

REPORT NUMBER: SPNCAP-CAL-032

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

**Chrysler Group LLC.
2011 Dodge Caliber
Five Door Hatchback**

NHTSA NUMBER: MB0306

**PREPARED BY:
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December 23, 2010

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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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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15. <i>Supplementary Notes</i>																					
16. <i>Abstract</i> A 32.2 km/h (20 mph), 75° oblique impact Side NCAP Test was conducted on the subject 2011 Dodge Caliber Five Door Hatchback 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 12/14/2010. The impact velocity was 32.24 km/h, and the ambient temperature at the struck (driver's) side of the vehicle was 17°C. The test vehicle post-test maximum crush was 370 mm at level 3. The test vehicle's occupant performance is as follows:																					
<table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (SID-IIs)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₈)</td> <td>N/A</td> <td>1000</td> <td>632.46</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>Gs</td> <td>82</td> <td>77.25</td> </tr> <tr> <td>Combined Acetabular and Iliac Pelvic Force</td> <td>N</td> <td>5525</td> <td>6556.70</td> </tr> </tbody> </table>				Measurement Description	Units	Driver ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC ₃₈)	N/A	1000	632.46	Resultant Lower Spine Acceleration	Gs	82	77.25	Combined Acetabular and Iliac Pelvic Force	N	5525	6556.70
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		Threshold	Result																		
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Combined Acetabular and Iliac Pelvic Force	N	5525	6556.70																		
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. <i>Key Words</i> New Car Assessment Program (NCAP) Side Impact Pole Part 572V SID-IIs		18. <i>Distribution Statement</i> 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 Dodge Caliber Five Door Hatchback manufactured by Chrysler Group. 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 Dodge Caliber Five Door Hatchback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.24 km/h. The test was conducted by Calspan Corporation Transportation Research Group on 12/14/2010. Pre-test and post test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

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

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

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

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

The following table summarizes the results of the test:

Dummy	HIC (36ms)	Resultant Lower Spine Acceleration	Pelvic Force (N)
SID-IIs 5th percentile female	632.46	77.25	Iliac Wing = 3259.31
			Acetabular = 3378.27
			Sum = 6556.70

SUPPLEMENTAL RESTRAINT INFORMATION

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

GENERAL COMMENTS:

**SECTION 3
OCCUPANT AND VEHICLE INFORMATION**

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MB0306	Anti-Lock Brakes	Yes
Model Year	2011	All-Wheel Drive	No
Make	Dodge	Power Steering	Yes
Model	Caliber	Driver Front Airbag	Yes
Body Style	Five Door Hatchback	Driver Curtain Airbag	Yes
VIN	1B3CB1HA7BD111233	Driver Head/Torso Airbag	No
Body Color	Charcoal gray	Driver Torso Airbag	No
Delivery Date	11/24/2010	Driver Torso/Pelvis Airbag	No
Odometer Reading (km/mi)	190 / 118	Driver Pelvis Airbag	No
Dealer	Canandigua Chrysler	Driver Knee Airbag	Yes
Transmission	6-Speed Manual	Rear Pass. Curtain Airbag	Yes
Final Drive	Front Wheel Drive	Rear Pass. Head/Torso Airbag	No
Type/No. Cylinders	4 Cylinder Inline	Rear Pass. Torso Airbag	No
Engine Displacement (L)	2.0	Rear Pass. Torso/Pelvis Airbag	No
Engine Placement	Transverse	Rear Pass. Pelvis Airbag	No
Roof Rack	No	Pretensioners	Yes
Sunroof/T-Top	No	Load Limiters	No
Tinted Glass	No	Automatic Door Locks	Yes
Traction Control	No	Bucket Seats	Yes
Power Brakes	Yes	Tilt Steering	Yes
Front Disc	Yes	Other	--
Rear Disc	No	Other	

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

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Chrysler Group LLC	GVWR (kg)	2012
Date of Manufacture	11/10	GAWR Front (kg)	1080
		GAWR Rear (kg)	998

VEHICLE SEATING AND WEIGHT CAPACITY DATA

	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Vehicle Capacity Weight (VCW) (kg)				392	(A)
DSC X 68.04 kg				340.2	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				51.8*	(A-B)

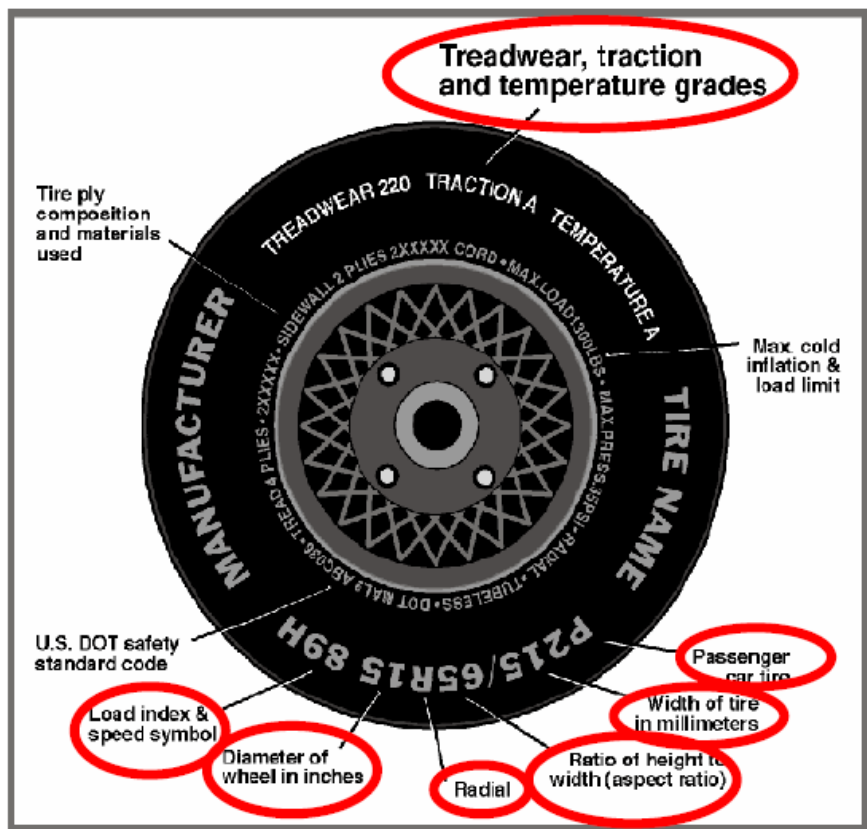
* Maximum allowable RCLW is 136

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	X		

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	240	240
Recommended Tire Size	P205/70R15	P205/70R15
Tire Size on Vehicle	P205/70R15	P205/70R15
Tire Model	SP50	SP50
Tire Manufacturer	Dunlop	Dunlop
Treadwear	460	460
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1 polyester	1 polyester
Tire Plies Body	1 polyester, 2 steel	1 polyester, 2 steel
Load Index/Speed Symbol	95T	95T
Tire Material	Rubber	Rubber
DOT Safety Code Right	M6M0LTER3410	M6M0LTER3410
DOT Safety Code Left	M6M0LTER3410	M6M0LTER3410

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	408	274		417	320		428	318	
Right	kg	387	281		390	316		391	318	
Ratio	%	59	41		56	44		56	44	
Totals	kg	795	555	1350	807	636	1443	819	636	1455

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	1350	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	51.4	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	51.8	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1453	(A+B+C)

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded
Driver Door Sill Angle (front-to-rear)*	Deg.	-2.3	-1.9	-2.4
Front Passenger Sill Angle (front-to-rear)*	Deg.	1.1	1.2	0.9
Front Bumper Angle (left-to-right)**	Deg.	0.0	0.0	0.0
Rear Bumper Angle (left-to-right)**	Deg.	0.0	0.3	0.4
Vehicle CG (Aft of Front Axle)	mm	1084	1162	1152
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-8	-18	-23

* Front up is positive ** Left up is positive

GENERAL VEHICLE TEST DATA

Measurement Description	Units	Value
Weight of Ballast in Cargo Area	kg	31.0
Weight of Vehicle Components Removed	kg	0

Vehicle parts removed to make Target Vehicle Test Weight:
None

TEST VEHICLE IMPACT POINT DATA

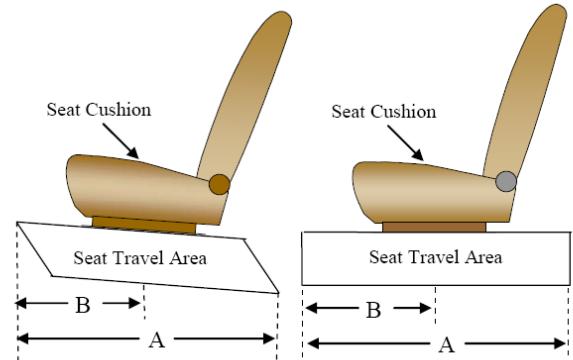
Measured Parameter	Units	Value
Vertical Impact Reference Line (Aft of Front Axle)	mm	1749
Actual Impact Point (Aft of Front Axle)	mm	1739
Impact Point Difference (- forward / + rearward)	mm	-10

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010

SEAT FORE/AFT POSITIONS

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

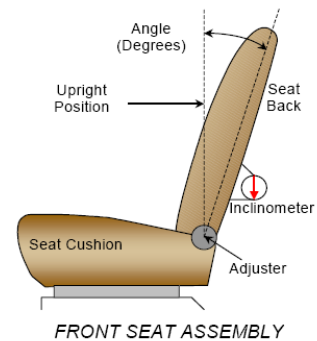


SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel (mm)	Placed in Detent # or Position (mm)
Driver Seat	34 detents	17

SEAT BACK ANGLE POSITION

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



SEAT BACK ANGLE

	Degrees	Detent
Driver Seat Back Angle with Seated Dummy	0.3	NA

SEAT BELT UPPER ANCHORAGES

The driver's upper belt anchorage was placed in the uppermost of four positions

SEAT BELT UPPER ANCHORAGE POSITIONING

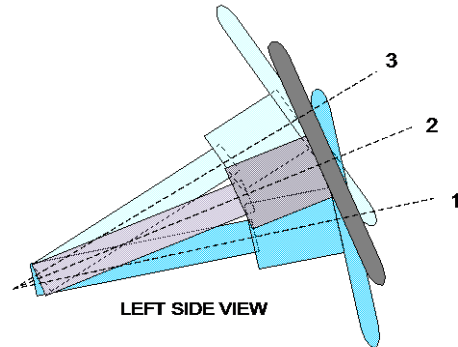
	Total # of Positions	Placed in Position #
Driver Seat	4	0

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010

STEERING COLUMN ADJUSTMENT

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



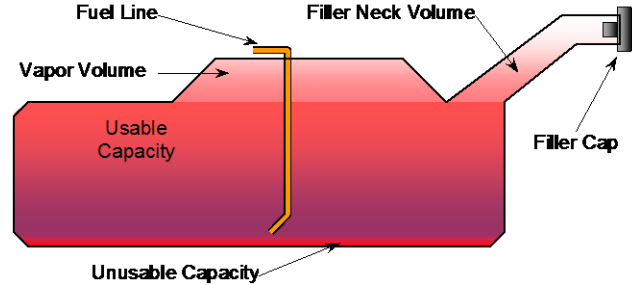
STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONING

	Degrees	Fore/Aft Position (mm)
Lowermost, Position No. 1	64.6	
Geometric Center, Position No. 2	67.1	
Uppermost, Position No. 3	70.8	
Telescoping Steering Wheel Travel		NA
Test Position	67.1	NA

FUEL PUMP

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



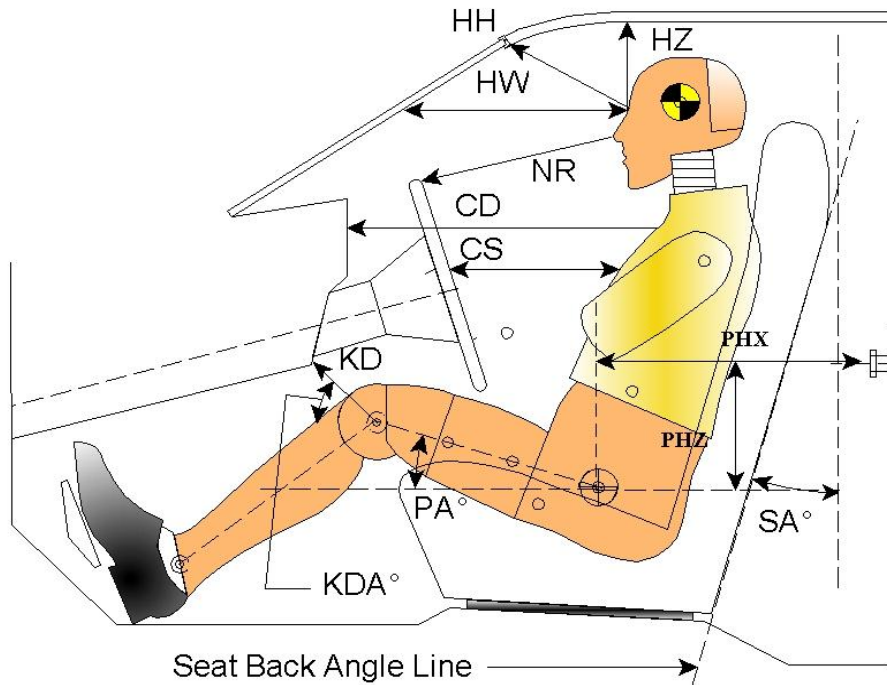
VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	51.1
Usable Capacity of "Optional Tank"	NA
Usable Capacity of Standard Tank as Specified in Owner's Manual	51.5
Usable Capacity of Optional Tank as Specified in Owner's Manual	NA
92-94% of Usable Capacity	47.0- 48.0
Actual Amount of Solvent Used in Test	47.3
1/3 of Usable Capacity	17.0

**DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010



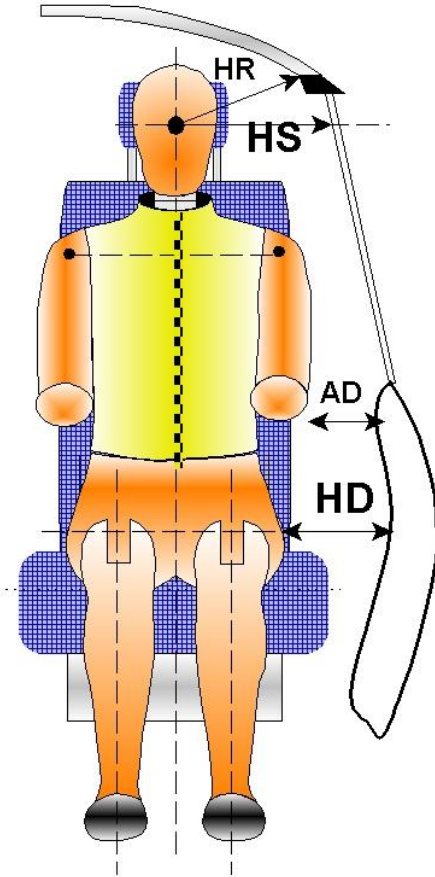
DUMMY ID# 300

Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	340	
HW	Head to Windshield	662	
HZ	Head to Roof	230	
NR	Nose to Rim	209	
CD	Chest to Dash	412	
CS	Chest to Steering Wheel	167	
KDL/KDAL°	Left Knee to Dash	126	23.2
KDR/KDAR°	Right Knee to Dash	119	23.2
PA°	Pelvic Angle		15.7
PHX	H-Point to Striker (X-Axis)	289	
PHZ	H-Point to Striker (Z-Axis)	191	
SA°	Seat Back Angle		0.3

* Measured from Head-restraint post

**DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010

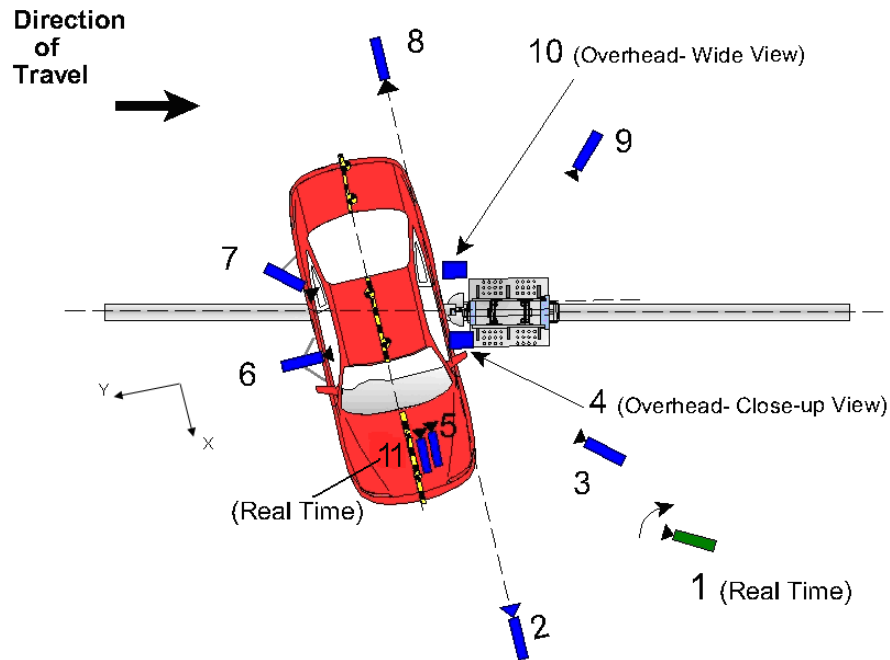


DUMMY ID# 300

Code	Measurement Description	Length (mm)
HR	Head To Side Header	258
HS	Head to Side Window	394
AD	Arm to Door	180
HD	H-Point to Door	163

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010



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	1965	7270	-990	24	1000
3	Impact side 45° - forward pole view	2450	2340	-1770	25	1000
4	Overhead Close-up view of impact					1000
5	Onboard – dummy front view				12.5	500
6	Onboard – dummy side view				12.5	500
7	Onboard – dummy rear oblique view				12.5	500
8	Rear ground level – impact view	-530	-6530	-1040	28	1000
9	Impact side 45° - rearward pole view	2950	-2995	-1235	24	1000
10	Overhead wide-view of impact					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

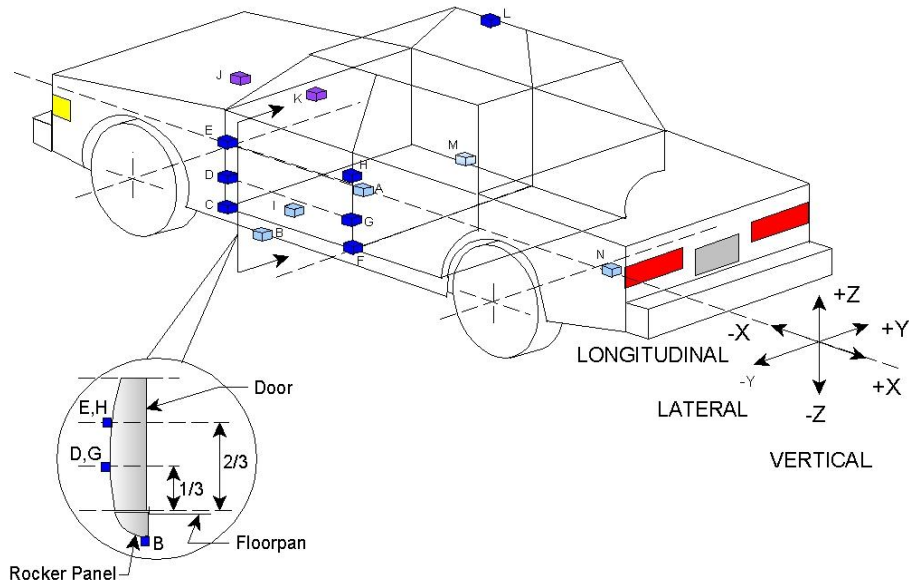
INSTRUMENTATION

	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 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010



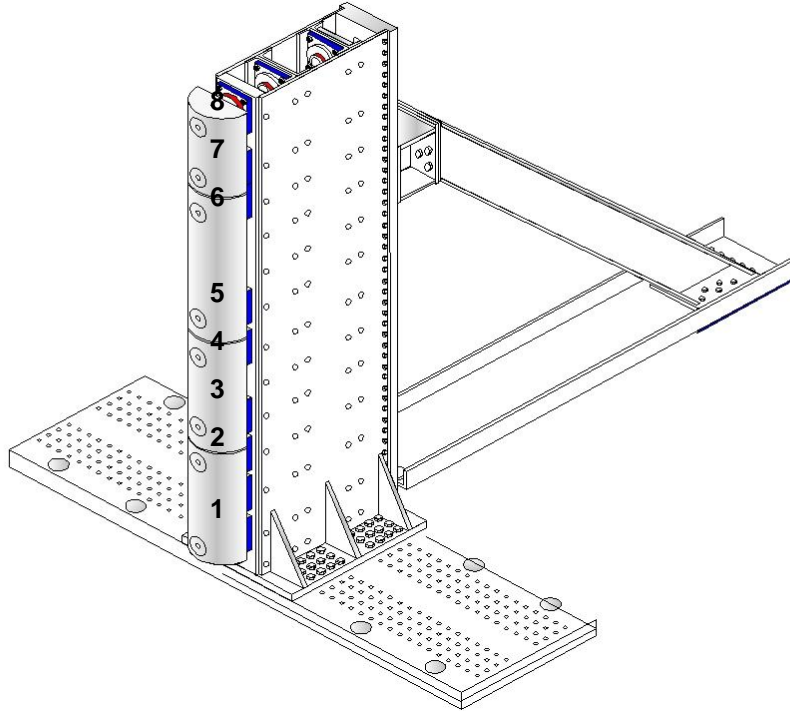
Accelerometer/Sensor Location				
	ID	Coordinates (mm)		
		X	Y	Z
A	Vehicle CG Accel.	2477	-13	543
	Vehicle CG Sensor	2477	-13	543
B	Left Floor Sill	2640	-628	351
C	A Pillar Sill	2979	-625	1091
D	A Pillar Low	2876	-623	329
E	A Pillar Mid	2978	-608	536
F	B Pillar Sill	1988	-627	337
G	B Pillar Low	2011	-664	432
H	B Pillar Mid	1960	-661	952
I	Driver Seat	2065	-537	332
L	Engine Top	3742	125	813
J	Firewall	3307	-44	714
K	Right Roof	2358	573	1435
M	Right Floor Sill	2650	627	337
N	Rear Floorpan	737	4	655

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
Test Program: Side Pole NCAP Test Date: 12/14/2010

FOIL 300K RIGID POLE



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

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010

TEST DUMMY INFORMATION AND CONTACT

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

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

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

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Intruded due to side impact
Sill Separation	None
Windshield Damage	Cracked
Window Damage	Driver window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

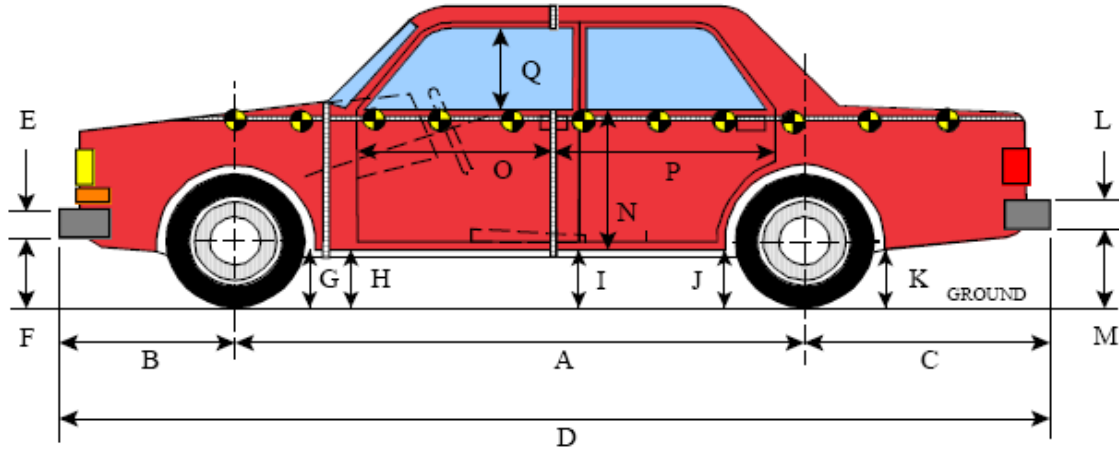
Restraint Type	Left Front (Driver) Occupant Location 1	
	Mounted	Deployed
Frontal Airbag	Yes	No
Knee Airbag	Yes	No
Side Curtain Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	No
Seat Belt Load Limiter	No	NA

VEHICLE SPEED AND IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset from Vertical Impact Reference Line	mm	+/- 38	-10
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.24
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.36

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

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010



LEFT SIDE VIEW

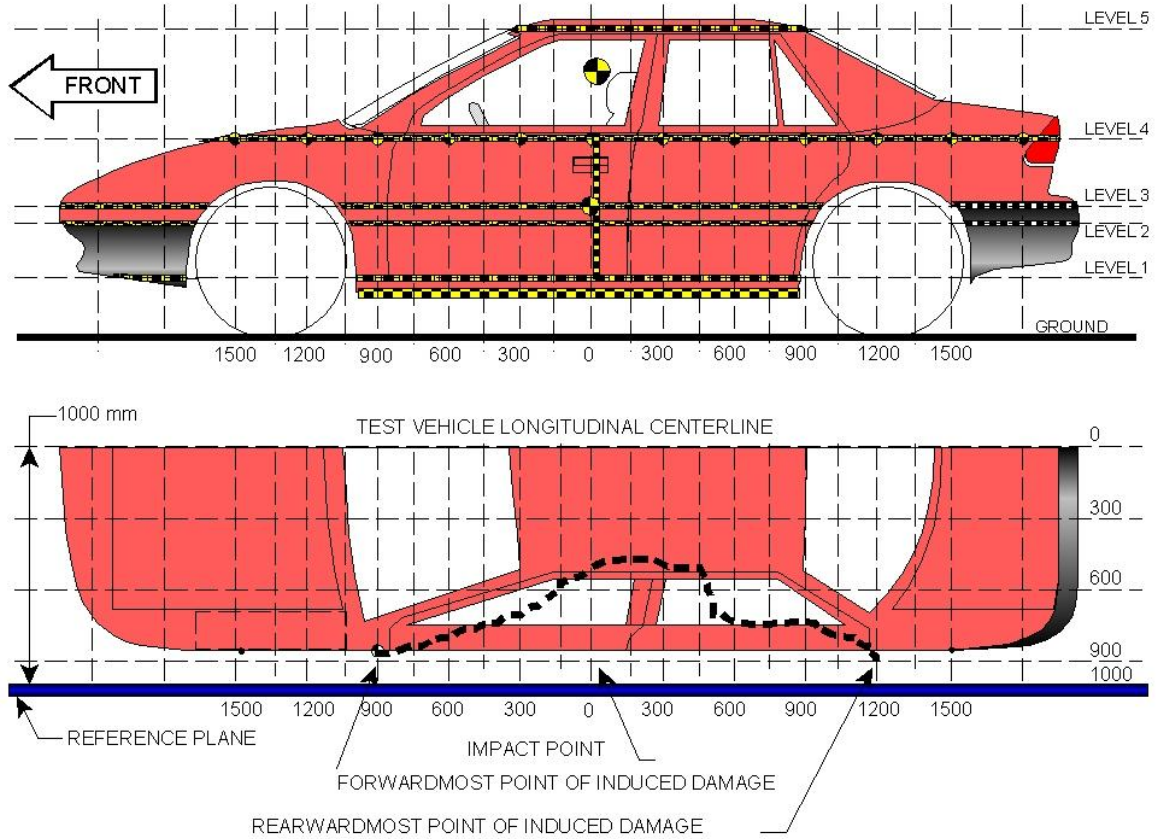
All MEASUREMENTS IN (mm) WITH TOLERANCE OF ± 3 mm

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Vehicle Wheelbase	2636	2578	-58
B	Front Axle to FSOV	882	891	9
C	Rear Axle to RSOV	899	903	4
D1	Total Vehicle Length at Left Side	4241	4149	-92
D2	Total Vehicle Length at Centerline	4417	4372	-45
D3	Total Vehicle Length at Right Side	4237	4230	-6
E	Front Bumper Thickness	300	300	0
F	Front Bumper Bottom to Ground	224	244	20
G	Sill Height at Front Wheel Well	192	224	32
H	Sill Height at Front Door Leading Edge	215	235	20
I	Sill Height at B Pillar	220	262	42
J1	Sill Height at Rear Wheel Well	249	258	9
J2	Pinch Weld Height at Rear Wheel Well	222	236	14
K	Sill Height Aft of Rear Wheel Well	275	269	-6
L	Rear Bumper Thickness	300	300	0
M	Rear Bumper Bottom to Ground	319	309	-10
N	Sill Height to Window Bottom Sill	728	729	1
O	Front Door Leading Edge to Impact CL	579	574	-5
P	Rear Door Trailing Edge to Impact CL	1279	1250	-29
Q	Front Window Opening	394	382	-12
R	Right Side Length	4237	4230	-6
S	Left Side Length	4241	4149	-92
T	Vehicle Width at B Post	1748	1629	-119

**DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010



Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	326
2	Occupant H-Point	574
3	Mid-Door	661
4	Window Sill	929
5	Window Top	1441

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 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date: 12/14/2010

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-1050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
-900	--	--	--	764	--	--	--	--	795	--	--	--	--	-31	--
-750	--	882	875	790	--	--	881	879	801	--	--	1	-4	-11	--
-600	844	841	845	808	--	828	827	833	793	--	16	14	12	15	--
-450	850	849	854	823	--	769	768	773	750	--	81	81	81	73	--
-300	856	855	860	837	--	702	697	692	672	--	154	158	168	165	--
-150	860	859	865	845	--	611	601	598	580	--	249	258	267	265	--
0	863	863	868	851	612	513	501	498	490	436	350	362	370	361	176
150	864	866	871	855	618	552	536	532	518	473	312	330	339	337	145
300	864	867	873	856	622	647	661	655	635	509	217	206	218	221	113
450	862	868	873	860	625	756	754	757	742	553	106	114	116	118	72
600	860	866	871	859	625	785	777	774	763	567	75	89	97	96	58
750	855	864	869	858	623	811	802	793	785	577	44	62	76	73	46
900	850	860	865	856	621	836	830	819	806	593	14	30	46	50	28
1050	844	872	861	851	613	861	874	849	824	606	-17	-2	12	27	7
1200	--	887	890	846	597	--	908	907	844	596	--	-21	-17	2	1
1350	--	--	--	838	580	--	--	--	863	577	--	--	--	-25	3
1500	--	--	--	828	559	--	--	--	825	557	--	--	--	3	2

