

REPORT NUMBER: NCAP-CAL-11-004

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

**Ford Motor Company
2011 Ford Taurus SEL
4-Door Sedan**

NHTSA NUMBER: MB0221

**PREPARED BY:
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Test Date: July 21, 2010

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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Date: September 3, 2010

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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16. Abstract A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2011 Ford Taurus 4-Door Sedan 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 July 21, 2010. The impact velocity was 32.0 km/h, and the ambient temperature at the struck (driver's) side of the vehicle was 21.7°C. The test vehicle post-test maximum crush was 464 mm at level 1. The test vehicle's occupant performance is as follows:																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="text-align: left;">Measurement Description</th> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">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;">376.1</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;">52.5</td> </tr> <tr> <td>Combined Ace tabular and Iliac Pelvic Force</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">3306.6</td> </tr> </tbody> </table>					Driver ATD (SID-IIs)			Measurement Description	Units	Threshold	Result	Head Injury Criteria (HIC ₃₈)	N/A	1000	376.1	Resultant Lower Spine Acceleration	Gs	82	52.5	Combined Ace tabular and Iliac Pelvic Force	N	5525	3306.6
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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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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 Taurus SEL 4-Door Sedan 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 Taurus SEL 4-Door Sedan. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.0 km/h. The test was conducted by Calspan Corporation Transportation Research Group on July 21, 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 vehicle and 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	376.1	52.5	Iliac Wing = 677.1
			Acetabular = 2641.7
			Sum = 3306.6

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	NA		
Side Airbag 1 (Side Torso)	Yes	Yes	No	NA
Side Airbag 2 (Side Curtain)	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	Yes	Yes	No	NA
Other	NA	NA	NA	NA

GENERAL COMMENTS: None

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

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

Test Vehicle: 2011 Ford Taurus SEL NHTSA No: MB0221
 Test Program: Side Pole NCAP Test Date: July 21, 2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0221
Model Year	2011
Make	Ford
Model	Taurus SEL
Body Style	4-Door Sedan
VIN	1FAHP2EW4BG101632
Body Color	Silver
Delivery Date	6/29/2010
Odometer Reading (km/mi)	60 mi
Dealer	West-Herr
Transmission	6-Speed
Final Drive	Automatic
Type/No. Cylinders	V6
Engine Displacement (L)	3.5
Engine Placement	Lateral
Roof Rack	No
Sunroof/T-Top	No
Tinted Glass	No
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

Anti-Lock Brakes	Yes
All-Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Pretensioners	Yes
Load Limiters	Yes
Automatic Door Locks	Yes
Bucket Seats	Yes
Tilt Steering	Yes
Other	NA
Other	NA

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company
Date of Manufacture	5/10

GVWR (kg)	2386
GAWR Front (kg)	1279
GAWR Rear (kg)	1143

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3		5
Vehicle Capacity Weight (VCW) (kg)				430
DSC X 68.04 kg				340.2
Rated Cargo and Luggage Weight (RCLW) (kg)				89.8

(A)

(B)

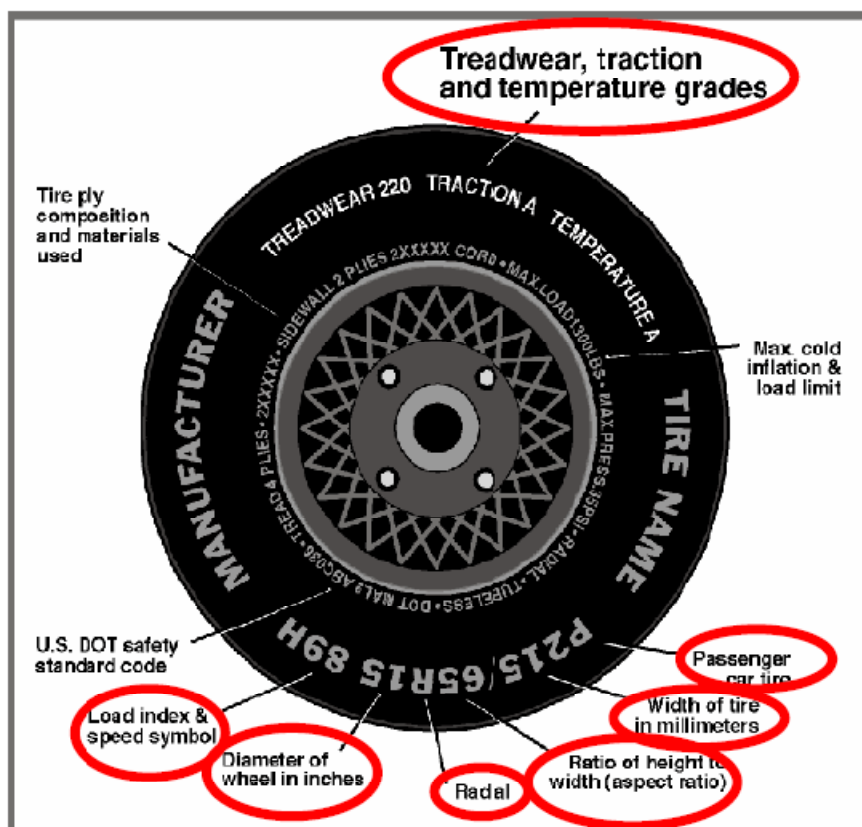
(A-B)

VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						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 Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P235/55R18 99H	P235/55R18 99H
Tire Size on Vehicle	P235/55R18 99H	P235/55R18 99H
Tire Model	Michelin	Michelin
Tire Manufacturer	Pilot HX MXM4	Pilot HX MXM4
Treadwear	300	300
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester +1 Polyamide + 2 Steel	2 Polyester +1 Polyamide + 2 Steel
Load Index/Speed Symbol	99H	99H
Tire Material	-	-
DOT Safety Code Right	AP3J 002X 0610	AP3J 002X 0710
DOT Safety Code Left	AP3J 002X 0710	AP3J 002X 0710

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

Test Vehicle: 2011 Ford Taurus SEL NHTSA No: MB0221
 Test Program: Side Pole NCAP Test Date: July 21, 2010

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	562.0	340.0		575.5	410.0		575.0	411.5	
Right	kg	527.0	357.0		522.5	413.0		519.5	414.0	
Ratio	%	61.0	39.0		57.2	42.8		57.0	43.0	
Totals	kg	1089.0	697.0	1786.0	1098.0	823.0	1921.0	1094.5	825.5	1920.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1786.0	(A)
Actual Weight of 1 P572V ATD (SID-1Is) Dummy Used	kg	51.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	89.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1927.1	(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	0.7	0.7
Front Passenger Sill Angle (front-to-rear)*	Deg.	0.5	0.7	0.7
Front Bumper Angle (left-to-right)**	Deg.	-0.8	-0.6	-0.6
Rear Bumper Angle (left-to-right)**	Deg.	-0.8	-0.6	-0.6
Vehicle CG (Aft of Front Axle)	mm	1120	1230	1234
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	8	22	23

* Front up is positive

** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	65.8
Weight of Vehicle Components Removed	kg	0

Vehicle parts removed to make Target Vehicle Test Weight:

None

TEST VEHICLE IMPACT POINT DATA

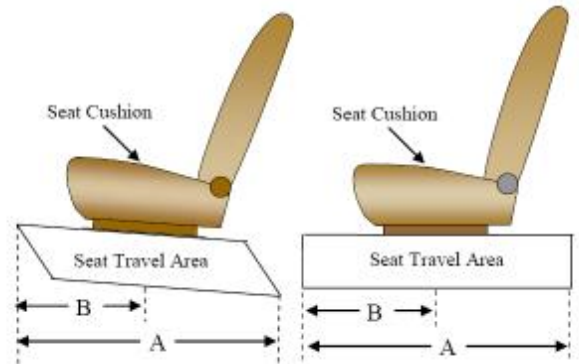
Measured Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1115
Actual Impact Point (Aft of Front Axle)	mm	1112
Impact Point Difference (- forward / + rearward)	mm	-3

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

Test Vehicle: 2011 Ford Taurus SEL NHTSA No: MB0221
 Test Program: Side Pole NCAP Test Date: July 21, 2010

SEAT FORE/AFT POSITIONS

The front outboard seat was placed in the most forward locking detent while maintaining the seat cushion mid-angle position.

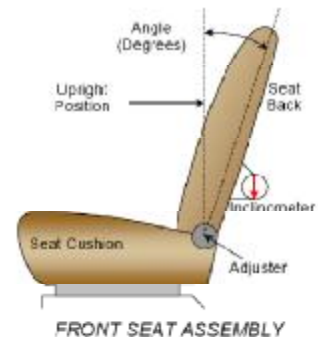


SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	260	0 (Full forward)
Front Passenger Seat	260	0 (Full forward)
Rear Seat – Struck Side	NA	Fixed
Rear-Seat – Non-Struck Side	NA	Fixed

SEAT BACK ANGLE POSITION

The seat back was set to the detent to achieve the head level requirement for the SID-II's final position. The published driver seat back angle was found from the head restraint post with the ATD in the seat. The Front passenger seat back angle was found from the head restraint post without ATD in seat



SEAT BACK ANGLE

	Degrees	Detent
Driver Seat Back Angle with Seated Dummy	9.3	Full Forward
Front Passenger Seat Back Angle	9.1	Full Forward
Struck Side Rear Seat Back Angle	NA	Fixed
Non-Struck Side Rear Passenger Seat Back Angle	NA	Fixed

SEAT BELT UPPER ANCHORAGES

The left rear outboard seating position was placed in the highest position.

SEAT BELT UPPER ANCHORAGE POSITIONING

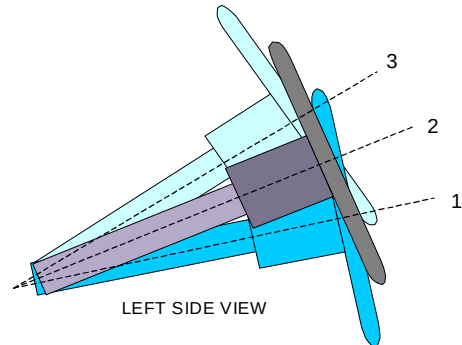
	Total # of Positions	Placed in Position #
Driver Seat	2	0 (highest)

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

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010

STEERING COLUMN ADJUSTMENT

A flat plate was placed on the top and bottom of the steering wheel. The inclinometer was placed on the flat plate to measure the angle



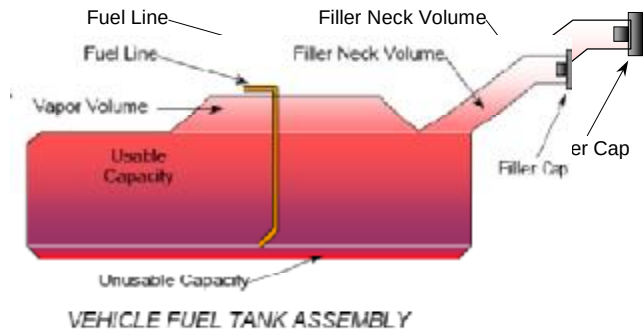
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	21.5	
Geometric Center, Position No. 2	24.3	
Uppermost, Position No. 3	27.0	
Telescoping Steering Wheel Travel		50
Test Position	24.3	25

FUEL PUMP

The fuel pump will operate when the key is in the "ON" position.
 The fuel filler pipe is located on the right rear side of vehicle.



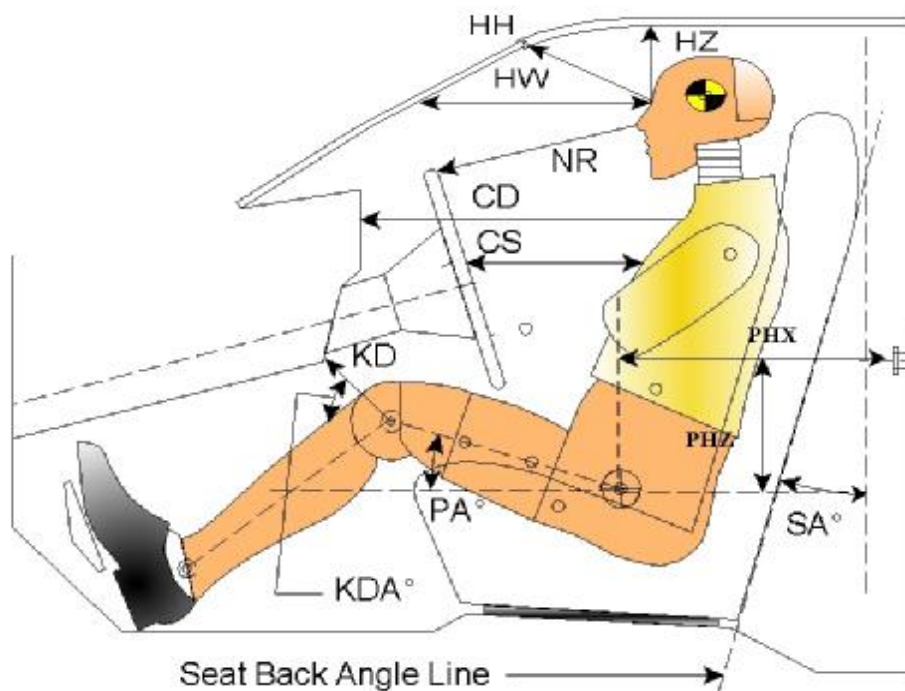
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	71.9
Usable Capacity of "Optional Tank"	N/A
Usable Capacity of Standard Tank as Specified in Owner's Manual	71.9
Usable Capacity of Optional Tank as Specified in Owner's Manual	N/A
92-94% of Usable Capacity	66.2 – 67.8
Actual Amount of Solvent Used in Test	67.0
1/3 of Usable Capacity	24.0

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010



DUMMY ID# 304

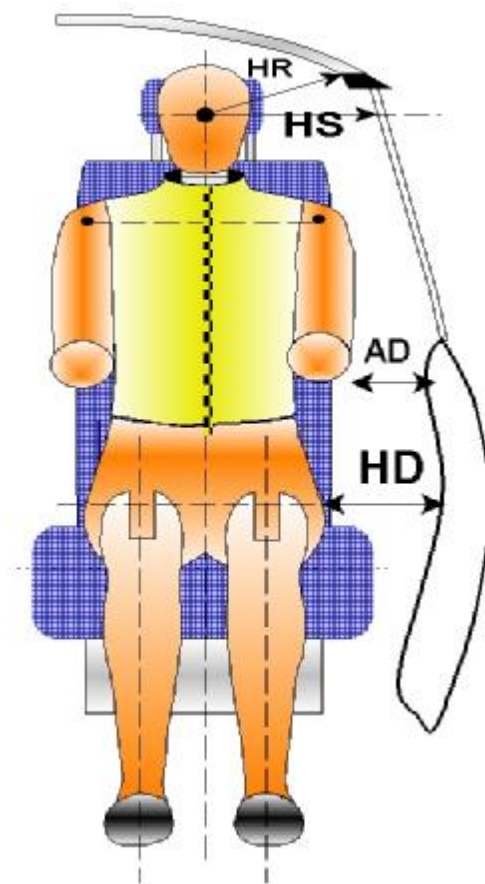
Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	255	
HW	Head to Windshield	567	
HZ	Head to Roof	152 *	
NR	Nose to Rim	215	
CD	Chest to Dash	420	
CS	Chest to Steering Wheel	165	
KDL/KDAL°	Left Knee to Dash	85	53
KDR/KDAR°	Right Knee to Dash	85	52
PA°	Pelvic Angle		20.9
PHX	H-Point to Striker (X-Axis)	297	
PHZ	H-Point to Striker (Z-Axis)	132	
SA°	Seat Back Angle		9.6 **

* Measured to survivor

** Measured from Head-restraint post

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010

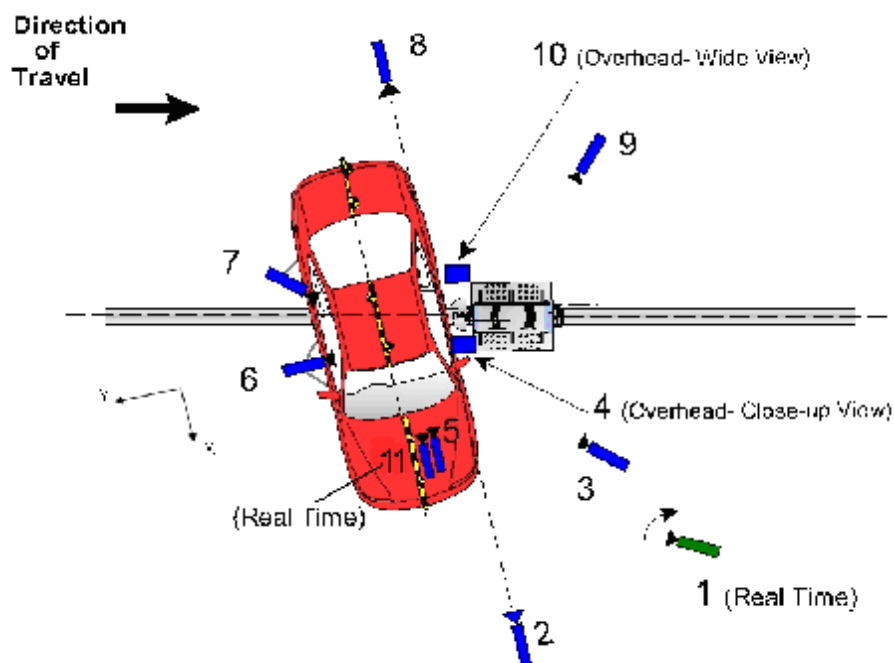


DUMMY ID# 304

Code	Measurement Description	Length (mm)
HR	Head To Side Header	231
HS	Head to Side Window	375
AD	Arm to Door	194
HD	H-Point to Door	217

**DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA**

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 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	6256	1920	975	24	1000
3	Impact side 45° - forward pole view	1115	1890	2180	24	1000
4	Overhead Close-up view of impact	-40	210	4375	28	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	-6406	2135	1085	28	1000
9	Impact side 45° - rearward pole view	-3160	2905	1325	24	1000
10	Overhead wide-view of impact	310	160	4375	14	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.

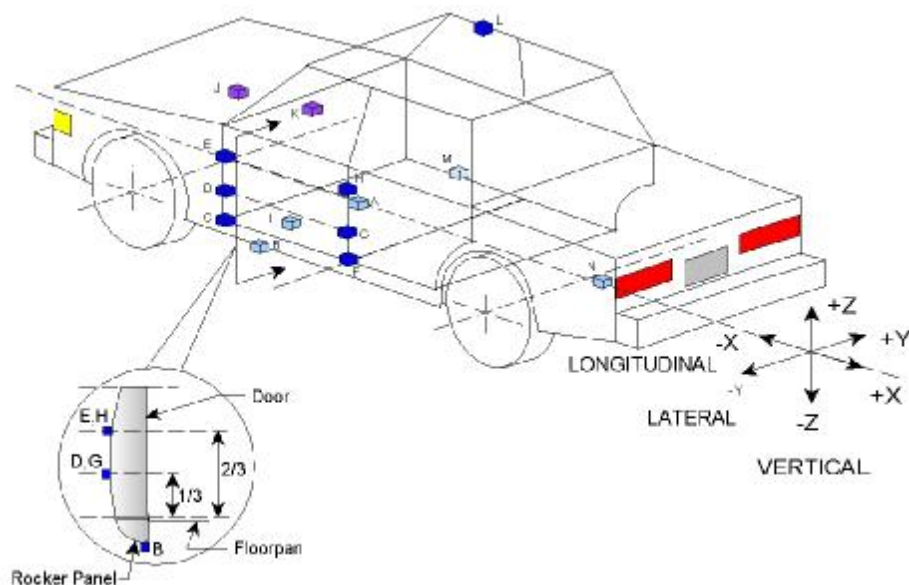
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	21
Pole Load Cells	6
Contact Switches	1
Total No. of Data Channels	44

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

**DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA**

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010

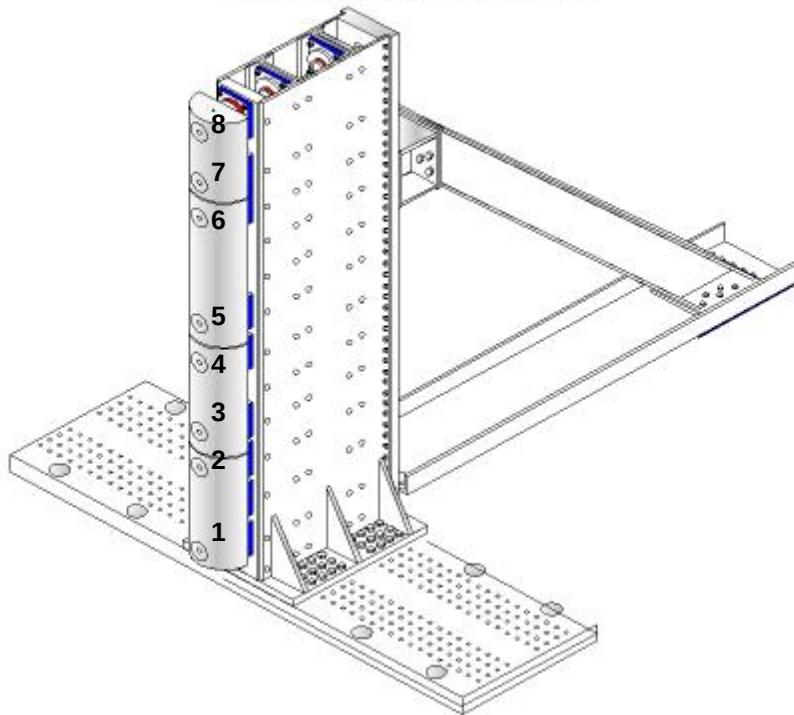


	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG Accel.	2894	7	606
	Vehicle CG Sensor	2894	7	606
B	Left Floor Sill	3322	-664	338
C	A Pillar Sill	3482	-672	407
D	A Pillar Low	3526	-652	567
E	A Pillar Mid	3449	-664	1101
F	B Pillar Sill	2498	-699	428
G	B Pillar Low	2486	-699	711
H	B Pillar Mid	2463	-684	962
I	Driver Seat	2760	-587	376
L	Engine Top	3973	-546	903
J	Firewall	4496	-3	801
K	Right Roof	2563	657	1456
M	Right Floor Sill	3327	677	342
N	Rear Floorpan	1171	54	582

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010

FOIL 300K RIGID POLE



Load Cell Locations	
ID	Height From Ground (mm)
1	172
2	659
3	850
4	1333
5	1525
6	2008
7	--
8	--

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

Test Vehicle: 2011 Ford Taurus SEL NHTSA No: MB0221
 Test Program: Side Pole NCAP Test Date: July 21, 2010

TEST DUMMY INFORMATION AND CONTACT

Description	Driver Dummy
Dummy Type/Serial No.	SID-IIs/ 304
Head Contact	Side Curtain Airbag
Upper Torso Contact	Side Torso Airbag
Lower Torso Contact	Side Torso Airbag
Left Knee Contact	Door
Right Knee Contact	No Contact

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Doors	Jammed Shut	Closed and operational
Right Side Doors	Closed and operational	Closed and operational
Hatch and Other Doors	NA	Closed and operational
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	B-Pillar Intrusion caused by pole impact
Sill Separation	No separation
Windshield Damage	Severe cracking on left side of windshield
Window Damage	Left front window shattered during impact
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	NA		
Side Airbag 1 (Side Torso)	Yes	Yes	No	NA
Side Airbag 2 (Side Curtain)	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	Yes	Yes	No	NA
Other	NA	NA	NA	NA

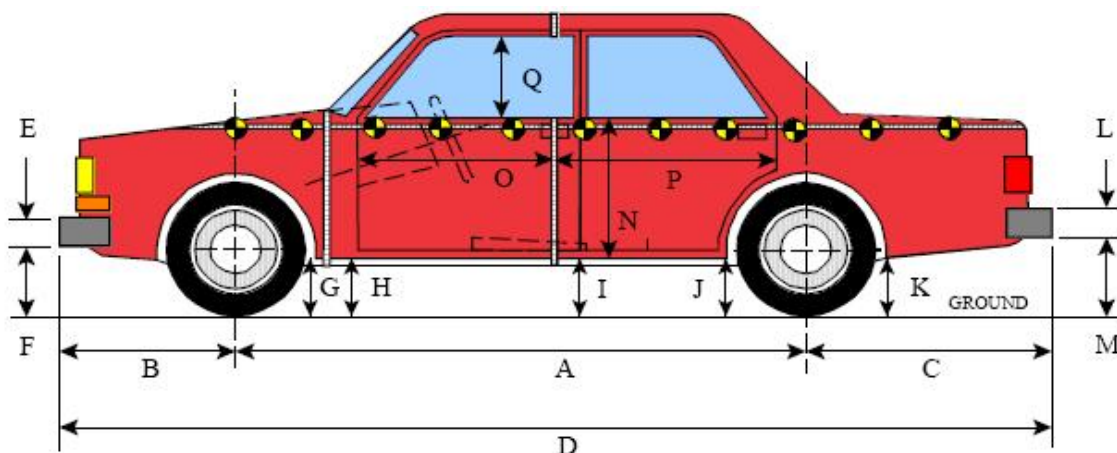
VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	+3 (Approx) *
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.0
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.1

* During post-test observation the impact location could not be located on vehicle. The published impact location was found from the high speed video.

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010



LEFT SIDE VIEW

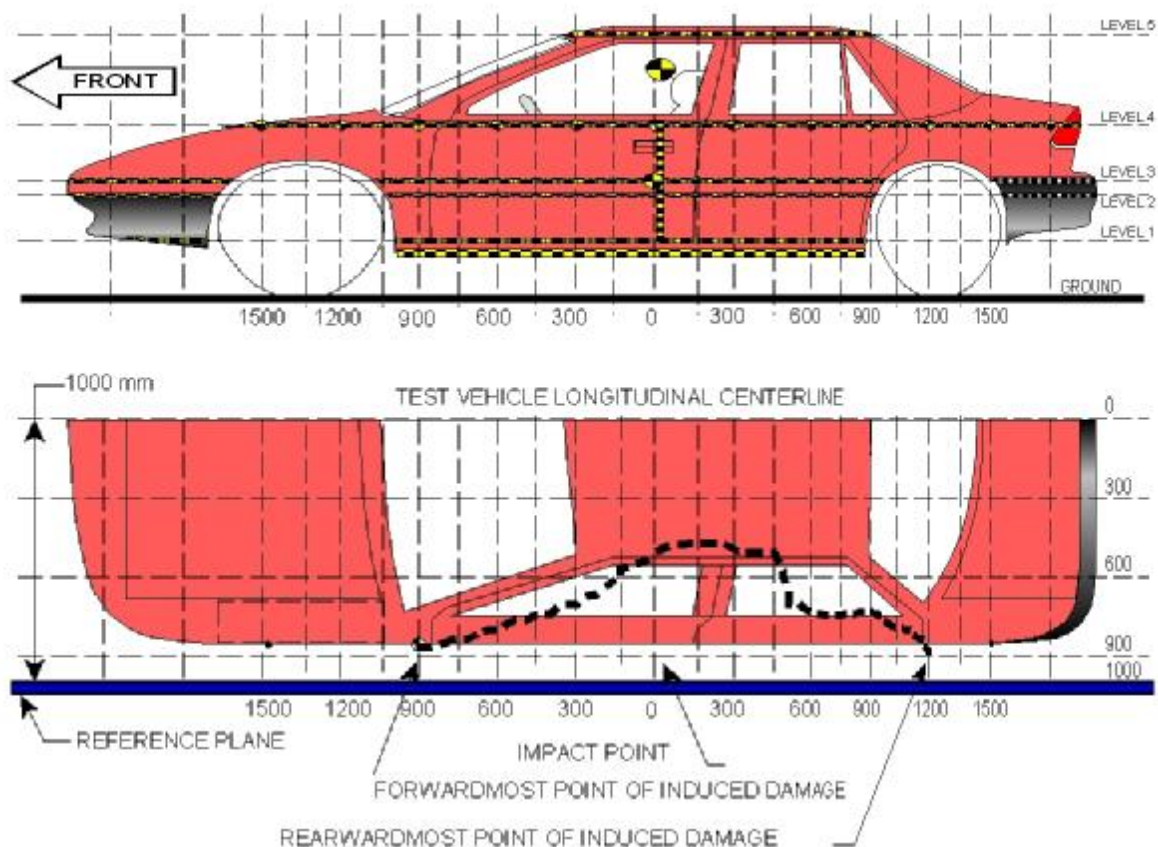
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2871	2742	129
B	Front Axle to FSOV	1037	1109	-72
C	Rear Axle to RSOV	1249	1242	7
D1	Total Vehicle Length at Left Side	5000	4894	106
D2	Total Vehicle Length at Centerline	5157	5091	66
D3	Total Vehicle Length at Right Side	5002	4983	19
E	Front Bumper Thickness	85	85	0
F	Front Bumper Bottom to Ground	478	527	-49
G	Sill Height at Front Wheel Well	160	151	9
H	Sill Height at Front Door Leading Edge	167	162	5
I	Sill Height at B Pillar	190	184	6
J1	Sill Height at Rear Wheel Well	198	217	-19
J2	Pinch Weld Height at Rear Wheel Well	206	220	-14
K	Sill Height Aft of Rear Wheel Well	226	248	-22
L	Rear Bumper Thickness	240	240	0
M	Rear Bumper Bottom to Ground	320	324	-4
N	Sill Height to Window Bottom Sill	757	766	-9
O	Front Door Leading Edge to Impact CL	618	608	10
P	Rear Door Trailing Edge to Impact CL	1411	1348	63
Q	Front Window Opening	431	387	44
R	Right Side Length	5002	4983	19
S	Left Side Length	5000	4894	106
T	Vehicle Width at B Post	1938	1781	157

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle:	2011 Ford Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010



Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	370
2	Occupant H-Point	578
3	Mid-Door	707
4	Window Sill	992
5	Window Top	1472

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 Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	927	--	--	--	--	1032	--	--	--	--	-105	--	--
-1350	--	--	960	698	--	--	--	1046	798	--	--	--	-86	-100	--
-1200	--	--	--	746	--	--	--	--	831	--	--	--	--	-85	--
-1050	--	--	--	787	--	--	--	--	858	--	--	--	--	-71	--
-900	--	--	962	831	--	--	--	997	881	--	--	--	-35	-50	--
-750	--	959	948	855	--	--	973	966	886	--	--	-14	-18	-31	--
-600	950	951	939	871	--	927	934	929	886	--	23	17	10	-15	--
-450	948	947	938	885	--	821	822	828	811	--	127	125	110	74	--
-300	950	947	940	899	--	716	711	710	712	--	234	236	230	187	--
-150	953	947	942	904	--	593	599	601	597	--	360	348	341	307	--
0	958	948	944	910	550	494	497	500	500	448	464	451	444	410	102
150	963	950	946	916	624	531	534	532	532	496	432	416	414	384	128
300	966	950	947	920	627	663	667	667	664	548	303	283	280	256	79
450	965	950	948	921	628	805	802	803	798	591	160	148	145	123	37
600	964	949	947	921	629	837	838	838	832	613	127	111	109	89	16
750	961	948	947	920	629	868	867	866	856	618	93	81	81	64	11
900	957	946	946	920	627	899	895	893	879	620	58	51	53	41	7
1050	952	945	944	919	624	928	922	918	899	618	24	23	26	20	6
1200	946	947	944	916	614	956	949	944	918	611	-10	-2	0	-2	3
1350	--	955	951	940	461	--	968	974	963	464	--	-13	-23	-23	-3
1500	--	--	959	921	--	--	--	959	964	--	--	--	0	-43	--

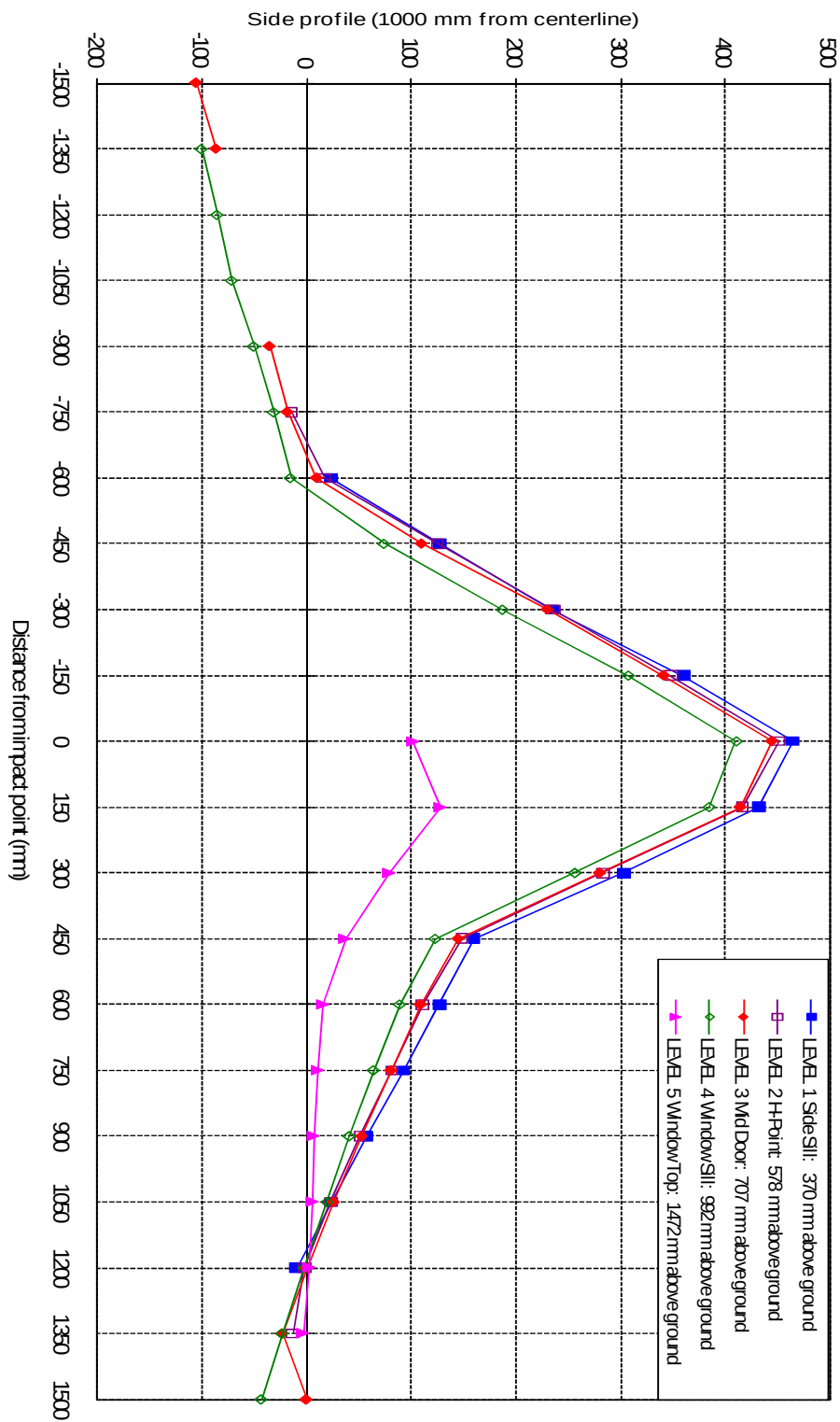
MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	464	451	444	410	128
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 Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date:	July 21, 2010



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

Test Vehicle: 2011 Ford Taurus SEL NHTSA No: MB0221
 Test Program: Side Pole NCAP Test Date: July 21, 2010

Test Time: 4:12 PM Temperature: 25.6° 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	1:05	5:00	6:05
90 to 180	1:10	5:00	6:10
180 to 270	1:02	5:00	6:02
270 to 360	1:07	5:00	6:07

