REPORT NUMBER: SPNCAP-CAL-11-035

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

Ford Motor Company
2011 Ford Ranger SuperCab

NHTSA NUMBER: MB0218

PREPARED BY:
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March 3, 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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This final test report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, in response to Contract Number DTNH22-09-D-00126.

Prepared by: _____ Date: _____
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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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4. Title and Subtitle Final Report of New Car Assessment Program Side Pole Test of 2011 Ford Ranger SuperCab Extended Cab Pickup NHTSA No.: MB0218		*5. Report Date* 3/3/2011 *6. Performing Organization Code* CAL
7. Author(s) Bethany Koetje, Project Engineer		*8. Performing Organization Report No.* 2515
9. Performing Organization Name and Address Calspan Corporation Transportation Research Group P.O. Box 400 Buffalo, New York 14225		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-09-D-00126
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NVS-111 1200 New Jersey Ave., SE, Room W43-410 Washington, D.C. 20590		*13. Type of Report and Period Covered:* Final Report, 3/3/2011 *14. Sponsoring Agency Code* NVS-111

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 Ranger SuperCab Extended Cab Pickup 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 1/18/2011.

The impact velocity was 32.12 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 524 mm at level 3. The test vehicle's occupant performance is as follows:

	Driver ATD (SID-IIs)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{38})	N/A	1000	166.79
Resultant Lower Spine Acceleration	Gs	82	60.13
Combined Acetabular and Iliac Pelvic Force	N	5525	7,430.37

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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Form DOT F1700.7 (8-72)

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SECTION 1
PURPOSE AND TEST PROCEDURE

PURPOSE

This side impact test was conducted as part of the 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 Ranger SuperCab Extended Cab Pickup 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 Ranger SuperCab Extended Cab Pickup. The subject vehicle was towed into the rigid pole at an angle of 75^{o} and a velocity of 32.12 km/h. The test was conducted by Calspan Corporation Transportation Research Group on 1/18/2011. 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
Illiac 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	166.79	60.13	Iliac Wing =	4,222.78
			Acetabular =	3,233.09
			Sum =	7,430.37

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	**Deployed**
Frontal Airbag	Yes	No
Knee Airbag	No	NA
Combination Head/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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0218	Anti-Lock Brakes	Yes
Model Year	2011	All-Wheel Drive	No
Make	Ford	Power Steering	Yes
Model	Ranger SuperCab	Driver Front Airbag	Yes
Body Style	Extended Cab	Driver Curtain Airbag	No
VIN	1FTKR4EEXBPA18607	Driver Head/Torso Airbag	Yes
Body Color	Light gray/silver	Driver Torso Airbag	No
Delivery Date	1/4/2011	Driver Torso/Pelvis Airbag	No
Odometer Reading (km/mi)	151 / 94	Driver Pelvis Airbag	No
Dealer	Genesee Valley Ford	Driver Knee Airbag	No
Transmission	5-Speed Automatic	Rear Pass. Curtain Airbag	No
Final Drive	Rear Wheel Drive	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	V6	Rear Pass. Torso Airbag	No
Engine Displacement (L)	4.0	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Longitudinal	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Pretensioners	Yes
Sunroof/T-Top	No	Load Limiters	Yes
Tinted Glass	No	Automatic Door Locks	No
Traction Control	Yes	Bucket Seats	No
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? NA

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company	GVWR (kg)	2,159
Date of Manufacture	11/10	GAWR Front (kg)	1,179
		GAWR Rear (kg)	1,179

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	3	2			
Vehicle Capacity Weight (VCW) (kg)				451.0	(A)
DSC X 68.04 kg				340.2	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				110.8*	(A-B)

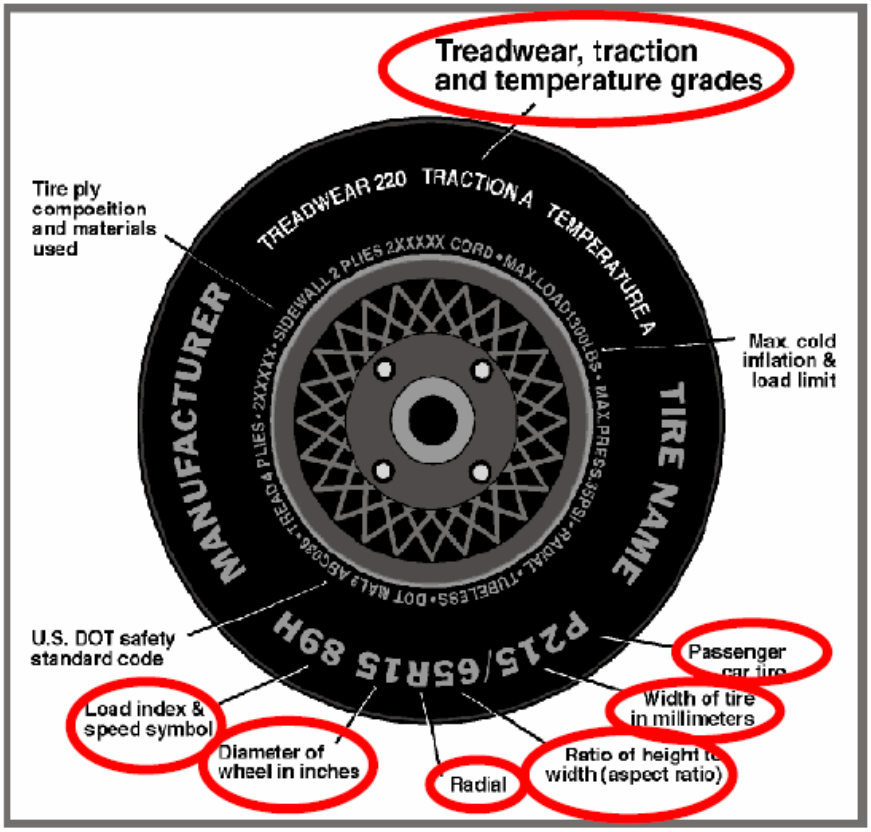
* Maximum allowable RCLW is 136

VEHICLE SEAT TYPE

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

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

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	205	205
Recommended Tire Size	P225/70R15	P225/70R15
Tire Size on Vehicle	P225/70R15	P225/70R15
Tire Model	Contitrac	Contitrac
Tire Manufacturer	Continental	Continental
Treadwear	420	420
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Steel + 2 Polyester	2 Steel + 2 Polyester
Load Index/Speed Symbol	100S	100S
Tire Material	Rubber	Rubber
DOT Safety Code Right	A3UU45KW3010	A3UU45KW3010
DOT Safety Code Left	A3UU45KW3010	A3UU45KW3010

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

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

TEST VEHICLE AXLE WEIGHTS

	Unit	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	495.0	368.0		489.0	395.0		516.5	447.0	
Right	kg	466.5	343.0		530.0	416.5		466.5	412.0	
Ratio	%	57	43		56	44		53	47	
Totals	kg	961.5	711.0	1,672.5	1,019.0	811.5	1,830.5	983.0	859.0	1,842.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1,672.5	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	51.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	110.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1,834.6	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	Deg.	-	-0.5	-0.9
Front Passenger Sill Angle (front-to-rear)*	Deg.	-	1.1	0.3
Front Bumper Angle (left-to-right)**	Deg.	-	1.2	0.5
Rear Bumper Angle (left-to-right)**	Deg.	-	0.3	-0.8
Vehicle CG (Aft of Front Axle)	mm	1,360	1,418	1,492
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-27	28	-38

* Front up is positive ** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	64.0
Weight of Vehicle Components Removed	kg	0

Vehicle parts removed to make Target Vehicle Test Weight:
None

TEST VEHICLE IMPACT POINT DATA

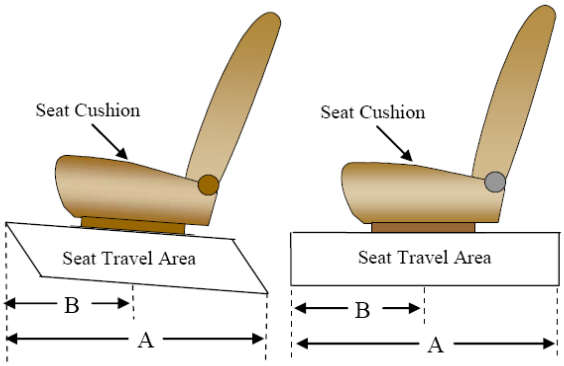
Measured Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1,152
Actual Impact Point (Aft of Front Axle)	mm	1,156
Impact Point Difference (- forward / + rearward)	mm	4

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

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

SEAT FORE/AFT POSITIONS

Seat moved to one notch rearward of the forward most position of fore/aft travel.

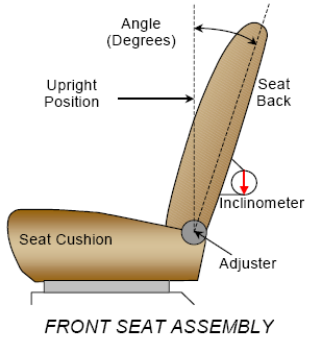


SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	26	1

SEAT BACK ANGLE POSITION

Seat back was adjusted to position which allowed for a 0 degree head angle On the SID-IIs driver dummy. The seat was in the full upright position.



FRONT SEAT ASSEMBLY

SEAT BACK ANGLE

	Degrees	Detent
Driver Seat Back Angle with Seated Dummy	2.0	0

SEAT BELT UPPER ANCHORAGES

The driver upper belt anchorage was place in the topmost position of five possible positions

SEAT BELT UPPER ANCHORAGE POSITIONING

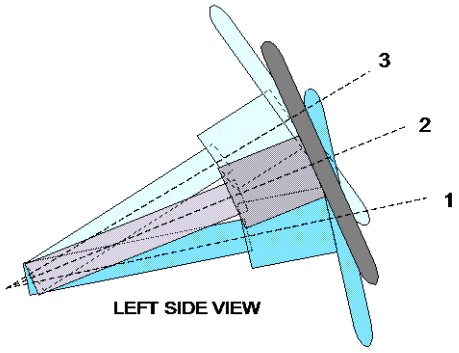
	Total # of Positions	Placed in Position #
Driver Seat	5	0

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

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

STEERING COLUMN ADJUSTMENT

Steering column adjusted to mid point of tilt:
Position detent 3 of 5 possible detent positions



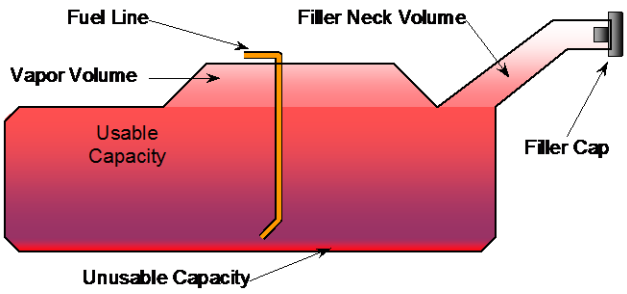
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	-	
Geometric Center, Position No. 2	21.0	
Uppermost, Position No. 3	-	
Telescoping Steering Wheel Travel		NA
Test Position	21.0	NA

FUEL PUMP

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



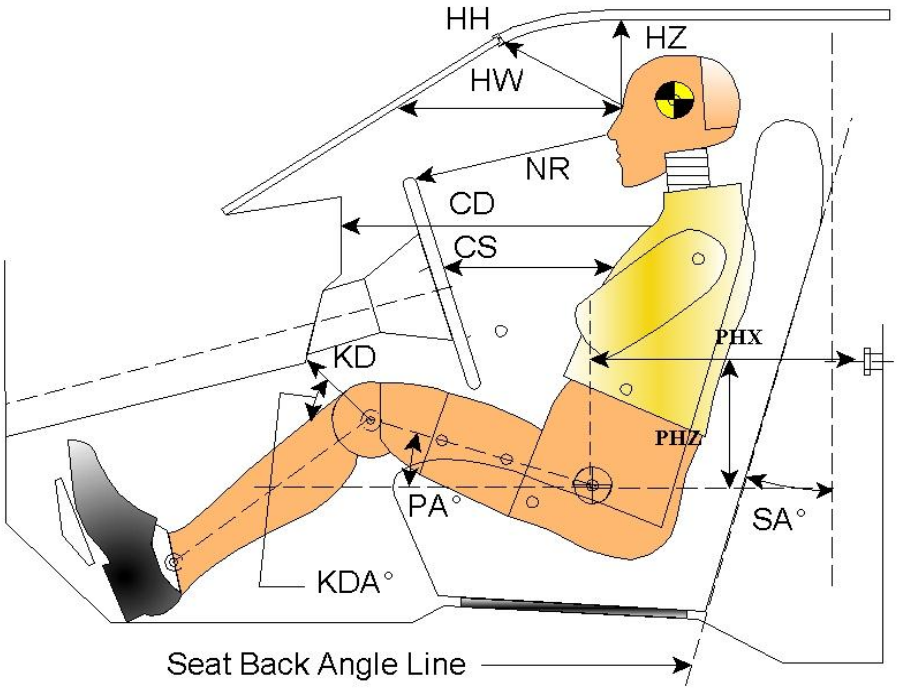
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of “Standard Tank”	73.8
Usable Capacity of “Optional Tank”	NA
Usable Capacity of Standard Tank as Specified in Owner’s Manual	73.8
Usable Capacity of Optional Tank as Specified in Owner’s Manual	NA
92-94% of Usable Capacity	67.9 – 69.4
Actual Amount of Solvent Used in Test	68.1
1/3 of Usable Capacity	25.0

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



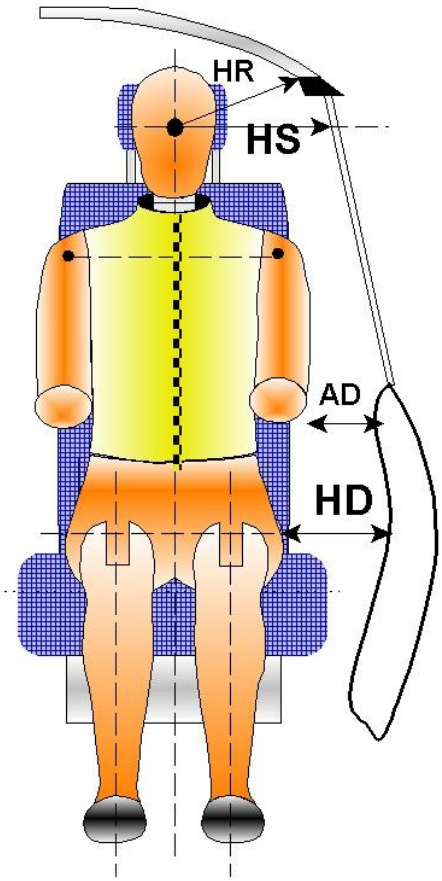
DUMMY ID# 304

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	323	
HW	Head to Windshield	504	
HZ	Head to Roof	244	
NR	Nose to Rim	205	
CD	Chest to Dash	377	
CS	Chest to Steering Wheel	129	
KDL/KDAL°	Left Knee to Dash	106	29.0
KDR/KDAR°	Right Knee to Dash	65	29.0
PA◦	Pelvic Angle		16.6
PHX	H-Point to Striker (X-Axis)	472	
PHZ	H-Point to Striker (Z-Axis)	110	
SA◦	Seat Back Angle		2.0

* Measured from Head-restraint post

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

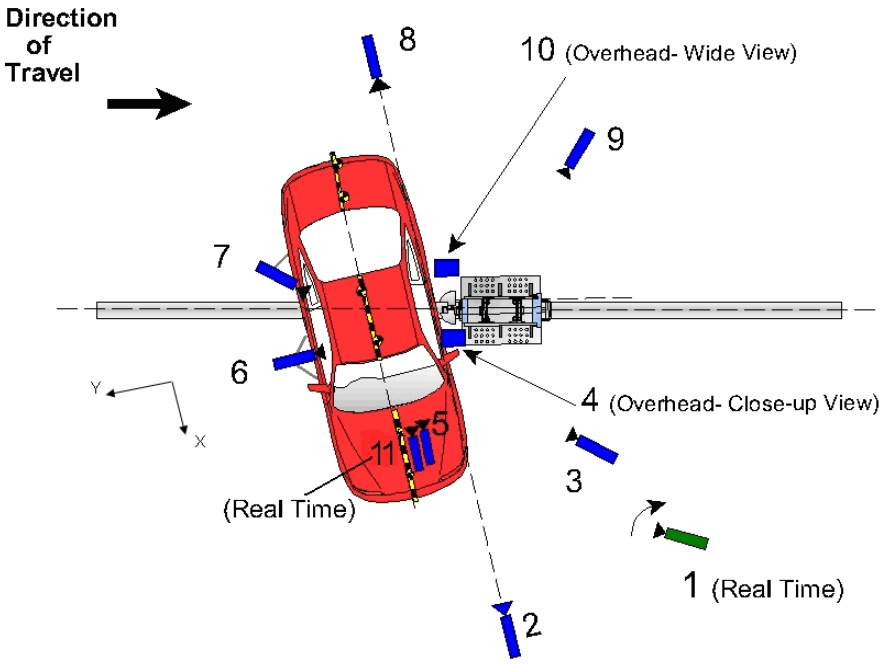


DUMMY ID# 304

Code	Measurement Description	Length (mm)
HR	Head To Side Header	260
HS	Head to Side Window	360
AD	Arm to Door	92
HD	H-Point to Door	157

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



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	1630	5900	1010	24	1000
3	Impact side 45° - forward pole view	-2460	2070	1810	24	500
4	Overhead Close-up view of impact	-	-	-	24	1000
5	Onboard – dummy front view				25	500
6	Onboard – dummy side view				12.5	500
7	Onboard – dummy rear oblique view				12.5	500
8	Rear ground level – impact view	-250	-6720	980	24	1000
9	Impact side 45º - rearward pole view	-3000	-3150	1240	24	1000
10	Overhead wide-view of impact	-	-	-	14	1000
11	Real-time (24-30 fps) – dummy front view	-	-	-	-	24

NOTE: Vehicle was at a 15° angle to the rigid pole, All measurements accurate to ± 6 mm.
REFERENCE (from Point of Impact for X and Y; from Ground for Z):
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

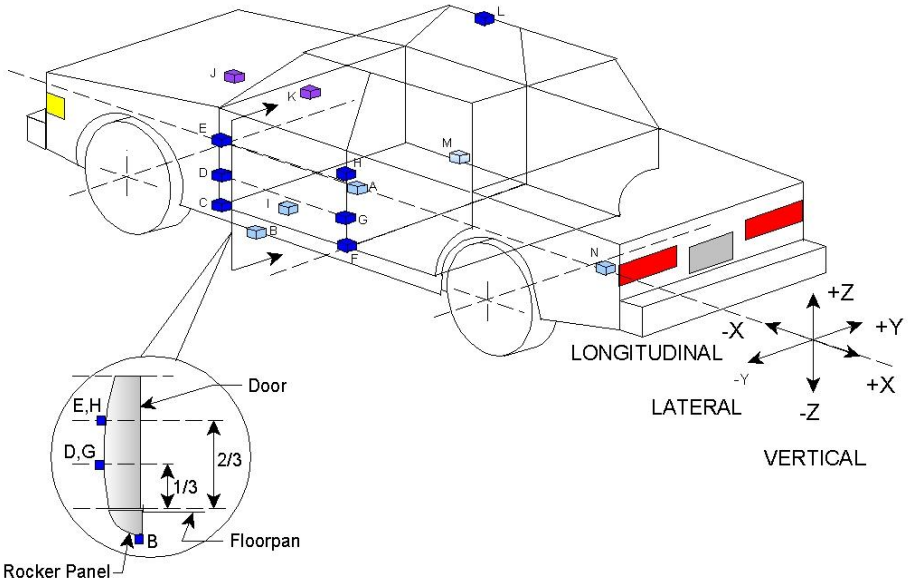
INSTRUMENTATION

	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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



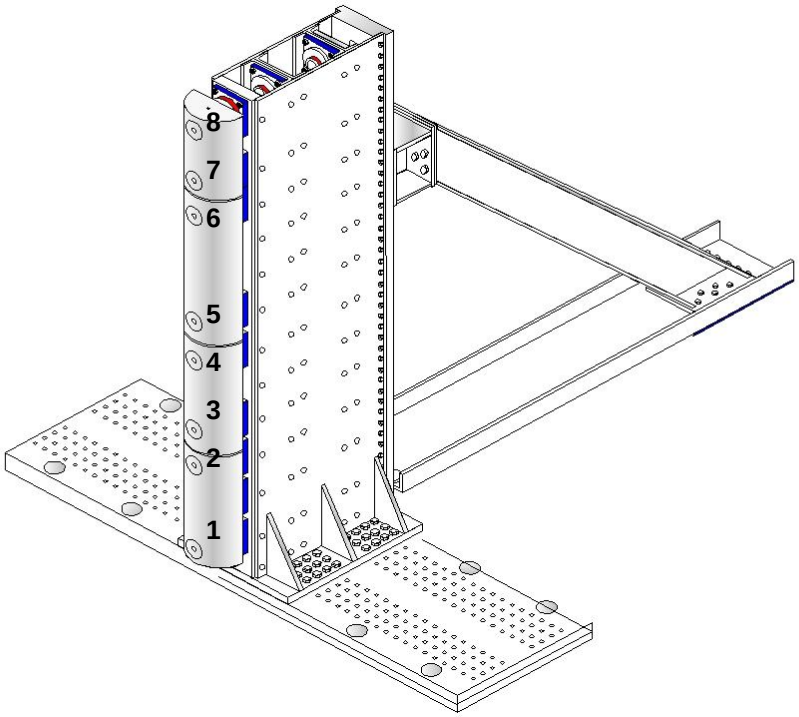
REFERENCE (from Point of Impact for X and Y; from Ground for Z):
+ X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
	Vehicle CG Accel.	3191	-7	994
A	Vehicle CG Sensor	3191	-7	994
B	Left Floor Sill	3592	-655	492
C	A Pillar Sill	3693	-646	505
D	A Pillar Low	3697	-659	710
E	A Pillar Mid	3594	-645	1214
F	B Pillar Sill	2687	-638	522
G	B Pillar Low	2600	-645	639
H	B Pillar Mid	2627	-630	1070
I	Driver Seat	2687	-438	522
L	Engine Top	4450	14	1084
J	Firewall	4026	-12	1112
K	Right Roof	3164	581	1632
M	Right Floor Sill	3243	625	497
N	Rear Floorpan	1233	49	709

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

TEST DUMMY INFORMATION AND CONTACT

Description	Driver Dummy
Dummy Type/Serial No.	SID-IIs / 304
Head Contact	Seat Mounted Head/Torso Airbag
Upper Torso Contact	Seat Bolster, Seat Mounted Head / Torso Airbag
Lower Torso Contact	Seat Mounted Head / Torso Airbag, 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	Opened With Difficulty	Closed & Operational
Hatch and Other Doors	-	Tailgate Off Hinge
Seat Movement	No	No
Seat Back Failure	No	No

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Intruded due to side impact
Sill Separation	None
Windshield Damage	Windshield broken during impact
Window Damage	Driver window broken during impact
Other Notable Effects	Significant buckling of floorboard

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

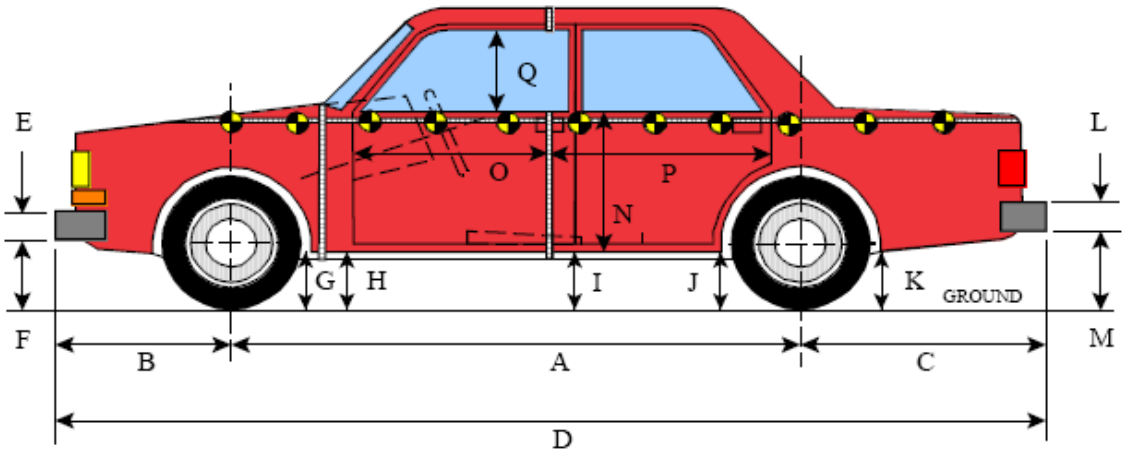
Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	Deployed
Frontal Airbag	Yes	No
Knee Airbag	No	NA
Combination Head/Torso Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	Yes
Seat Belt Load Limiter	Yes	No

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	4
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.1
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.3