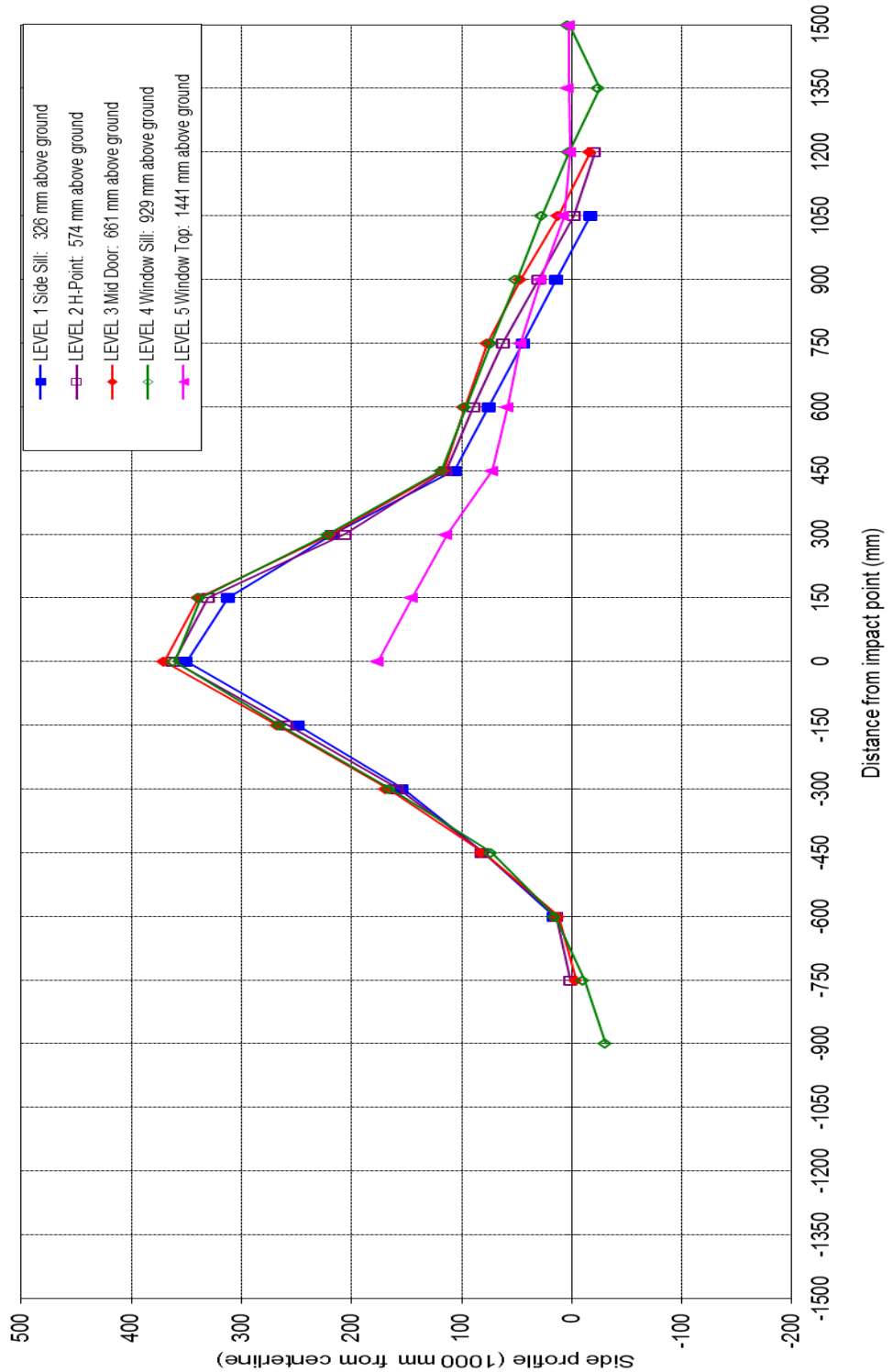
MAXIMUM CRUSH DATA

	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush (mm)	350	362	370	361	176
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 Dodge Caliber	NHTSA No:	MB0306
Test Program:	Side Pole NCAP	Test Date	12/14/2010



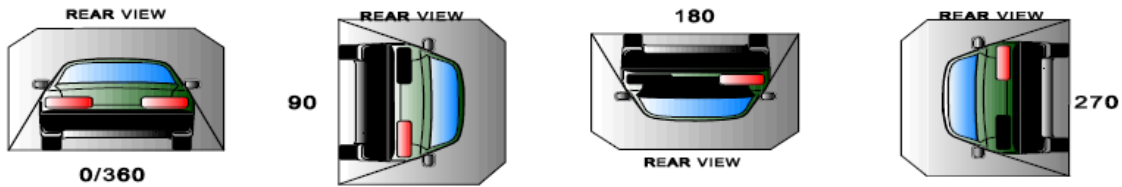
**DATA SHEET NO. 11
FMVSS NO. 301 FUEL SYSTEM INTEGRITY POST-IMPACT DATA**

Test Vehicle: 2011 Dodge Caliber NHTSA No: MB0306
 Test Program: Side Pole NCAP Test Date 12/14/2010

Test Time: 15:15 Temperature: -4° 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	1:06	5:00	6:06
90 to 180	1:03	5:00	6:03
180 to 270	1:03	5:00	6:03
270 to 360	1:08	5:00	6:08

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

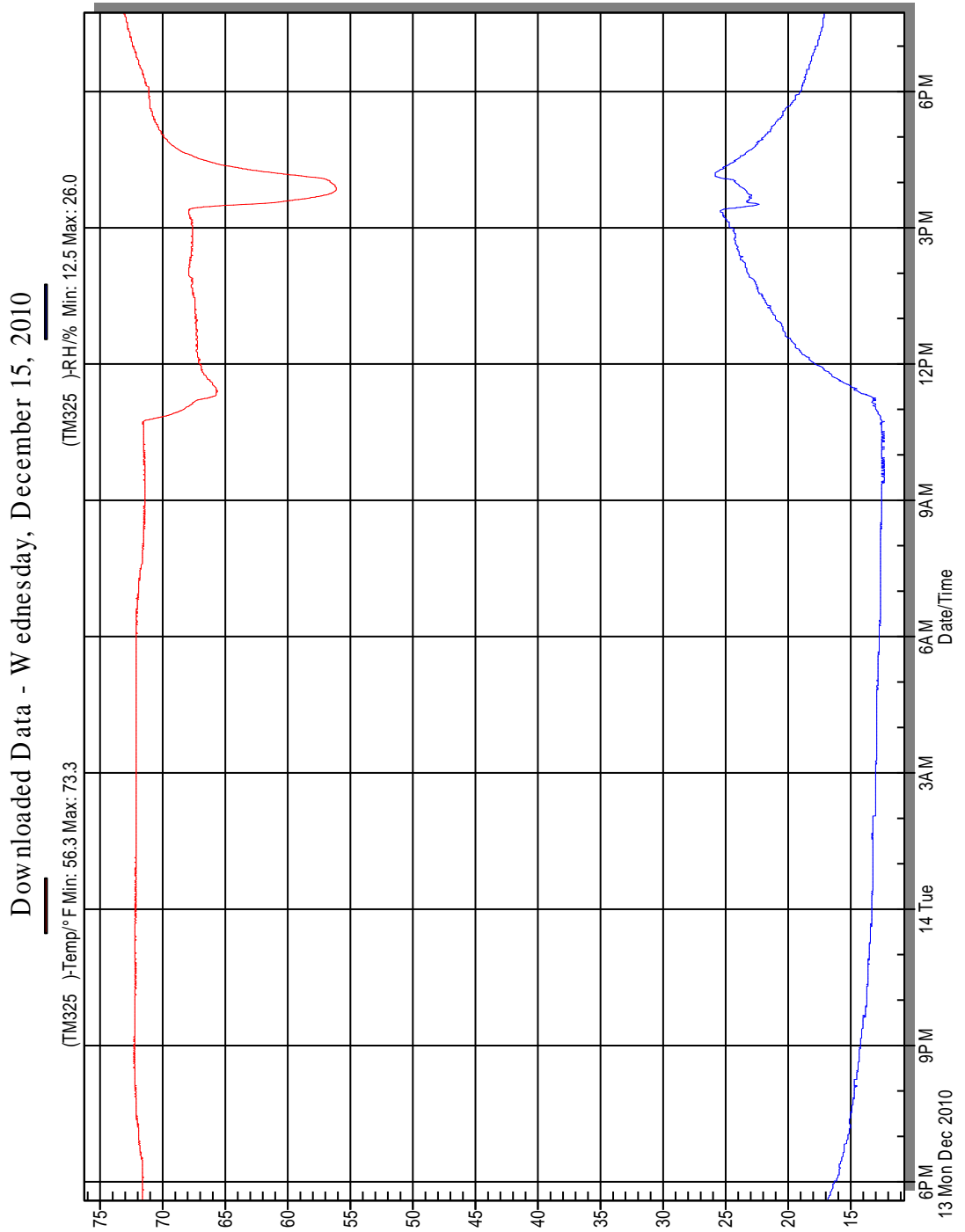
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0 to 90	0	0	NA	NA
90 to 180	0	0	NA	NA
180 to 270	0	0	NA	NA
270 to 360	0	0	NA	NA

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 Dodge Caliber	NHTSA No:	MB0306
Test Program:	Side Pole NCAP	Test Date	12/14/2010



**APPENDIX A
PHOTOGRAPHS**

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4	Post-Test Frontal View of Test Vehicle	A-6
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35	Pre-Test View of Parking Brake	A-22
36	Pre-Test Close-Up Left Side View of Driver Seat Track Showing Test Position	A-22
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47	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-28
48	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-28
49	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-29
50	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
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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 $\frac{3}{4}$ Front View of Test Vehicle



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



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



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



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



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



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



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



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



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

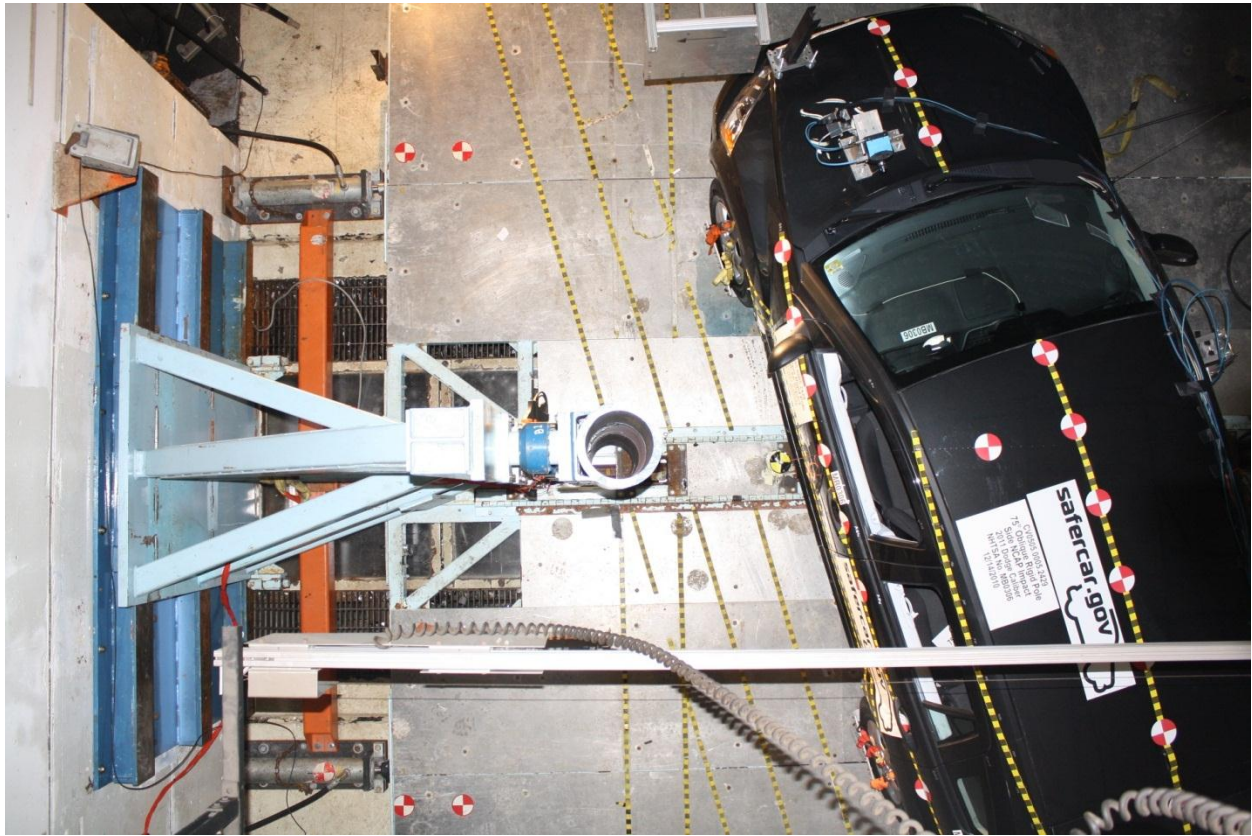


Figure A-15: Pre-Test Overhead View of Test Vehicle and Pole



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

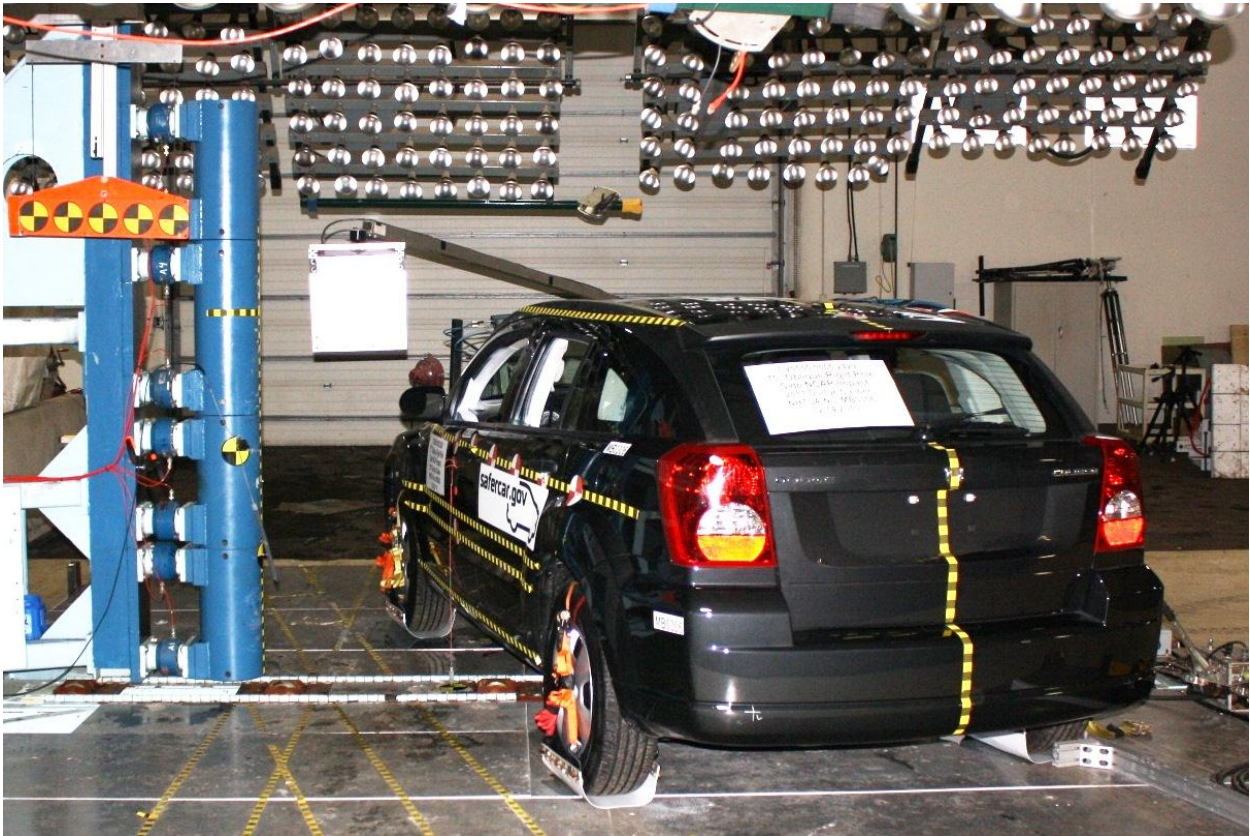


Figure A-17: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point

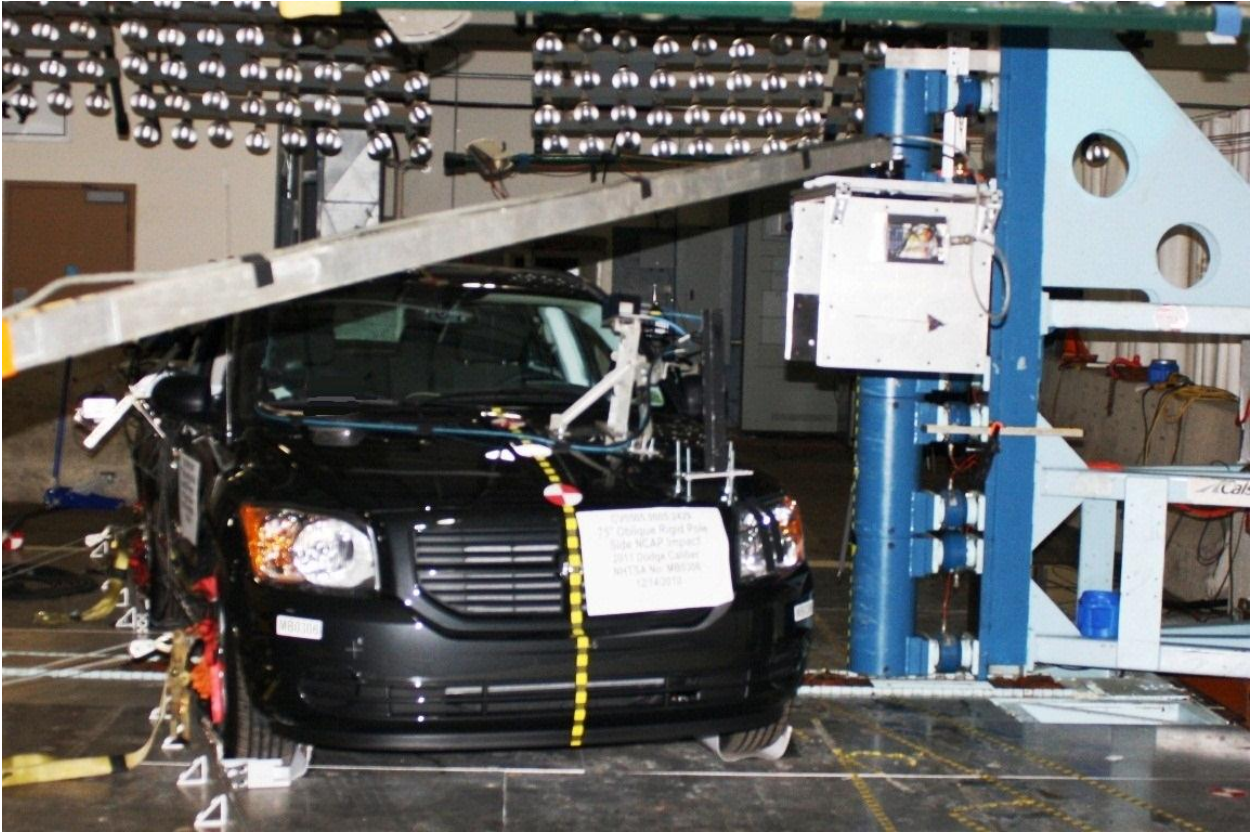


Figure A-18: Pre-Test Left Side View of Pole Positioned Against Side of Vehicle at Ideal Impact Point