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

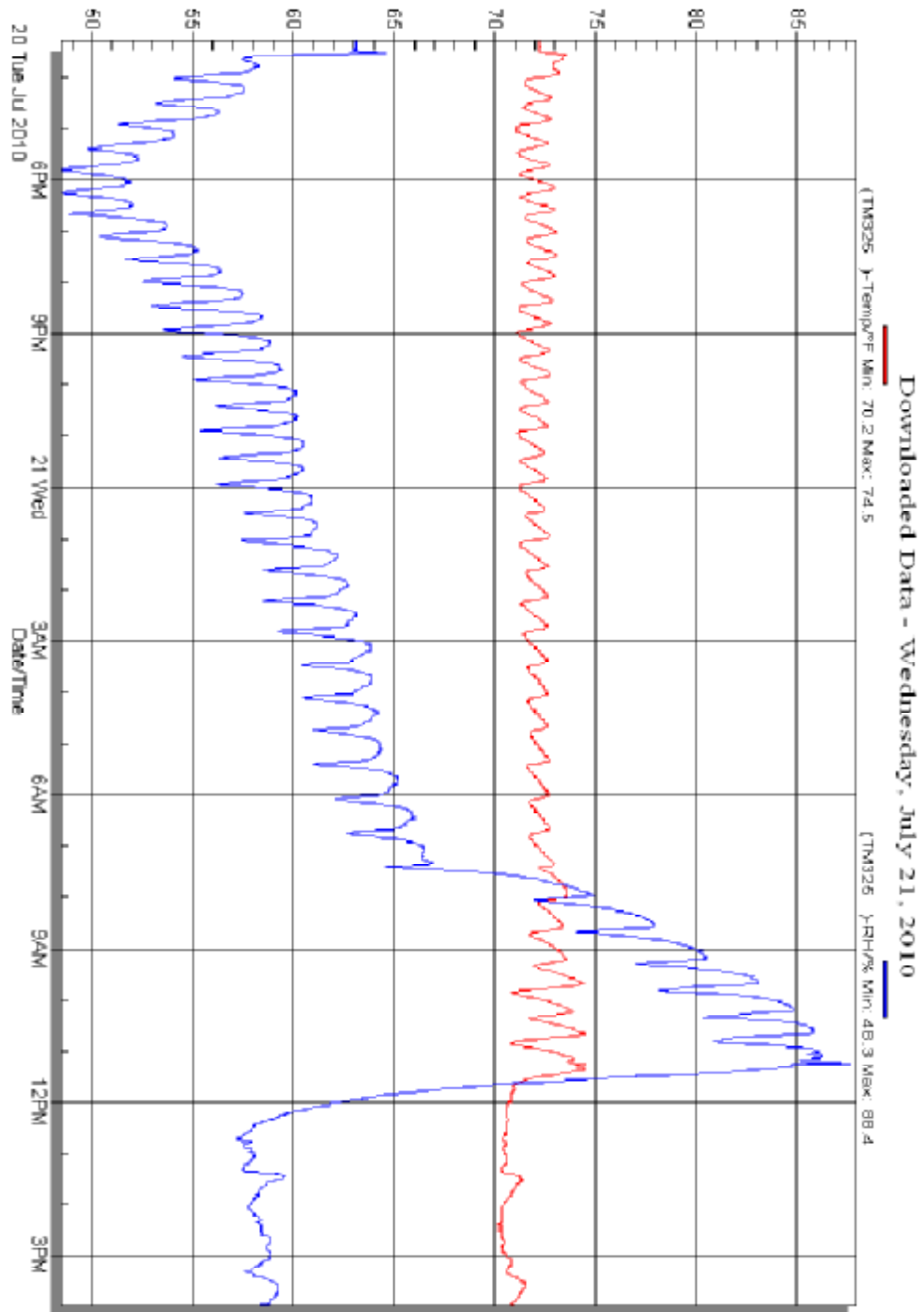
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	0	0
90 to 180	0	0	0	0
180 to 270	0	0	0	0
270 to 360	0	0	0	0

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 Taurus SEL	NHTSA No:	MB0221
Test Program:	Side Pole NCAP	Test Date	July 21, 2010



**APPENDIX A
PHOTOGRAPHS**

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Figure A-1: As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



Figure A-2: As-Delivered Left Rear $\frac{3}{4}$ 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-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 Rear $\frac{3}{4}$ 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



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

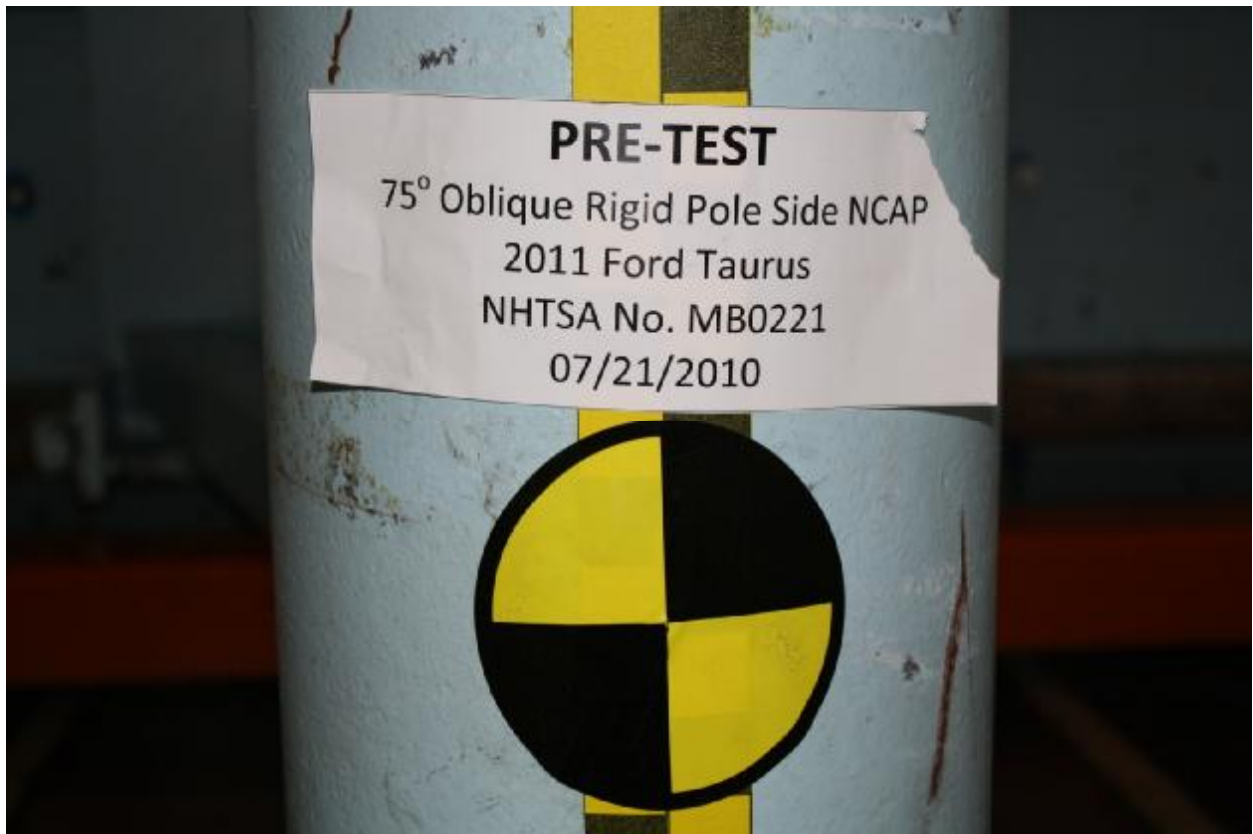


Figure A-19: Pre-Test Close-Up View of Impact Point Target

Photograph Not Available – No Visible Impact Location

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 (Door Open)



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

Photograph Not Available

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

Photograph Not Available

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

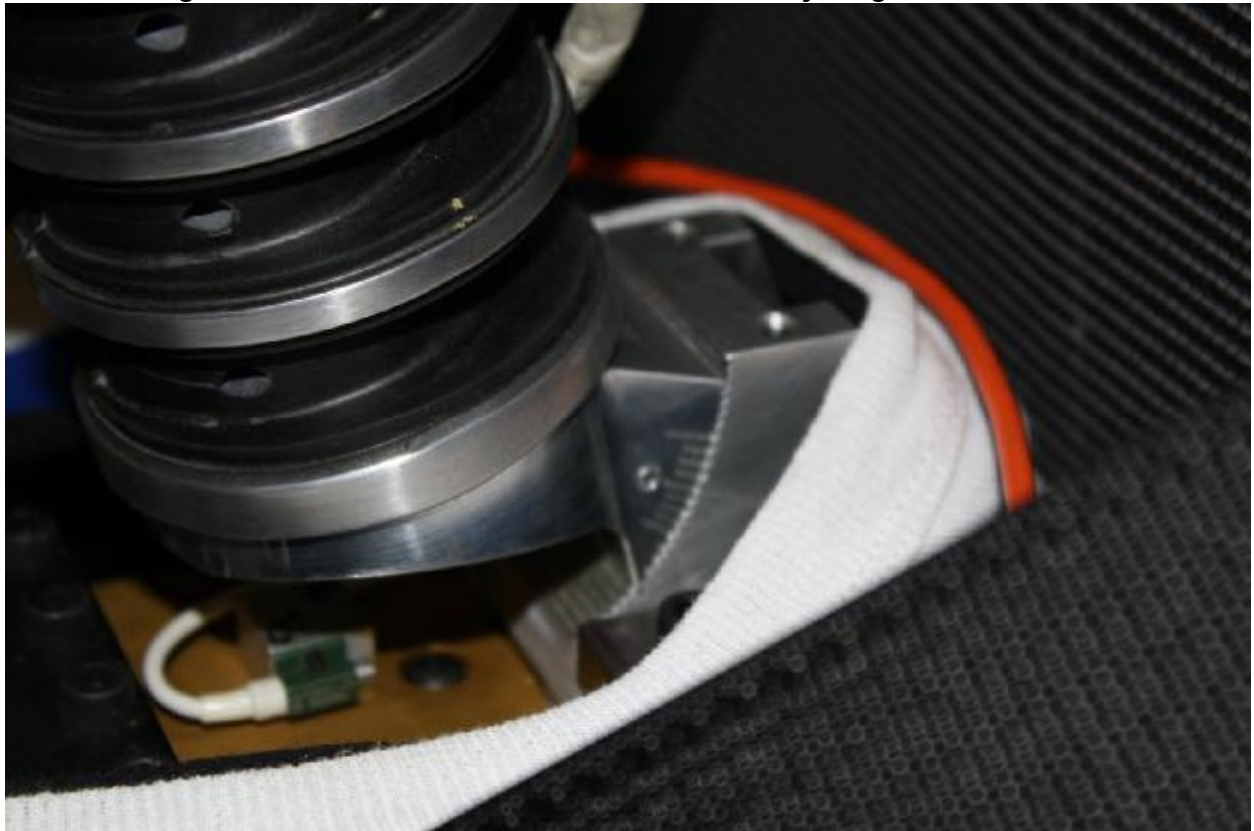


Figure A-30: Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket



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

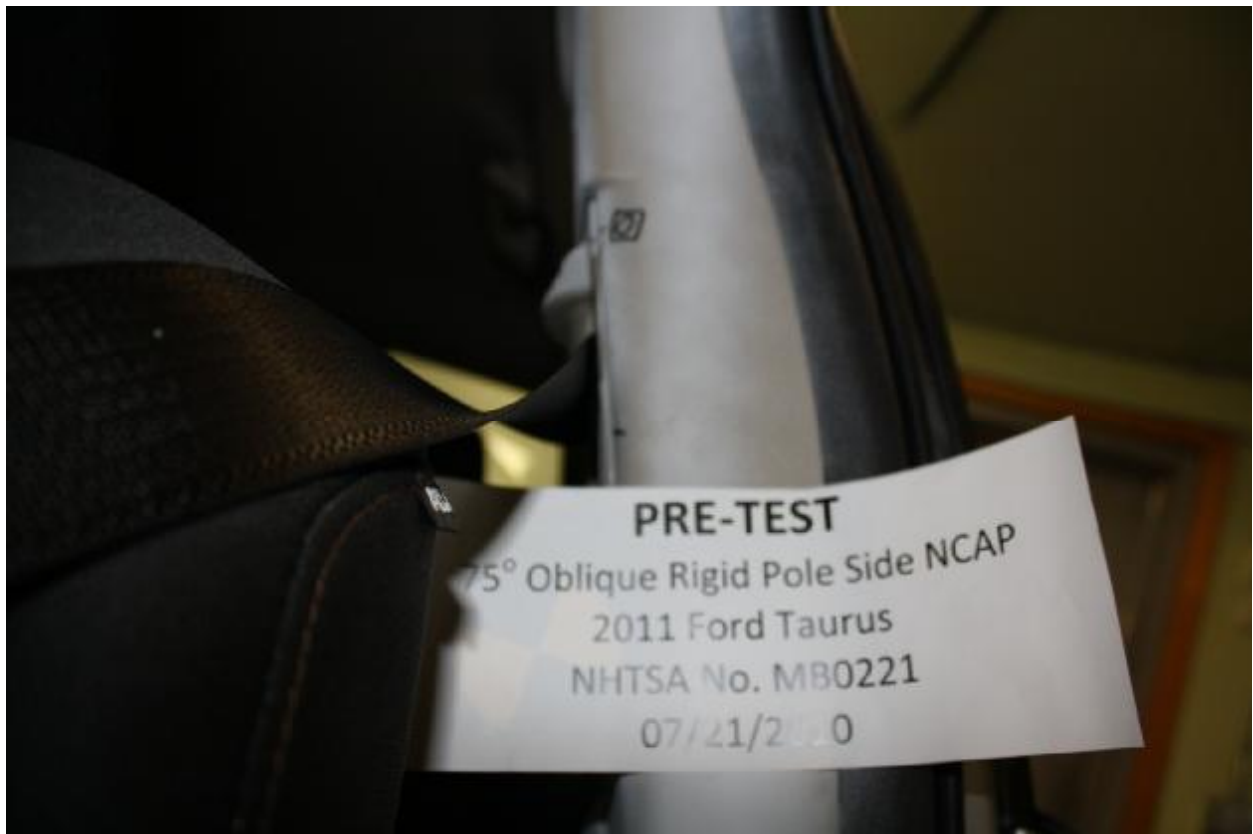


Figure A-33: Pre-Test View of Belt Anchorage for Dummy to Show Position

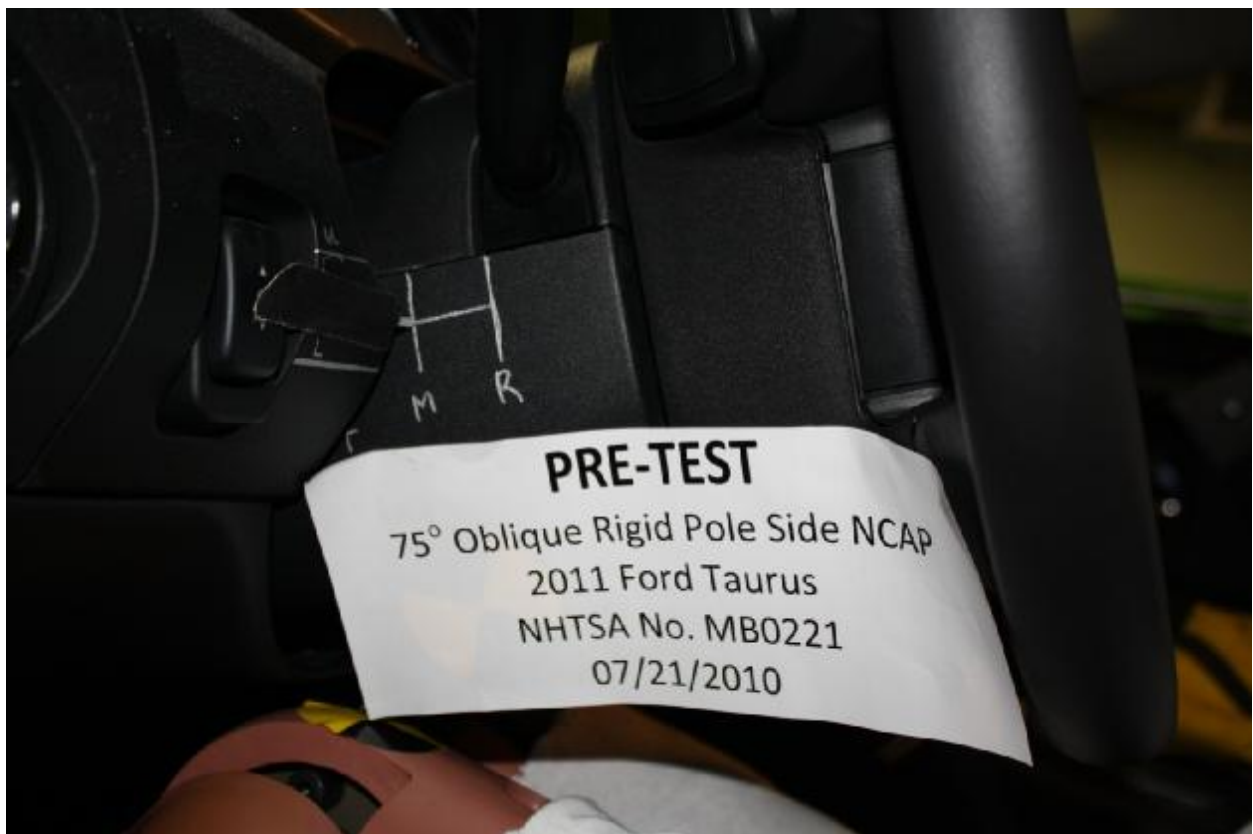


Figure A-34: Pre-Test Left Side View of Steering Wheel to Show Position



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

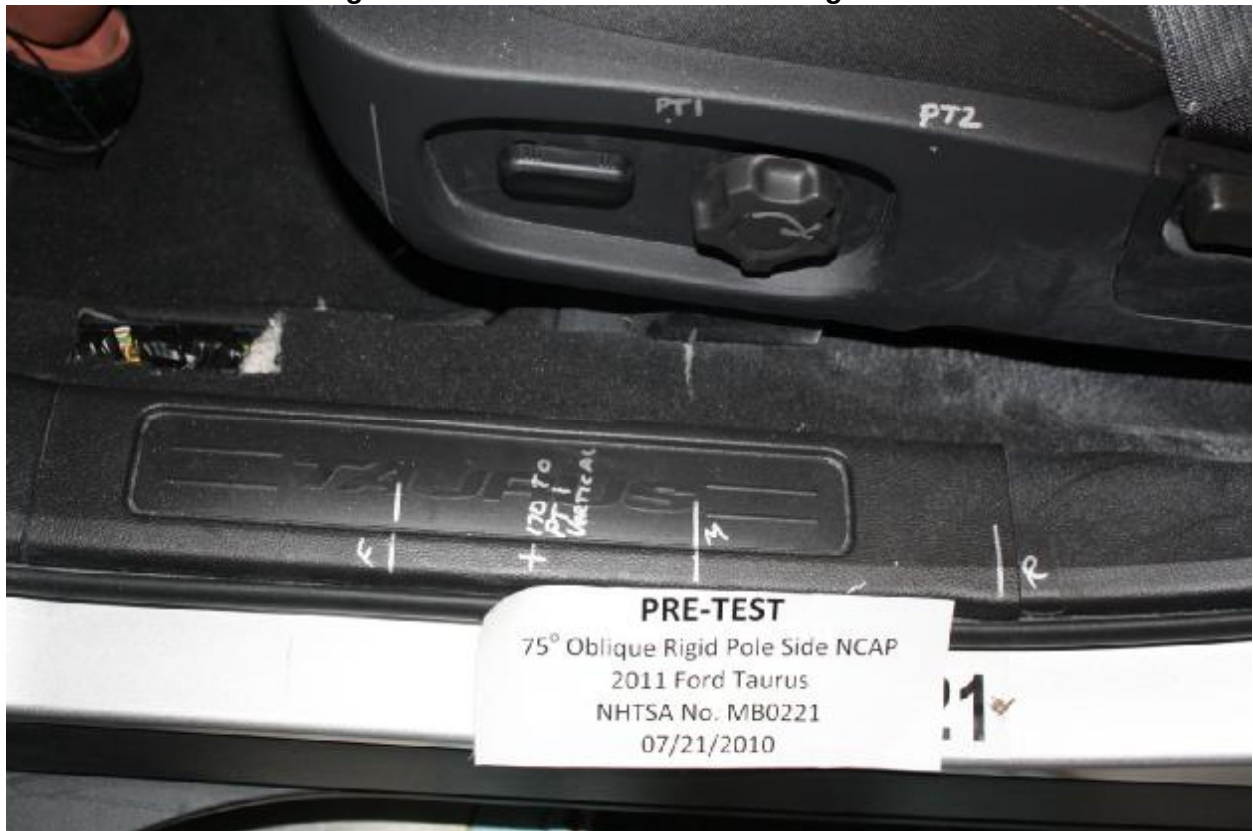


Figure A-36: Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position

Photograph Not Available

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 Compartment



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

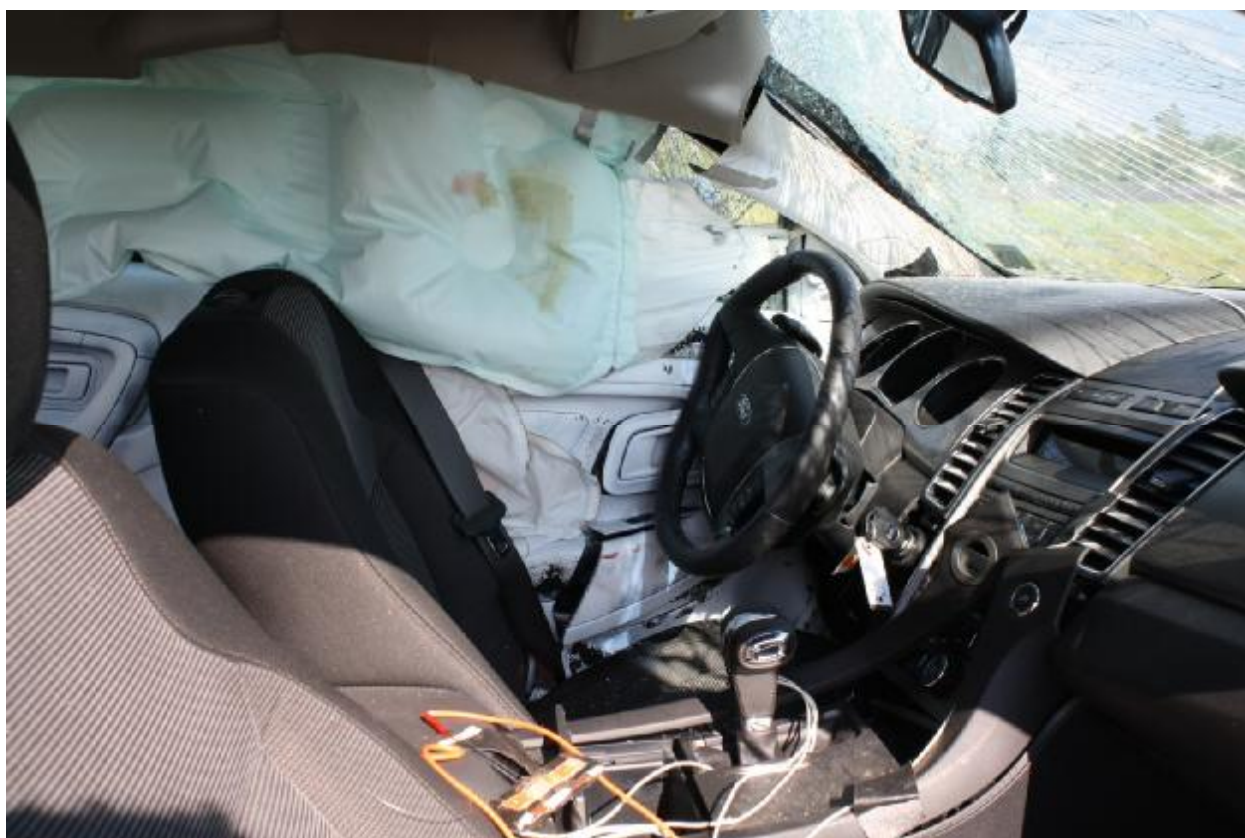


Figure A-44: Post-Test Inner Door Panel View Showing Dummy Contact Location



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

Photograph Not Available – No Contact

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

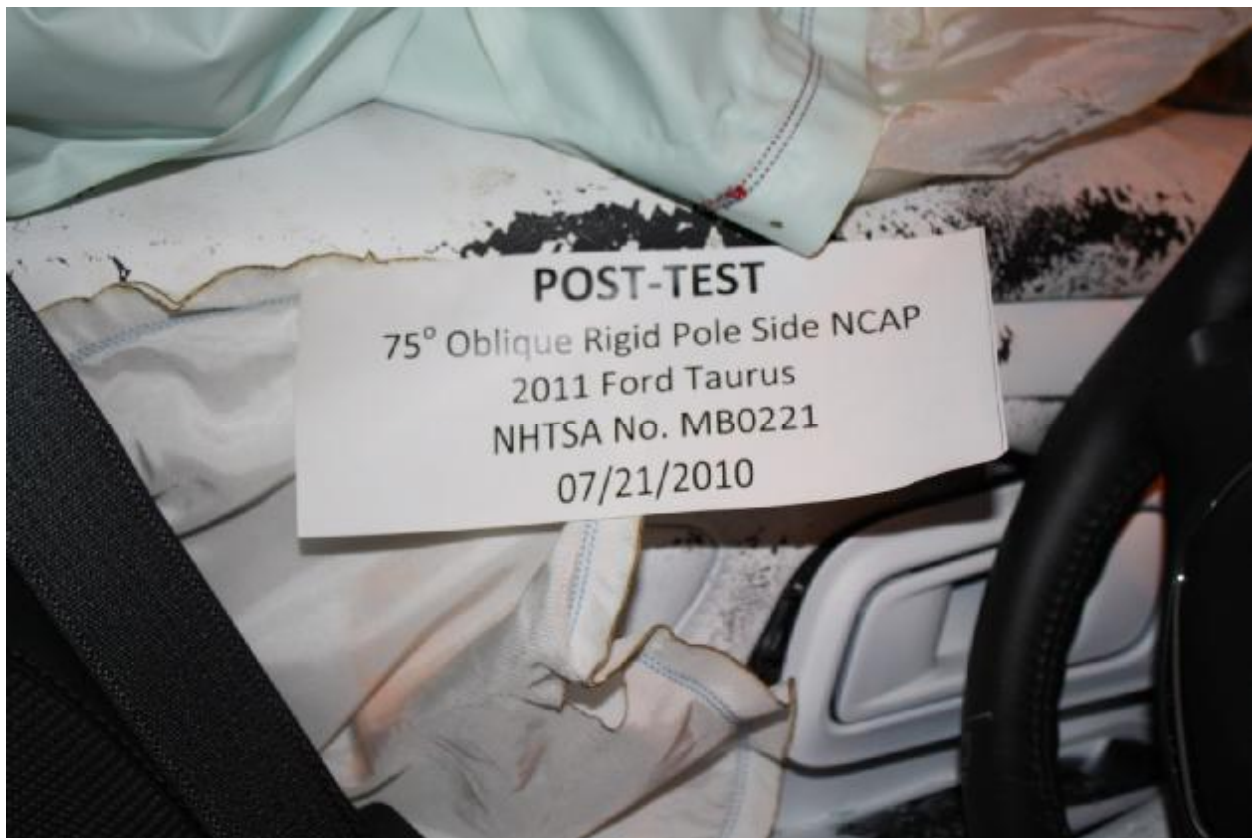


Figure A-48: Post-Test Dummy Close-Up Torso Contact with Side Airbag View



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

Photograph Not Available – No Contact

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

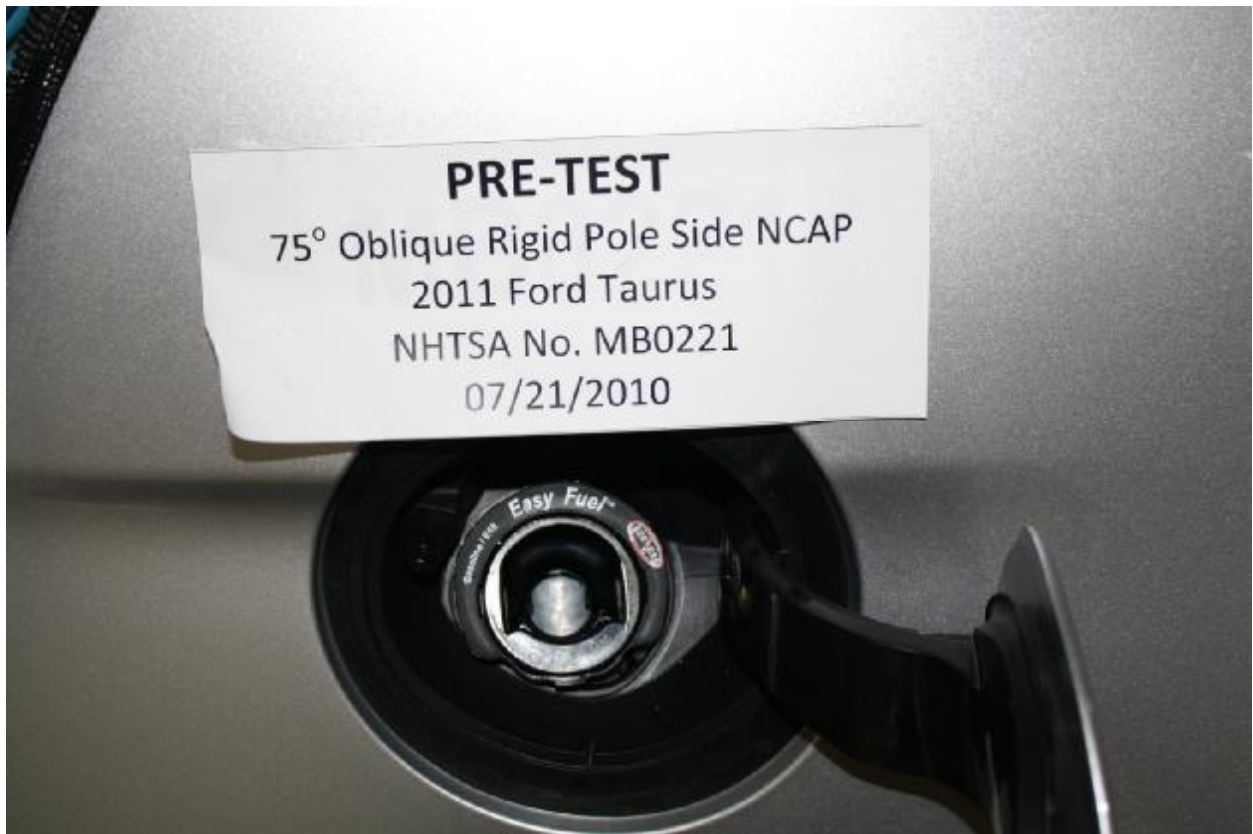


Figure A-51: Pre-Test View of Fuel Filler Car or Fuel Filler Neck



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

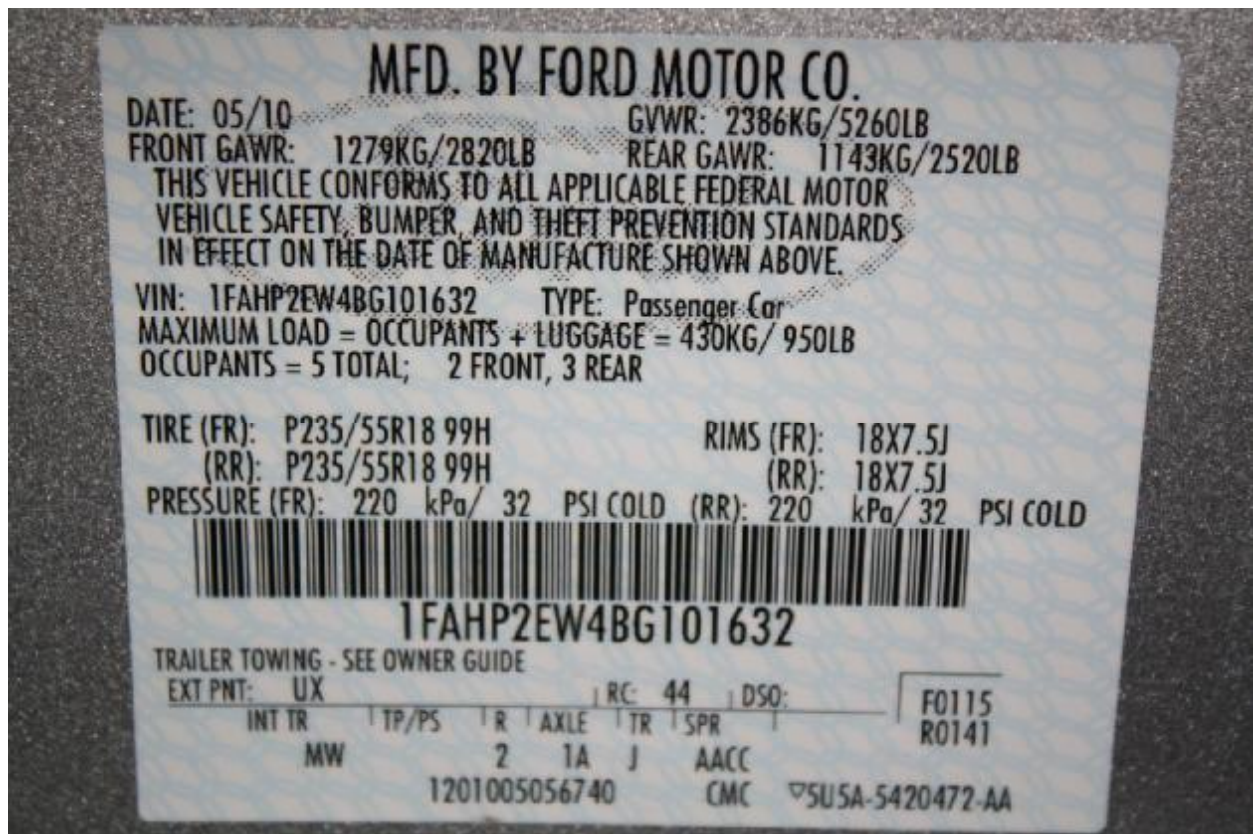


Figure A-53: Close-Up View of Vehicle's Certification Label

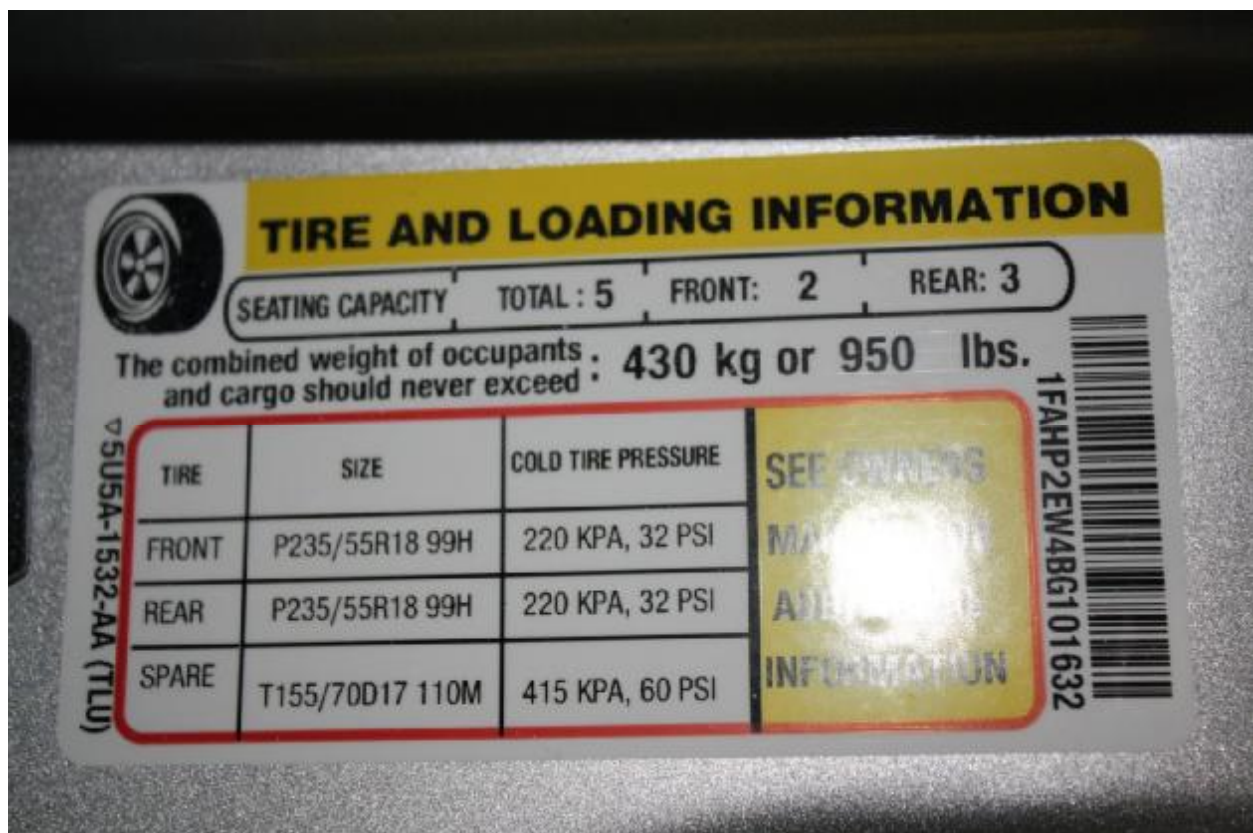


Figure A-54: Close-Up View of Vehicle's Tire Information Placard or Label



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 (Impact Side)

Ford **TAURUS** 2011 SEL FWD 5-PASSENGER 3.6L V6 DURATEC ENGINE 5-SPEED AUTO TRANSMISSION EXTERIOR INGOT SILVER METALLIC INTERIOR CHARCOAL BLK CLOTH SEATING **701632**

www.fordvehicles.com

STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE

EXTERIOR

- PROJECTION BEAM HALOGEN HEADLAMPS
- SUPPLEMENTAL PARK LAMPS
- DUAL POWER SEATED RECORDERS
- SECURITY APPROACH LAMPS
- REMOTE KEYLESS ENTRY
- 18" PAINTED ALUMINUM WHEELS

