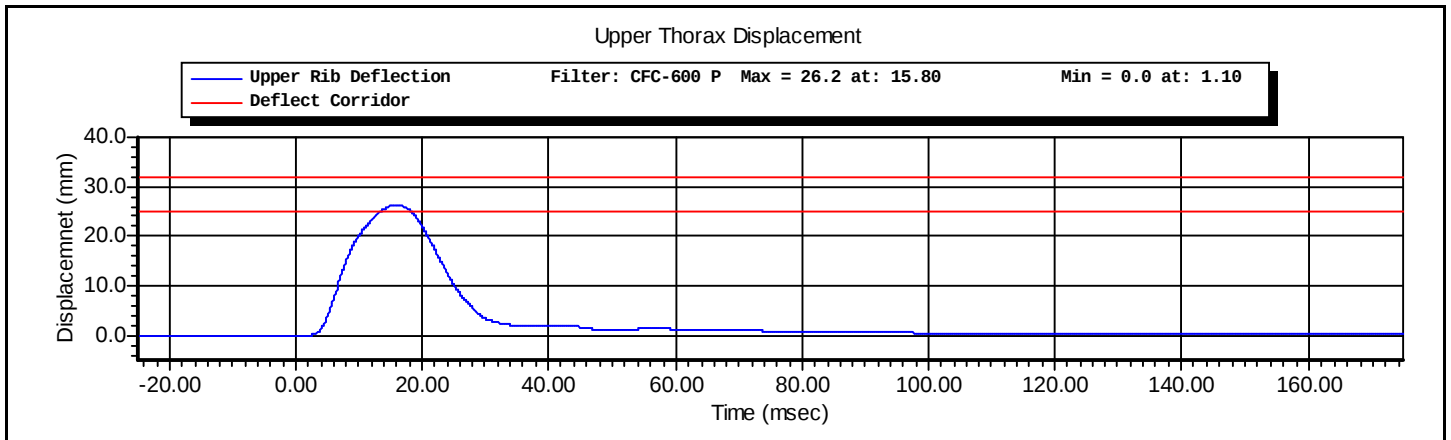
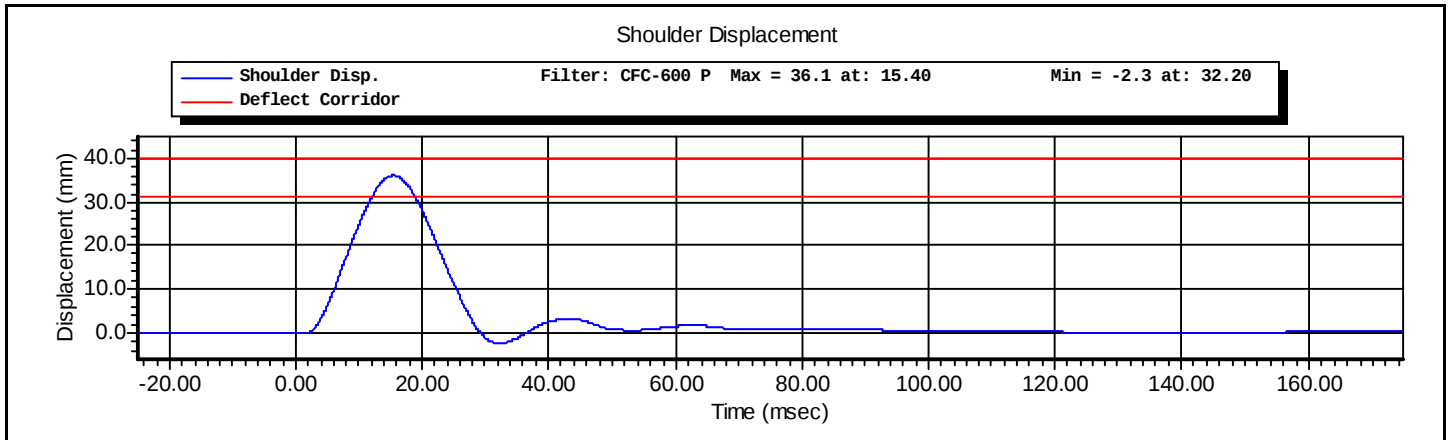
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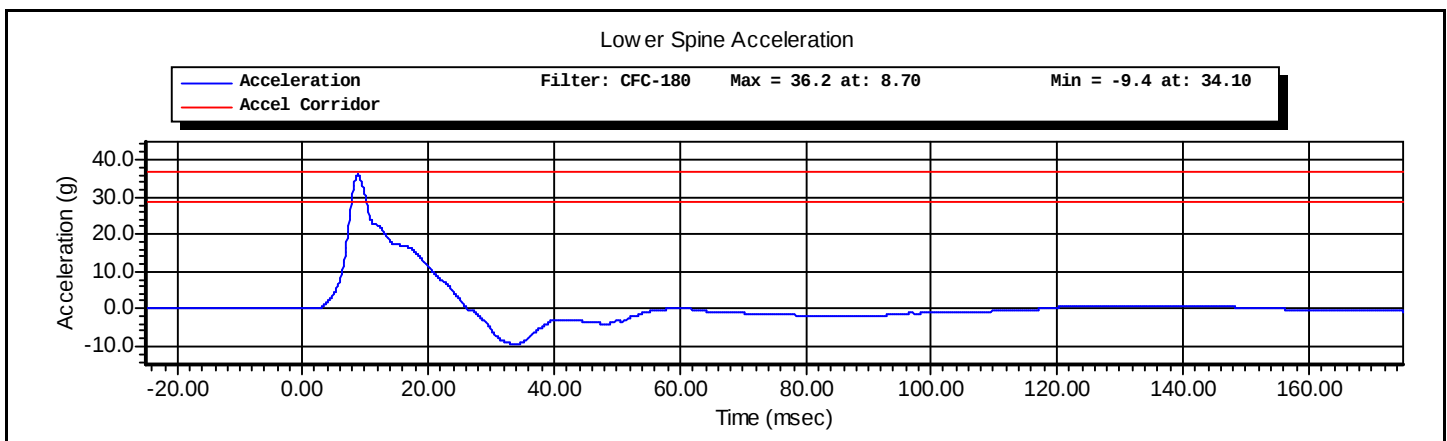
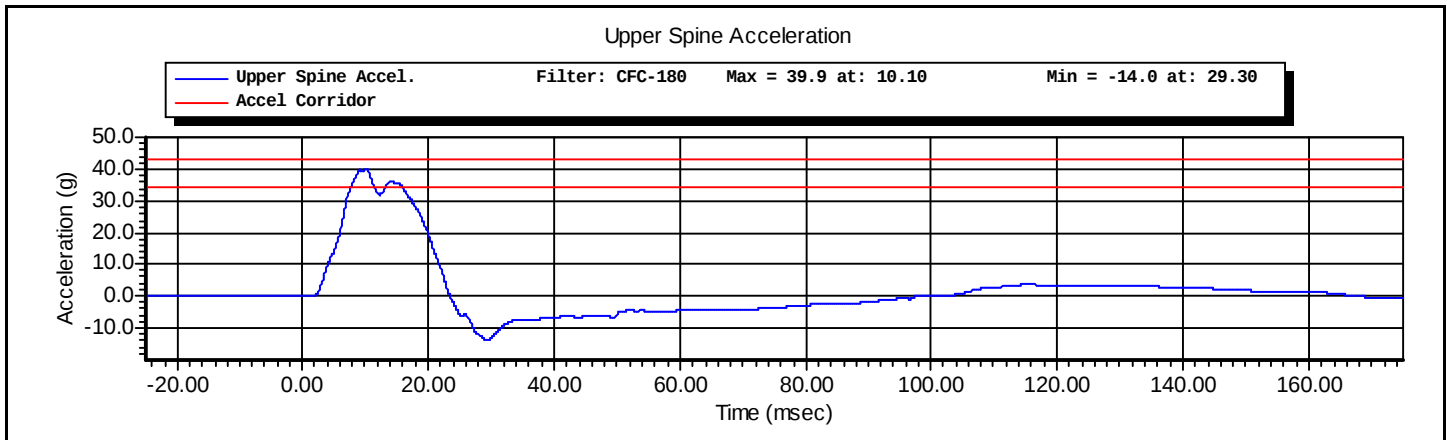
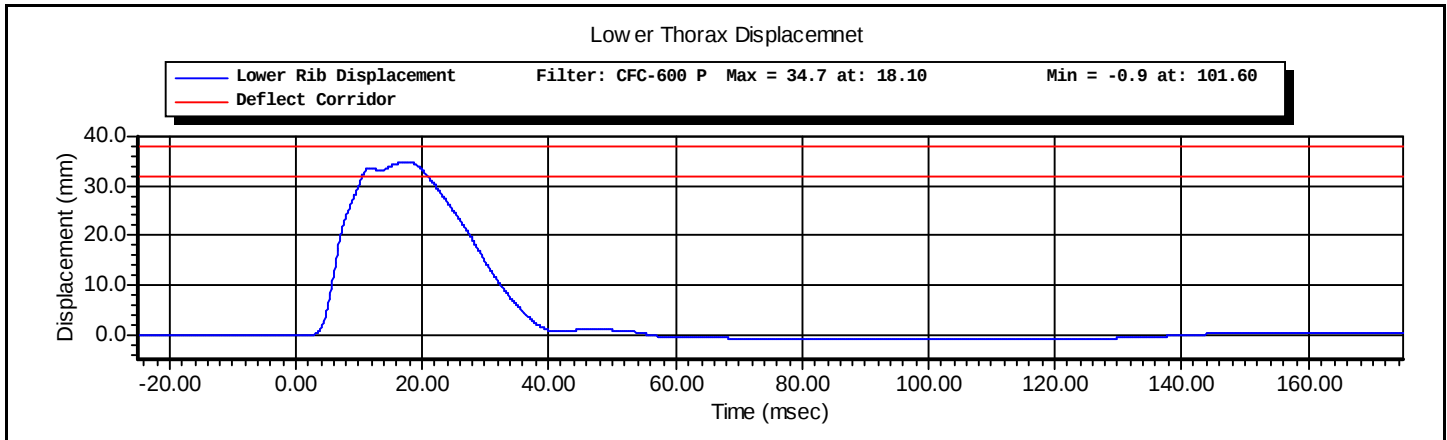
Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	11/17/2010
Test Number:	1	Test Time:	4:09:33 PM



Test ID: Thorax With Arm Test Time: 4:09:33 PM

Test Date: 11/17/2010







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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Abdomen	Test Date:	11/17/2010
Test Number:	1	Test Time:	3:06:35 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	39 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Probe Acceleration	12.0 -- 16.0	15.8 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	37.7 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	34.9 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.5 g P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Abdomen**

Test Time: **3:06:35 PM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1162	4/7/2010
Servo	180-3885	DS-1232	4/7/2010
Endevco	7264-2000	P64147	9/20/2010

Test ID: **Abdomen**

Test Time: **3:06:35 PM**

Test Date: **11/17/2010**



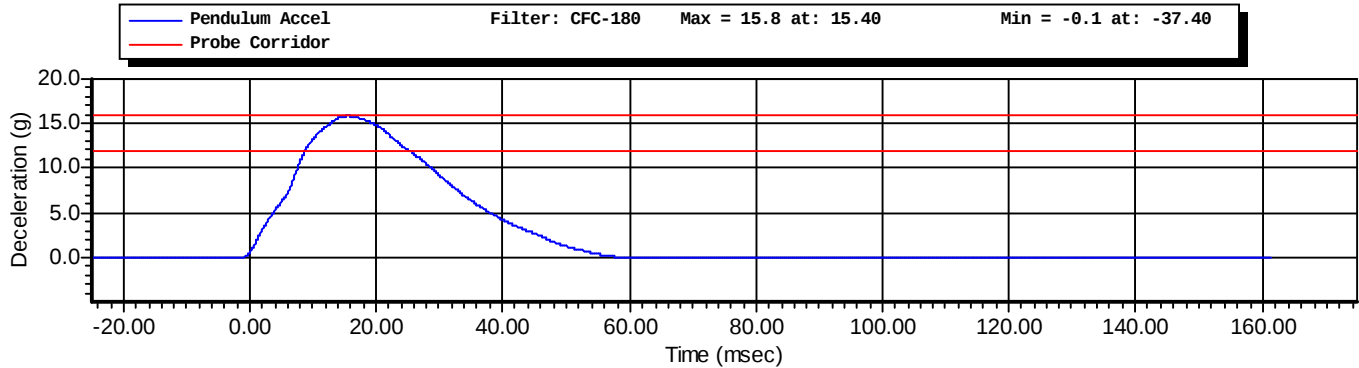
www.calspan.com

Calspan - Transportation Research Group

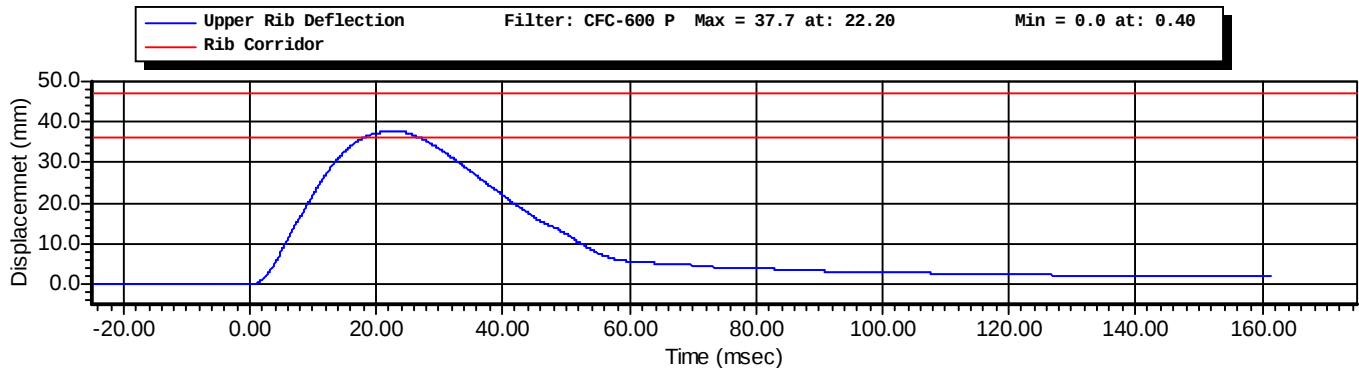
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	11/17/2010
Test Number:	1	Test Time:	3:06:35 PM

Pendulum Accelerometer



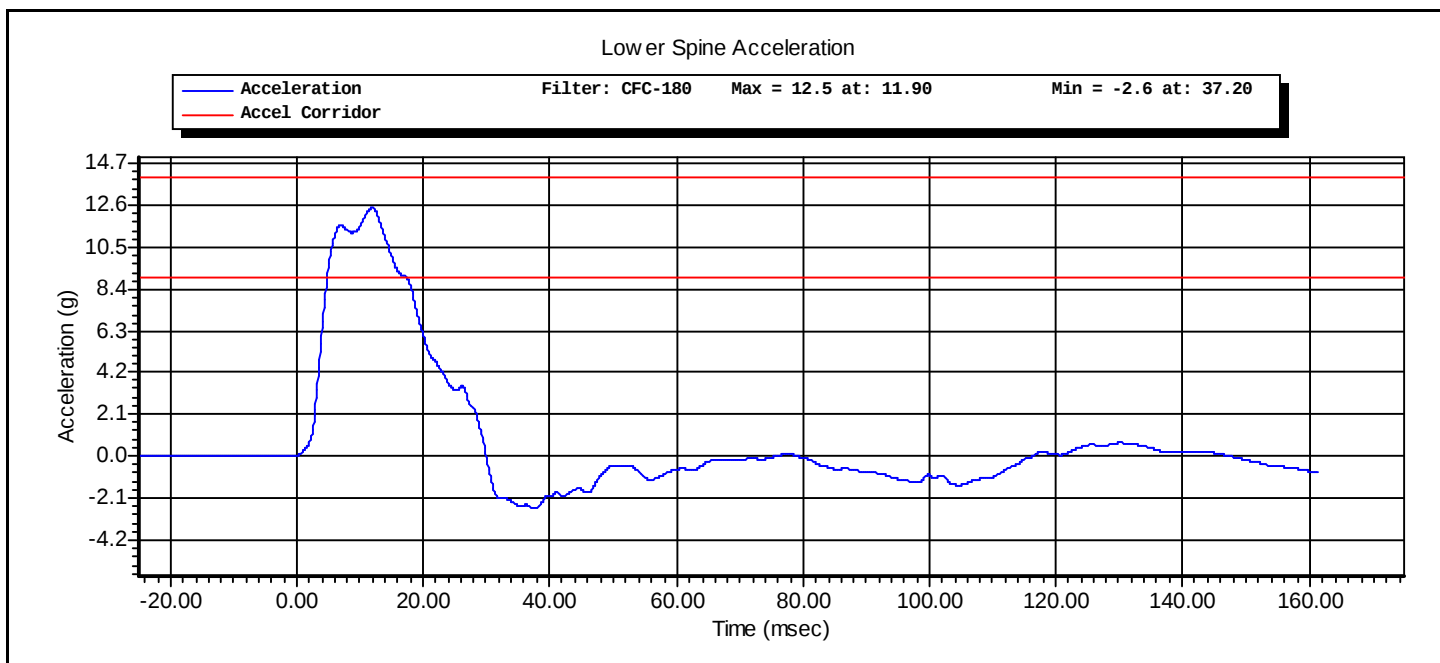
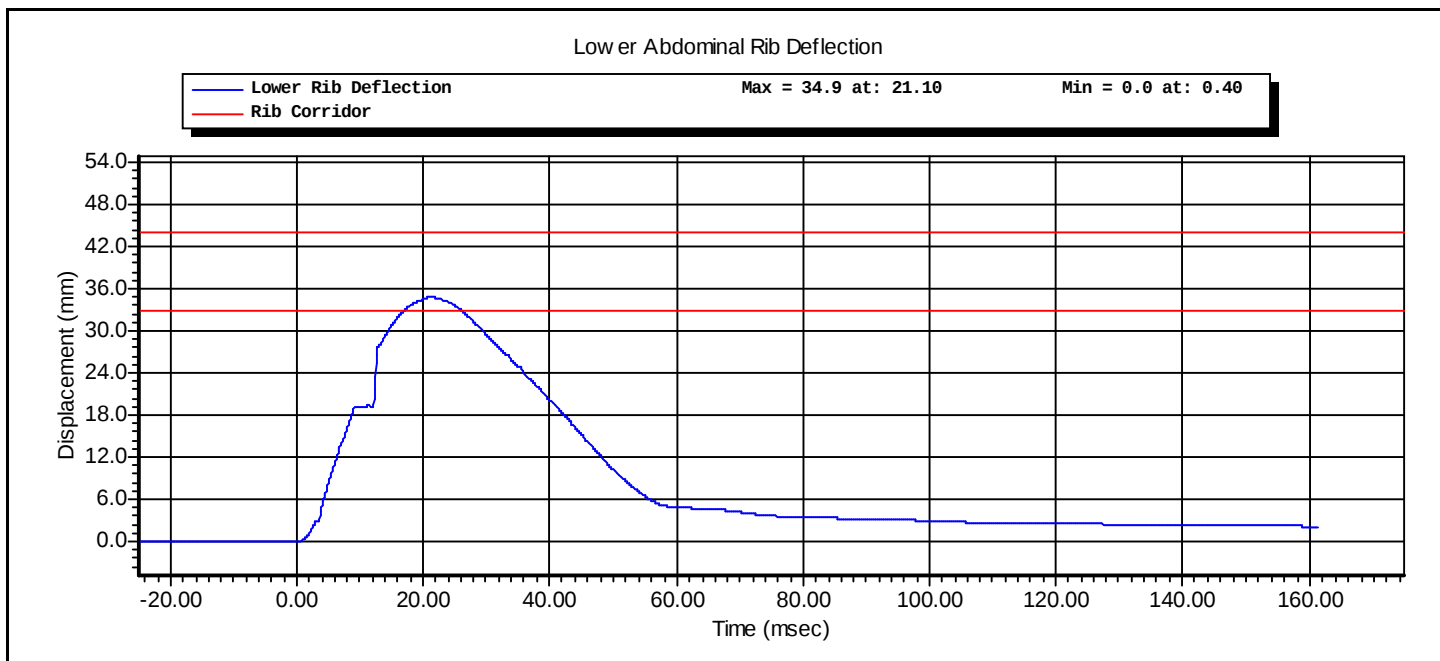
Upper Abdominal Rib Deflection