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 Compartment



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



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

Photo Not Applicable

No Contact With Vehicle Interior

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

Photo Not Applicable

Airbag Not Installed

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

Airbag Not Installed

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

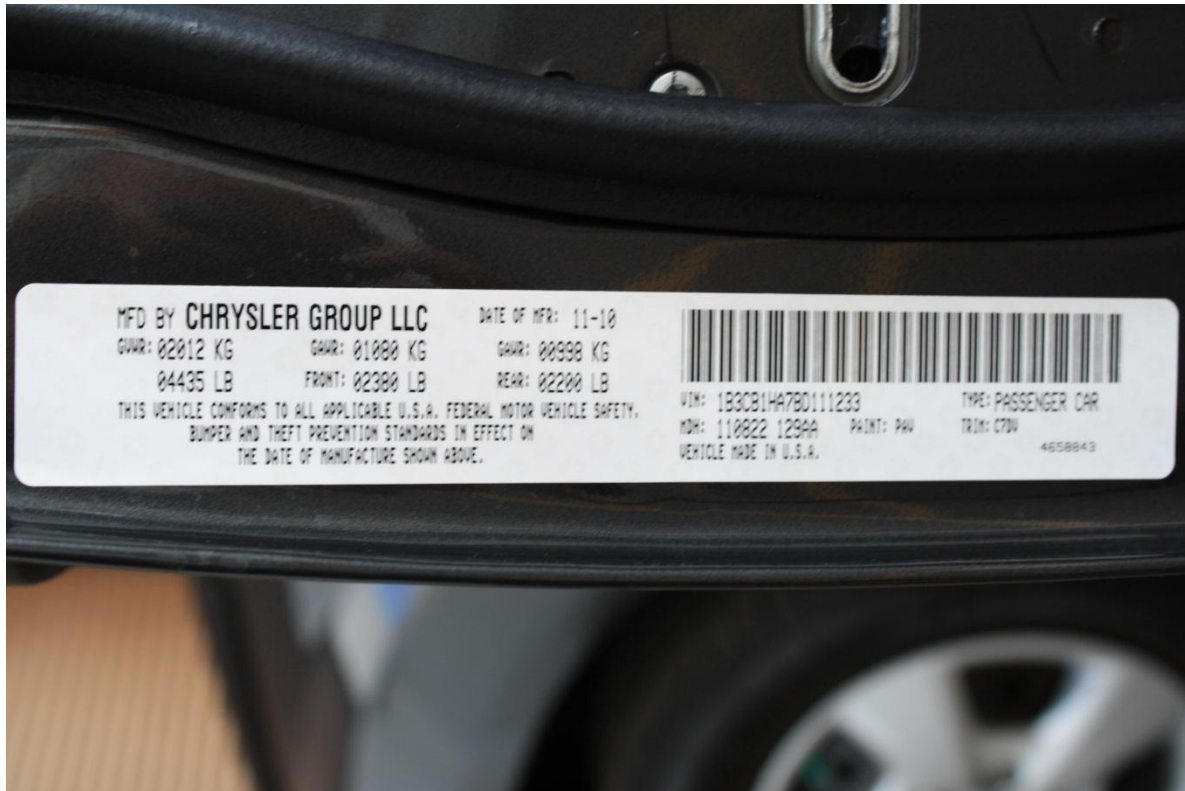


Figure A-53: Close-Up View of Vehicle's Certification Label

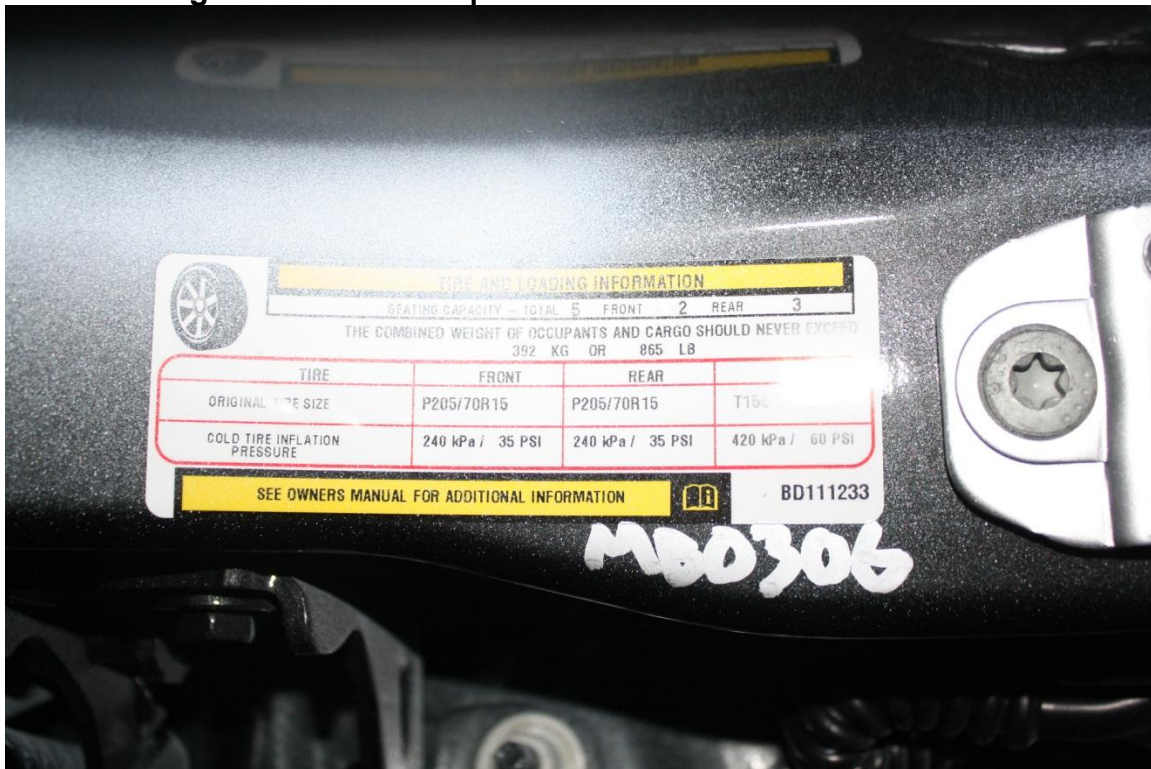


Figure A-54: Close-Up View of Vehicle's Tire Information Placard or Label

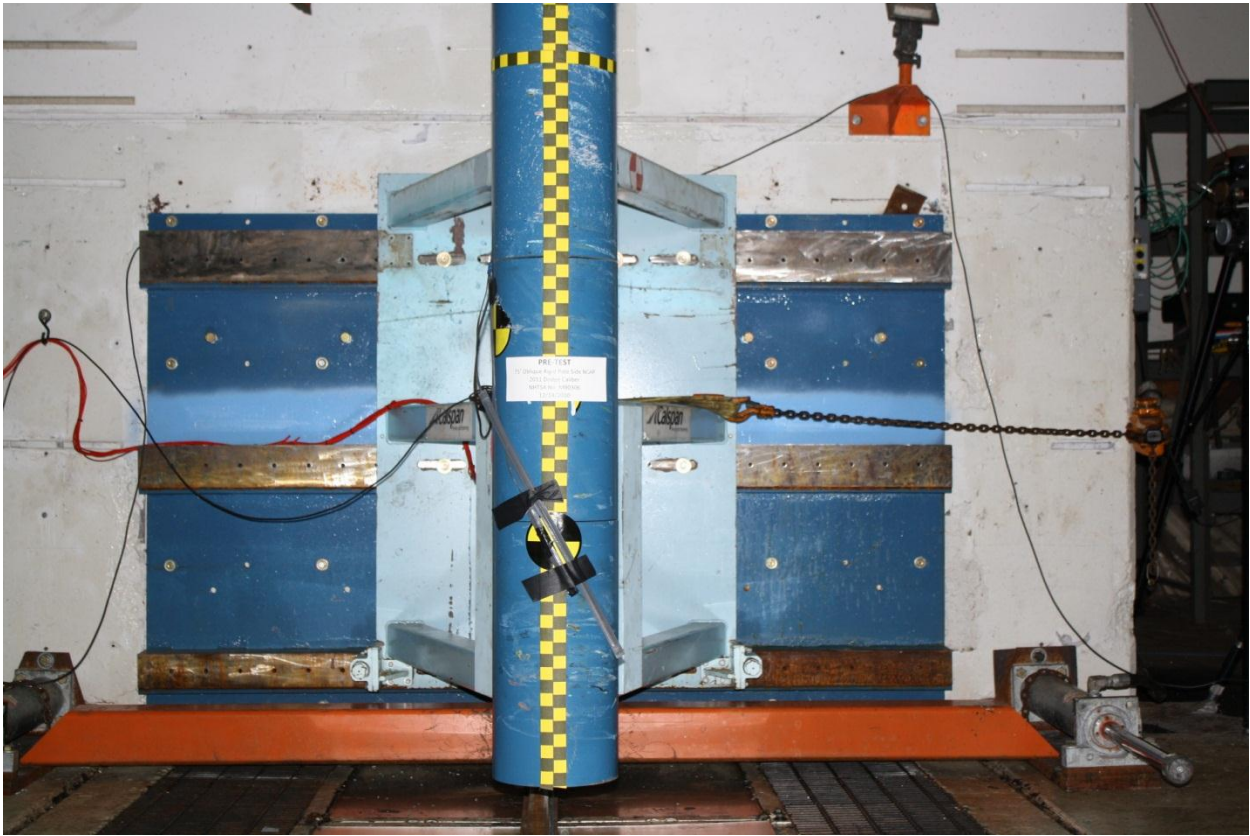


Figure A-55: Pre-Test Pole Barrier Front View



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

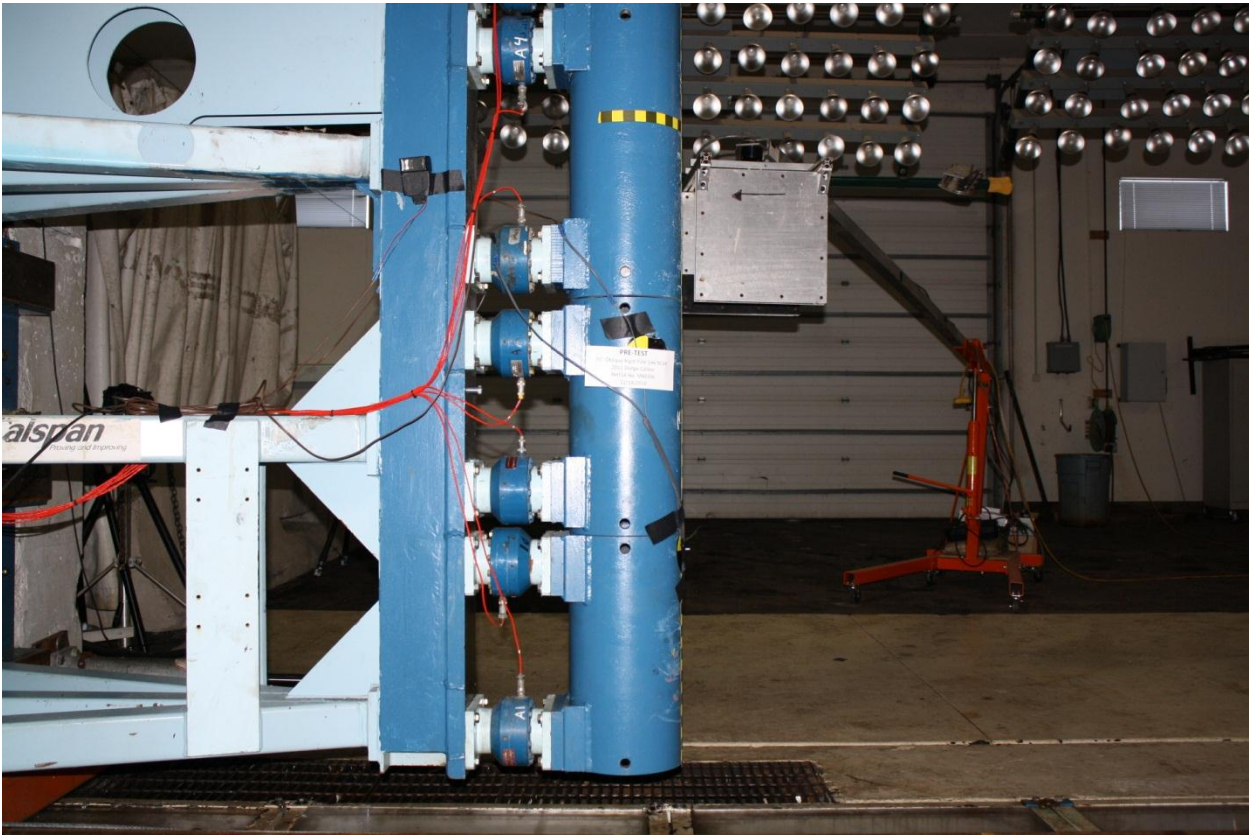


Figure A-57: Pre-Test Pole Barrier Side View



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

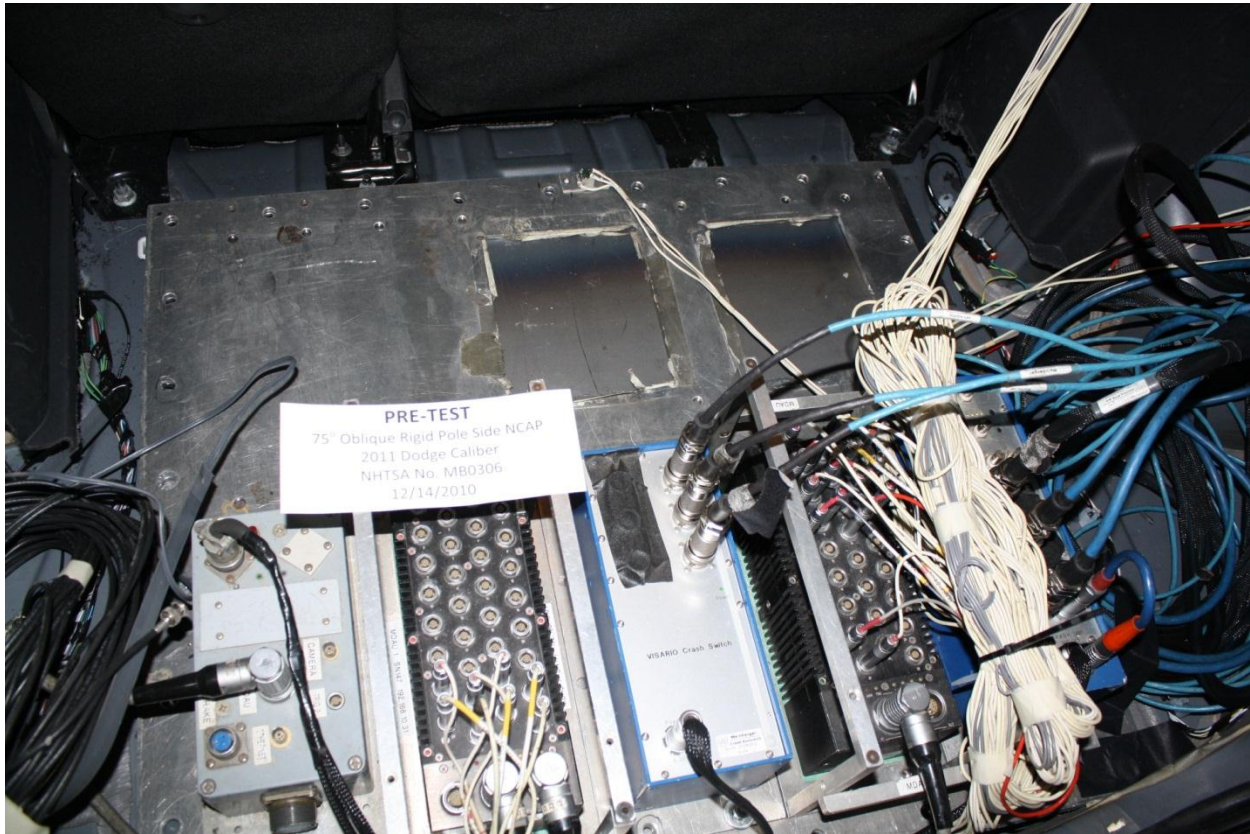


Figure A-59: Pre-Test Ballast View



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°

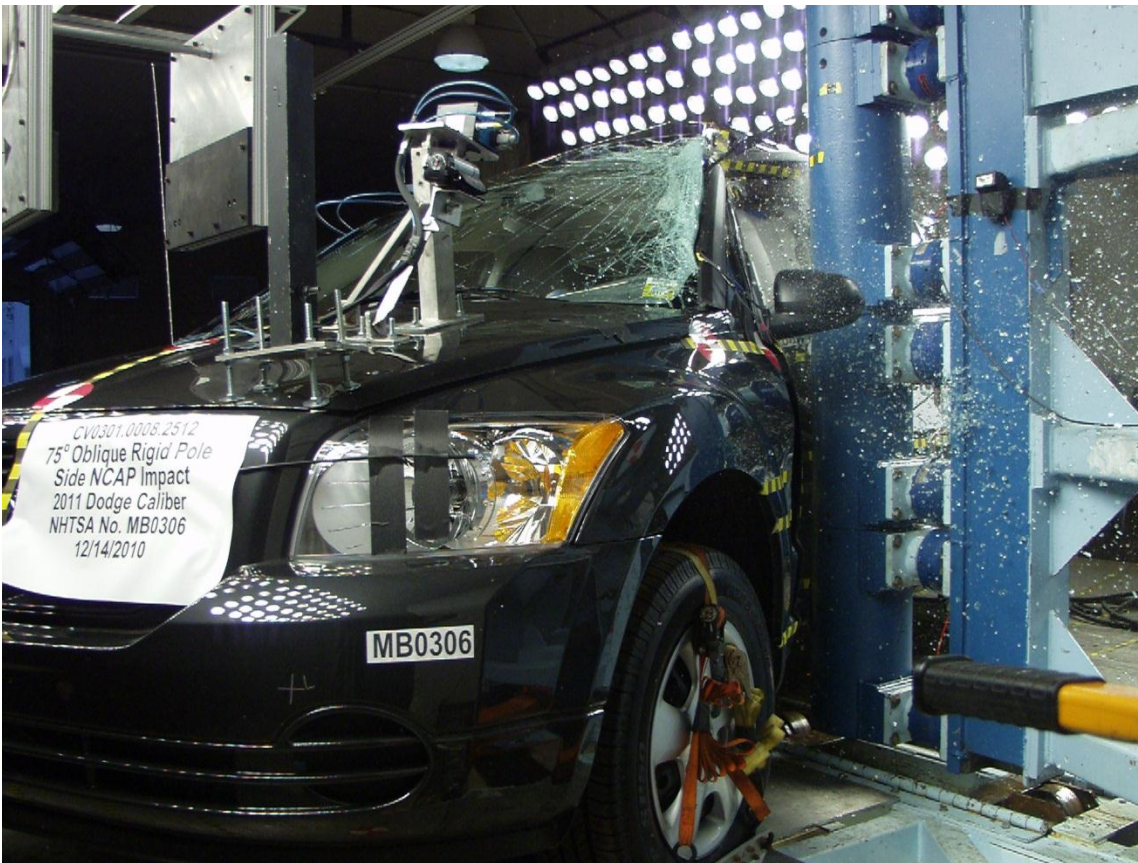


Figure A-66: Impact Event

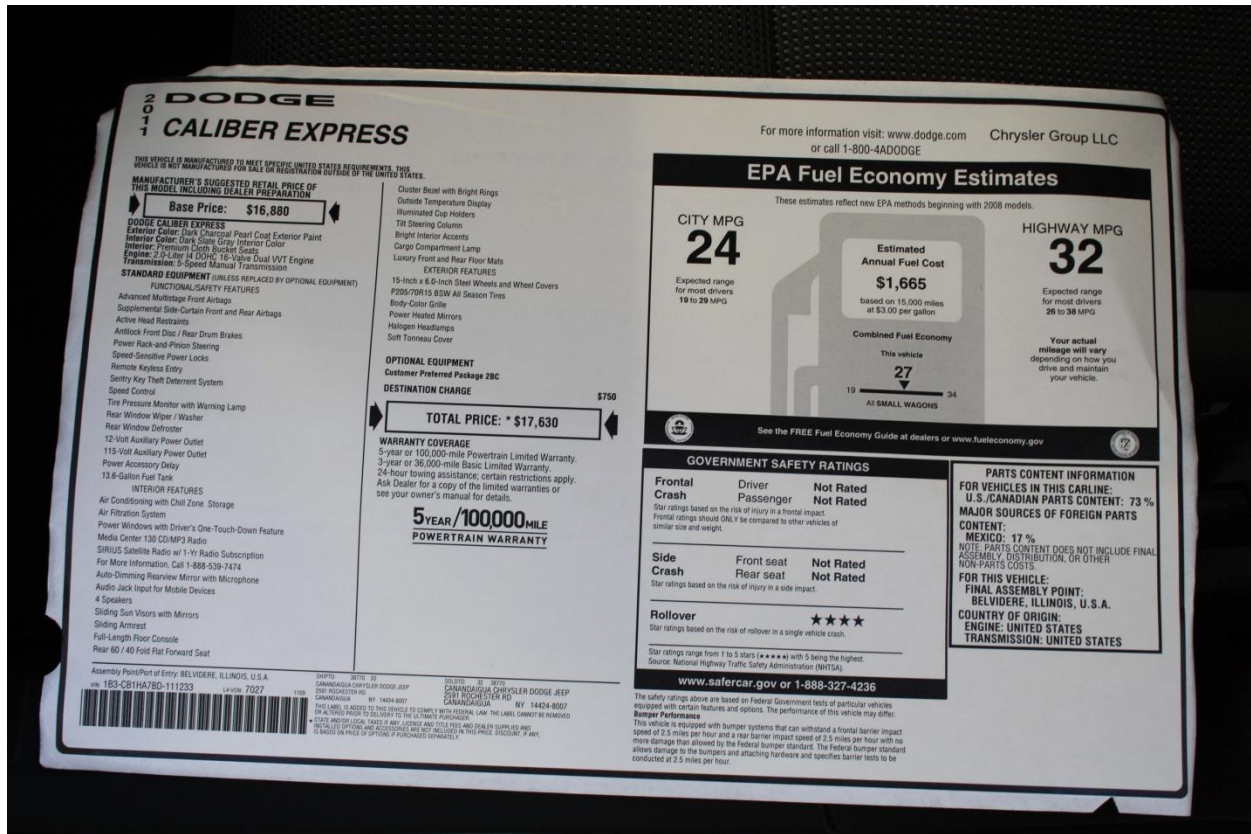


Figure A-67: Monroney Label

Photo Not Available
 Information not present in Owner's Manual

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

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

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

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

Additional Driver Dummy Instrumentation Data

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

Vehicle Instrumentation Data

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

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

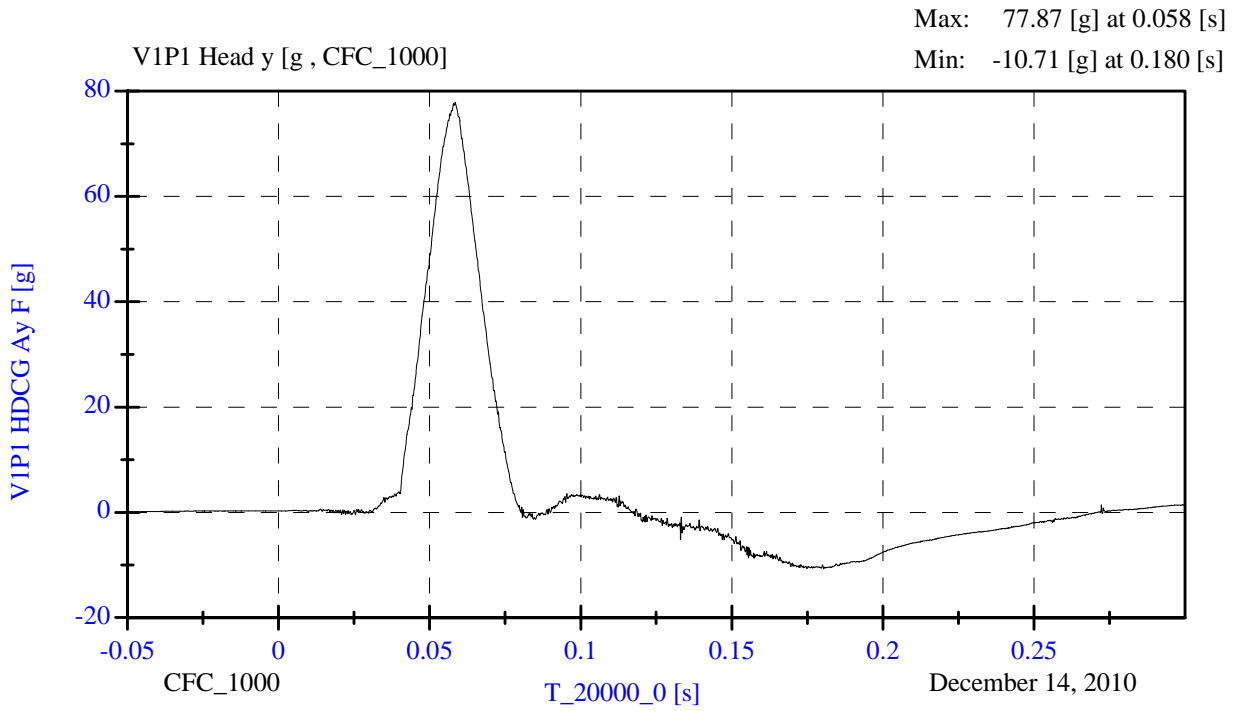
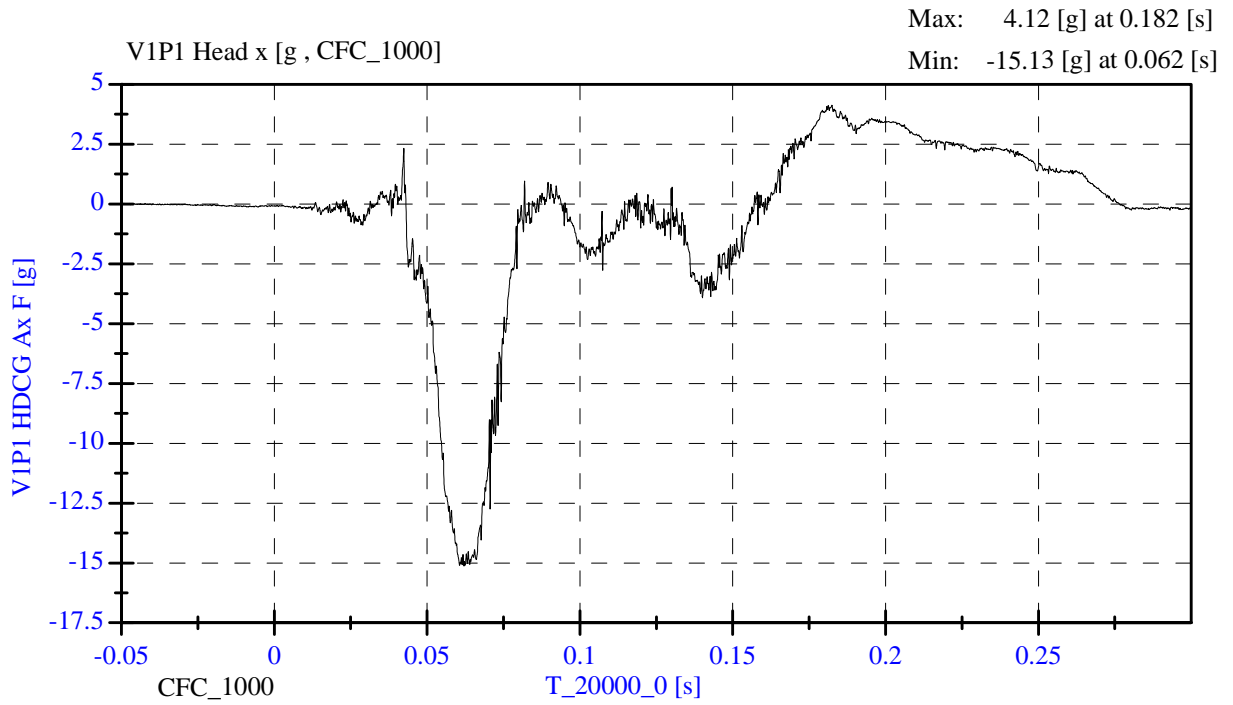
Load Cell Pole Barrier #4 Force (Y)

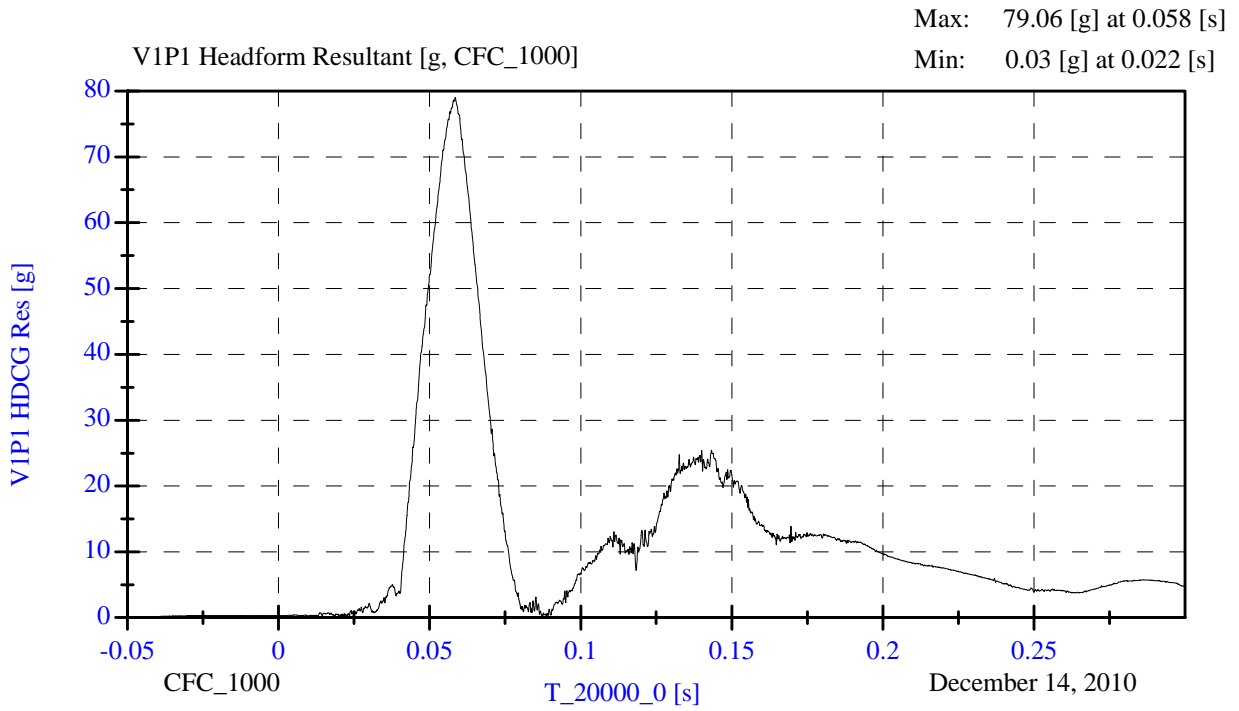
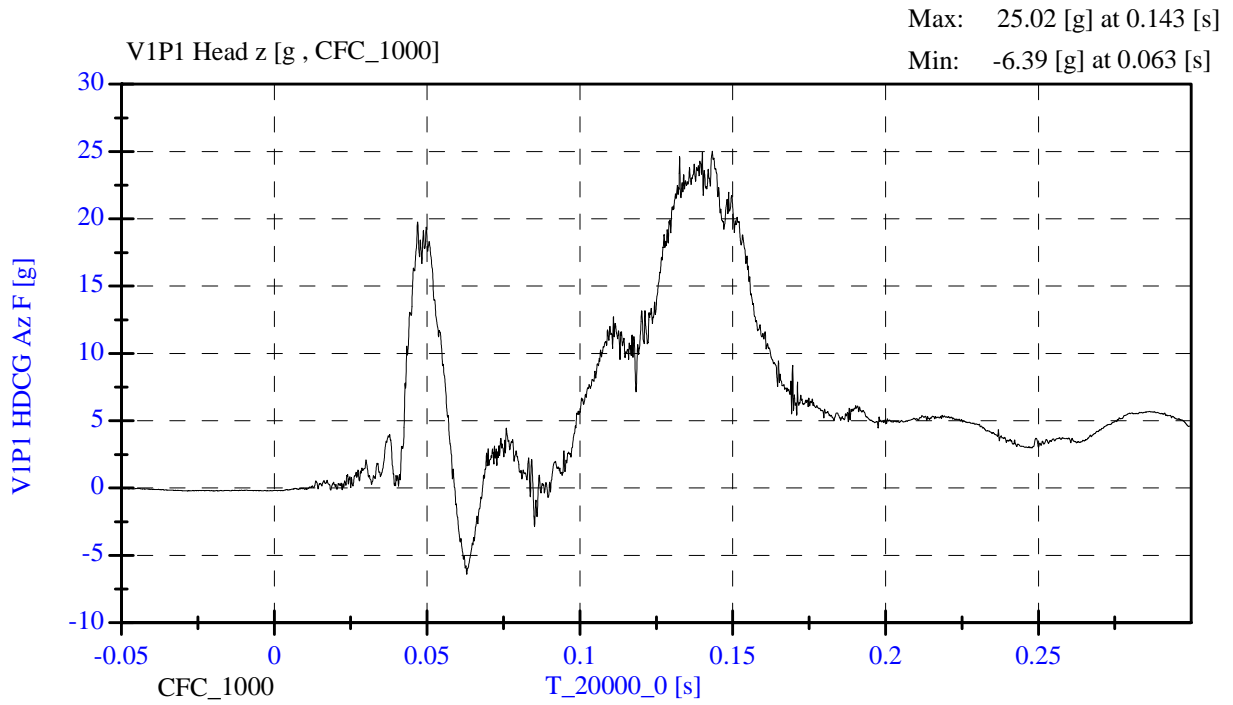
Load Cell Pole Barrier #5 Force (Y)

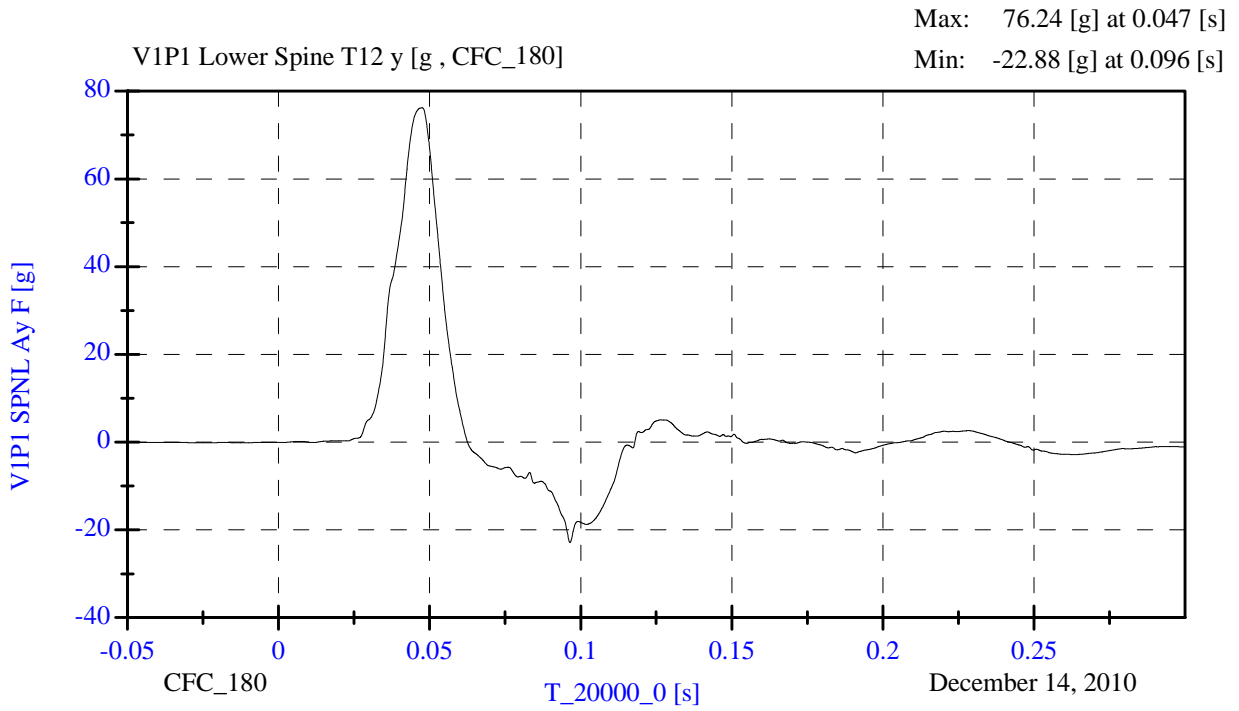
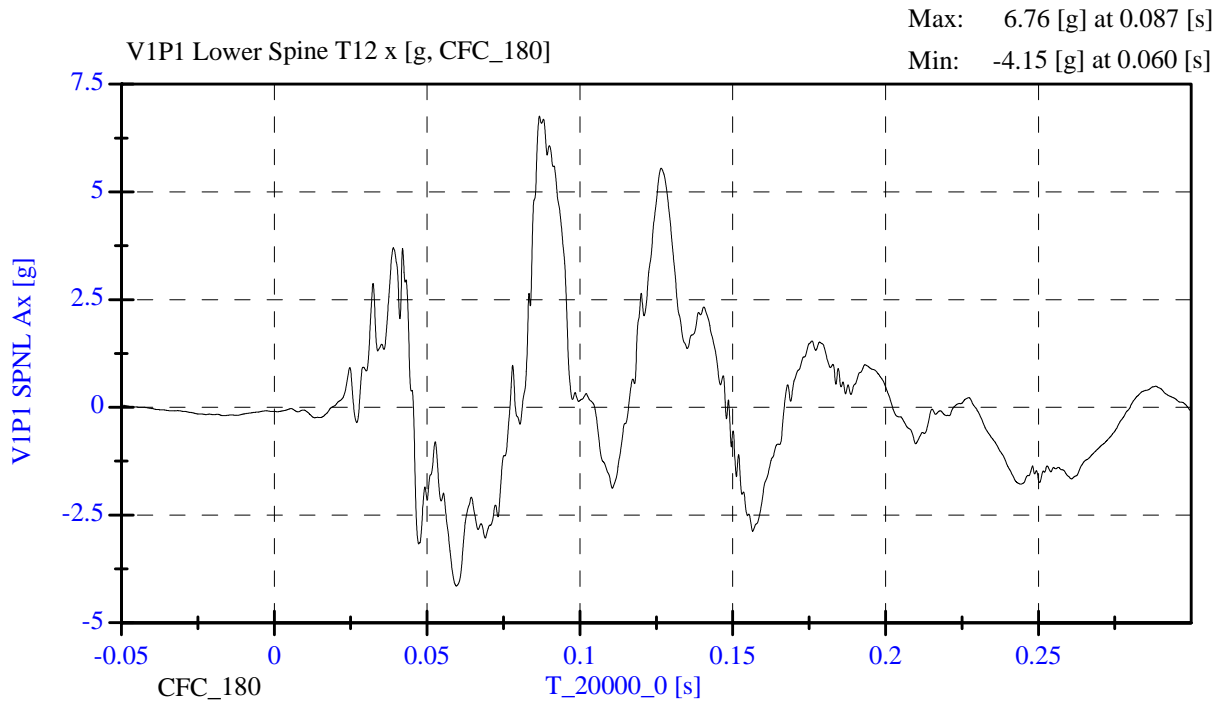
Load Cell Pole Barrier #6 Force (Y)

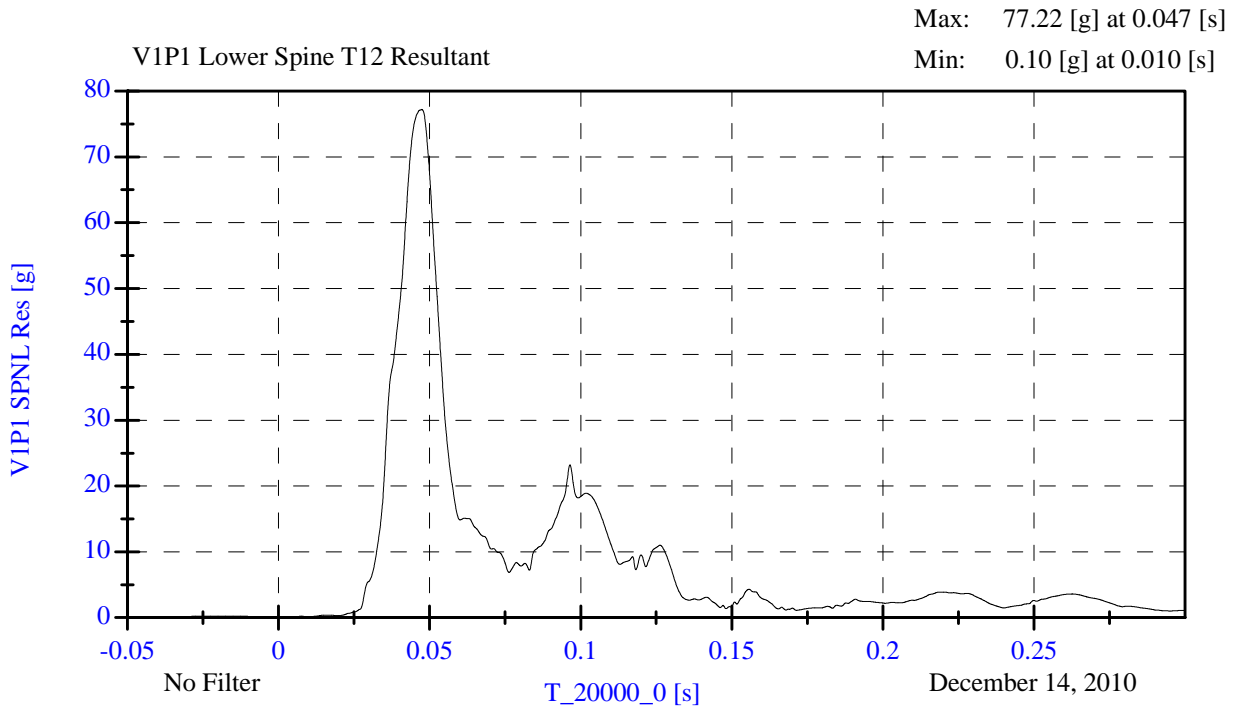
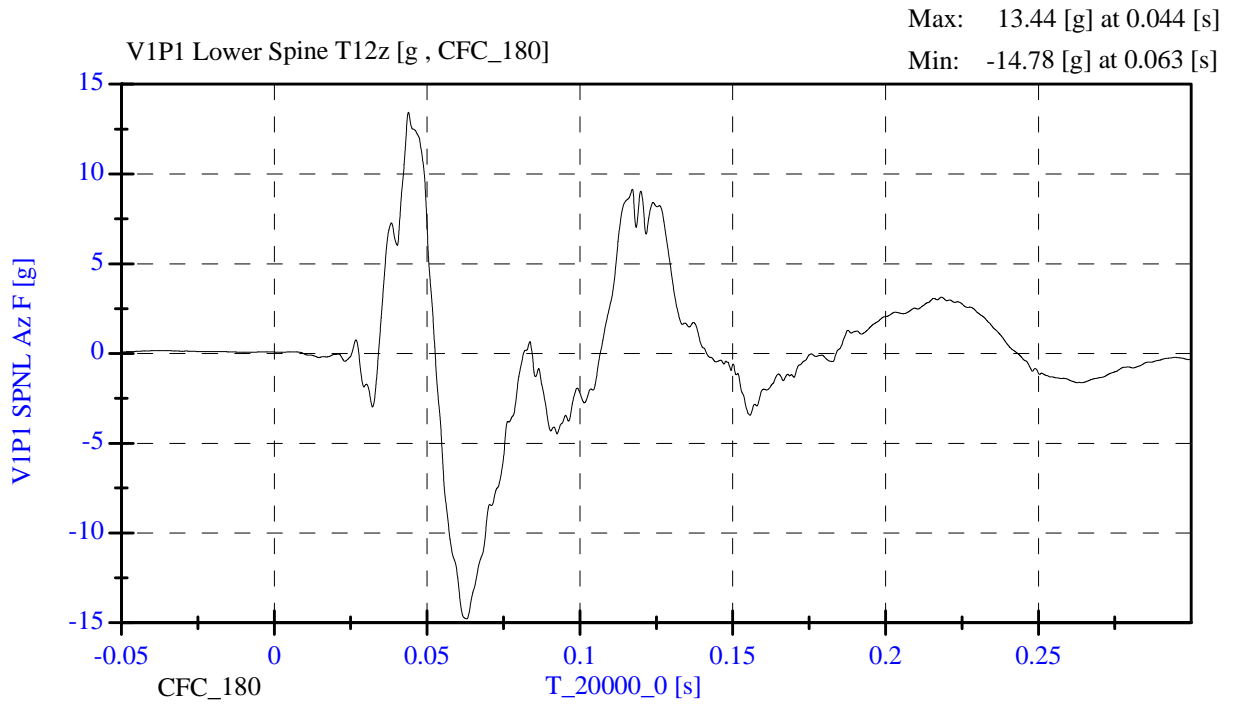
Load Cell Pole Barrier #7 Force (Y)