INTERIOR

- 6-WAY POWER DRIVER'S SEAT
- 50/50 100% FLAT REAR BENCH
- DUAL ZONE ELEC TEMP CTRL
- MESSAGE CTR W/COMPASS
- TILT/TELESCOPING LEATHERS
- POWERED STEERING WHEEL
- AM/FM CD PLAYER W/LOCK
- MP3 ADED INPUT JACK
- SERVO SAT SVC N/A ANGLE
- DOME LAMP & MAP LIGHTS
- 8 CUP/HOLDER HOLDERS

FUNCTIONAL

- FRONT WHEEL DRIVE
- JOINTWHEEL DRIVE
- 3.6L V6 DISC BRAKES W/ABS
- TRANSMISSION - SELECTSHIFT
- AUTO W/TE PADDLE SHIFTERS
- EASY FUEL CAPLESS FILLER
- 19.0 GALLON FUEL TANK
- 180 MPH

SAFETY/SECURITY

- 500 POST CRASH ALERT SYS
- PERSONAL SAFETY SYSTEM
- FRONT SEAT SIDE AIRBAGS
- SAFETY CANOPY - 7 ROWS
- MULTIPLE AIRBAG
- TIRE PRESSURE MONITOR SYS

WARRANTY

- 3YR/50,000 BUMPER TO BUMPER
- 5YR/100,000 POWERTRAIN
- 5YR/100,000 ROADSIDE ASSIST

PRICE INFORMATION

STANDARD VEHICLE PRICE \$27,370.00

INCLUDED ON THIS VEHICLE

OPTIONAL EQUIPMENT

FRONT LICENSE PLATE BRACKET NO CHARGE

CALIFORNIA EMISSIONS SYSTEM NO CHARGE

TOTAL OPTIONS 00

TOTAL VEHICLE & OPTIONS 27,370.00

DESTINATION & DELIVERY 825.00

EPA Fuel Economy Estimates

CITY MPG **18**

Expected range for most drivers 14 to 22 MPG

Estimated Annual Fuel Cost **\$1,856**

based on 15,000 miles at \$2.60 per gallon

Highway MPG **27**

Expected range for most drivers 23 to 33 MPG

Combined Fuel Economy **23**

18 23 28

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

GOVERNMENT SAFETY RATINGS

Frontal Crash Driver Not Rated Passenger Not 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 Not Rated Rear seat Not 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

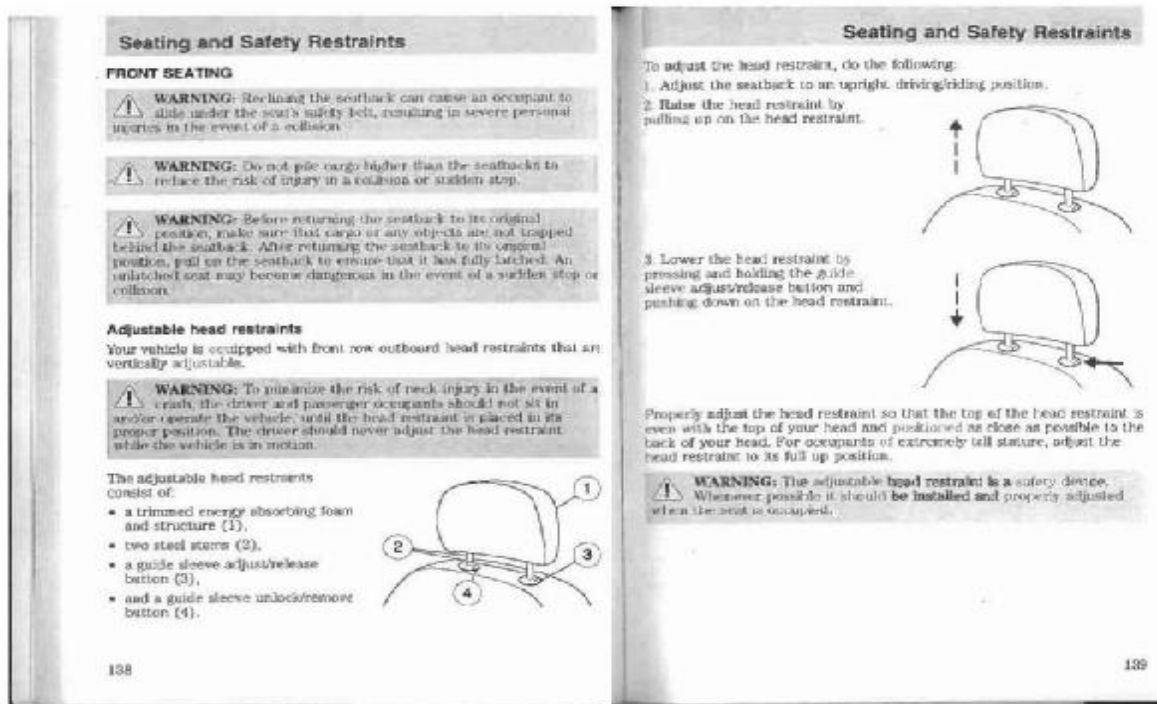


Figure A-68: Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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

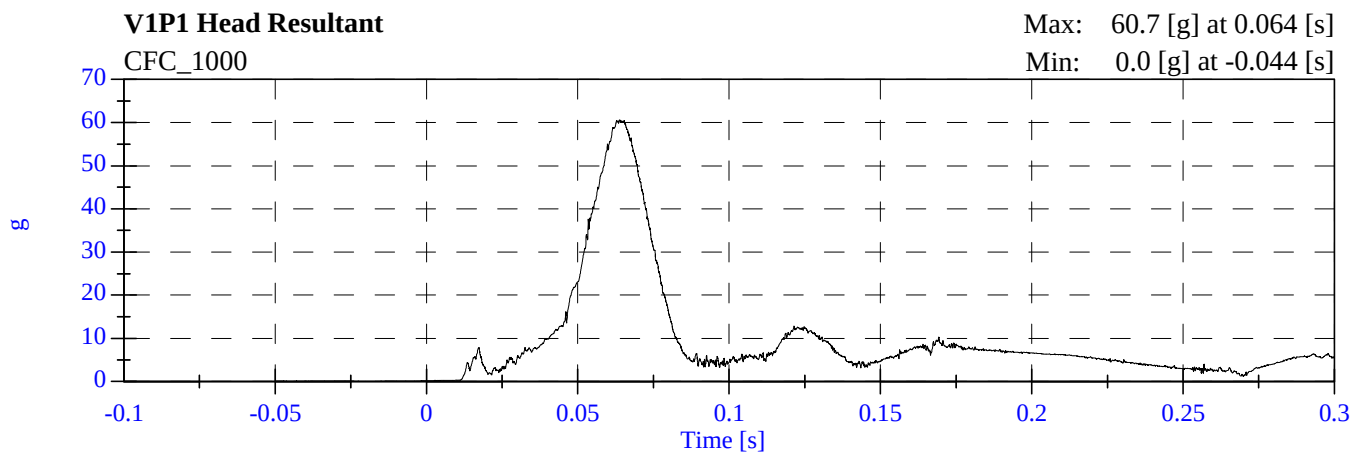
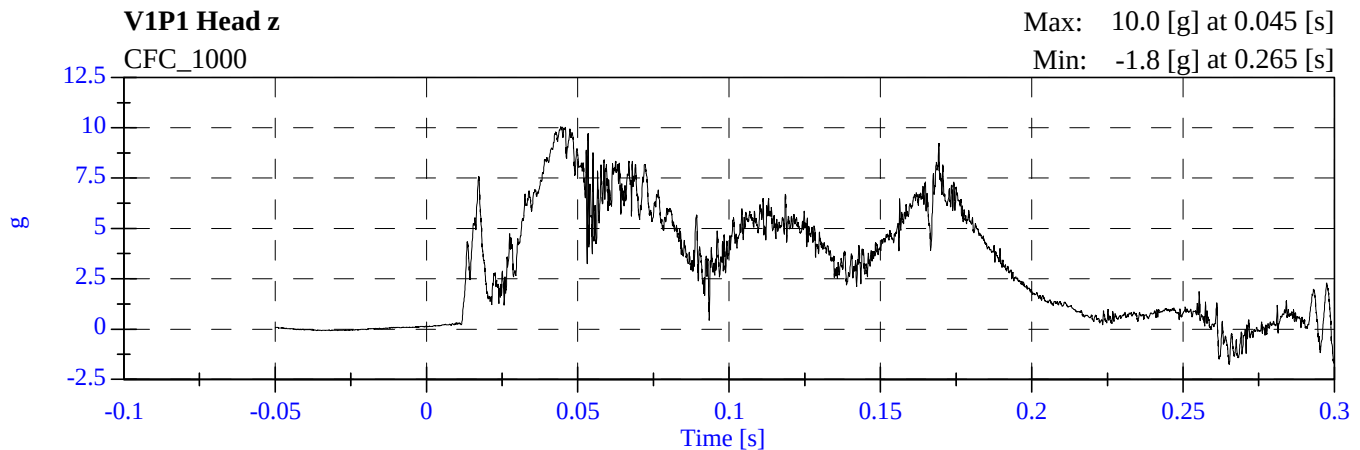
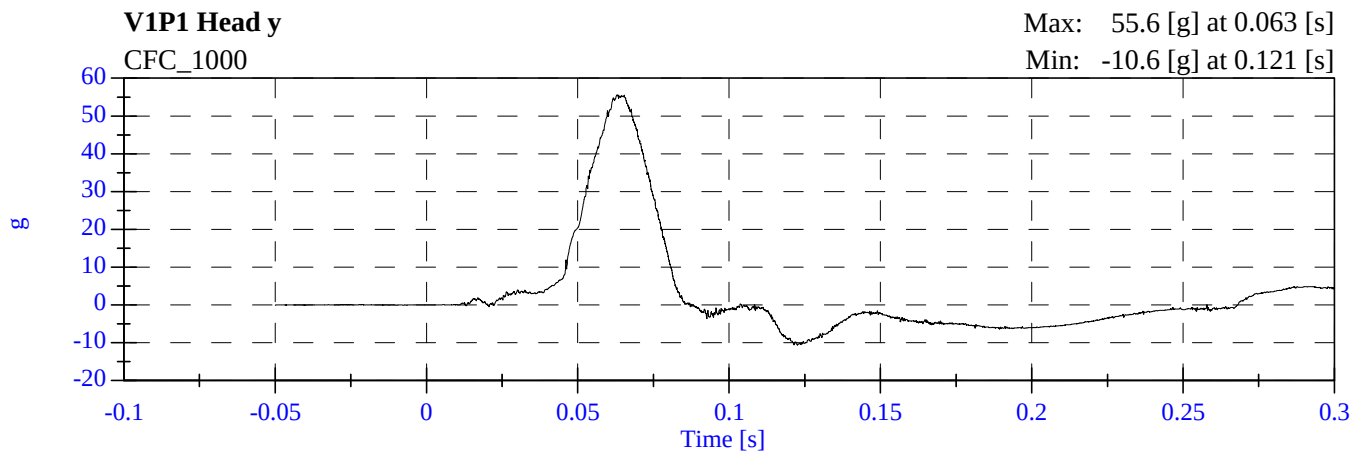
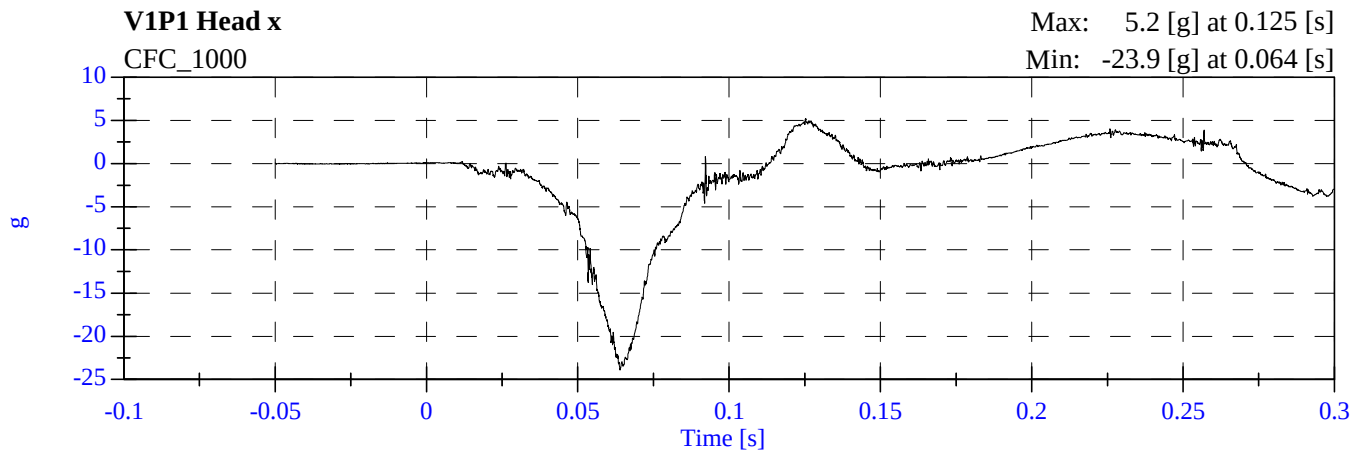
Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Vehicle Center of Gravity Angular Rate About X (Roll)
Vehicle Center of Gravity Angular Rate About Y (Pitch)
Vehicle Center of Gravity Angular Rate About Z (Yaw)
Left Floor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

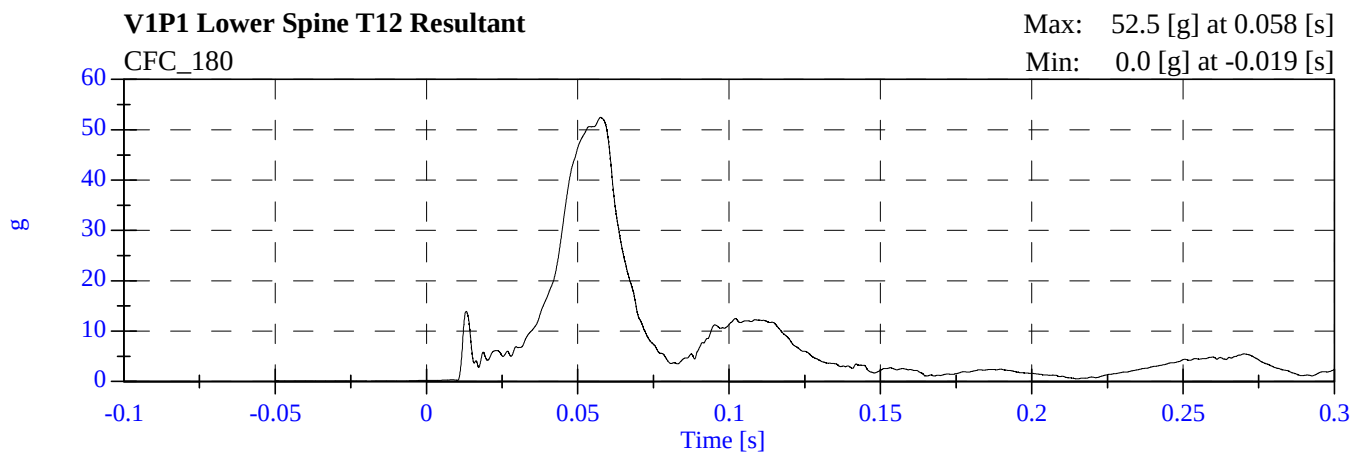
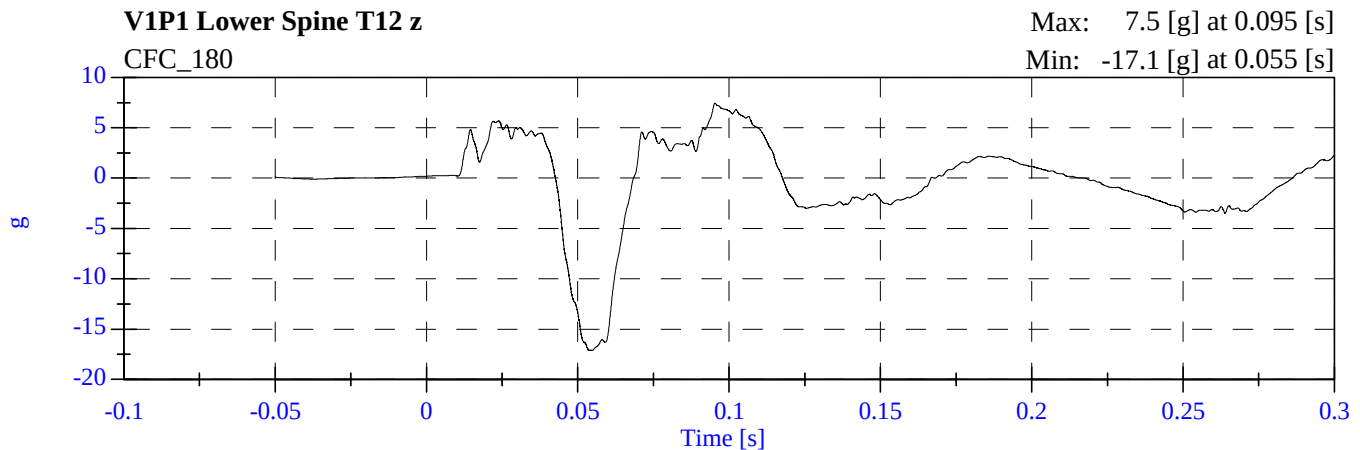
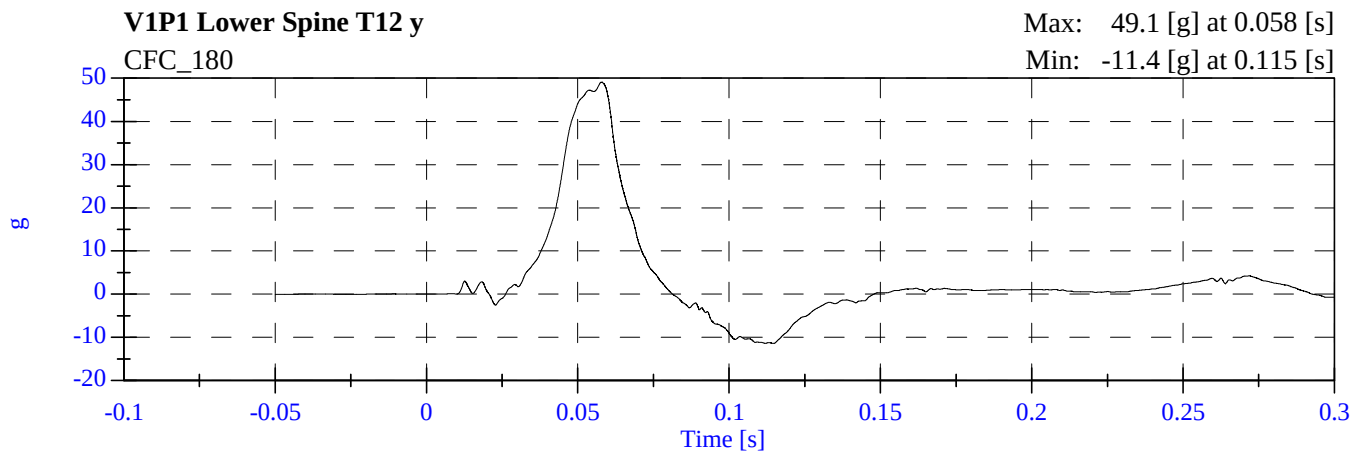
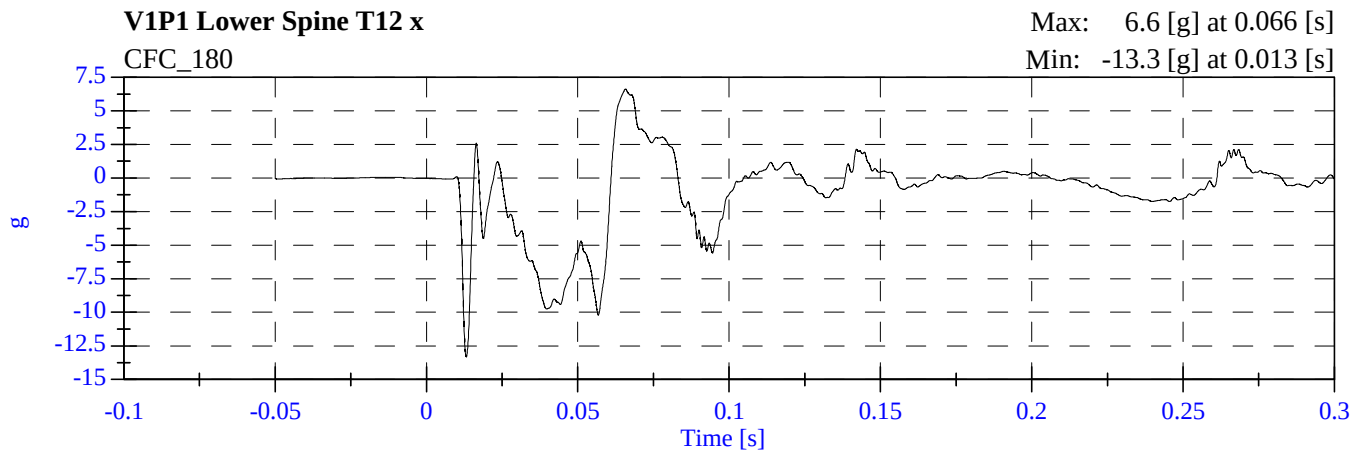
Side Pole NCAP 2011 Ford Taurus

MB0221 - July 21, 2010



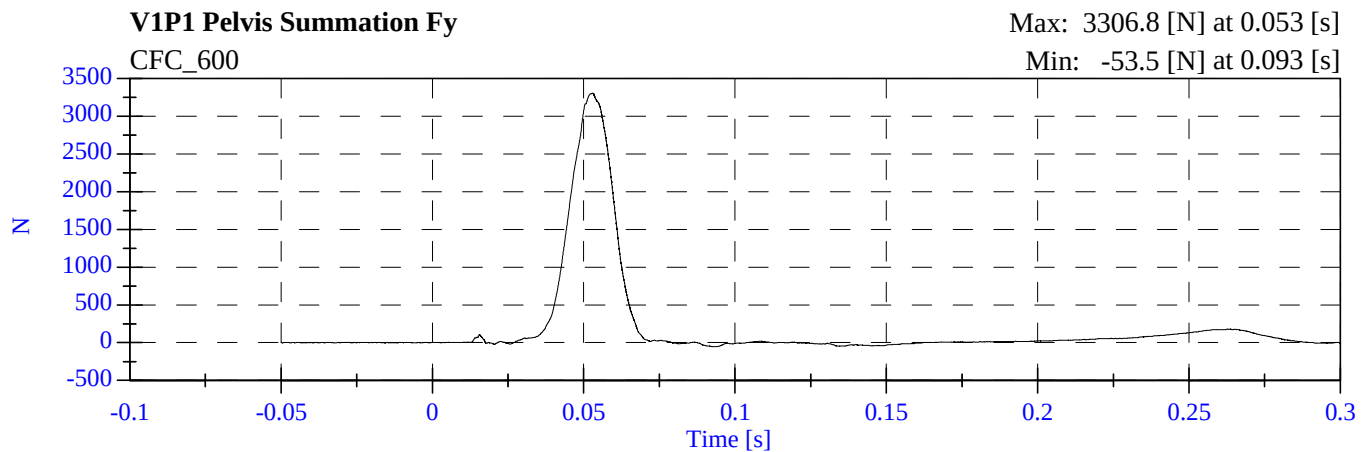
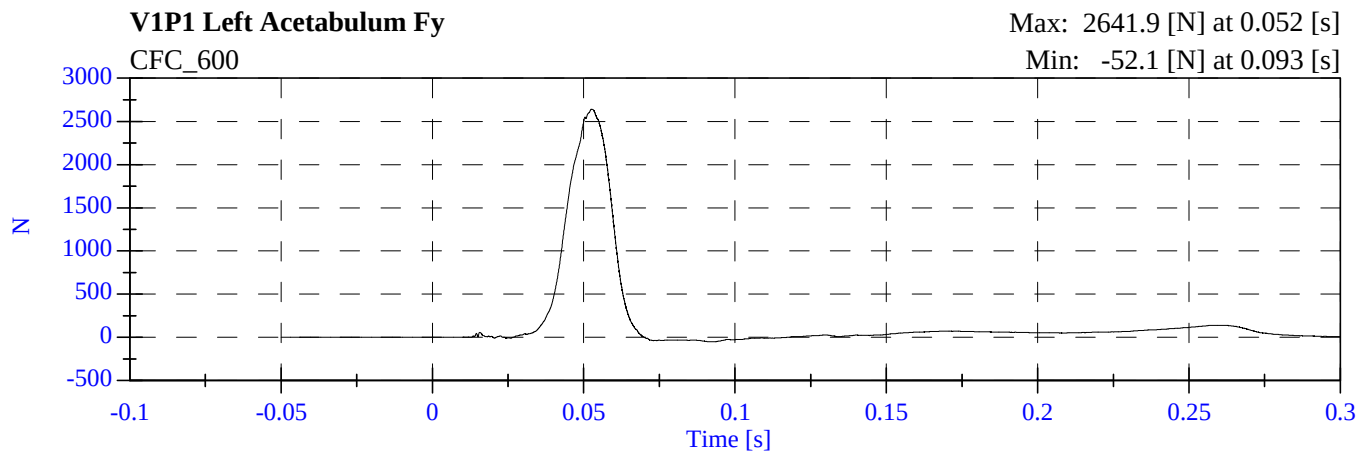
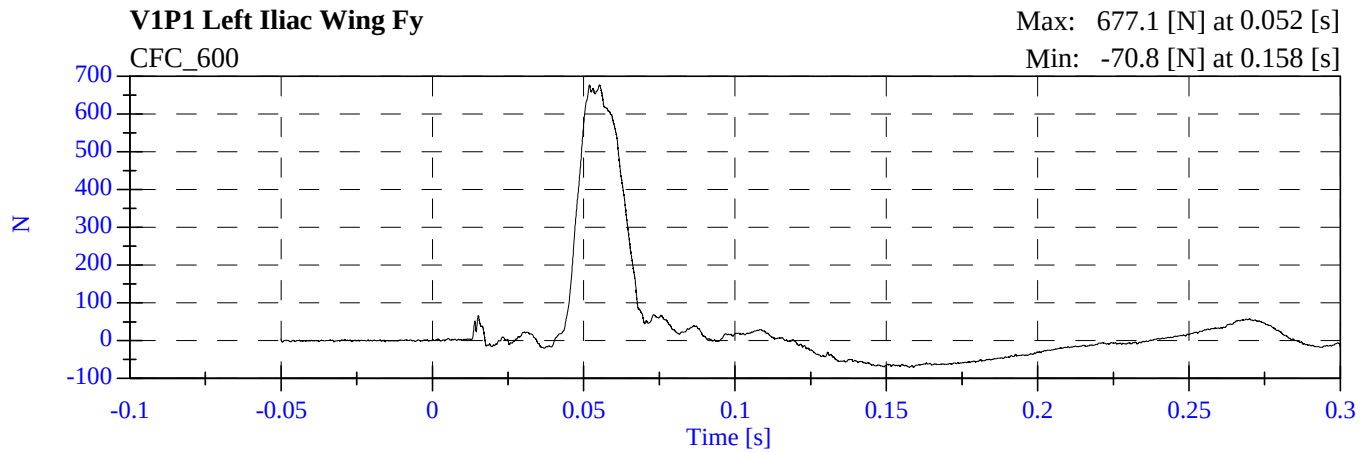
Side Pole NCAP 2011 Ford Taurus

MB0221 - July 21, 2010



Side Pole NCAP 2011 Ford Taurus

MB0221 - July 21, 2010



APPENDIX C
DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 304

CONFIGURED FOR LEFT SIDE IMPACT

SID-IIsD External Measurements

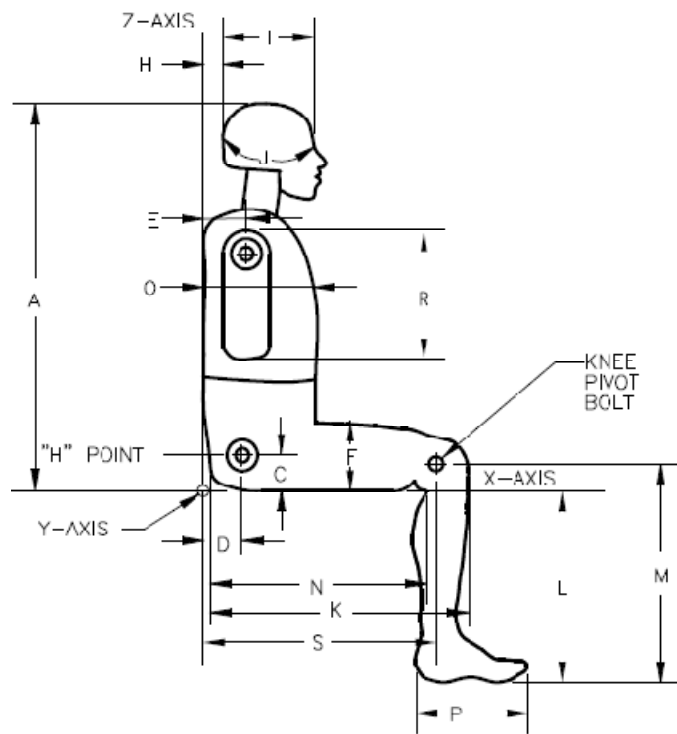
NHTSA ATD S/N 304

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	146	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	104	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	546	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	428	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	485	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	870	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

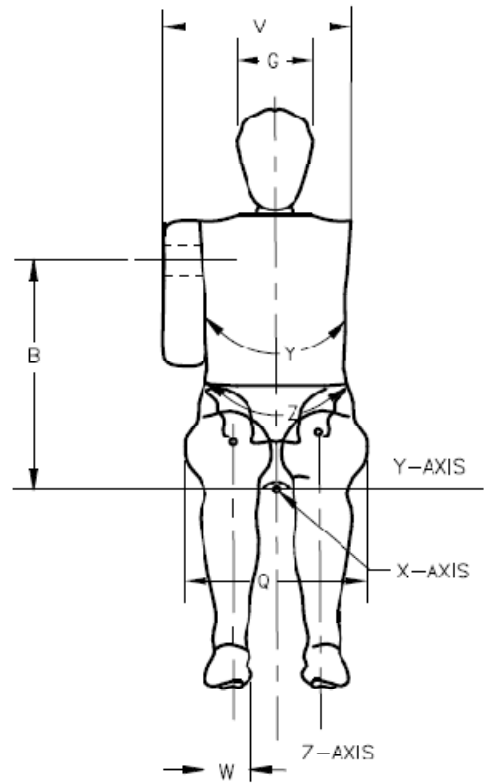
Technician : A. Rudniski

Date: 6/30/2010

SID-IIsD 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 304		
Test ID:	Head Drop	Test Date:	6/30/2010
Test Number:	1	Test Time:	11:25:23 AM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	43 %RH P
Resultant Acceleration	115.0 -- 137.0	116.2 g P
Oscillation	0.0 -- 15.0	2.2 % P
Fore-Aft Acceleration	-15.0 -- 15.0	-5.7 g P

All test parameters are within specifications

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

Test ID: **Head Drop**

Test Time: **11:25:23 AM**

Test Date: **6/30/2010**



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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	P58737	3/25/2010
Endevco	7264-2000	P52100	3/25/2010
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Test ID: **Head Drop**

Test Time: **11:25:23 AM**

Test Date: **6/30/2010**



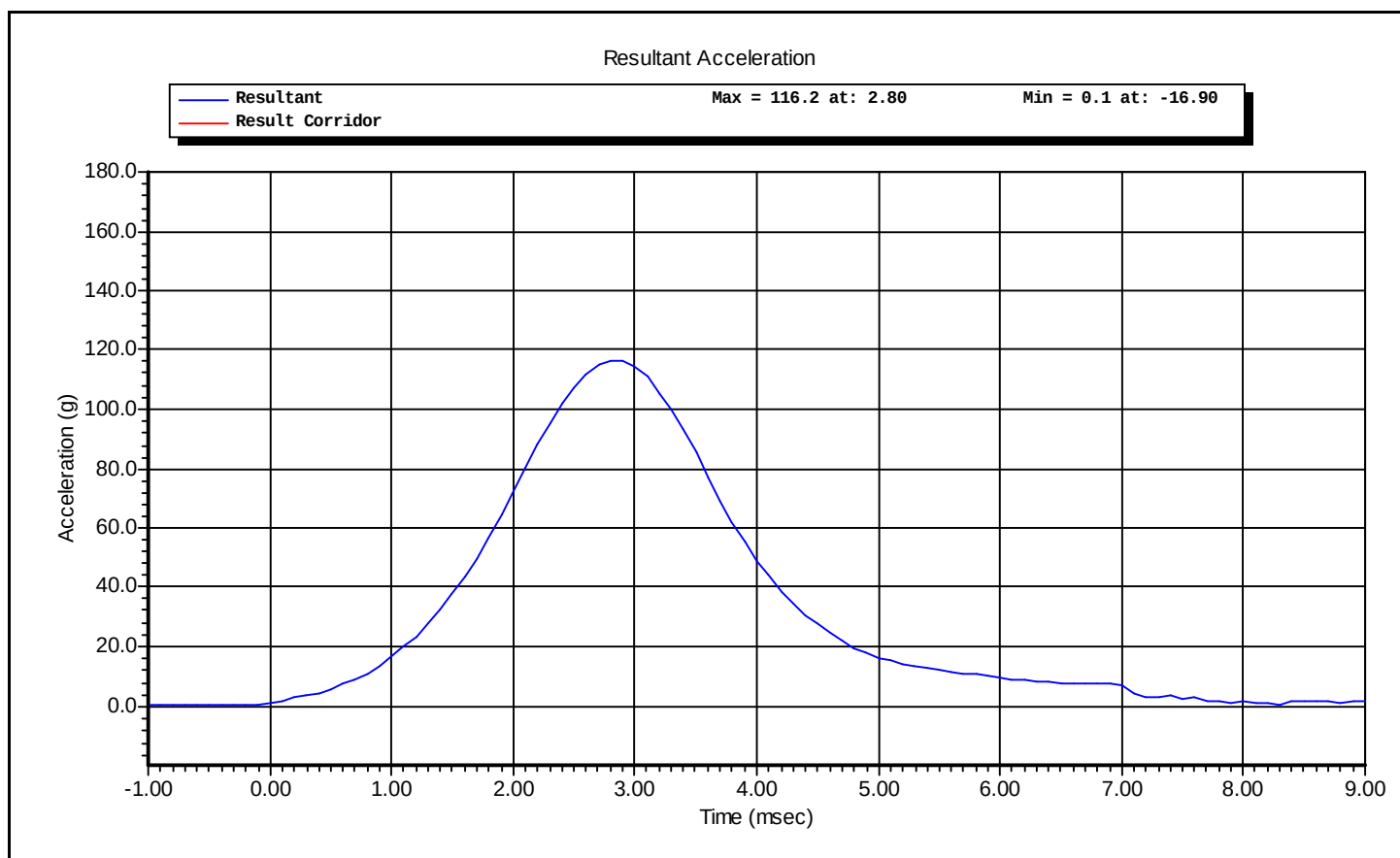
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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Head Drop	Test Date:	6/30/2010
Test Number:	1	Test Time:	11:25:23 AM