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



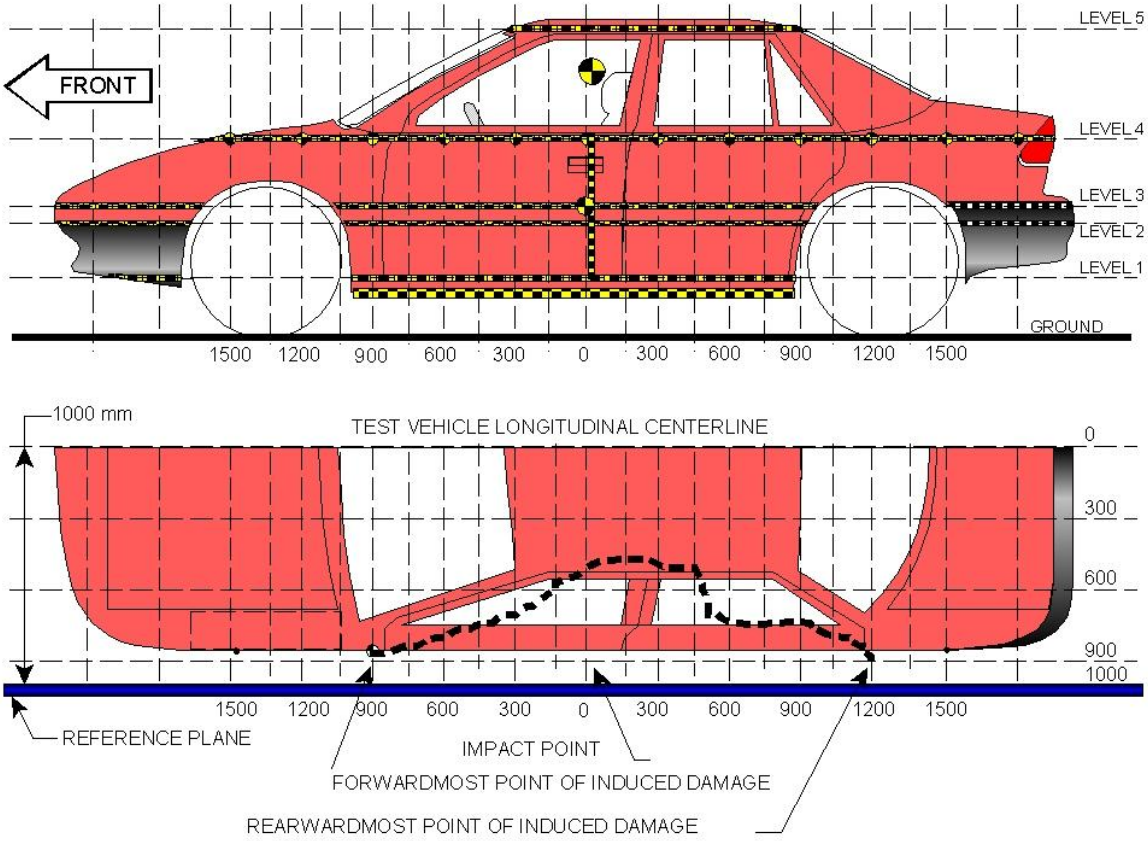
LEFT SIDE VIEW
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	3199	3103	96
B	Front Axle to FSOV	852	922	-70
C	Rear Axle to RSOV	1133	1107	26
D1	Total Vehicle Length at Left Side	5051	4942	109
D2	Total Vehicle Length at Centerline	5180	5129	52
D3	Total Vehicle Length at Right Side	5050	5043	7
E	Front Bumper Thickness	350	350	0
F	Front Bumper Bottom to Ground	273	297	-24
G	Sill Height at Front Wheel Well	305	335	-30
H	Sill Height at Front Door Leading Edge	353	400	-47
I	Sill Height at B Pillar	360	364	-4
J1	Sill Height at Rear Wheel Well	358	376	-18
J2	Pinch Weld Height at Rear Wheel Well	358	376	-18
K	Sill Height Aft of Rear Wheel Well	396	474	-78
L	Rear Bumper Thickness	170	170	0
M	Rear Bumper Bottom to Ground	331	338	-7
N	Sill Height to Window Bottom Sill	636	636	0
O	Front Door Leading Edge to Impact CL	597	601	-3
P	Rear Door Trailing Edge to Impact CL	544	482	62
Q	Front Window Opening	490	475	16
R	Right Side Length	5050	5043	7
S	Left Side Length	5051	4942	109
T	Vehicle Width at B Post	1744	1657	87

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	495
2	Occupant H-Point	695
3	Mid-Door	809
4	Window Sill	1038
5	Window Top	1584

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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1200	--	--	873	766	--	--	--	917	822	--	--	--	-44	-56	--
-1050	--	--	871	793	--	--	--	885	818	--	--	--	-14	-25	--
-900	--	860	858	807	--	--	840	840	801	--	--	20	18	6	--
-750	--	856	861	817	--	--	805	814	781	--	--	51	47	36	--
-600	828	859	864	823	--	755	785	790	766	--	73	74	74	57	--
-450	827	860	867	825	--	638	670	679	675	--	189	190	188	150	--
-300	826	861	869	830	--	540	557	568	569	--	286	304	301	261	--
-150	825	862	870	835	639	434	442	449	447	415	391	420	421	388	224
0	825	862	871	839	651	341	348	347	356	378	484	514	524	483	273
150	825	861	870	842	653	394	396	402	430	453	431	465	468	412	200
300	825	861	870	844	656	519	533	536	539	529	306	328	334	305	127
450	825	860	870	845	659	596	614	641	650	489	229	246	229	195	170
600	821	858	868	845	660	637	675	687	671	512	184	183	181	174	148
750	818	856	867	845	660	659	695	710	696	533	159	161	157	149	127
900	814	855	865	845	652	678	717	731	717	547	136	138	134	128	105
1050	806	851	857	839	--	689	738	746	731	--	117	113	111	108	--
1200	815	860	865	852	--	799	854	863	857	--	16	6	2	-5	--
1350	817	863	865	853	--	804	862	865	860	--	13	1	0	-7	--
1500	820	865	866	855	--	811	868	872	862	--	9	-3	-6	-7	--

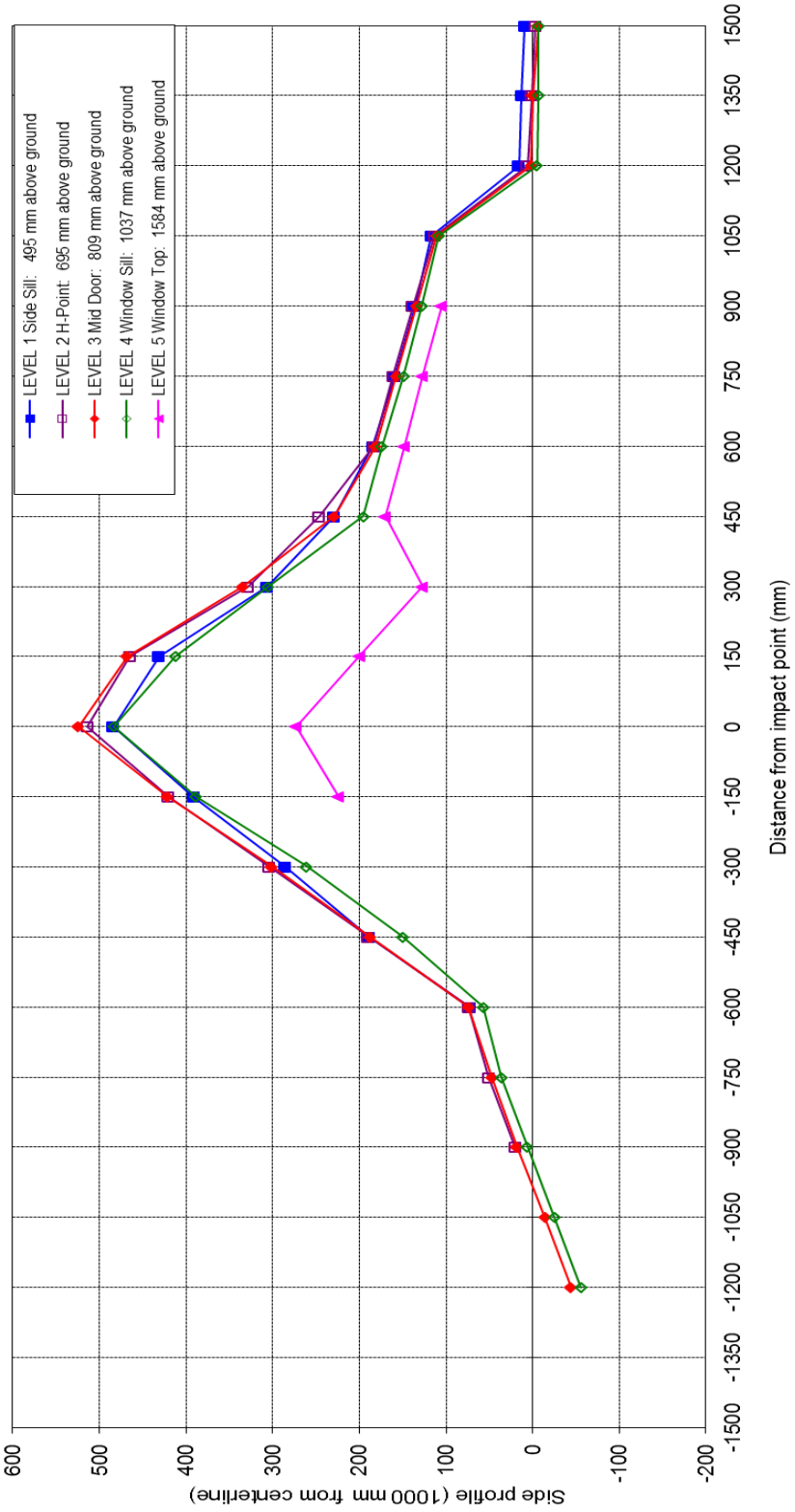
MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	484	514	524	483	273
Distance From Impact (mm)	0	0	0	0	0

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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



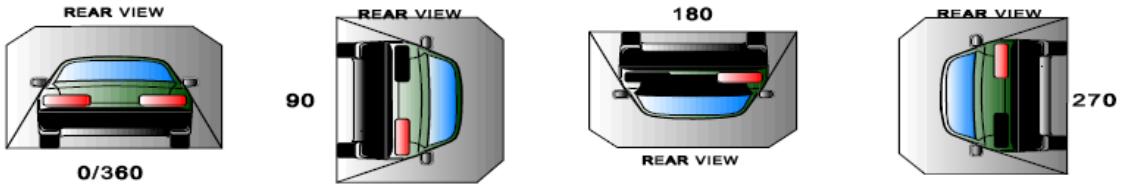
DATA SHEET NO. 11
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA

Test Vehicle:	2011 Ford Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011

Test Time: 13:45 **Temperature:** 6.3° C

A.	From impact until vehicle motion ceases: (Maximum allowable is 1 oz.)	0	oz.
B.	For the 5-minute period after motion ceases: (Maximum allowable is 5 oz.)	0	oz.
C.	For the following 25 minutes: (Maximum allowable is 1 oz./minute)	0	oz.
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	1:12	5:00	6:12
90 to 180	1:03	5:00	6:03
180 to 270	1:04	5:00	6:04
270 to 360	1:07	5:00	6:07

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

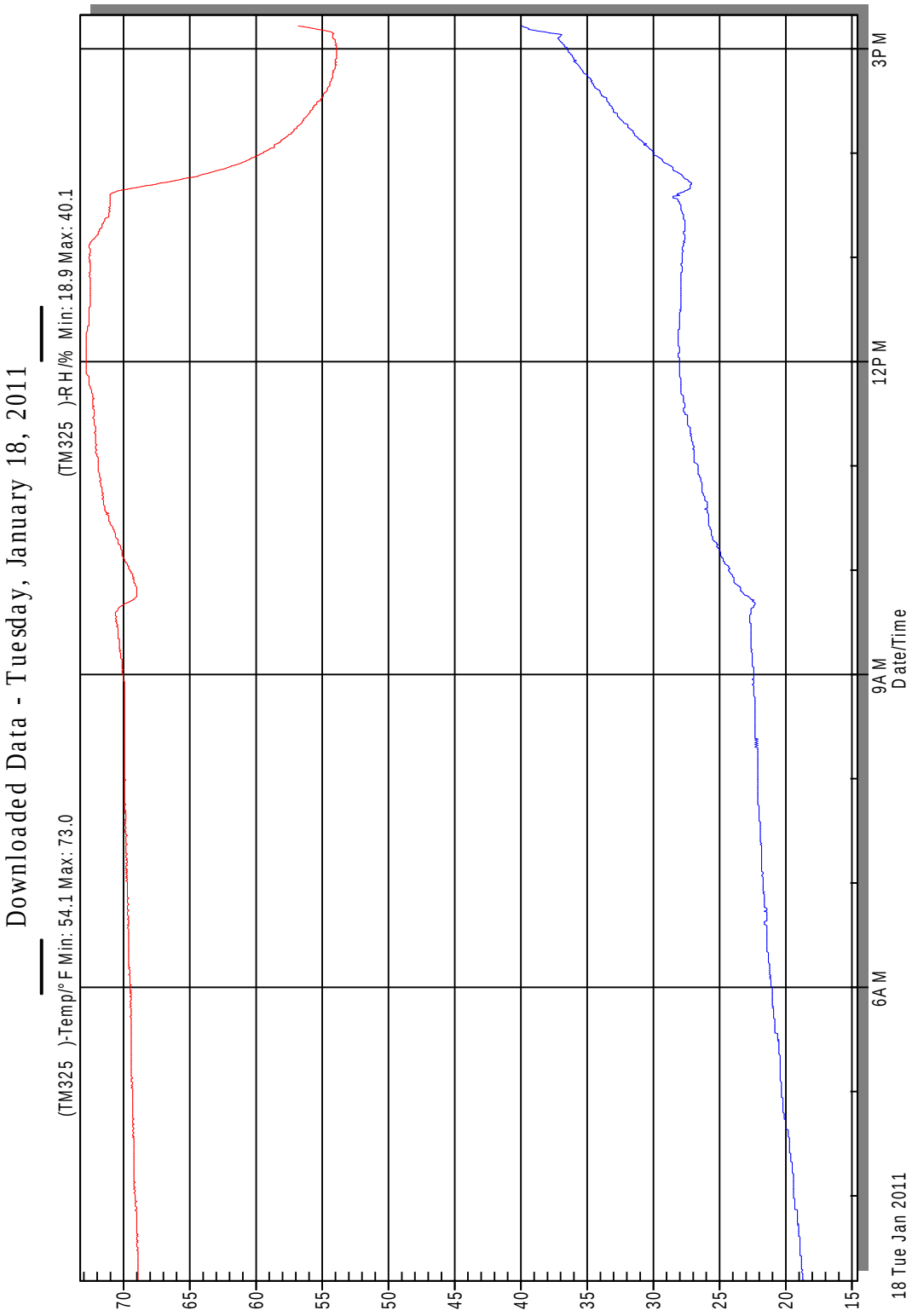
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	NA	NA
90 to 180	0	0	NA	NA
180 to 270	0	0	NA	NA
270 to 360	0	0	NA	NA

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 Ranger SuperCab	NHTSA No:	MB0218
Test Program:	Side Pole NCAP	Test Date	1/18/2011



APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

Figure A-1: As Delivered Right Front Three Quarter View of Test Vehicle

Figure A-2: As Delivered Left Rear Three Quarter View of Test Vehicle

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 ¾ Front View of Test Vehicle

Figure A-6: Post-Test Left ¾ 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 ¾ Rear View of Test Vehicle

Figure A-10: Post-Test Left Rear ¾ View of Test Vehicle

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

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

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 Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point

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

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

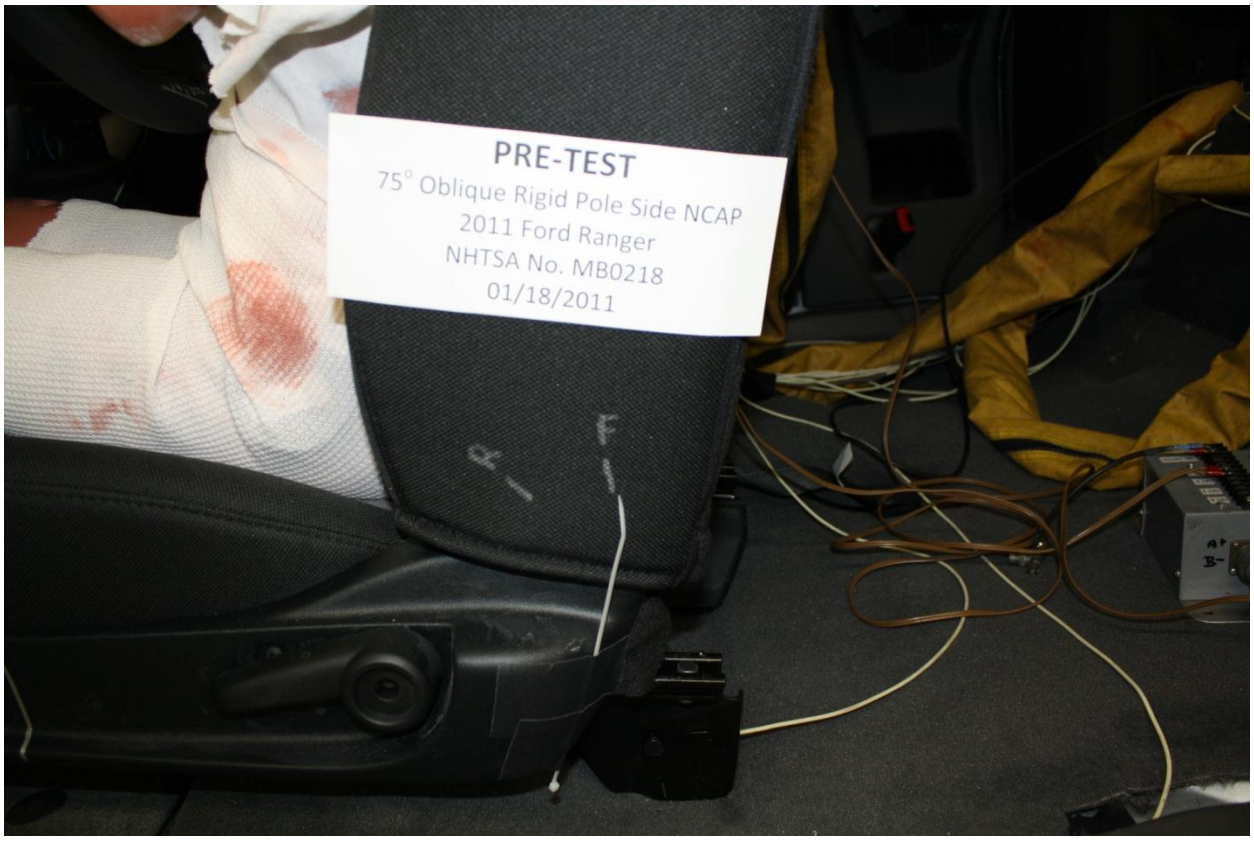


Figure A-37: Pre-Test Close-Up Left Side View of Driver Seat Back Showing Test Position