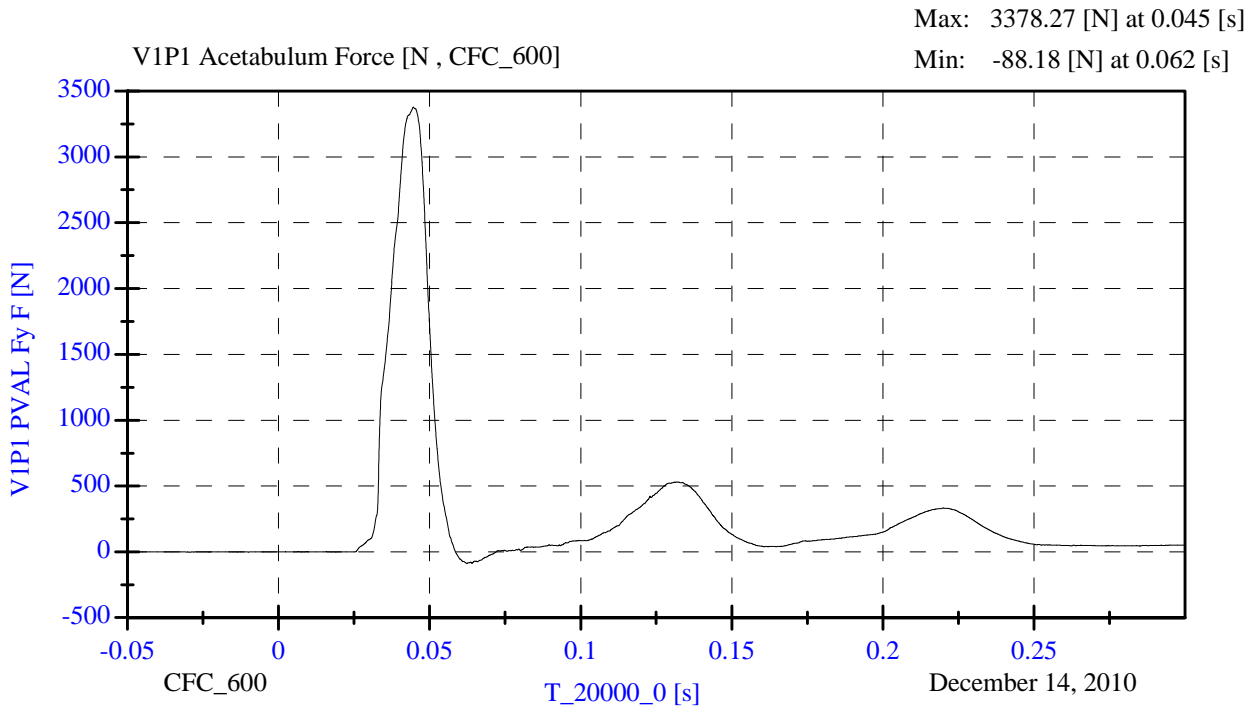
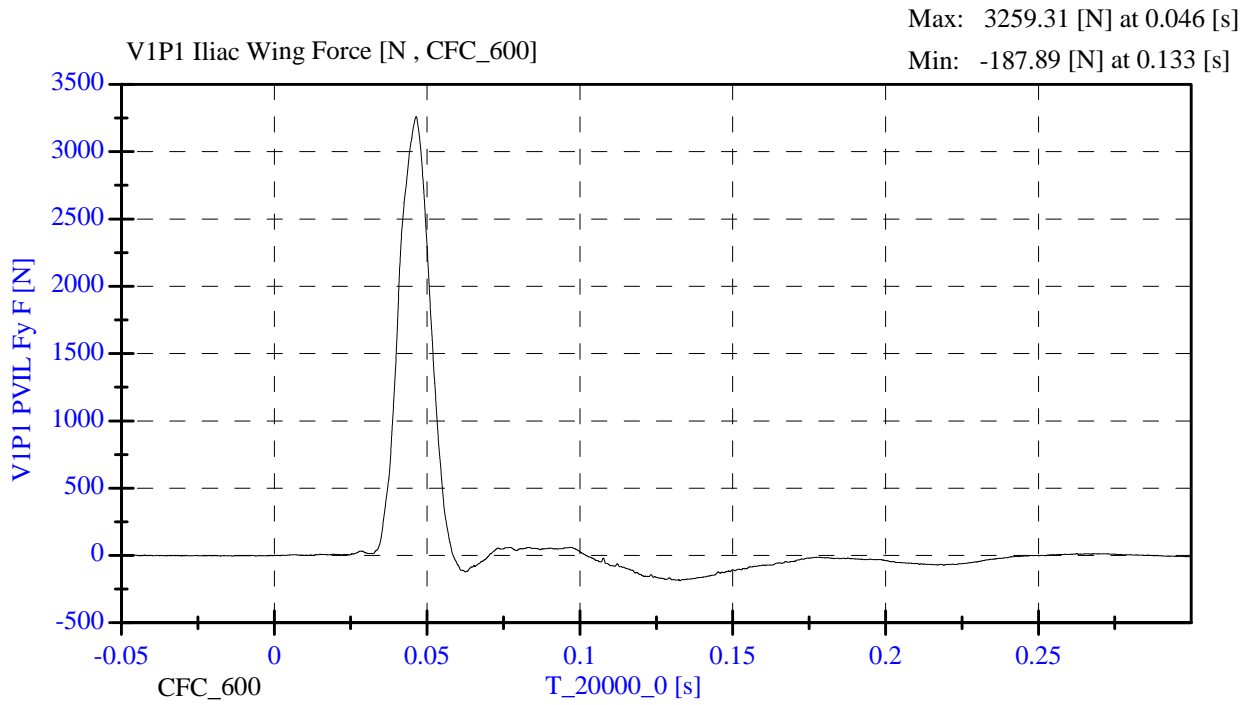
Load Cell Pole Barrier #8 Force (Y)

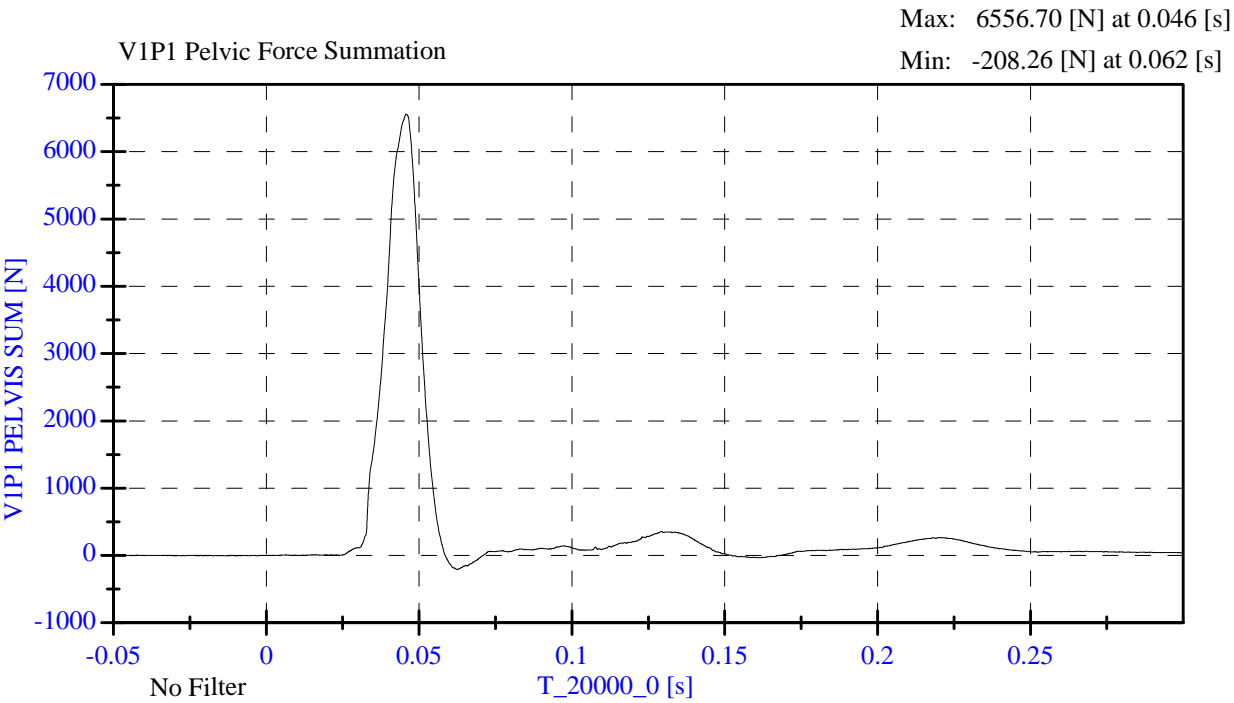












December 14, 2010

APPENDIX C
DUMMY CALIBRATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT



www.calspan.com

Calspan - Transportation Research Group

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 300		
Test ID:	Head Drop	Test Date:	12/10/2010
Test Number:	1	Test Time:	4:51:47 PM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	24 %RH P
Resultant Acceleration	115.0 -- 137.0	123.2 g P
Oscillation	0.0 -- 15.0	1.7 % P
Fore-Aft Acceleration	-15.0 -- 15.0	3.8 g P

All test parameters are within specifications

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

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

Test ID: **Head Drop**

Test Time: **4:51:47 PM**

Test Date: **12/10/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

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

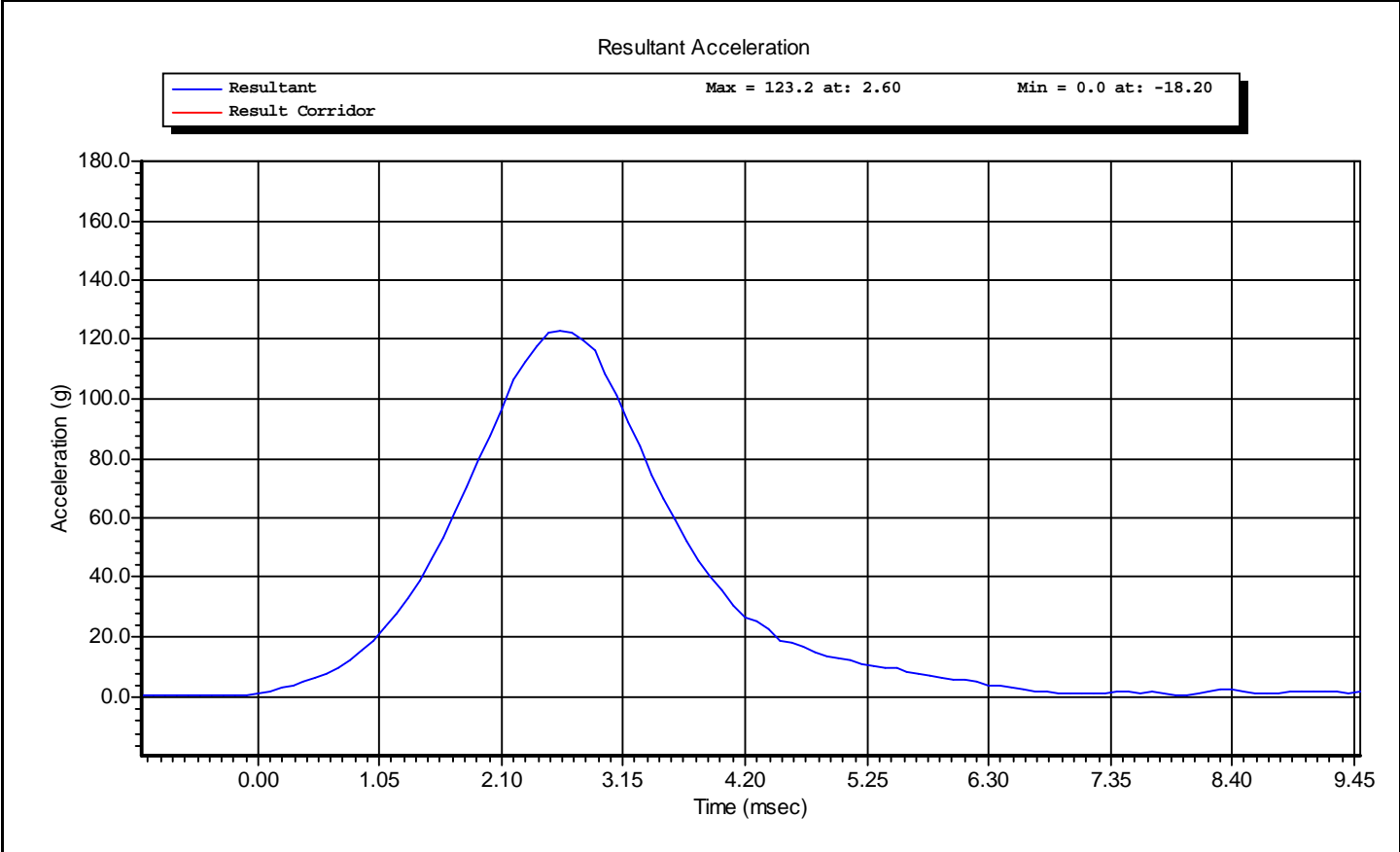
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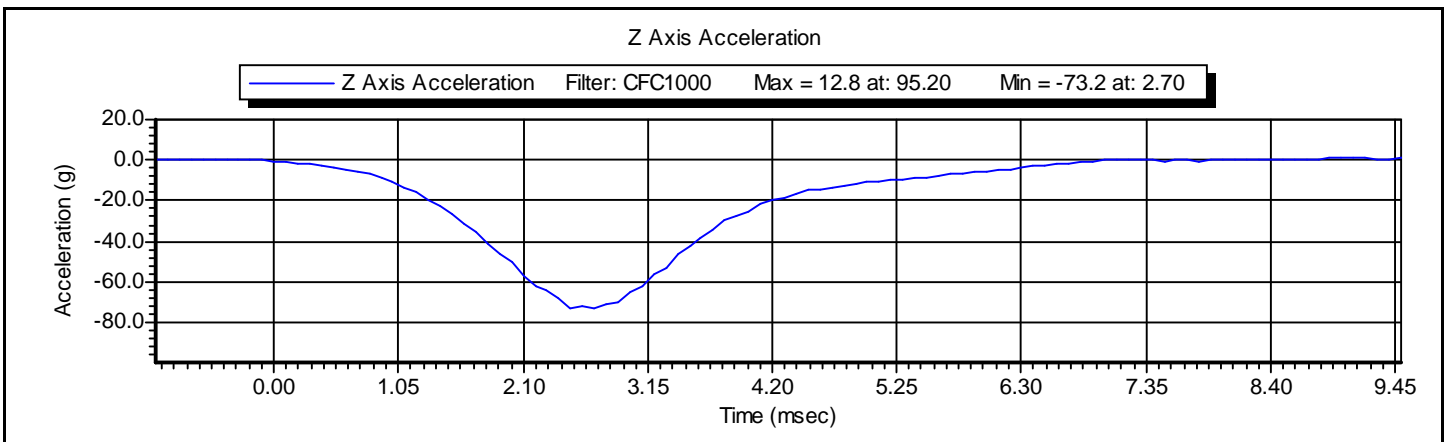
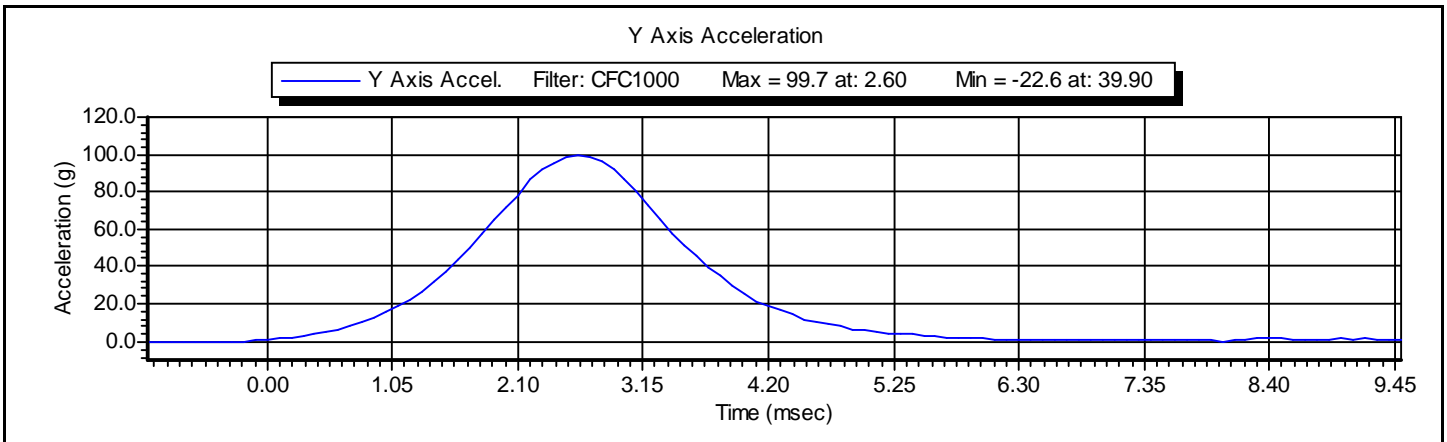
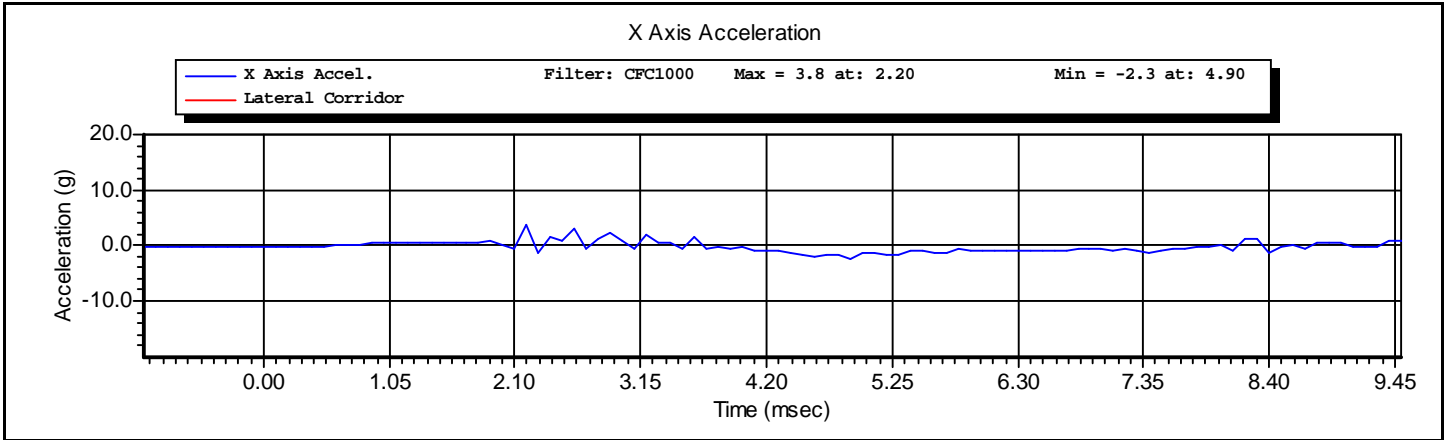
Test Time: **4:51:47 PM**

Test Date: **12/10/2010**



Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	12/10/2010
Test Number:	1	Test Time:	4:51:47 PM







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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/10/2010
Test Number:	1	Test Time:	6:14:16 PM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	24 %RH P
Velocity	5.51 -- 5.63	5.53 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.30 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.39 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.71 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.63 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.84 m/s P
Max D Plane Rotation	71.0 -- 81.0	75.9 degrees P
Time at Max Rotation	50.0 -- 70.0	63.1 ms P
Moment about OC	-44.0 -- -36.0	-40.4 Nm P
Moment Decay to Zero	102.0 -- 126.0	116.6 ms P

All test parameters are within specifications

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

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

Test ID: **Neck Flexion** Test Time: **6:14:16 PM** Test Date: **12/10/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

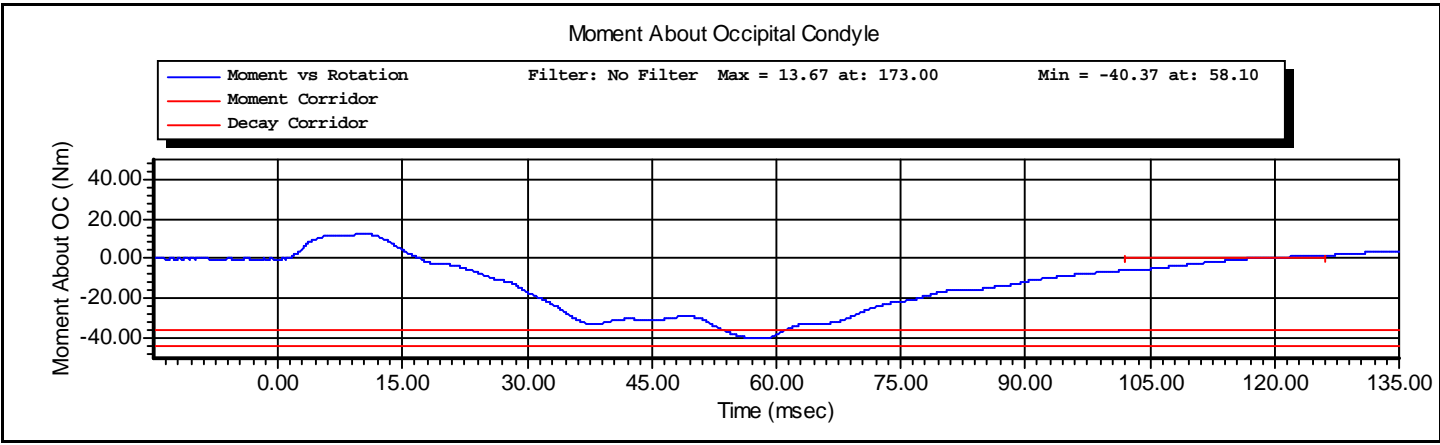
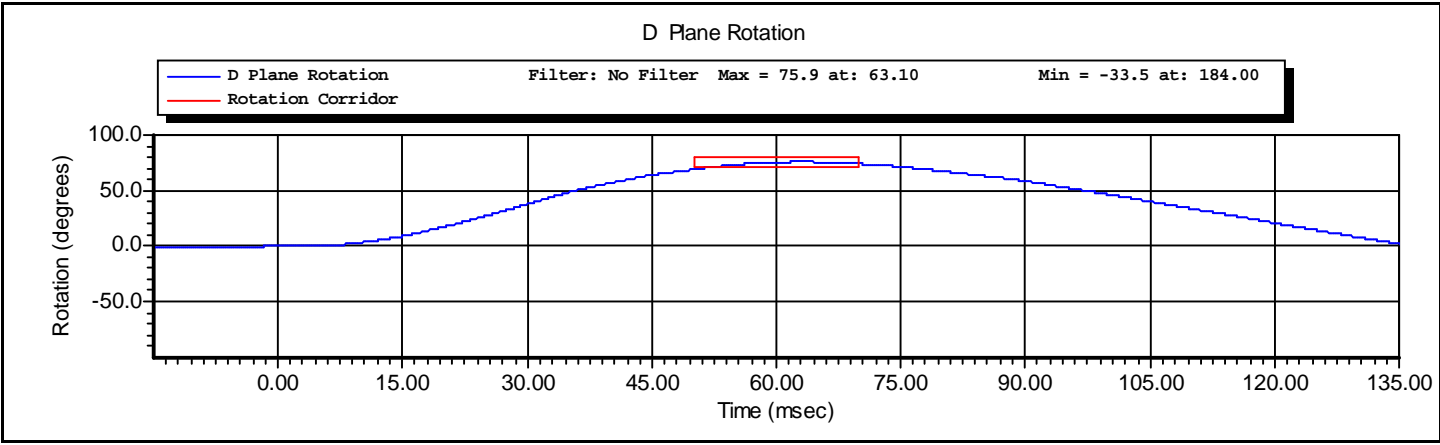
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7231CT	C16510	10/21/2010
Denton	1716A	LC-576 Fy	2/15/2010
Denton	1716A	LC-576 Mx	2/15/2010
DentonATD	78051-342	184	4/30/2010
DentonATD	78051-342	174	4/30/2010
DentonATD	78051-342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

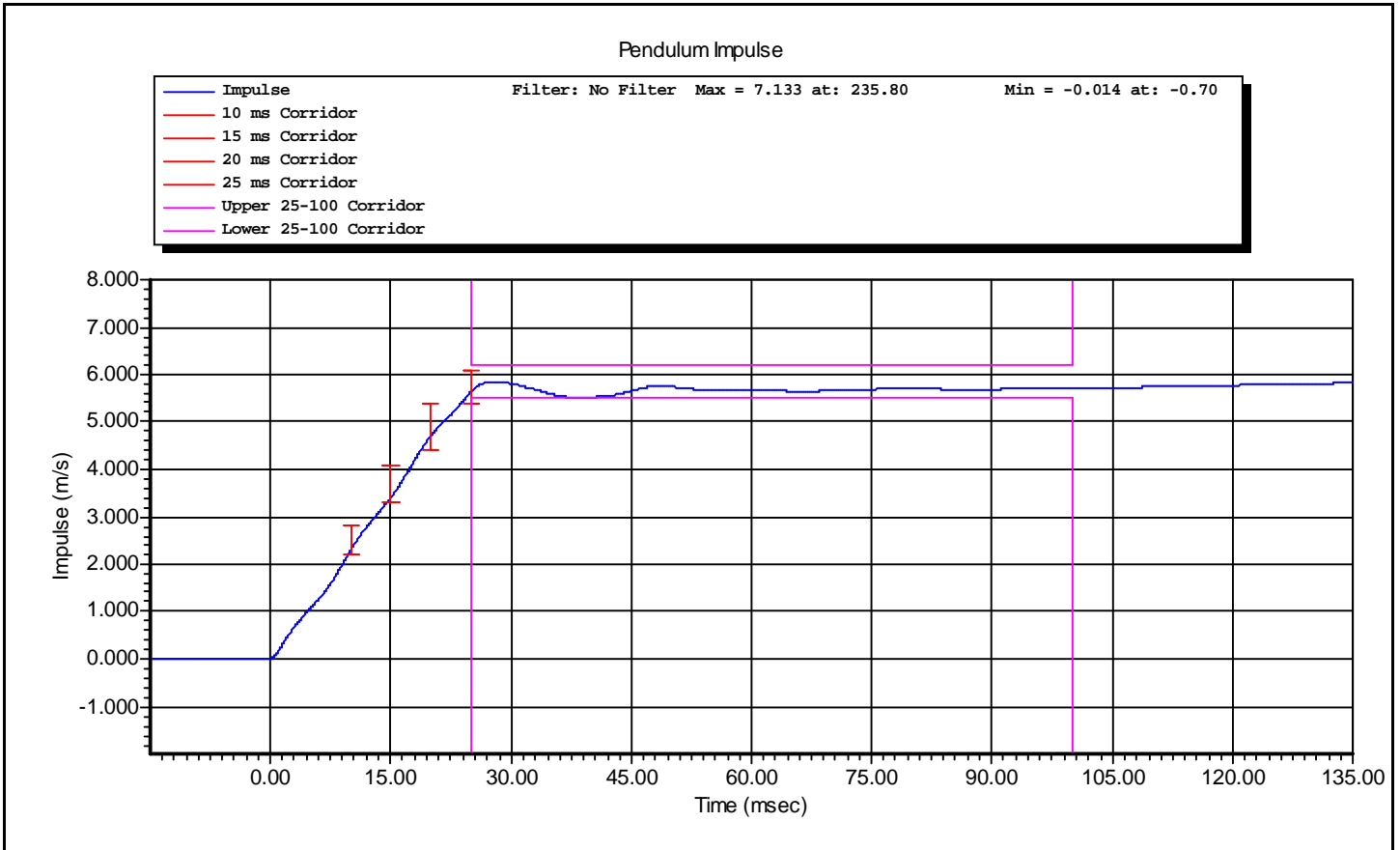
Test ID: **Neck Flexion**

Test Time: **6:14:16 PM**

Test Date: **12/10/2010**

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/10/2010
Test Number:	1	Test Time:	6:14:16 PM







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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/11/2010
Test Number:	1	Test Time:	9:28:38 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10 -- 70	30 %RH P
Velocity	4.20 -- 4.40	4.33 m/s P
Probe Acceleration	12.0 -- 16.0	15.8 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	38.2 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	35.5 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.3 g P