Test ID: **Abdomen**

Test Time: **3:06:35 PM**

Test Date: **11/17/2010**





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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Iliac Pelvis	Test Date:	11/18/2010
Test Number:	2	Test Time:	11:42:52 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	38 %RH P
Velocity	4.20 -- 4.40	4.24 m/s P
Peak Probe Acceleration	36.0 -- 45.0	41.5 g P
Peak Pelvis Acceleration	28.0 -- 39.0	34.9 g P
Peak Iliac Force	4.10 -- 5.10	4.49 kN P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Iliac Pelvis**

Test Time: **11:42:52 AM**

Test Date: **11/18/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	10/12/2010
DentonATD	3228J	LC-279 Fy	4/12/2010

Test ID: **Iliac Pelvis**

Test Time: **11:42:52 AM**

Test Date: **11/18/2010**

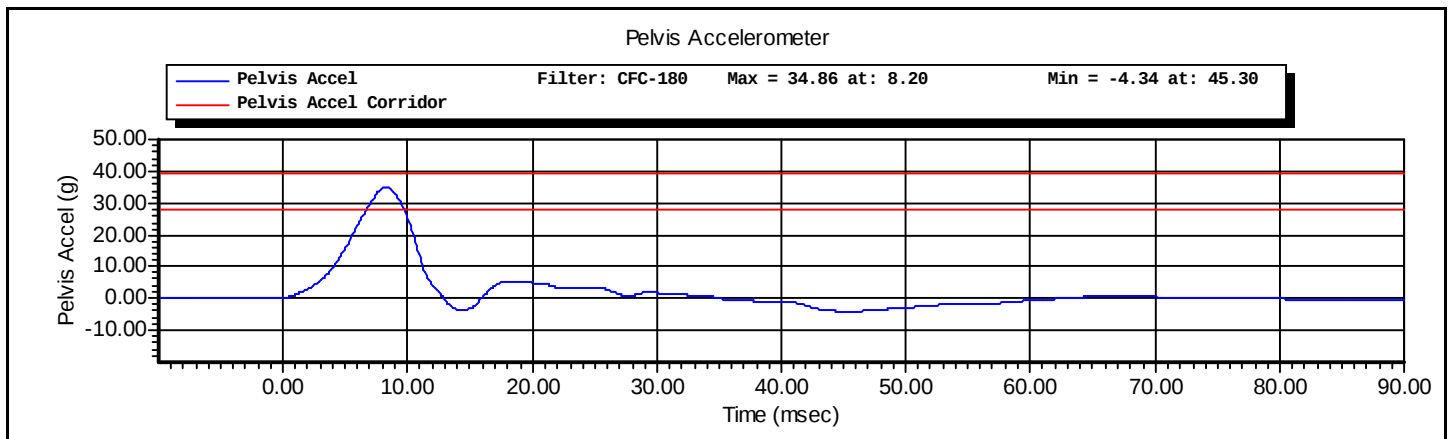
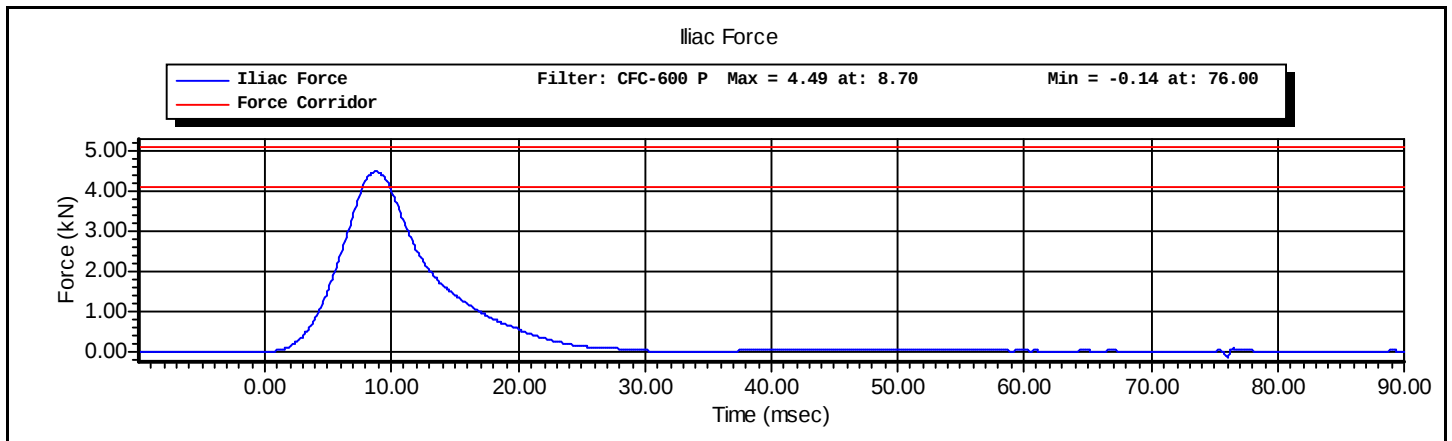


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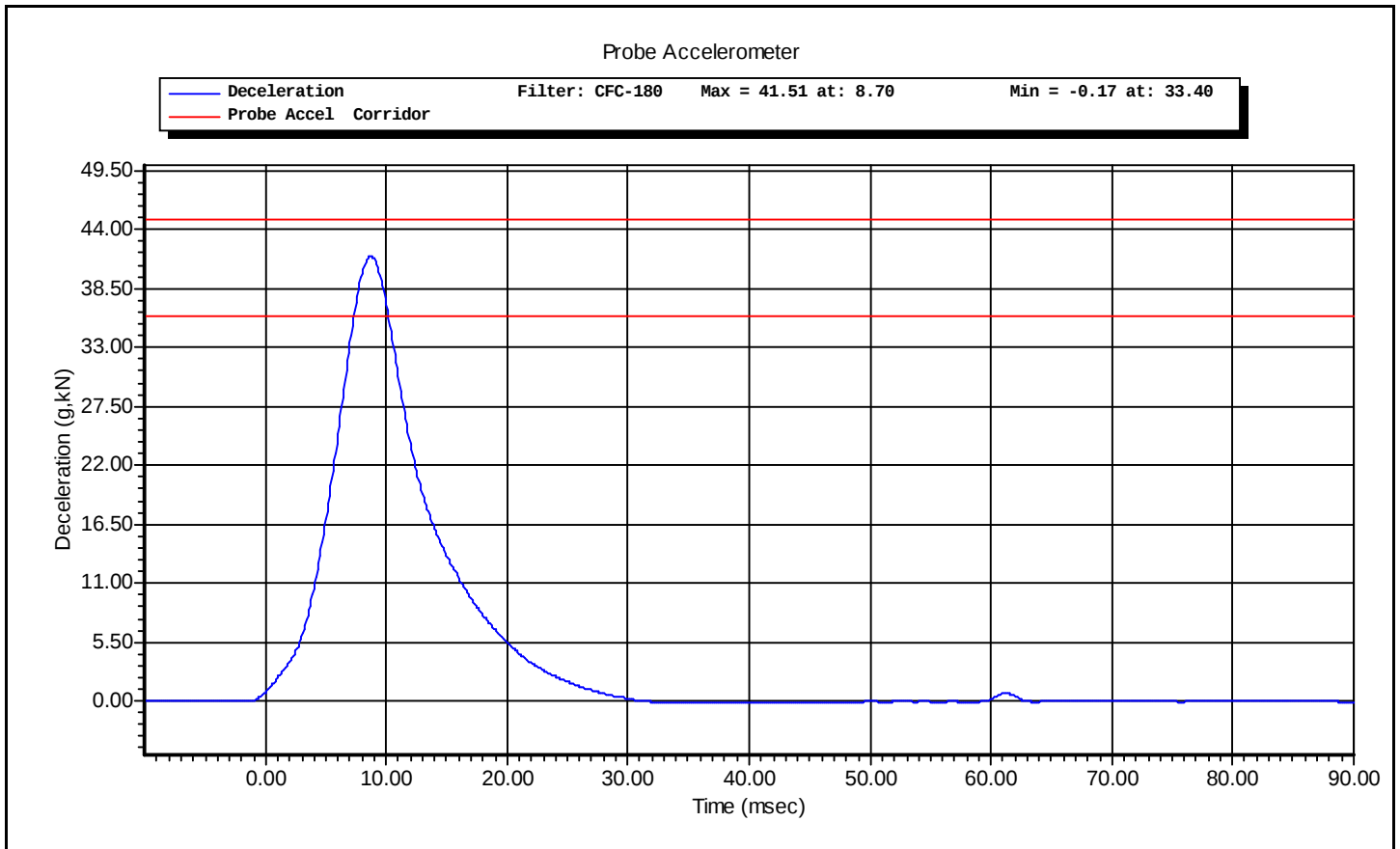
Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Iliac Pelvis	Test Date:	11/18/2010
Test Number:	2	Test Time:	11:42:52 AM



Test ID: **Iliac Pelvis**

Test Time: **11:42:52 AM**

Test Date: **11/18/2010**





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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
Test ID:	Acetabulum	Test Date:	11/17/2010
Test Number:	1	Test Time:	11:23:20 AM

Comments:

Pelvis Plug Used For Certification:
FTSS S/N 12798
Force @ 3mm = 1567N

Pelvis Plug Used For Full Scale Test:
FTSS S/N 11845
Force @ 3mm = 1597N

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.9 deg C	P
Humidity	10	--	70	41 %RH	P
Velocity	6.60	--	6.80	6.64 m/s	P
Peak Probe Acceleration	38.0	--	47.0	45.9 g	P
Peak Pelvis Acceleration	34.0	--	42.0	40.5 g	P
Peak Acetabulum Force	3.60	--	4.30	4.10 kN	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Acetabulum**

Test Time: **11:23:20 AM**

Test Date: **11/17/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	10/12/2010
DentonATD	3249J	LC-275a	4/12/2010
Endevco	7264-2000	P51288	6/2/2010

Test ID: **Acetabulum**

Test Time: **11:23:20 AM**

Test Date: **11/17/2010**



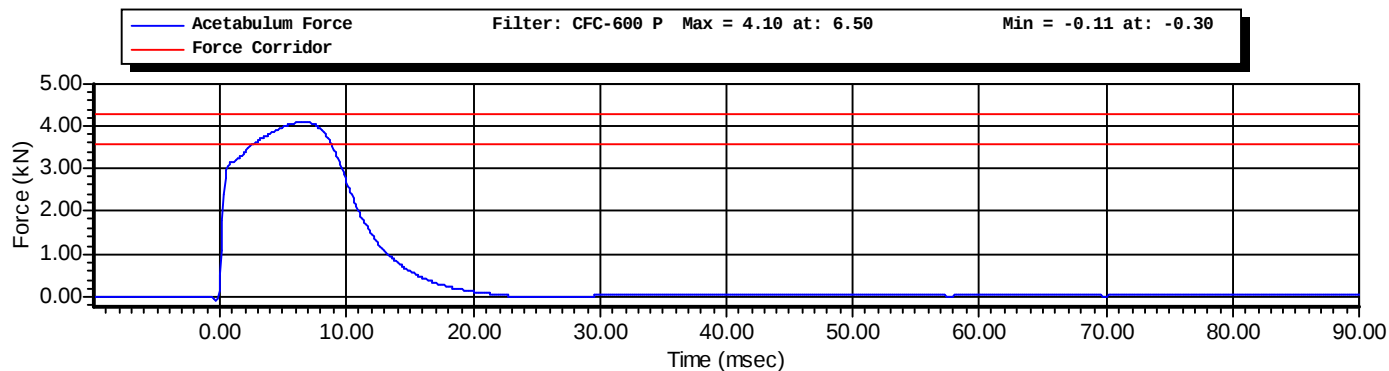
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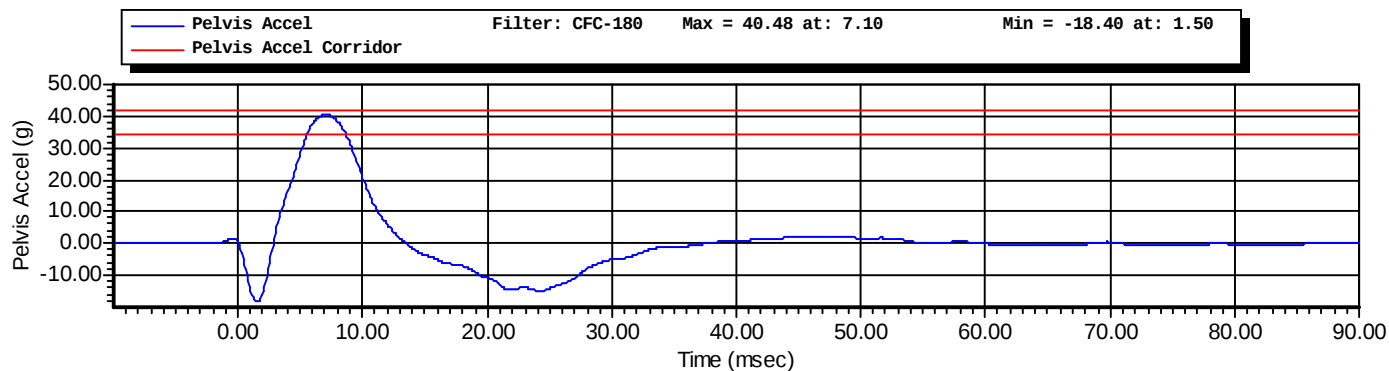
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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIIs		
ATD Serial Number:	SID 300		
Test ID:	Acetabulum	Test Date:	11/17/2010
Test Number:	1	Test Time:	11:23:20 AM