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

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

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

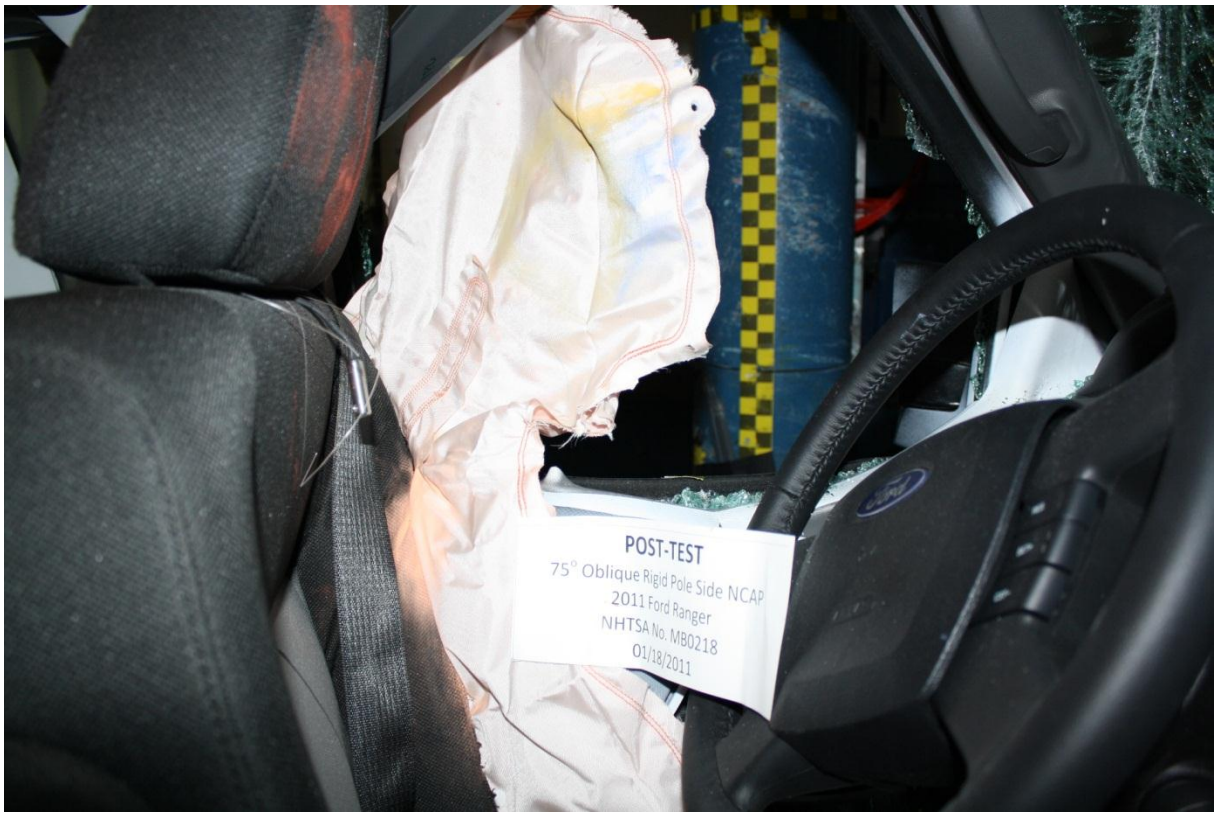


Figure A-48: Post-Test Dummy Close-Up Torso Contact with Side Airbag View

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

Photo Not Applicable

No Pelvic contact with side Airbag

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

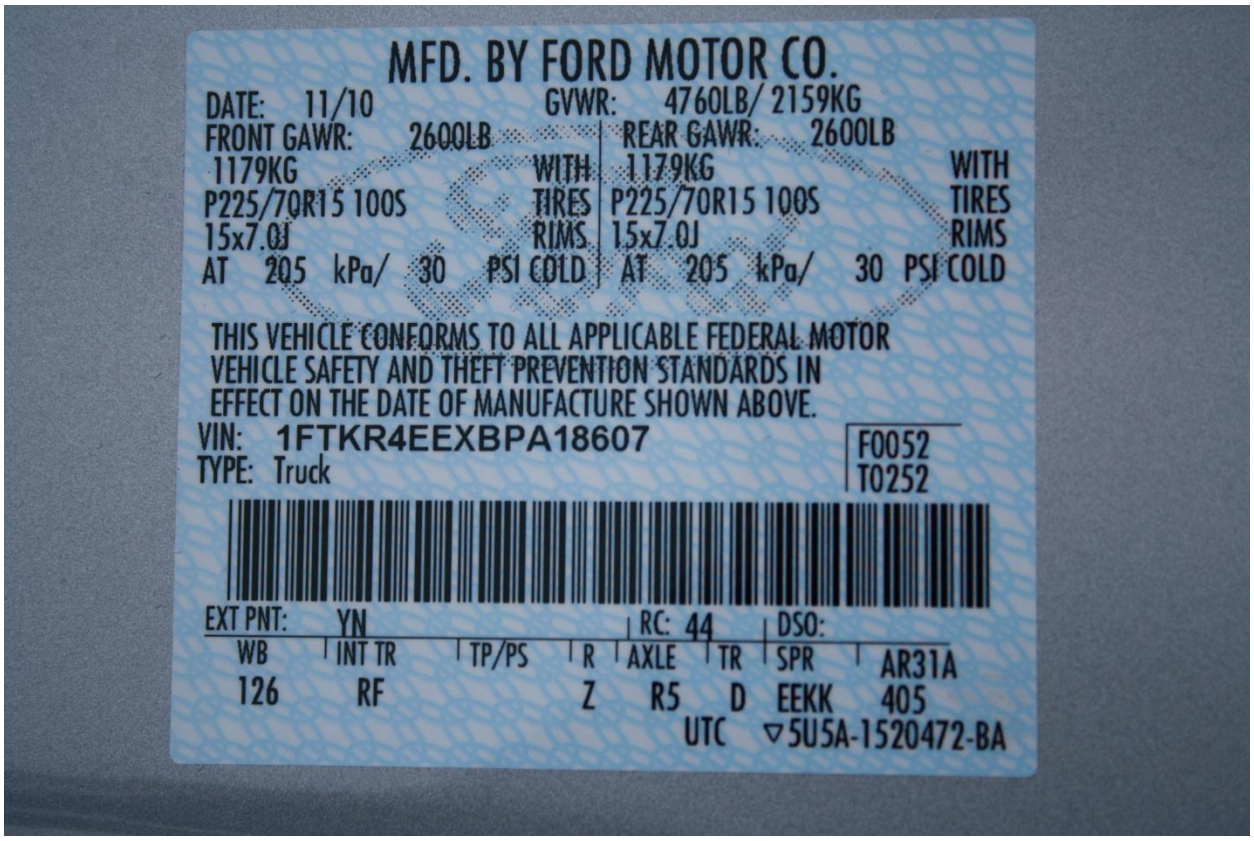


Figure A-53: Close-Up View of Vehicle's Certification Label

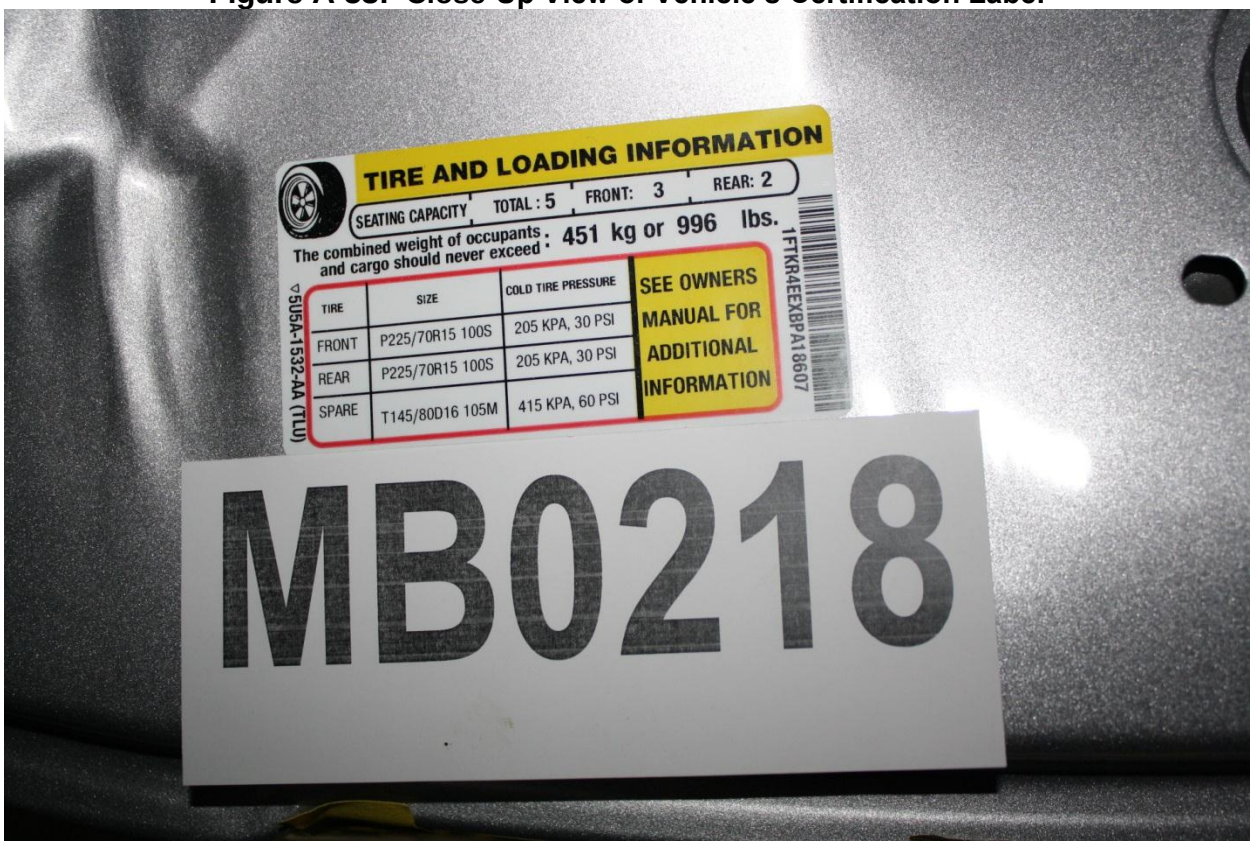


Figure A-54: Close-Up View of Vehicle's Tire Information Placard or Label

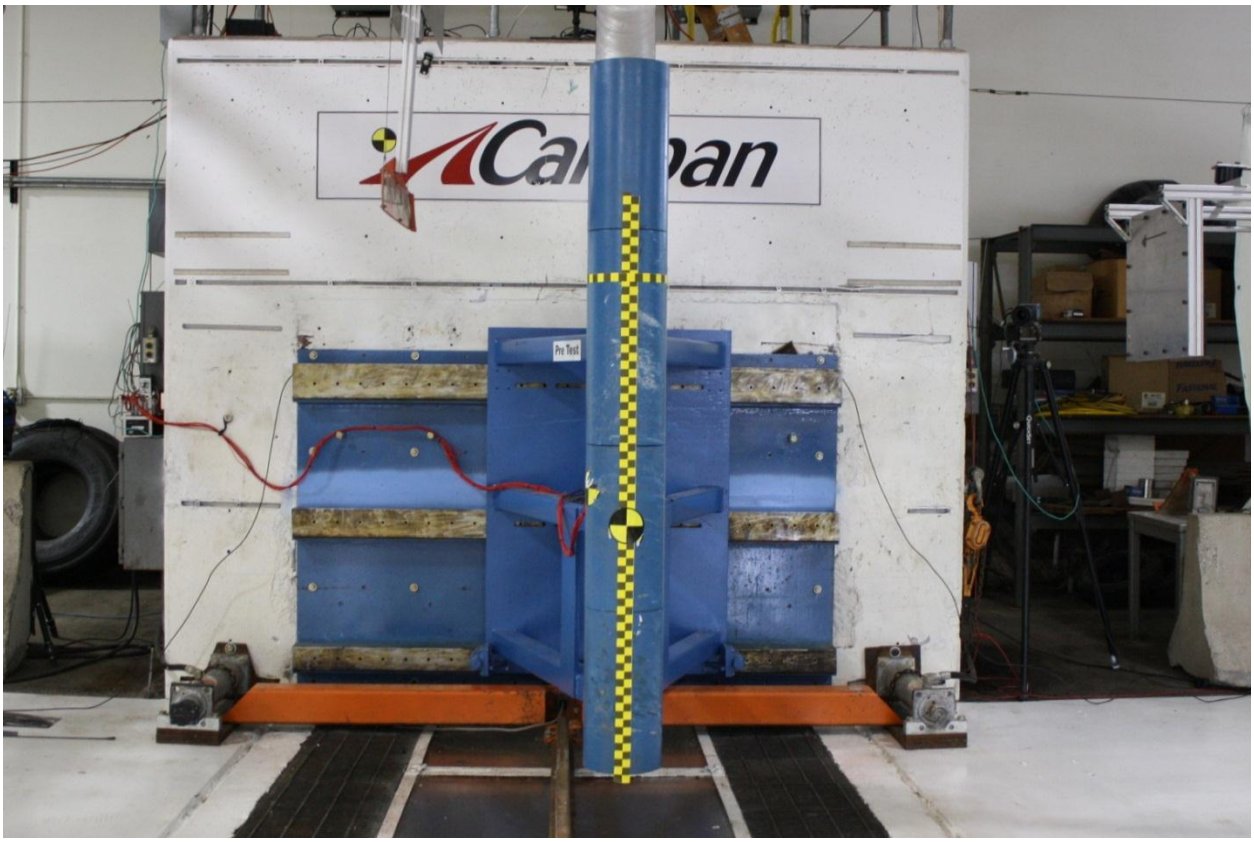


Figure A-55: Pre-Test Pole Barrier Front View

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

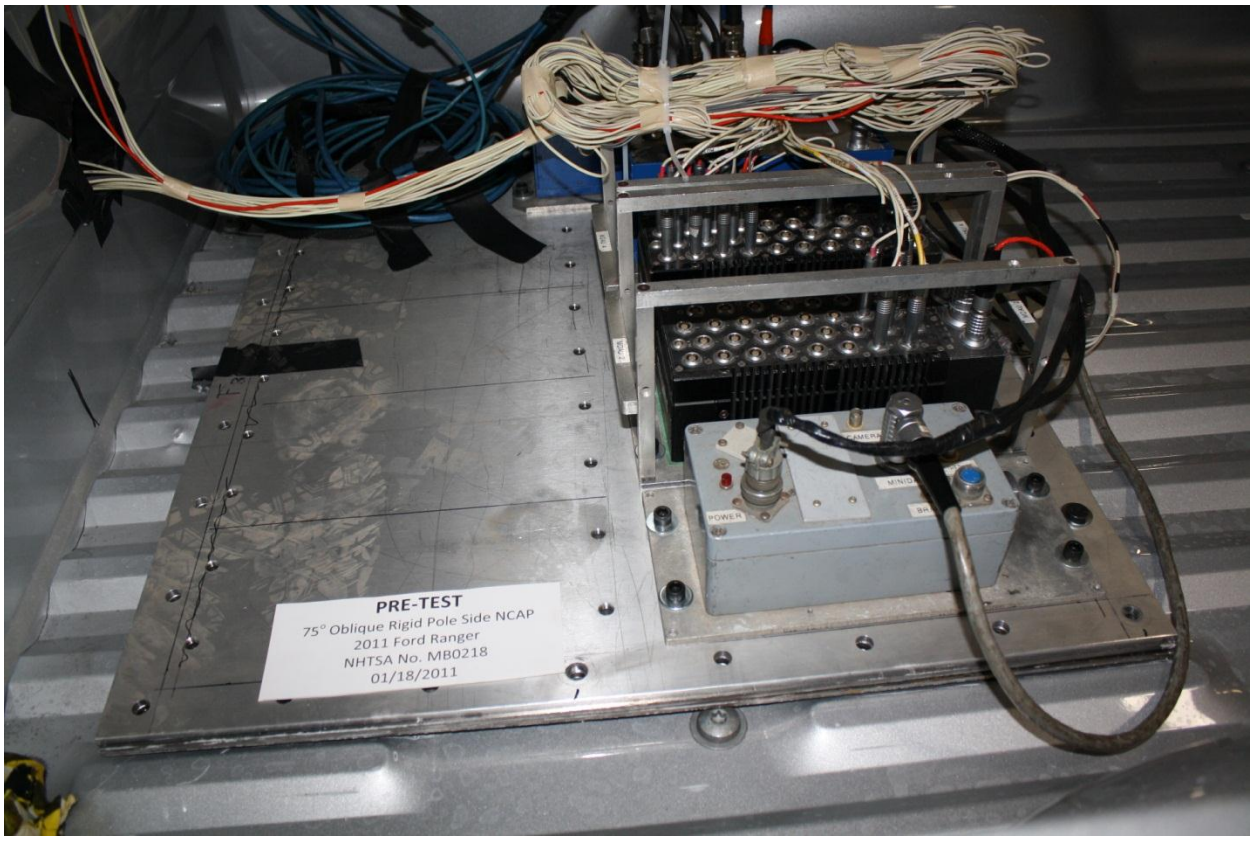


Figure A-59: Pre-Test Ballast View

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

Figure A-67: Monroney Label

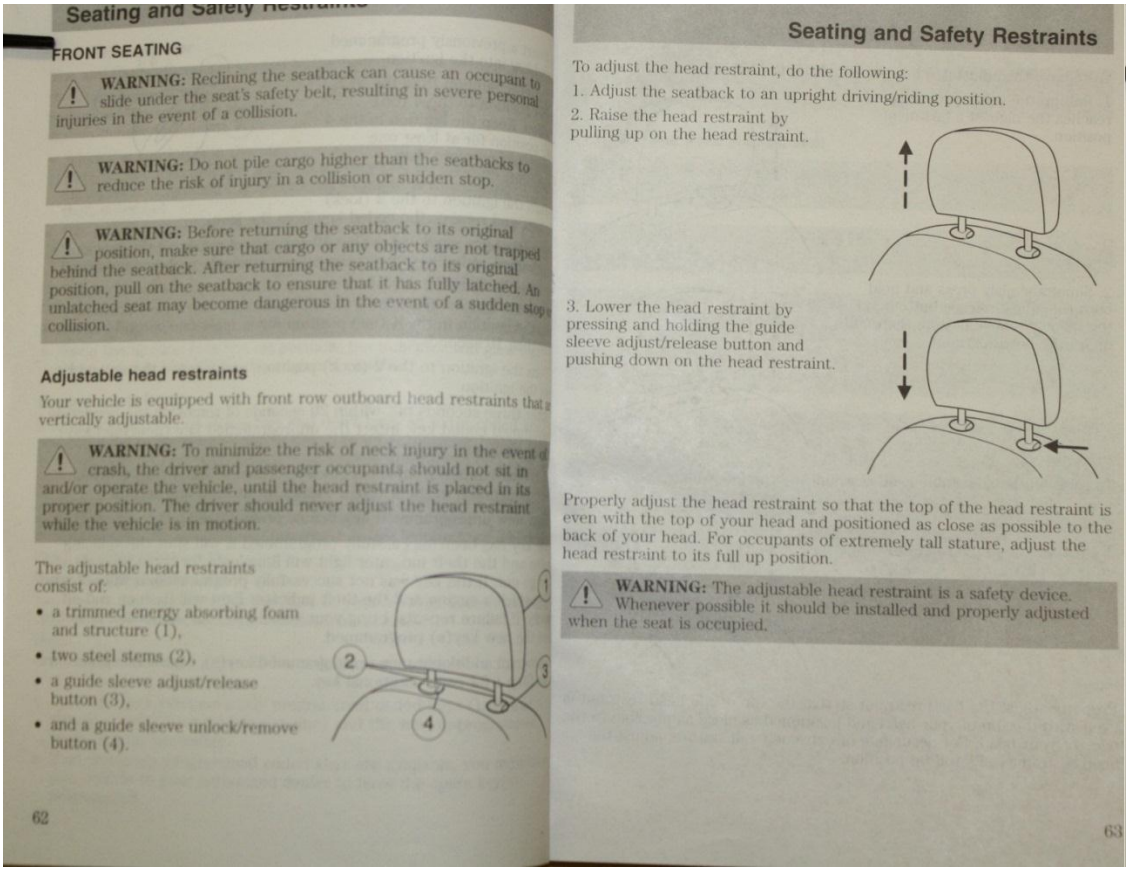


Figure A-68: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

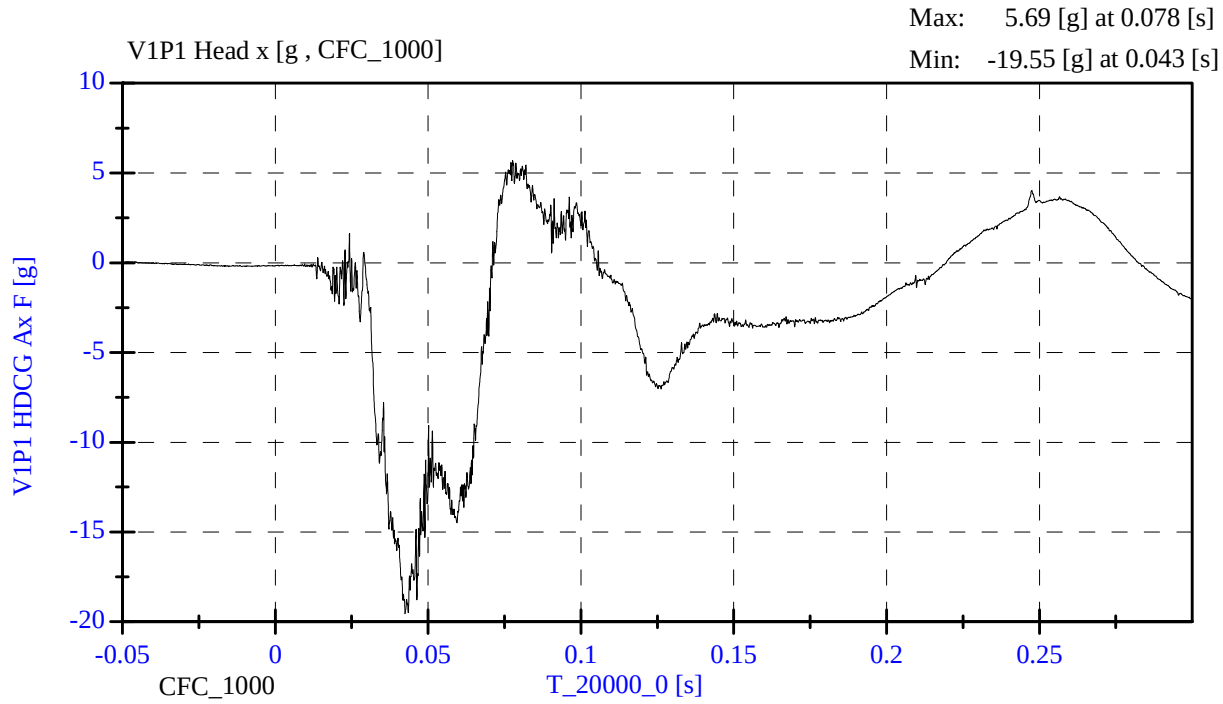
Vehicle Instrumentation Data

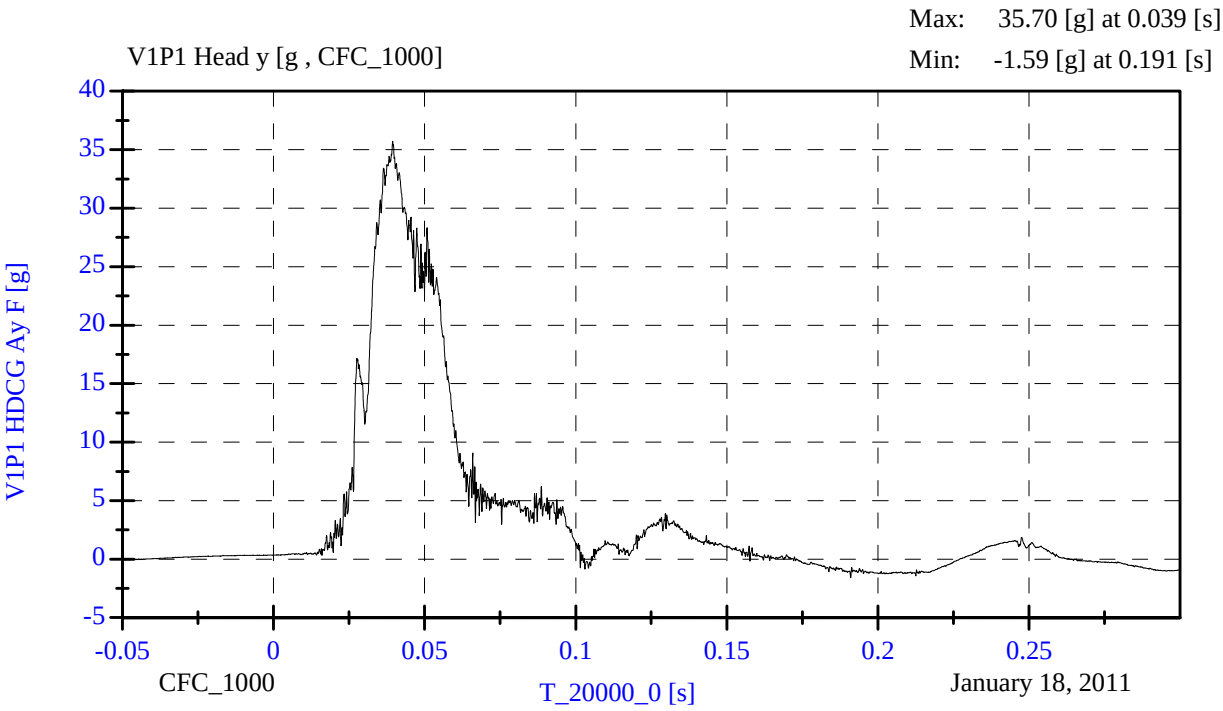
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)
Left Floor 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

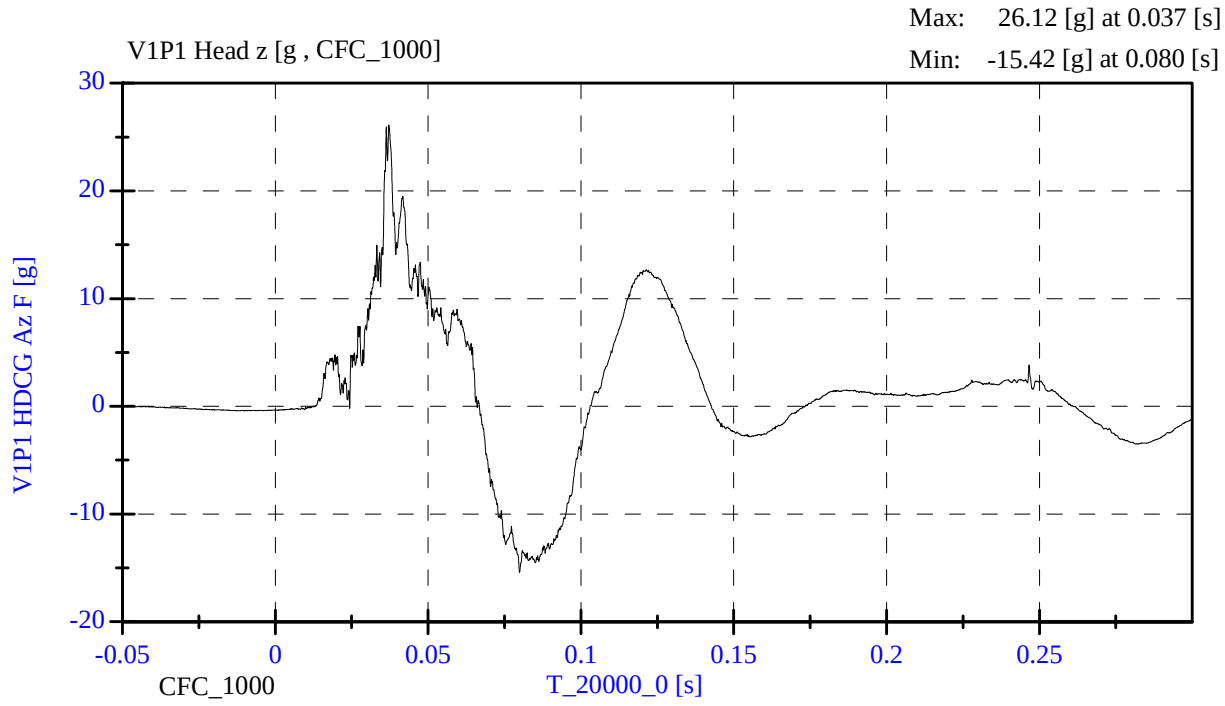
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