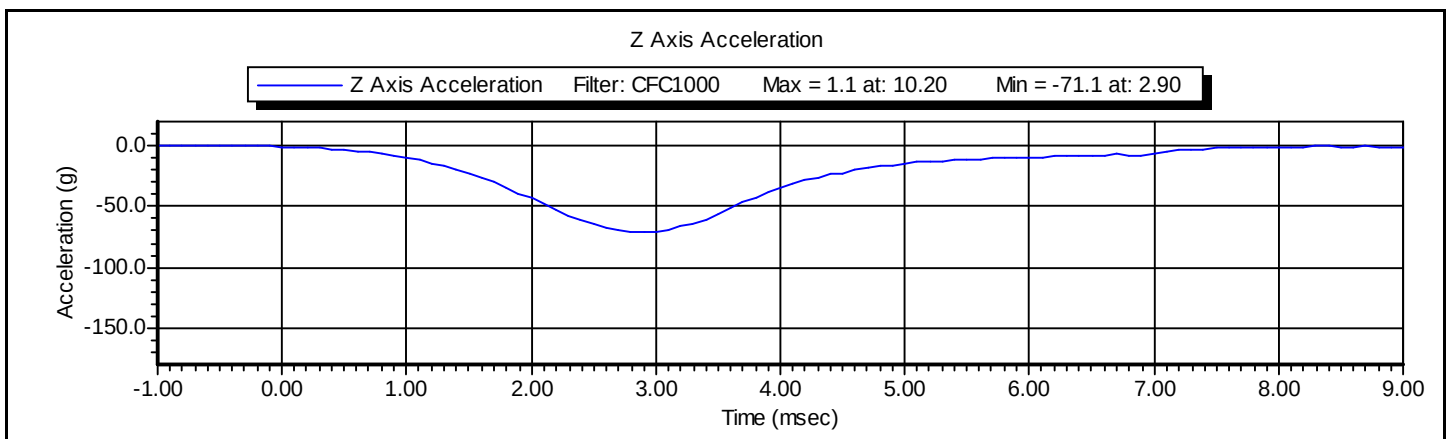
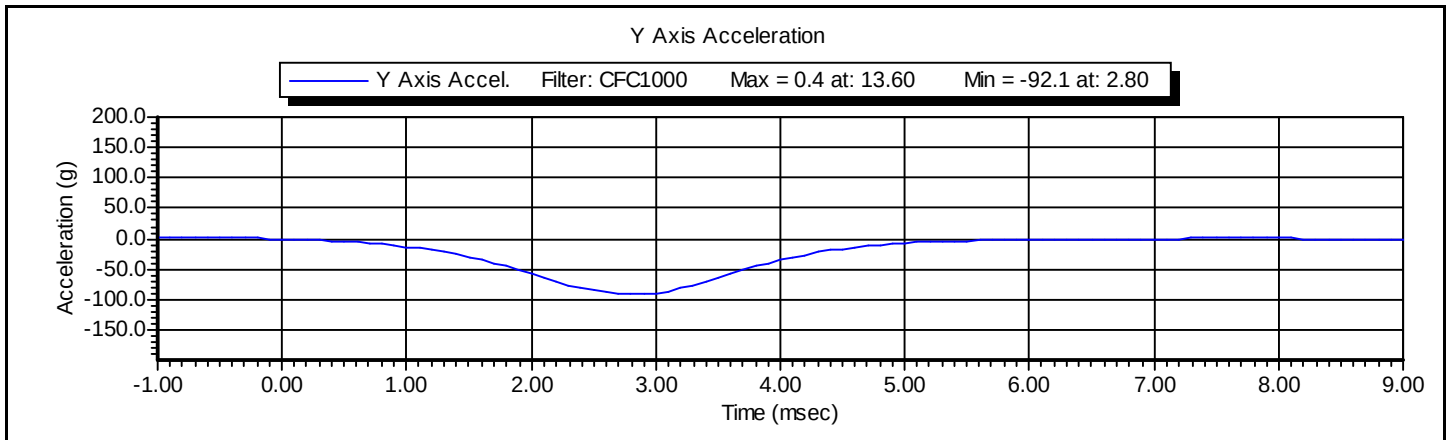
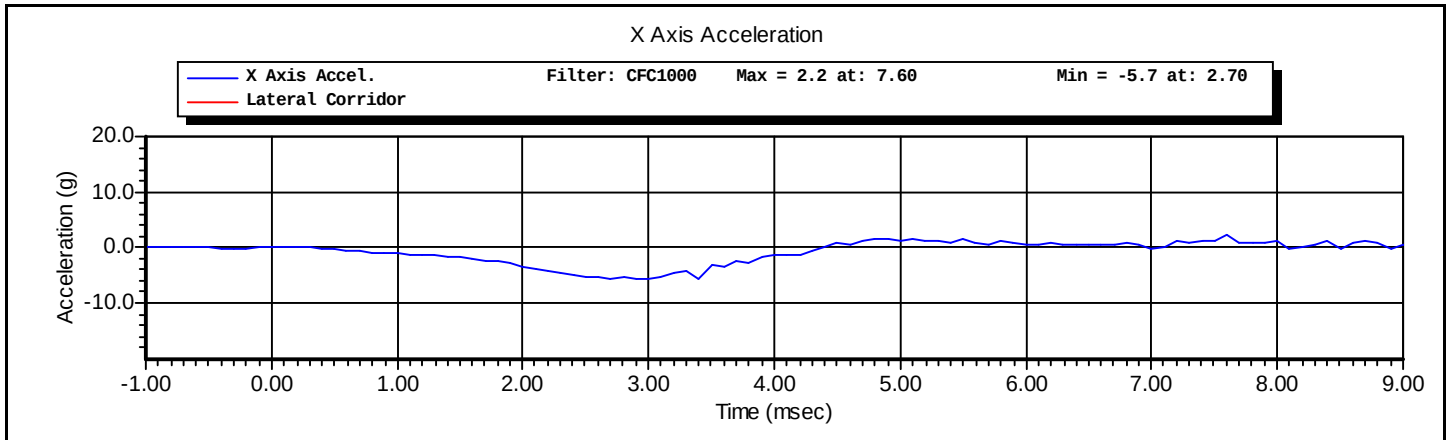
Component Part Number	Component Serial Number
Head Skin - 180-1002	1371



Test ID: Head Drop

Test Time: 11:25:23 AM

Test Date: 6/30/2010





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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:	7/1/2010
Test Number:	1	Test Time:	3:48:19 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.20 deg C P
Humidity	10.0 -- 70.0	42.0 %RH P
Velocity	4.20 -- 4.40	4.35 m/s P
Probe Acceleration	13.0 -- 18.0	16.0 g P
Shoulder Deflection	28.0 -- 37.0	31.8 mm P
T1 Acceleration	17.0 -- 22.0	19.6 g P

All test parameters are within specifications

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

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

Test ID: **Shoulder**

Test Time: **3:48:19 PM**

Test Date: **7/1/2010**



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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	7264-2000	P16576	4/6/2010
Servo	180-3885	DS-1154	3/26/2010
Endevco	7264-2000	P58884	3/29/2010

Test ID: **Shoulder**

Test Time: **3:48:19 PM**

Test Date: **7/1/2010**



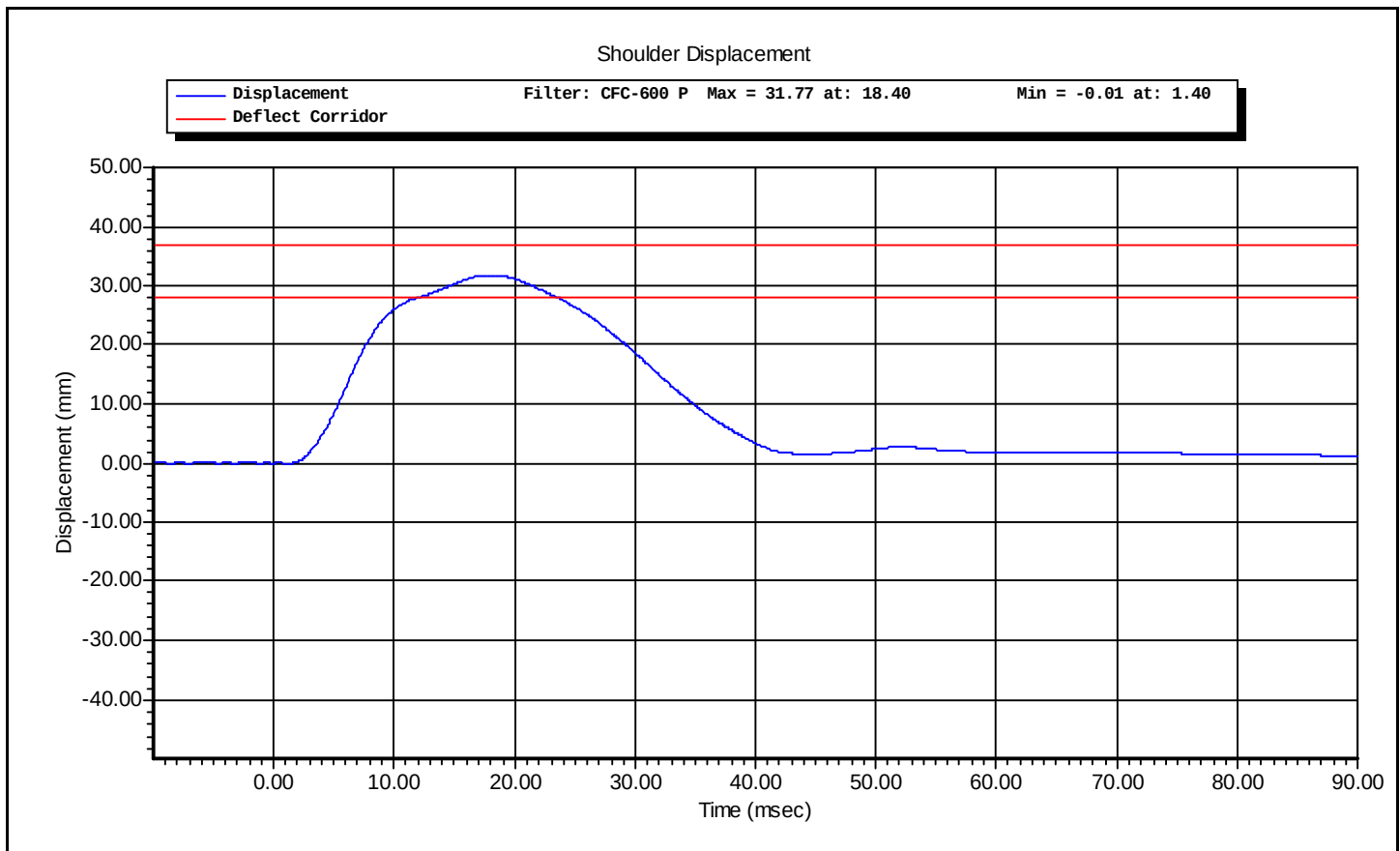
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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Shoulder	Test Date:	7/1/2010
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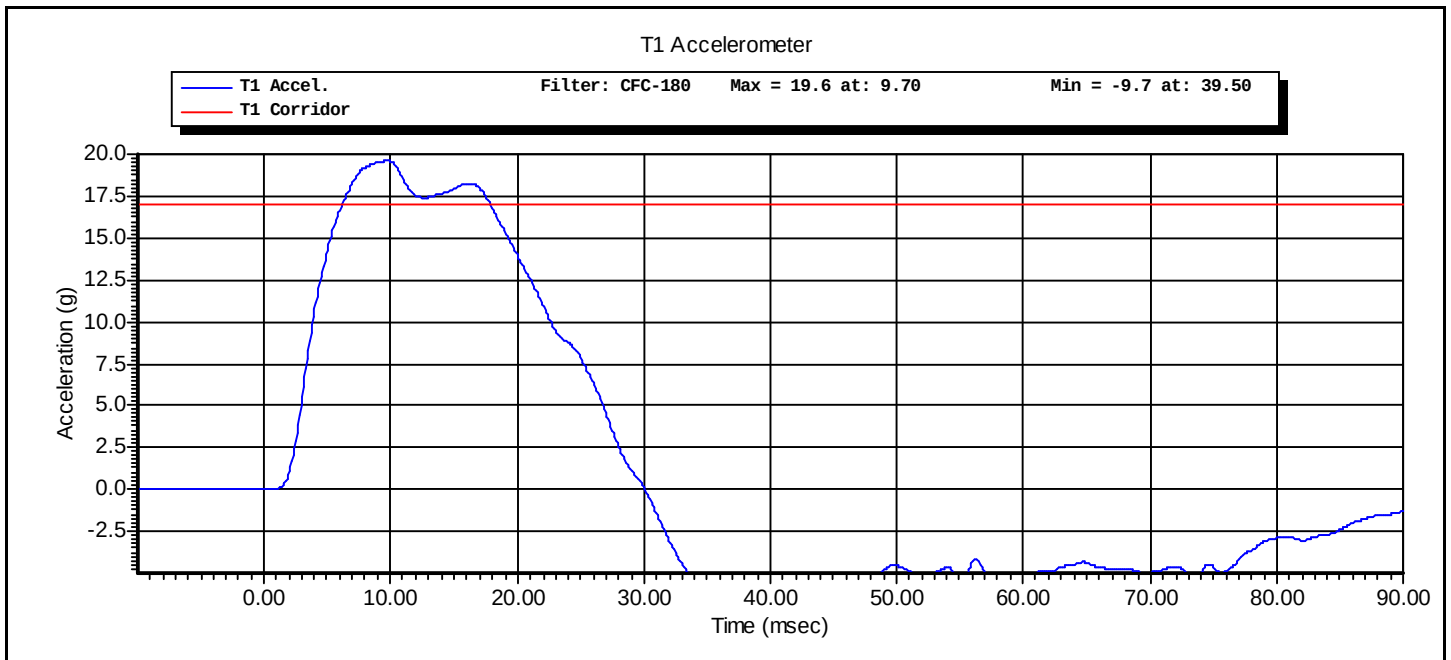
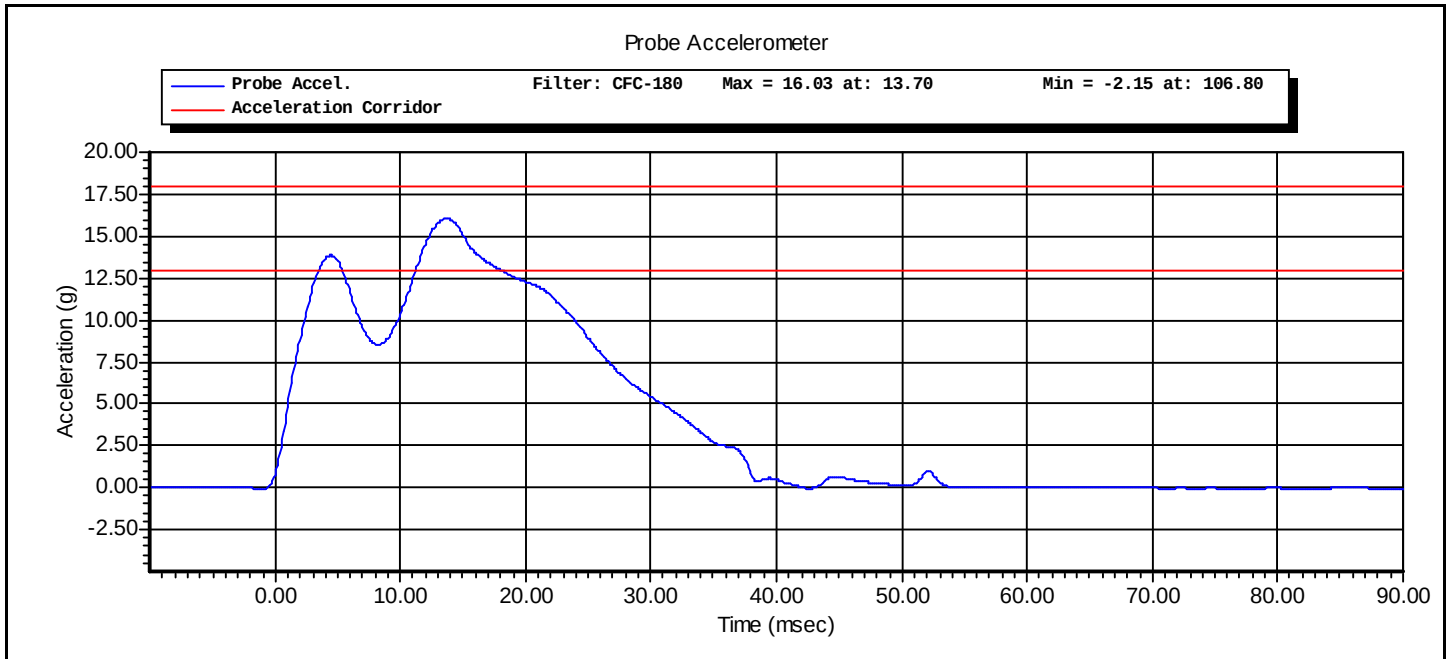
Component Part Number	Component Serial Number
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Test ID: **Shoulder**

Test Time: **3:48:19 PM**

Test Date: **7/1/2010**





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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:	7/1/2010
Test Number:	1	Test Time:	4:42:04 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	42 %RH P
Velocity	6.60 -- 6.80	6.68 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	34.8 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	28.4 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	31.3 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	33.3 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	41.9 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	34.9 g P
Shoulder Deflection	31.0 -- 40.0	36.8 mm P

All test parameters are within specifications

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

Test ID: **Thorax With Arm** Test Time: **4:42:04 PM** Test Date: **7/1/2010**



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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	7264-2000	P16576	4/6/2010
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	P58884	3/29/2010
Endevco	7264-2000	P58839	3/29/2010
Servo	180-3885	DS-1188	3/26/2010

Test ID: **Thorax With Arm** Test Time: **4:42:04 PM**

Test Date: **7/1/2010**



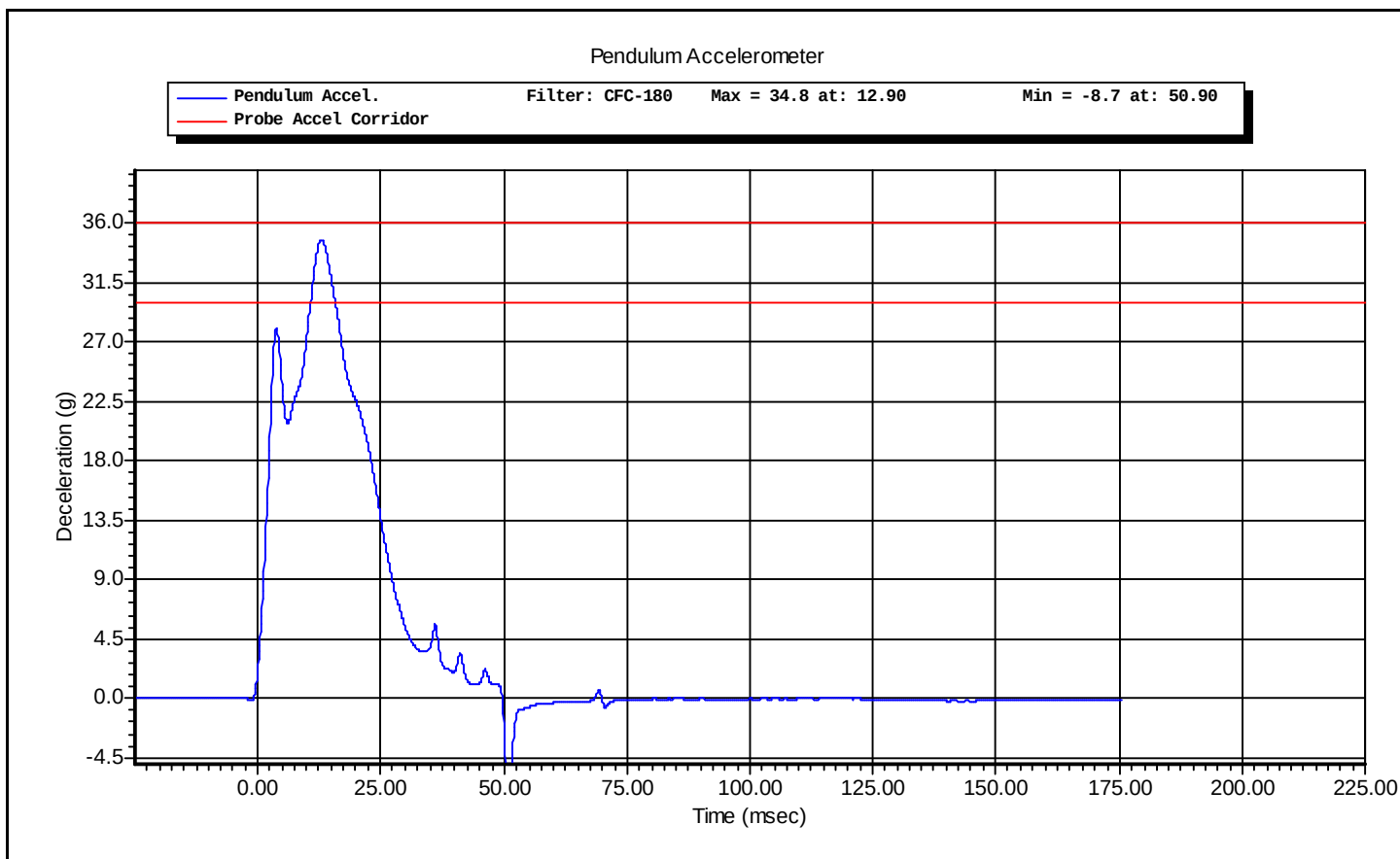
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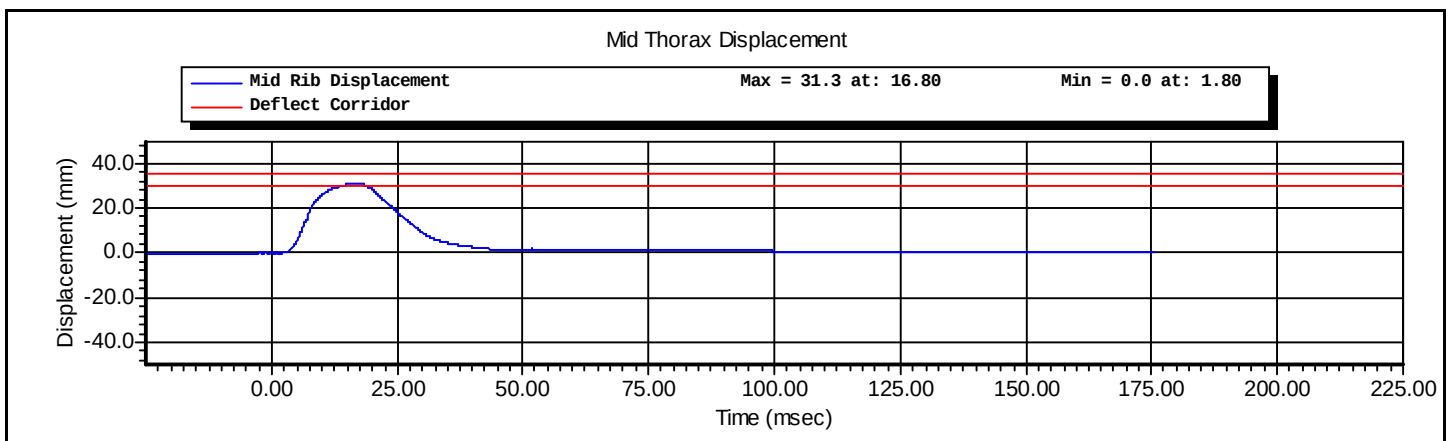
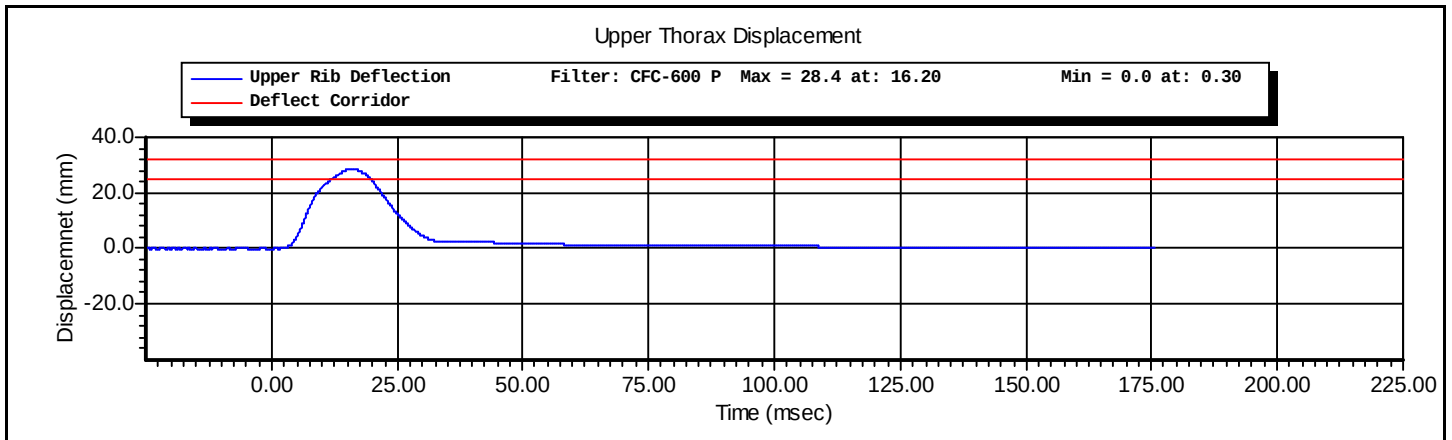
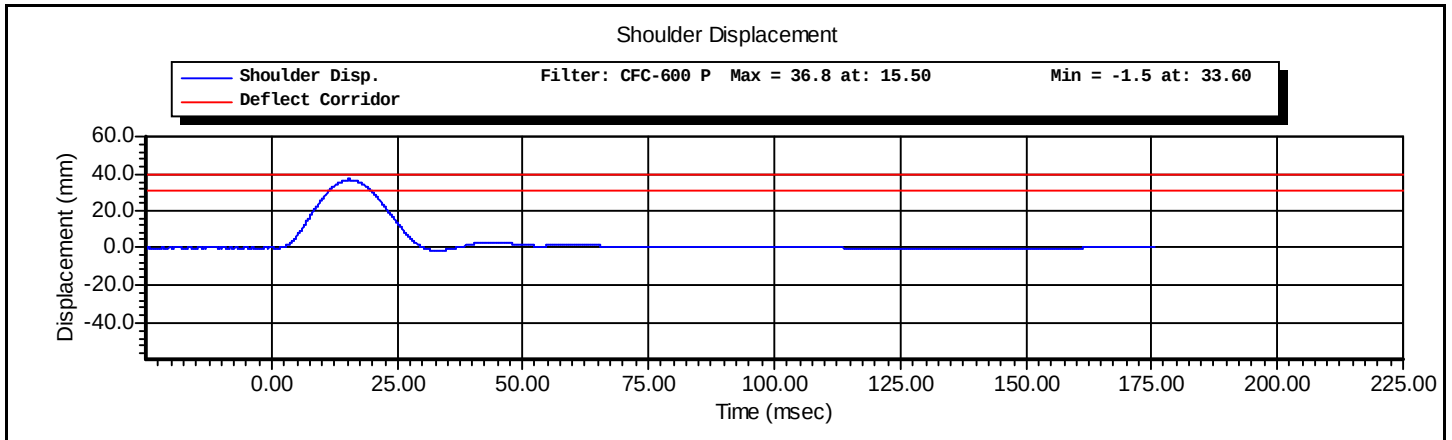
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ATD Type:	SID-IIs		
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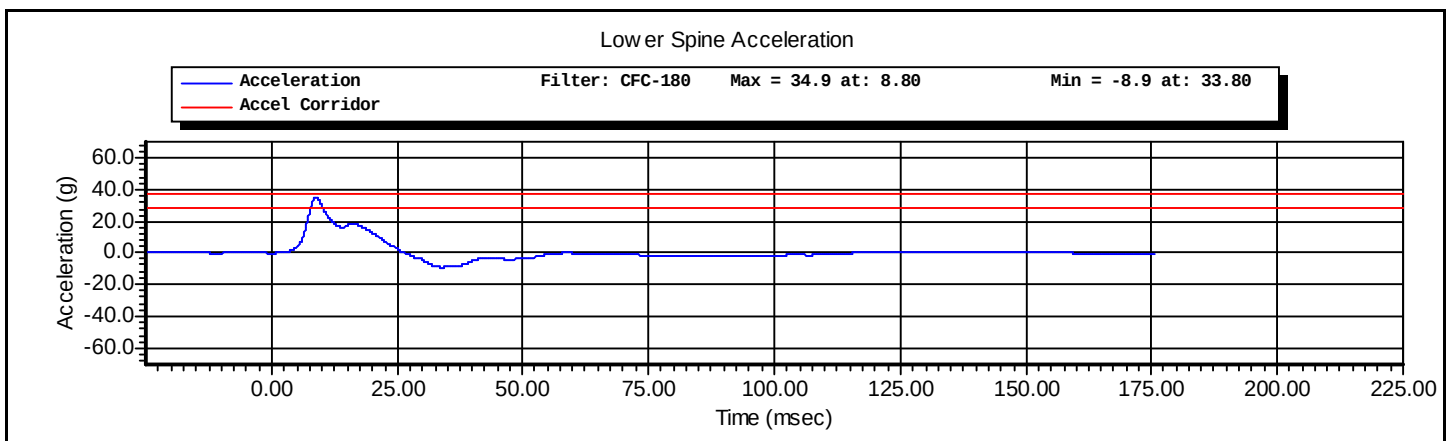
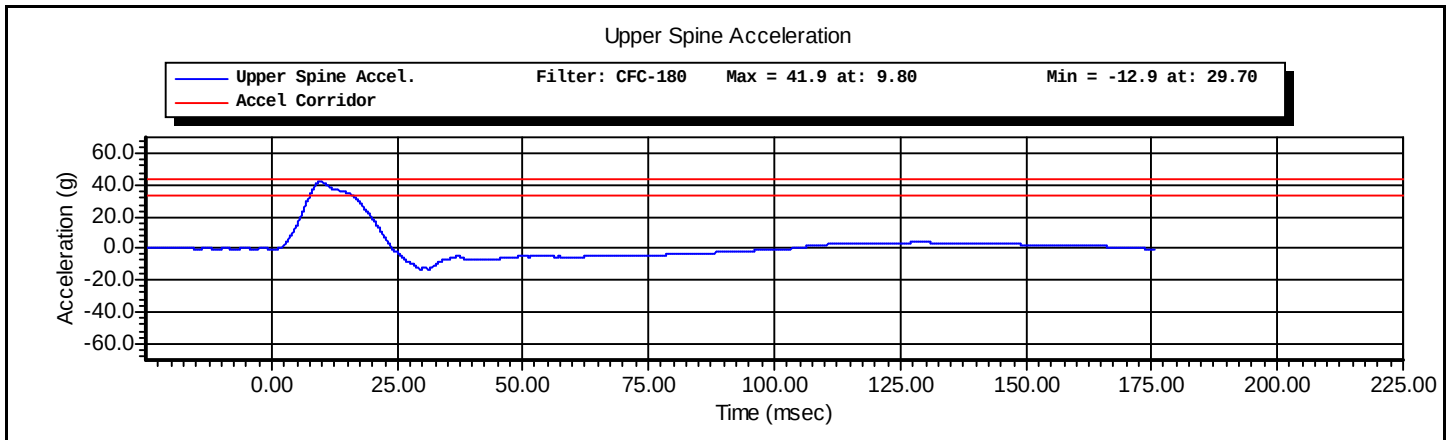
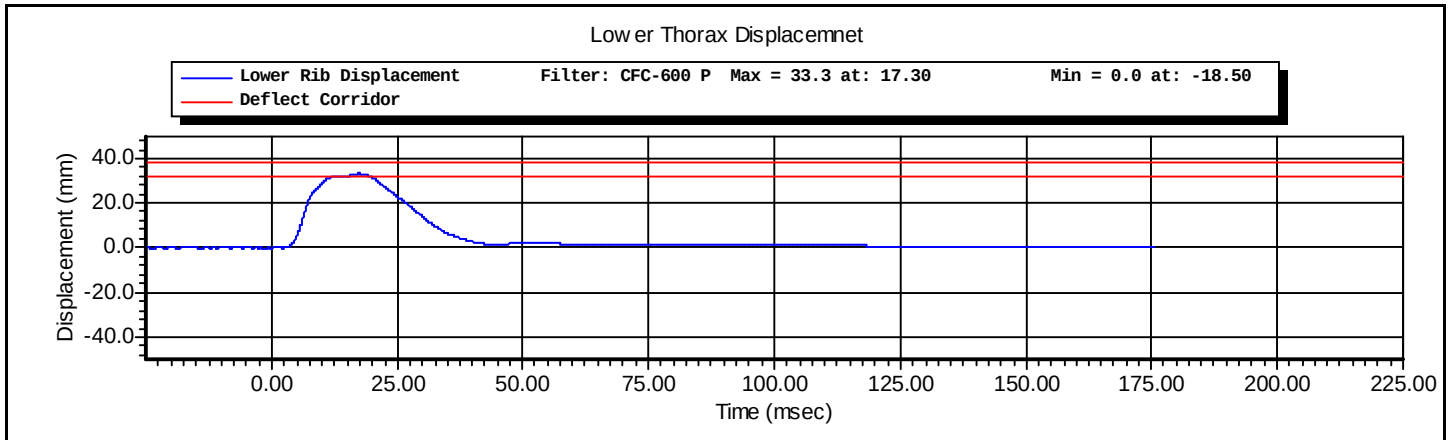
Component Part Number	Component Serial Number
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Test ID: Thorax With Arm Test Time: 4:42:04 PM

Test Date: 7/1/2010







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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:	7/1/2010
Test Number:	1	Test Time:	3:32:36 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	4.20 -- 4.40	4.28 m/s P
Probe Acceleration	14.0 -- 18.0	16.9 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	37.1 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	41.2 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	37.1 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	16.9 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: **3:32:36 PM**

Test Date: **7/1/2010**



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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	7264-2000	P16576	4/6/2010
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	P58884	3/29/2010
Endevco	7264-2000	P58839	3/29/2010

Test ID: **Thorax without Arm** Test Time: **3:32:36 PM**

Test Date: **7/1/2010**



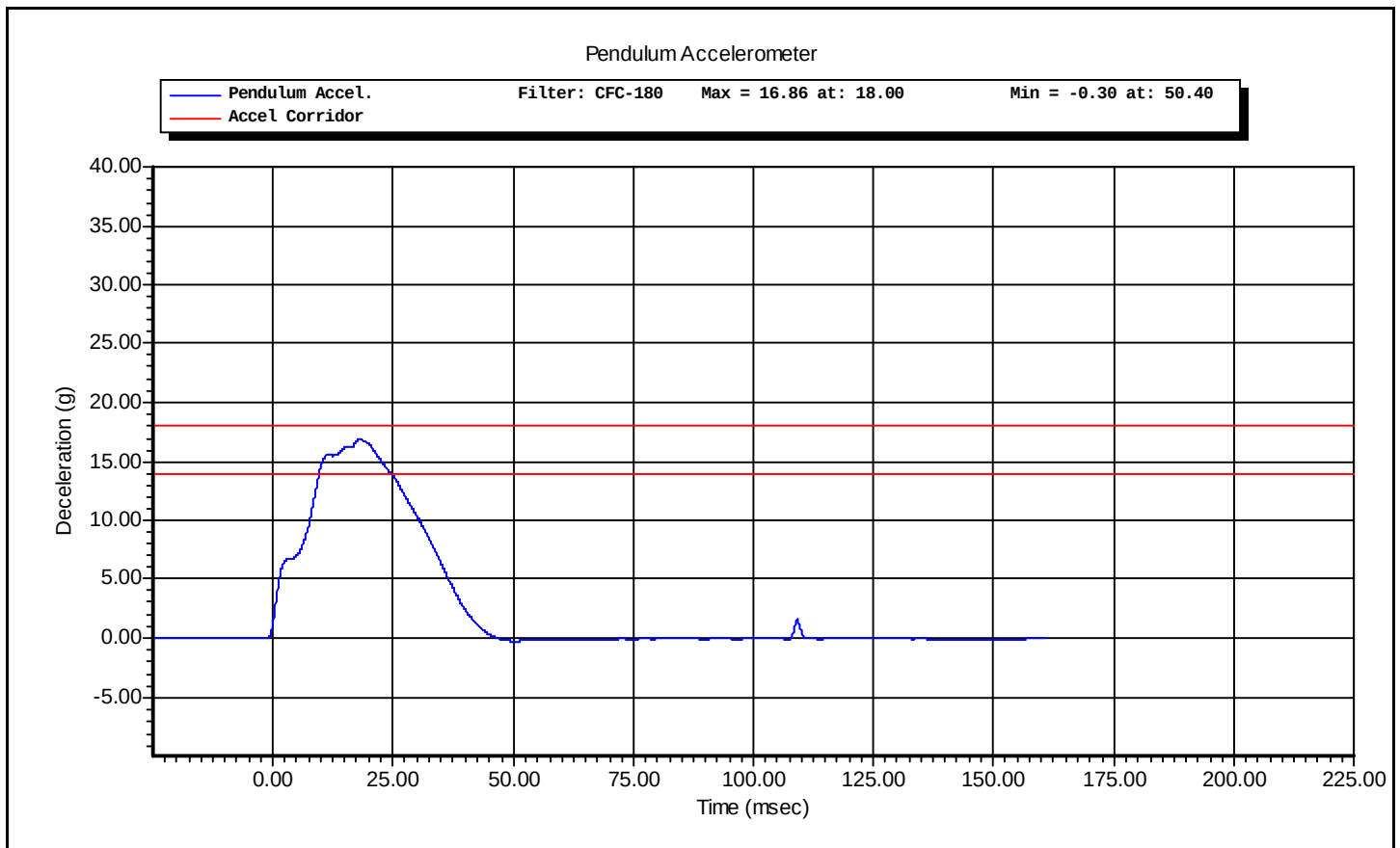
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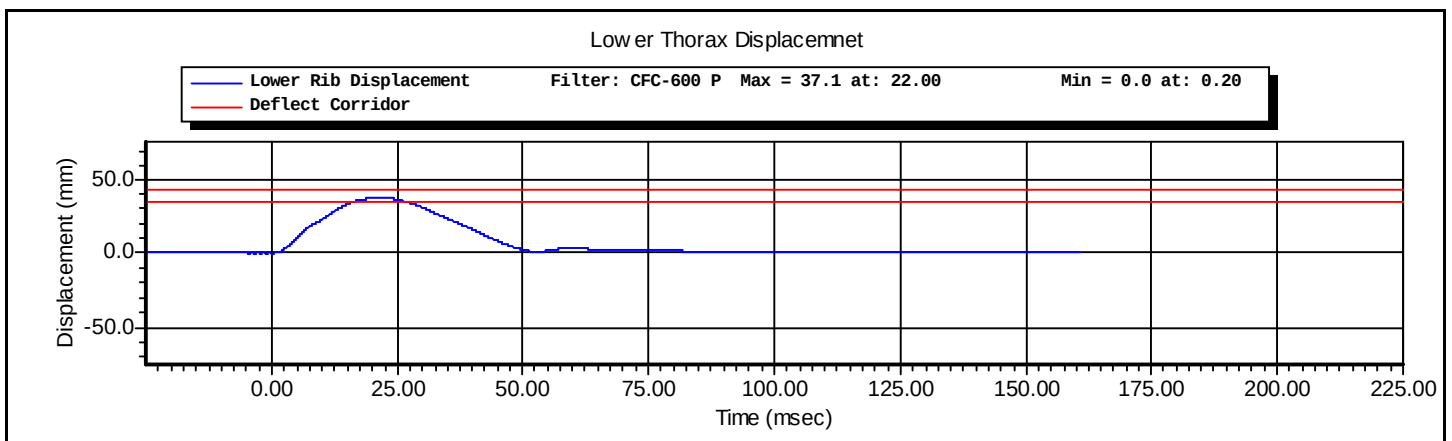
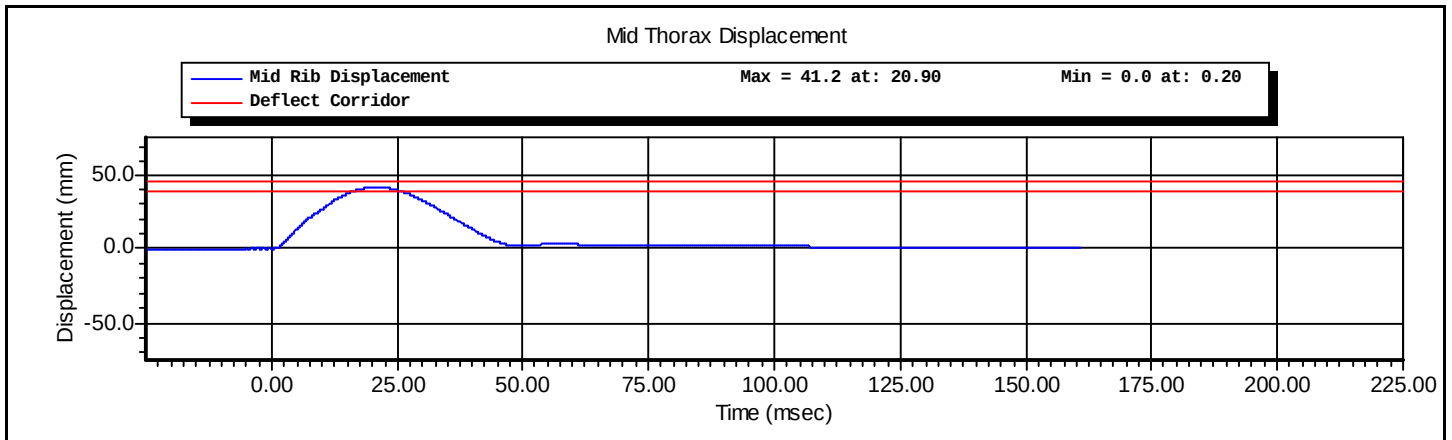
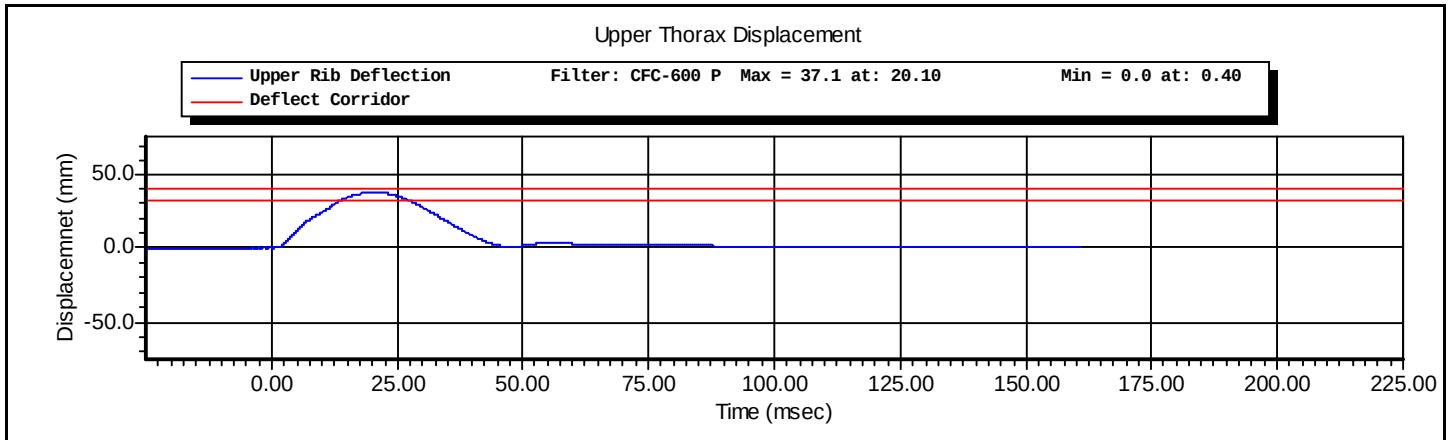
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Thorax without Arm	Test Date:	7/1/2010
Test Number:	1	Test Time:	3:32:36 PM