All test parameters are within specifications

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

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

Test ID: **Abdomen**

Test Time: **9:28:38 AM**

Test Date: **12/11/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

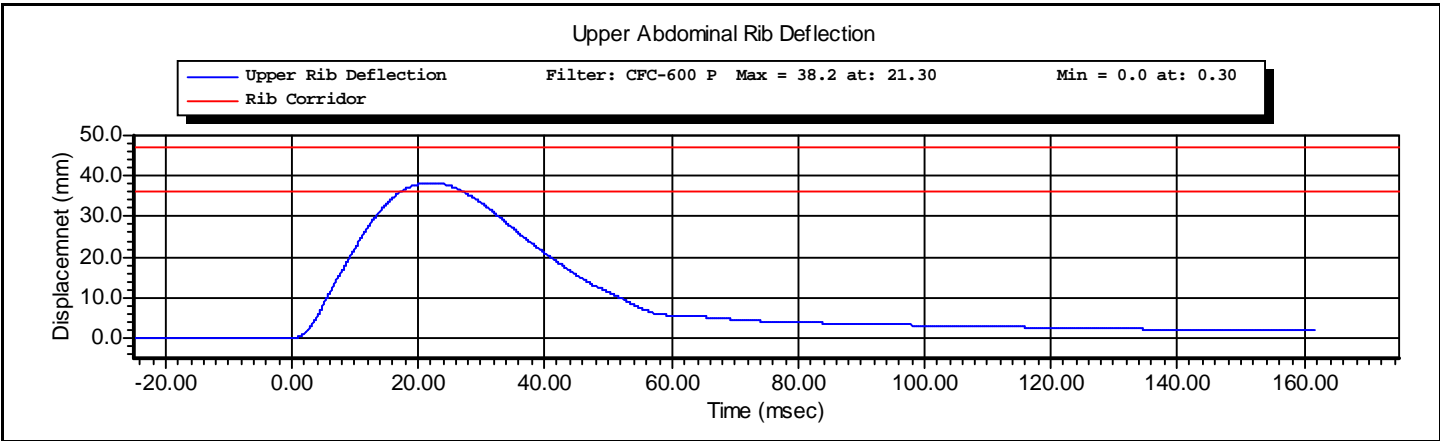
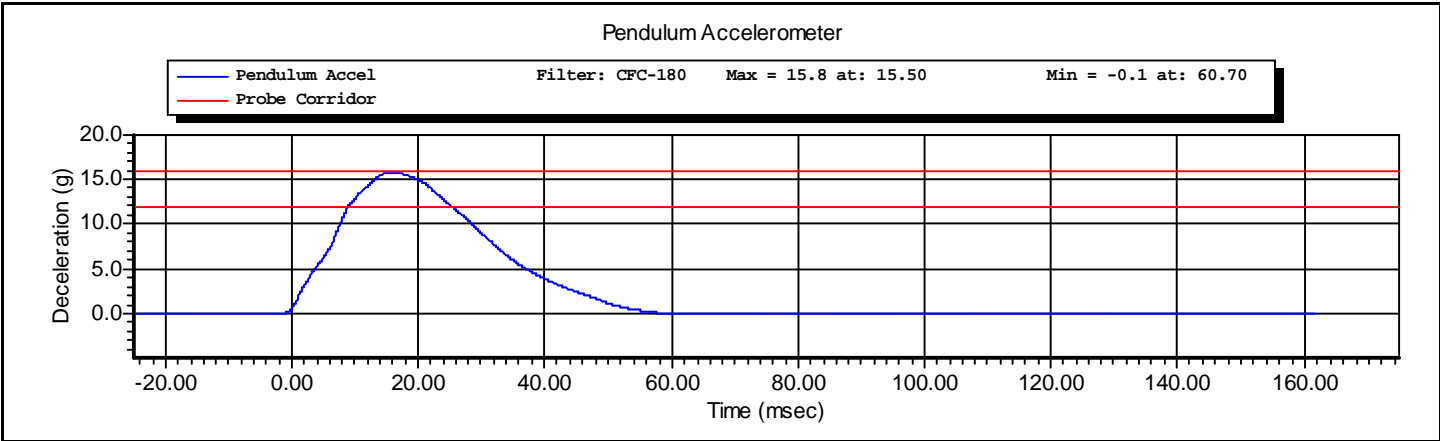
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1162	4/7/2010
Servo	180-3885	DS-1232	4/7/2010
Endevco	7264-2000	P64147	10/8/2010

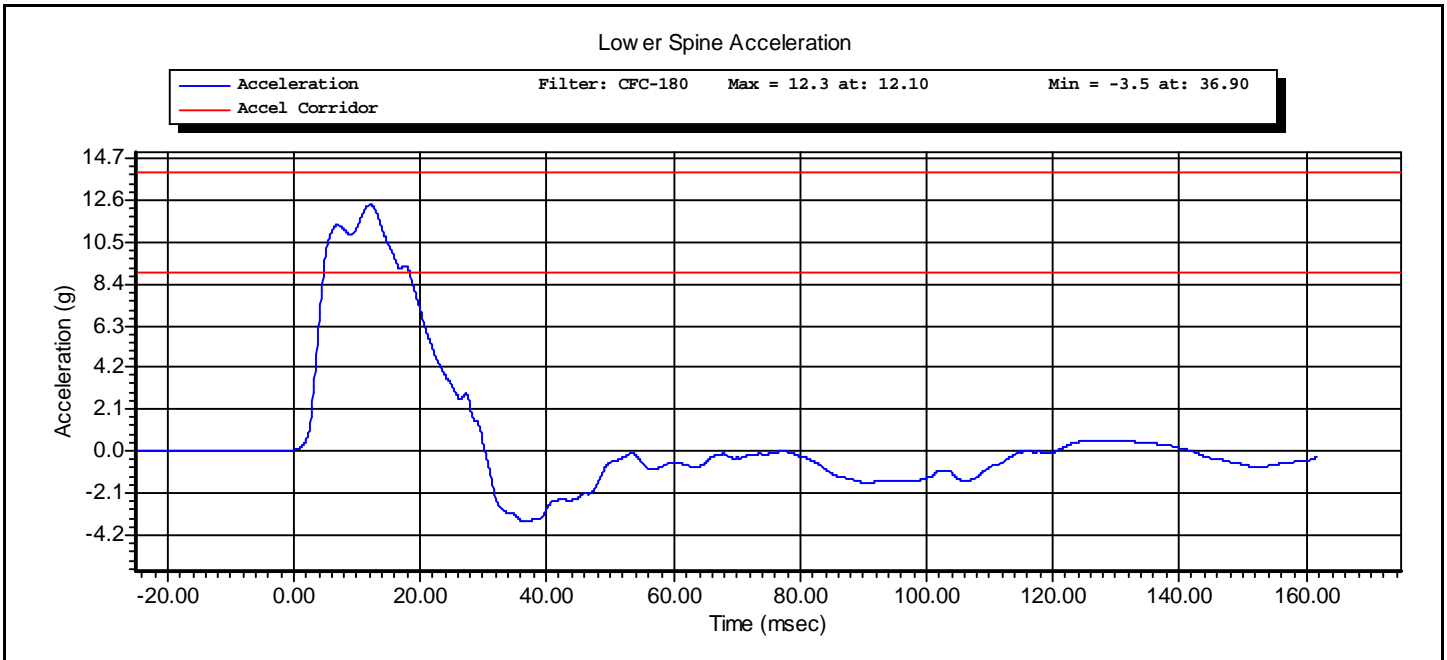
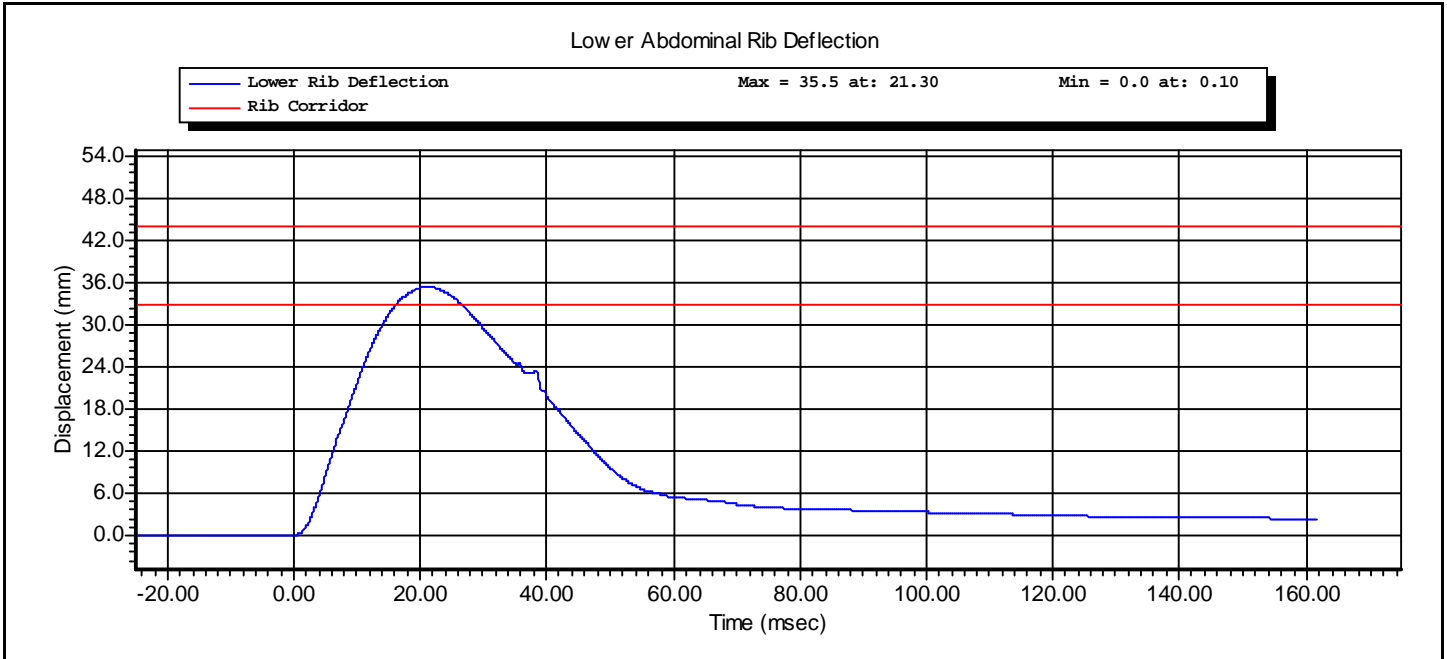
Test ID: **Abdomen**

Test Time: **9:28:38 AM**

Test Date: **12/11/2010**

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/11/2010
Test Number:	1	Test Time:	9:28:38 AM







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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/11/2010
Test Number:	1	Test Time:	11:17:16 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.10 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	4.20 -- 4.40	4.35 m/s P
Probe Acceleration	13.0 -- 18.0	17.0 g P
Shoulder Deflection	28.0 -- 37.0	32.0 mm P
T1 Acceleration	17.0 -- 22.0	20.2 g P

All test parameters are within specifications

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

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

Test ID: **Shoulder**

Test Time: **11:17:16 AM**

Test Date: **12/11/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

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

Test ID: **Shoulder**

Test Time: **11:17:16 AM**

Test Date: **12/11/2010**

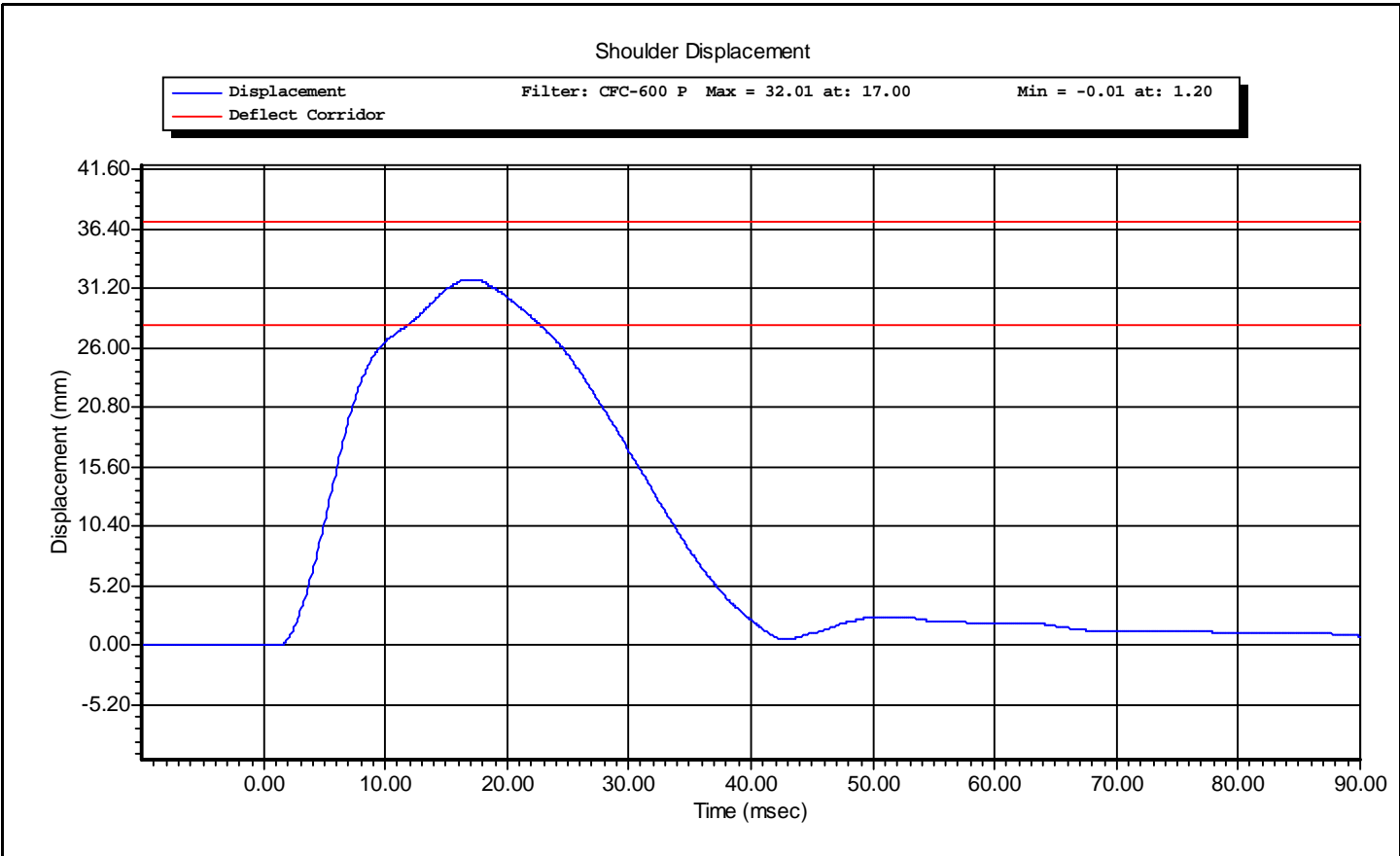


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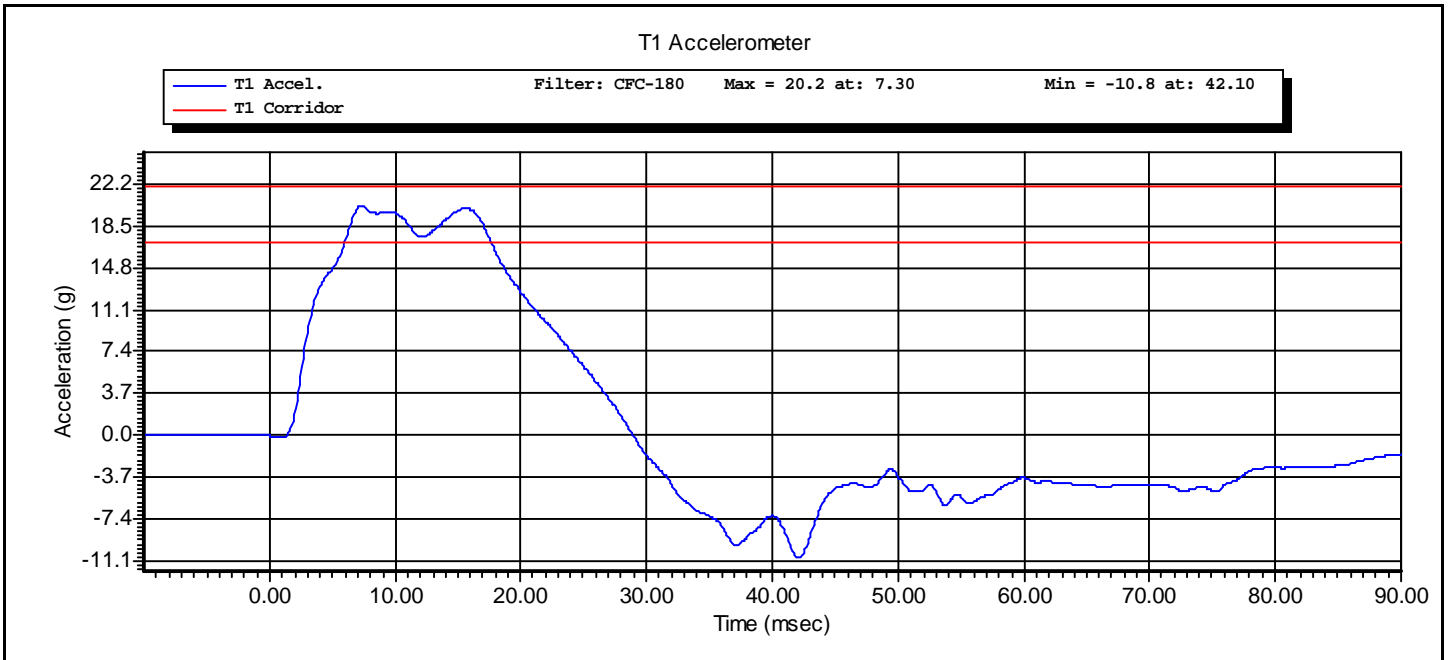
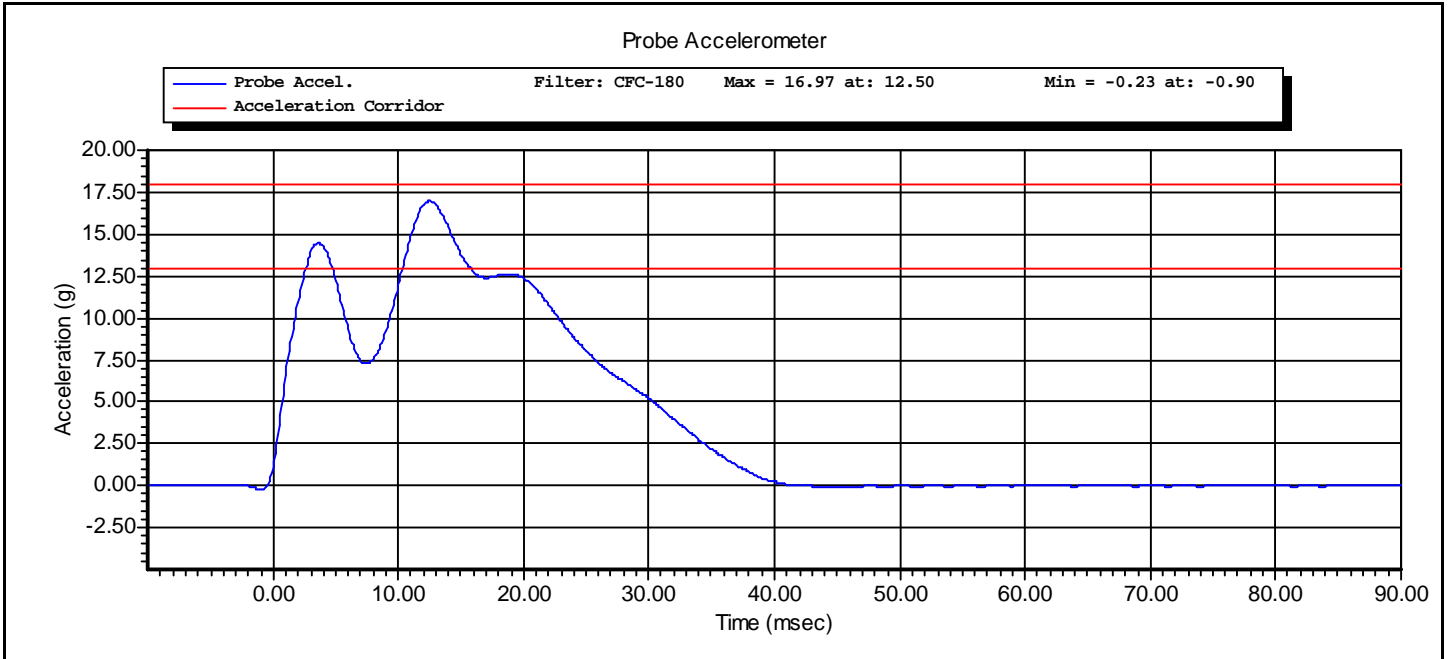
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Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/11/2010
Test Number:	1	Test Time:	11:17:16 AM



Test ID: **Shoulder**

Test Time: **11:17:16 AM**

Test Date: **12/11/2010**





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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 300		
Test ID:	Thorax With Arm	Test Date:	12/11/2010
Test Number:	1	Test Time:	10:44:27 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.6 deg C P
Humidity	10 -- 70	29 %RH P
Velocity	6.60 -- 6.80	6.69 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	35.1 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	26.7 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	31.8 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	35.2 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	40.6 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	36.3 g P
Shoulder Deflection	31.0 -- 40.0	36.0 mm P