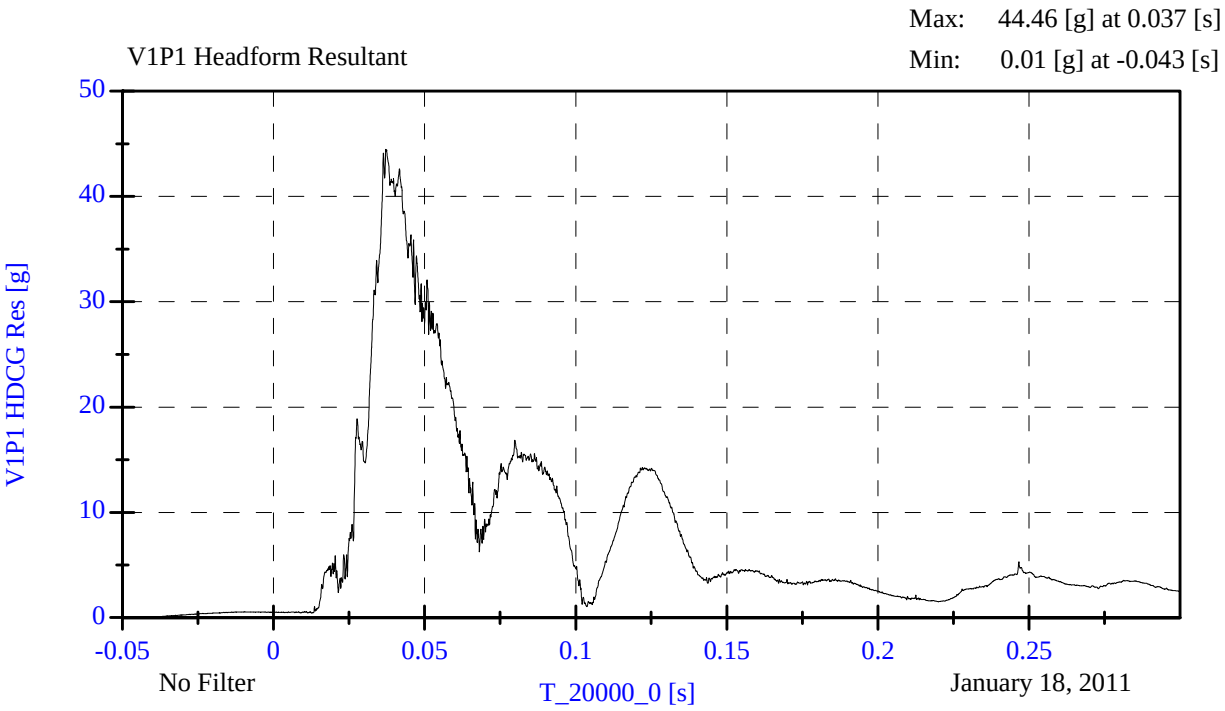
2011 Ford Ranger SPNCAP



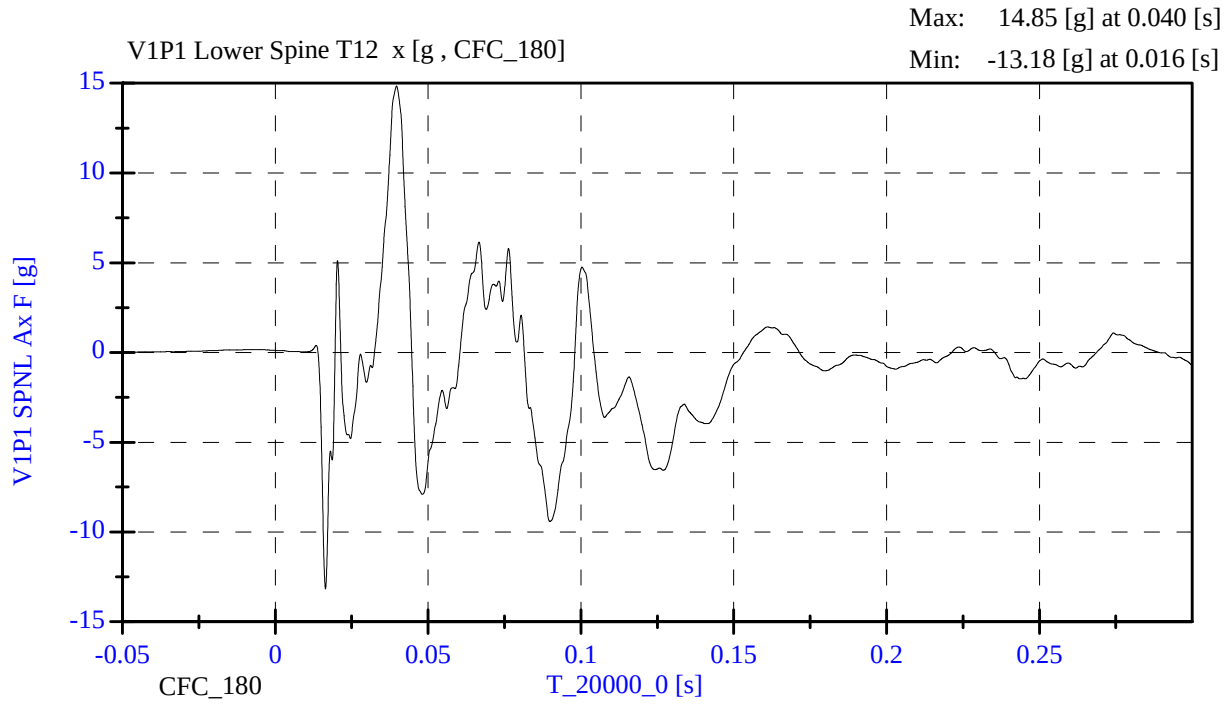


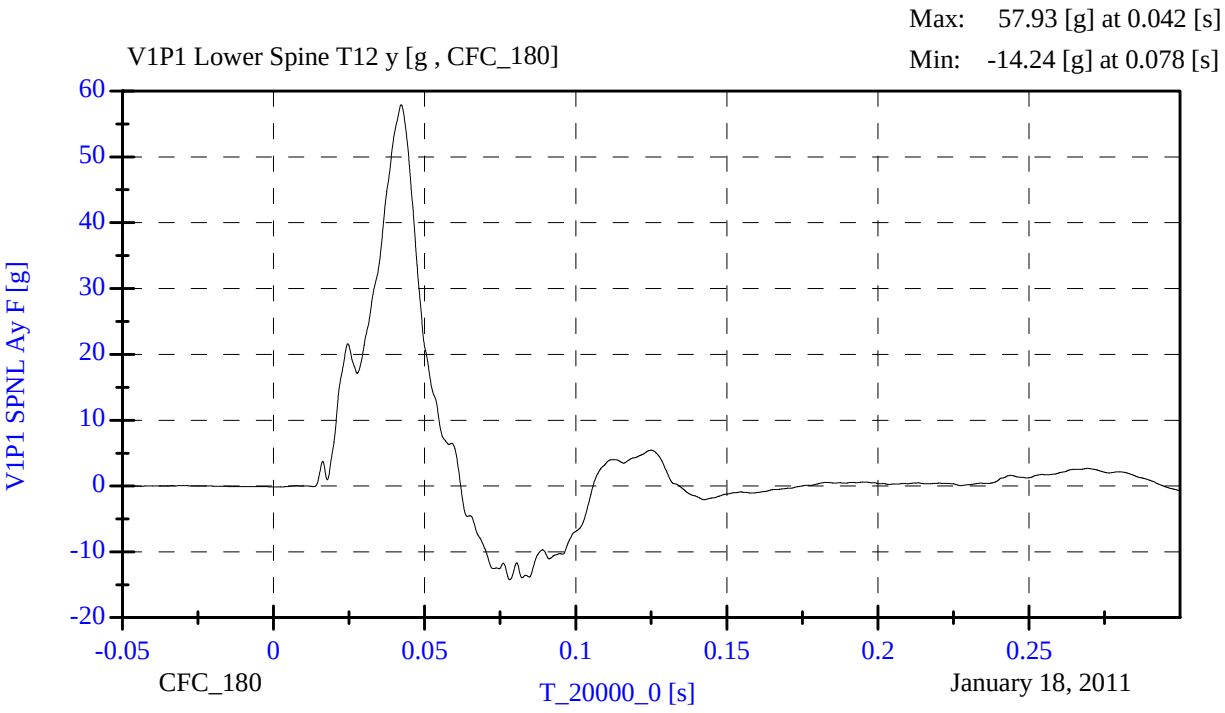
2011 Ford Ranger SPNCAP



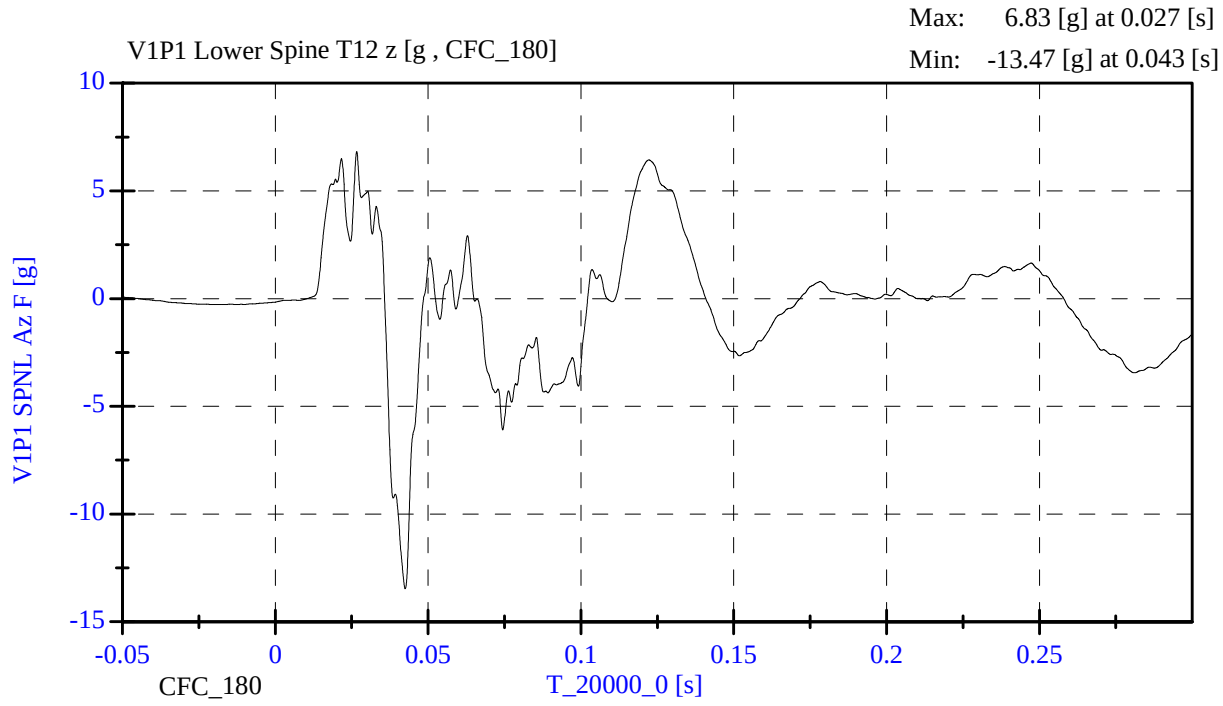


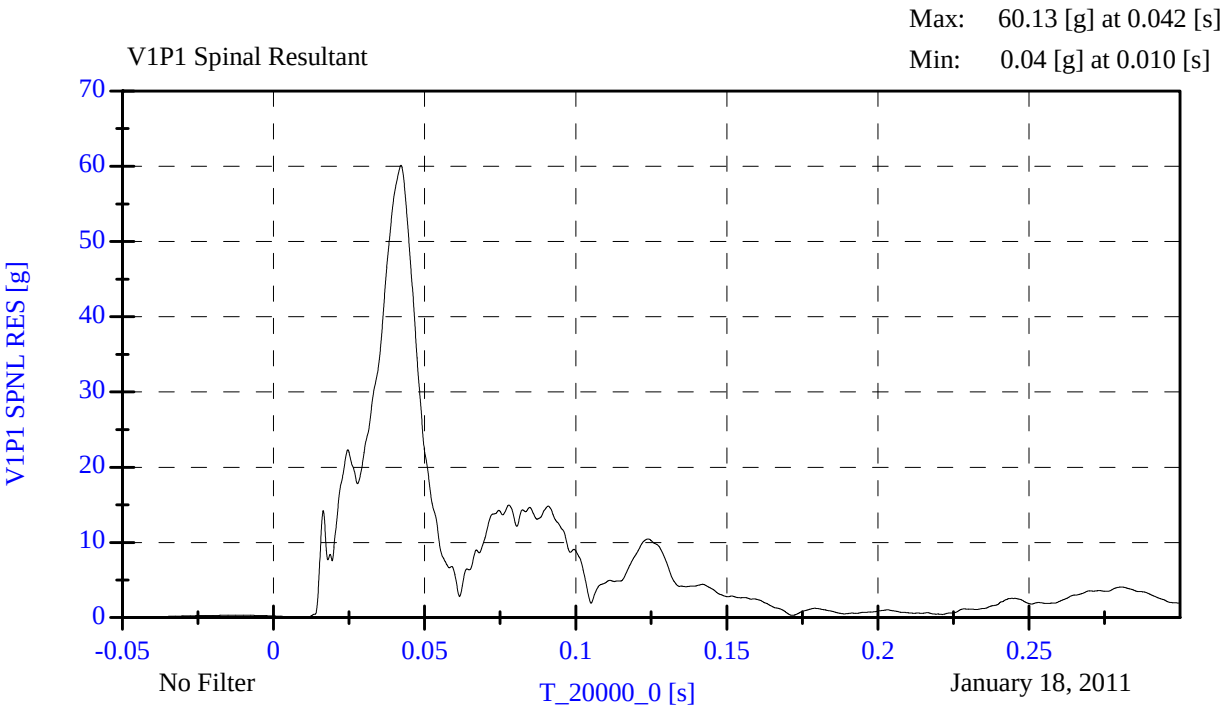
2011 Ford Ranger SPNCAP





2011 Ford Ranger SPNCAP

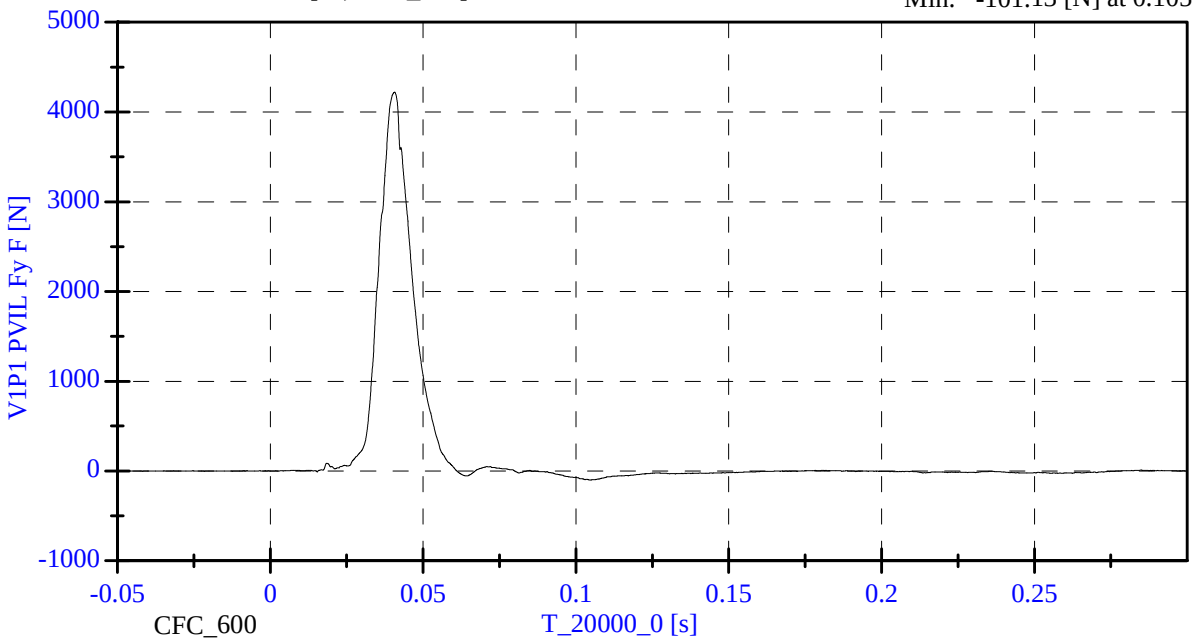




2011 Ford Ranger SPNCAP

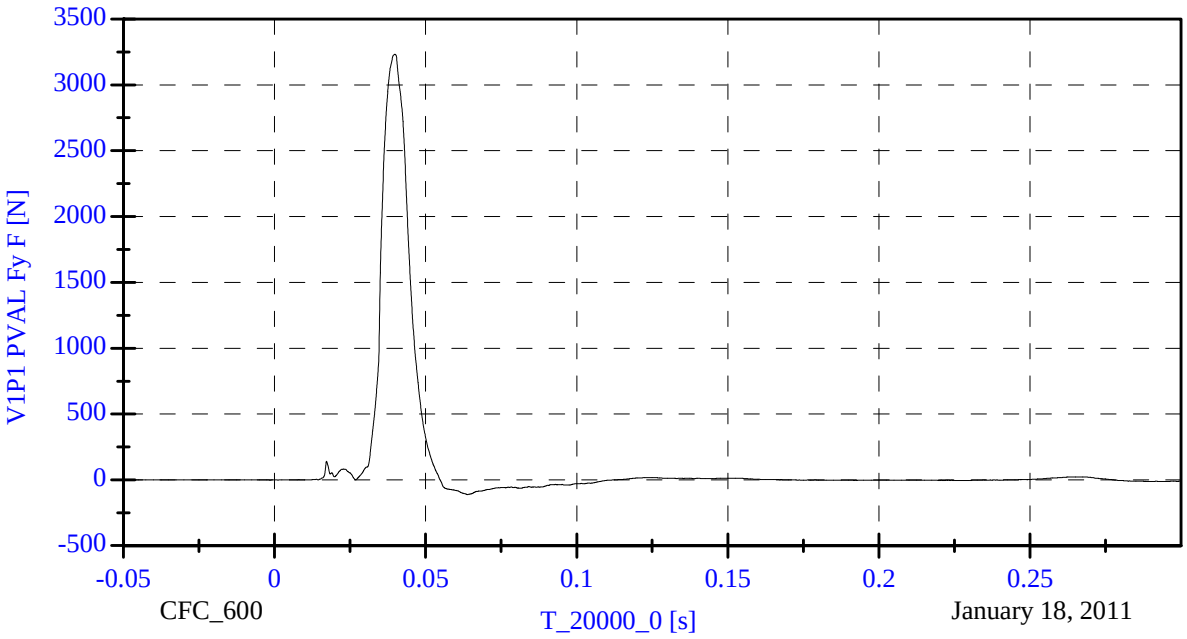
Max: 4222.78 [N] at 0.041 [s]
Min: -101.13 [N] at 0.105 [s]

V1P1 Iliac Force [N , CFC_600]



Max: 3233.09 [N] at 0.040 [s]
Min: -111.55 [N] at 0.064 [s]

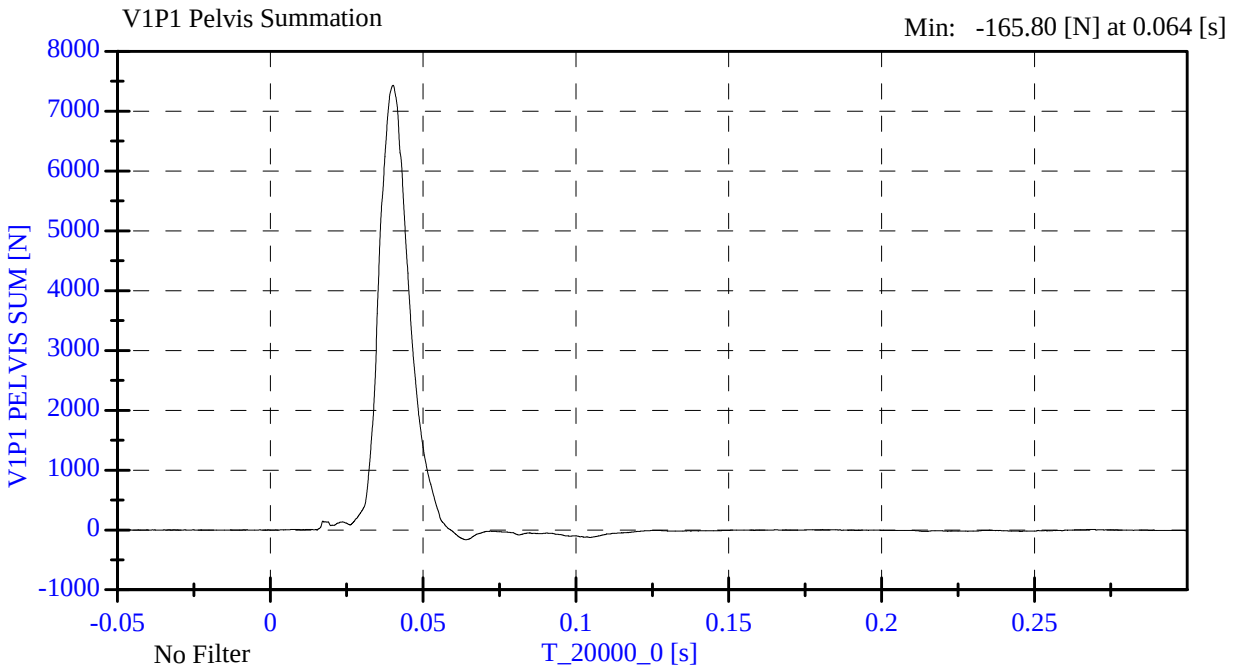
V1P1 Acetabulum Force [N , CFC_600]



2011 Ford Ranger SPNCAP

Max: 7430.37 [N] at 0.040 [s]

Min: -165.80 [N] at 0.064 [s]



January 18, 2011

APPENDIX C

DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 304

CONFIGURED FOR LEFT SIDE IMPACT

Calspan - Transportation Research Group
www.calspan.com
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

SID-IIsD External Measurements

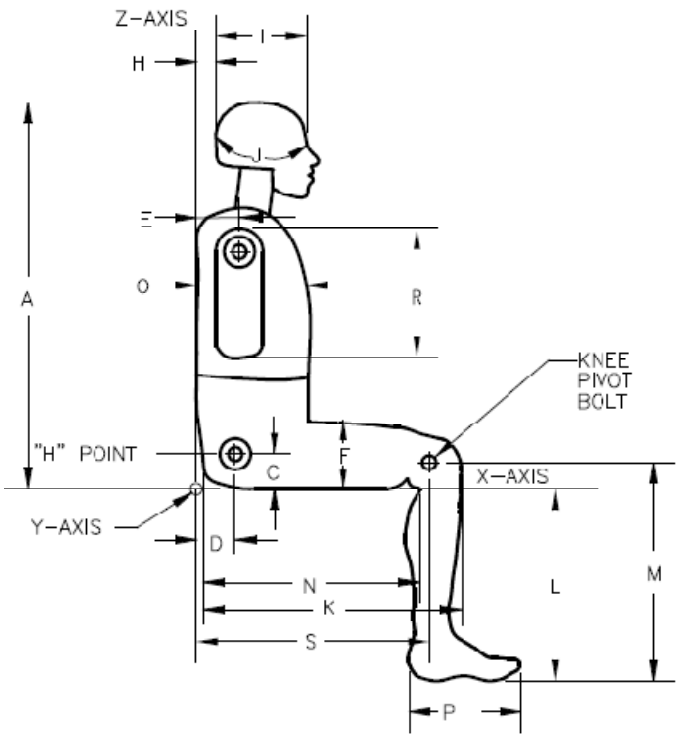
NHTSA ATD S/N 304

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	778	Yes
B	Shoulder Pivot Height	437.0 - 453.0	439	Yes
C	H-Point Height	79.0 - 89.0	83	Yes
D	H-Point from Seat Back	141.0 - 151.0	143	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	100	Yes
F	Thigh Clearance	119.0 - 135.0	126	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	528	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	398	Yes
N	Buttock Popliteal Length	416.0 - 442.0	426	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	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	318	Yes
R	Arm Length	249.0 - 259.0	251	Yes
S	Knee Joint to Seat back	478.0 - 493.0	481	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	353	Yes
W	Foot Width (right)	78.0 - 94.0	80	Yes
W	Foot Width (left)	78.0 - 94.0	80	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	857	Yes
Z	Waist Circumference	761.0 - 791.0	766	Yes

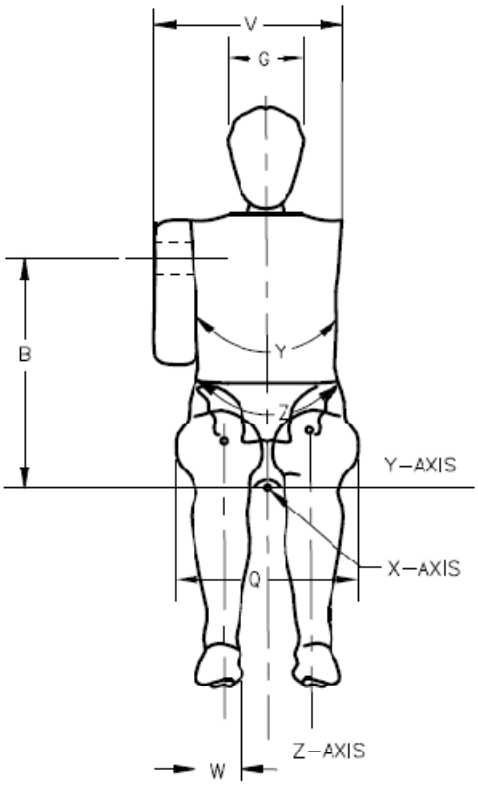
Technician: AR

Date: 12/21/2011

SID-IIsD External Dimension Reference Diagram



SIDE VIEW



FRONT VIEW

Calspan - Transportation Research Group
www.calspan.com
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Head Drop**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**8:43:07 PM**

Component Part Number	Component Serial Number
Head Skin - 180-1002	**1371**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**27**	%RH	P
Resultant Acceleration	115.0	--	137.0	**115.2**	g	P
Oscillation	0.0	--	15.0	**2.5**	%	P
Fore-Aft Acceleration	-15.0	--	15.0	**3.2**	g	P

All test parameters are within specifications

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

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

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www.calspan.com
4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
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: **8:43:07 PM** Test Date: **12/21/2010**