Acetabulum Force



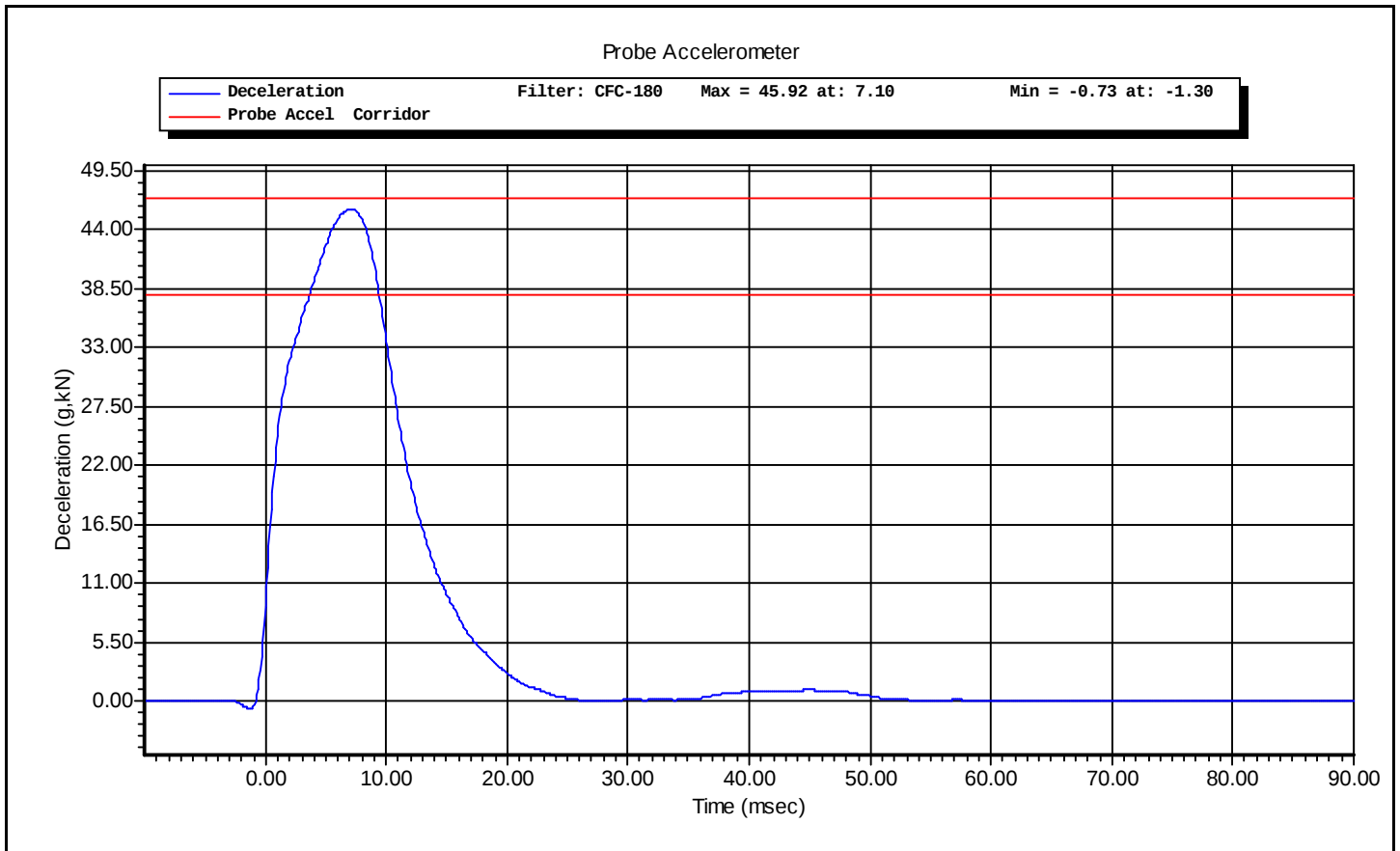
Pelvis Accelerometer



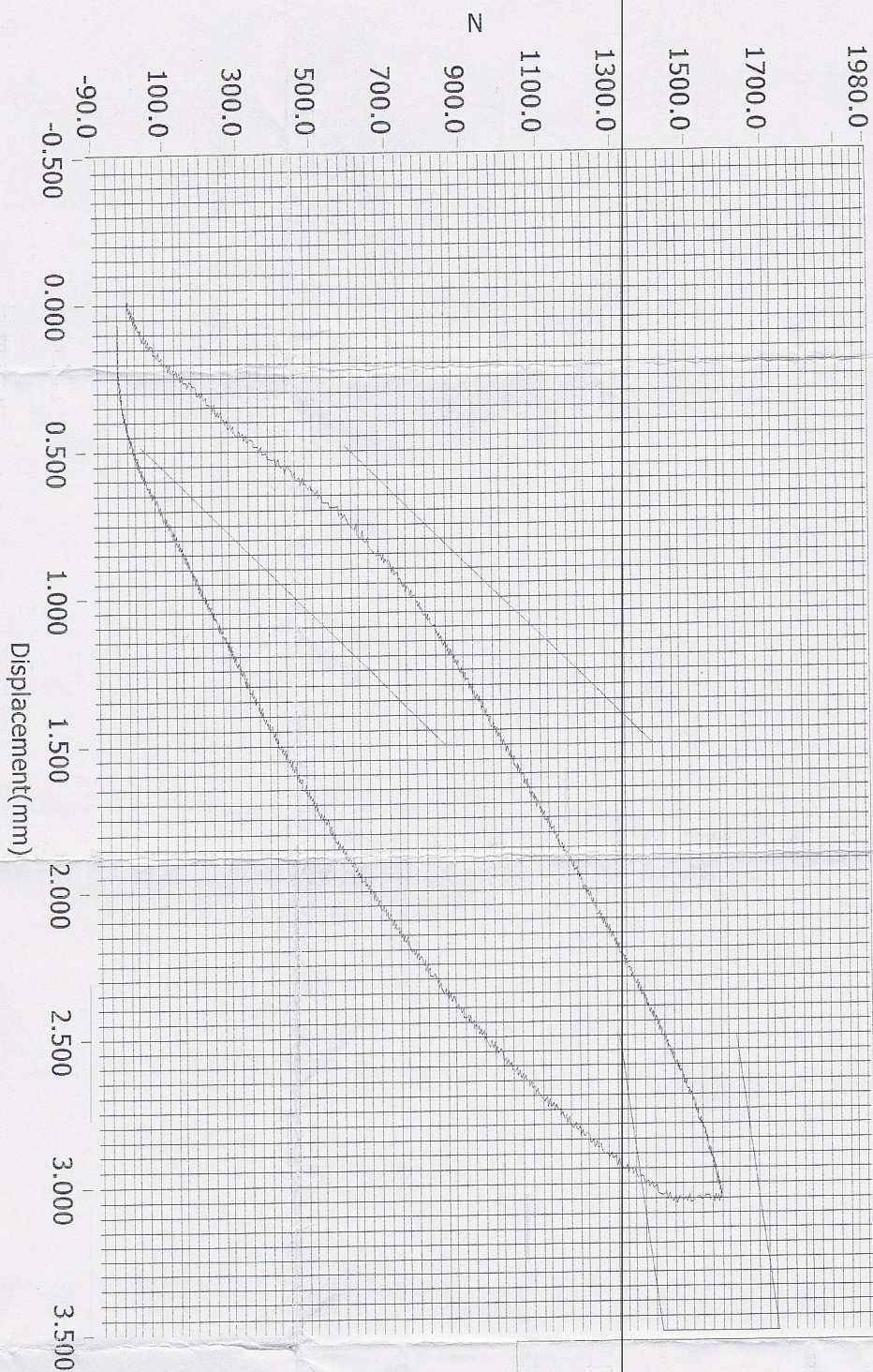
Test ID: **Acetabulum**

Test Time: **11:23:20 AM**

Test Date: **11/17/2010**



Resultant Data - SIDIIs Plug Compression



Loading Curve	<
Boundary Limit Upper	<
Boundary Limit Lower	<
Peak Load Upper	<
Peak Load Lower	<
Peak Defl Upper	<
Peak Defl Lower	<

ATD Calibration Lab

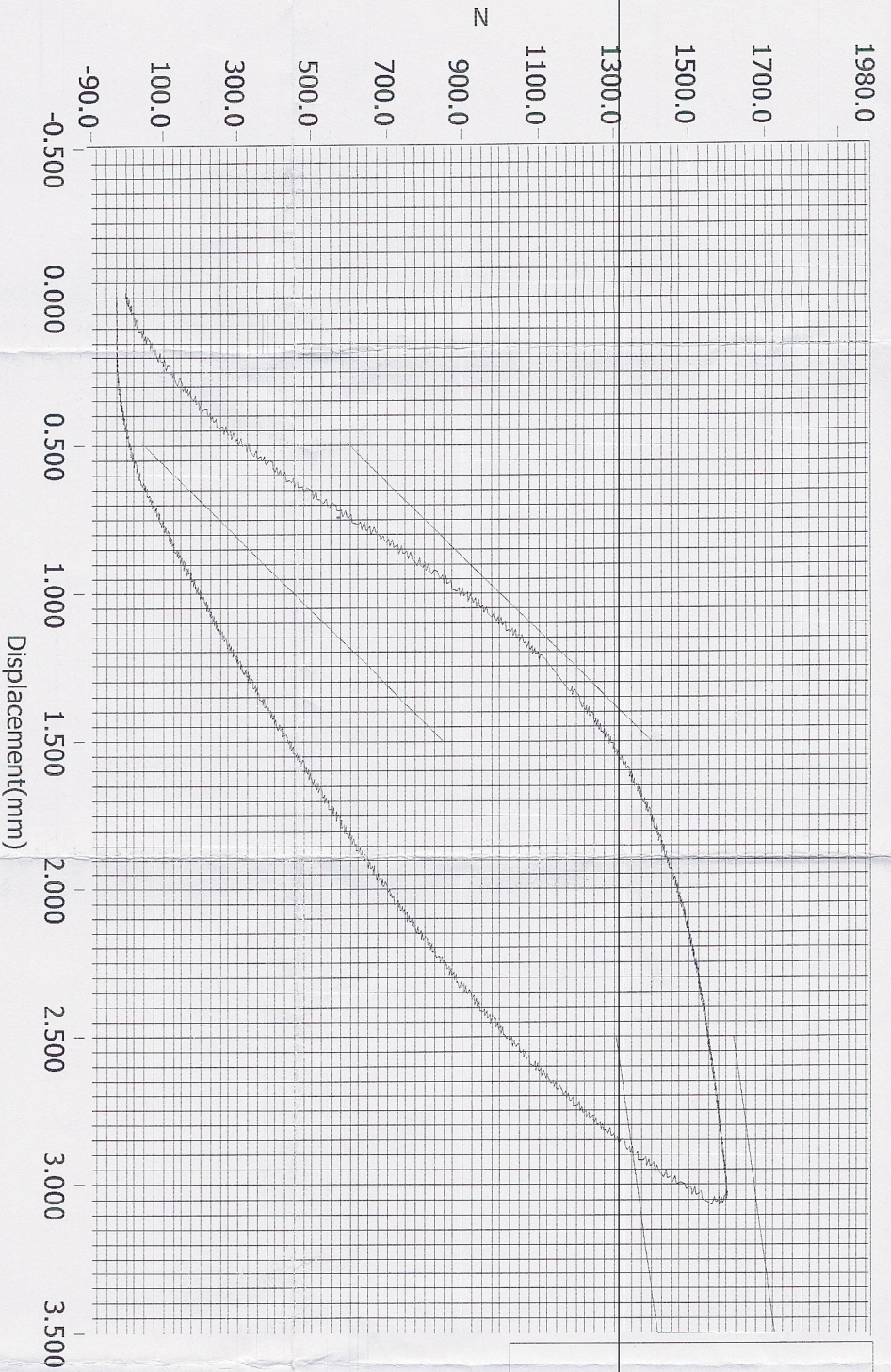
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<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	12798	SIDIIs	

Current Date : 7/17/2007

Current Time : 10:57:25

C

Resultant Data - SIDIIs Plug Compression



Loading Curve	<
Boundary Limit Upper	<
Boundary Limit Lower	<
Peak Load Upper	<
Peak Load Lower	<
Peak Defl Upper	<
Peak Defl Lower	<

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

11845

SIDIIs

Current Date : 6/22/2007

Current Time : 13:17:11

FS

CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT

SID-IIsD External Measurements

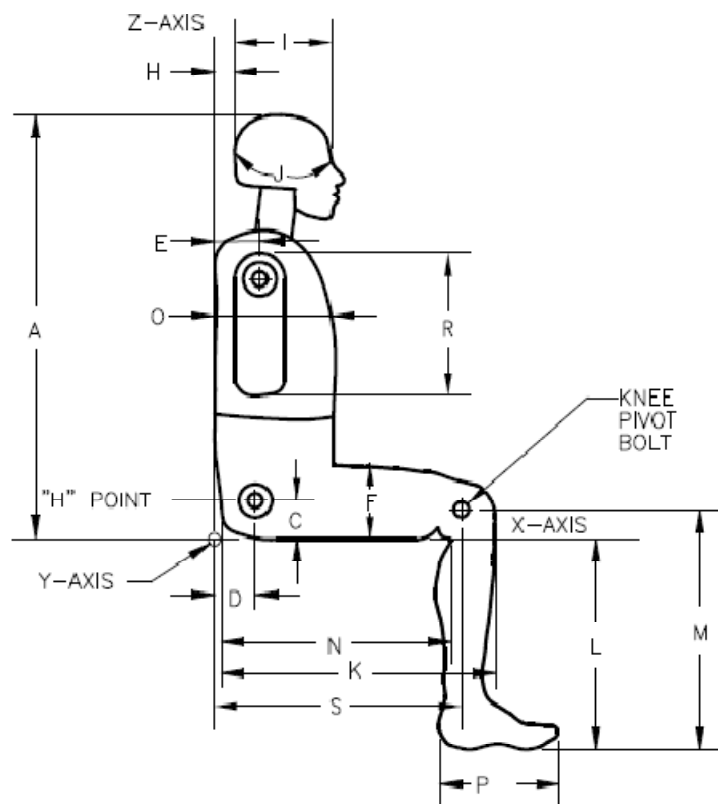
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	785	Yes
B	Shoulder Pivot Height	437.0 - 453.0	450	Yes
C	H-Point Height	79.0 - 89.0	87	Yes
D	H-Point from Seat Back	141.0 - 151.0	147	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	125	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	42	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	365	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	395	Yes
N	Buttock Popliteal Length	416.0 - 442.0	433	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	315	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	475	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	353	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	870	Yes
Z	Waist Circumference	761.0 - 791.0	773	Yes

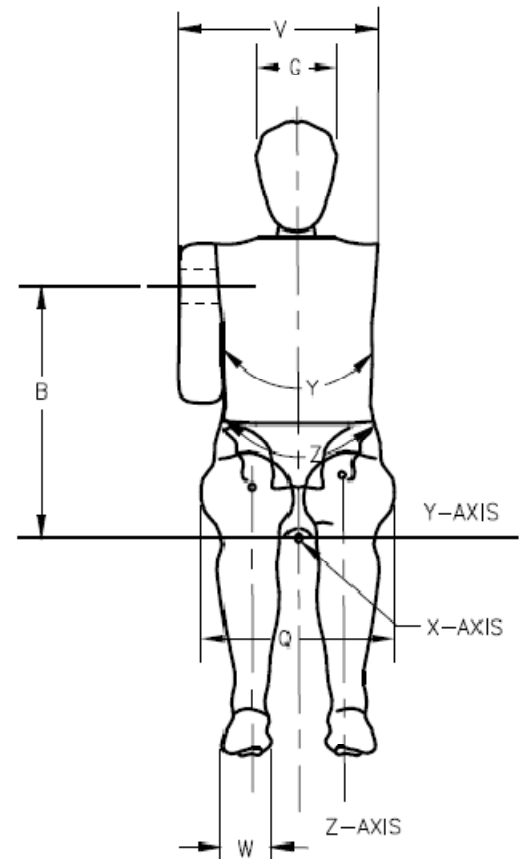
Technician: SZ

Date: 12/03/2010

SID-IIIsD External Dimension Reference Diagram



SIDE VIEW



FRONT VIEW



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	12/1/2010
Test Number:	1	Test Time:	10:01:14 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	20.6 deg C P
Humidity	10 -- 70	40 %RH P
Resultant Acceleration	115.0 -- 137.0	127.3 g P
Oscillation	0.0 -- 15.0	3.0 % P
Fore-Aft Acceleration	-15.0 -- 15.0	-3.4 g P

All test parameters are within specifications

Technician: **S. Zito** Signature: _____

Supervisor: **D. Travale** Signature: _____

Test ID: **Head Drop**

Test Time: **10:01:14 AM**

Test Date: **12/1/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Endevco	7264-2000	P66931	10/25/2010
Endevco	7264-2000	P66943	10/25/2010
Endevco	7264-2000	P66943	10/25/2010