All test parameters are within specifications

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

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

Test ID: **Thorax With Arm**

Test Time: **10:44:27 AM**

Test Date: **12/11/2010**



VERIFICATION REPORT

REFERENCE EQUIPMENT

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

Test ID: **Thorax With Arm**

Test Time: **10:44:27 AM**

Test Date: **12/11/2010**

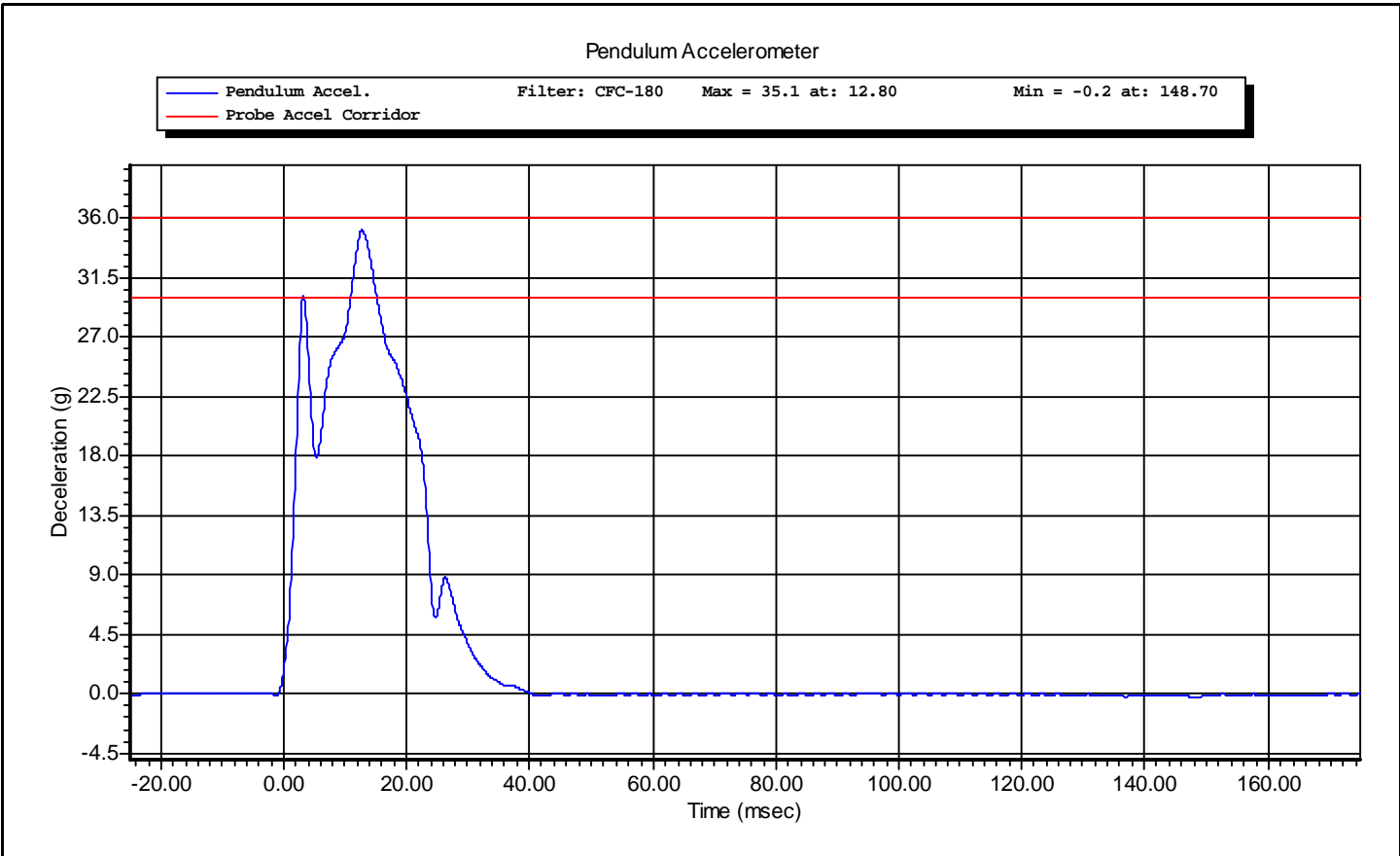


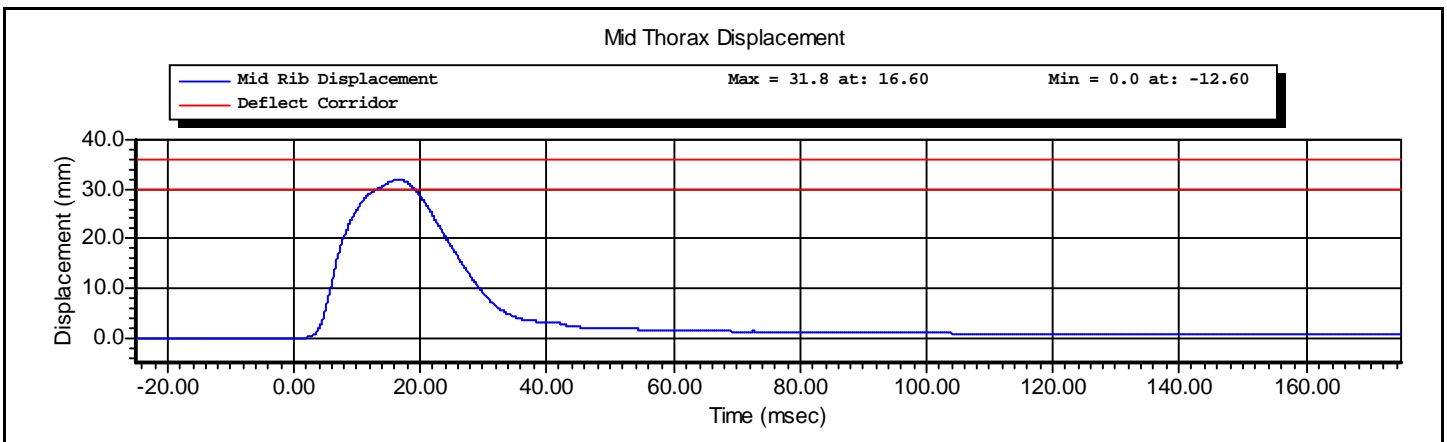
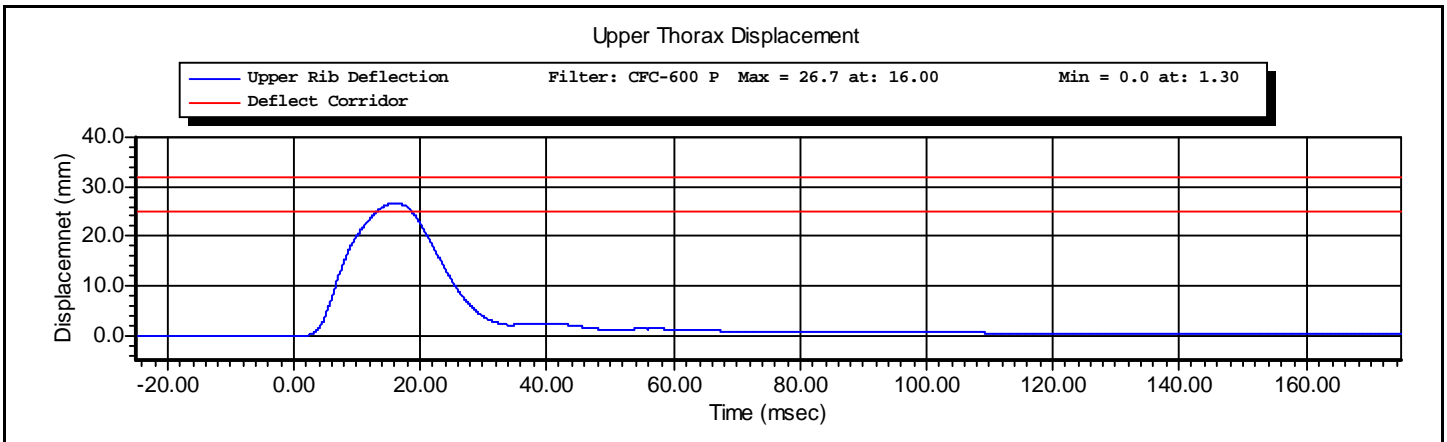
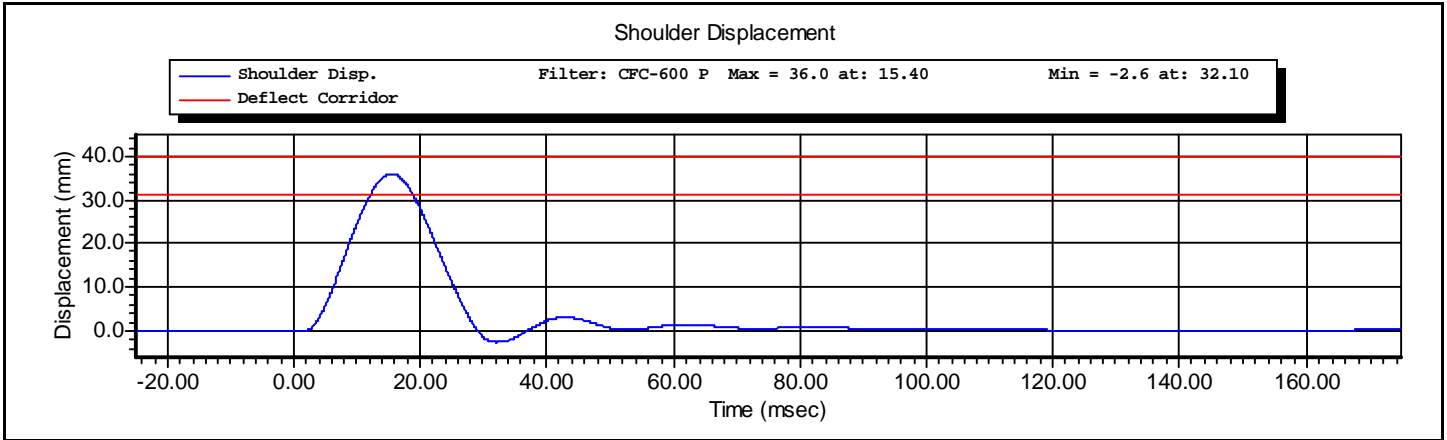
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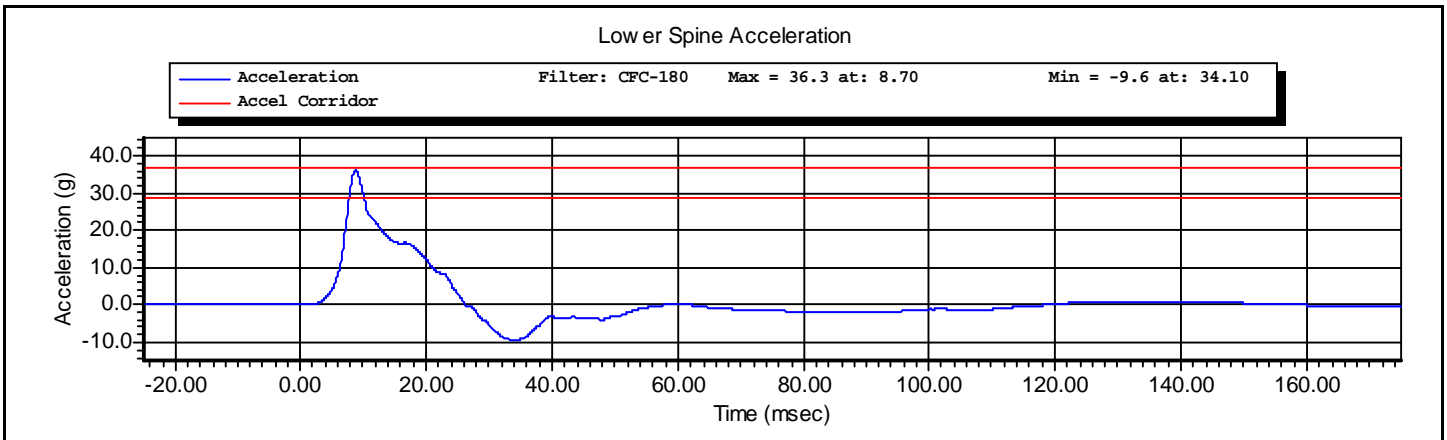
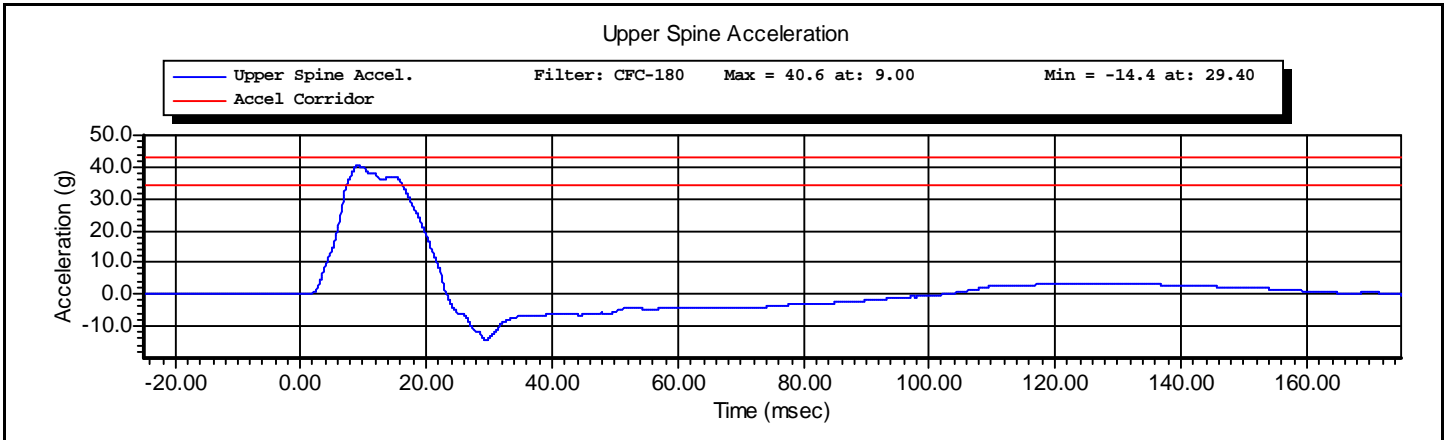
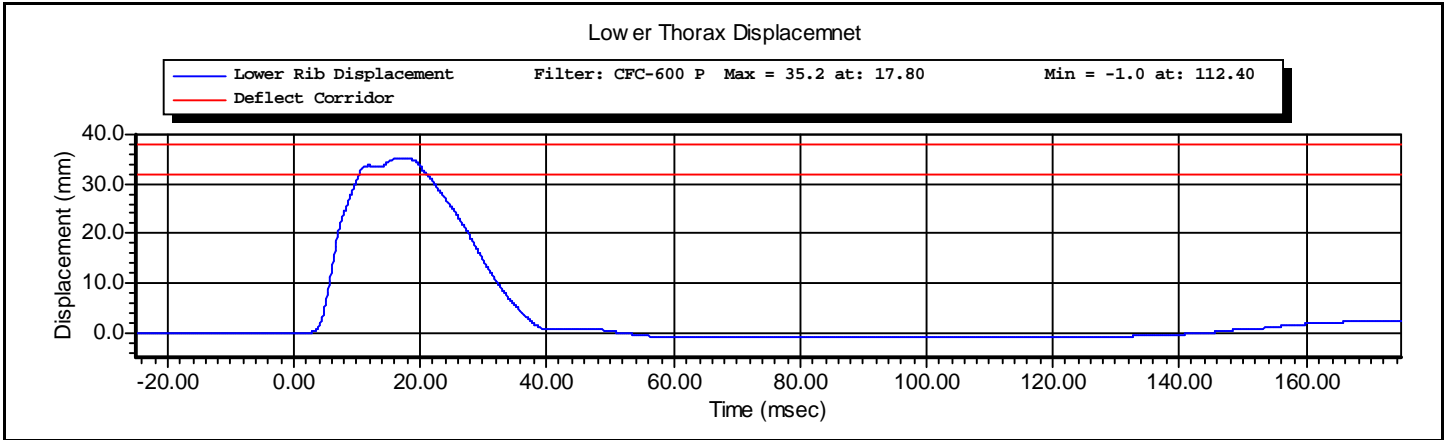
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Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	12/11/2010
Test Number:	1	Test Time:	10:44:27 AM









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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 300		
Test ID:	Thorax Without Arm	Test Date:	12/11/2010
Test Number:	1	Test Time:	10:08:10 AM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	29 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Probe Acceleration	14.0 -- 18.0	16.4 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	34.6 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	41.1 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	41.4 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	15.9 g P
Lower Spine Acceleration T12	7.0 -- 11.0	10.1 g P

All test parameters are within specifications

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

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

Test ID: **Thorax Without Arm** Test Time: **10:08:10 AM**

Test Date: **12/11/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

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

Test ID: **Thorax Without Arm** Test Time: **10:08:10 AM**

Test Date: **12/11/2010**

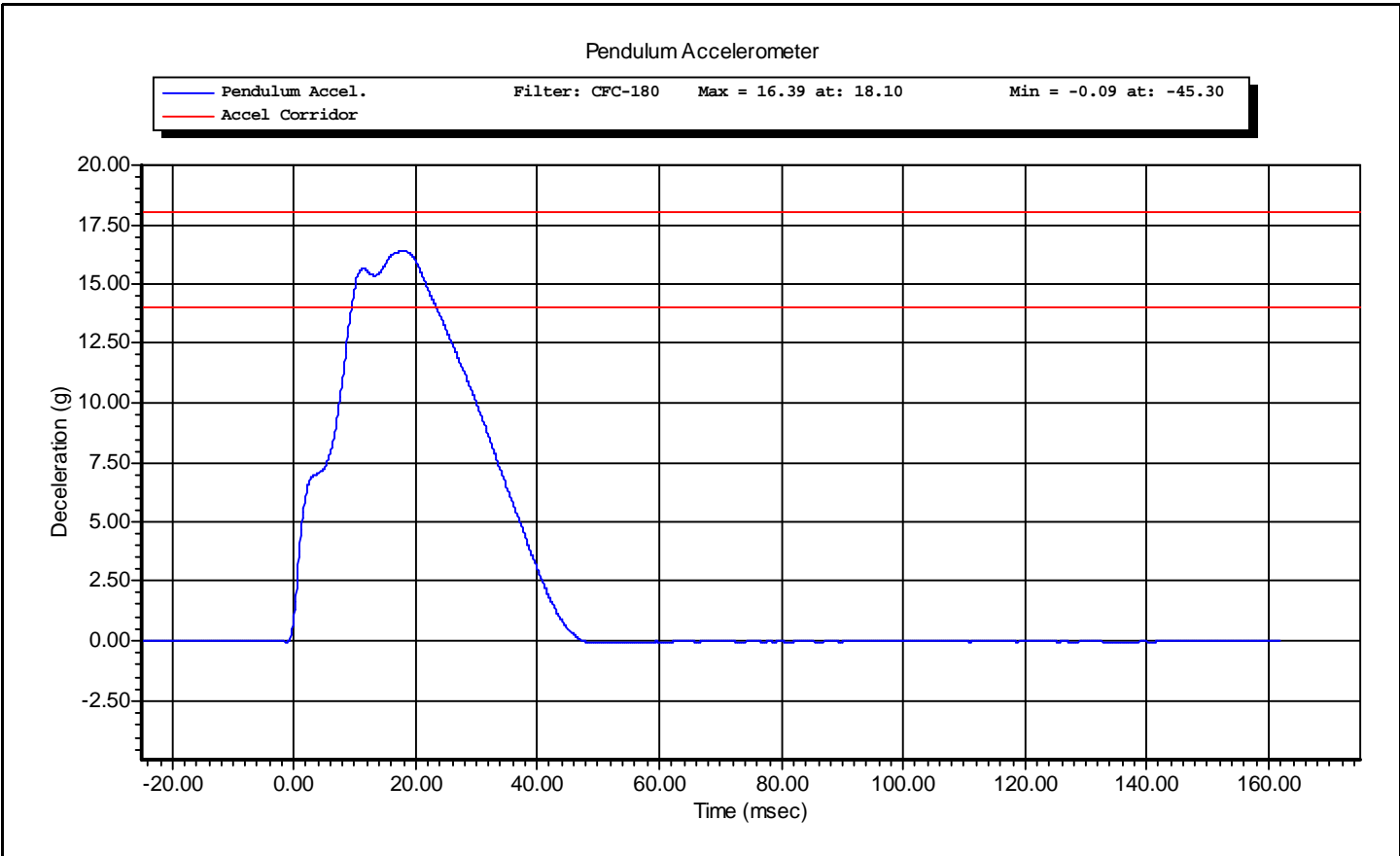


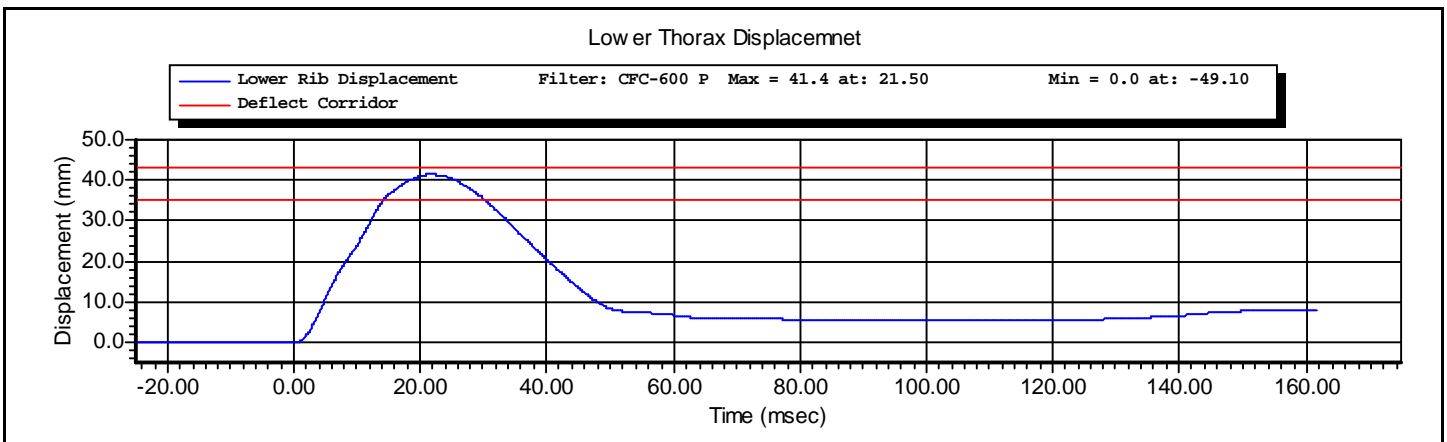
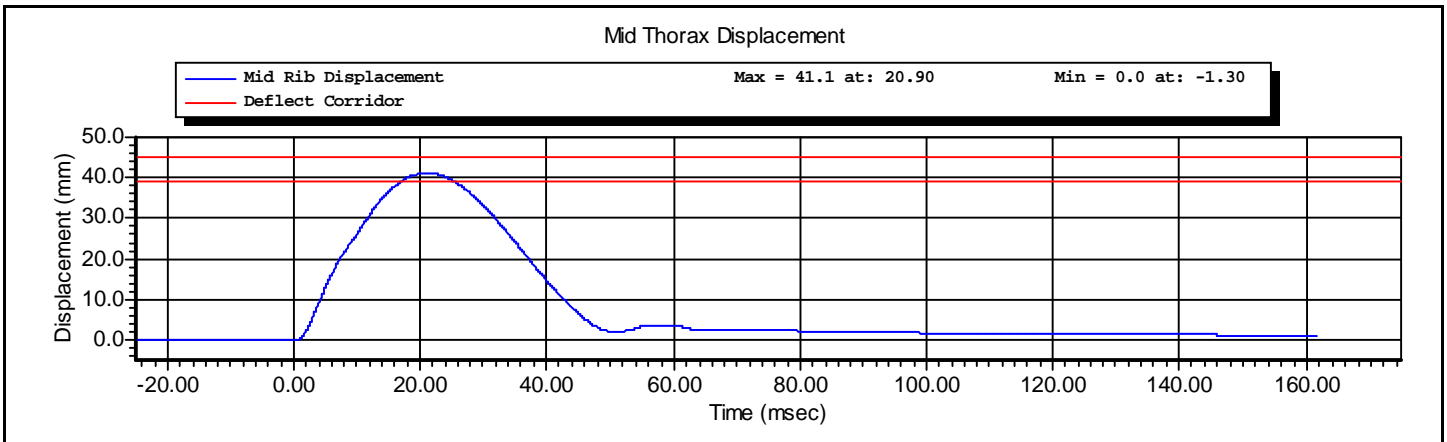
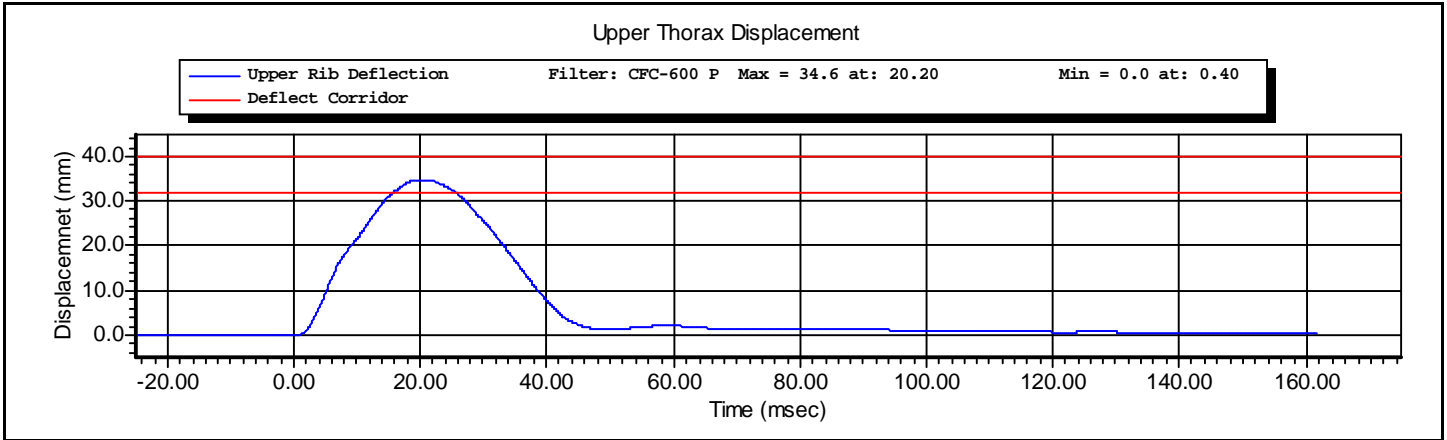
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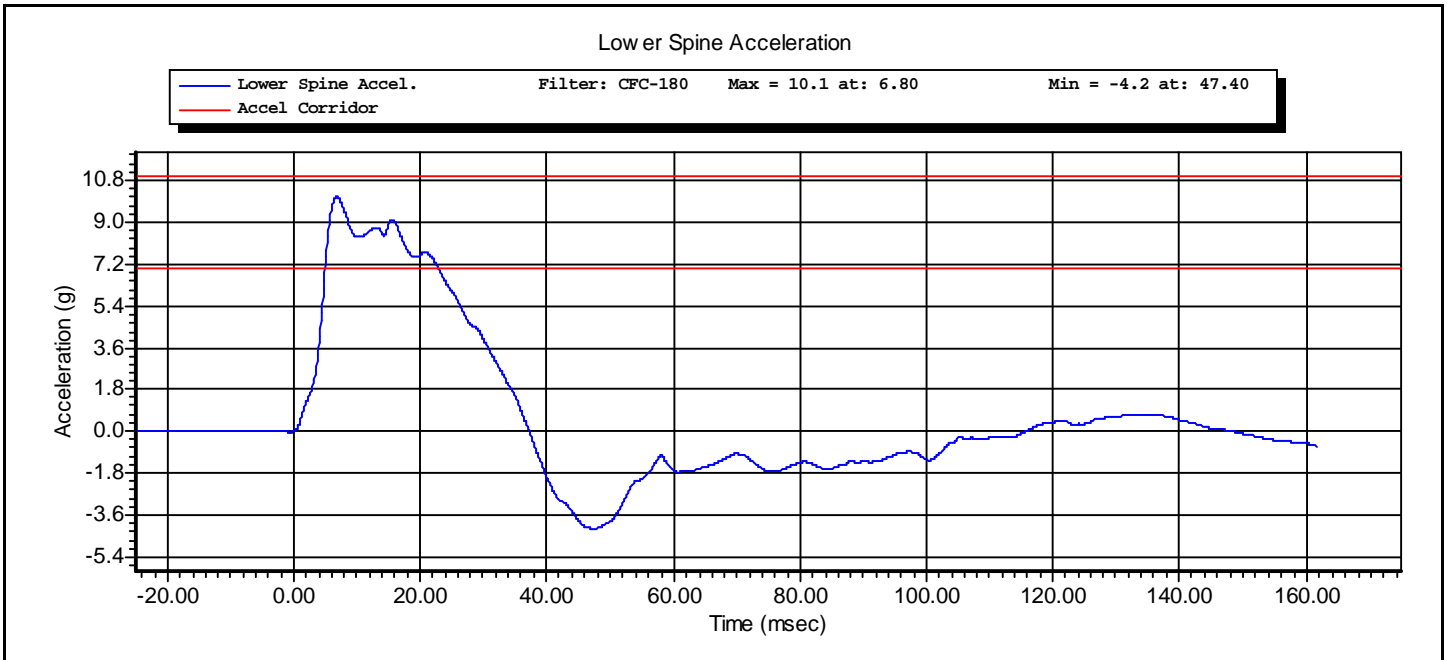
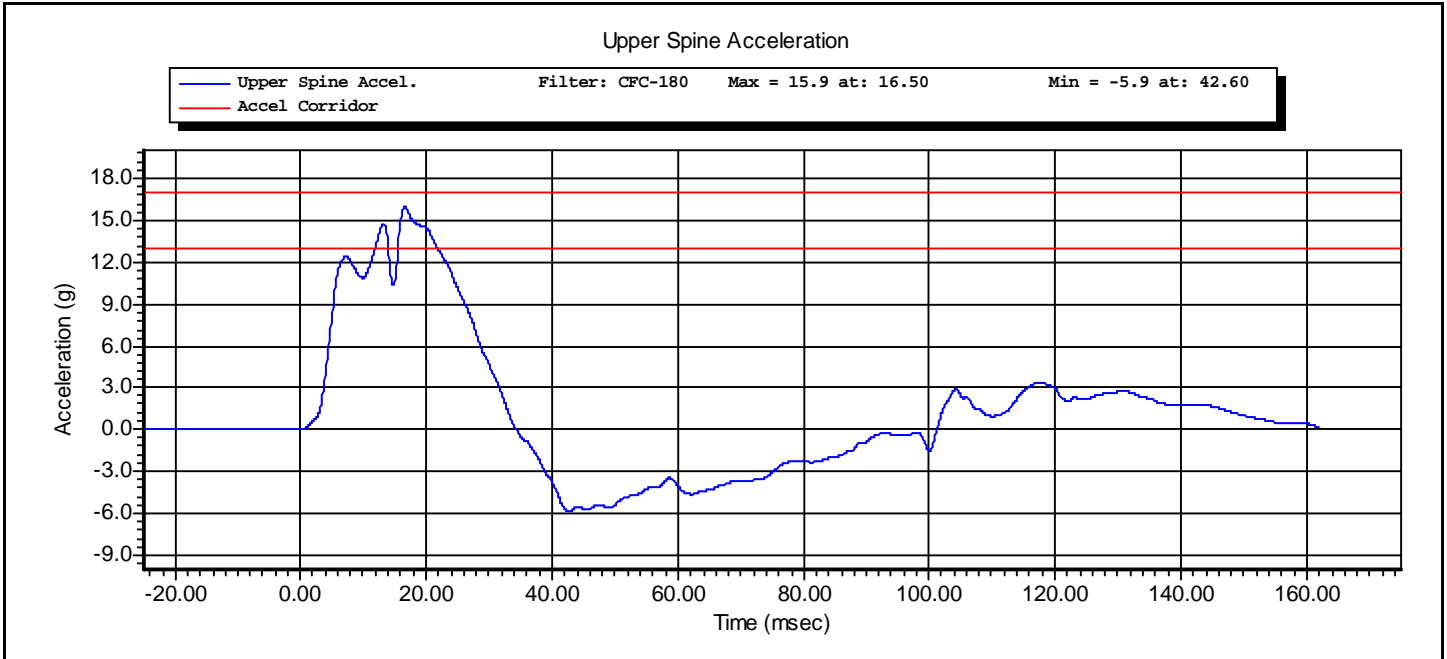
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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax Without Arm	Test Date:	12/11/2010
Test Number:	1	Test Time:	10:08:10 AM









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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:	Iliac	Test Date:	12/13/2010
Test Number:	1	Test Time:	7:31:20 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	20 %RH P
Velocity	4.20 -- 4.40	4.29 m/s P
Peak Probe Acceleration	36.0 -- 45.0	42.6 g P
Peak Pelvis Acceleration	28.0 -- 39.0	37.6 g P
Peak Iliac Force	4.10 -- 5.10	4.74 kN P

All test parameters are within specifications

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

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

Test ID: **Iliac**

Test Time: **7:31:20 PM**

Test Date: **12/13/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

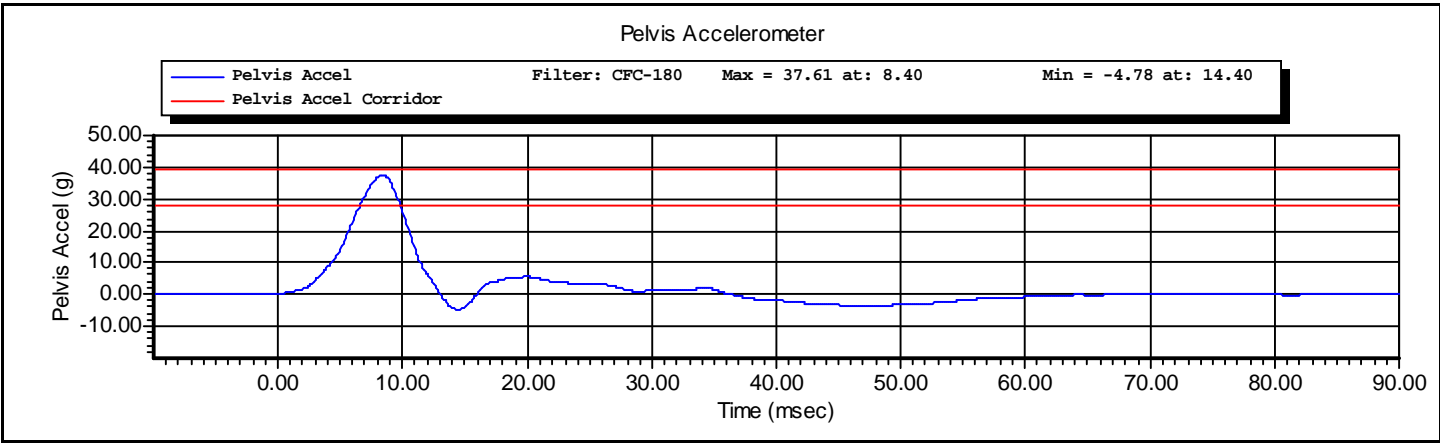
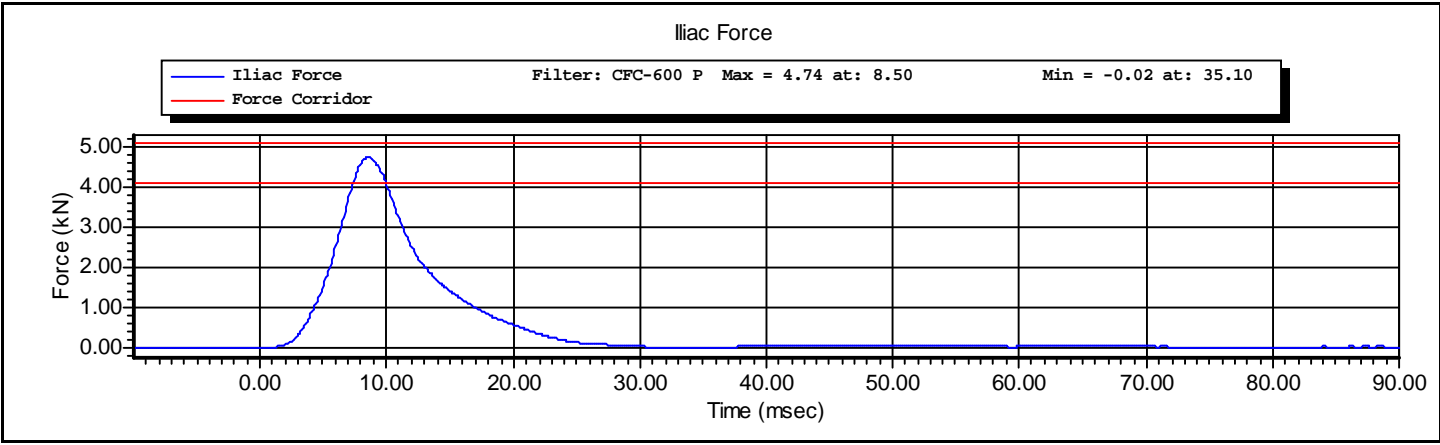
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	12/13/2010
DentonATD	3228J	LC-279 Fy	4/12/2010

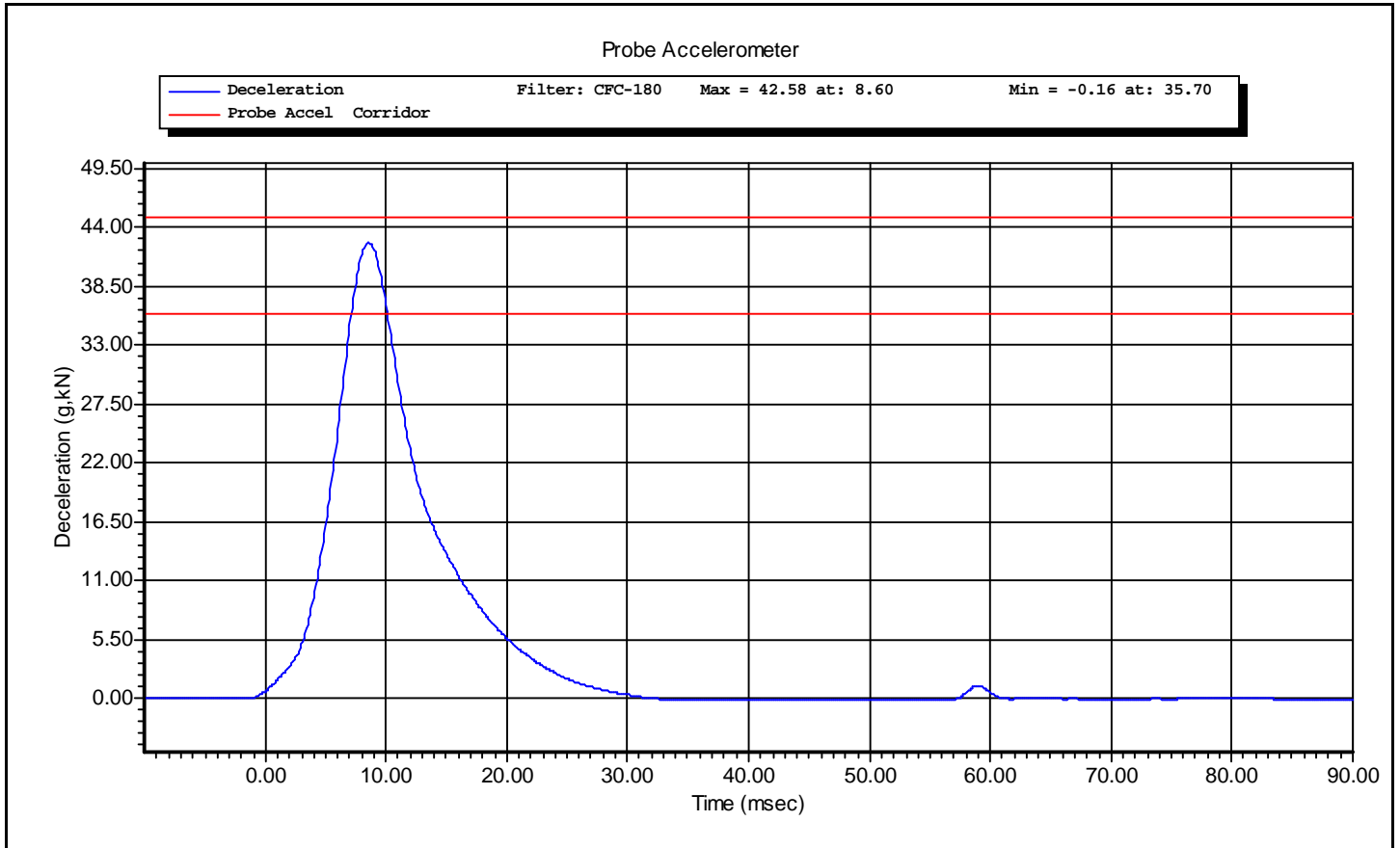
Test ID: **IIac**

Test Time: **7:31:20 PM**

Test Date: **12/13/2010**

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Iliac	Test Date:	12/13/2010
Test Number:	1	Test Time:	7:31:20 PM