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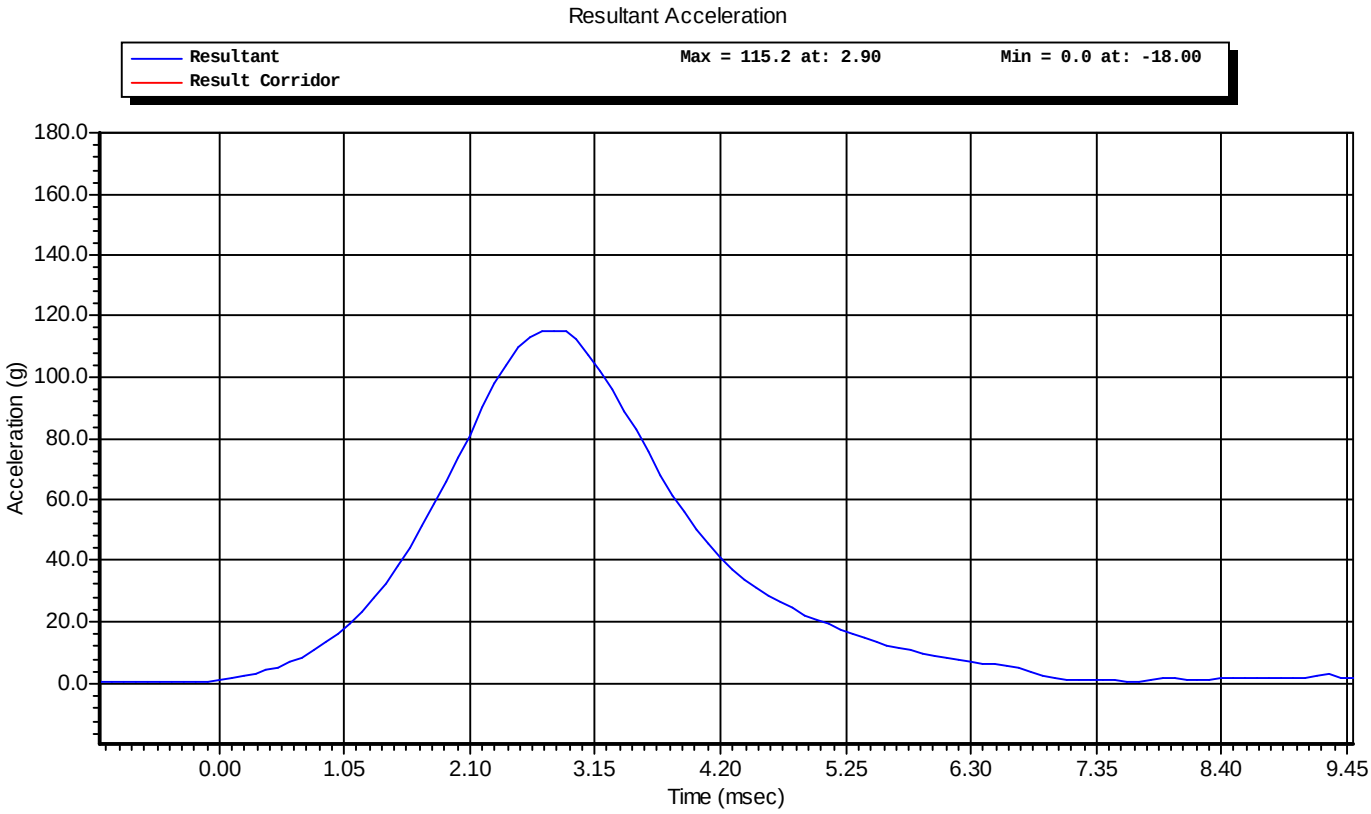
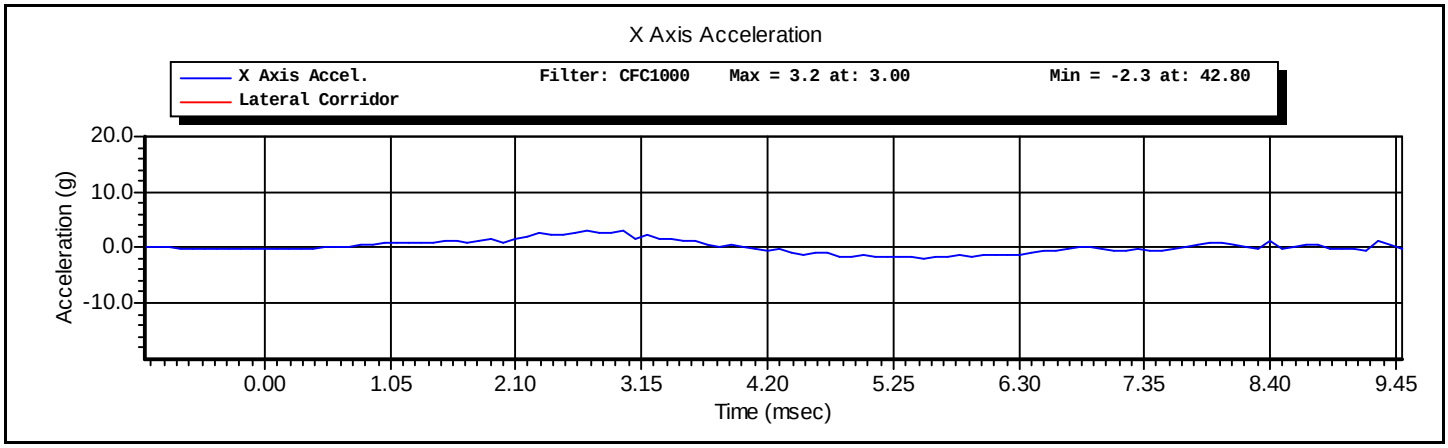
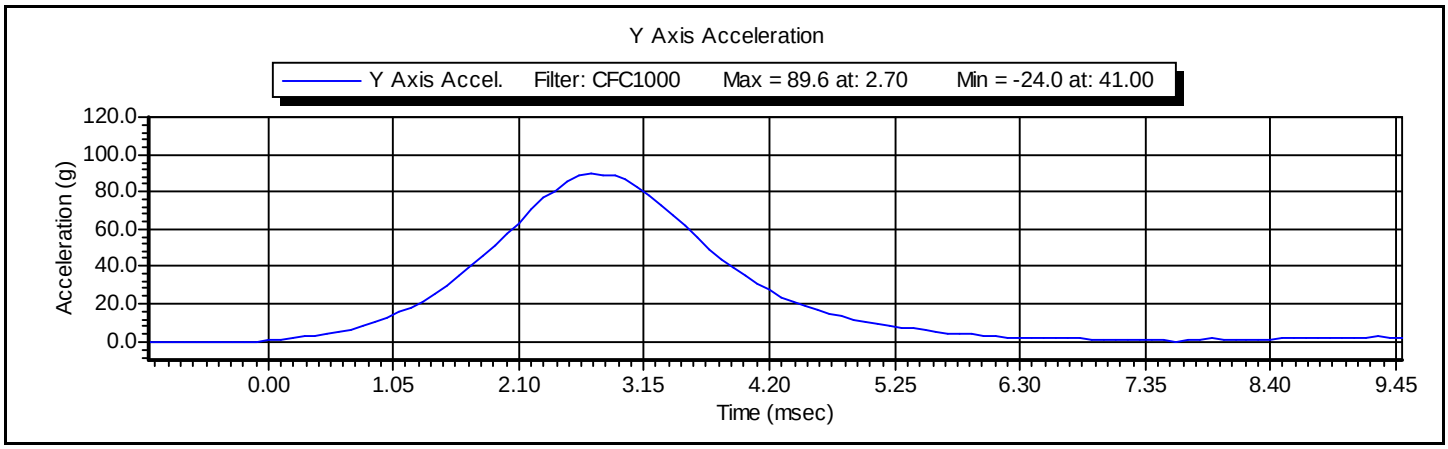
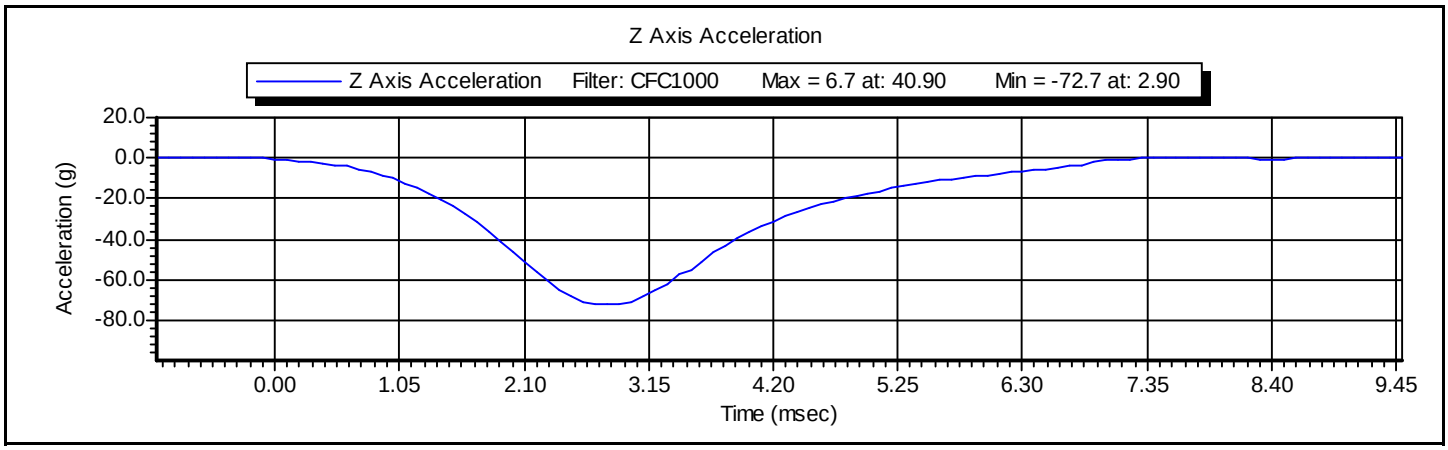
Test Name:	**Head Drop**	Revision:	**12/14/2006**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Head Drop**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**8:43:07 PM**









Test ID: **Head Drop** Test Time: **8:43:07 PM** Test Date: **12/21/2010**

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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 304**		
Test ID:	**Neck Flexion**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**8:15:16 PM**

Component Part Number	Component Serial Number
Neck - 180-2000	**AB8239**

Test Parameters	Test Specifications	Test Results	
Temperature	20.6 -- 22.2	**22.2** deg C	P
Humidity	10 -- 70	**28** %RH	P
Velocity	5.51 -- 5.63	**5.56** m/s	P
Pendulum Impulse at 10 ms	2.20 -- 2.80	**2.45** m/s	P
Pendulum Impulse at 15 ms	3.30 -- 4.10	**3.58** m/s	P
Pendulum Impulse at 20 ms	4.40 -- 5.40	**4.88** m/s	P
Pendulum Impulse at 25 ms	5.40 -- 6.10	**5.79** 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	**73.9** degrees	P
Time at Max Rotation	50.0 -- 70.0	**61.8** ms	P
Moment about OC	-44.0 -- -36.0	**-41.3** Nm	P
Moment Decay to Zero	102.0 -- 126.0	**115.4** ms	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
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: **8:15:16 PM** Test Date: **12/21/2010**

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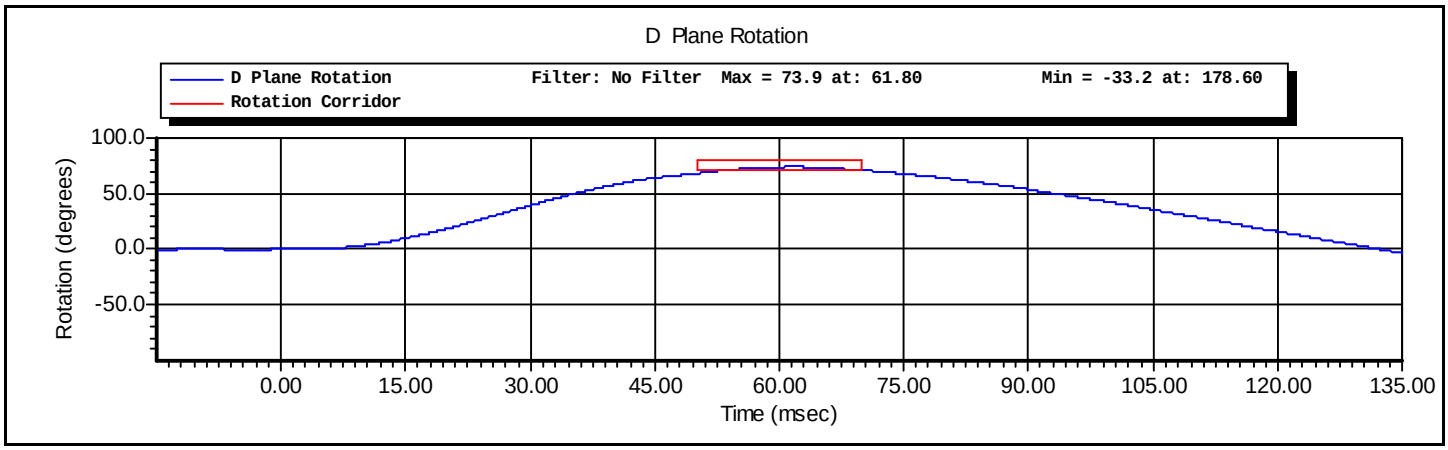
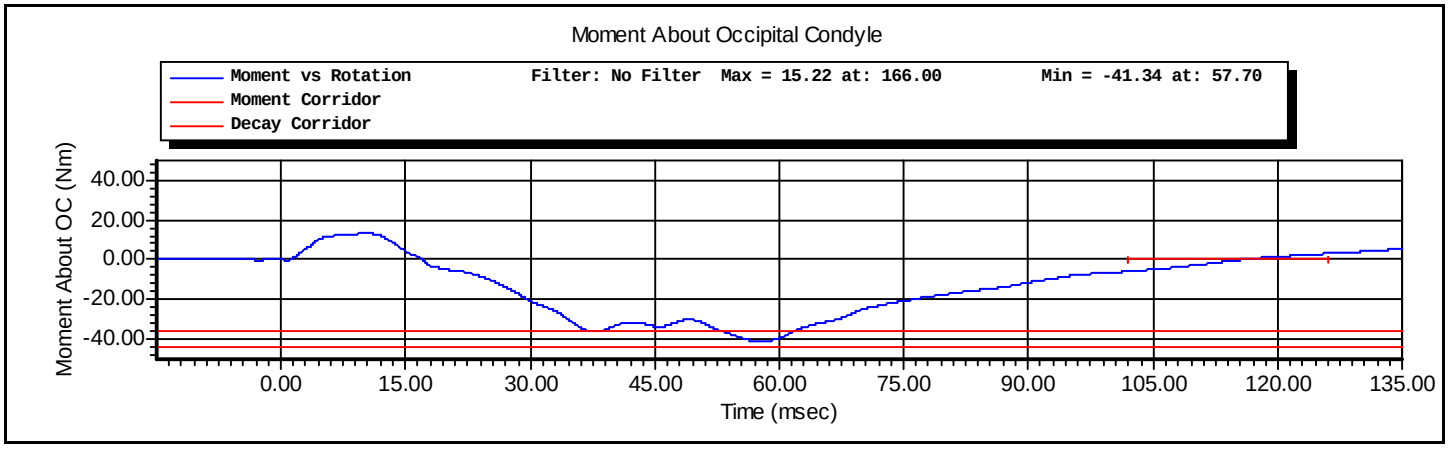
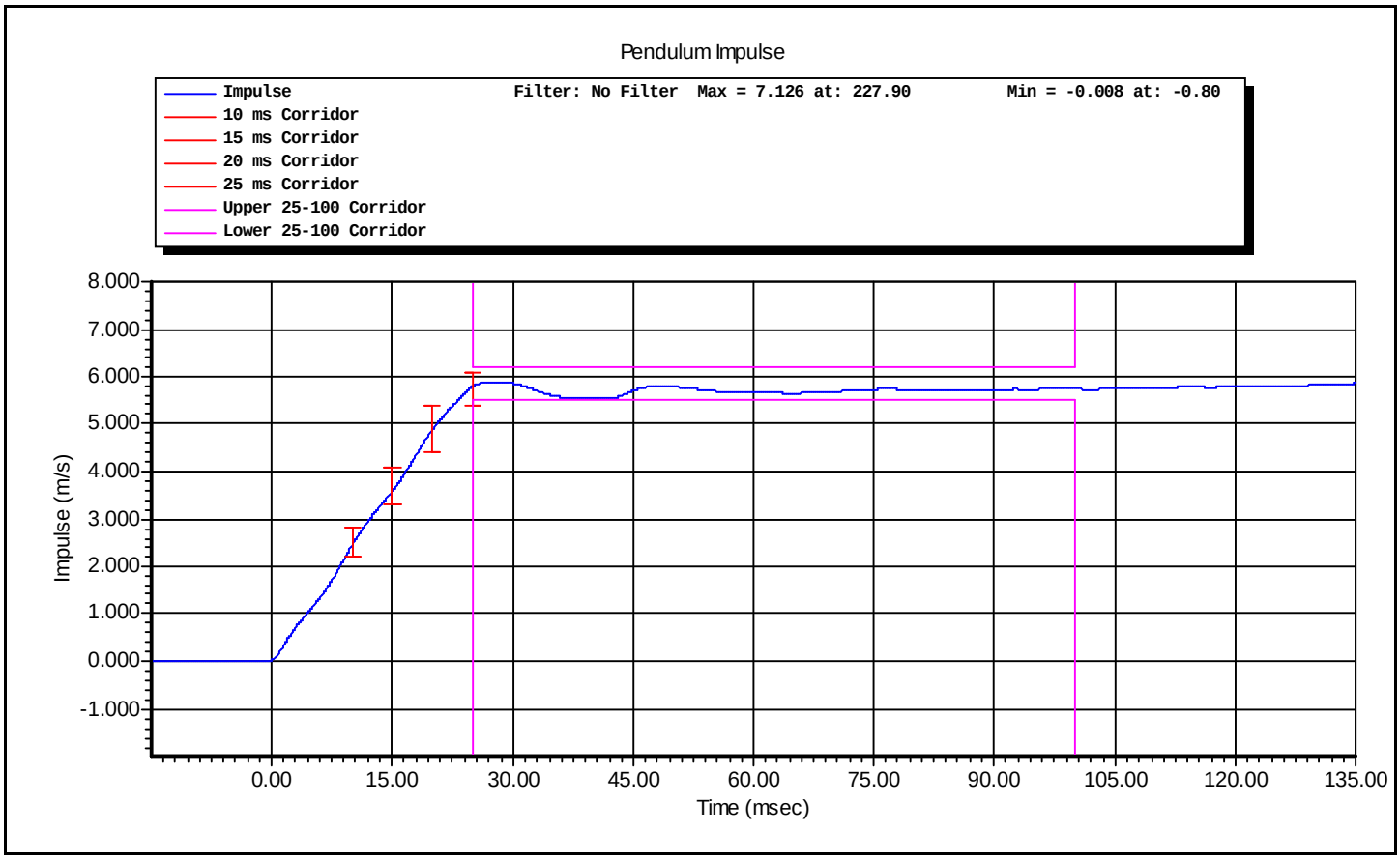
Test Name:	**Neck Pendulum**	Revision:	**8/24/2009**
Sub Test Name:	**Left Side**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Neck Flexion**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**8:15:16 PM**







Test ID: **Neck Flexion** Test Time: **8:15:16 PM** Test Date: **12/21/2010**

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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 304**		
Test ID:	**Shoulder**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**6:24:47 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.20**	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	**16.2**	g	P
Shoulder Deflection	28.0	--	37.0	**30.3**	mm	P
T1 Acceleration	17.0	--	22.0	**18.9**	g	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1154**	**3/26/2010**
Endevco	**7264-2000**	**P52415**	**10/12/2010**

Test ID: **Shoulder** Test Time: **6:24:47 PM** Test Date: **12/21/2010**

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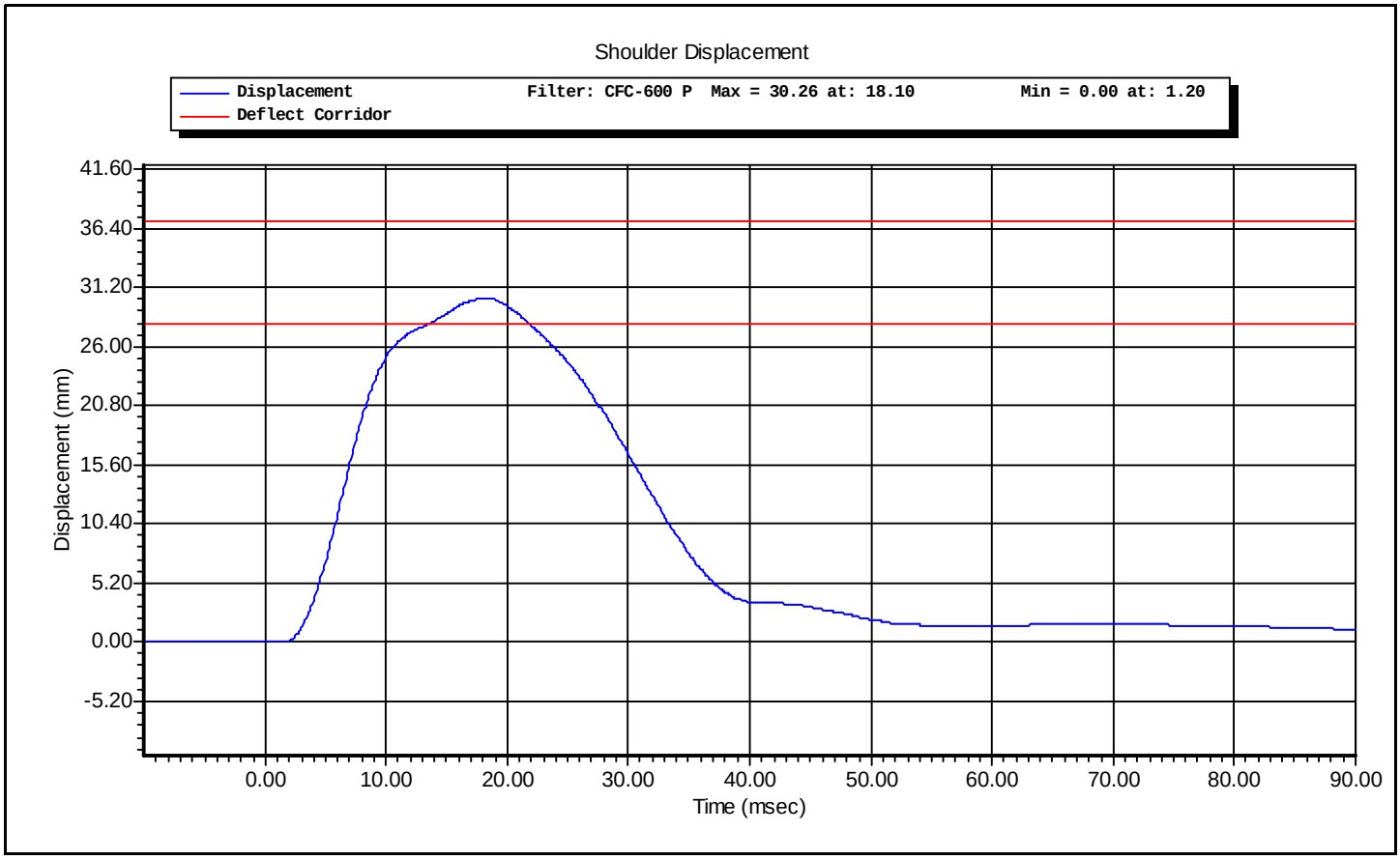
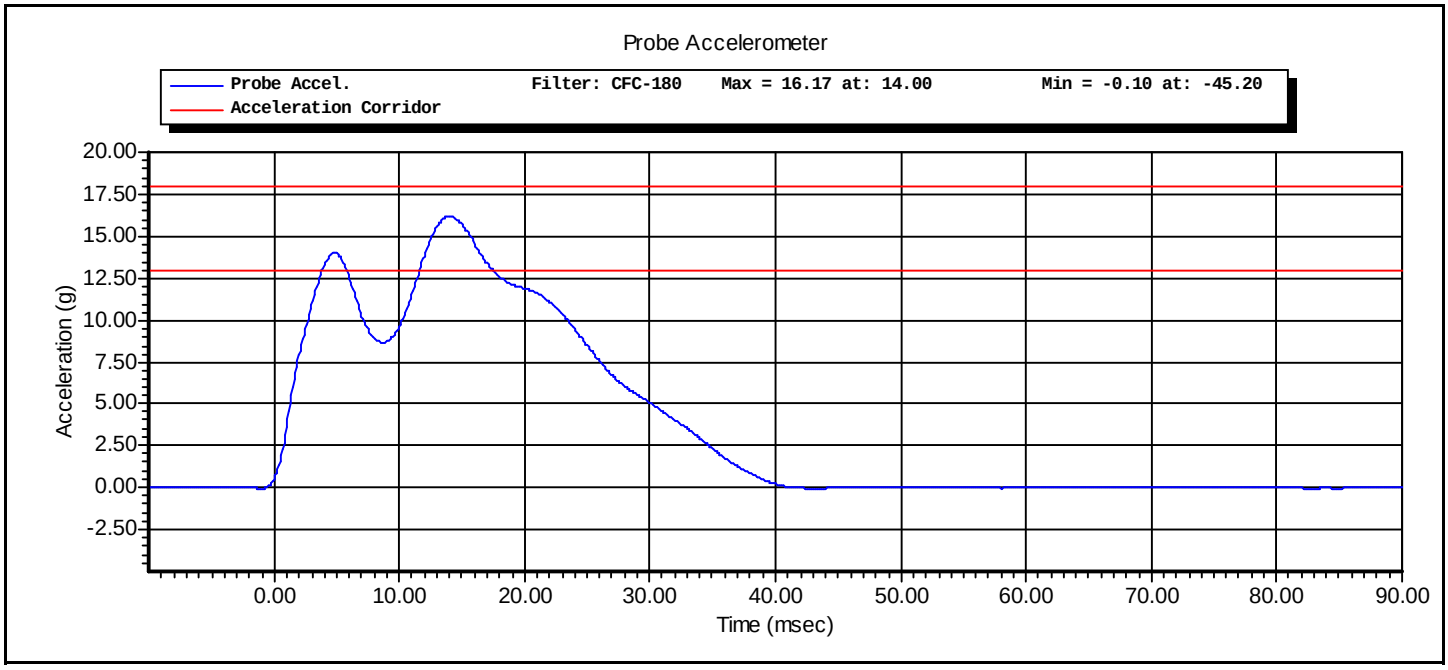
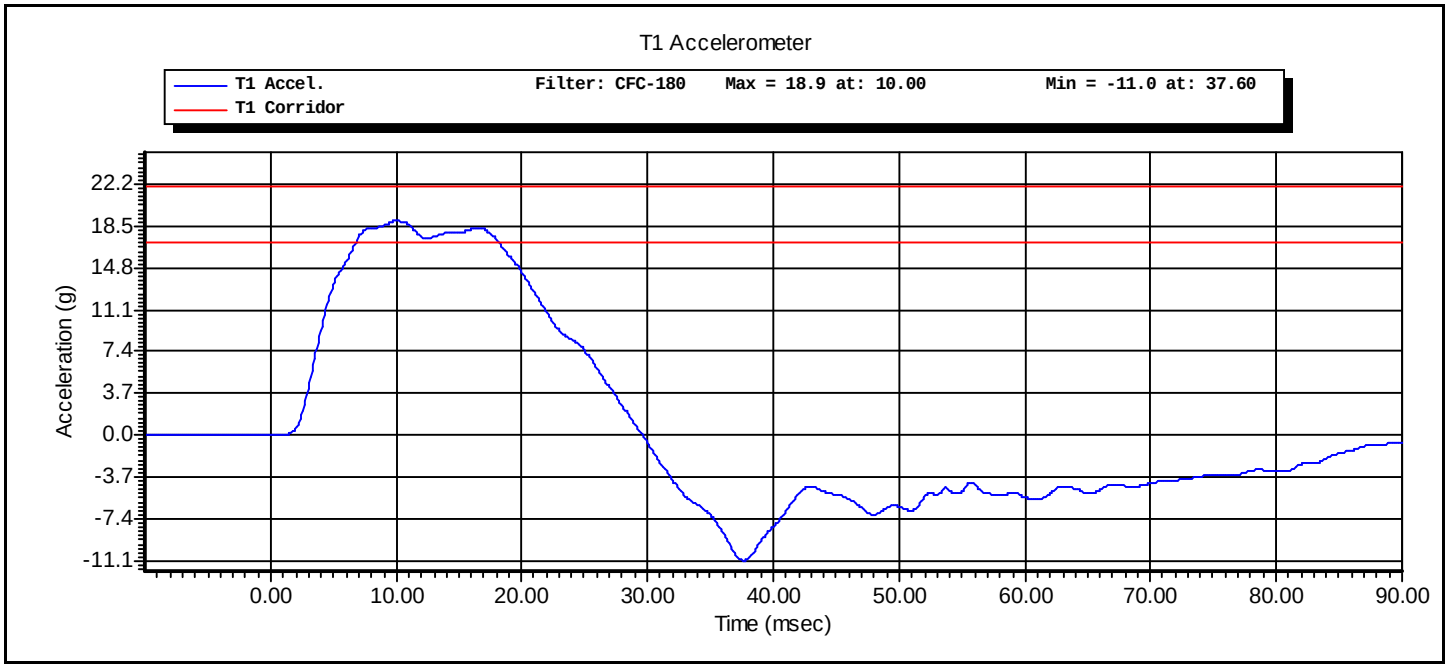
Test Name:	**Shoulder Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Shoulder**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**6:24:47 PM**