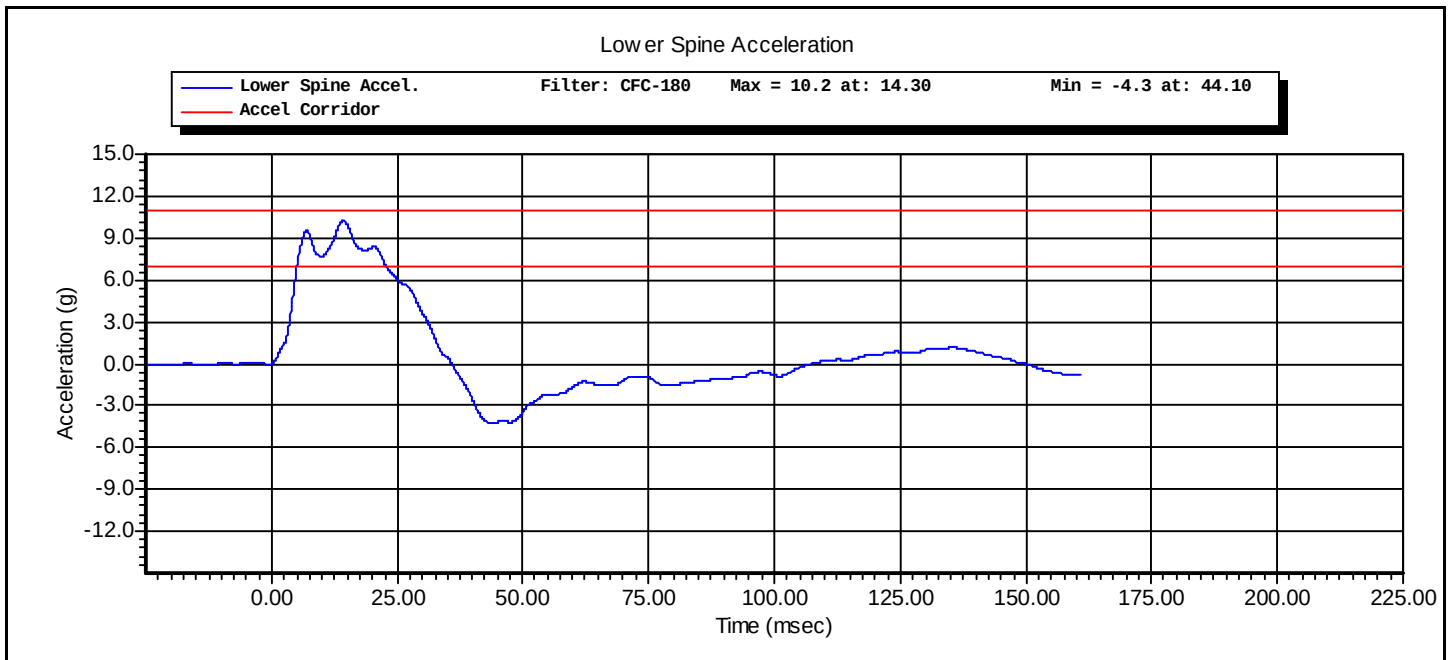
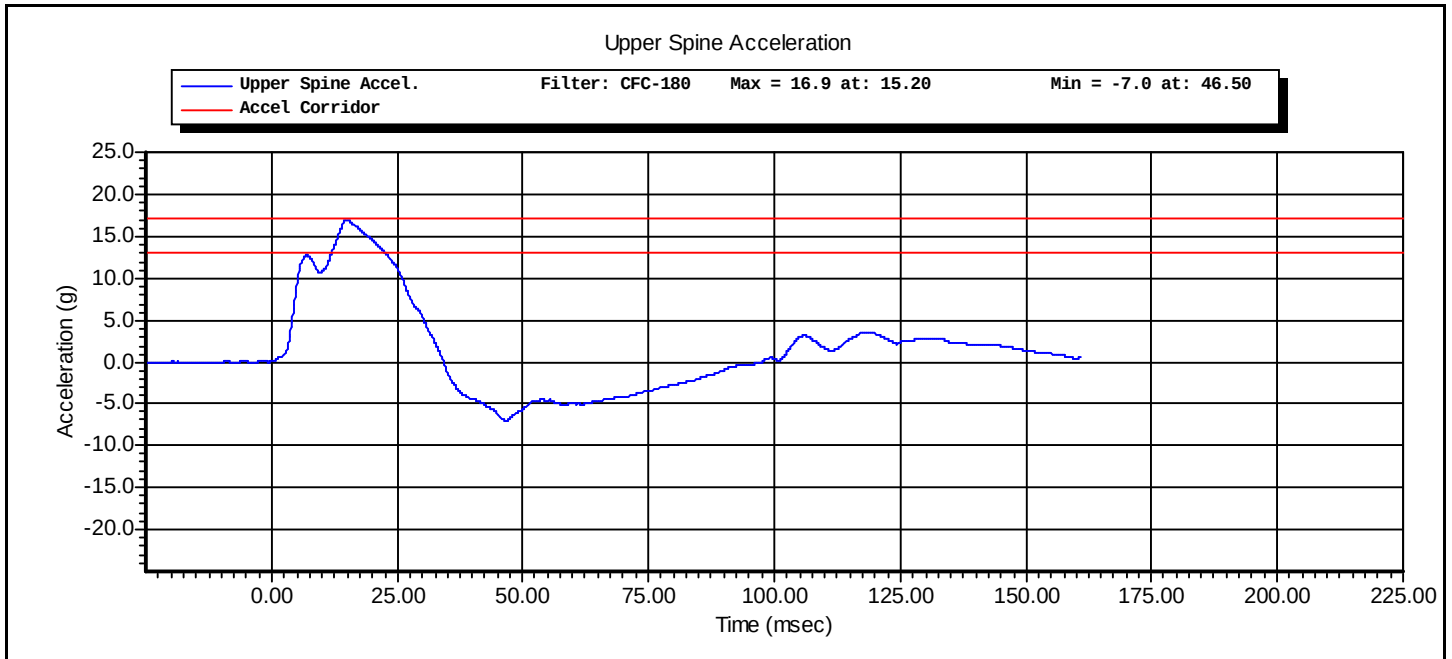
Component Part Number	Component Serial Number
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Test ID: Thorax without Arm Test Time: 3:32:36 PM

Test Date: 7/1/2010







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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:	7/1/2010
Test Number:	1	Test Time:	2:22:17 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	42 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Probe Acceleration	12.0 -- 16.0	15.7 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	40.5 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	38.7 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.0 g P

All test parameters are within specifications

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

Test ID: **Abdomen**

Test Time: **2:22:17 PM**

Test Date: **7/1/2010**



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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	7264-2000	P16576	4/6/2010
Servo	180-3885	DS-1207	3/26/2010
Servo	180-3885	DS-1204	3/26/2010
Endevco	7264-2000	P58839	3/29/2010

Test ID: **Abdomen**

Test Time: **2:22:17 PM**

Test Date: **7/1/2010**



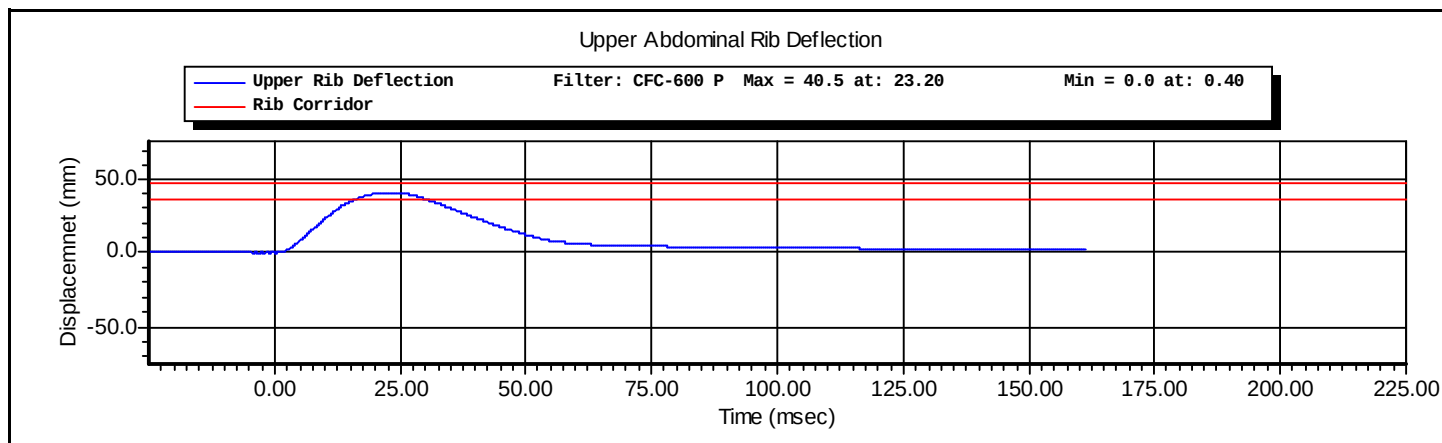
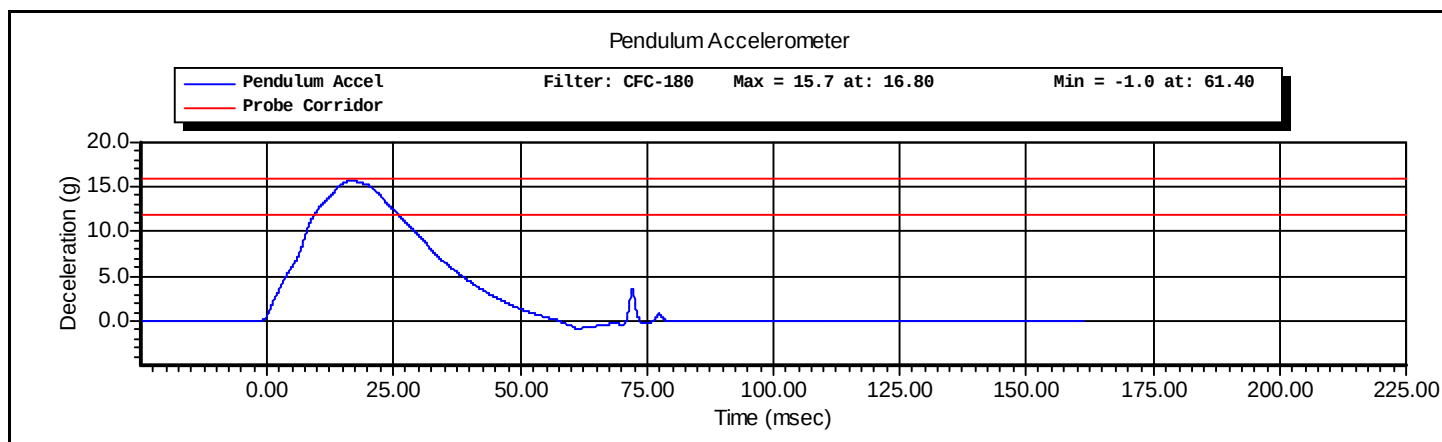
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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Abdomen	Test Date:	7/1/2010
Test Number:	1	Test Time:	2:22:17 PM

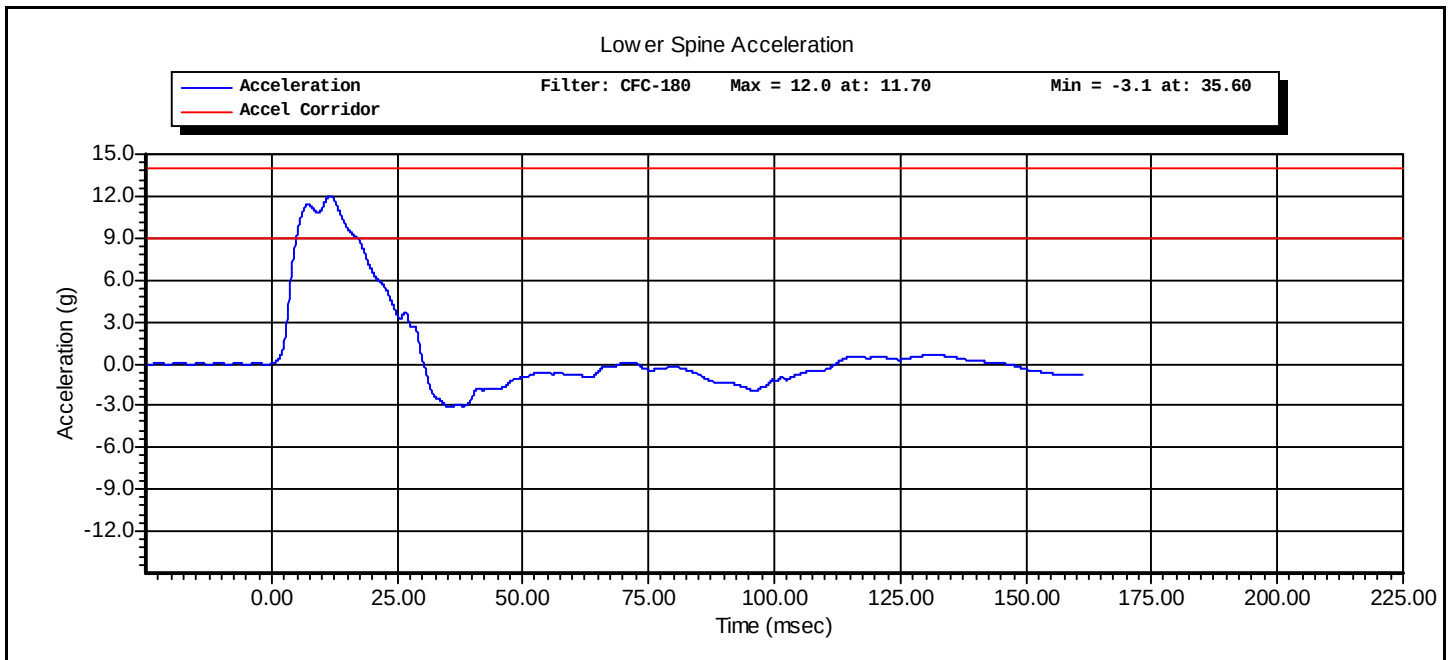
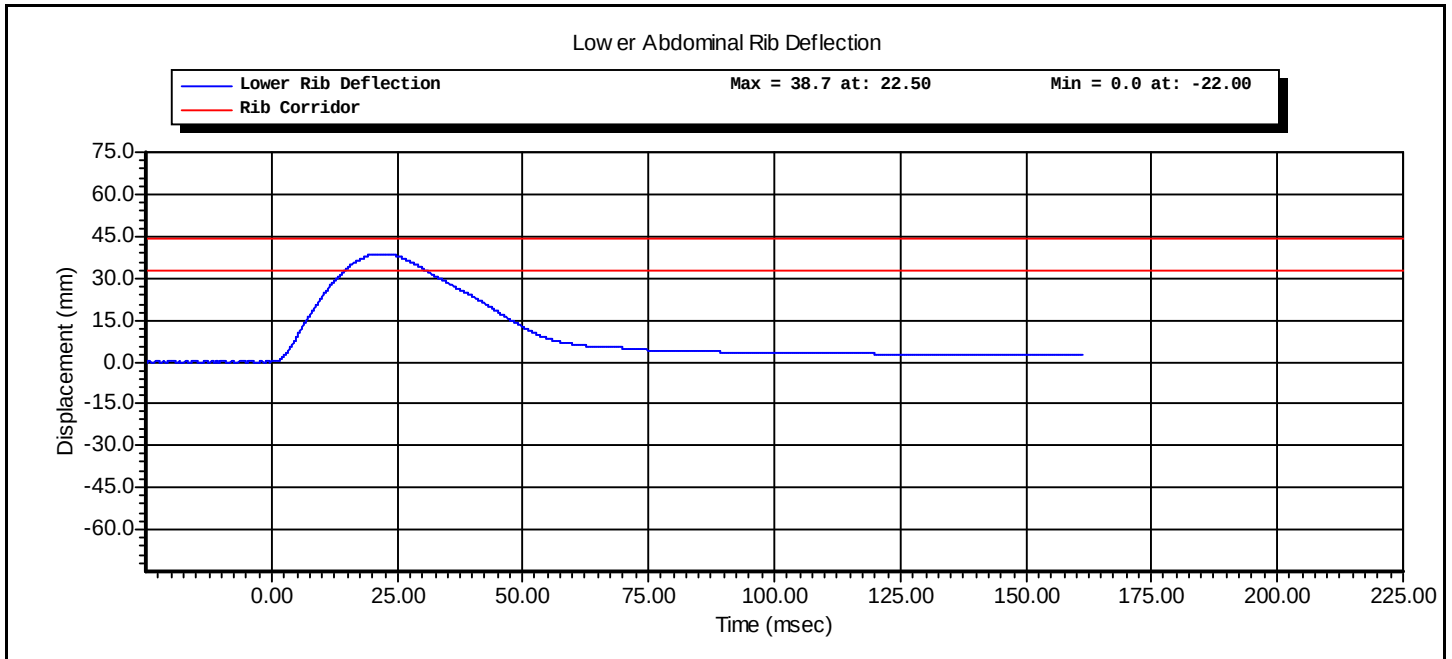
Component Part Number	Component Serial Number
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Test ID: **Abdomen**

Test Time: **2:22:17 PM**

Test Date: **7/1/2010**





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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:	Acetabulum Pelvis	Test Date:	7/1/2010
Test Number:	1	Test Time:	1:25:33 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	6.60 -- 6.80	6.62 m/s P
Peak Probe Acceleration	38.0 -- 47.0	41.9 g P
Peak Pelvis Acceleration	34.0 -- 42.0	37.7 g P
Peak Acetabulum Force	3.60 -- 4.30	3.83 kN P

All test parameters are within specifications

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

Test ID: **Acetabulum Pelvis** Test Time: **1:25:33 PM**

Test Date: **7/1/2010**



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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	7264-2000	P16576	4/6/2010
Endevco	7264-2000	P52094	3/29/2010
DentonATD	3249J	LC-267Fy	4/9/2010

Test ID: **Acetabulum Pelvis** Test Time: **1:25:33 PM**

Test Date: **7/1/2010**



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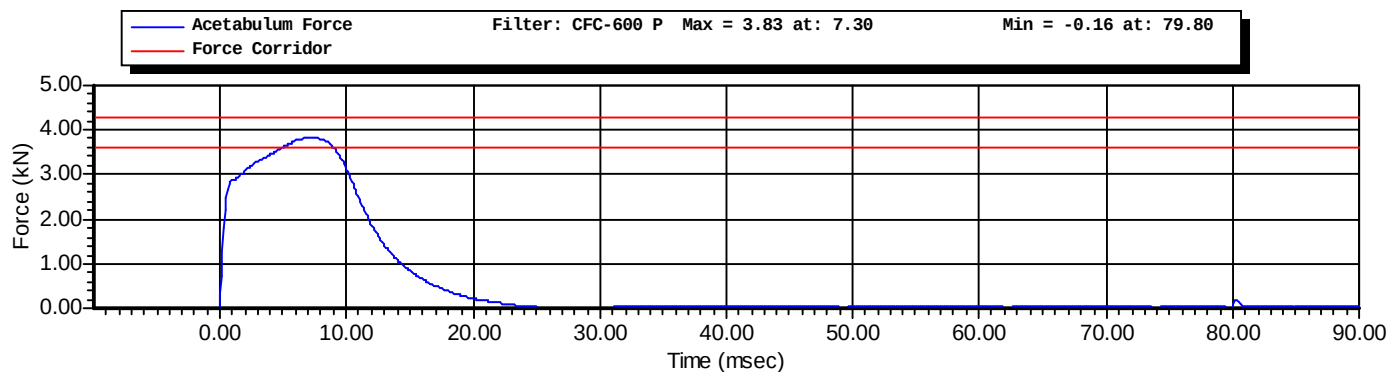
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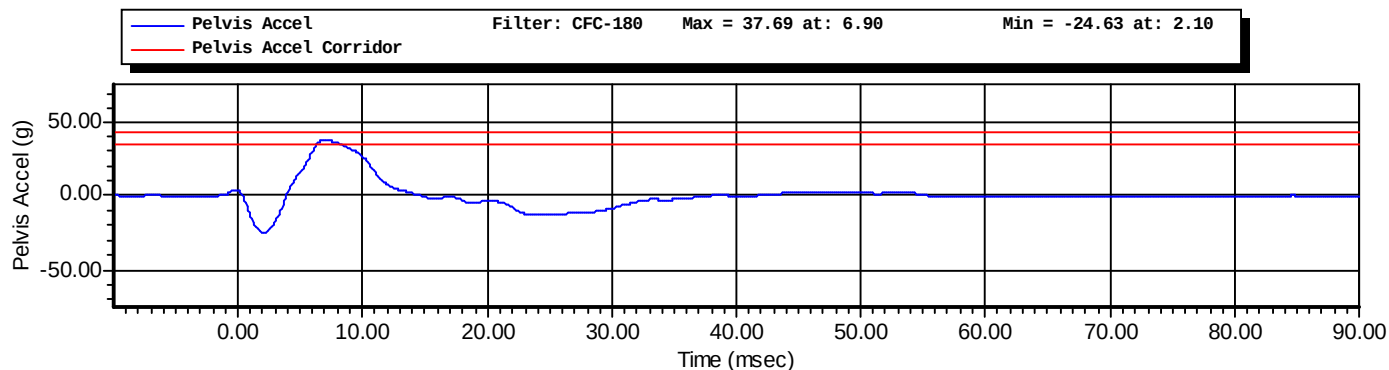
Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Acetabulum Pelvis	Test Date:	7/1/2010
Test Number:	1	Test Time:	1:25:33 PM

Component Part Number	Component Serial Number
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Acetabulum Force

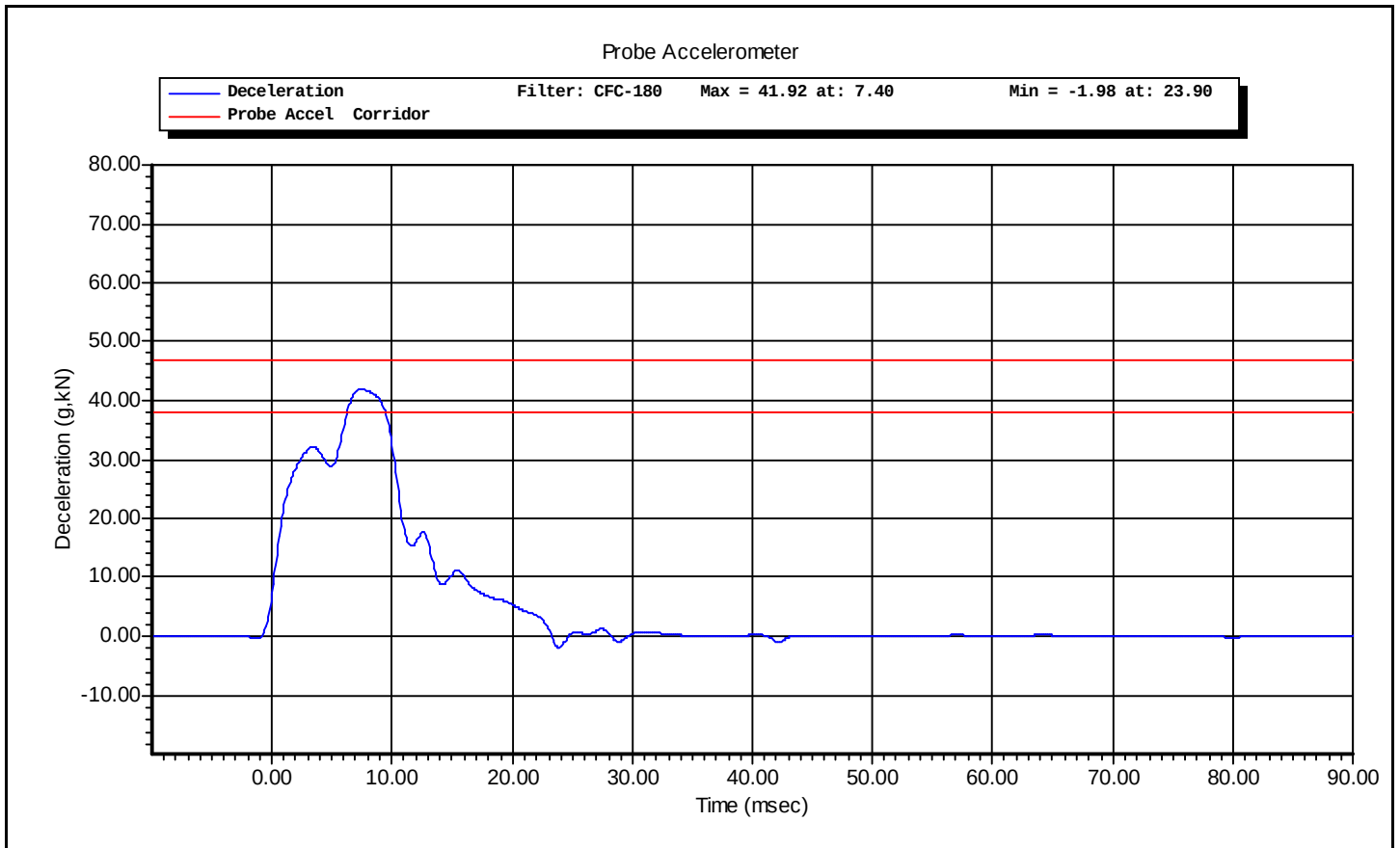


Pelvis Accelerometer

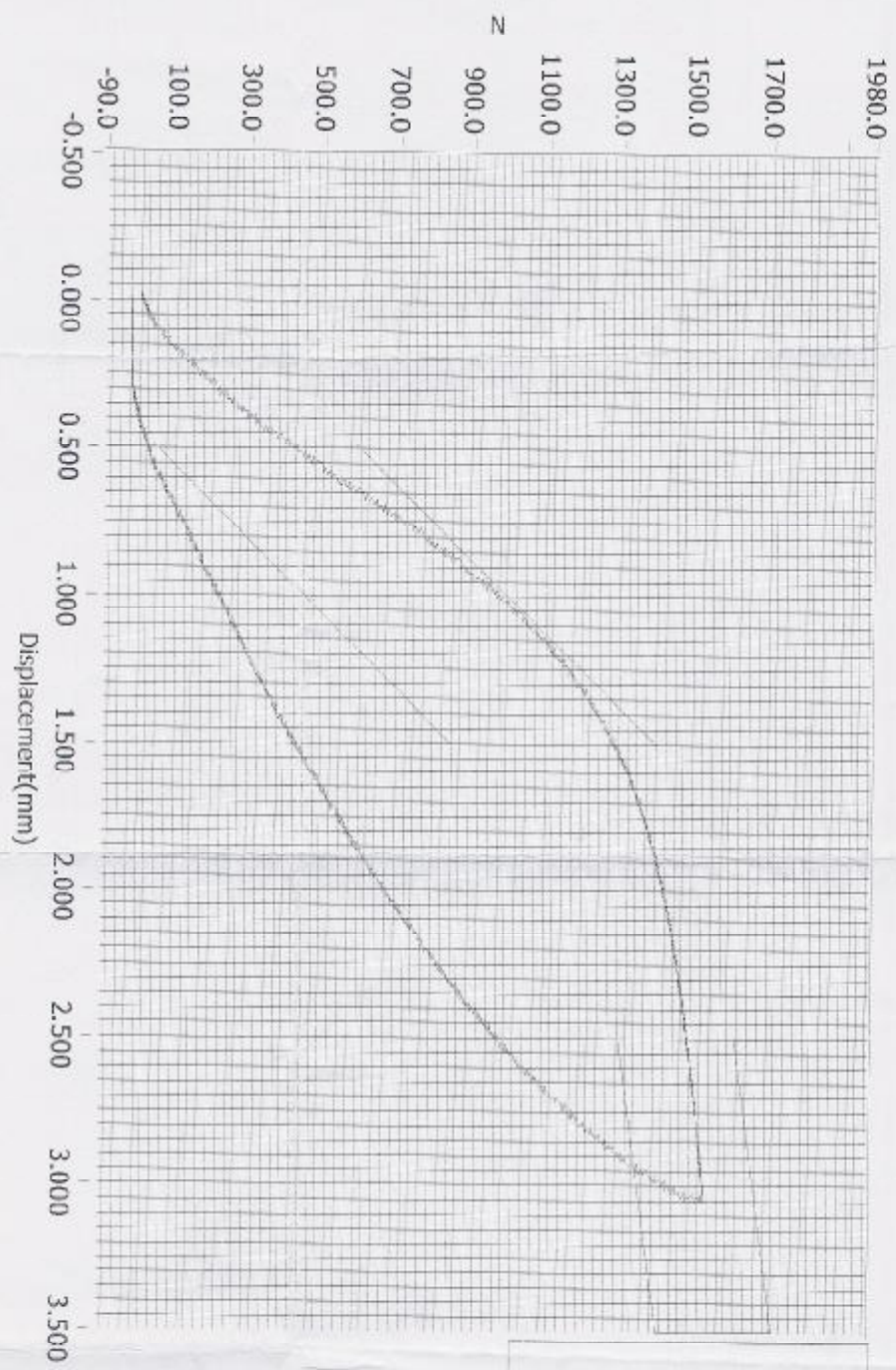


Test ID: **Acetabulum Pelvis** Test Time: **1:25:33 PM**

Test Date: **7/1/2010**



Resultant Data - SIDIIs Plug Compression

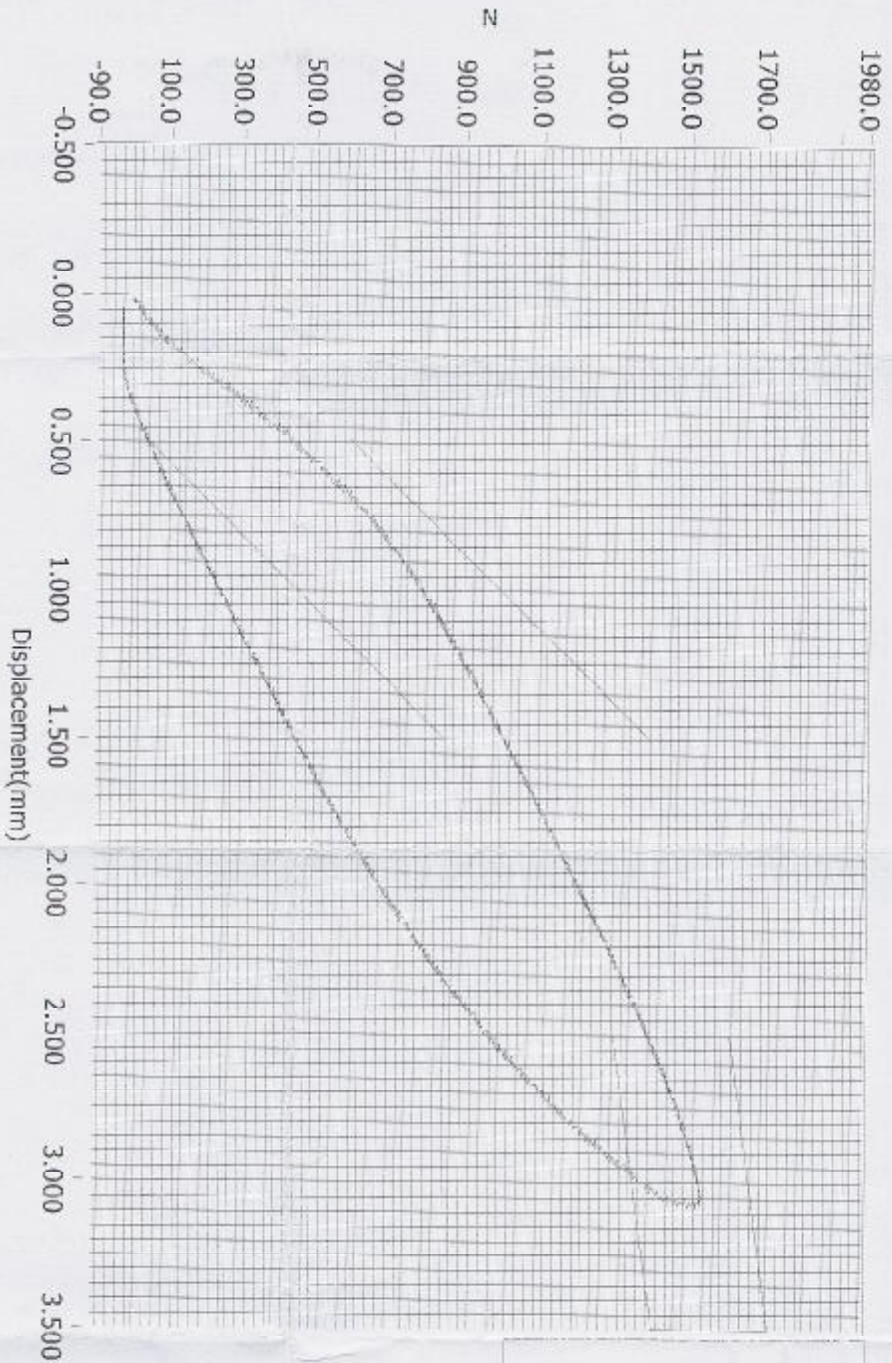


- Loading Curve
- Boundary Limit Upper
- Boundary Limit Lower
- Peak Load Upper
- Peak Load Lower
- Peak Defl Upper
- Peak Defl Lower

ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
		7/9/2007	4:33 AM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	12378	SIDIIs	
Current Date : 7/9/2007		Current Time : 04:33:52	

Resultant Data - SIDILs 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

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	13982	SIDILs	
Current Date : 8/30/2007		Current Time : 05:18:09	



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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 304		
Test ID:	Pelvis Iliac	Test Date:	7/2/2010
Test Number:	3	Test Time:	5:02:12 PM

Component Part Number	Component Serial Number
-----------------------	-------------------------

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	42 %RH P
Velocity	4.20 -- 4.40	4.22 m/s P
Peak Probe Acceleration	36.0 -- 45.0	39.9 g P
Peak Pelvis Acceleration	28.0 -- 39.0	33.7 g P
Peak Iliac Force	4.10 -- 5.10	4.78 kN P

All test parameters are within specifications

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

Test ID: **Pelvis Iliac**

Test Time: **5:02:12 PM**

Test Date: **7/2/2010**



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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	P38216	6/22/2010
Endevco	7264-2000	P52094	3/29/2010
DentonATD	3228J	LC-281 Fy	4/9/2010

Test ID: **Pelvis Iliac**

Test Time: **5:02:12 PM**

Test Date: **7/2/2010**



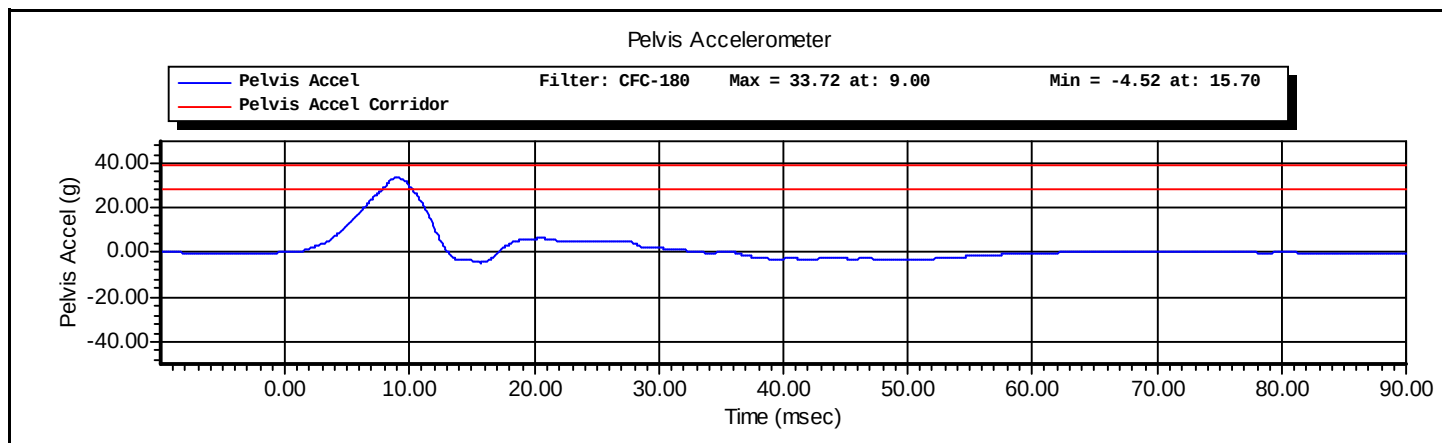
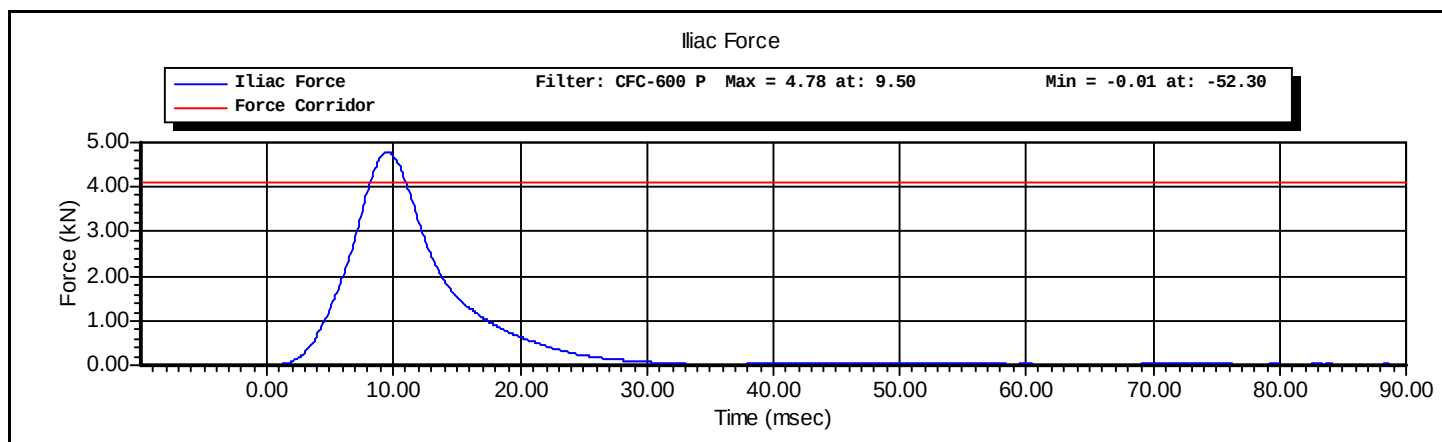
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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Pelvis Iliac	Test Date:	7/2/2010
Test Number:	3	Test Time:	5:02:12 PM

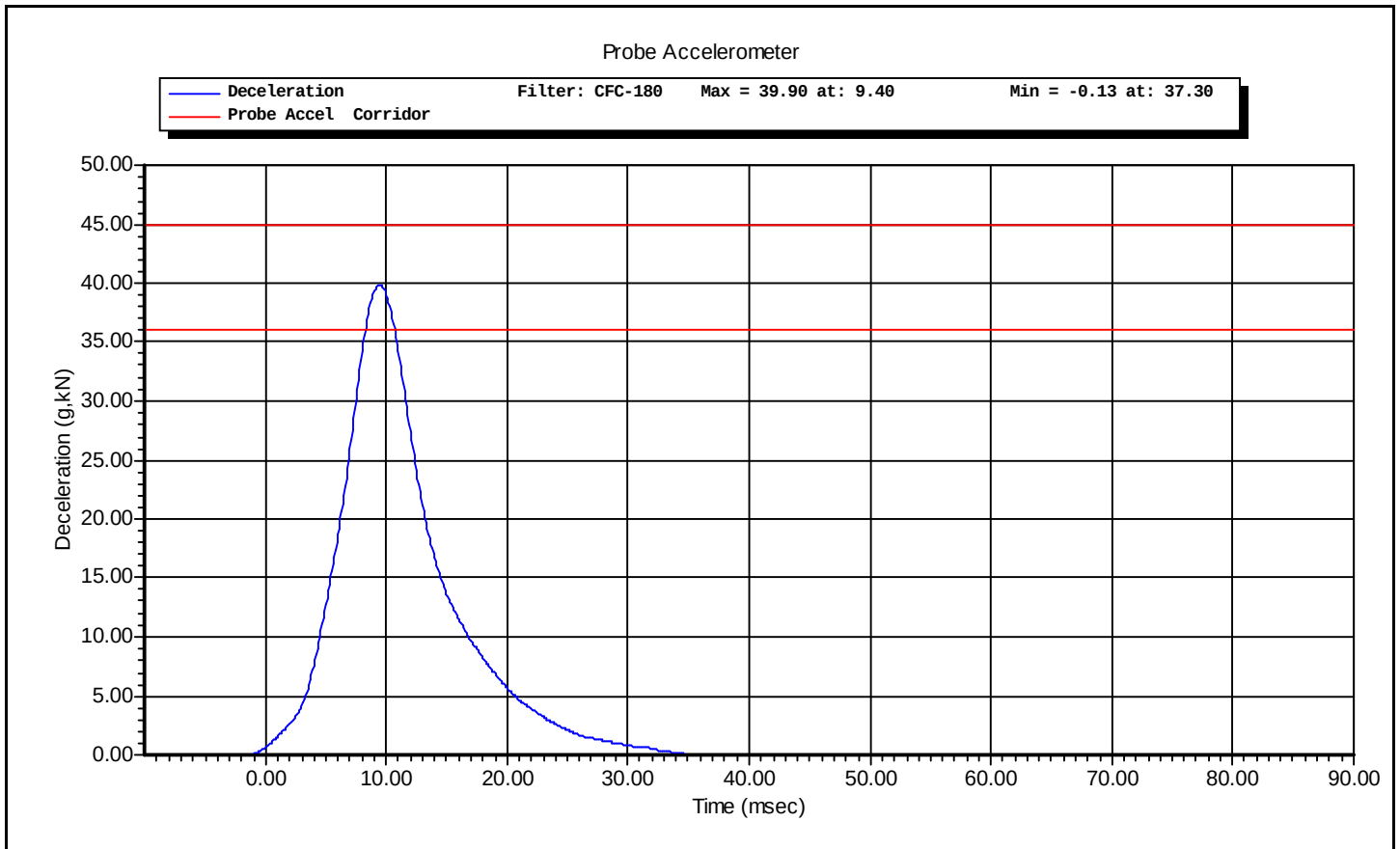
Component Part Number	Component Serial Number
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Test ID: **Pelvis Iliac**

Test Time: **5:02:12 PM**

Test Date: **7/2/2010**



CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 304

CONFIGURED FOR LEFT SIDE IMPACT

SID-IIsD External Measurements

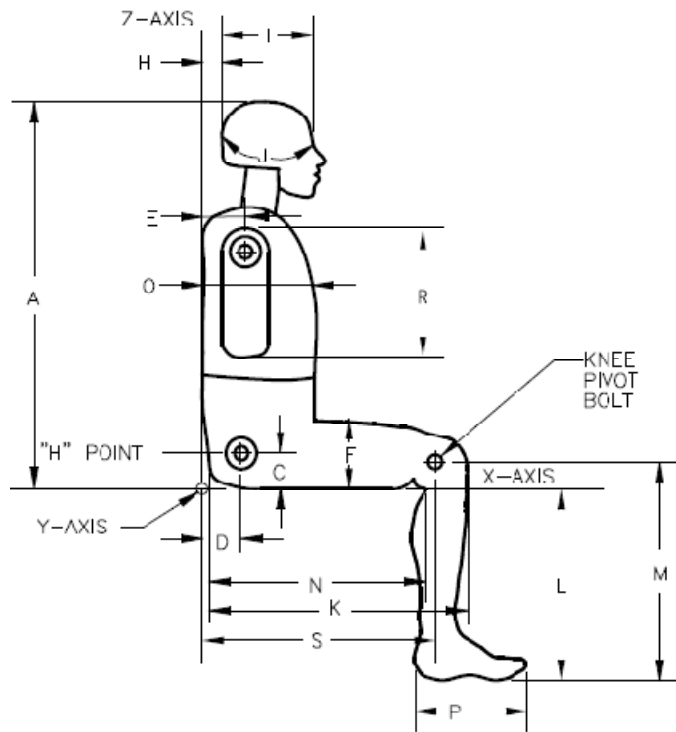
NHTSA ATD S/N 304

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	146	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	104	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	546	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	428	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	485	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	870	Yes
Z	Waist Circumference	761.0 - 791.0	782	Yes

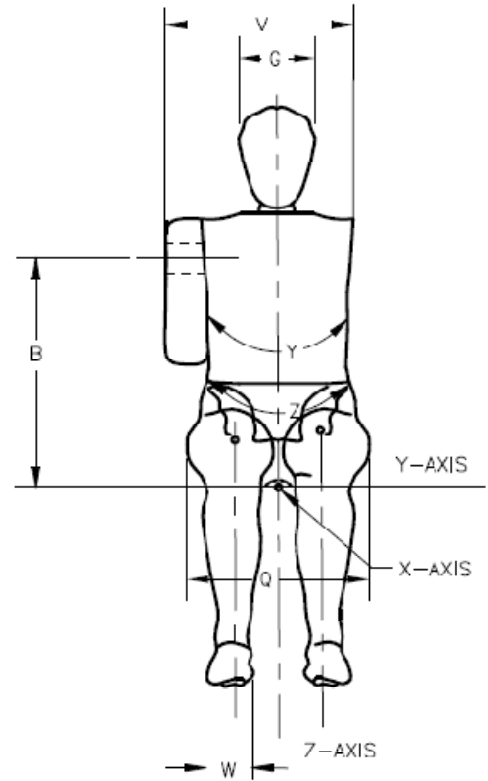
Technician : A. Rudniski

Date: 7/26/2010

SID-IIsD 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 304		
Test ID:	Head Drop	Test Date:	7/26/2010
Test Number:	1	Test Time:	10:51:48 AM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	59 %RH P
Resultant Acceleration	115.0 -- 137.0	117.8 g P
Oscillation	0.0 -- 15.0	11.0 % P
Fore-Aft Acceleration	-15.0 -- 15.0	5.9 g P

All test parameters are within specifications

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

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

Test ID: **Head Drop**

Test Time: **10:51:48 AM**

Test Date: **7/26/2010**



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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	P58737	3/25/2010
Endevco	7264-2000	P52100	3/25/2010
Endevco	7264-2000	P52099	3/25/2010

Test ID: **Head Drop**

Test Time: **10:51:48 AM**

Test Date: **7/26/2010**



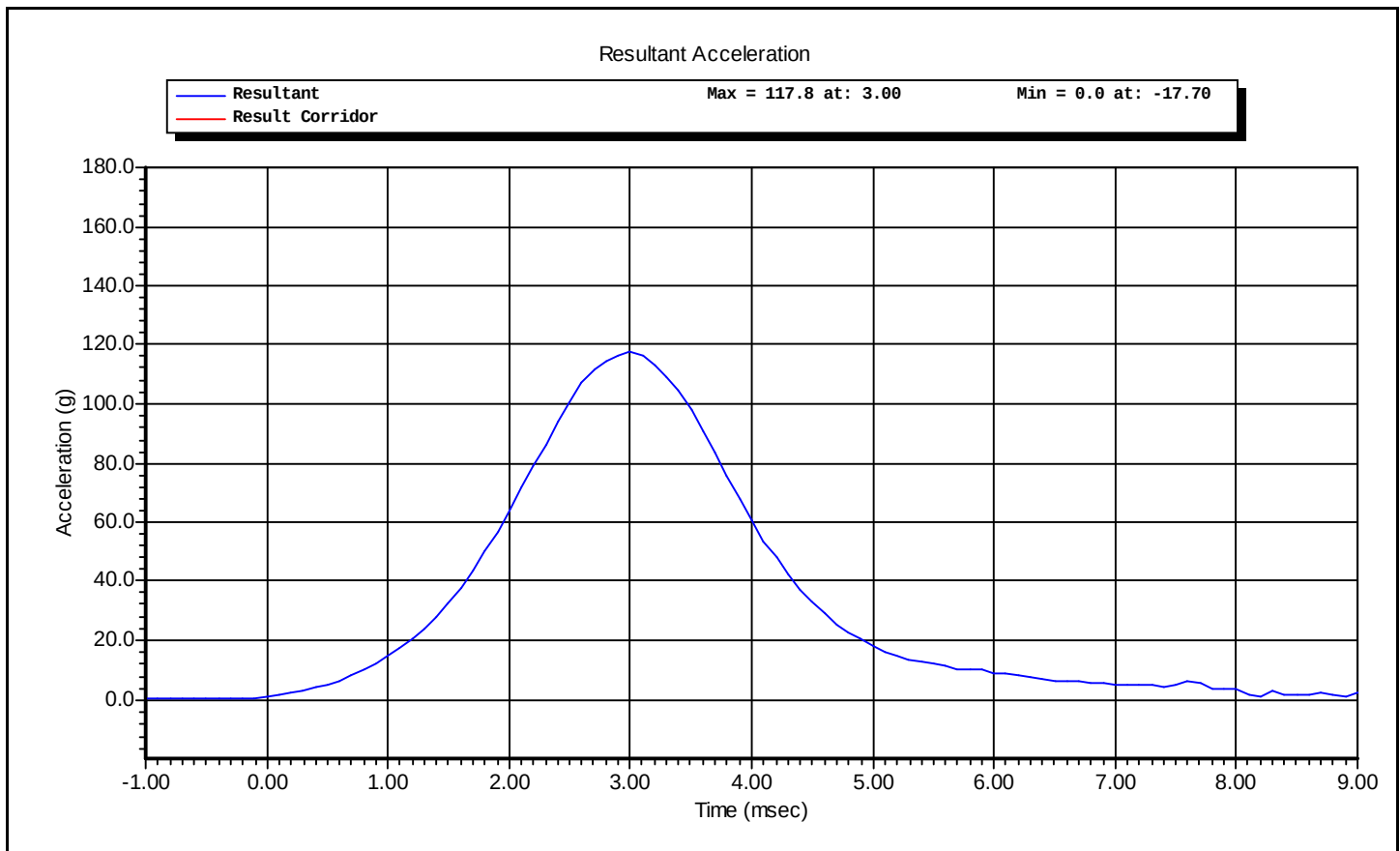
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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Head Drop	Test Date:	7/26/2010
Test Number:	1	Test Time:	10:51:48 AM

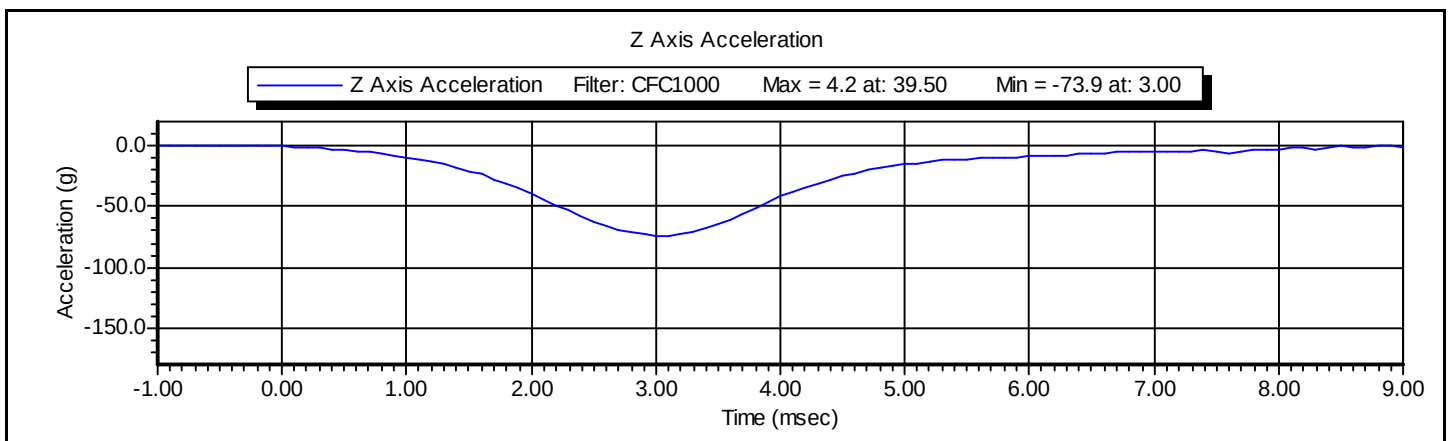
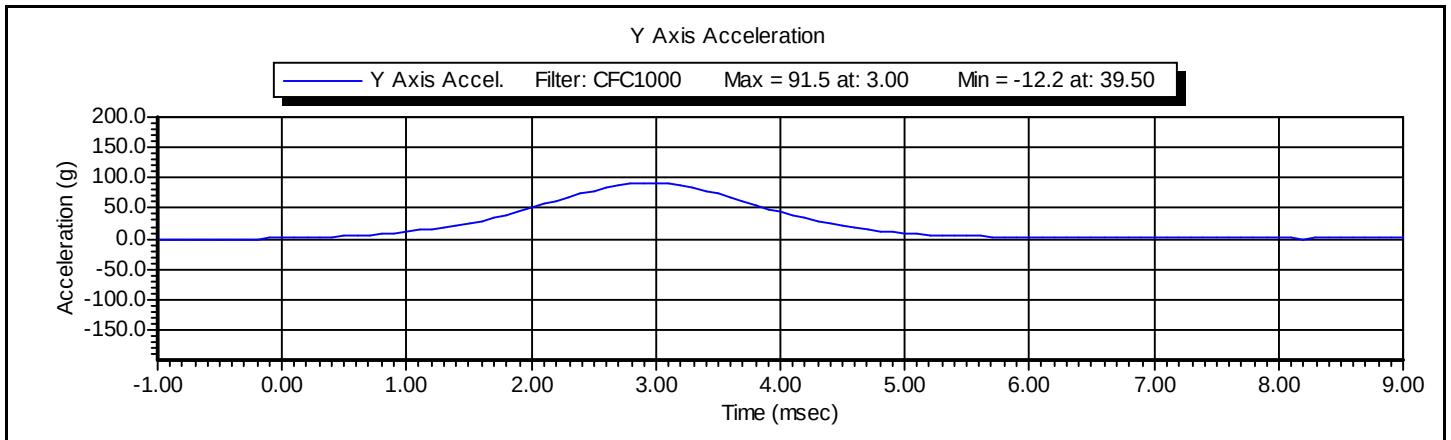
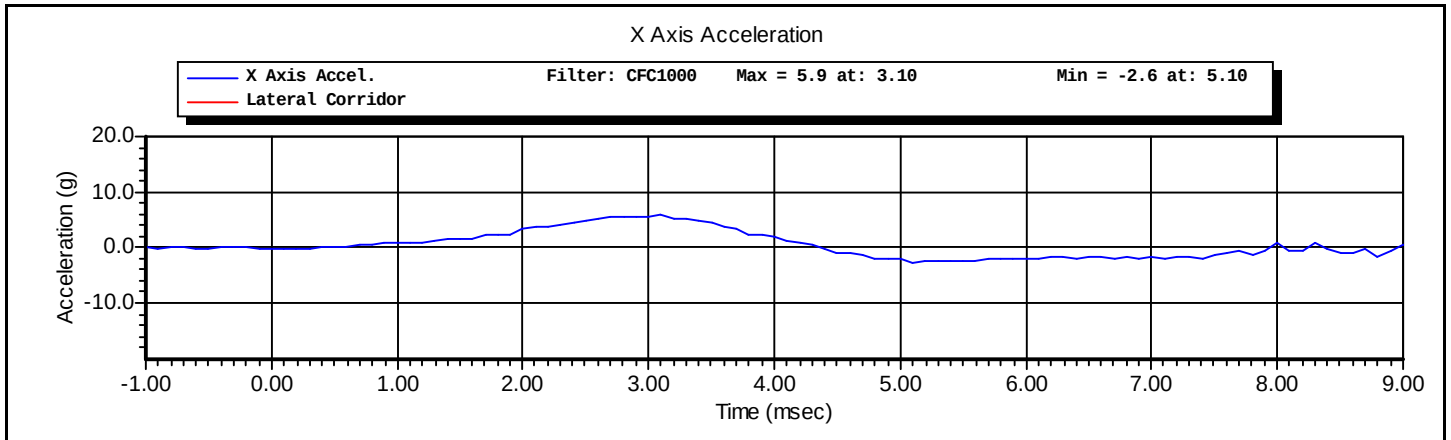
Component Part Number	Component Serial Number
Head Skin - 180-1002	1371



Test ID: Head Drop

Test Time: 10:51:48 AM

Test Date: 7/26/2010





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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:	7/27/2010
Test Number:	2	Test Time:	12:19:35 PM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	58 %RH P
Velocity	5.51 -- 5.63	5.54 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.36 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.48 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.75 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.70 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	73.8 degrees P
Time at Max Rotation	50.0 -- 70.0	62.1 ms P
Moment about OC	-44.0 -- -36.0	-40.9 Nm P
Moment Decay to Zero	102.0 -- 126.0	115.8 ms P

All test parameters are within specifications

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

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

Test ID: **Neck Flexion**

Test Time: **12:19:35 PM**

Test Date: **7/27/2010**



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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	5/10/2010
FTSS	IF-205	LC-283Fy	4/9/2010
FTSS	IF-205	LC-283Mx	4/9/2010
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: **12:19:35 PM**

Test Date: **7/27/2010**



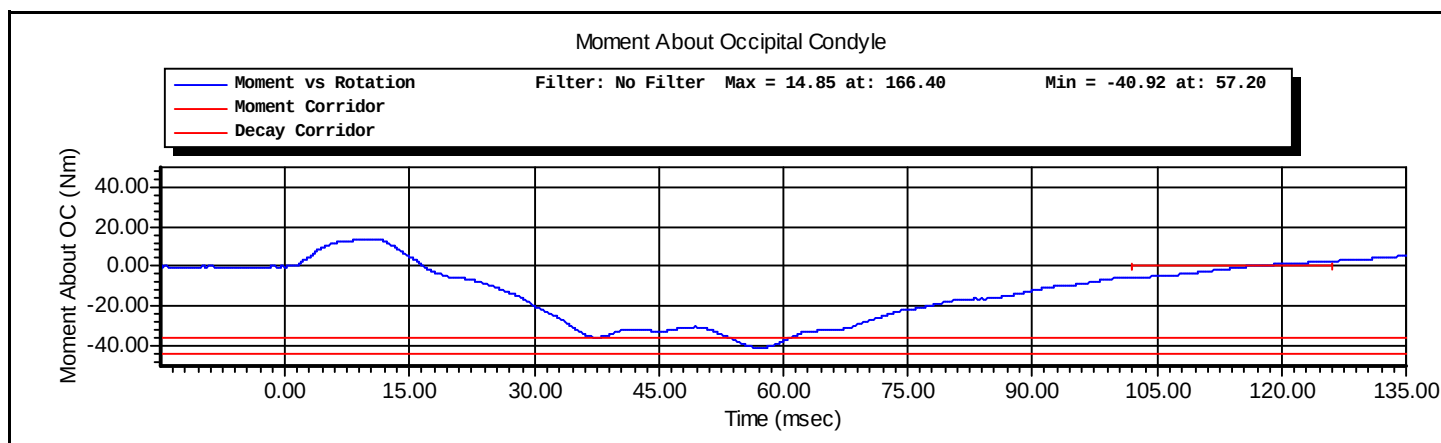
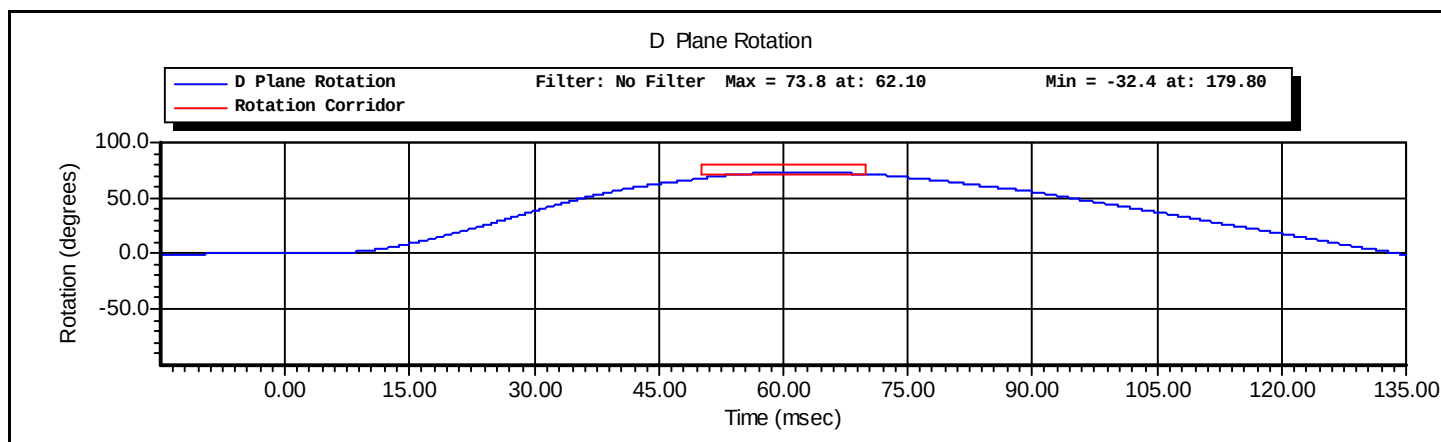
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Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Neck Flexion	Test Date:	7/27/2010
Test Number:	2	Test Time:	12:19:35 PM

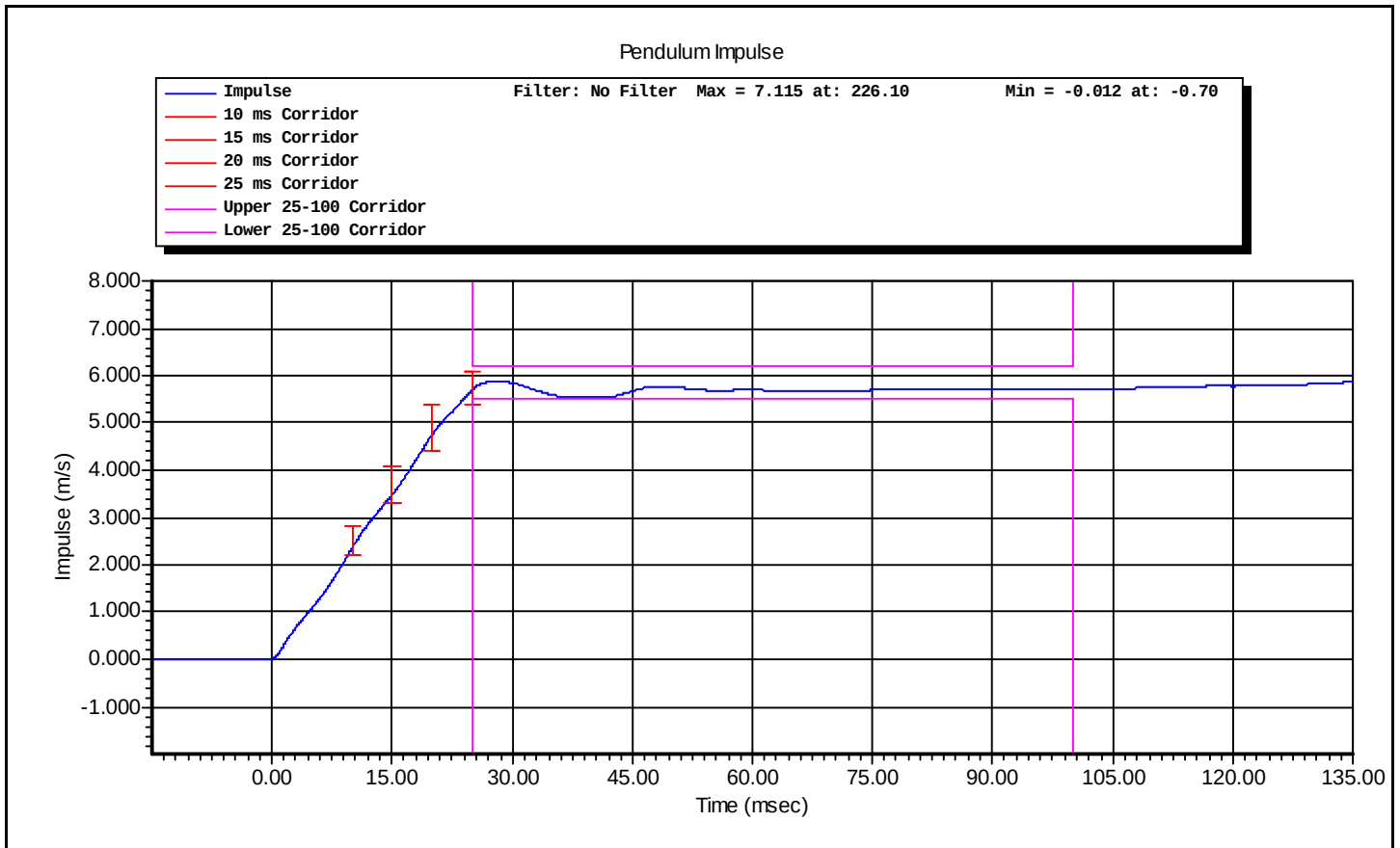
Component Part Number	Component Serial Number
Neck - 180-2000	AB8239



Test ID: Neck Flexion

Test Time: 12:19:35 PM

Test Date: 7/27/2010





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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:	7/27/2010
Test Number:	1	Test Time:	5:55:19 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.20 deg C P
Humidity	10.0 -- 70.0	46.0 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Probe Acceleration	13.0 -- 18.0	15.5 g P
Shoulder Deflection	28.0 -- 37.0	32.54 mm P
T1 Acceleration	17.0 -- 22.0	19.4 g P

All test parameters are within specifications

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

Test ID: **Shoulder**

Test Time: **5:55:19 PM**

Test Date: **7/27/2010**



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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	P38216	6/22/2010
Servo	180-3885	DS-1154	3/26/2010
Endevco	7264-2000	P58884	3/29/2010

Test ID: **Shoulder**

Test Time: **5:55:19 PM**

Test Date: **7/27/2010**



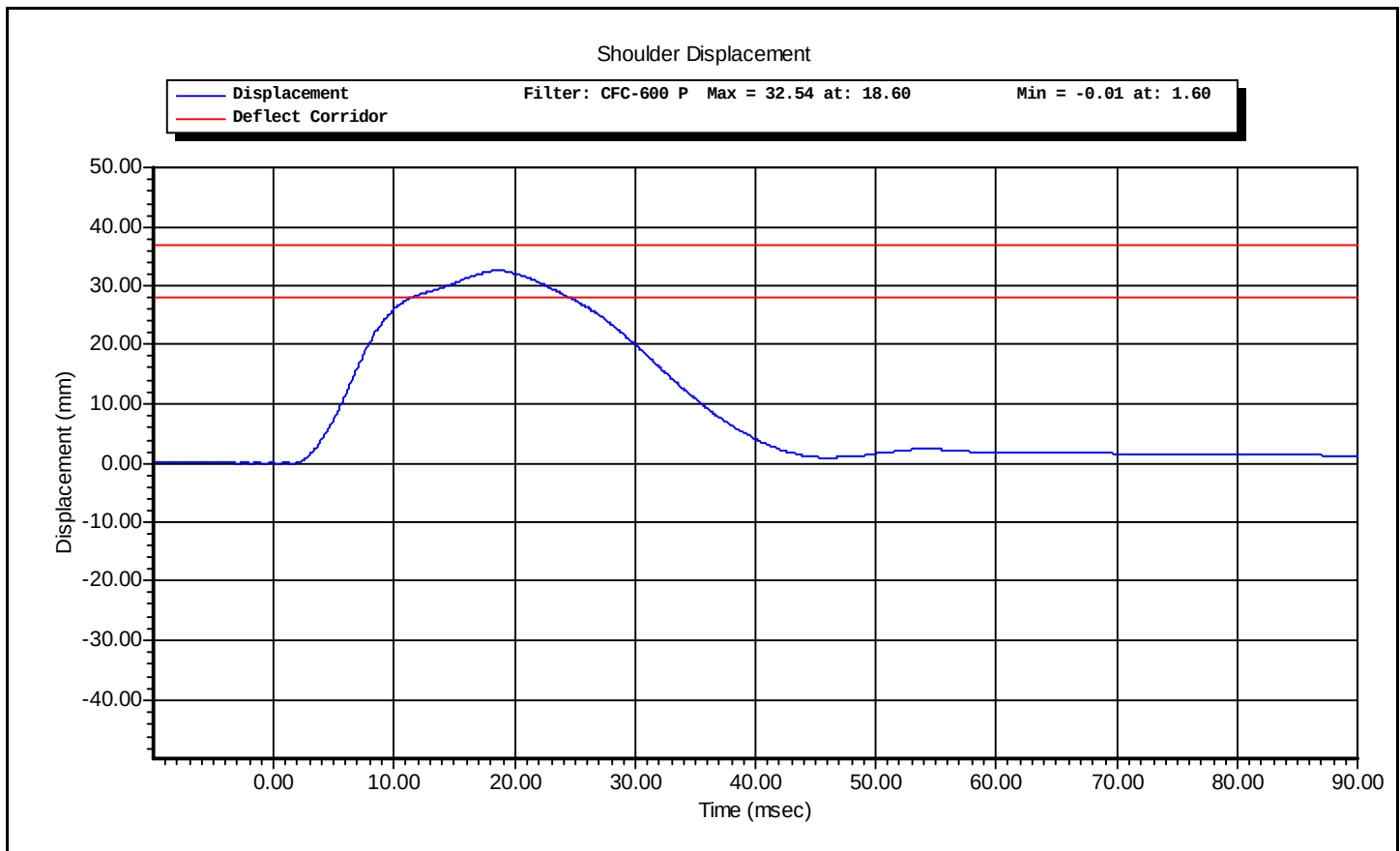
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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Shoulder	Test Date:	7/27/2010
Test Number:	1	Test Time:	5:55:19 PM