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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Acetabulum	Test Date:	12/13/2010
Test Number:	3	Test Time:	7:05:04 PM

Comments:
 12460 plug
 Pelvis Plug Used For Certification:
 FTSS S/N 12460
 Force @ 3mm = 1652N

Pelvis Plug Used For Full Scale Test:
 FTSS S/N 12702
 Force @ 3mm = 1626N

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10 -- 70	20 %RH P
Velocity	6.60 -- 6.80	6.61 m/s P
Peak Probe Acceleration	38.0 -- 47.0	45.7 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.5 g P
Peak Acetabulum Force	3.60 -- 4.30	4.25 kN P

All test parameters are within specifications

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

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

Test ID: **Acetabulum** Test Time: **7:05:04 PM** Test Date: **12/13/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

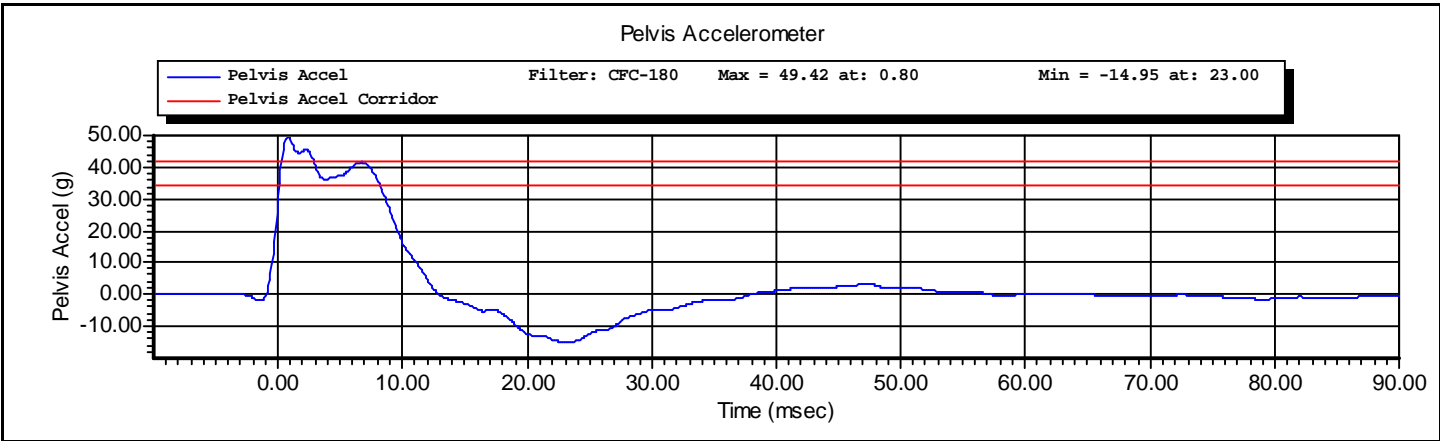
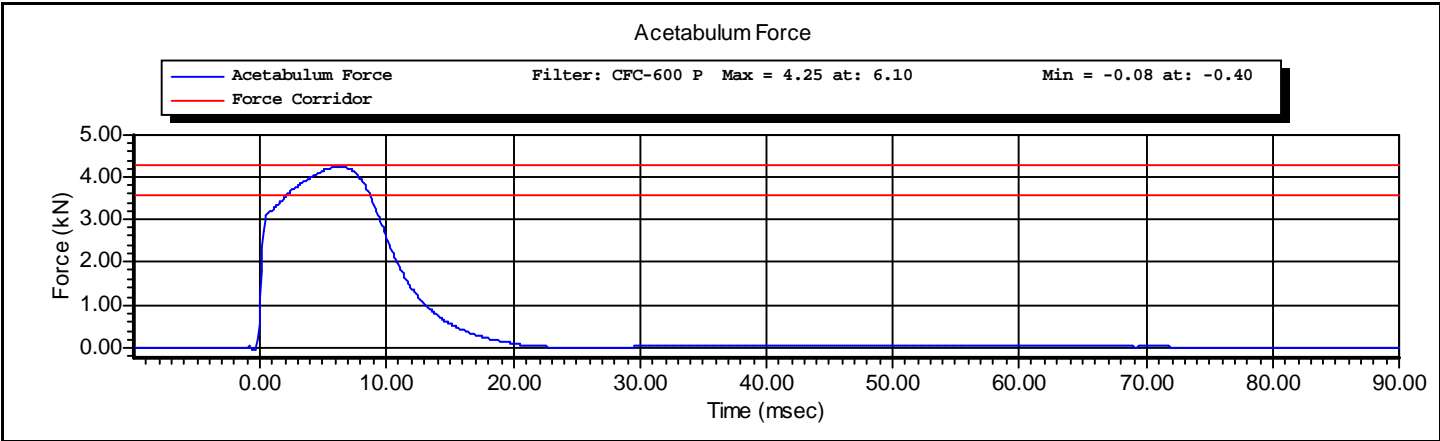
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	12/13/2010
DentonATD	3249J	LC-275a	4/12/2010
Endevco	7264-2000	P47300	12/13/2010

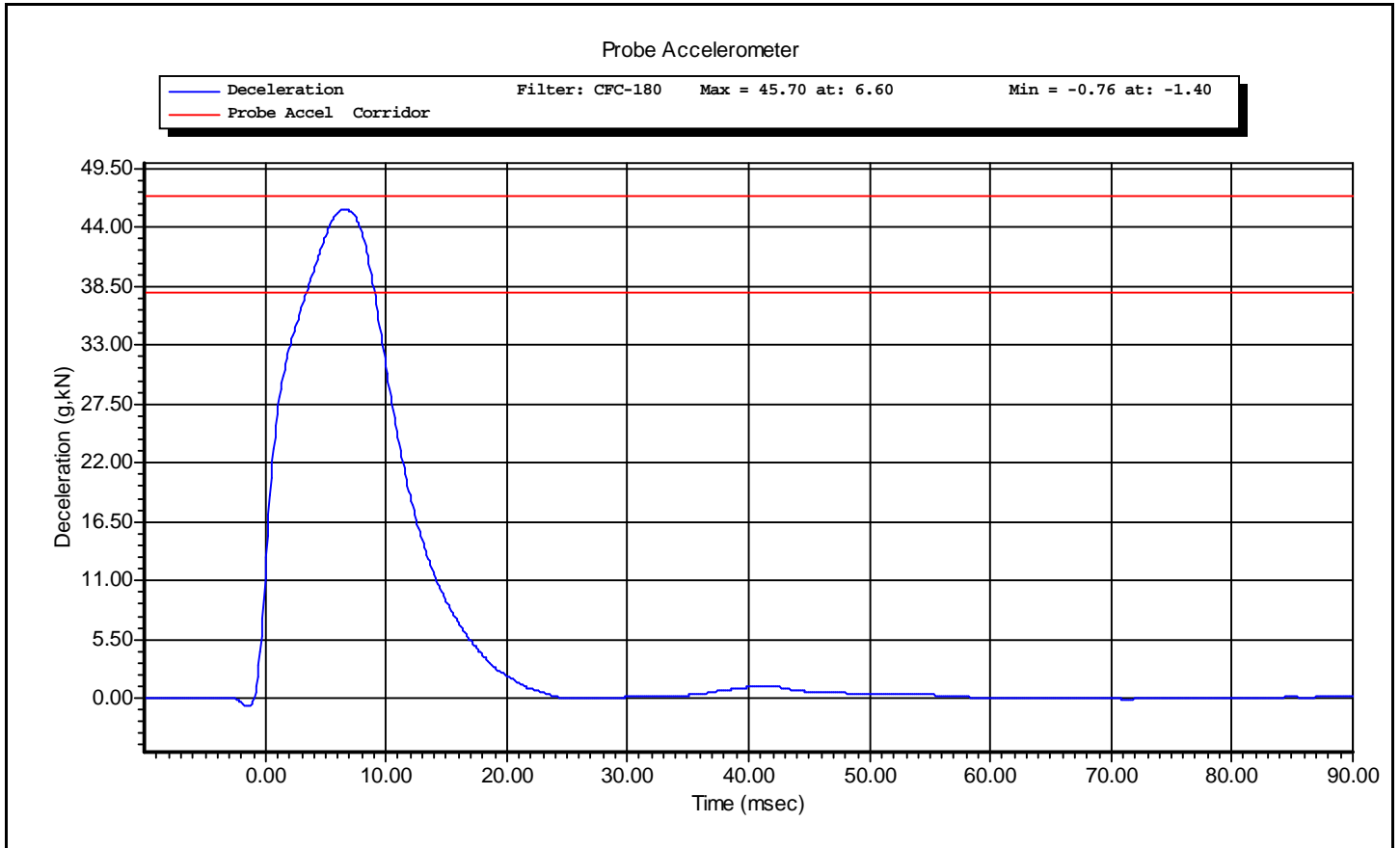
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Test Time: **7:05:04 PM**

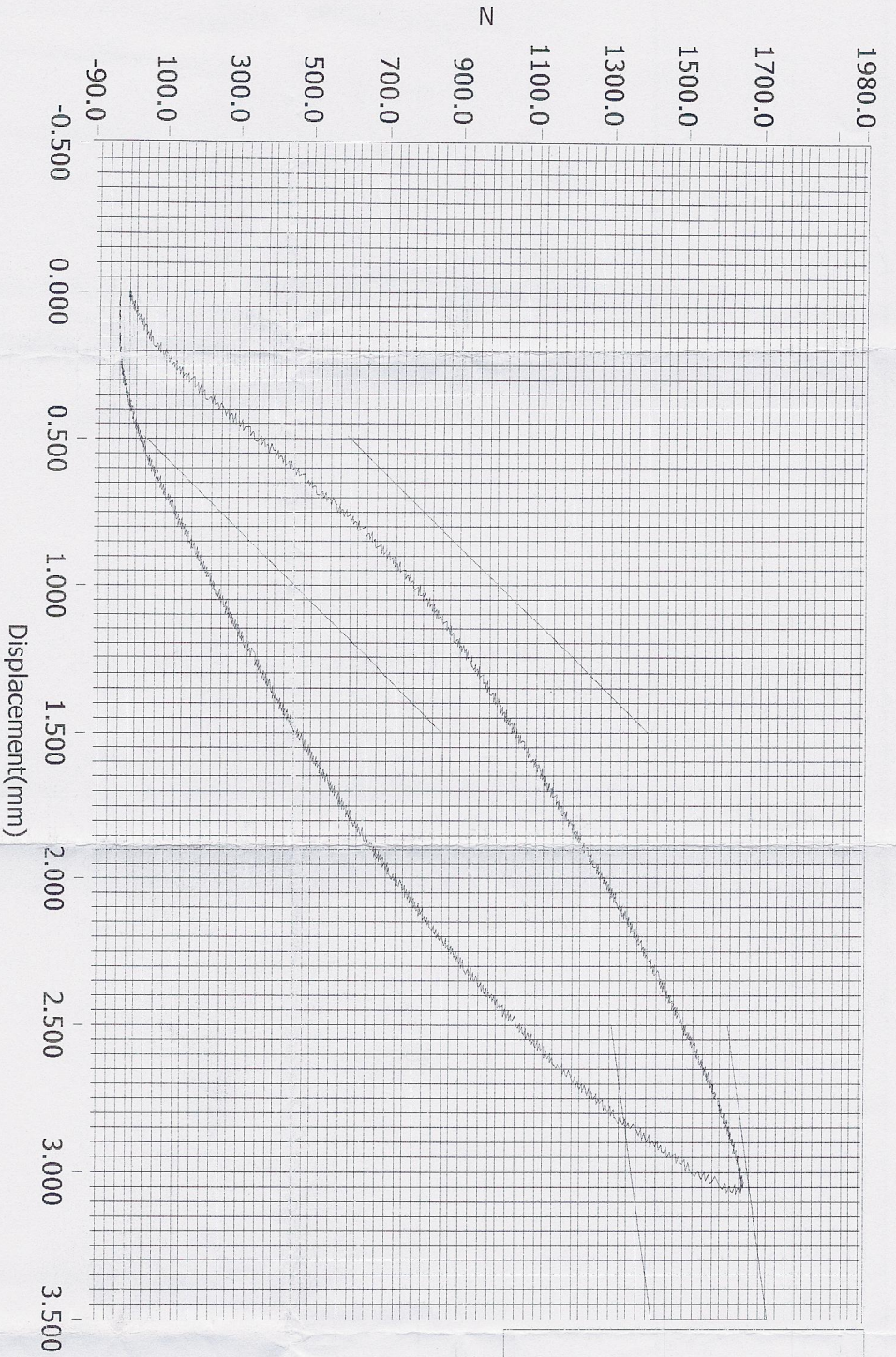
Test Date: **12/13/2010**

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Acetabulum	Test Date:	12/13/2010
Test Number:	3	Test Time:	7:05:04 PM





Resultant Data - SIDIIS Plug Compression



ATD Calibration Lab

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

12460

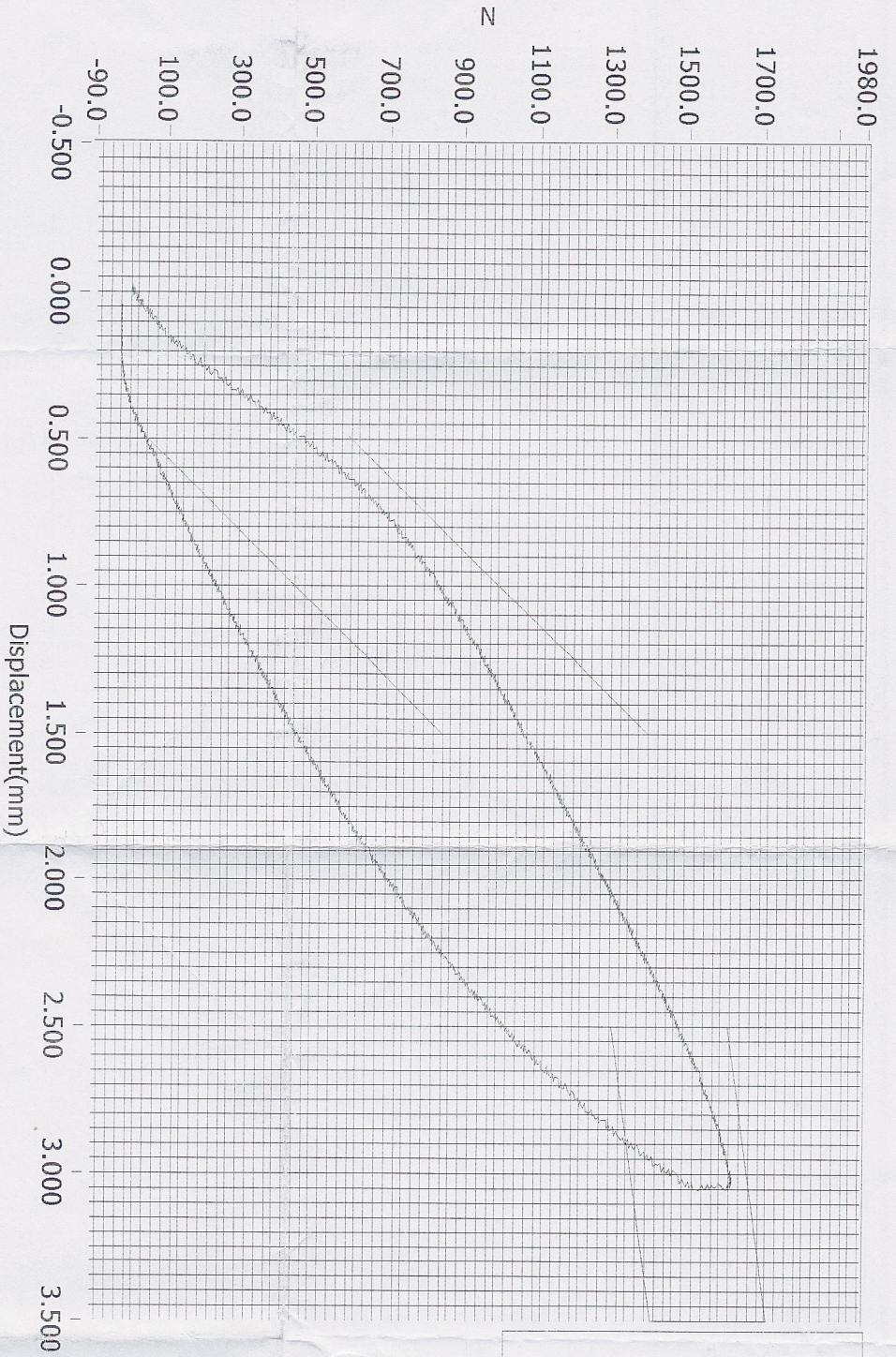
SIDIIS

Current Date : 7/9/2007

Current Time : 09:06:40

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

Resultant Data - SIDIIS Plug Compression



ATD Calibration Lab

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

Test ID

Part Serial Number

Test Date

Test Time

Cert ID

ATD Serial Number

ATD Type

12702

SIDIIS

7/16/2007

12:21 PM

Current Date : 7/16/2007

Current Time : 12:22:23

CALIBRATION TEST RESULTS

POST-TEST

SID-IIs No: 300

CONFIGURED FOR LEFT SIDE IMPACT



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SID-IIsD External Measurements

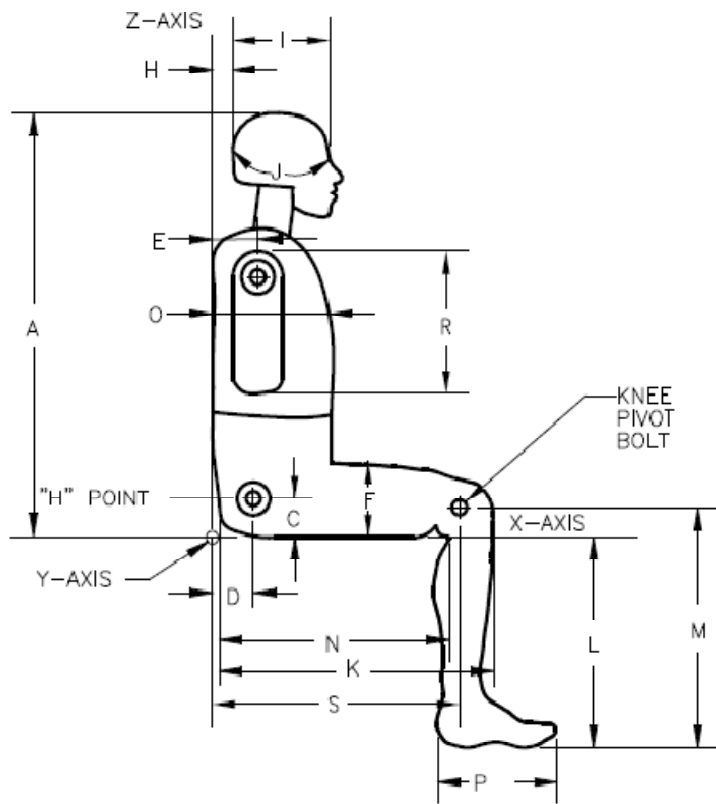
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	779	Yes
B	Shoulder Pivot Height	437.0 - 453.0	440	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	98	Yes
F	Thigh Clearance	119.0 - 135.0	122	Yes
G	Head Breadth	140.0 - 148.0	143	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	181	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	352	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	433	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	315	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to Seat back	478.0 - 493.0	483	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	349	Yes
W	Foot Width (right)	78.0 - 94.0	85	Yes
W	Foot Width (left)	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	866	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

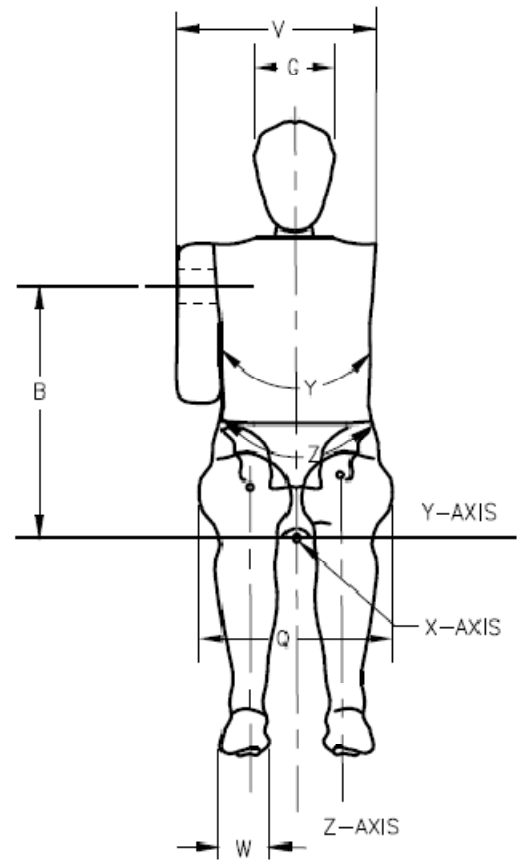
Technician: AR

Date: 12/22/2010

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 300		
Test ID:	Head Drop	Test Date:	12/22/2010
Test Number:	1	Test Time:	11:47:20 AM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	25 %RH P
Resultant Acceleration	115.0 -- 137.0	130.0 g P
Oscillation	0.0 -- 15.0	2.3 % P
Fore-Aft Acceleration	-15.0 -- 15.0	-7.0 g P

All test parameters are within specifications

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

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

Test ID: **Head Drop**

Test Time: **11:47:20 AM**

Test Date: **12/22/2010**



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REFERENCE EQUIPMENT

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

Test ID: **Head Drop**

Test Time: **11:47:20 AM**

Test Date: **12/22/2010**

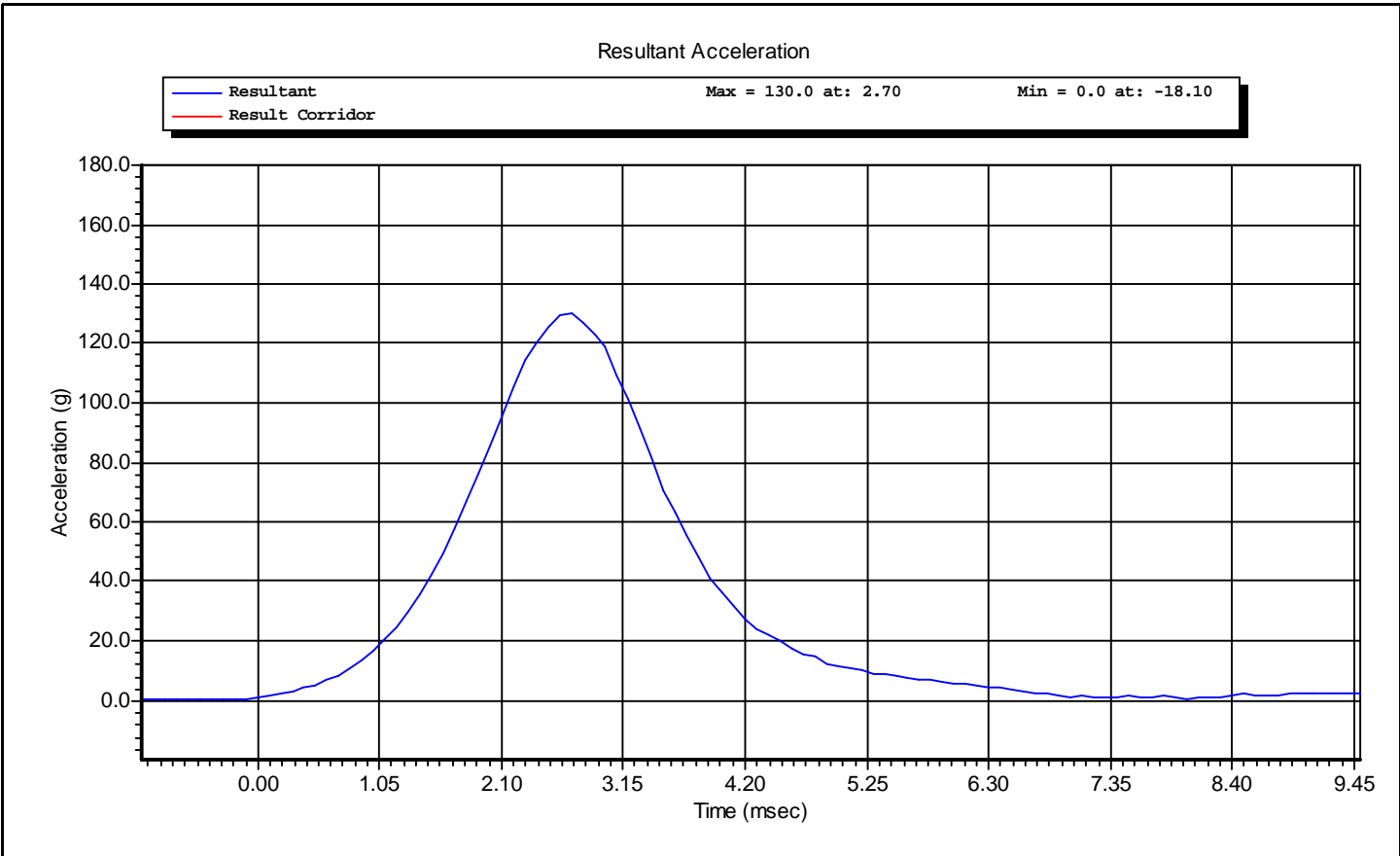


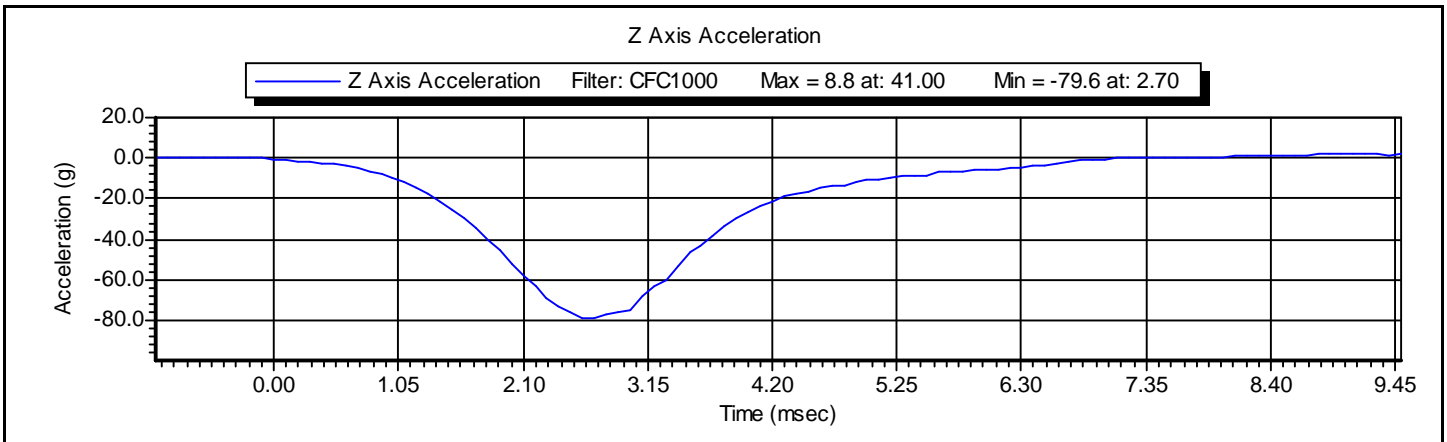
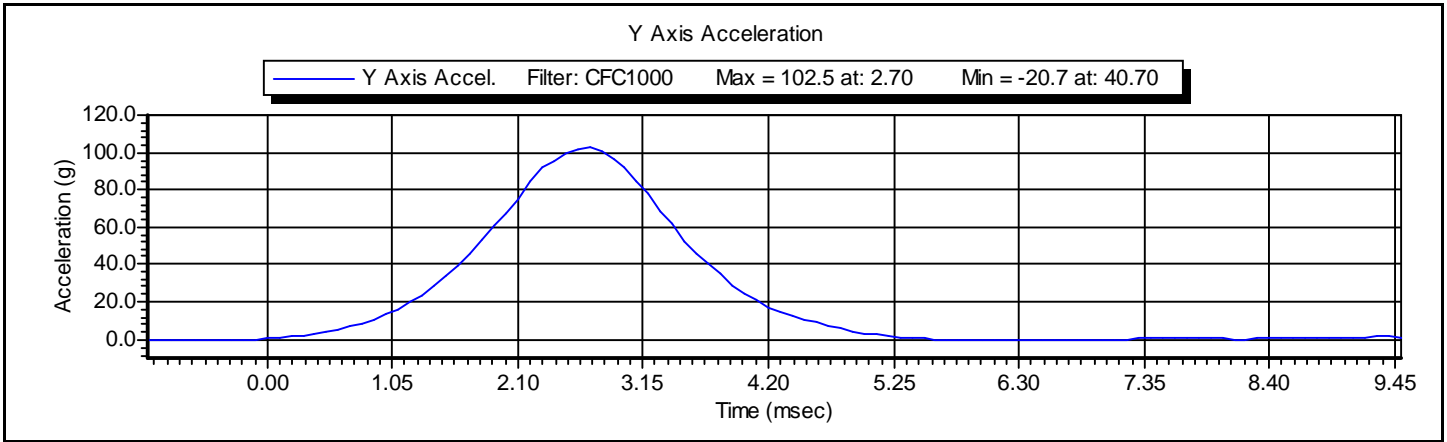
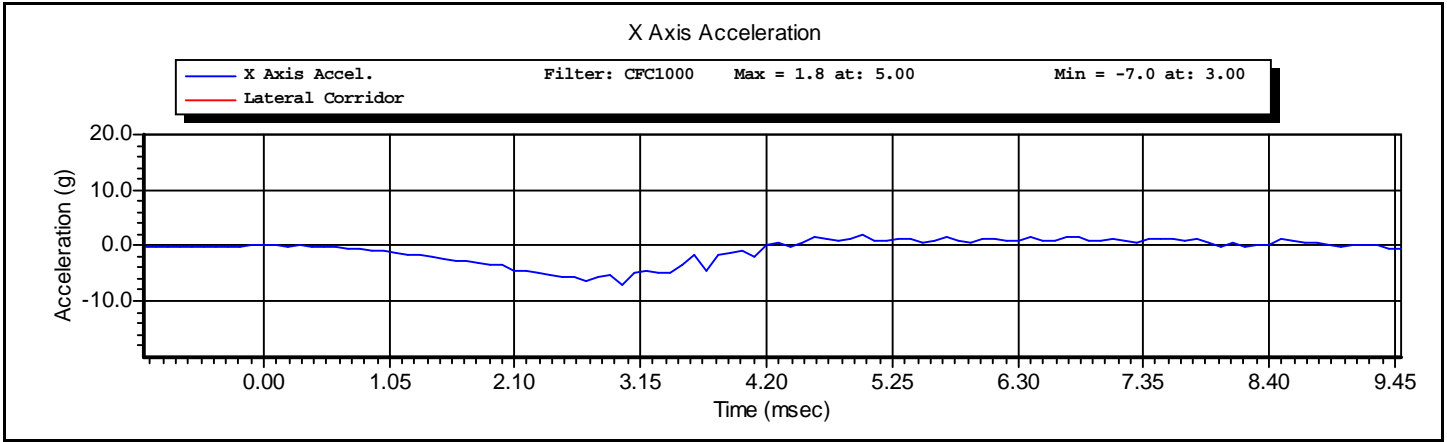
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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Head Drop	Test Date:	12/22/2010
Test Number:	1	Test Time:	11:47:20 AM