Test ID: **Shoulder** Test Time: **6:24:47 PM** Test Date: **12/21/2010**

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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 304**		
Test ID:	**Thorax With Arm**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**7:24:45 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**29**	%RH	P
Velocity	6.60	--	6.80	**6.74**	m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	**34.9**	g	P
Upper Thorax Rib Deflection	25.0	--	32.0	**28.1**	mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	**31.7**	mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	**33.7**	mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	**42.0**	g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	**35.5**	g	P
Shoulder Deflection	31.0	--	40.0	**35.6**	mm	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1188**	**3/26/2010**
Servo	**180-3885**	**DS-1269**	**3/26/2010**
Servo	**180-3885**	**DS-1260**	**3/26/2010**
Endevco	**7264-2000**	**P52415**	**10/12/2010**
Endevco	**7264-2000**	**P58839**	**10/14/2010**
Servo	**180-3885**	**DS-1154**	**3/26/2010**

Test ID: **Thorax With Arm** Test Time: **7:24:45 PM** Test Date: **12/21/2010**

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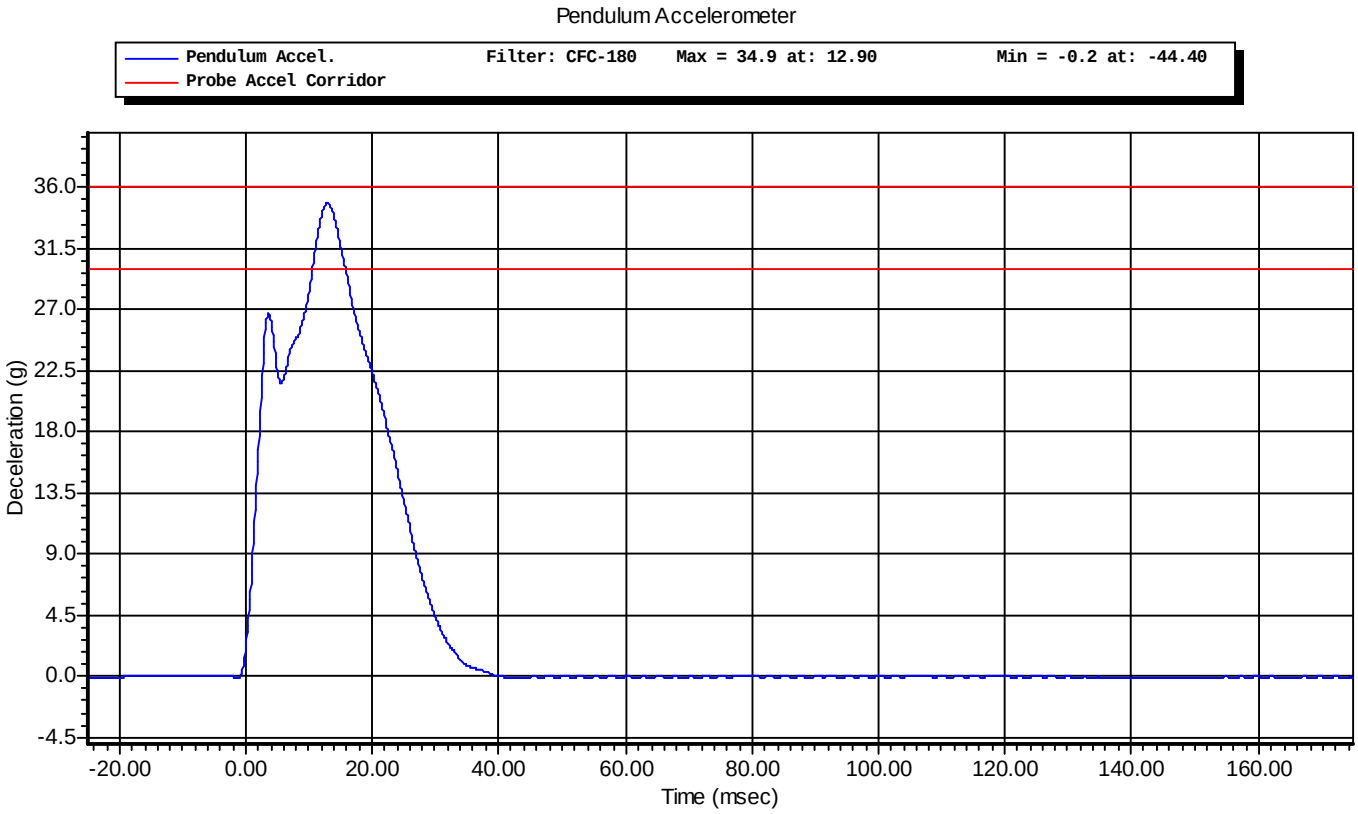
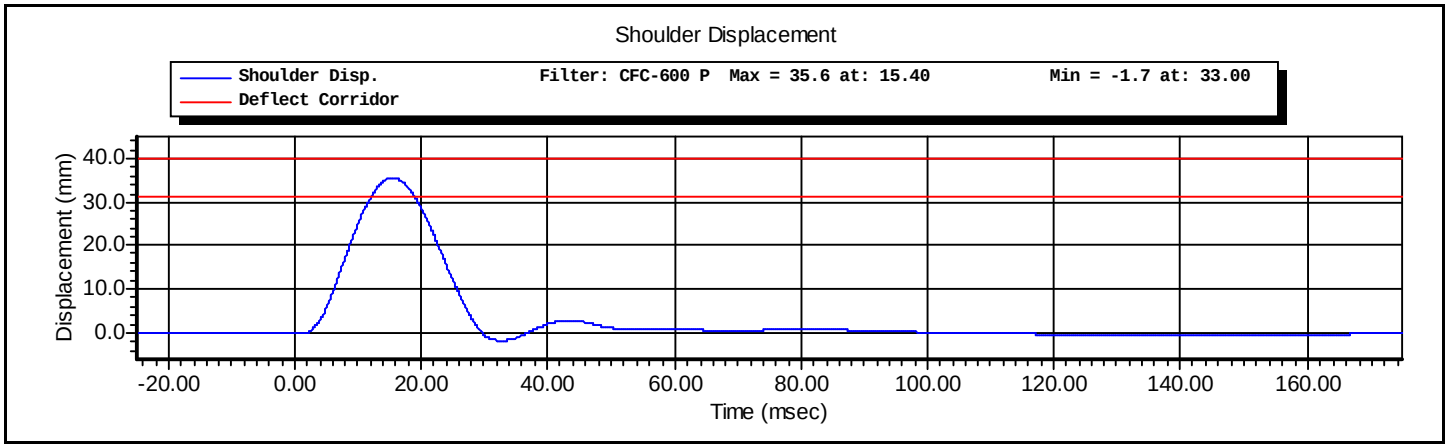
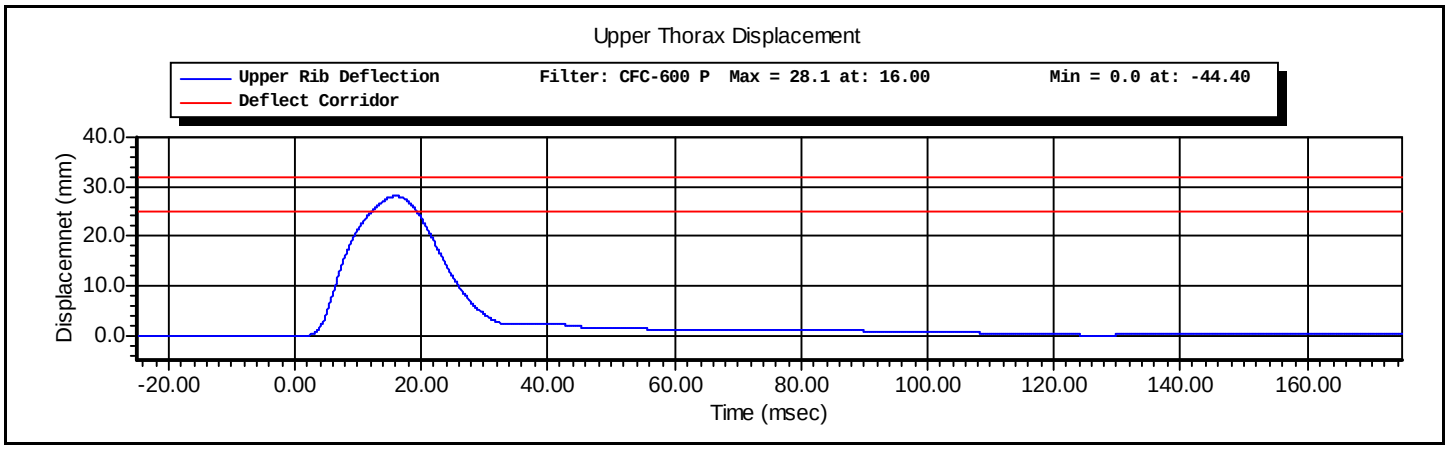
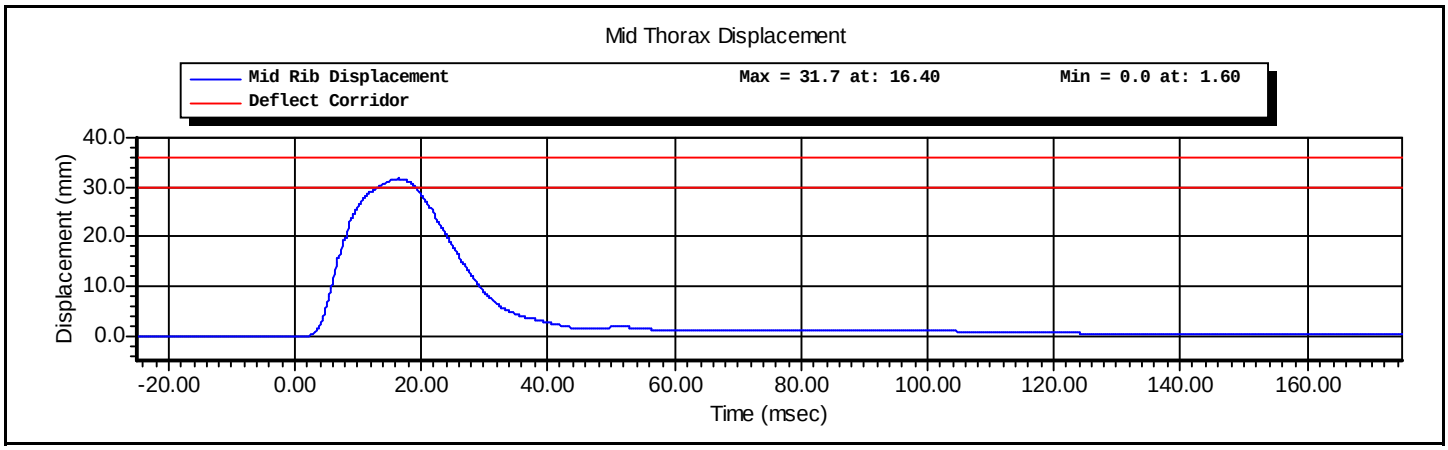
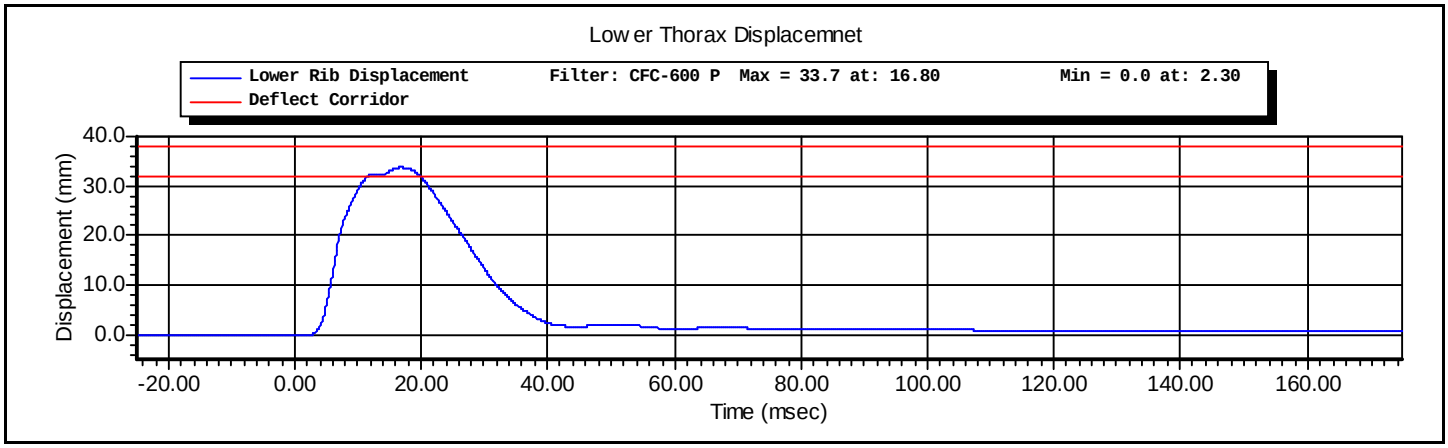
Test Name:	**Thorax Impact with Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Thorax With Arm**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**7:24:45 PM**

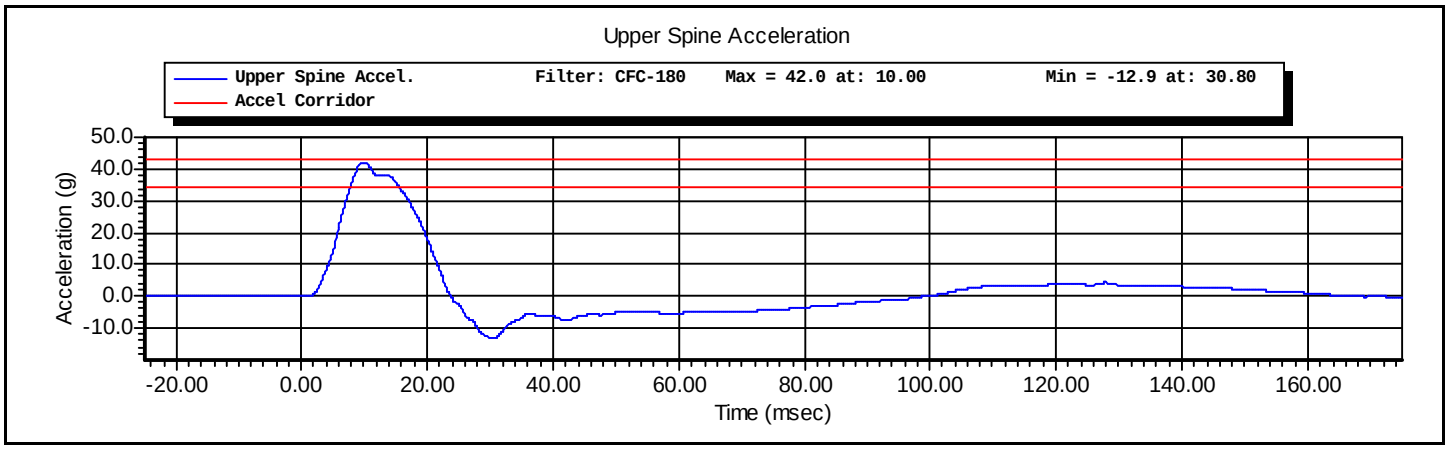


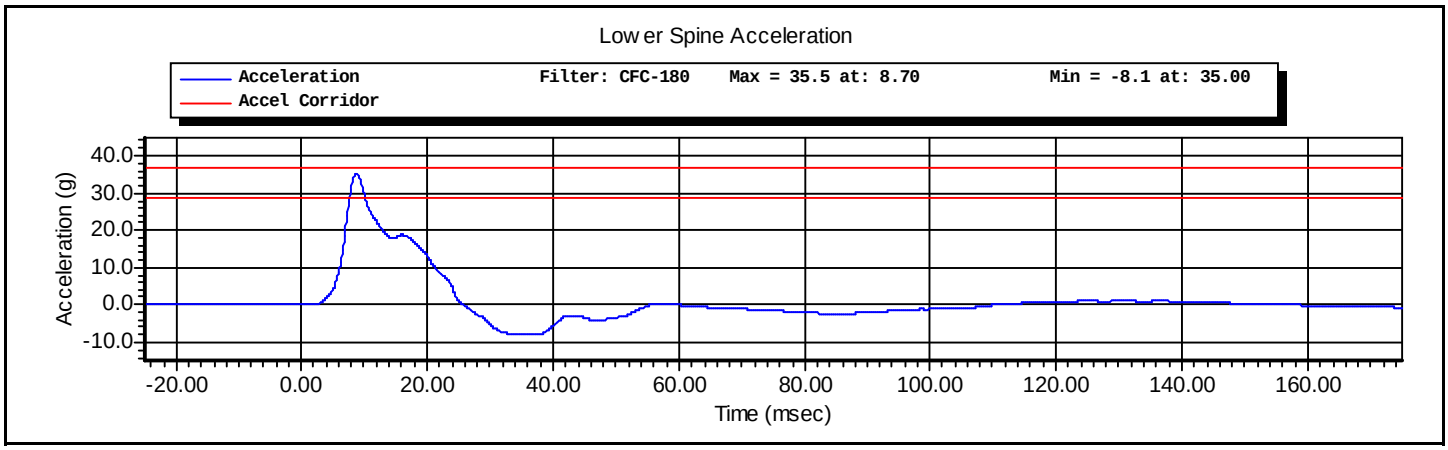












Test ID: **Thorax With Arm** Test Time: **7:24:45 PM** Test Date: **12/21/2010**

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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:	**SID 304**		
Test ID:	**Thorax Without Arm**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**6:54:56 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**31**	%RH	P
Velocity	4.20	--	4.40	**4.34**	m/s	P
Probe Acceleration	14.0	--	18.0	**17.0**	g	P
Upper Thorax Rib Deflection	32.0	--	40.0	**36.8**	mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	**41.8**	mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	**38.9**	mm	P
Upper Spine Acceleration T1	13.0	--	17.0	**16.6**	g	P
Lower Spine Acceleration T12	7.0	--	11.0	**10.1**	g	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1188**	**3/26/2010**
Servo	**180-3885**	**DS-1269**	**3/26/2010**
Servo	**180-3885**	**DS-1260**	**3/26/2010**
Endevco	**7264-2000**	**P52415**	**10/12/2010**
Endevco	**7264-2000**	**P58839**	**10/14/2010**

Test ID: **Thorax Without Arm** Test Time: **6:54:56 PM** Test Date: **12/21/2010**