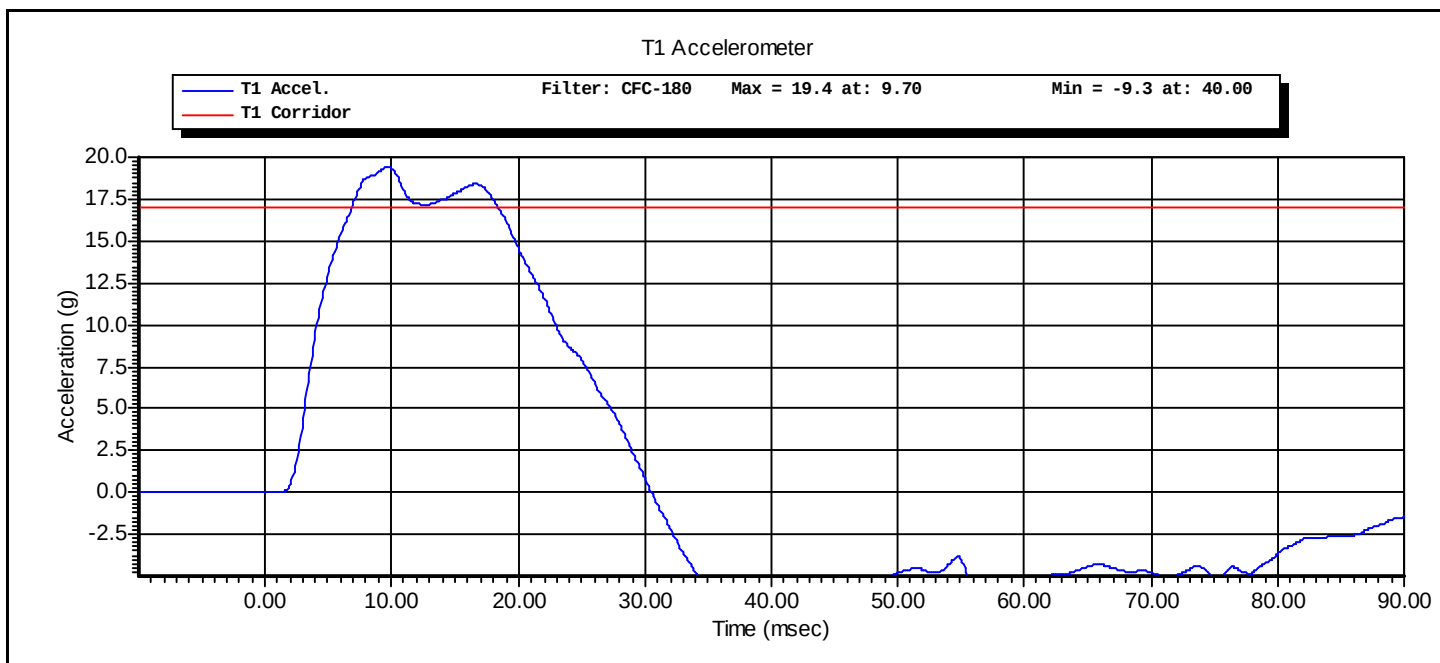
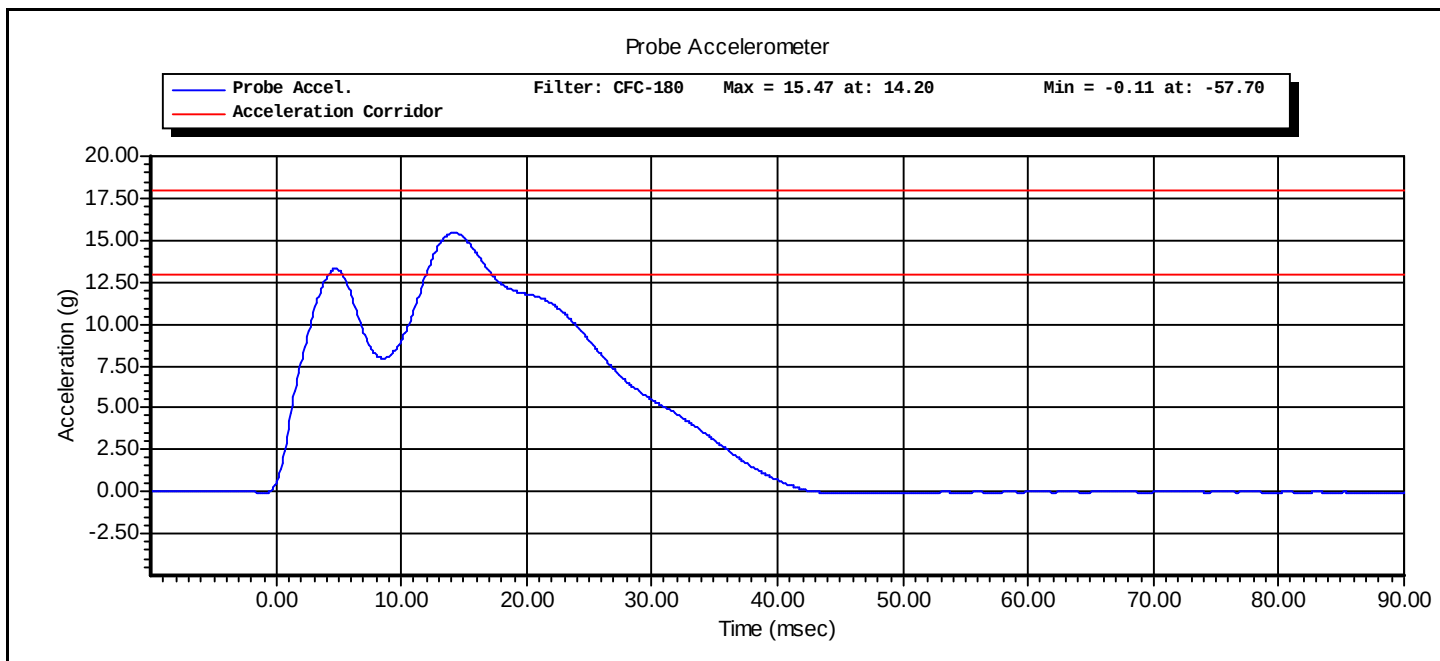
Component Part Number	Component Serial Number
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Test ID: **Shoulder**

Test Time: **5:55:19 PM**

Test Date: **7/27/2010**





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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:	7/28/2010
Test Number:	1	Test Time:	9:29:19 AM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	21.7 deg C	P
Humidity	10	--	70	61 %RH	P
Velocity	6.60	--	6.80	6.69 m/s	P
Probe Acceleration after 5ms	30.0	--	36.0	33.4 g	P
Upper Thorax Rib Deflection	25.0	--	32.0	27.2 mm	P
Mid Thorax Rib Deflection	30.0	--	36.0	30.8 mm	P
Lower Thorax Rib Deflection	32.0	--	38.0	32.9 mm	P
Upper Spine Acceleration ("y")	34.0	--	43.0	42.7 g	P
Lower Spine Acceleration ("y")	29.0	--	37.0	34.9 g	P
Shoulder Deflection	31.0	--	40.0	35.2 mm	P

All test parameters are within specifications

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

Test ID: **Thorax With Arm** Test Time: **9:29:19 AM**

Test Date: **7/28/2010**



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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	P38216	6/22/2010
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	P58884	3/29/2010
Endevco	7264-2000	P58839	3/29/2010
Servo	180-3885	DS-1154	3/26/2010

Test ID: **Thorax With Arm** Test Time: **9:29:19 AM**

Test Date: **7/28/2010**



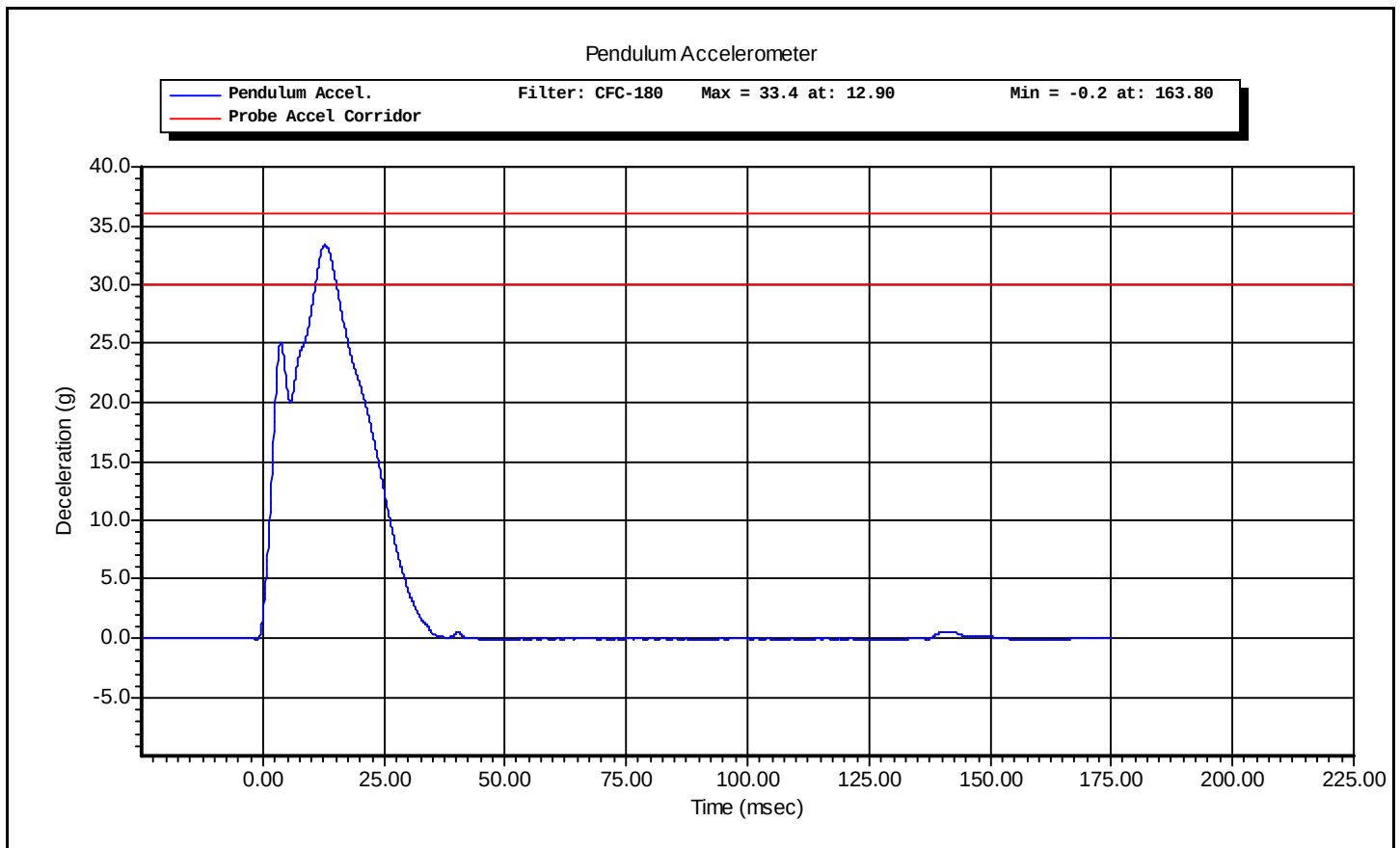
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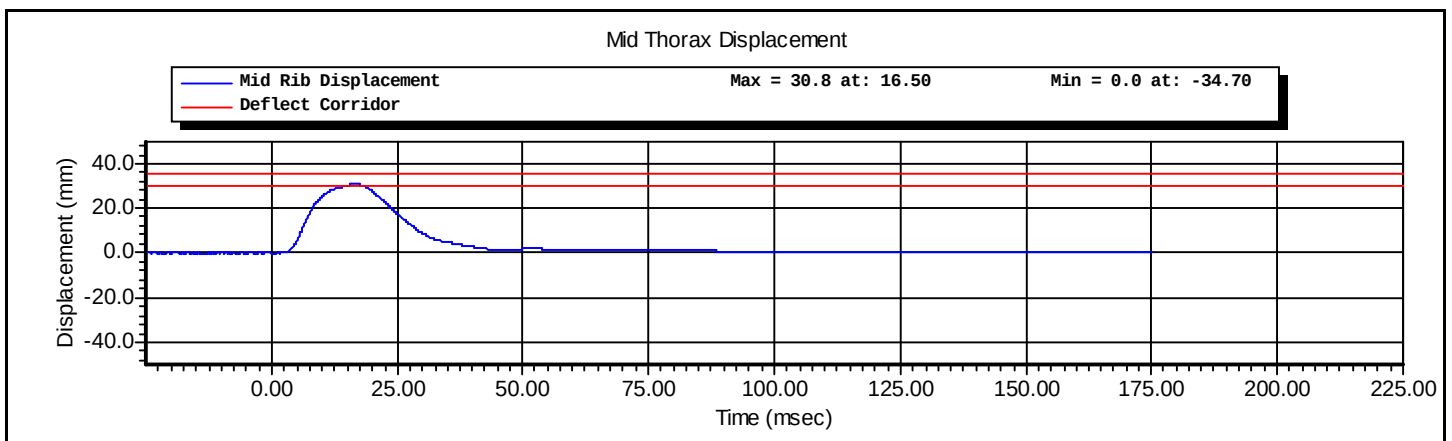
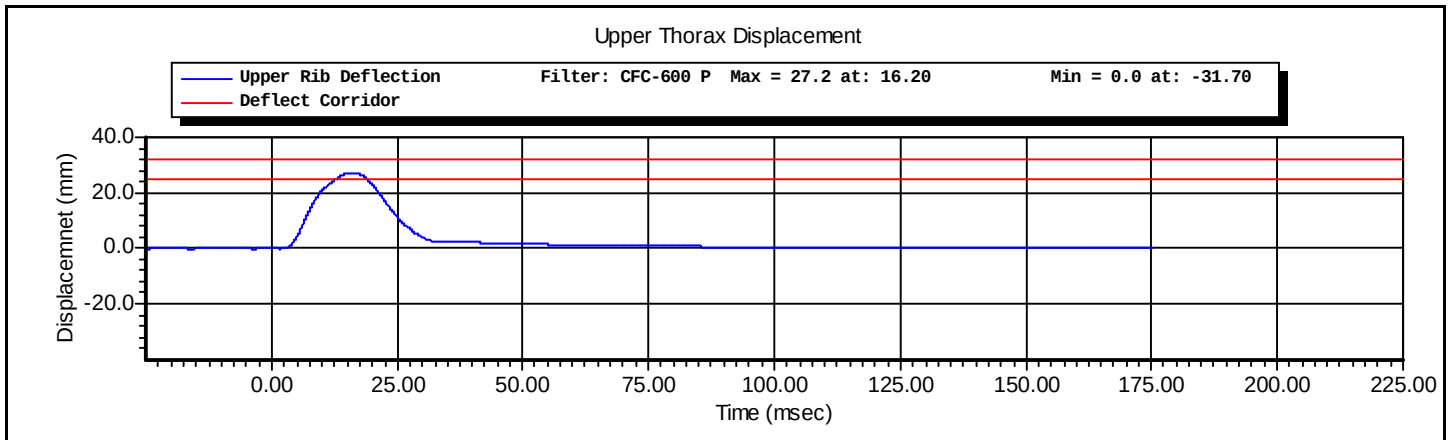
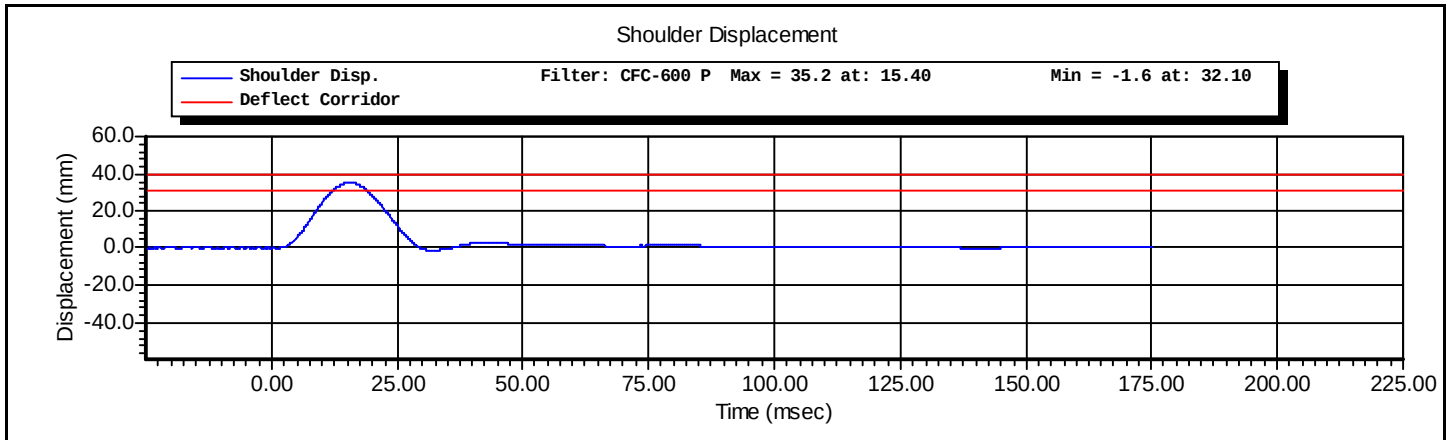
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Thorax With Arm	Test Date:	7/28/2010
Test Number:	1	Test Time:	9:29:19 AM

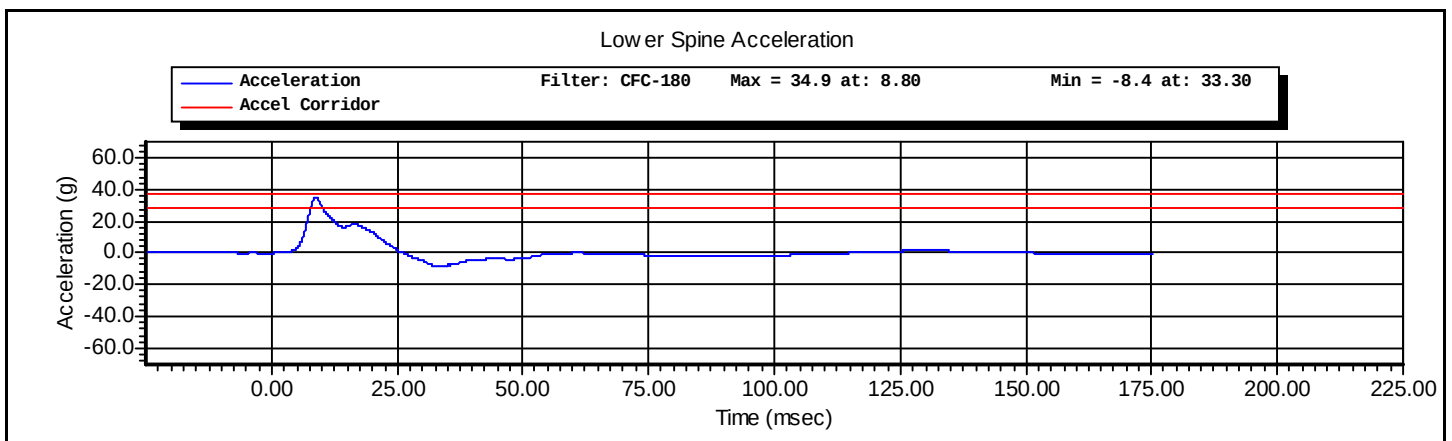
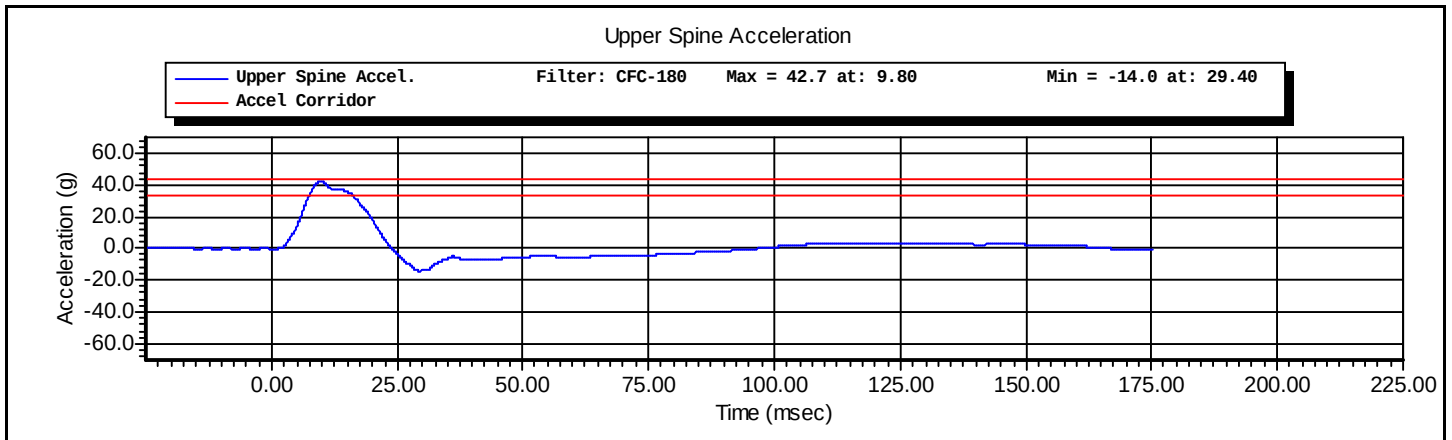
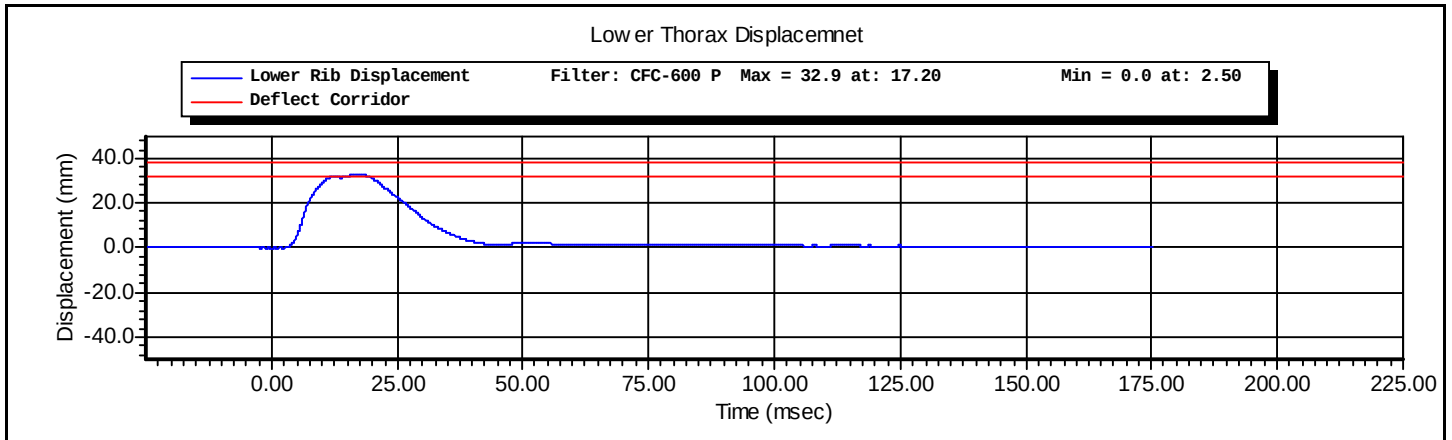
Component Part Number	Component Serial Number
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Test ID: Thorax With Arm Test Time: 9:29:19 AM

Test Date: 7/28/2010







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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:	7/27/2010
Test Number:	1	Test Time:	5:21:23 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.2 deg C	P
Humidity	10	--	70	48 %RH	P
Velocity	4.20	--	4.40	4.28 m/s	P
Probe Acceleration	14.0	--	18.0	15.8 g	P
Upper Thorax Rib Deflection	32.0	--	40.0	36.0 mm	P
Mid Thorax Rib Deflection	39.0	--	45.0	41.6 mm	P
Lower Thorax Rib Deflection	35.0	--	43.0	38.7 mm	P
Upper Spine Acceleration T1	13.0	--	17.0	16.6 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: **5:21:23 PM**

Test Date: **7/27/2010**



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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	P38216	6/22/2010
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	P58884	3/29/2010
Endevco	7264-2000	P58839	3/29/2010

Test ID: **Thorax Without Arm** Test Time: **5:21:23 PM**

Test Date: **7/27/2010**



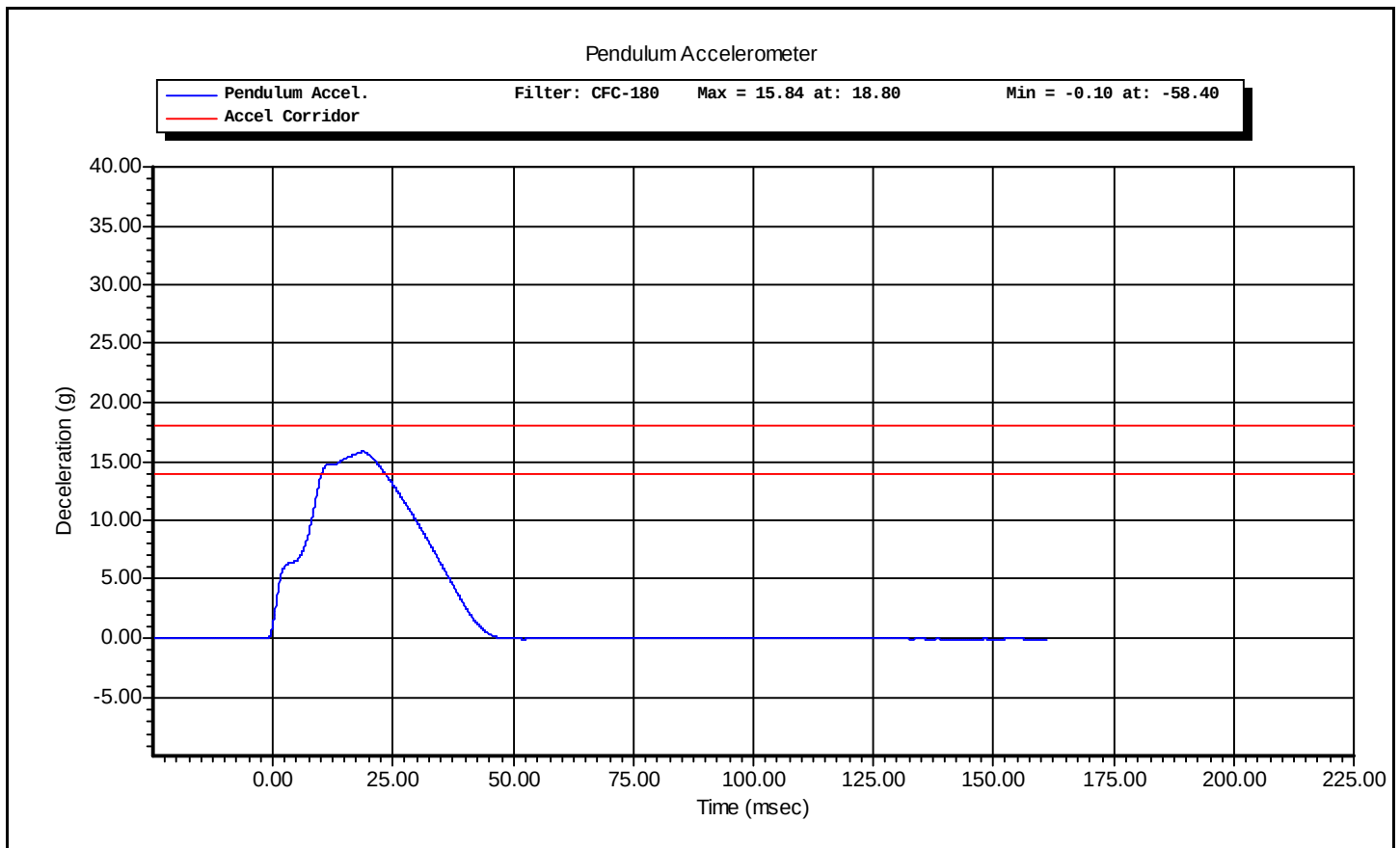
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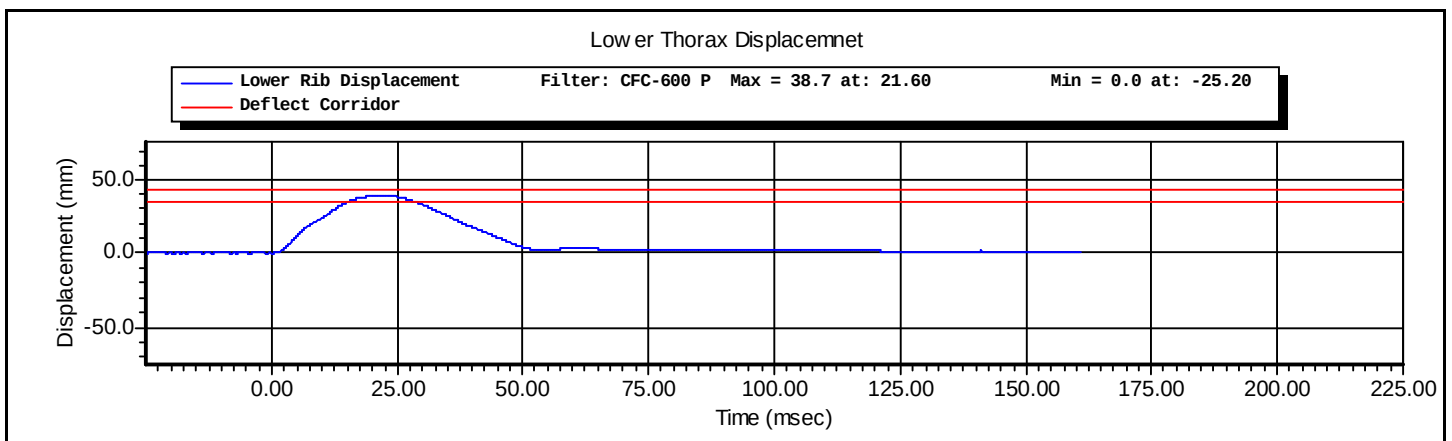
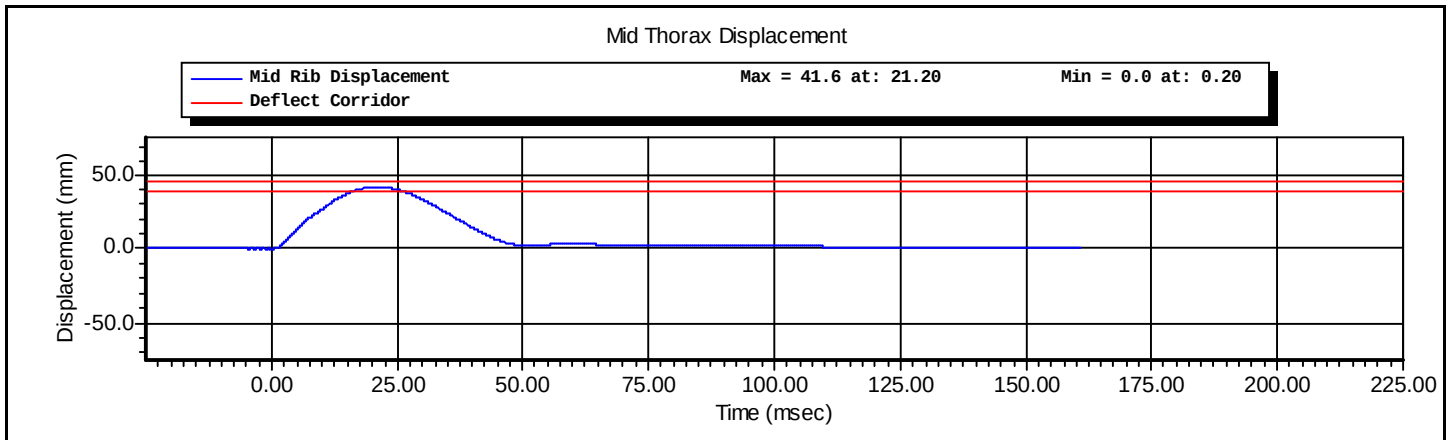
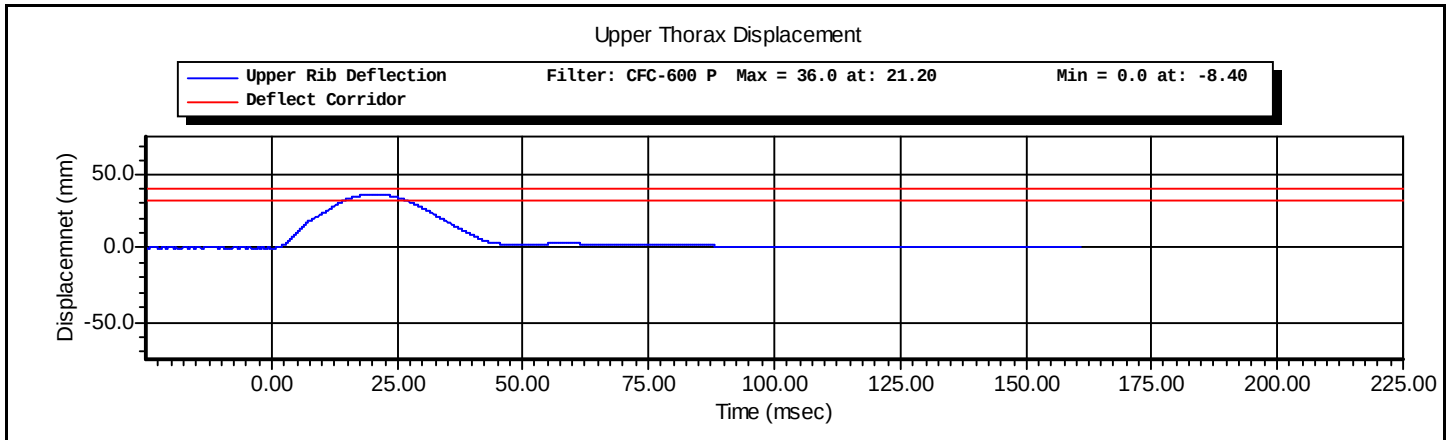
Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Thorax Without Arm	Test Date:	7/27/2010
Test Number:	1	Test Time:	5:21:23 PM