Test ID: **Head Drop**

Test Time: **10:01:14 AM**

Test Date: **12/1/2010**

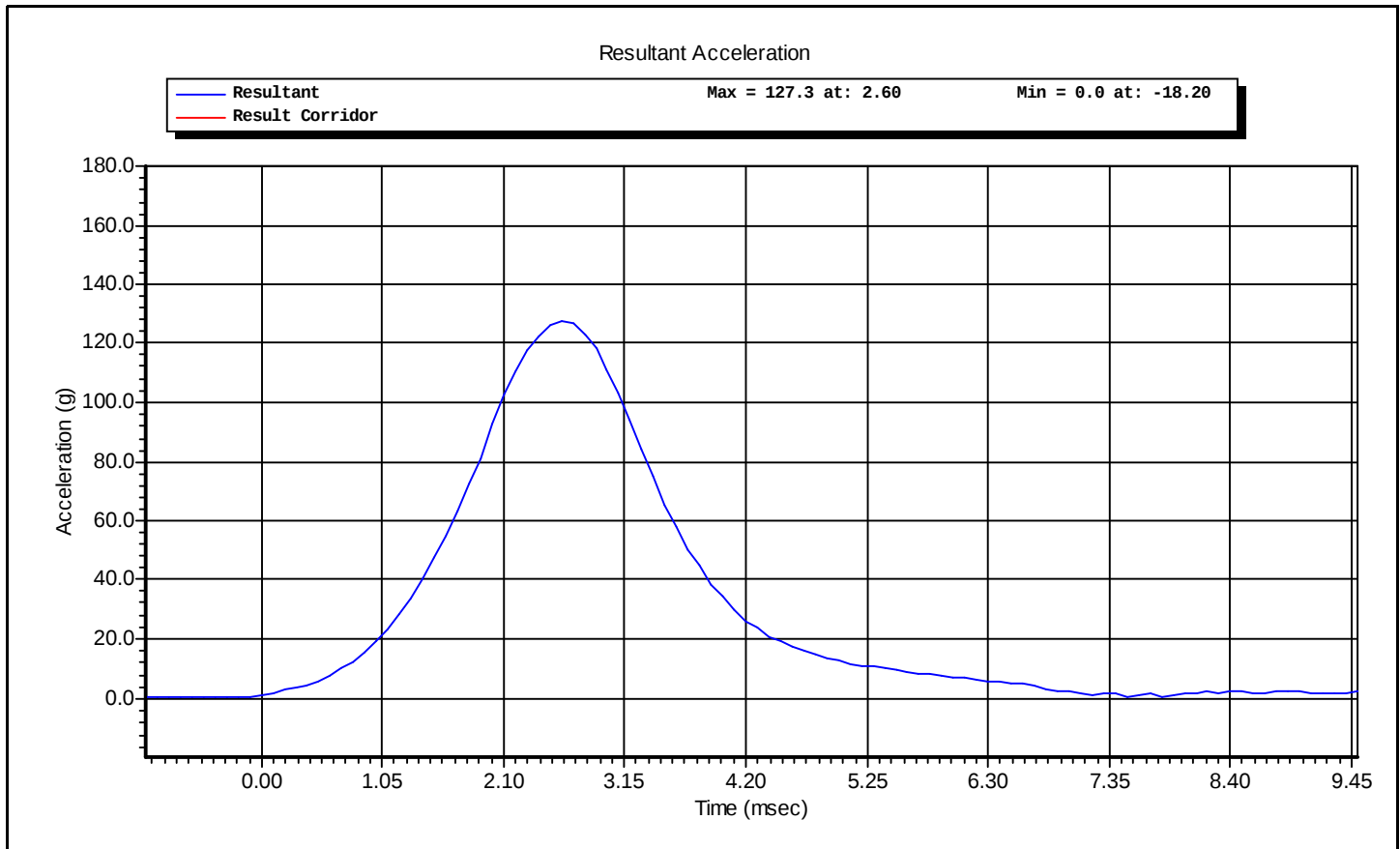


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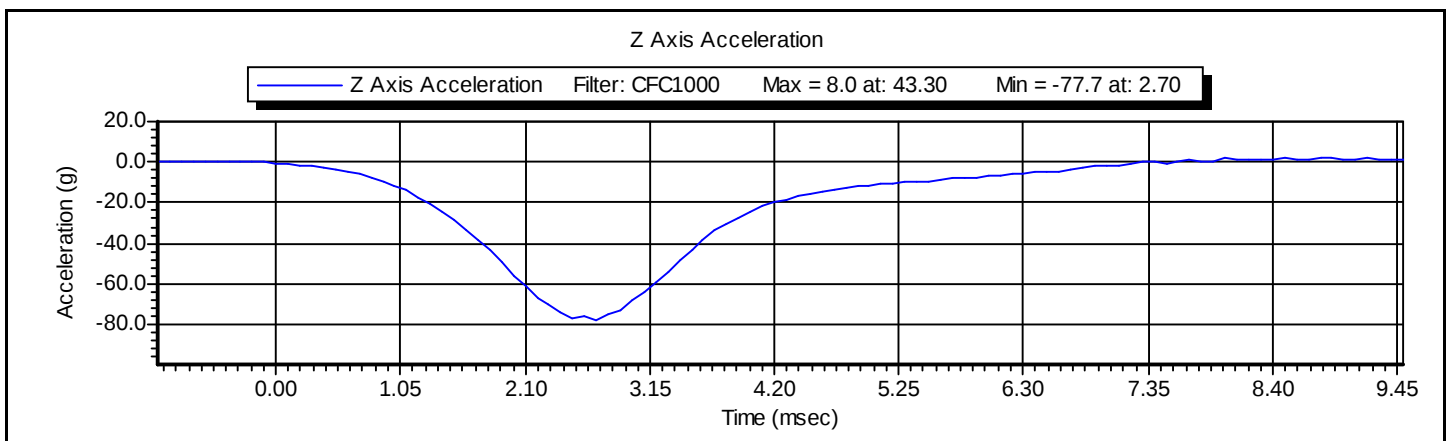
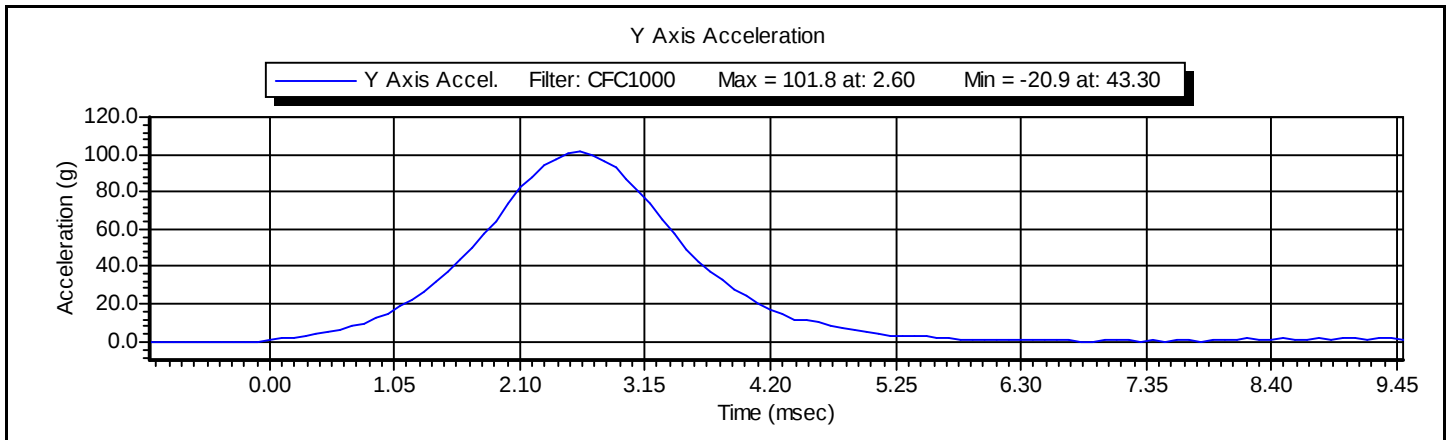
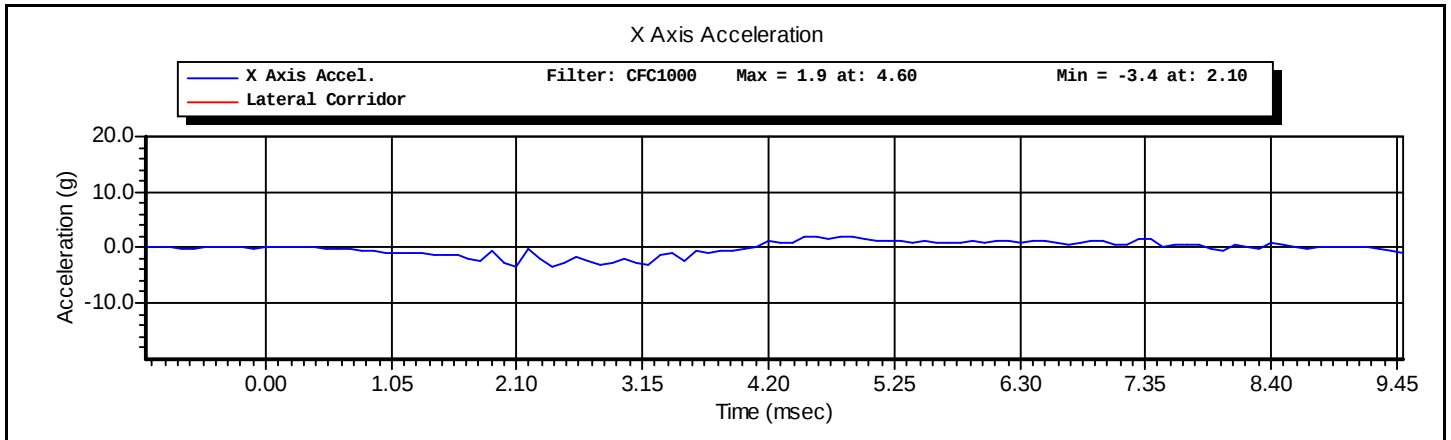
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	12/1/2010
Test Number:	1	Test Time:	10:01:14 AM



Test ID: **Head Drop**

Test Time: **10:01:14 AM**

Test Date: **12/1/2010**





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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/1/2010
Test Number:	1	Test Time:	11:09:48 AM

Component Part Number	Component Serial Number
Neck - 180-2000	787

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10 -- 70	37 %RH P
Velocity	5.51 -- 5.63	5.53 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.52 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.69 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	5.04 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.84 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.87 m/s P
Max D Plane Rotation	71.0 -- 81.0	72.7 degrees P
Time at Max Rotation	50.0 -- 70.0	60.7 ms P
Moment about OC	-44.0 -- -36.0	-41.8 Nm P
Moment Decay to Zero	102.0 -- 126.0	114.0 ms P

All test parameters are within specifications

Technician: **S. Zito** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Neck Flexion**

Test Time: **11:09:48 AM**

Test Date: **12/1/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7231CT	C16510	10/21/2010
Denton	1716A	LC-576 Fy	2/15/2010
Denton	1716A	LC-576 Mx	2/15/2010
DentonATD	78051-342	184	4/30/2010
DentonATD	78051-342	174	4/30/2010
DentonATD	78051-342	185	4/30/2010

Test ID: **Neck Flexion**

Test Time: **11:09:48 AM**

Test Date: **12/1/2010**



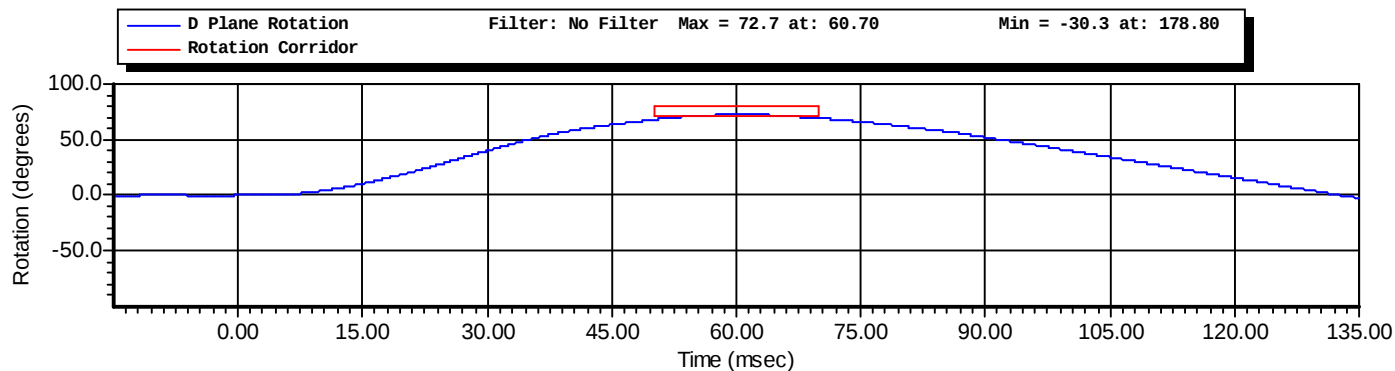
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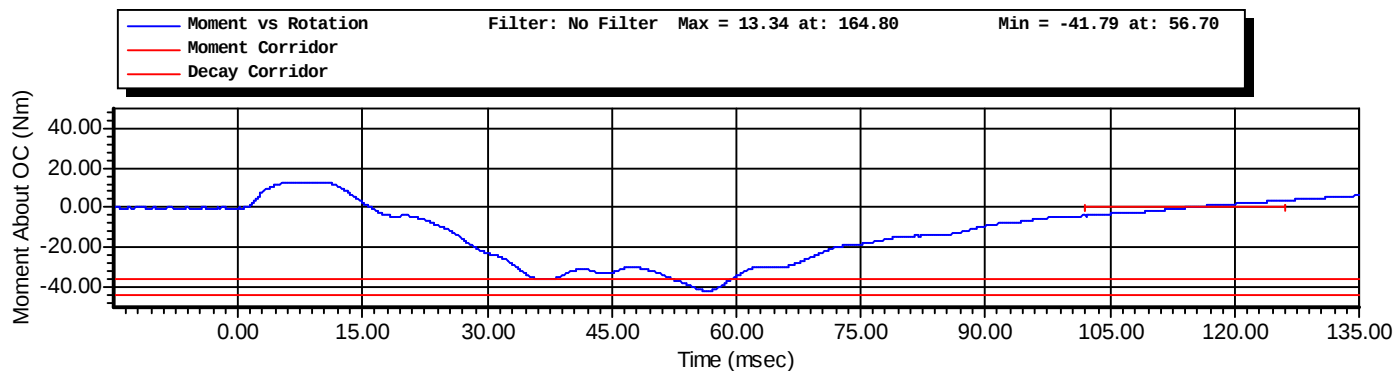
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/1/2010
Test Number:	1	Test Time:	11:09:48 AM

D Plane Rotation



Moment About Occipital Condyle

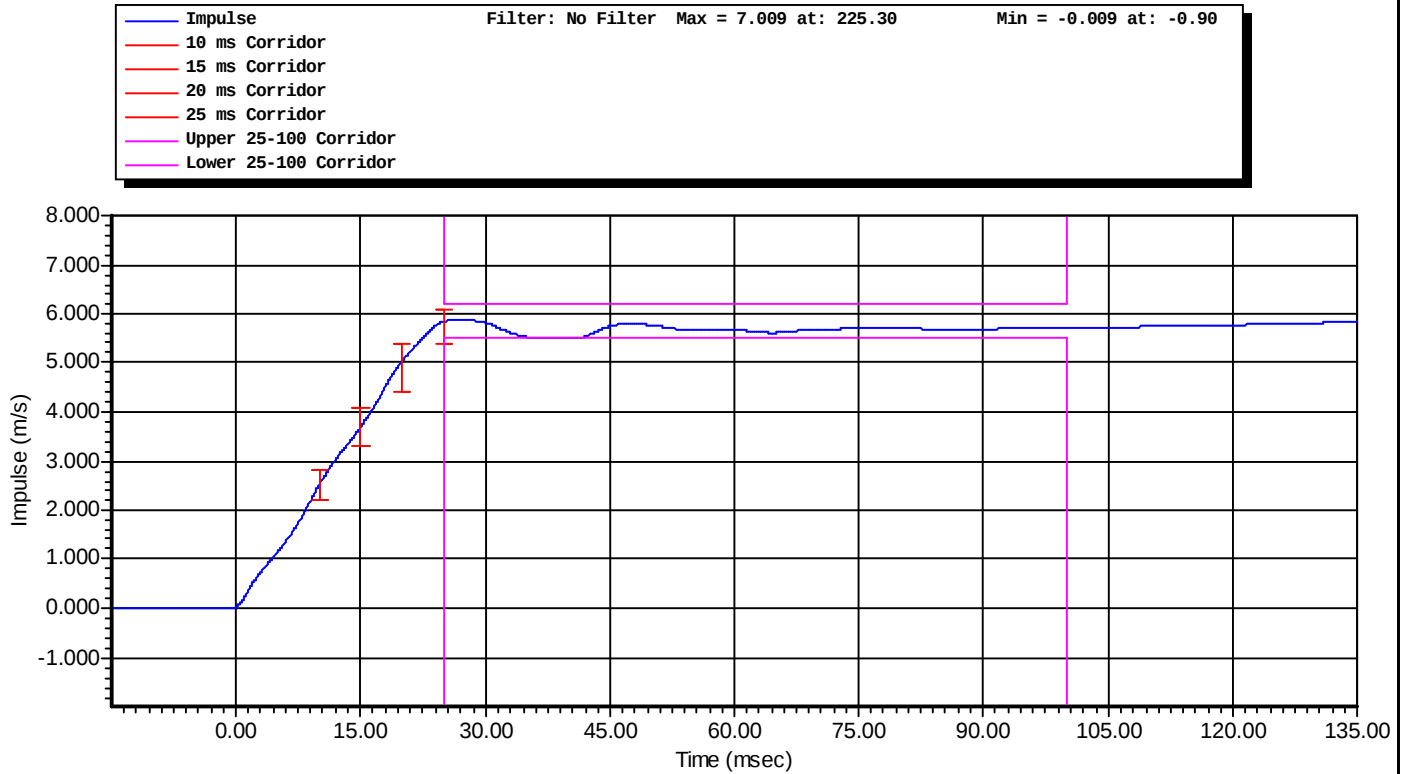


Test ID: Neck Flexion

Test Time: 11:09:48 AM

Test Date: 12/1/2010

Pendulum Impulse





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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/3/2010
Test Number:	1	Test Time:	3:29:15 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	20.80 deg C P
Humidity	10.0 -- 70.0	31.0 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Probe Acceleration	13.0 -- 18.0	16.7 g P
Shoulder Deflection	28.0 -- 37.0	31.8 mm P
T1 Acceleration	17.0 -- 22.0	20.0 g P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

Test ID: **Shoulder**

Test Time: **3:29:15 PM**

Test Date: **12/3/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1063	4/7/2010
Endevco	7264-2000	P58884	10/19/2010