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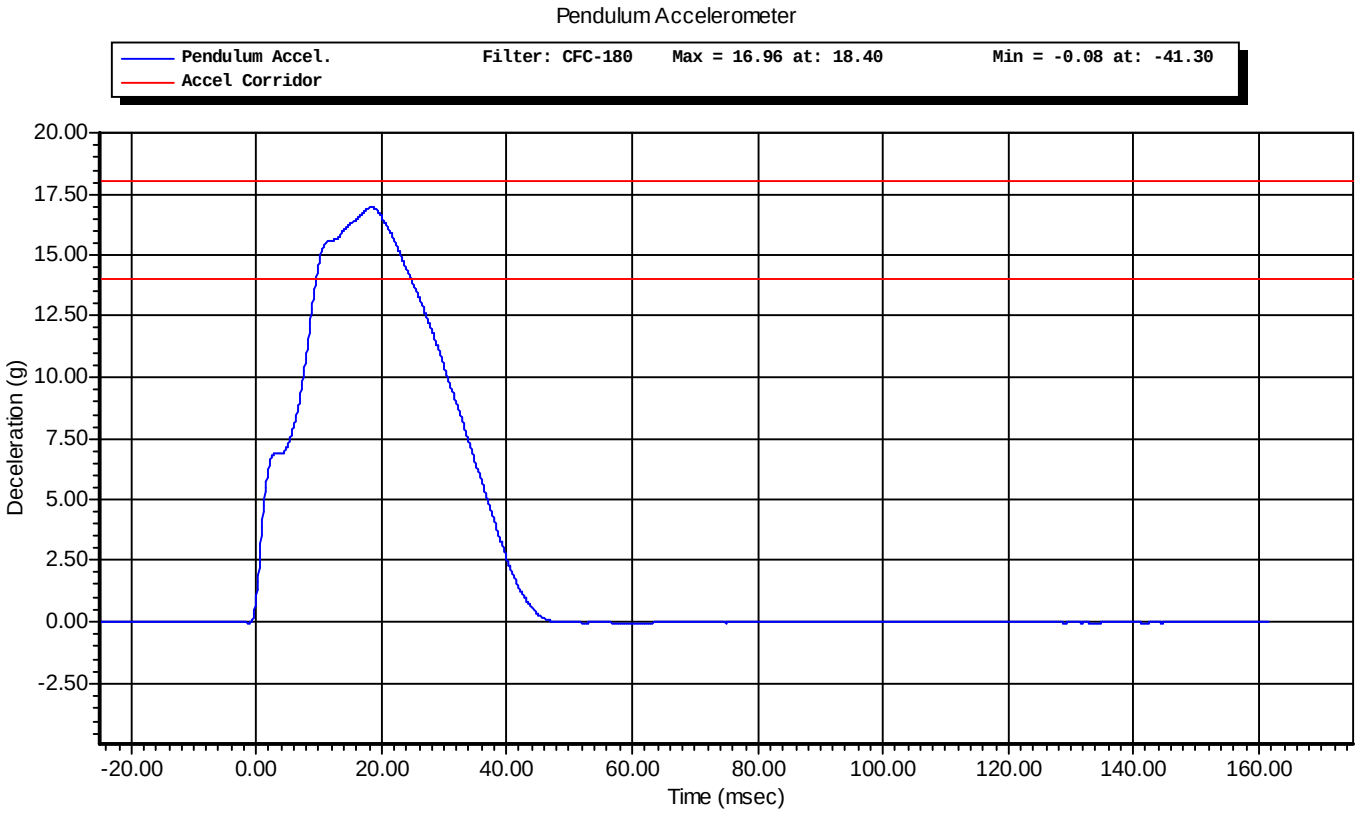
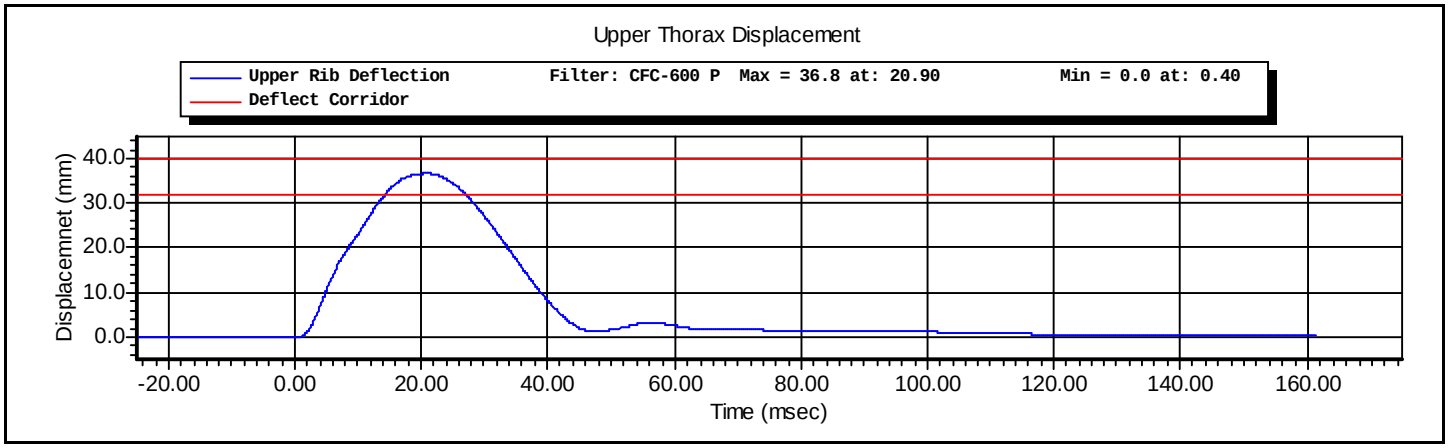
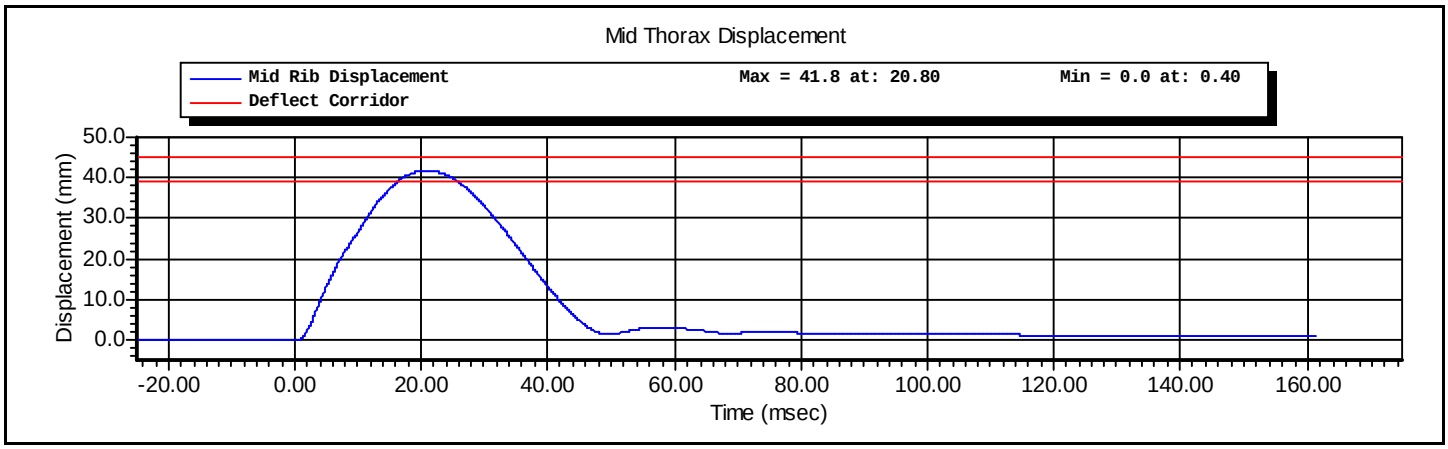
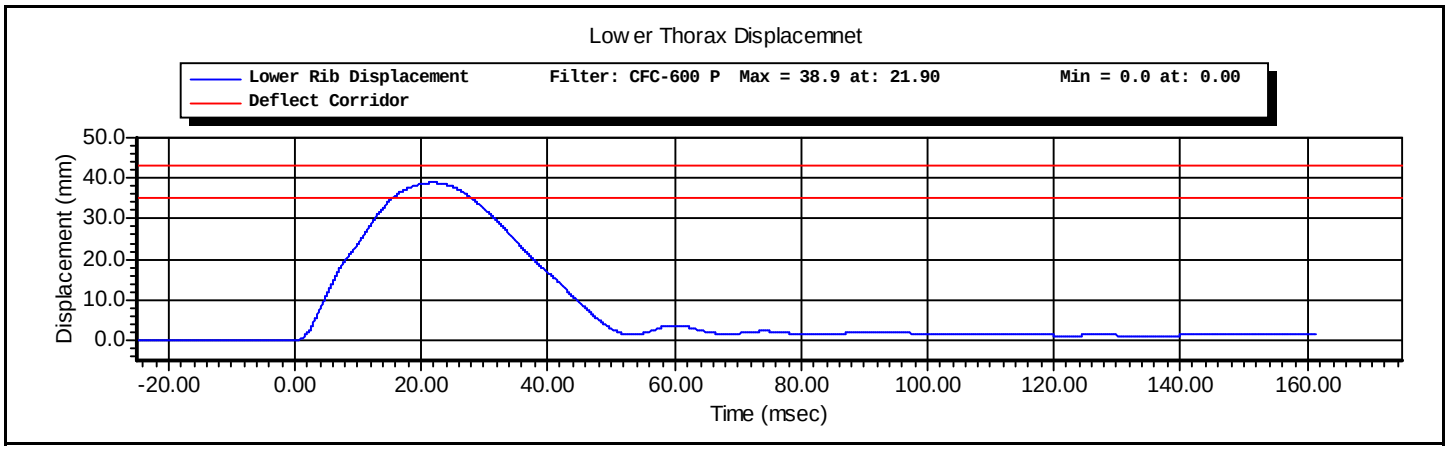
Test Name:	**Thorax Impact without Arm**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Thorax Without Arm**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**6:54:56 PM**

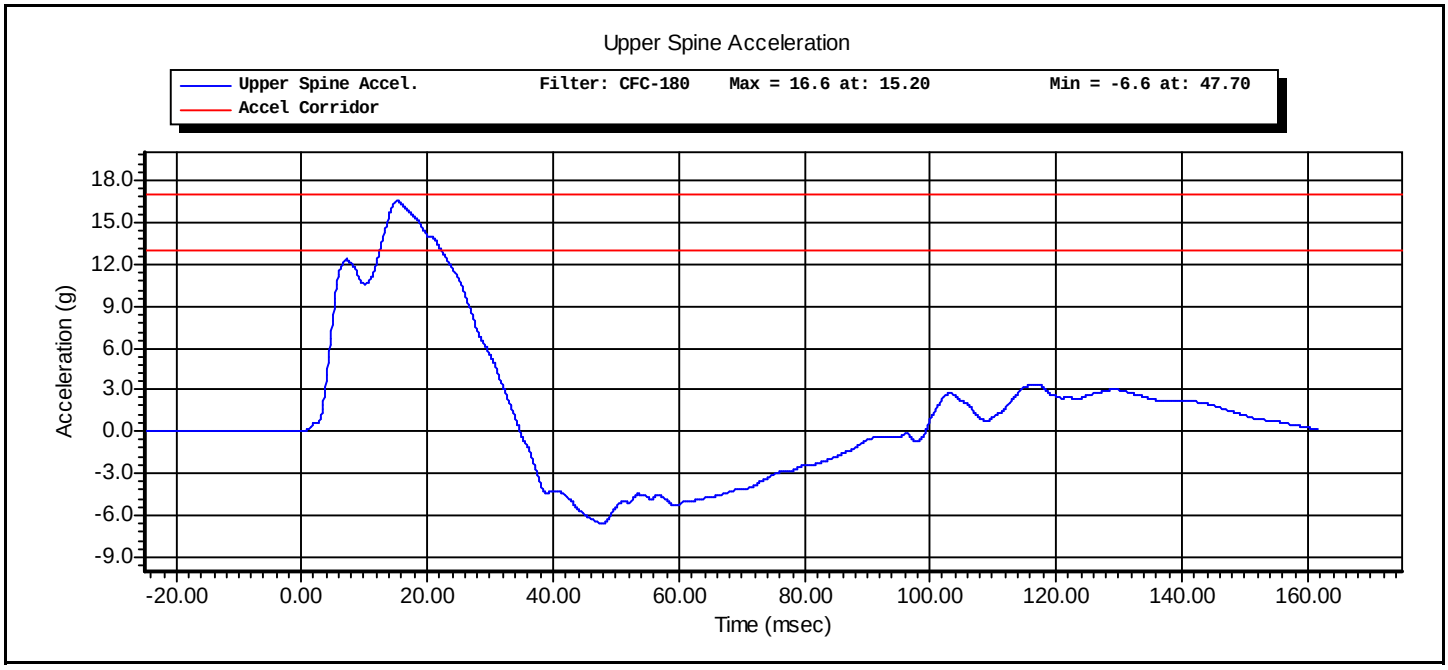


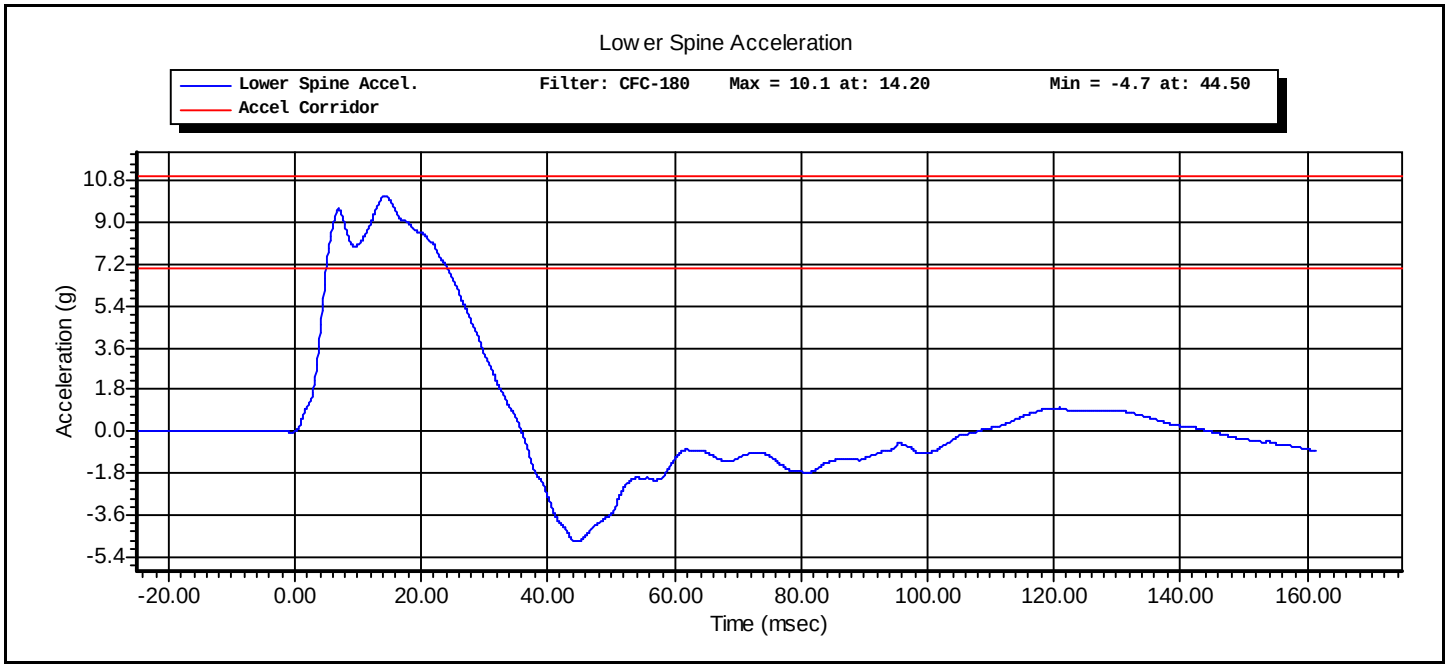






Test ID: **Thorax Without Arm** Test Time: **6:54:56 PM** Test Date: **12/21/2010**





Test ID: **Thorax Without Arm** Test Time: **6:54:56 PM** Test Date: **12/21/2010**

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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 304**		
Test ID:	**Abdomen**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**5:32:20 PM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**29**	%RH	P
Velocity	4.20	--	4.40	**4.36**	m/s	P
Probe Acceleration	12.0	--	16.0	**15.6**	g	P
Upper Abdominal Rib Deflection	36.0	--	47.0	**40.2**	mm	P
Lower Abdominal Rib Deflection	33.0	--	44.0	**40.2**	mm	P
Lower Spine Acceleration - T12	9.0	--	14.0	**11.6**	g	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Servo	**180-3885**	**DS-1207**	**3/26/2010**
Servo	**180-3885**	**DS-1204**	**3/26/2010**
Endevco	**7264-2000**	**P58839**	**10/14/2010**

Test ID: **Abdomen** Test Time: **5:32:20 PM** Test Date: **12/21/2010**

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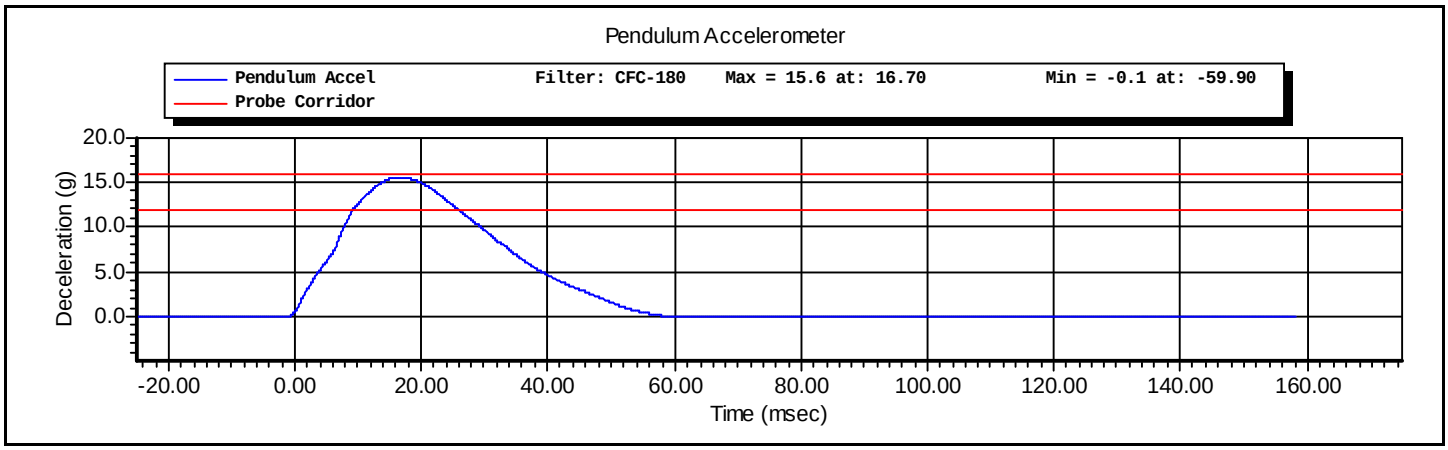
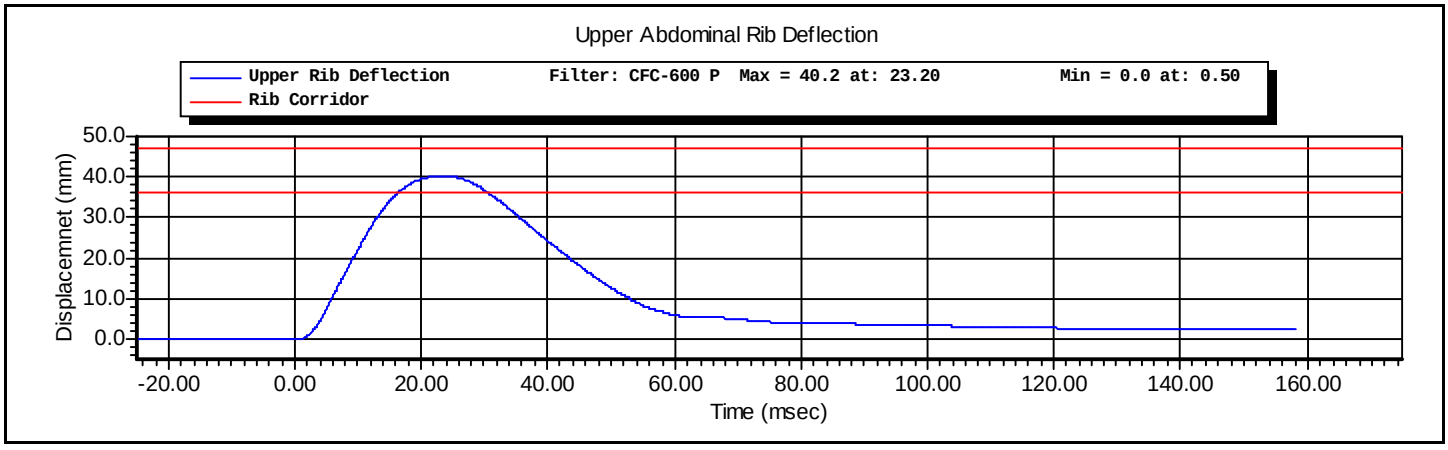
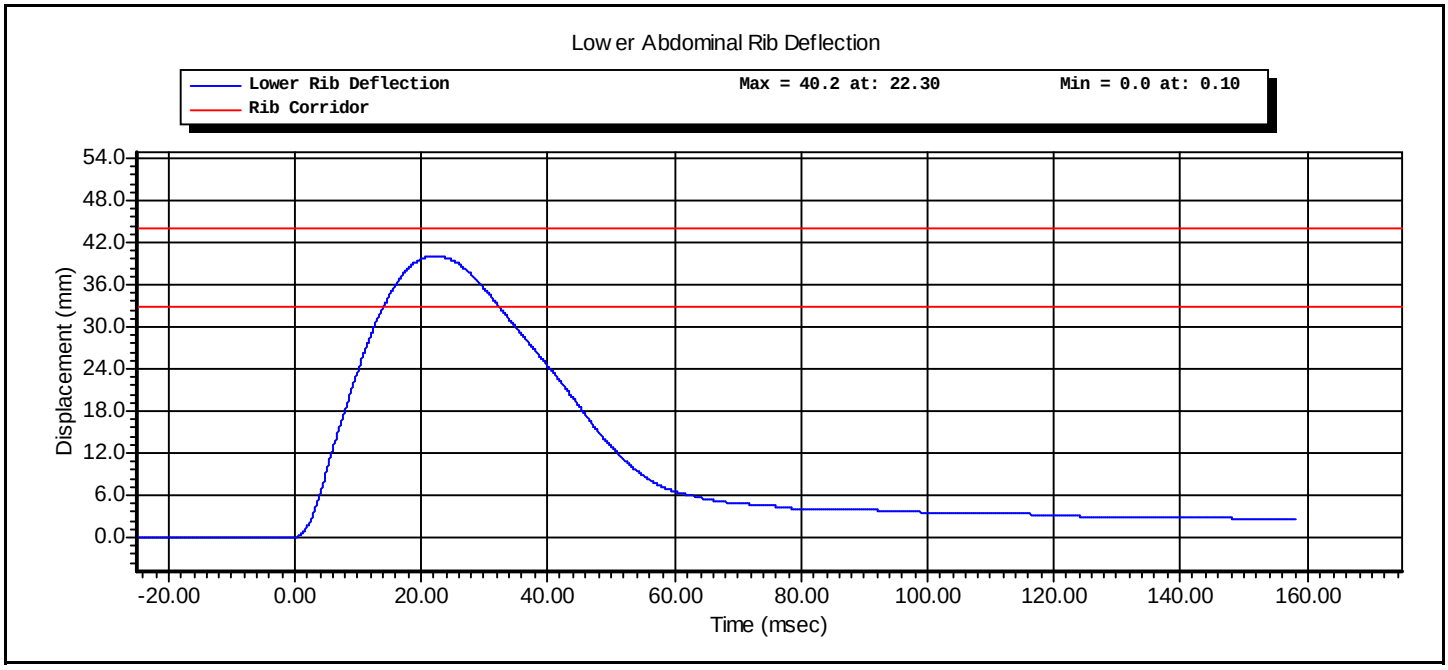
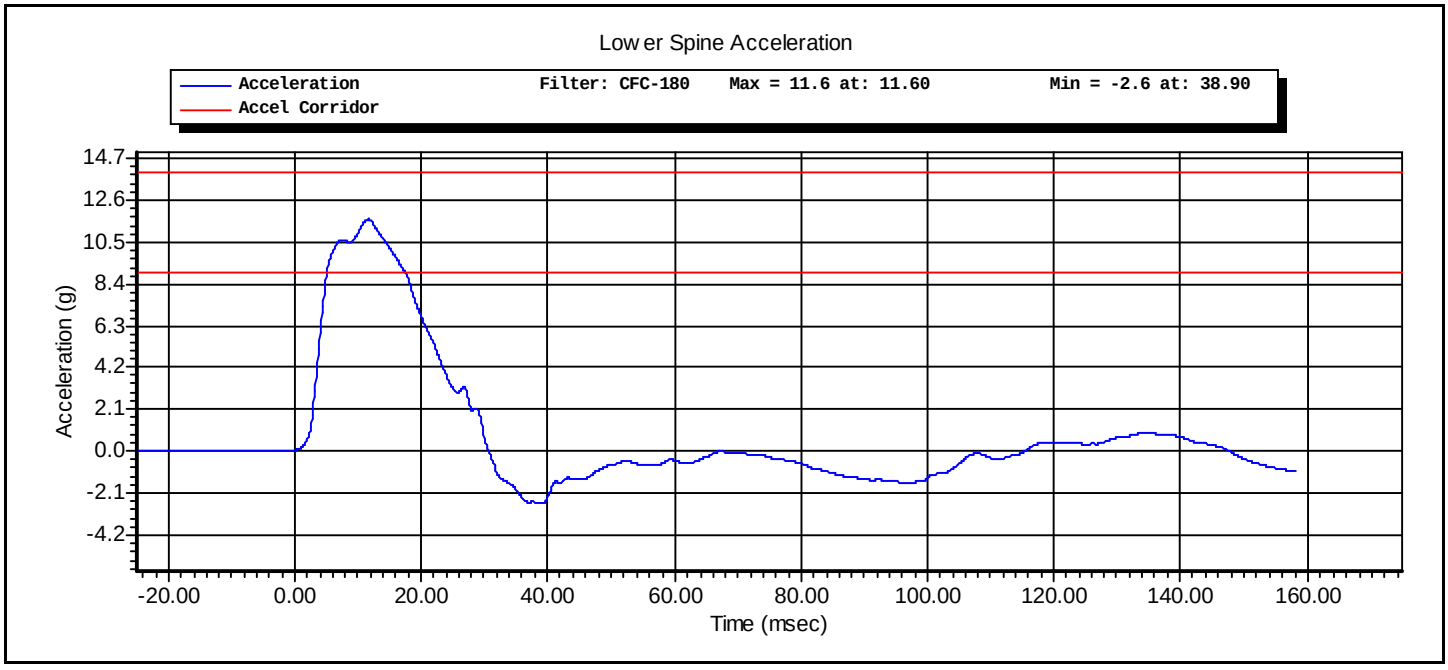
Test Name:	**Abdominal Impact**	Revision:	**8/24/2009**
Sub Test Name:		Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Abdomen**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**5:32:20 PM**









Test ID: **Abdomen** Test Time: **5:32:20 PM** Test Date: **12/21/2010**

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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 304**		
Test ID:	**Pelvis Acetabulum**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**5:05:14 PM**

Comments:

Pelvis Plug Used For Certification:
FTSS S/N 36637
Force @ 3mm = 1555N

Pelvis Plug Used For Full Scale Test:
FTSS S/N 36493
Force @ 3mm = 1548N

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**22.2**	deg C	P
Humidity	10	--	70	**29**	%RH	P
Velocity	6.60	--	6.80	**6.65**	m/s	P
Peak Probe Acceleration	38.0	--	47.0	**41.9**	g	P
Peak Pelvis Acceleration	34.0	--	42.0	**36.9**	g	P
Peak Acetabulum Force	3.60	--	4.30	**3.69**	kN	P

All test parameters are within specifications

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

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

Calspan - Transportation Research Group
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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Endevco	**7264-2000**	**P52040**	**10/12/2010**
DentonATD	**3249J**	**LC-267Fy**	**4/9/2010**
Endevco	**7264-2000**	**P51288**	**12/21/2010**

Test ID: **Pelvis Acetabulum** Test Time: **5:05:14 PM** Test Date: **12/21/2010**