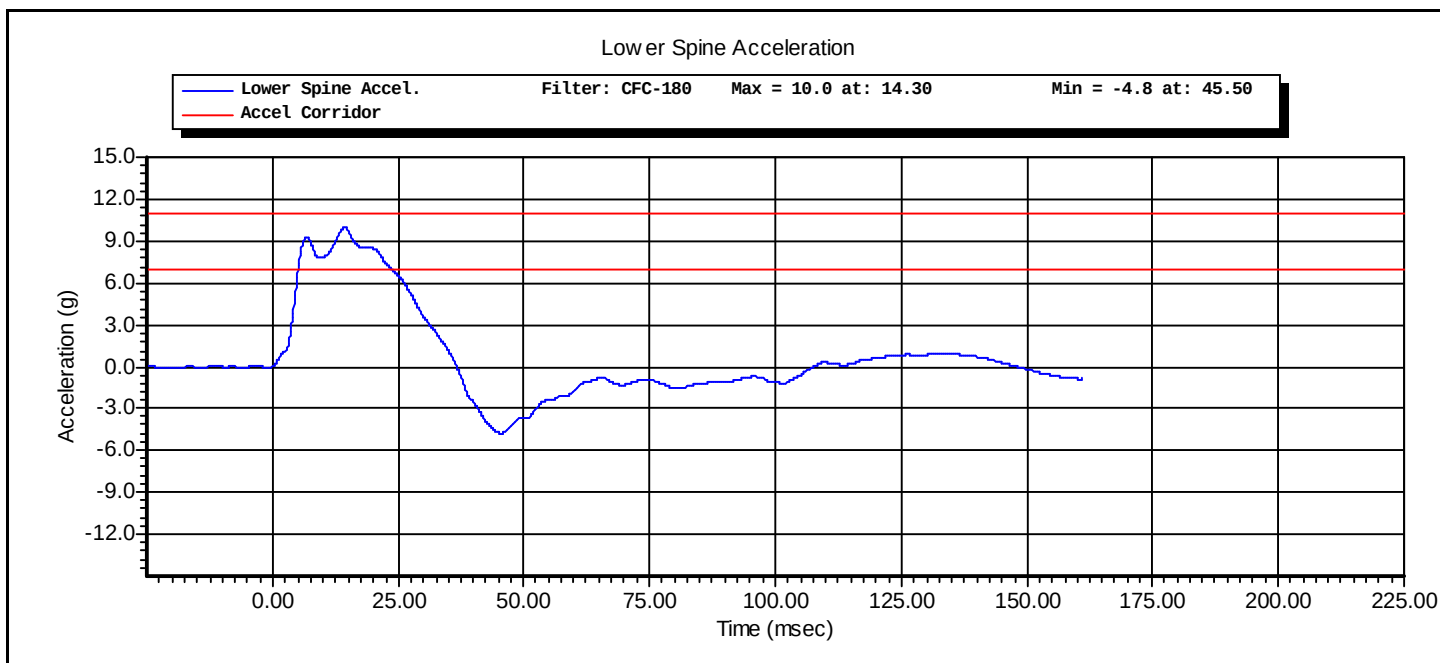
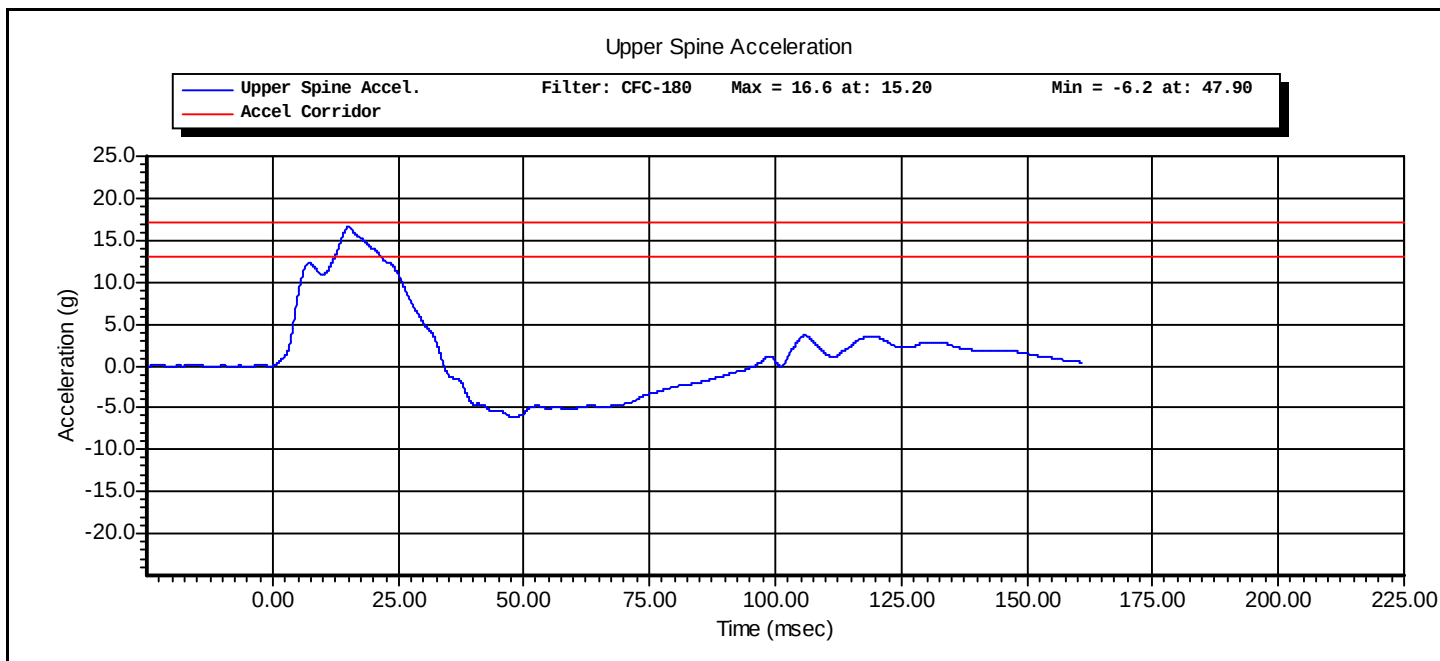
Component Part Number	Component Serial Number
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Test ID: Thorax Without Arm Test Time: 5:21:23 PM

Test Date: 7/27/2010







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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:	7/27/2010
Test Number:	1	Test Time:	5:05:03 PM

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.2 deg C	P
Humidity	10	--	70	48 %RH	P
Velocity	4.20	--	4.40	4.35 m/s	P
Probe Acceleration	12.0	--	16.0	14.6 g	P
Upper Abdominal Rib Deflection	36.0	--	47.0	41.3 mm	P
Lower Abdominal Rib Deflection	33.0	--	44.0	40.2 mm	P
Lower Spine Acceleration - T12	9.0	--	14.0	11.8 g	P

All test parameters are within specifications

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

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

Test ID: **Abdomen**

Test Time: **5:05:03 PM**

Test Date: **7/27/2010**



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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	P38216	6/22/2010
Servo	180-3885	DS-1207	3/26/2010
Servo	180-3885	DS-1204	3/26/2010
Endevco	7264-2000	P58839	3/29/2010

Test ID: **Abdomen**

Test Time: **5:05:03 PM**

Test Date: **7/27/2010**



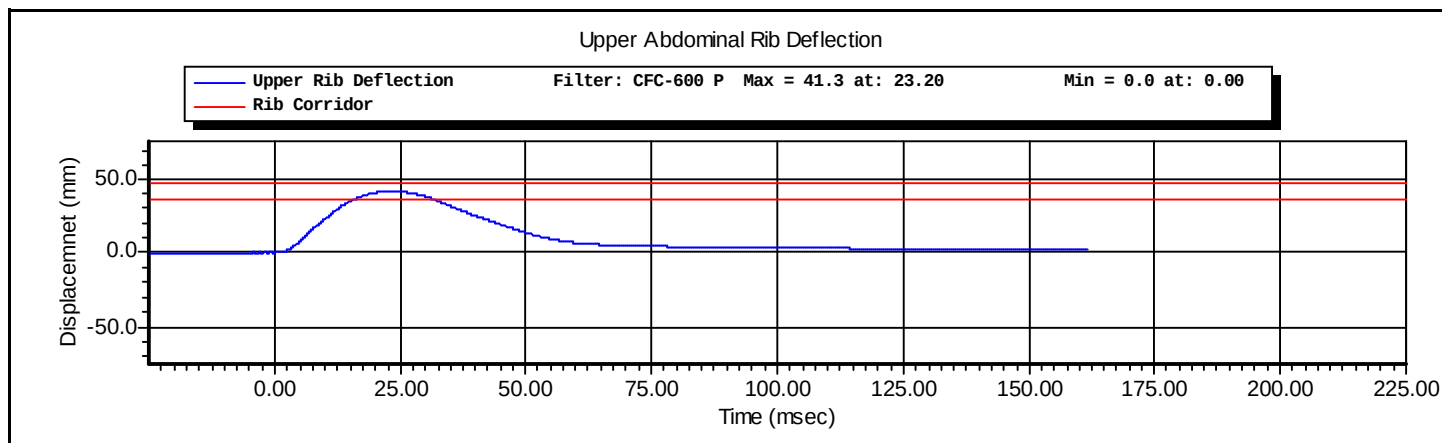
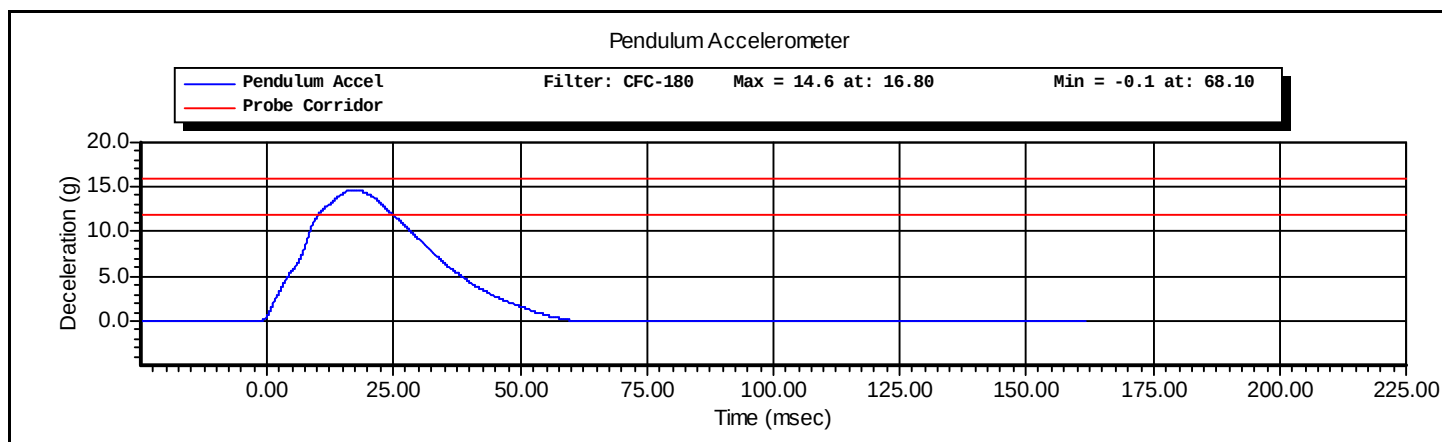
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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Abdomen	Test Date:	7/27/2010
Test Number:	1	Test Time:	5:05:03 PM

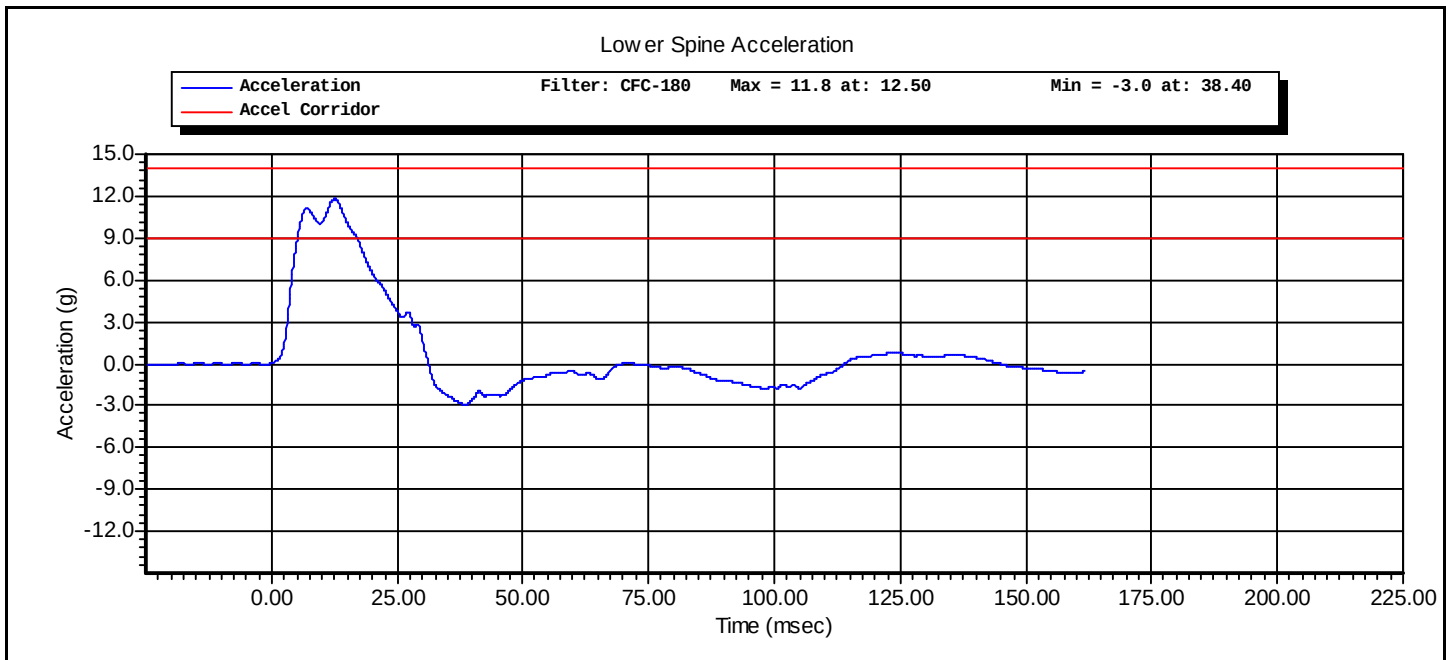
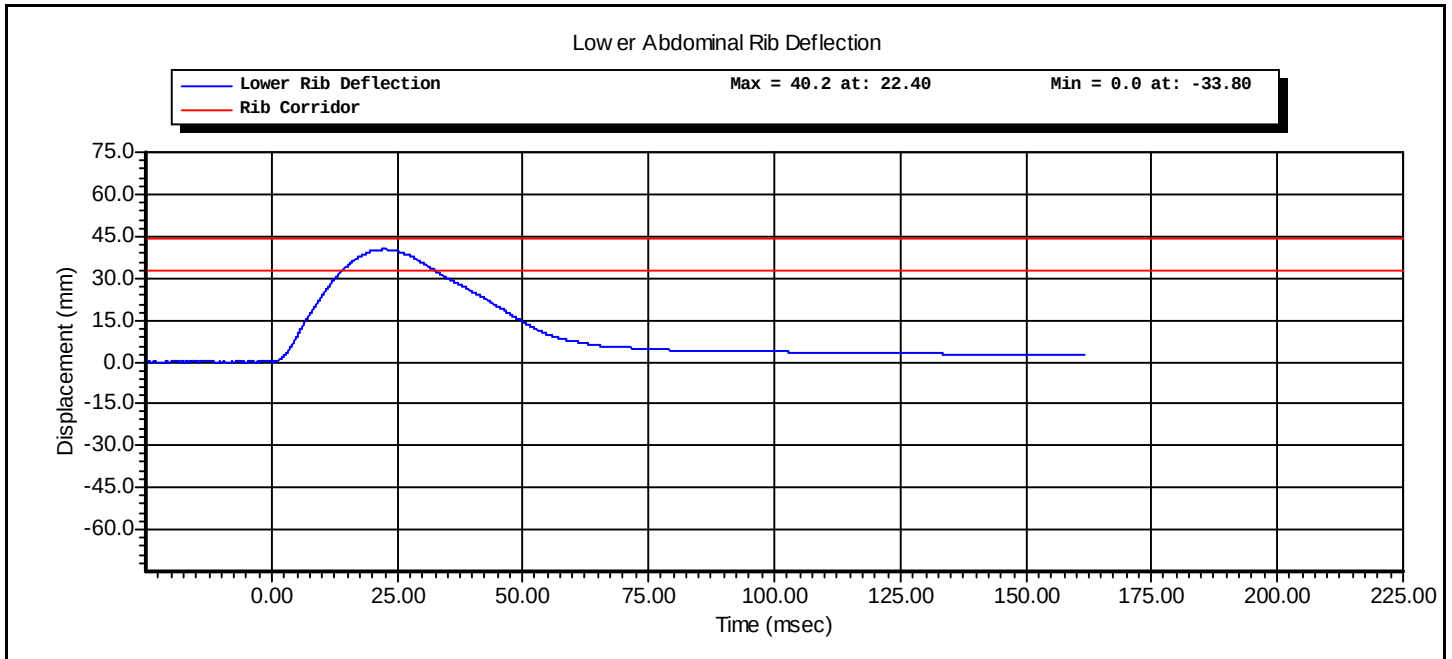
Component Part Number	Component Serial Number
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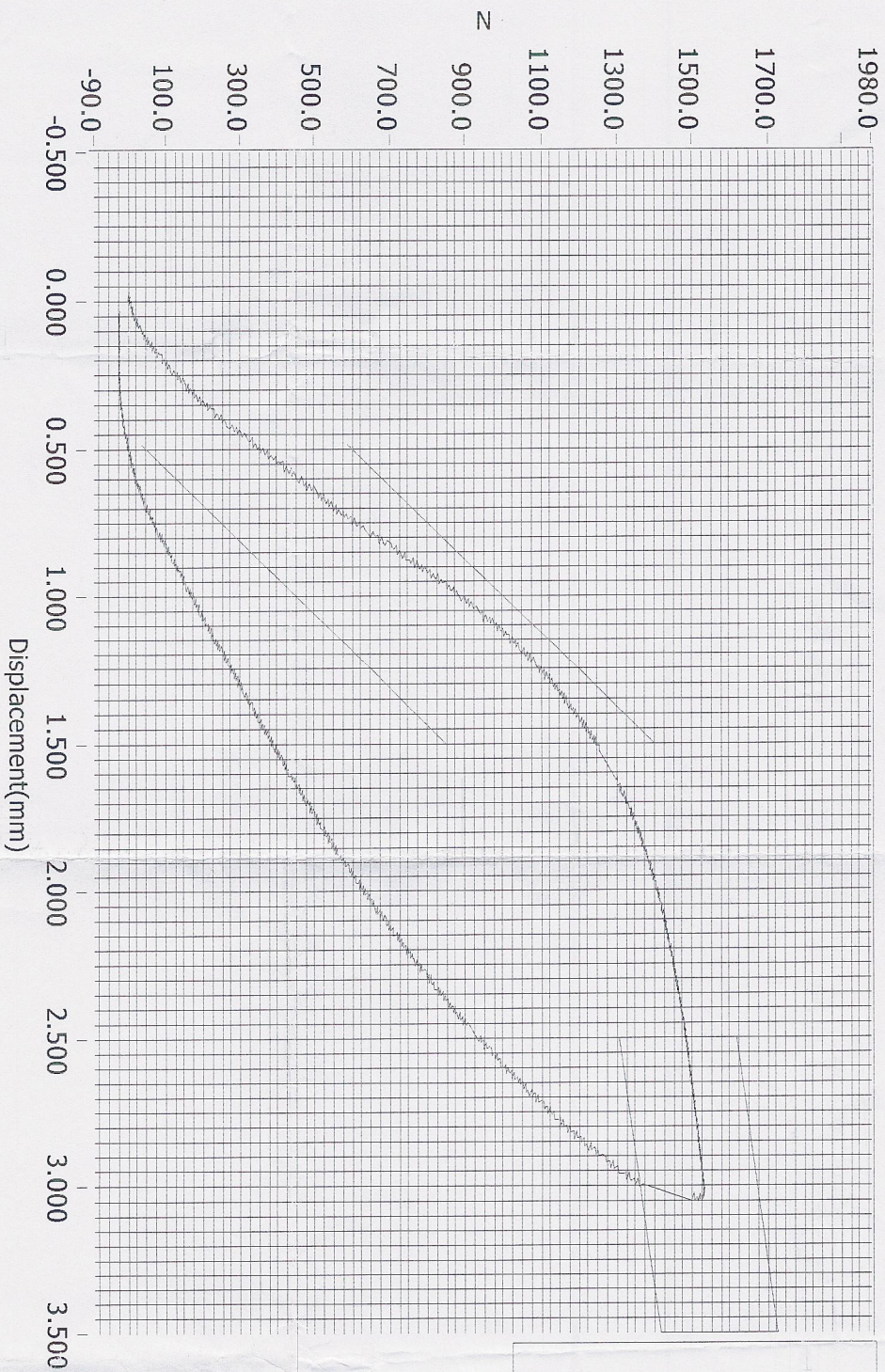
Test ID: Abdomen

Test Time: 5:05:03 PM

Test Date: 7/27/2010



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

12283

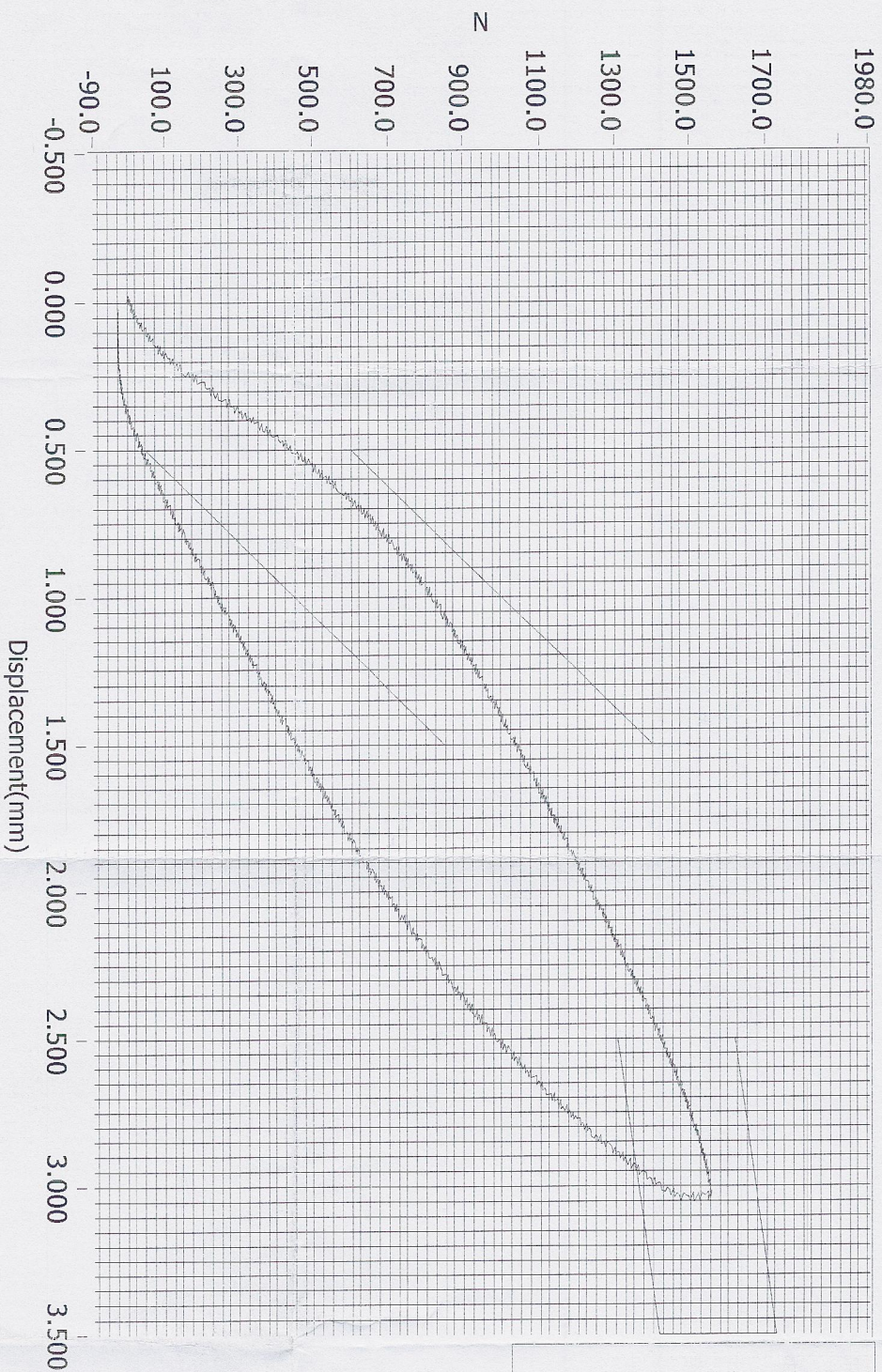
SIDIIs

Current Date : 7/6/2007

Current Time : 08:03:05

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

13966

SIDIIs

Current Date : 8/29/2007

Current Time : 16:20:30

FS



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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:	7/27/2010
Test Number:	1	Test Time:	4:09:28 PM

Component Part Number	Component Serial Number
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Comments:

Pelvis Plug Used for Certification:
FTSS S/N 12283
Force @ 3mm = 1528N

Pelvis Plug Used for Full Scale Test:
FTSS S/N 13966
Force @ 3mm = 1549N

Test Parameters	Test Specifications			Test Results	
Temperature	20.6	--	22.2	22.2 deg C	P
Humidity	10	--	70	50 %RH	P
Velocity	6.60	--	6.80	6.67 m/s	P
Peak Probe Acceleration	38.0	--	47.0	42.0 g	P
Peak Pelvis Acceleration	34.0	--	42.0	36.3 g	P
Peak Acetabulum Force	3.60	--	4.30	4.08 kN	P

All test parameters are within specifications

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

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

Test ID: **Pelvis Acetabulum** Test Time: **4:09:28 PM**

Test Date: **7/27/2010**



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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	P38216	6/22/2010
Endevco	7264-2000	P49217	4/12/2010
DentonATD	3249J	LC-267Fy	4/9/2010

Test ID: **Pelvis Acetabulum** Test Time: **4:09:28 PM**

Test Date: **7/27/2010**



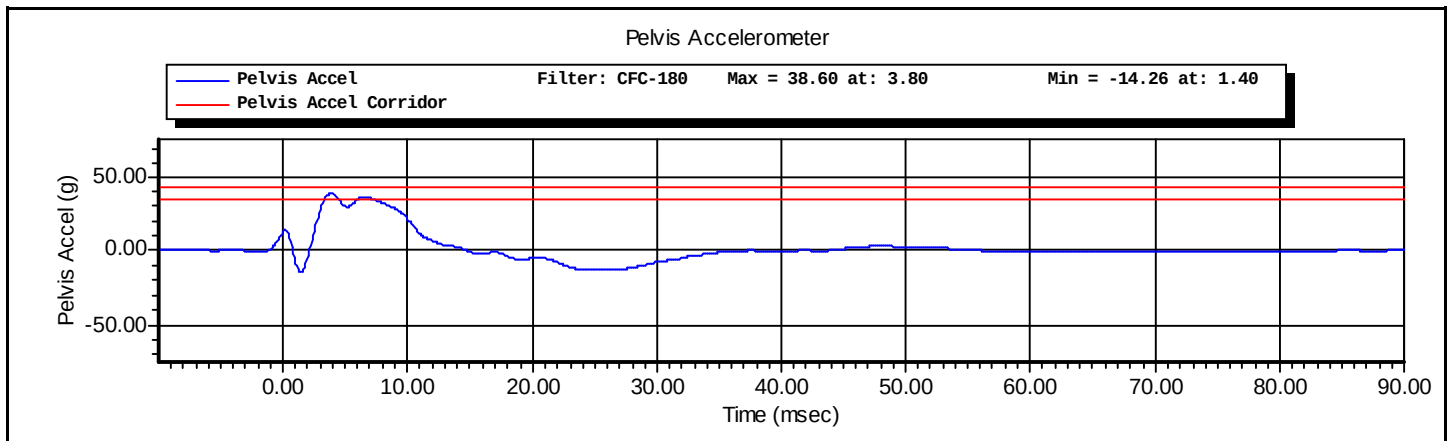
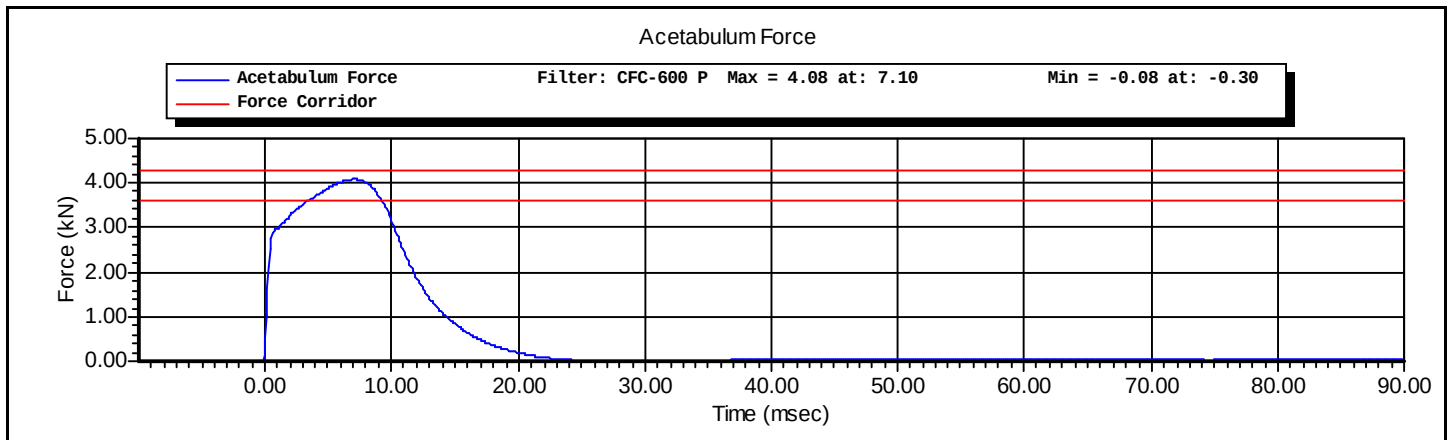
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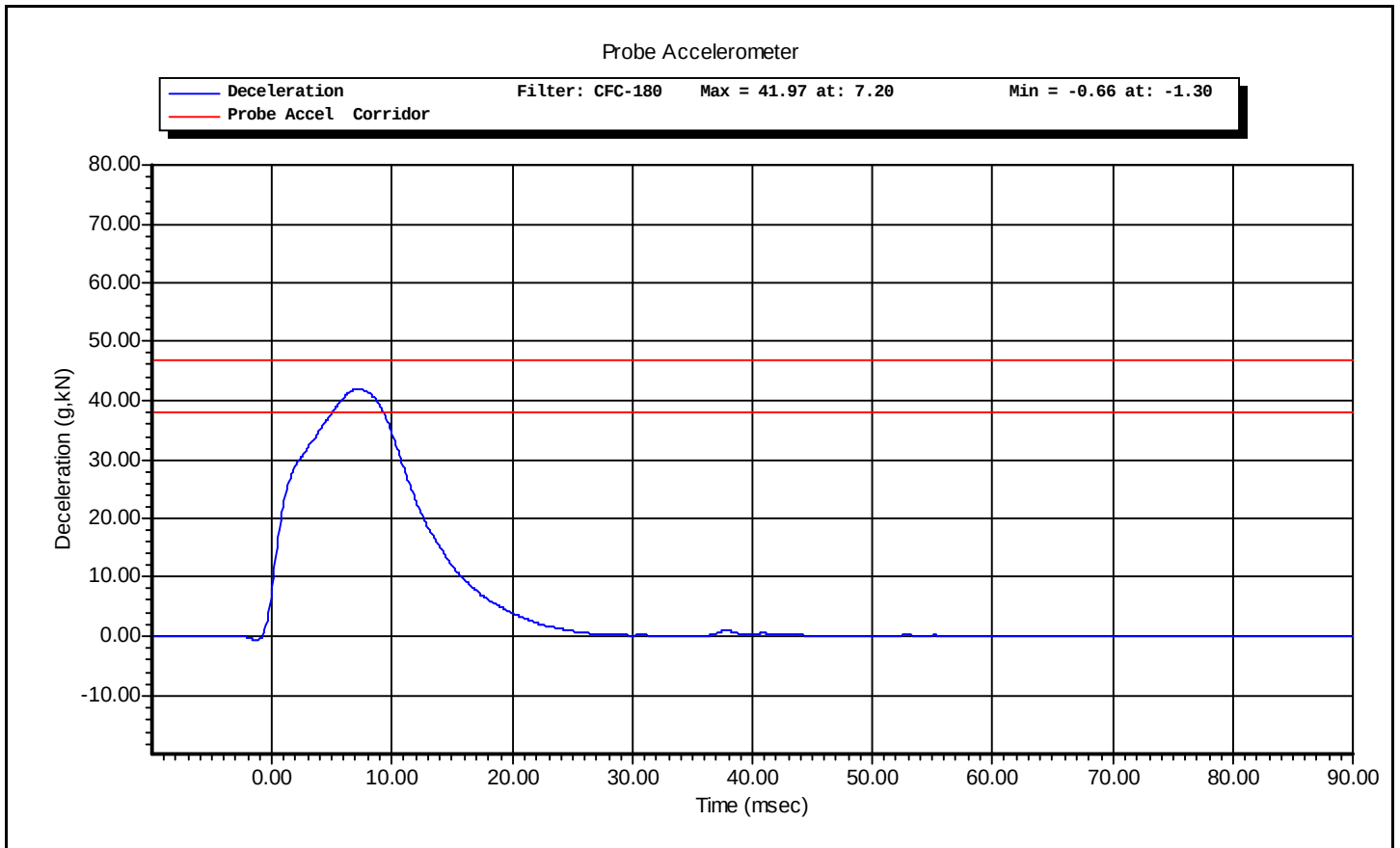
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Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Pelvis Acetabulum	Test Date:	7/27/2010
Test Number:	1	Test Time:	4:09:28 PM

Component Part Number	Component Serial Number
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Test ID: **Pelvis Acetabulum** Test Time: **4:09:28 PM**

Test Date: **7/27/2010**





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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 304		
Test ID:	Pelvis Iliac	Test Date:	7/27/2010
Test Number:	1	Test Time:	3:13:51 PM

Component Part Number	Component Serial Number
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Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	50 %RH P
Velocity	4.20 -- 4.40	4.22 m/s P
Peak Probe Acceleration	36.0 -- 45.0	38.6 g P
Peak Pelvis Acceleration	28.0 -- 39.0	32.0 g P
Peak Iliac Force	4.10 -- 5.10	4.58 kN P

All test parameters are within specifications

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

Test ID: **Pelvis Iliac**

Test Time: **3:13:51 PM**

Test Date: **7/27/2010**



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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	P38216	6/22/2010
Endevco	7264-2000	P49217	4/12/2010
DentonATD	3228J	LC-281 Fy	4/9/2010

Test ID: **Pelvis Iliac**

Test Time: **3:13:51 PM**

Test Date: **7/27/2010**



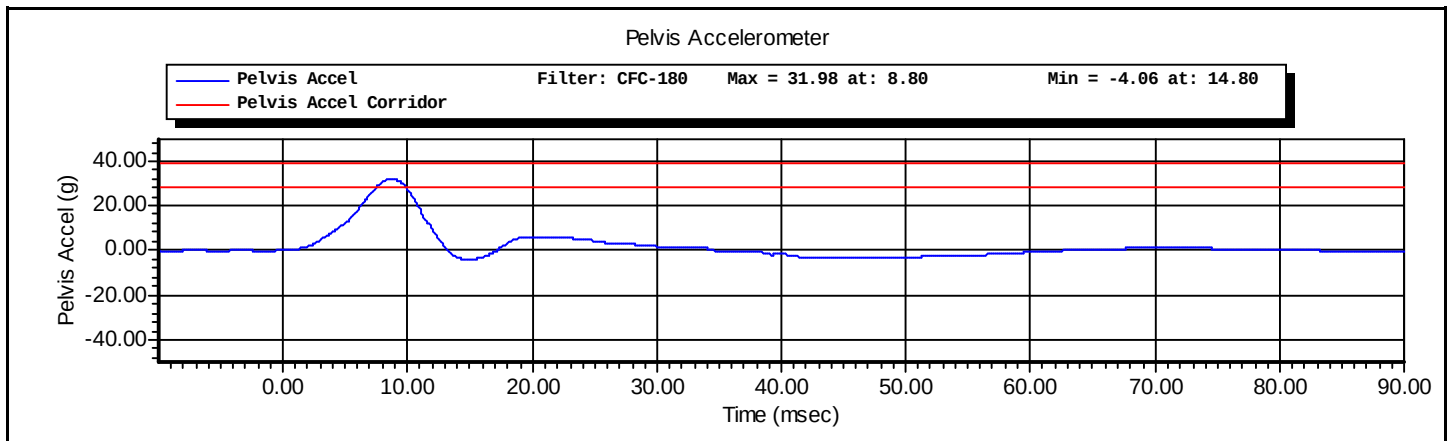
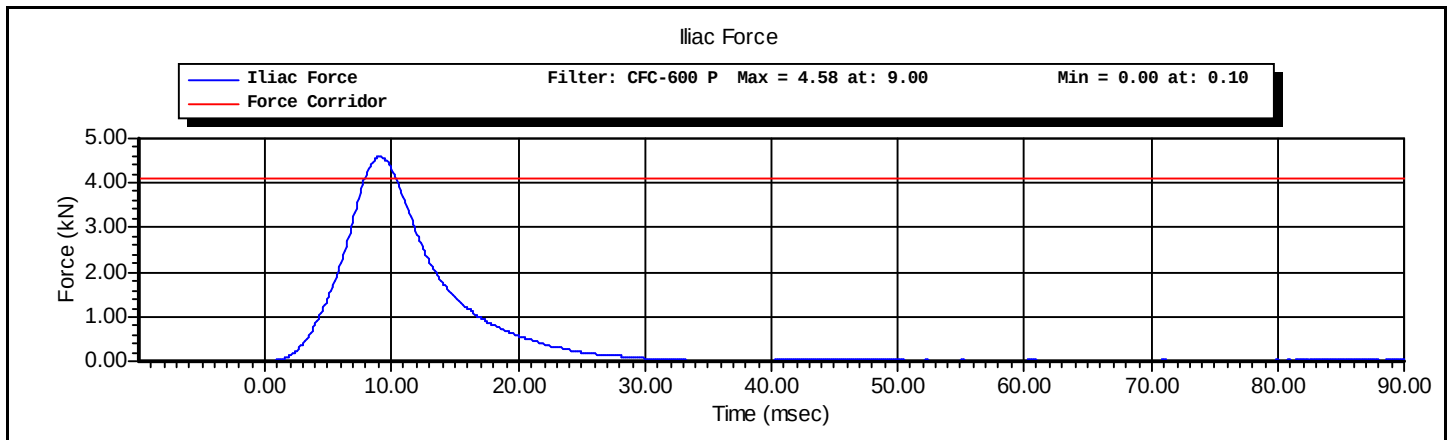
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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 304		
Test ID:	Pelvis Iliac	Test Date:	7/27/2010
Test Number:	1	Test Time:	3:13:51 PM

Component Part Number	Component Serial Number
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Test ID: **Pelvis Iliac**

Test Time: **3:13:51 PM**

Test Date: **7/27/2010**