Test ID: **Shoulder**

Test Time: **3:29:15 PM**

Test Date: **12/3/2010**

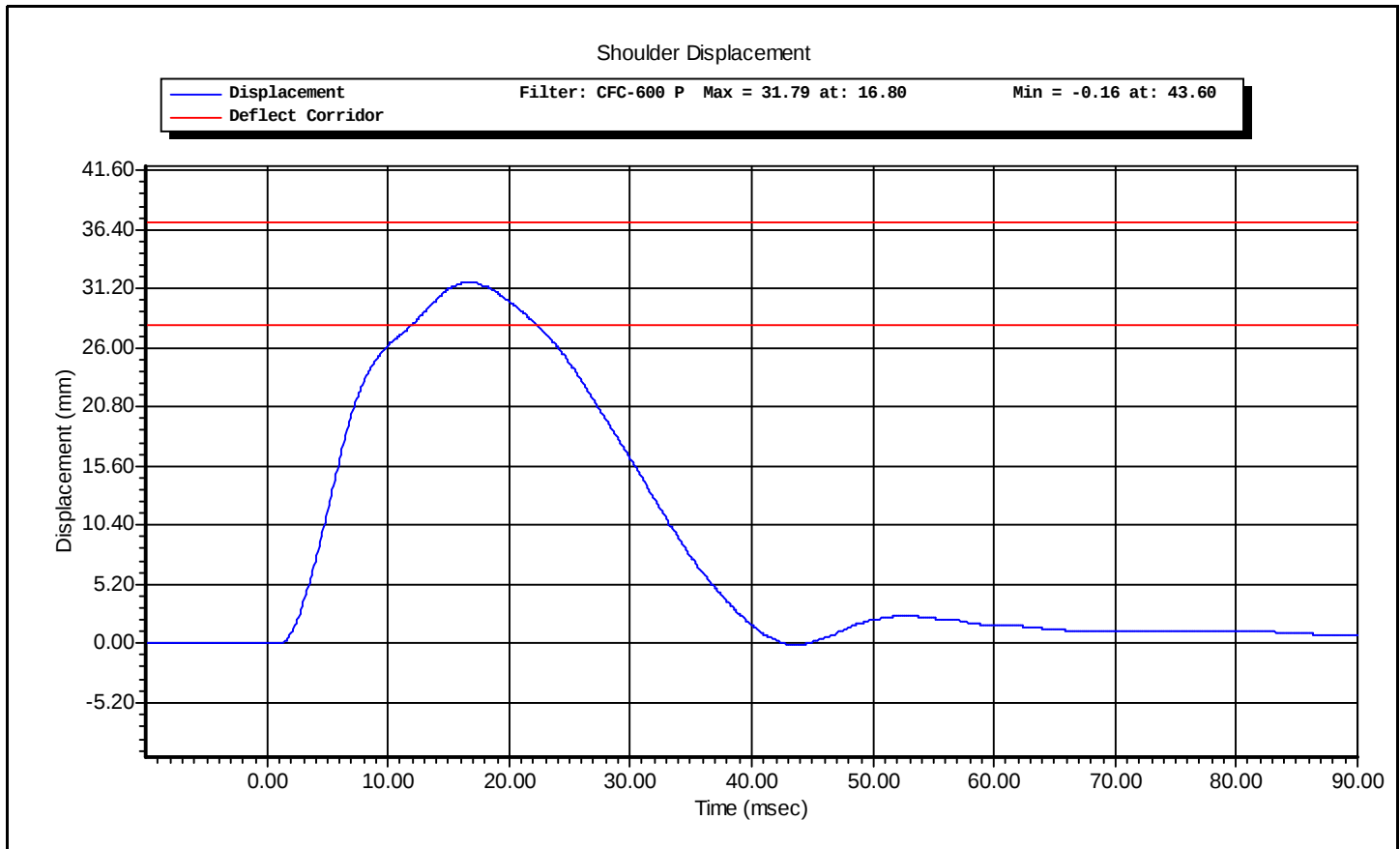


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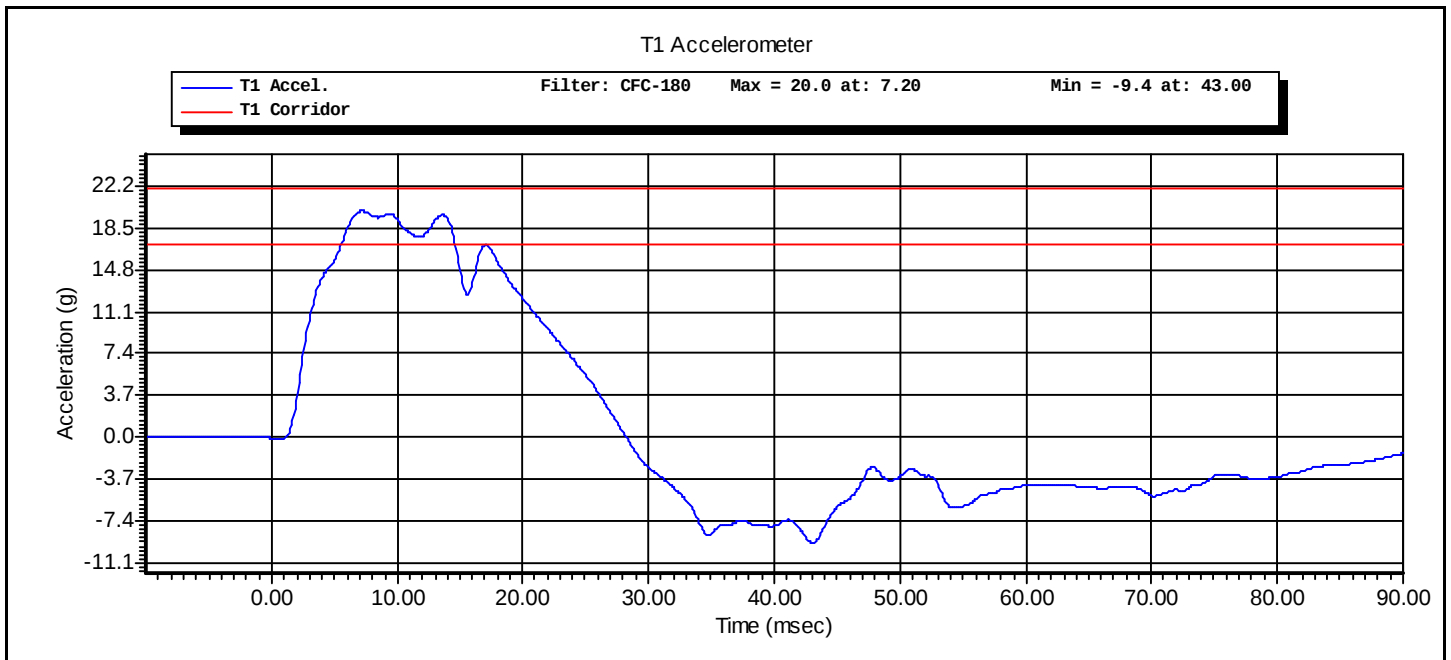
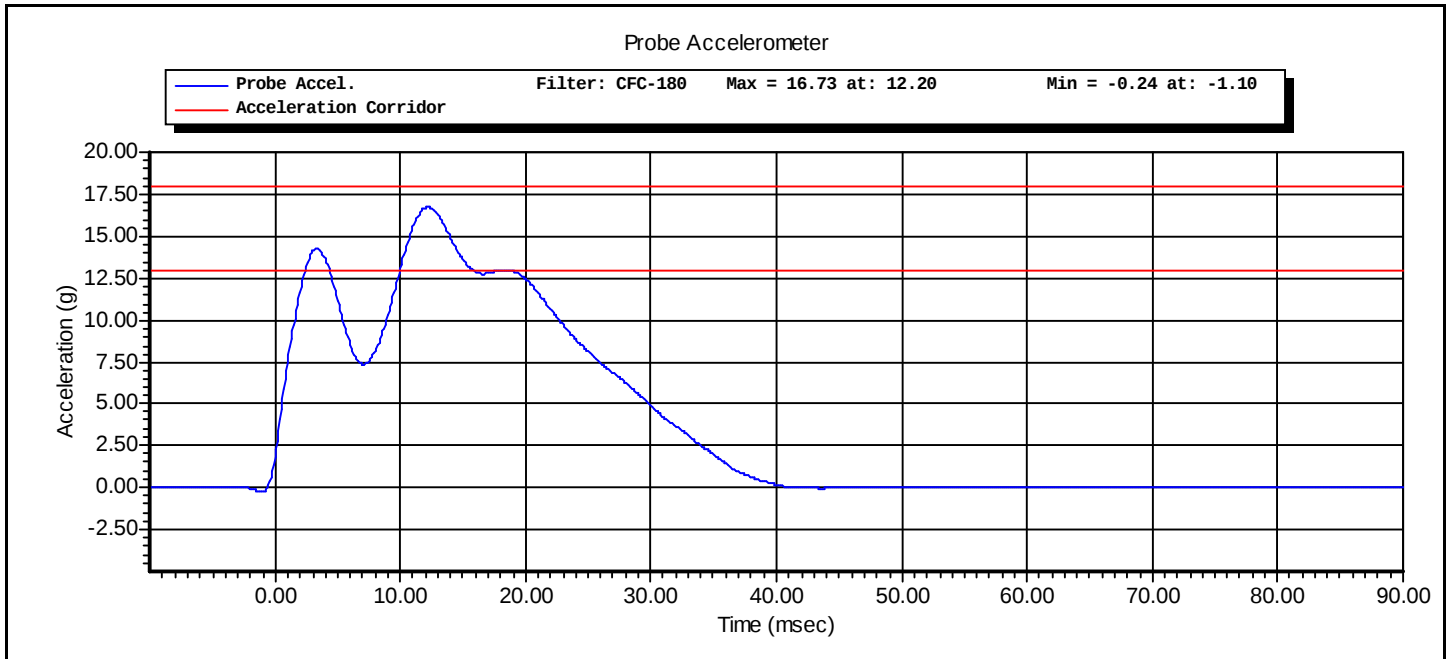
Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/3/2010
Test Number:	1	Test Time:	3:29:15 PM



Test ID: **Shoulder**

Test Time: **3:29:15 PM**

Test Date: **12/3/2010**





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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:	Thorax Without Arm	Test Date:	12/3/2010
Test Number:	2	Test Time:	1:56:17 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.8 deg C	P
Humidity	10	--	70	32 %RH	P
Velocity	4.20	--	4.40	4.33 m/s	P
Probe Acceleration	14.0	--	18.0	16.3 g	P
Upper Thorax Rib Deflection	32.0	--	40.0	35.2 mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	40.9 mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	37.9 mm	P
Upper Spine Acceleration T1	13.0	--	17.0	16.6 g	P
Lower Spine Acceleration T12	7.0	--	11.0	10.2 g	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____

Supervisor: **D. Travale** Signature: _____

Test ID: **Thorax Without Arm** Test Time: **1:56:17 PM**

Test Date: **12/3/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P58884	10/19/2010
Endevco	7264-2000	P64147	10/8/2010

Test ID: **Thorax Without Arm** Test Time: **1:56:17 PM**

Test Date: **12/3/2010**

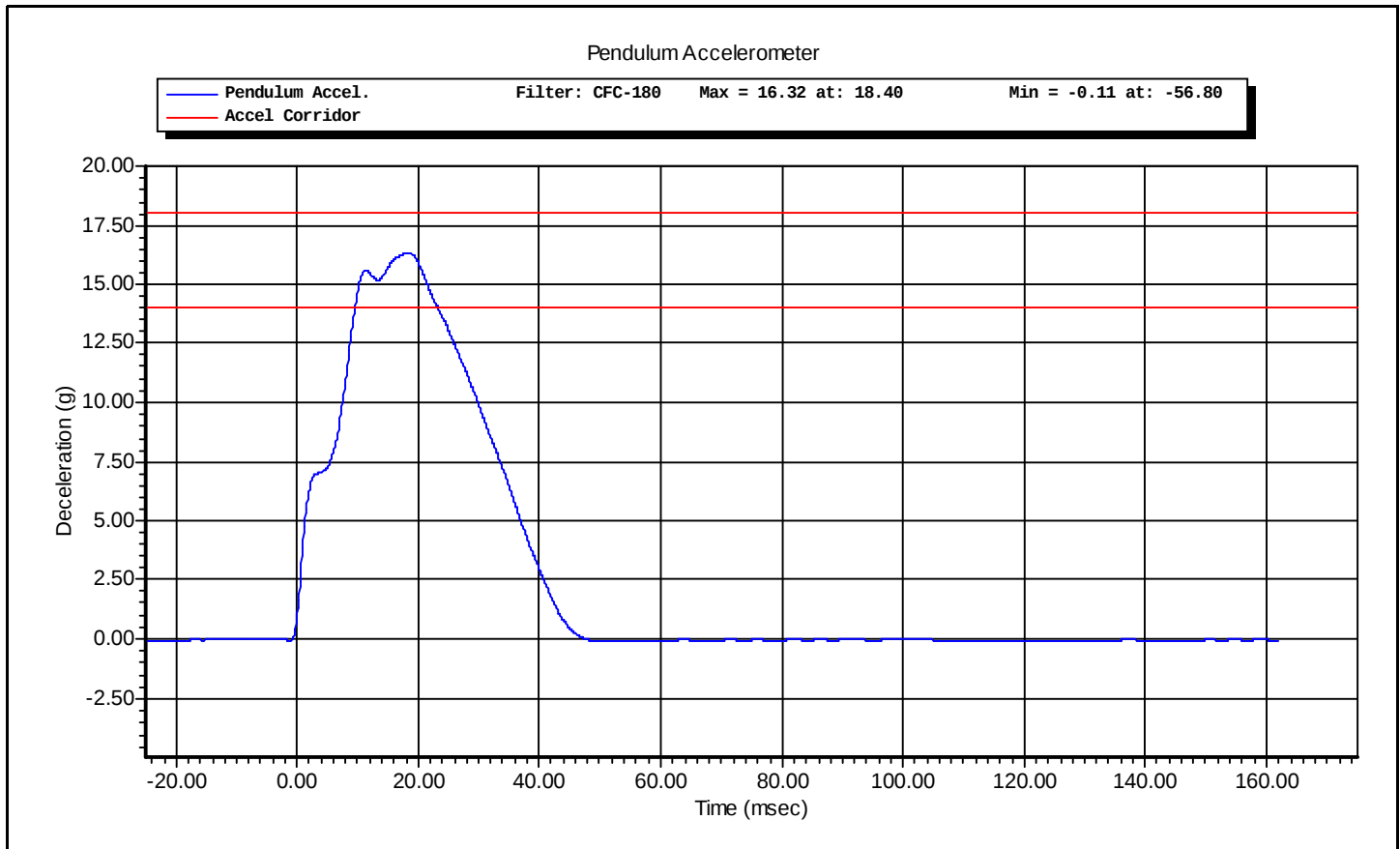


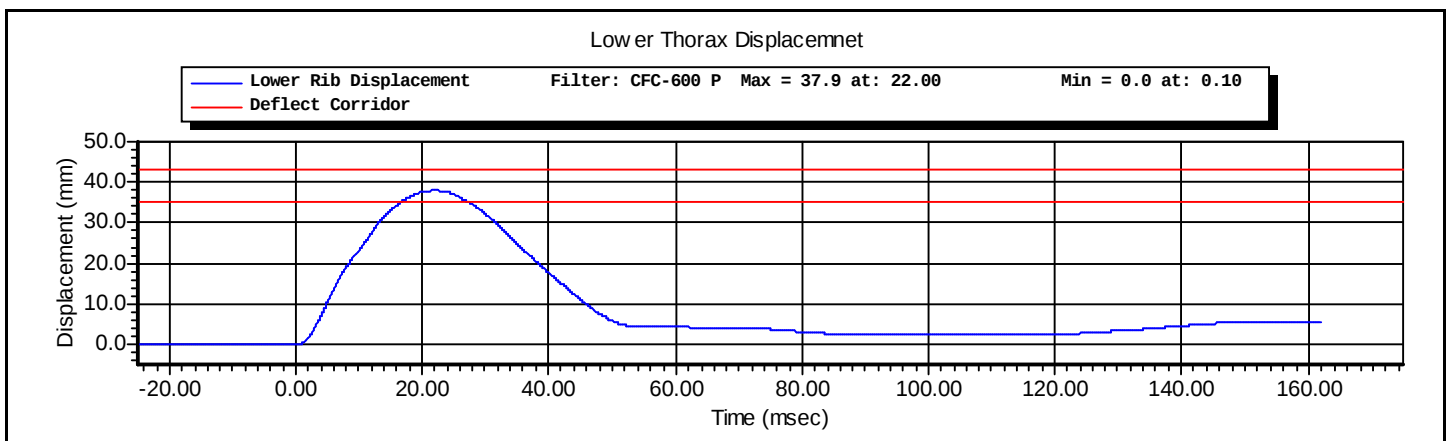
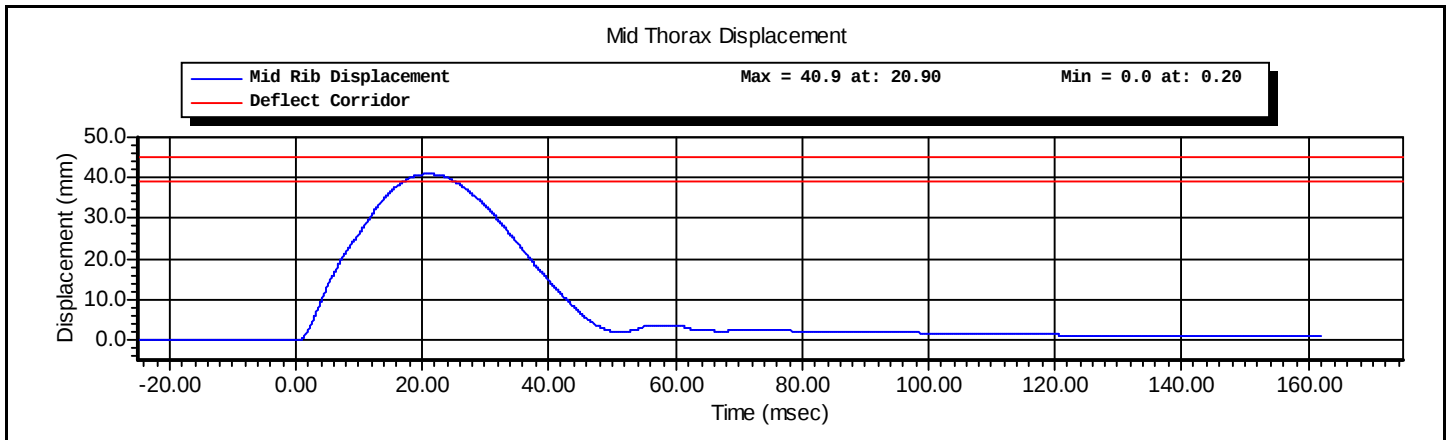
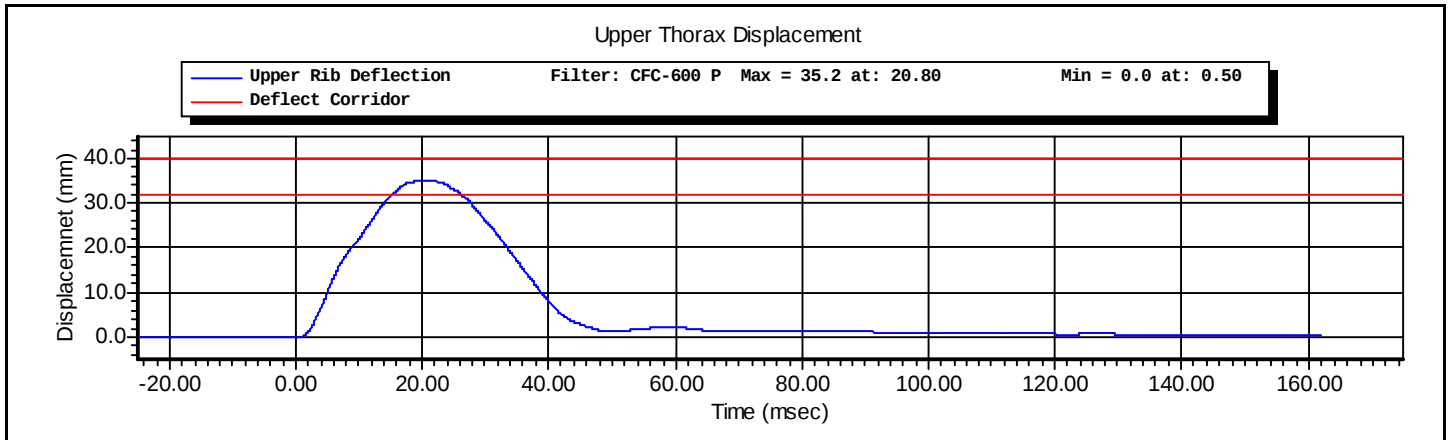
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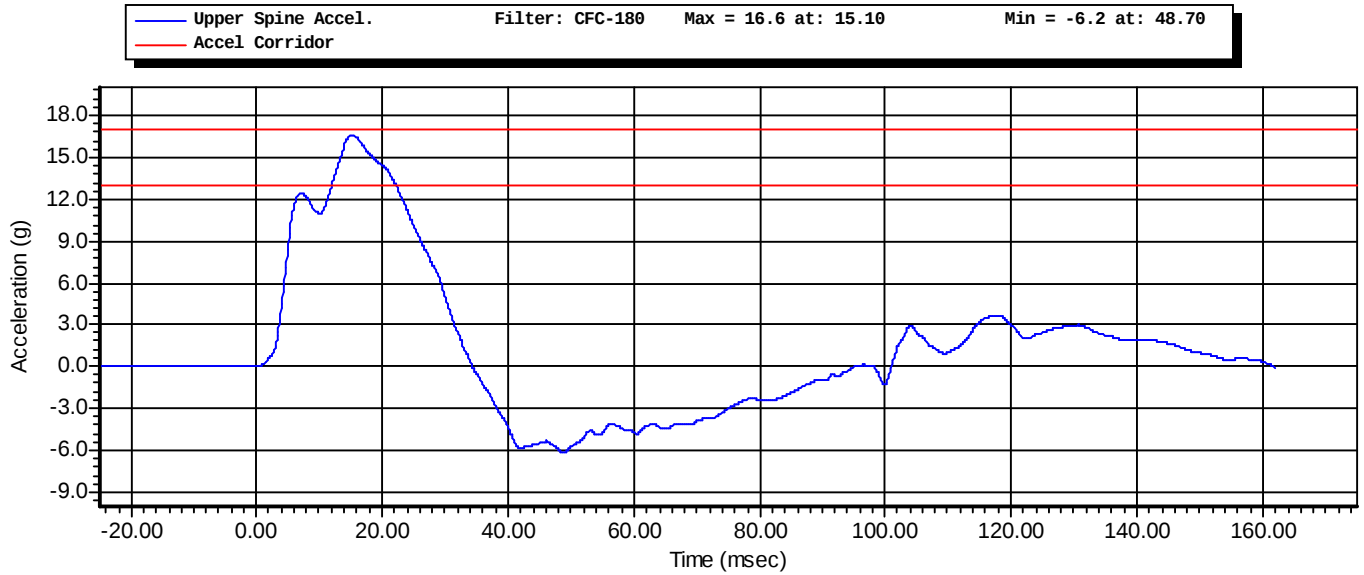
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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:	Thorax Without Arm	Test Date:	12/3/2010
Test Number:	2	Test Time:	1:56:17 PM