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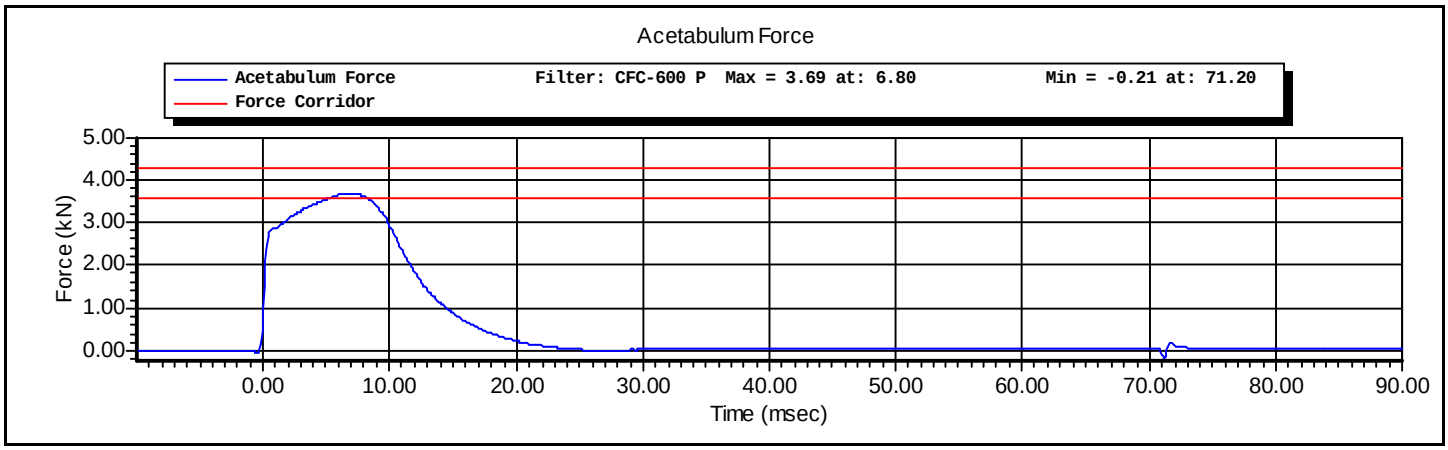
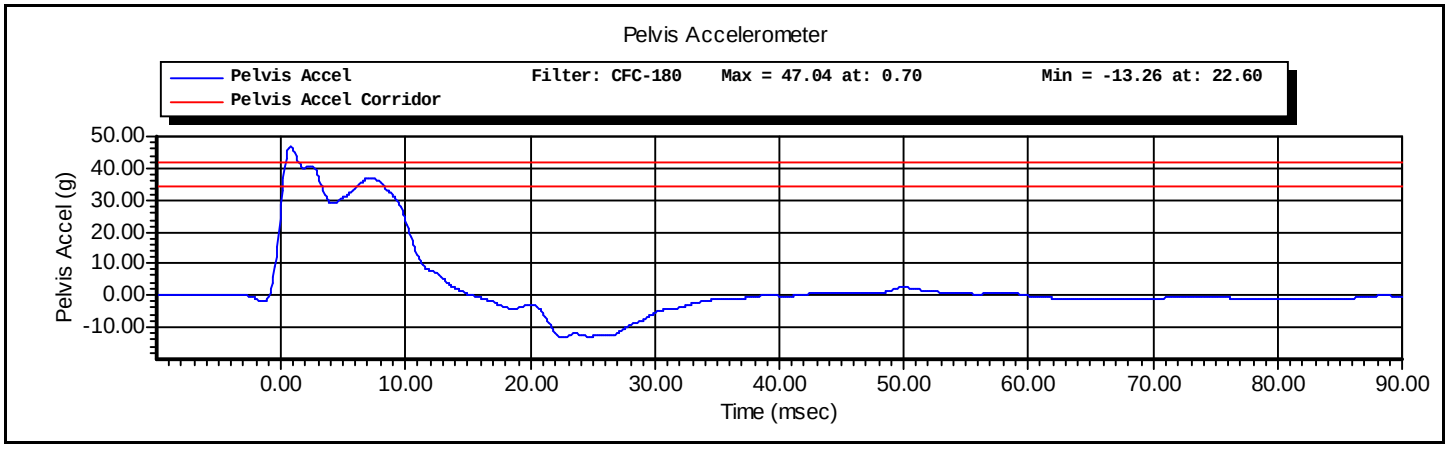
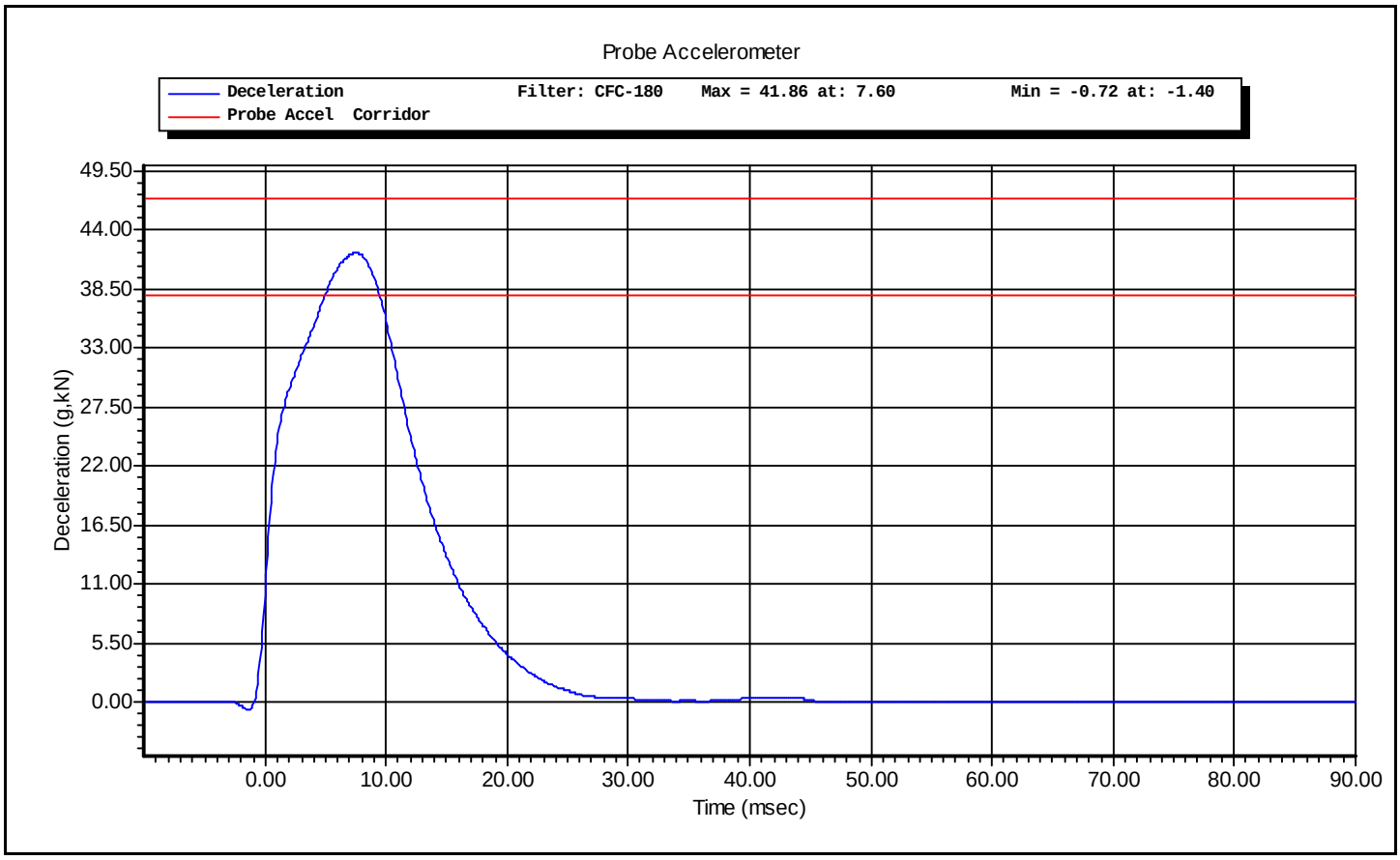
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Acetabulum Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 304**		
Test ID:	**Pelvis Acetabulum**	Test Date:	**12/21/2010**
Test Number:	**1**	Test Time:	**5:05:14 PM**







Test ID: **Pelvis Acetabulum** Test Time: **5:05:14 PM** Test Date: **12/21/2010**

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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:	**12/23/2010**
Test Number:	**1**	Test Time:	**9:01:23 AM**

Test Parameters	Test Specifications			Test Results		
Temperature	20.6	--	22.2	**21.6**	deg C	P
Humidity	10	--	70	**31**	%RH	P
Velocity	4.20	--	4.40	**4.38**	m/s	P
Peak Probe Acceleration	36.0	--	45.0	**40.0**	g	P
Peak Pelvis Acceleration	28.0	--	39.0	**31.7**	g	P
Peak Iliac Force	4.10	--	5.10	**4.30**	kN	P

All test parameters are within specifications

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

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

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VERIFICATION REPORT

REFERENCE EQUIPMENT

Manufacturer	Model	Serial Number	Calibration Date
DentonATD	**Velocity Trap**	**1**	**1/11/2010**
Endevco	**7264-2000**	**P66930**	**10/5/2010**
Endevco	**7264-2000**	**P51671**	**12/13/2010**
DentonATD	**3228J**	**LC-279 Fy**	**4/12/2010**

Test ID: **Pelvis Iliac** Test Time: **9:01:23 AM** Test Date: **12/23/2010**

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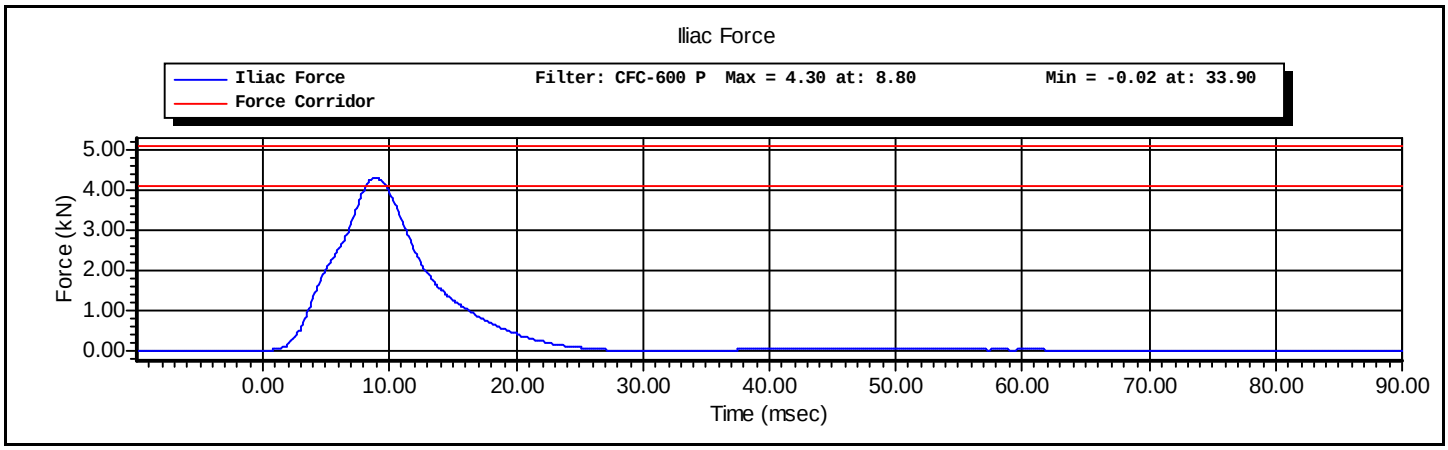
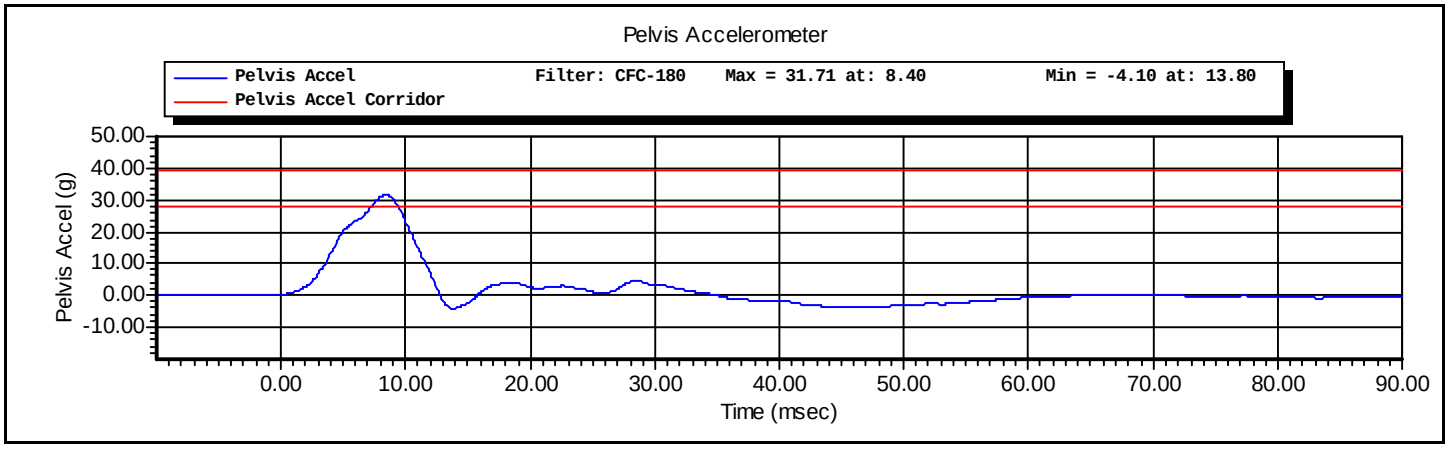
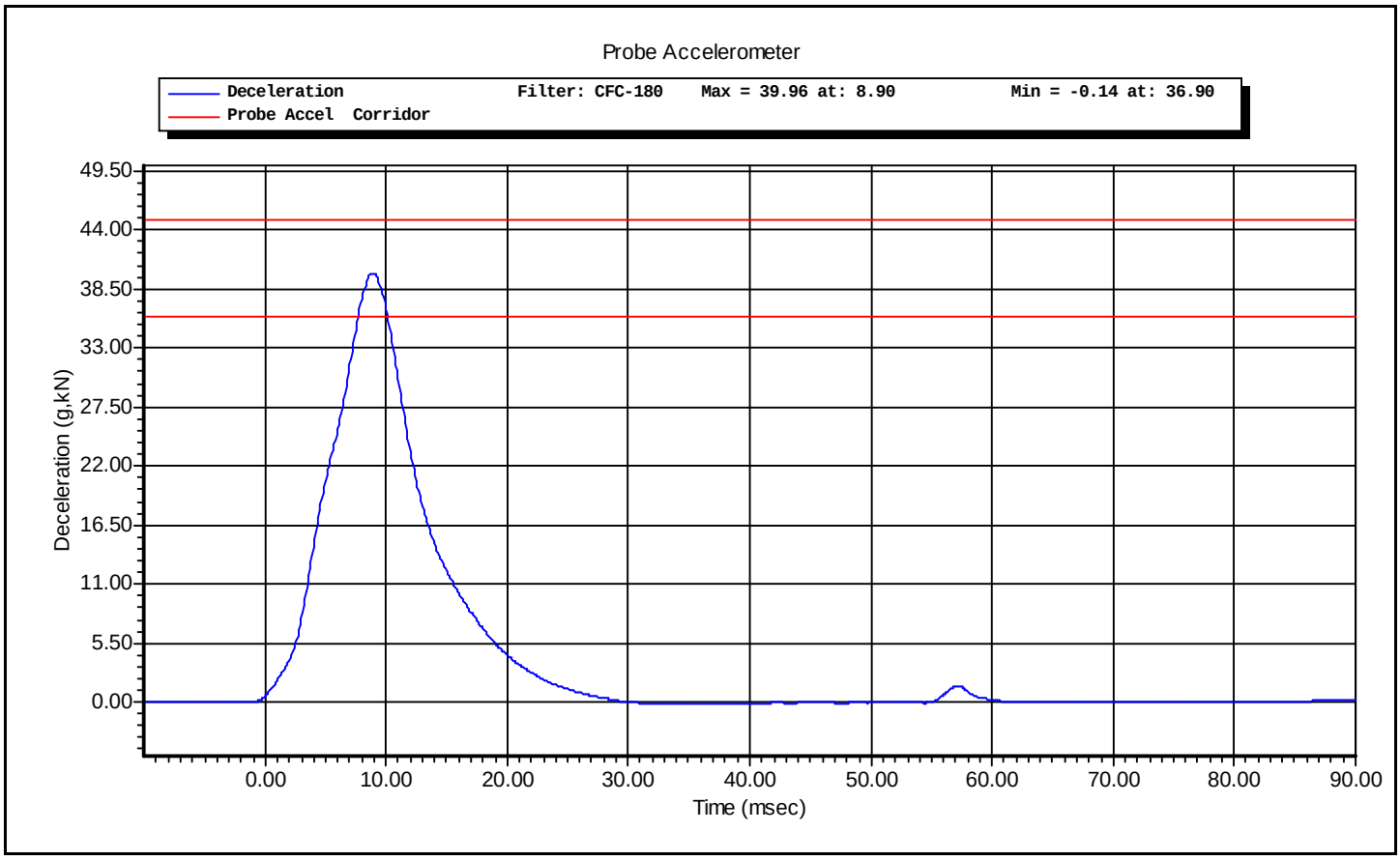
Test Name:	**Pelvis**	Revision:	**8/24/2009**
Sub Test Name:	**Iliac Impact**	Spec Type:	**NHTSA**
ATD Type:	**SID-IIs**		
ATD Serial Number:	**SID 300**		
Test ID:	**Pelvis Iliac**	Test Date:	**12/23/2010**
Test Number:	**1**	Test Time:	**9:01:23 AM**

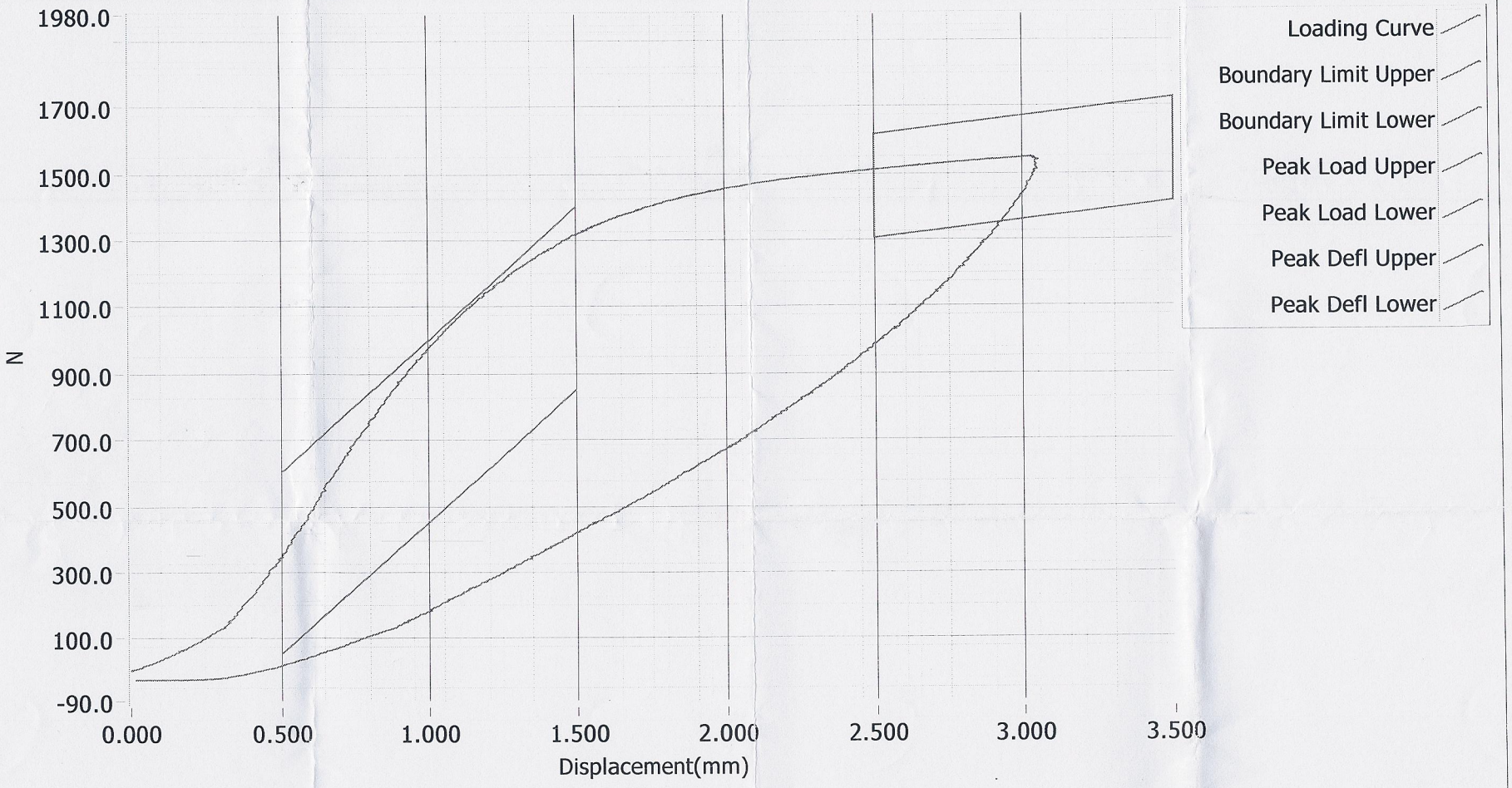






Test ID: **Pelvis Iliac** Test Time: **9:01:23 AM** Test Date: **12/23/2010**

Resultant Data - SIDIIs Plug Compression



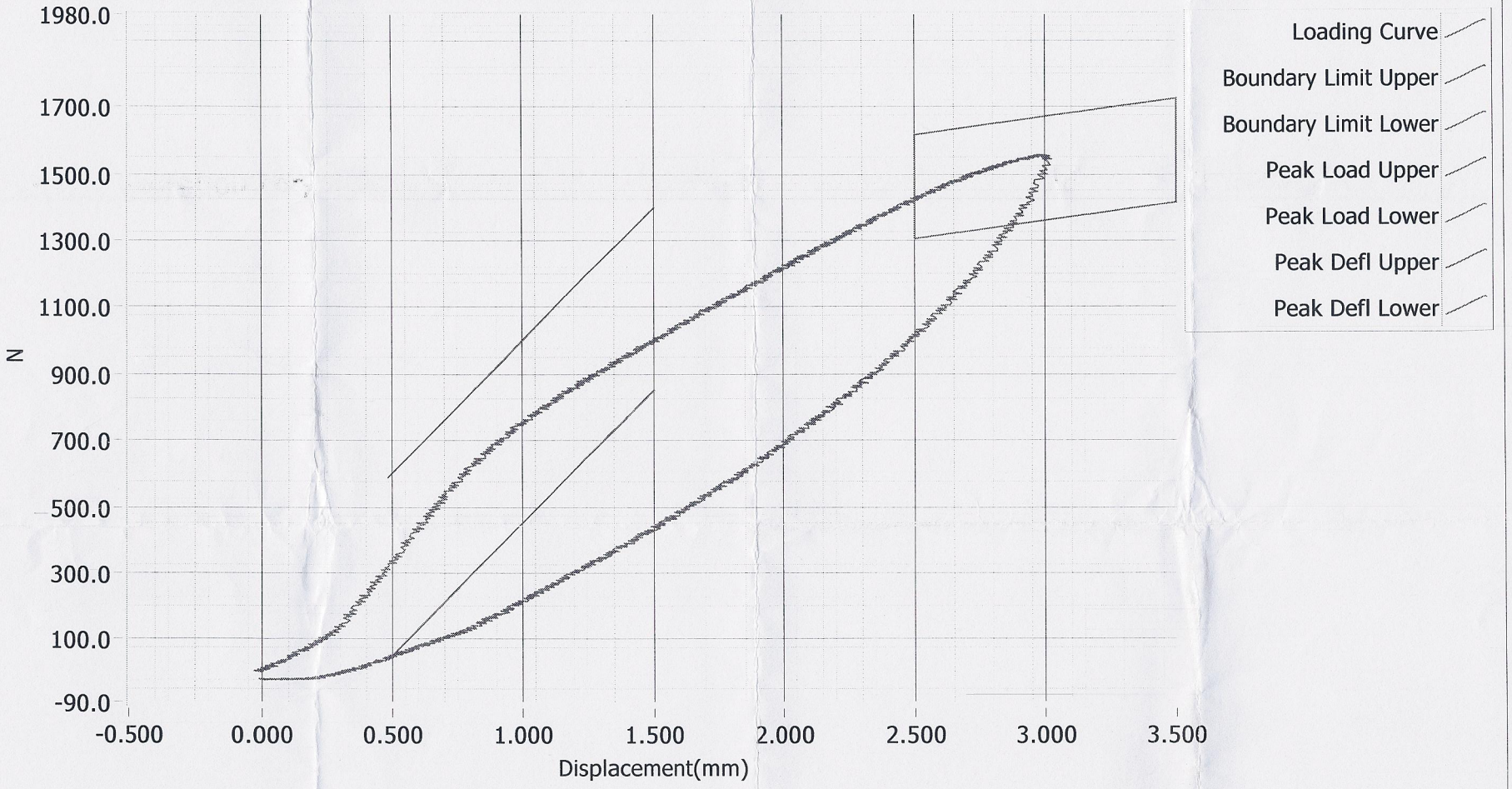
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		9/24/2010	1:45 AM
Cert ID	ATD Serial Number	ATD Type	
	36493	SIDIIs	

Current Date : 9/24/2010 Current Time : 01:46:27

304 FS

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		9/27/2010	6:29 PM
Cert ID	ATD Serial Number	ATD Type	
	36637	SIDIIs	

Current Date : 9/27/2010 Current Time : 18:29:49

304 CoA

CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 304

CONFIGURED FOR LEFT SIDE IMPACT