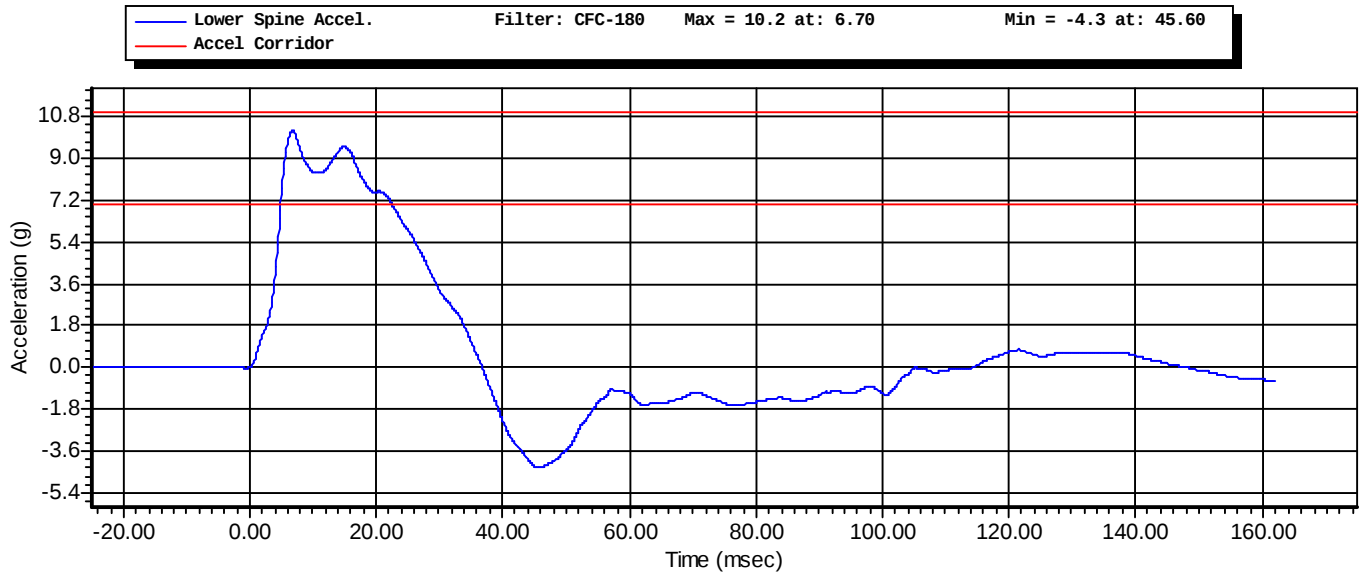




Upper Spine Acceleration



Lower Spine Acceleration





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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	12/3/2010
Test Number:	1	Test Time:	2:37:44 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	20.8 deg C	P
Humidity	10	--	70	32 %RH	P
Velocity	6.60	--	6.80	6.68 m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	34.6 g	P
Upper Thorax Rib Deflection	25.0	--	32.0	26.4 mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	31.0 mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	32.1 mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	40.0 g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	36.8 g	P
Shoulder Deflection	31.0	--	40.0	37.3 mm	P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Thorax With Arm** Test Time: **2:37:44 PM**

Test Date: **12/3/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P58884	10/19/2010
Endevco	7264-2000	P64147	10/8/2010
Servo	180-3885	DS-1063	4/7/2010

Test ID: **Thorax With Arm** Test Time: **2:37:44 PM**

Test Date: **12/3/2010**

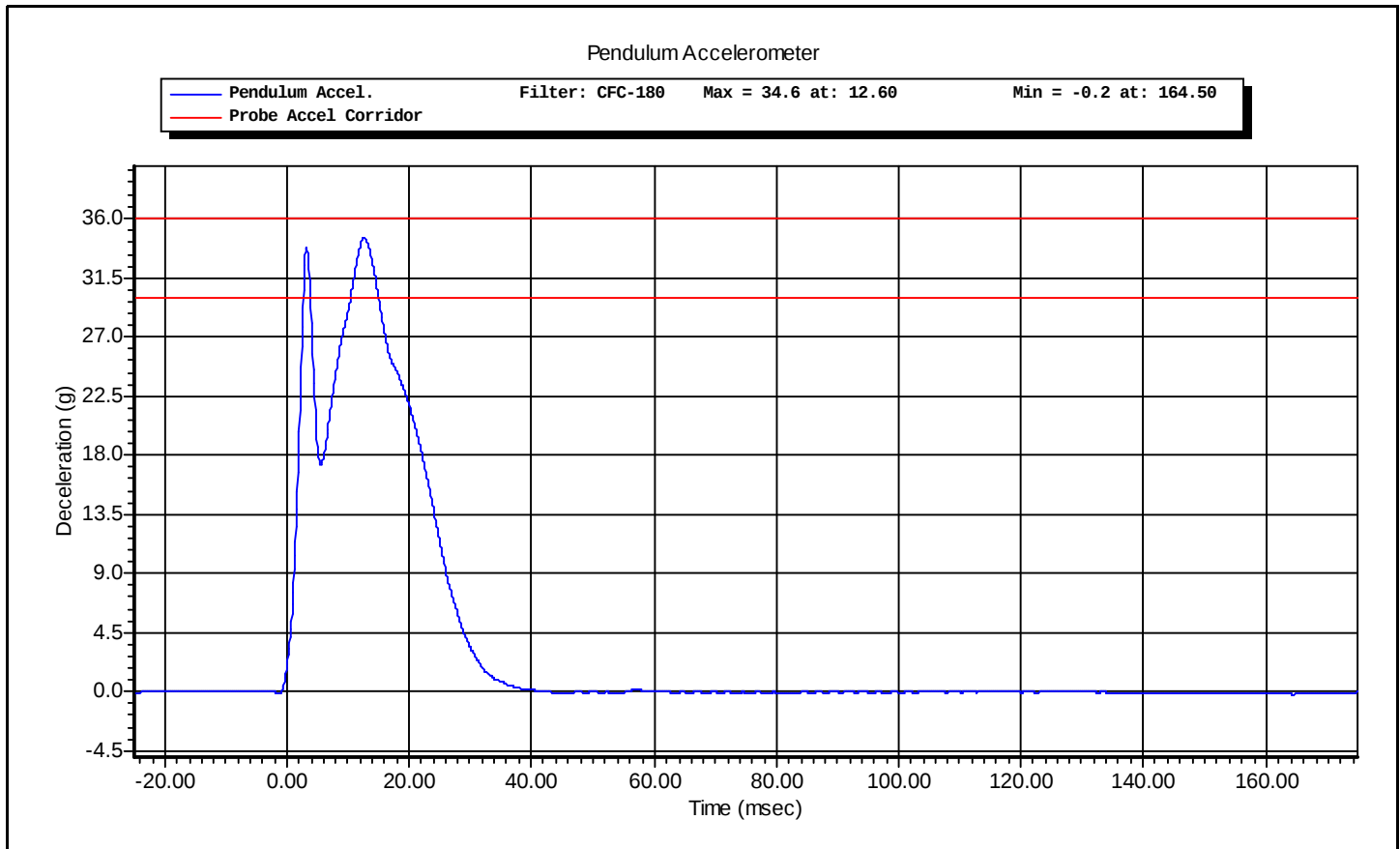


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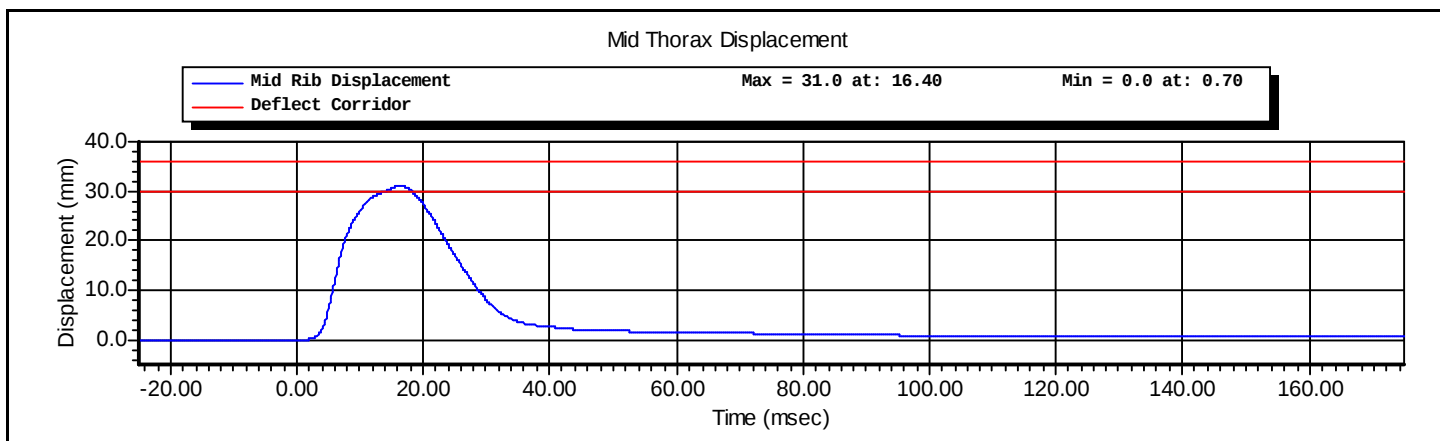
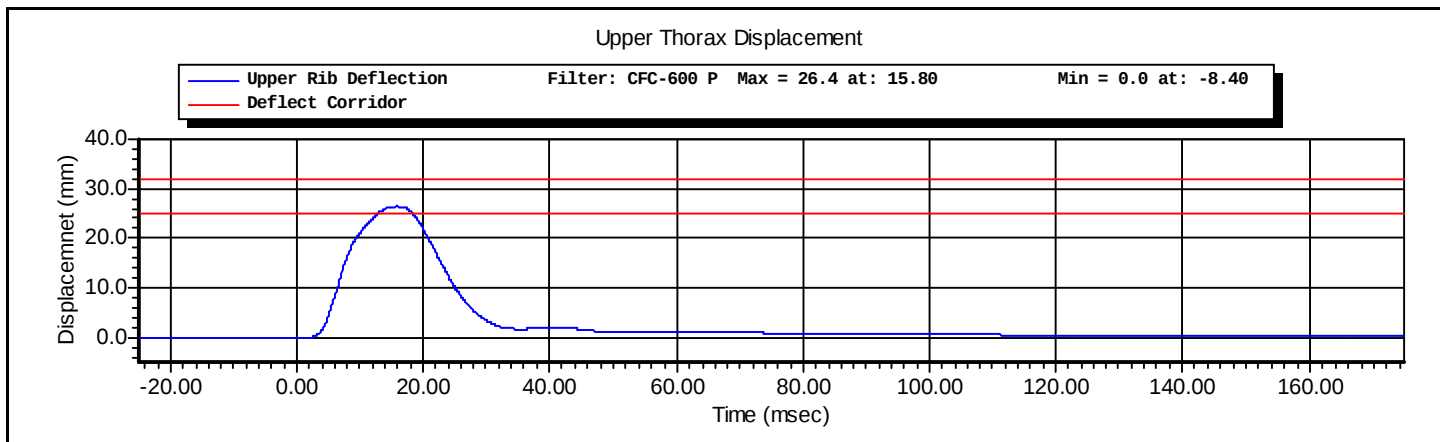
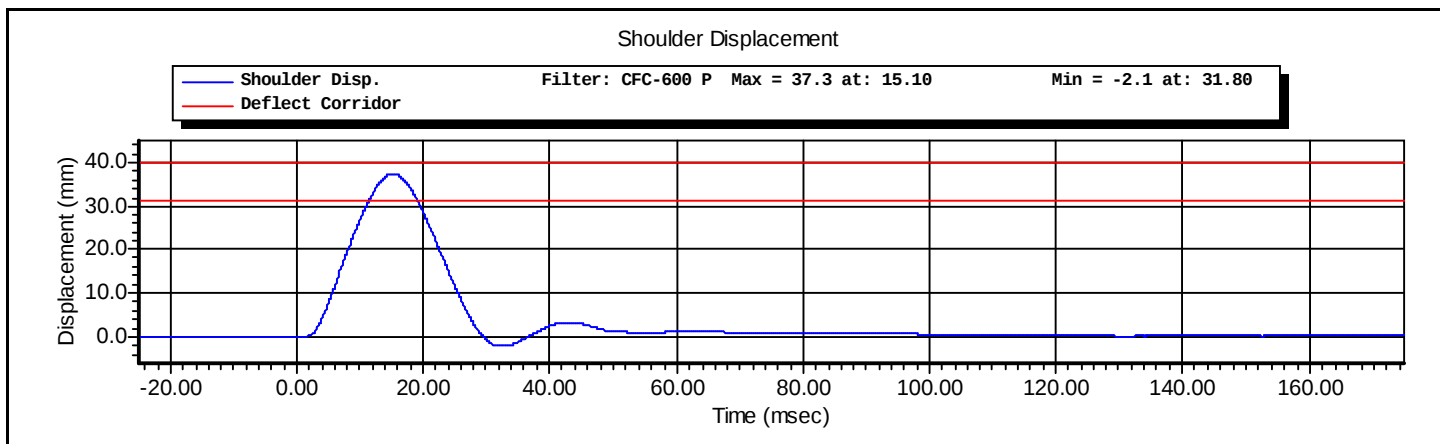
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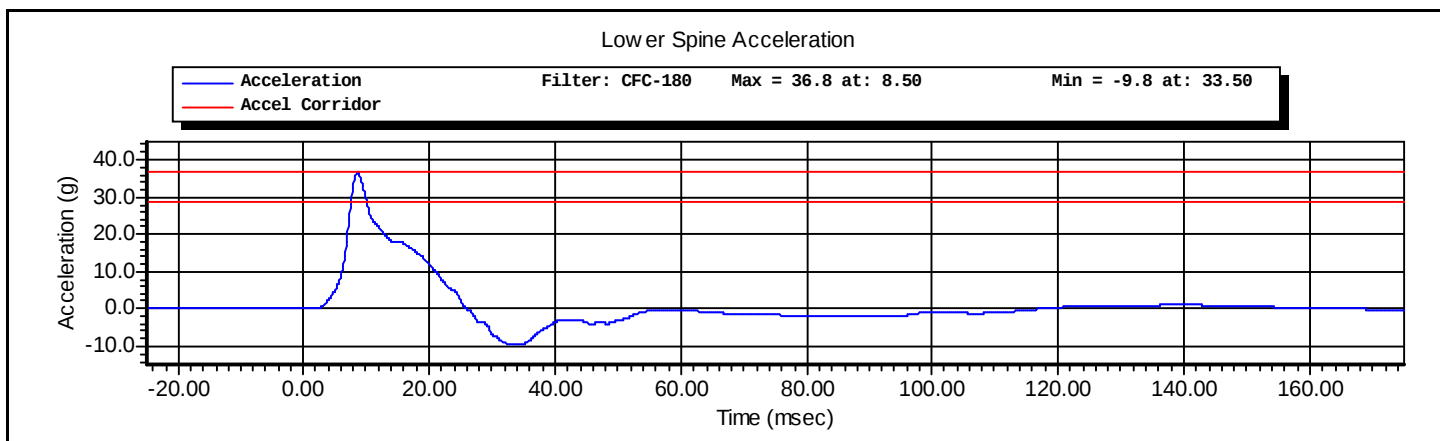
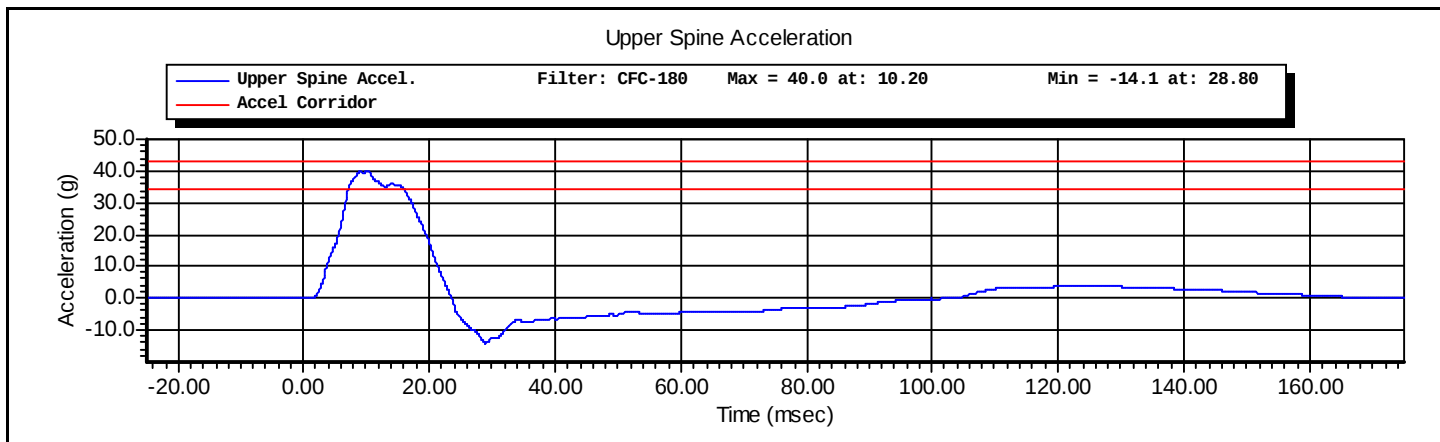
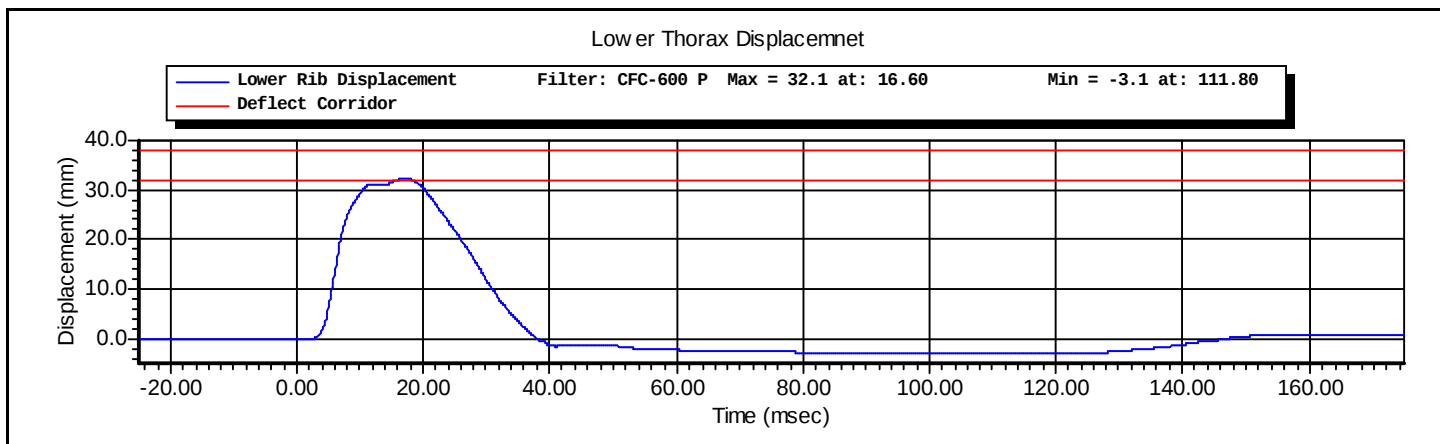
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	12/3/2010
Test Number:	1	Test Time:	2:37:44 PM



Test ID: Thorax With Arm Test Time: 2:37:44 PM

Test Date: 12/3/2010







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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/3/2010
Test Number:	1	Test Time:	11:57:03 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10 -- 70	30 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Probe Acceleration	12.0 -- 16.0	15.7 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	38.1 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	35.1 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.4 g P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Abdomen**

Test Time: **11:57:03 AM**

Test Date: **12/3/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1162	4/7/2010
Servo	180-3885	DS-1232	4/7/2010
Endevco	7264-2000	P64147	10/8/2010

Test ID: **Abdomen**

Test Time: **11:57:03 AM**

Test Date: **12/3/2010**

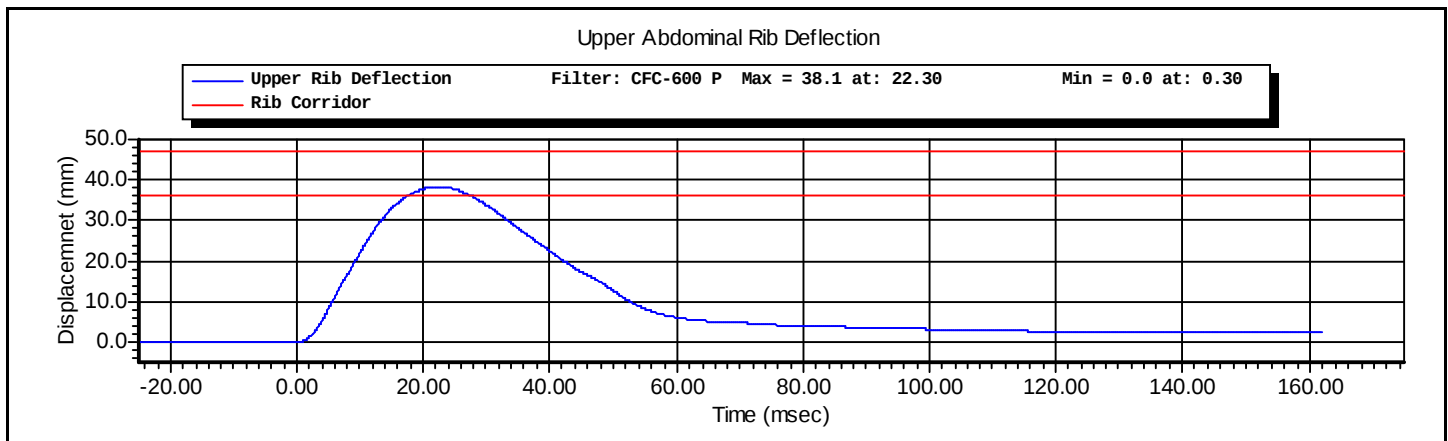
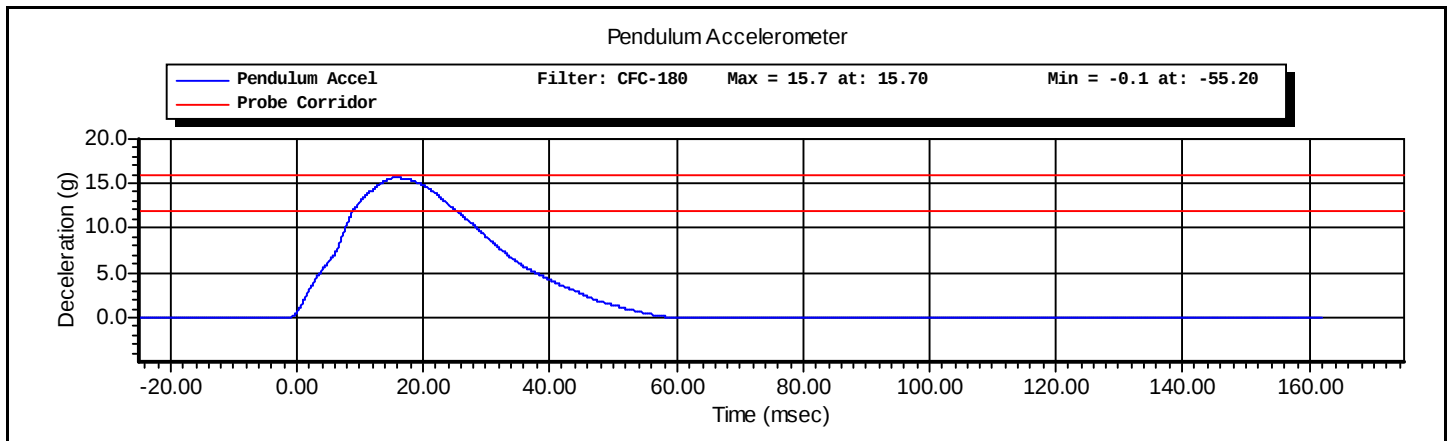


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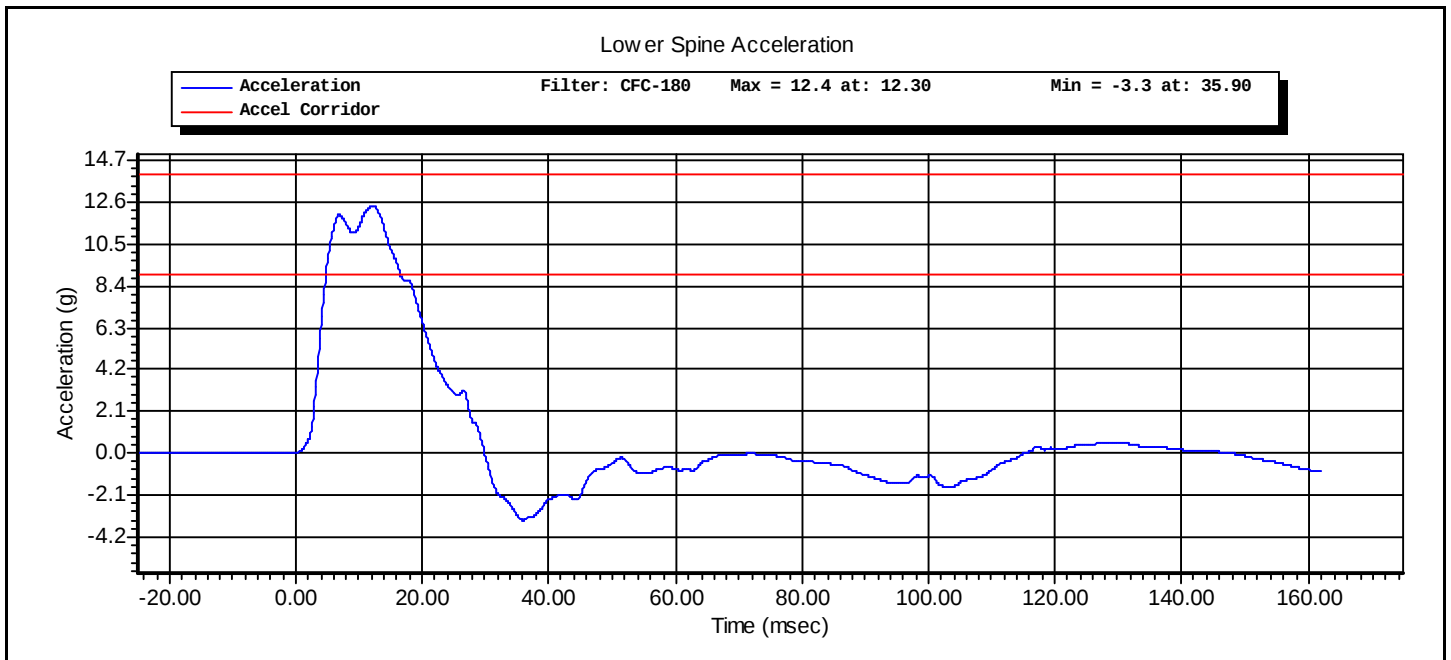
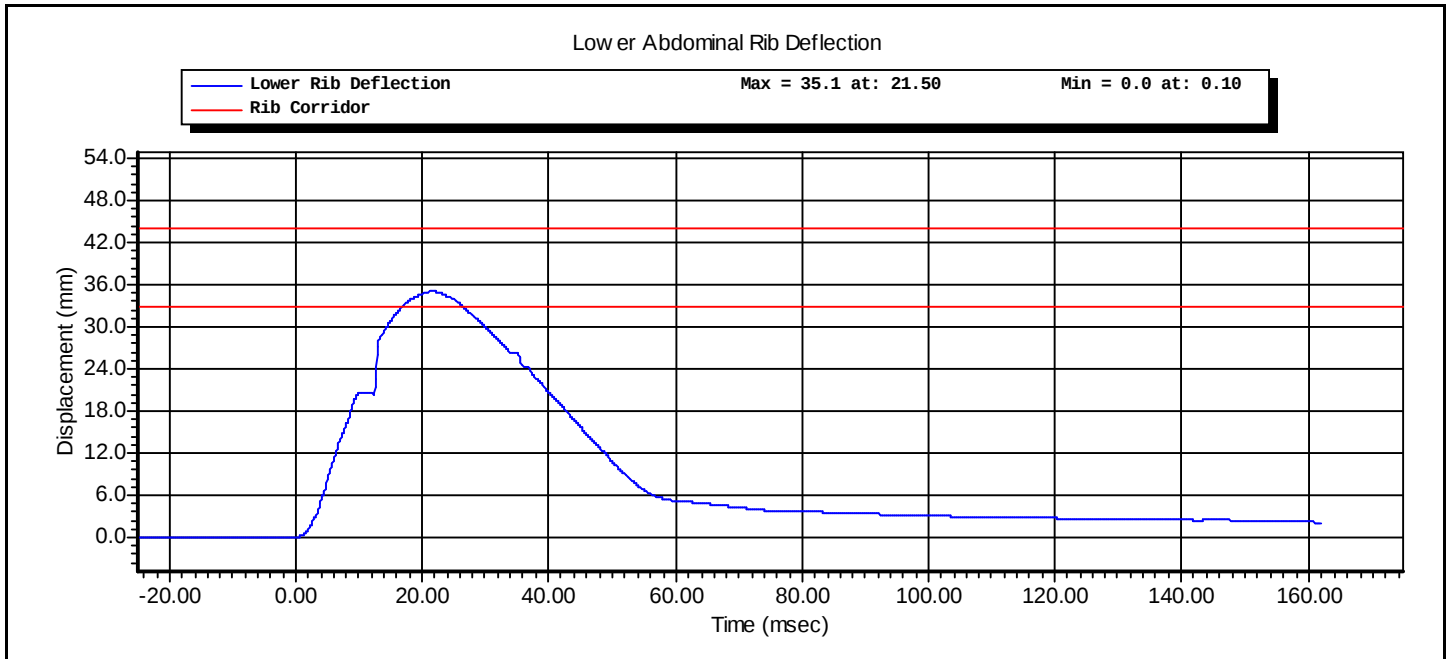
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/3/2010
Test Number:	1	Test Time:	11:57:03 AM



Test ID: **Abdomen**

Test Time: **11:57:03 AM**

Test Date: **12/3/2010**





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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Pelvis Iliac	Test Date:	12/7/2010
Test Number:	3	Test Time:	10:29:42 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.6 deg C P
Humidity	10 -- 70	22 %RH P
Velocity	4.20 -- 4.40	4.40 m/s P
Peak Probe Acceleration	36.0 -- 45.0	38.8 g P
Peak Pelvis Acceleration	28.0 -- 39.0	31.7 g P
Peak Iliac Force	4.10 -- 5.10	4.20 kN P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Pelvis Iliac**

Test Time: **10:29:42 AM**

Test Date: **12/7/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	6/12/2010
DentonATD	3228J	LC-279 Fy	4/12/2010

Test ID: **Pelvis Iliac**

Test Time: **10:29:42 AM**

Test Date: **12/7/2010**

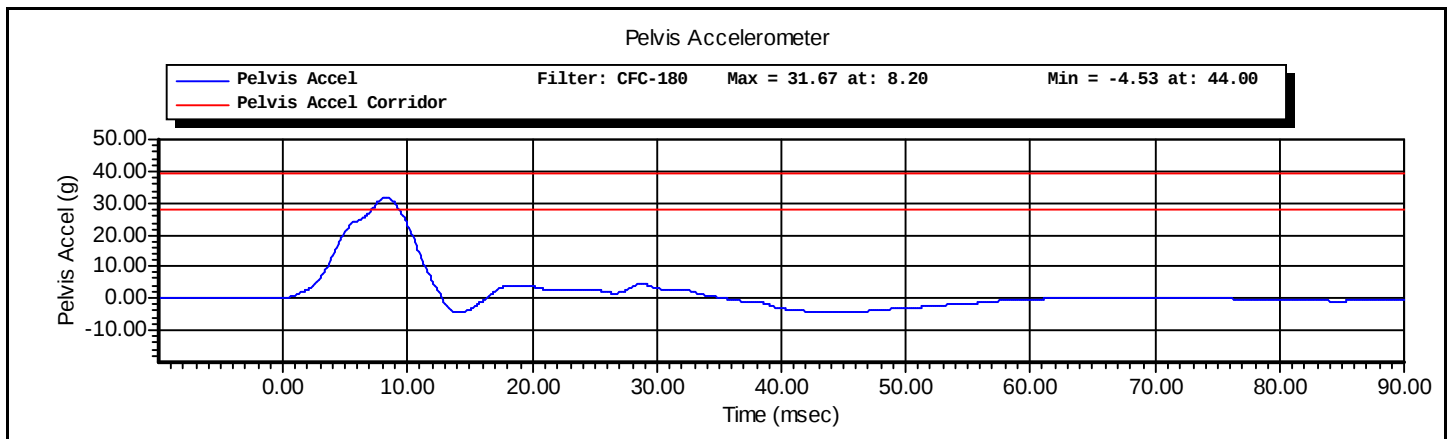
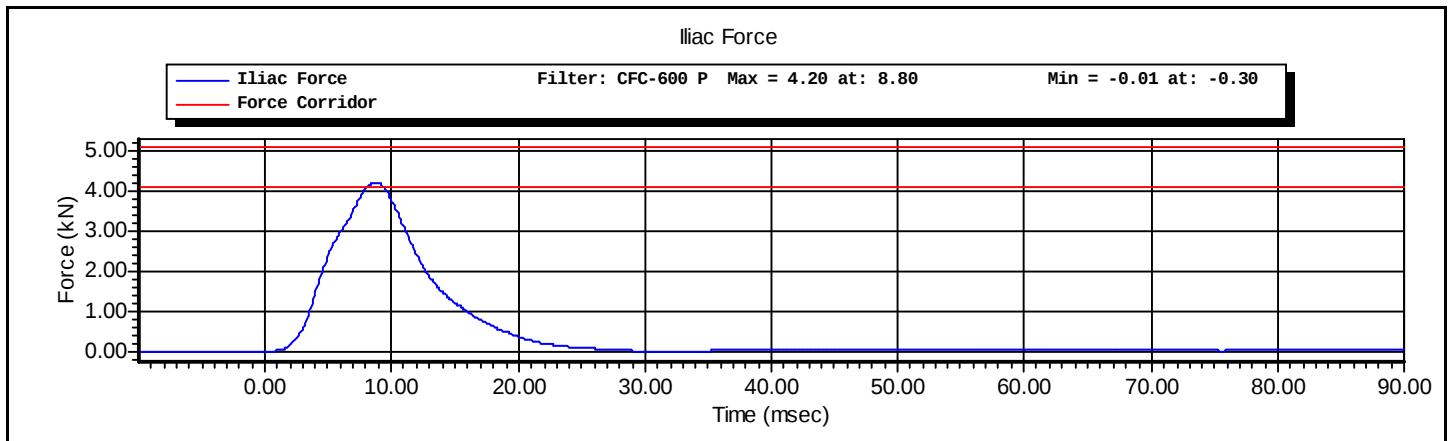


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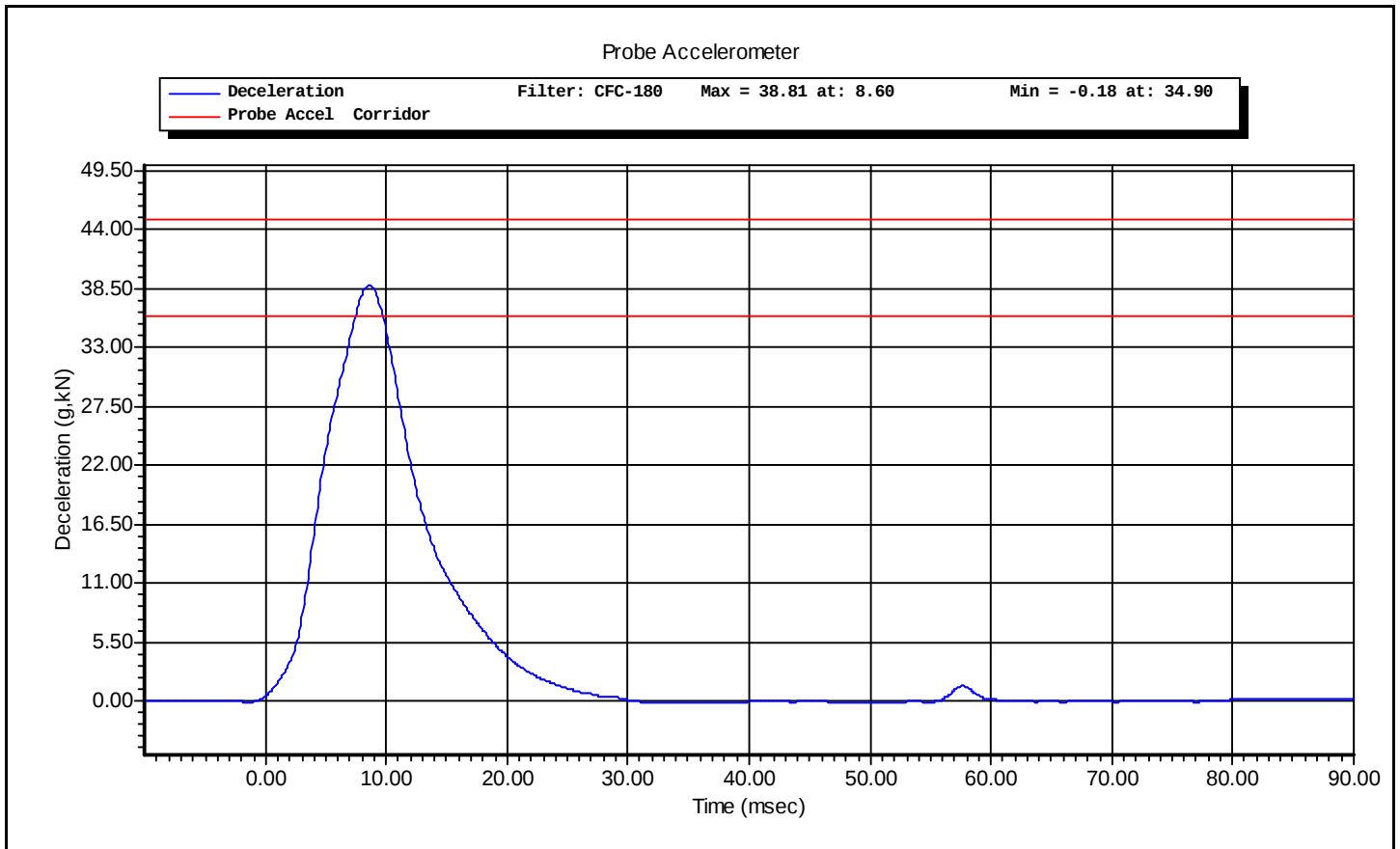
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Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Pelvis Iliac	Test Date:	12/7/2010
Test Number:	3	Test Time:	10:29:42 AM



Test ID: **Pelvis Iliac**

Test Time: **10:29:42 AM**

Test Date: **12/7/2010**





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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Acetabulum	Test Date:	12/6/2010
Test Number:	3	Test Time:	7:09:50 PM

Component Part Number	Component Serial Number
Pelvis Flesh 180-4343	1033-1

Comments:

Pelvis Plug Used For Certification:
FTSS S/N 36366
Force @ 3mm = 1437N

Pelvis Plug Used For Full Scale Test:
FTSS S/N 36368
Force @ 3mm = 1447N

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	20.8 deg C P
Humidity	10 -- 70	27 %RH P
Velocity	6.60 -- 6.80	6.62 m/s P
Peak Probe Acceleration	38.0 -- 47.0	45.3 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.6 g P
Peak Acetabulum Force	3.60 -- 4.30	3.81 kN P

All test parameters are within specifications

Technician: **A. Rudniski** Signature: _____
Supervisor: **D. Travale** Signature: _____

Test ID: **Acetabulum**

Test Time: **7:09:50 PM**

Test Date: **12/6/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	6/12/2010
DentonATD	3249J	LC-275a	4/12/2010
Endevco	7264-2000	P51288	6/2/2010

Test ID: **Acetabulum**

Test Time: **7:09:50 PM**

Test Date: **12/6/2010**



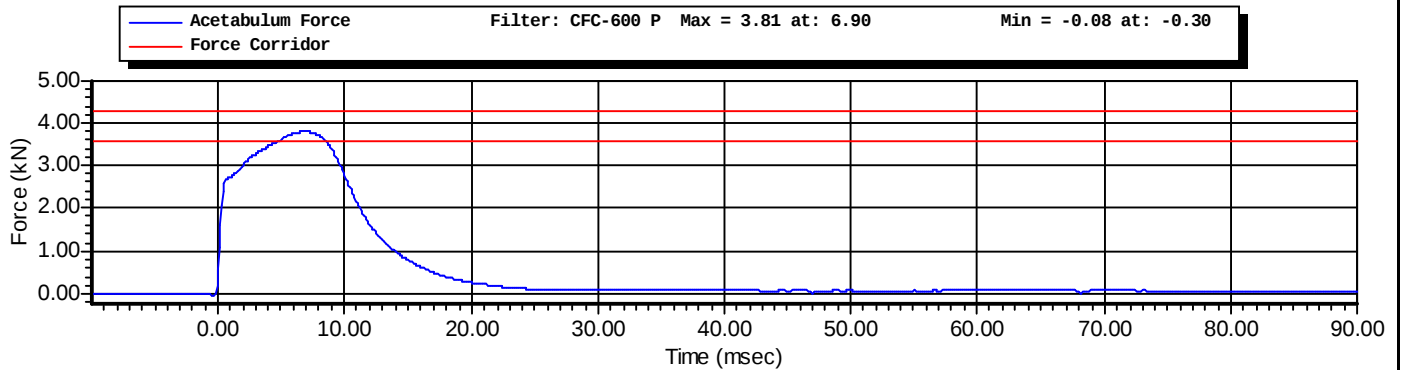
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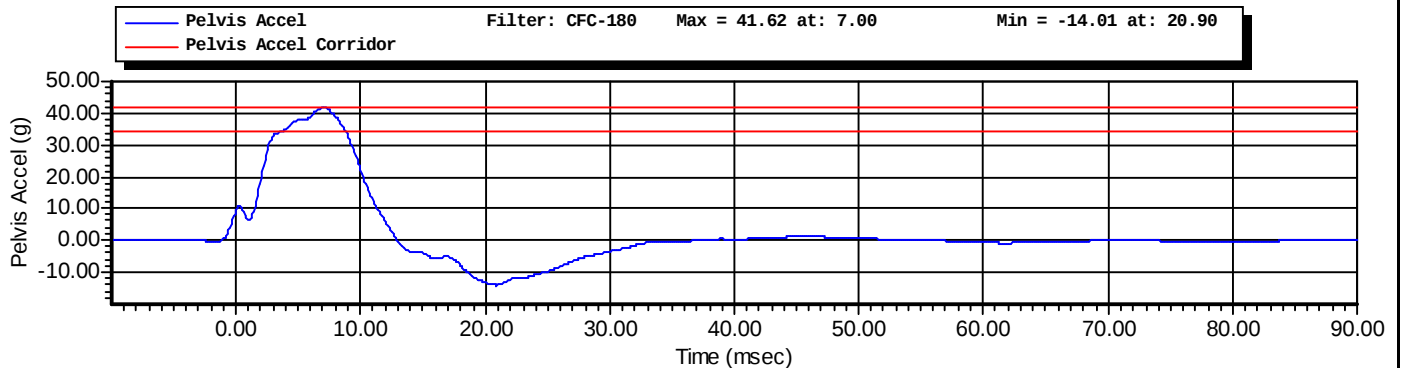
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIIs		
ATD Serial Number:	SID 300		
Test ID:	Acetabulum	Test Date:	12/6/2010
Test Number:	3	Test Time:	7:09:50 PM

Acetabulum Force



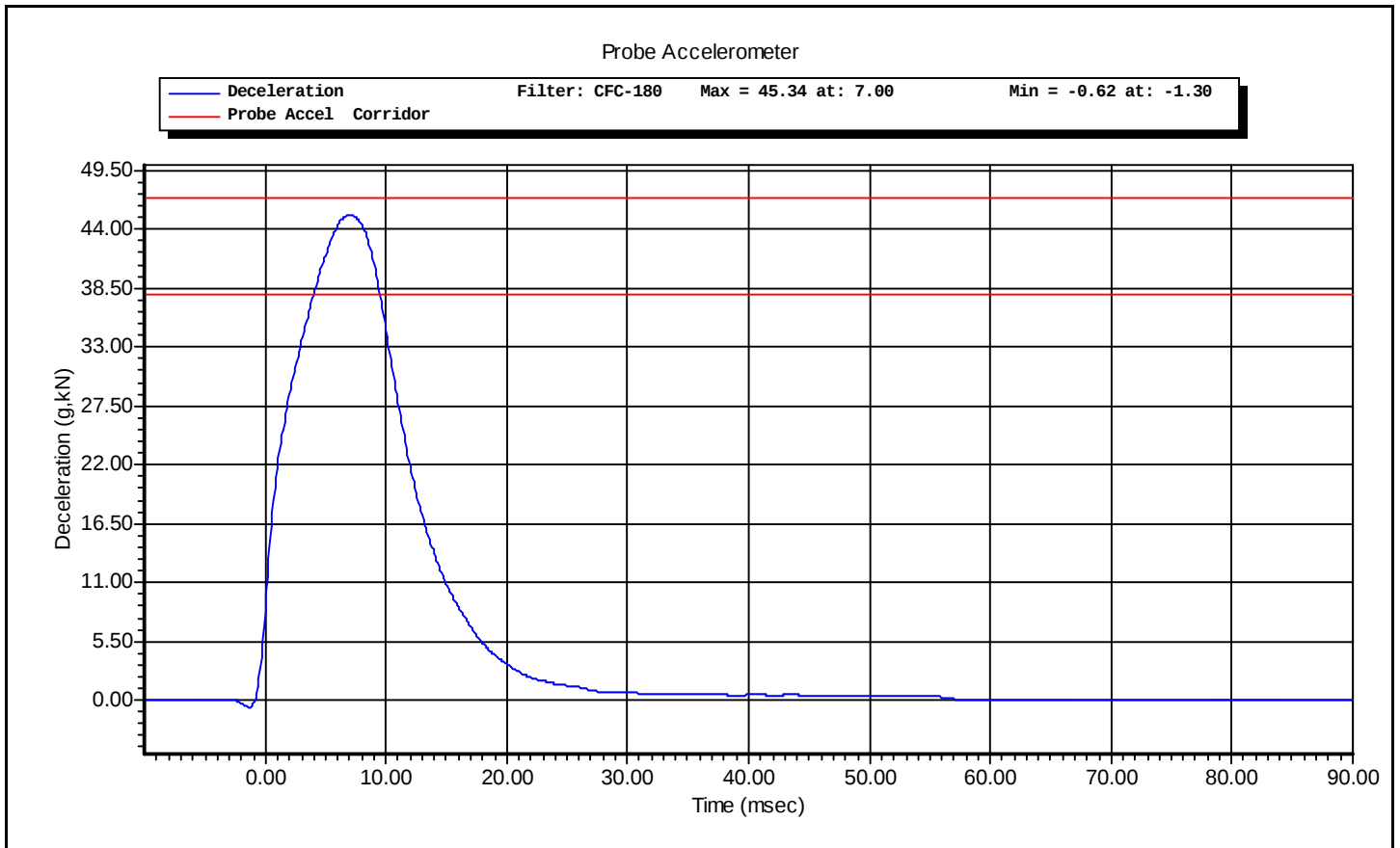
Pelvis Accelerometer



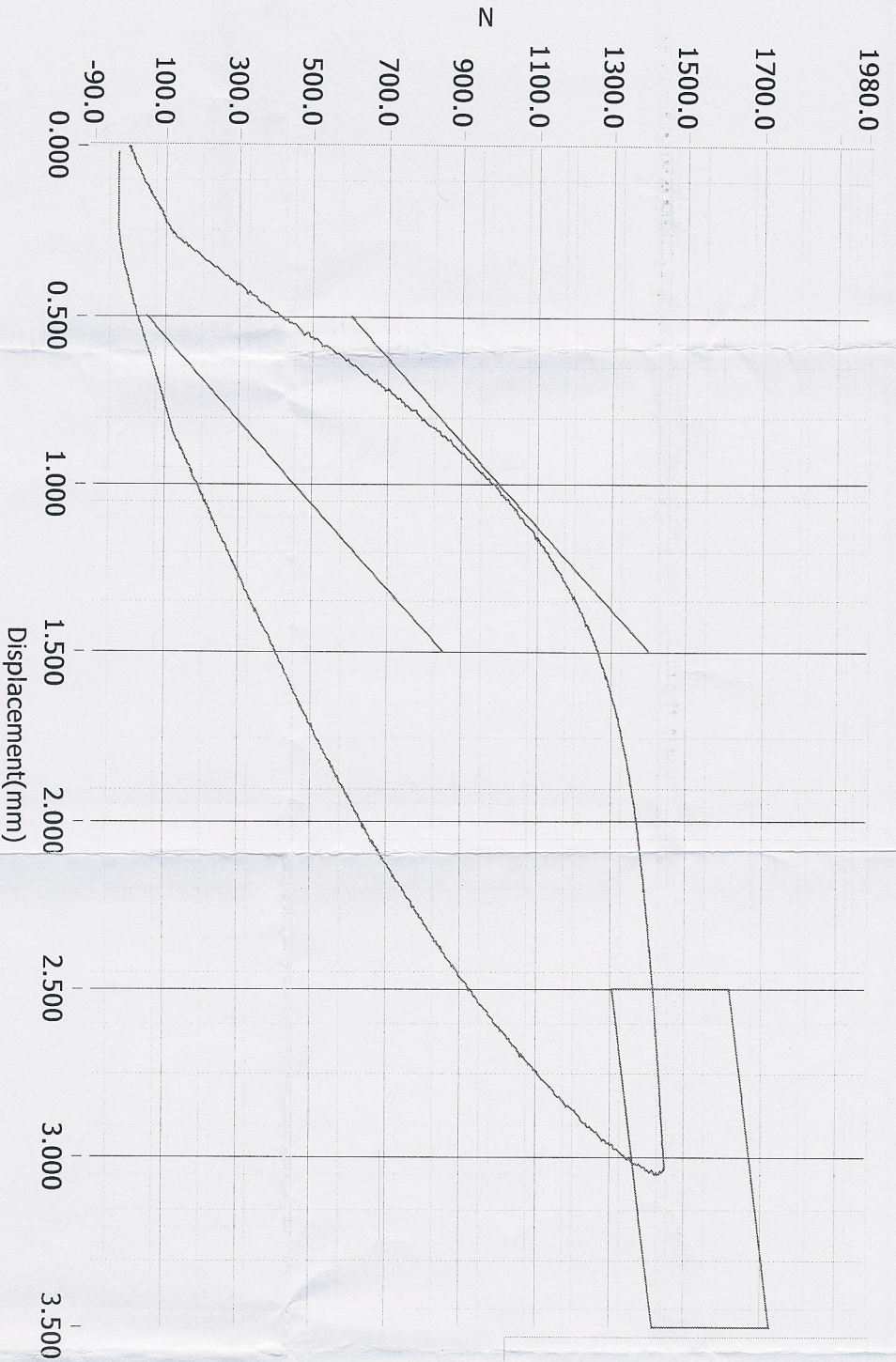
Test ID: **Acetabulum**

Test Time: **7:09:50 PM**

Test Date: **12/6/2010**



Resultant Data - SIDIIs Plug Compression



Loading Curve
 Boundary Limit Upper
 Boundary Limit Lower
 Peak Load Upper
 Peak Load Lower
 Peak Defl Upper
 Peak Defl Lower

ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

36368

SIDIIs

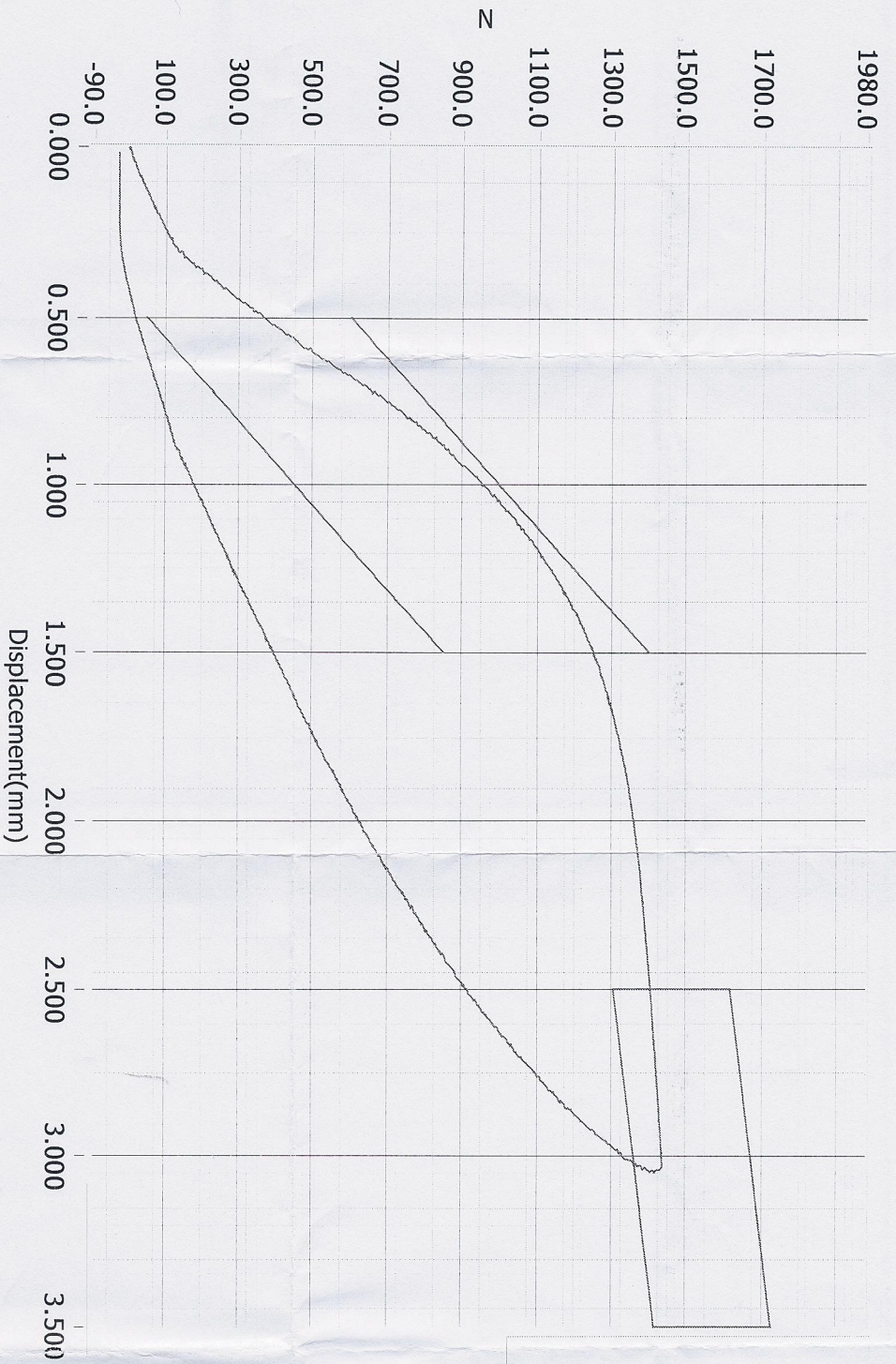
9/23/2010

12:54 AM

Current Date : 9/23/2010

Current Time : 00:56:00

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

36366

SIDIIs

Current Date : 9/23/2010

Current Time : 00:52:26