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VERIFICATION REPORT

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/22/2010
Test Number:	1	Test Time:	4:15:32 PM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	25 %RH P
Velocity	5.51 -- 5.63	5.55 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.26 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.35 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.54 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.44 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.84 m/s P
Max D Plane Rotation	71.0 -- 81.0	73.5 degrees P
Time at Max Rotation	50.0 -- 70.0	62.4 ms P
Moment about OC	-44.0 -- -36.0	-38.2 Nm P
Moment Decay to Zero	102.0 -- 126.0	116.0 ms P

All test parameters are within specifications

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

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

Test ID: **Neck Flexion** Test Time: **4:15:32 PM** Test Date: **12/22/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

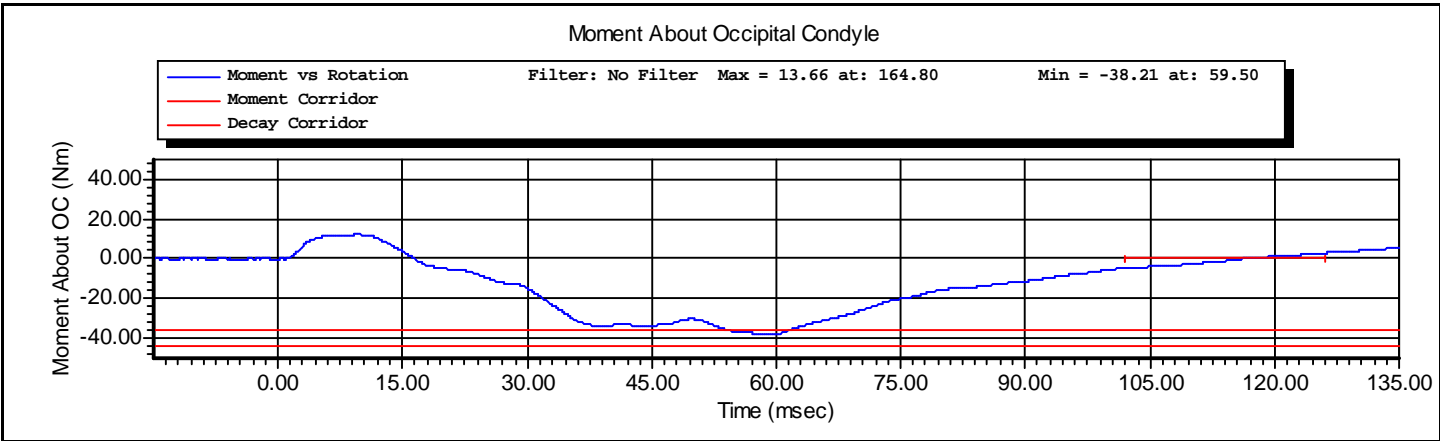
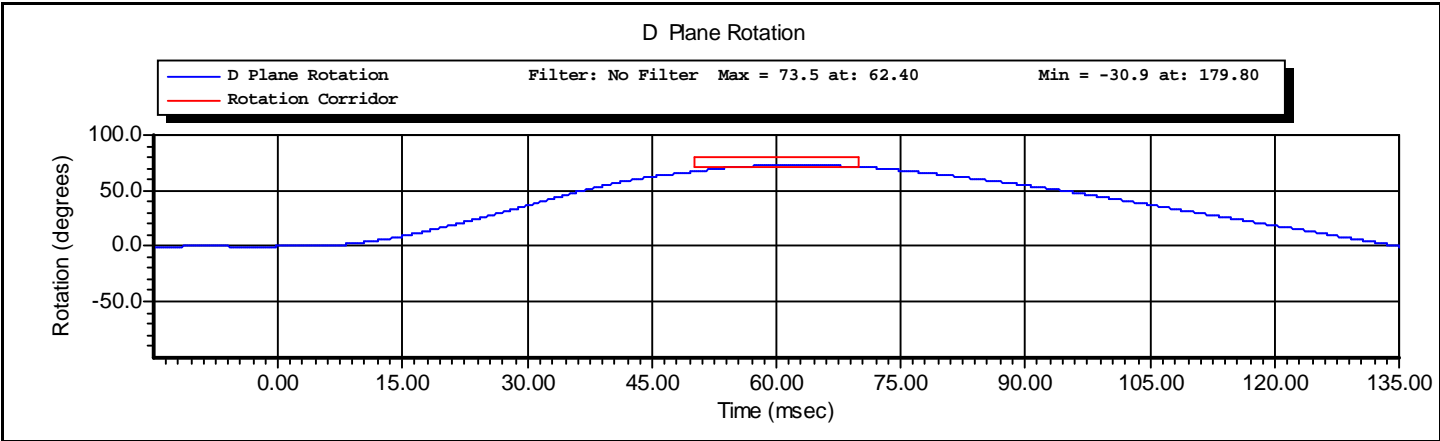
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DentonATD	Velocity Trap	1	1/11/2010
Endevco	7231CT	C16510	10/21/2010
Denton	1716A	LC-576 Fy	2/15/2010
Denton	1716A	LC-576 Mx	2/15/2010
DentonATD	78051-342	184	4/30/2010
DentonATD	78051-342	174	4/30/2010
DentonATD	78051-342	185	4/30/2010

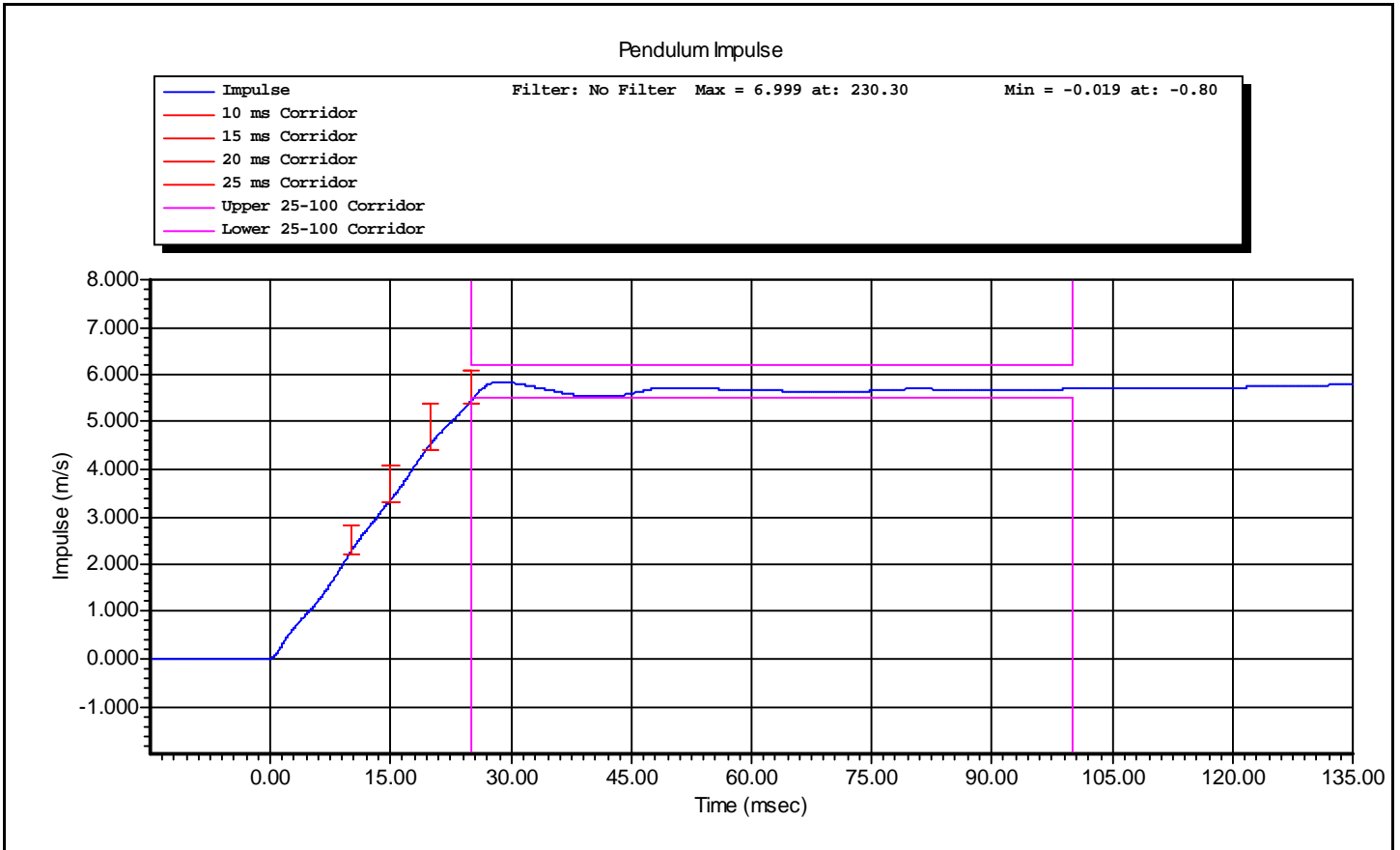
Test ID: **Neck Flexion**

Test Time: **4:15:32 PM**

Test Date: **12/22/2010**

Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Neck Flexion	Test Date:	12/22/2010
Test Number:	1	Test Time:	4:15:32 PM







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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/22/2010
Test Number:	1	Test Time:	7:18:24 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.20 deg C P
Humidity	10.0 -- 70.0	28.0 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Probe Acceleration	13.0 -- 18.0	16.6 g P
Shoulder Deflection	28.0 -- 37.0	33.0 mm P
T1 Acceleration	17.0 -- 22.0	19.9 g P

All test parameters are within specifications

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

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

Test ID: **Shoulder**

Test Time: **7:18:24 PM**

Test Date: **12/22/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

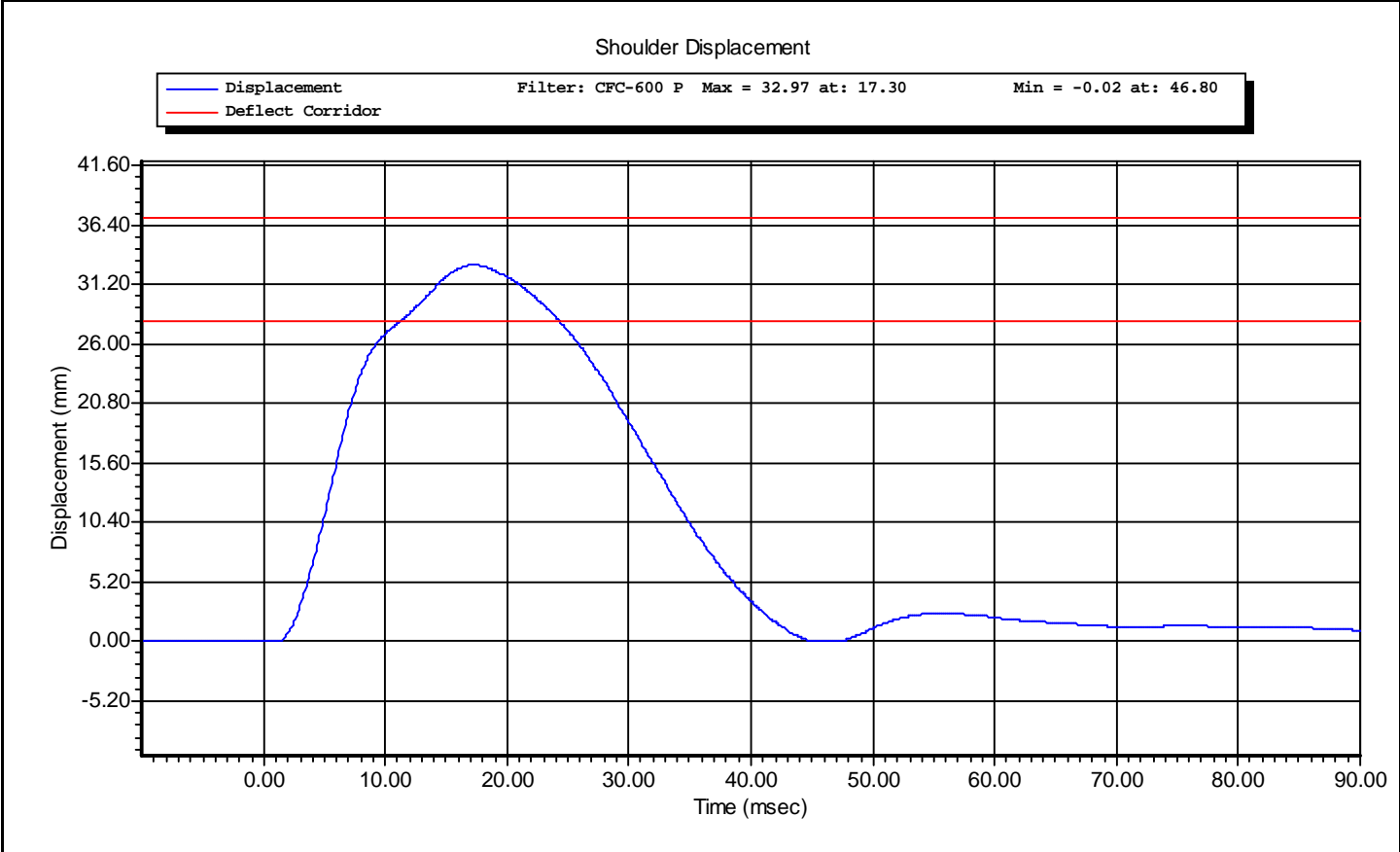
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DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1063	4/7/2010
Endevco	7264-2000	P58884	10/19/2010

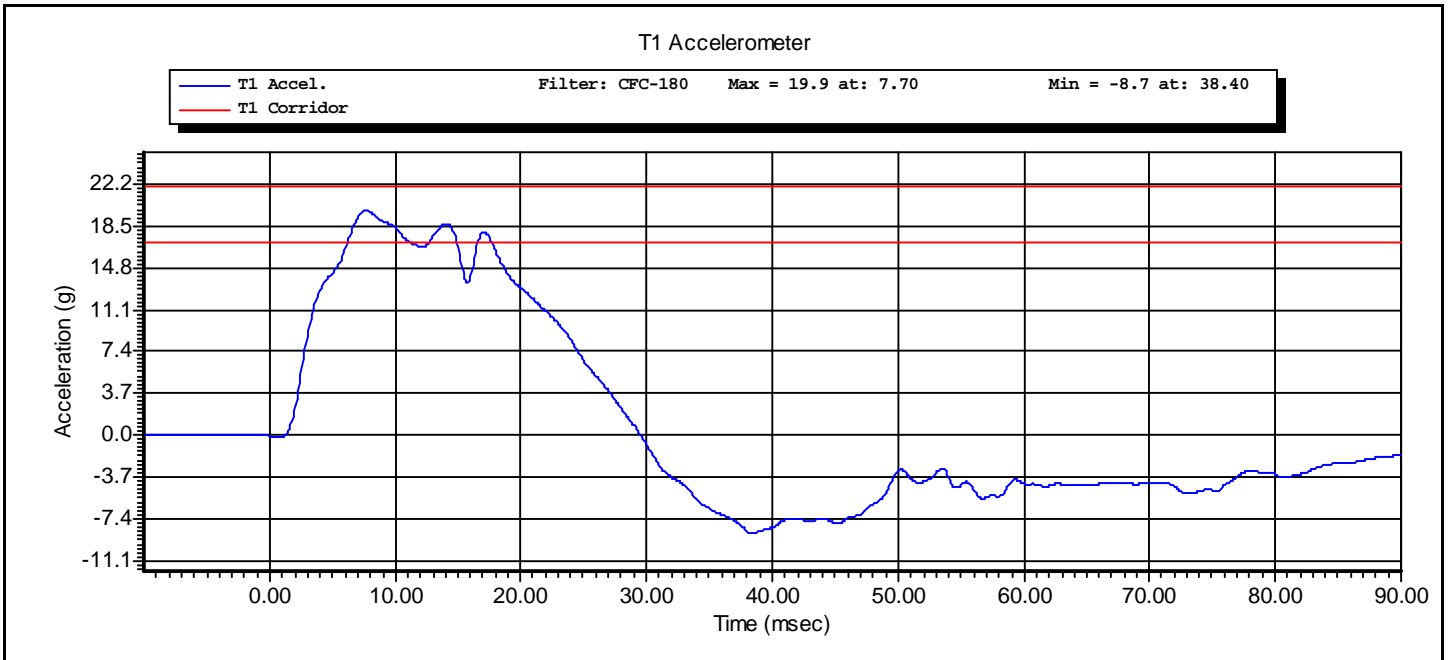
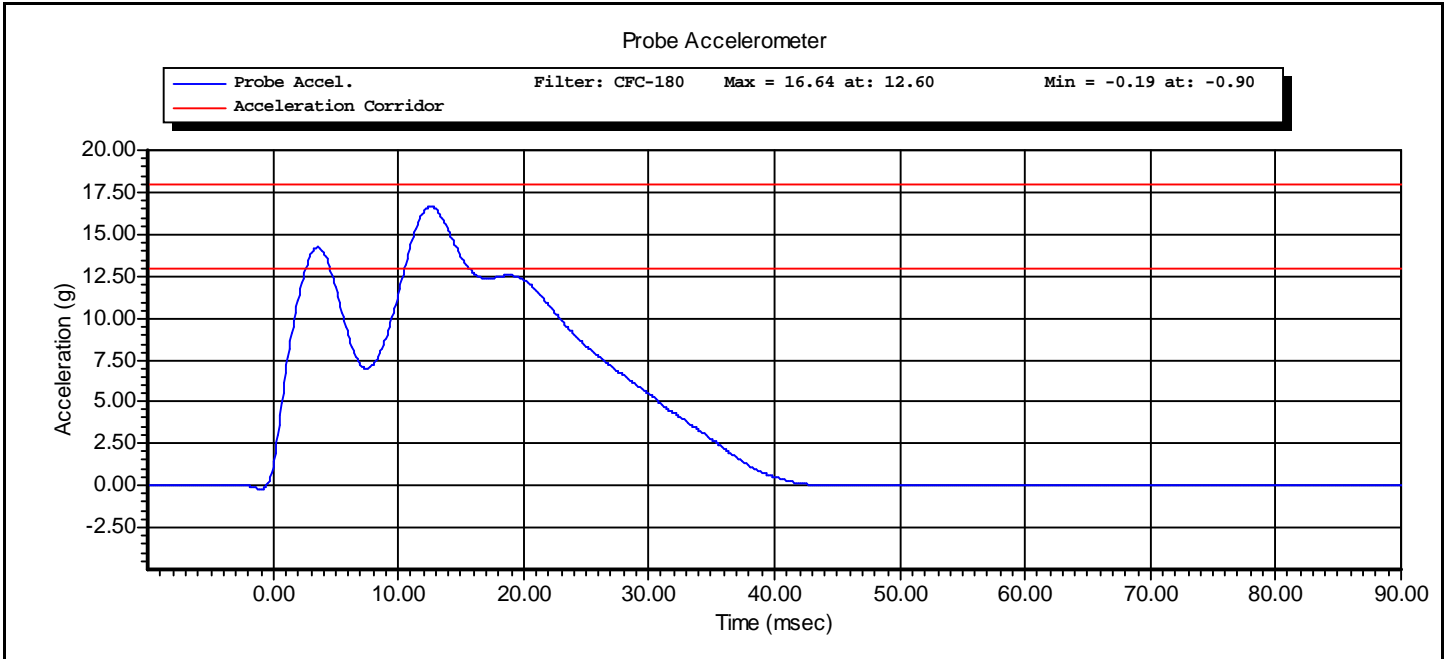
Test ID: **Shoulder**

Test Time: **7:18:24 PM**

Test Date: **12/22/2010**

Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Shoulder	Test Date:	12/22/2010
Test Number:	1	Test Time:	7:18:24 PM







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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 300		
Test ID:	Thorax Without Arm	Test Date:	12/22/2010
Test Number:	1	Test Time:	8:01:57 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	28 %RH P
Velocity	4.20 -- 4.40	4.35 m/s P
Probe Acceleration	14.0 -- 18.0	16.0 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	34.8 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	41.4 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	42.3 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	15.3 g P
Lower Spine Acceleration T12	7.0 -- 11.0	9.8 g P

All test parameters are within specifications

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

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

Test ID: **Thorax Without Arm** Test Time: **8:01:57 PM**

Test Date: **12/22/2010**



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VERIFICATION REPORT

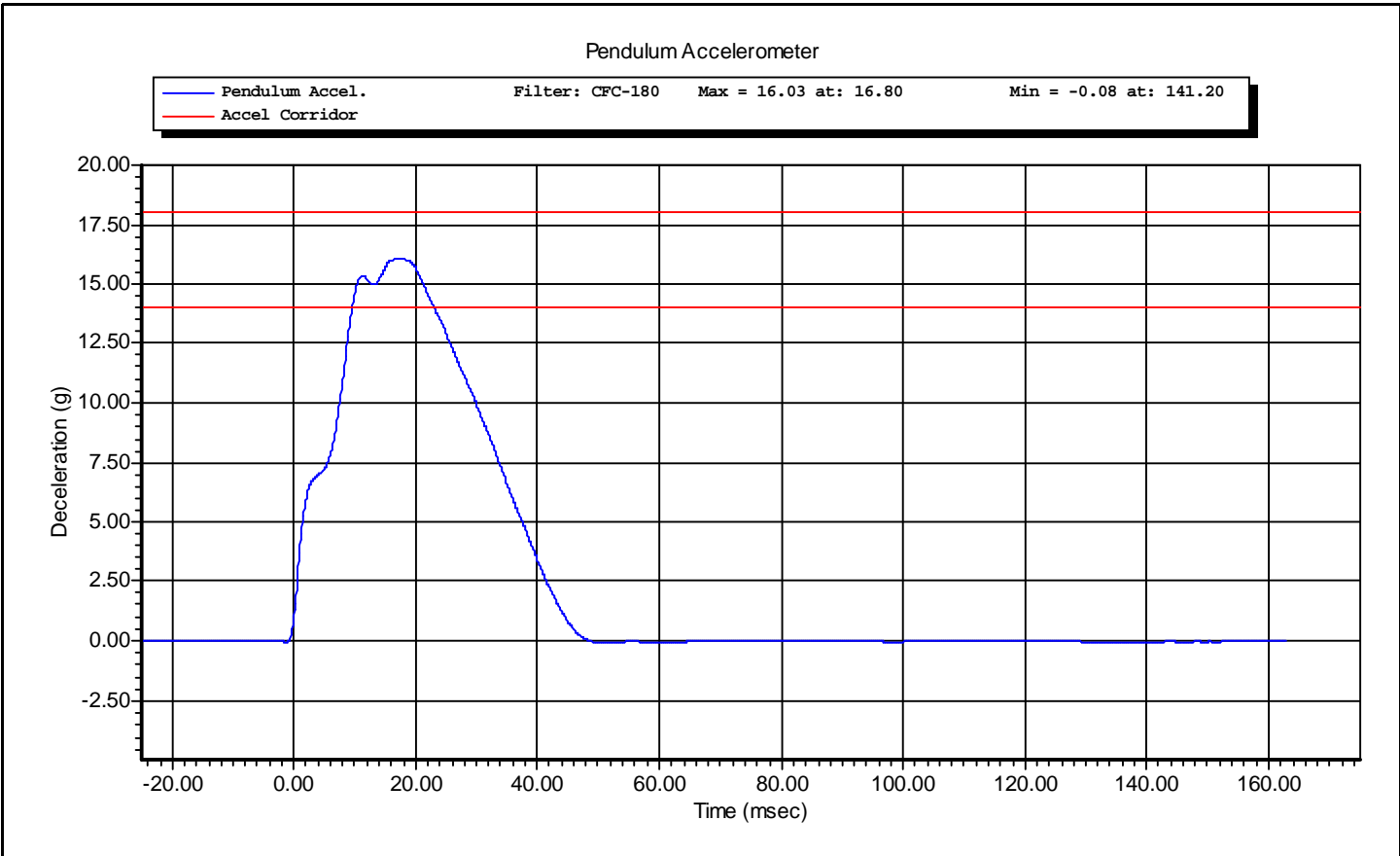
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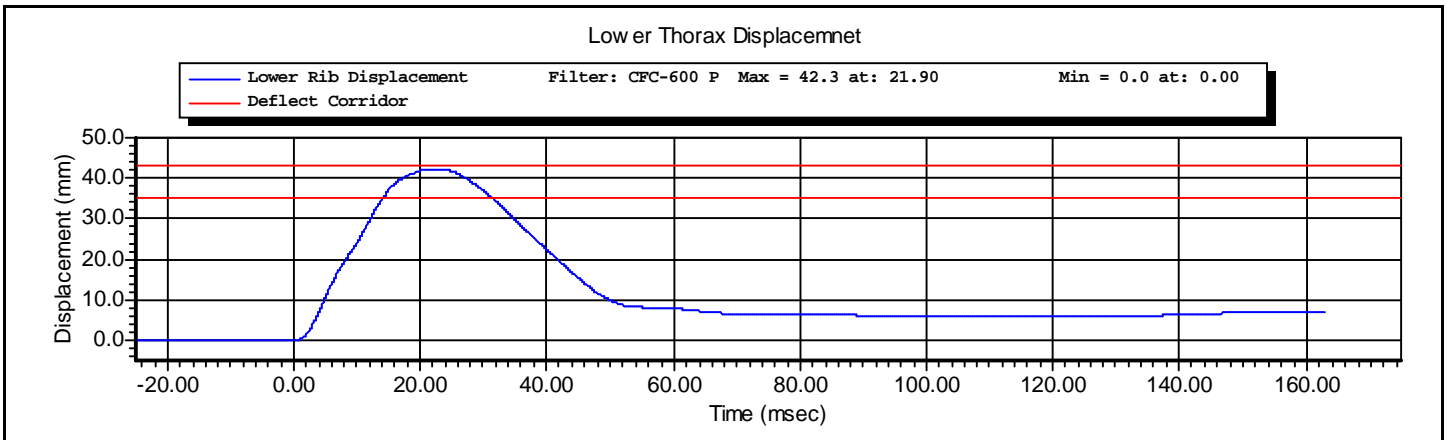
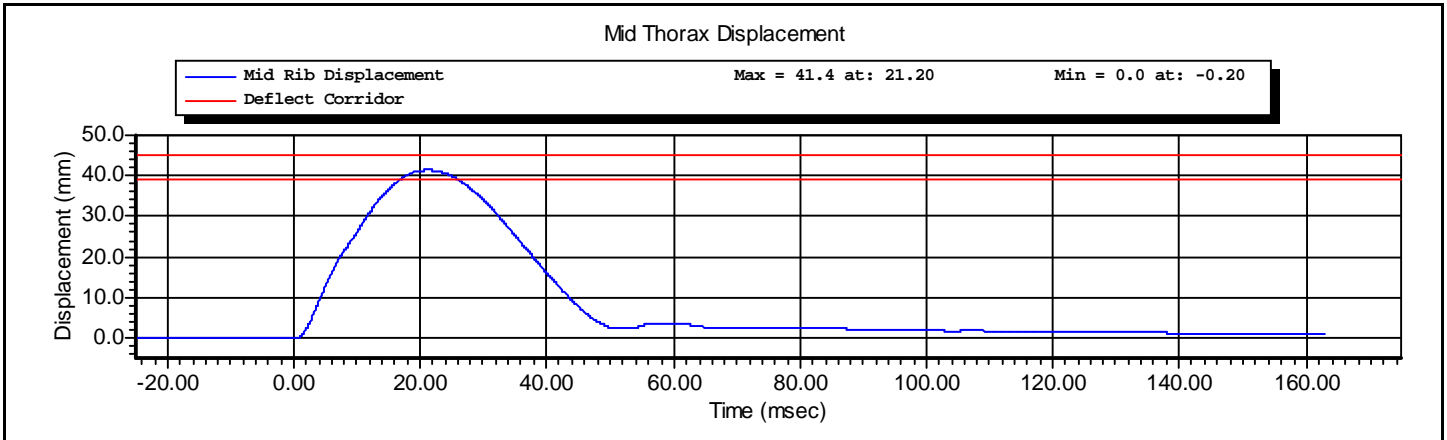
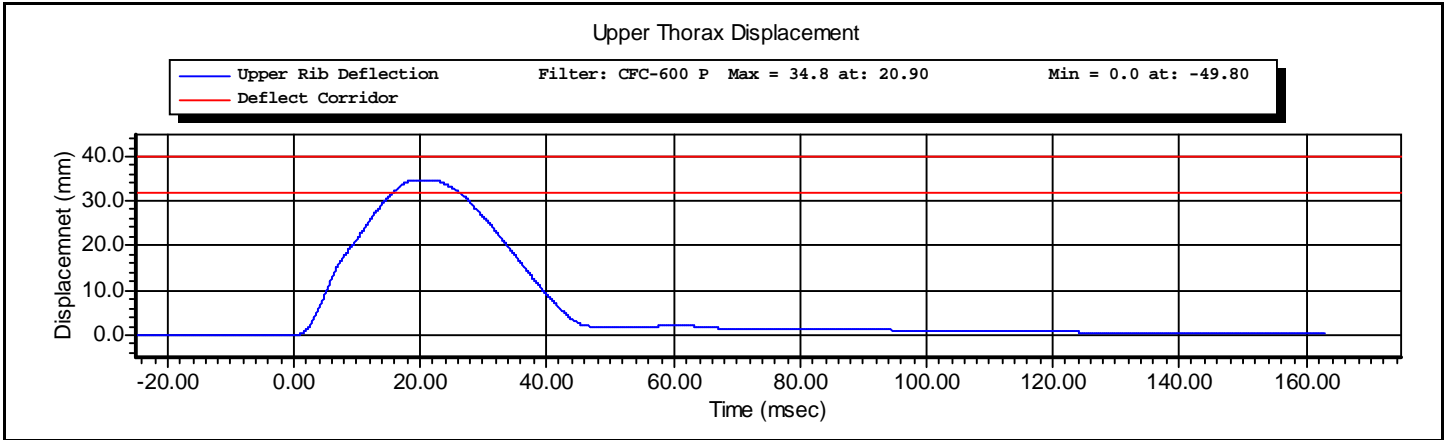
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P58884	10/19/2010
Endevco	7264-2000	P64147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

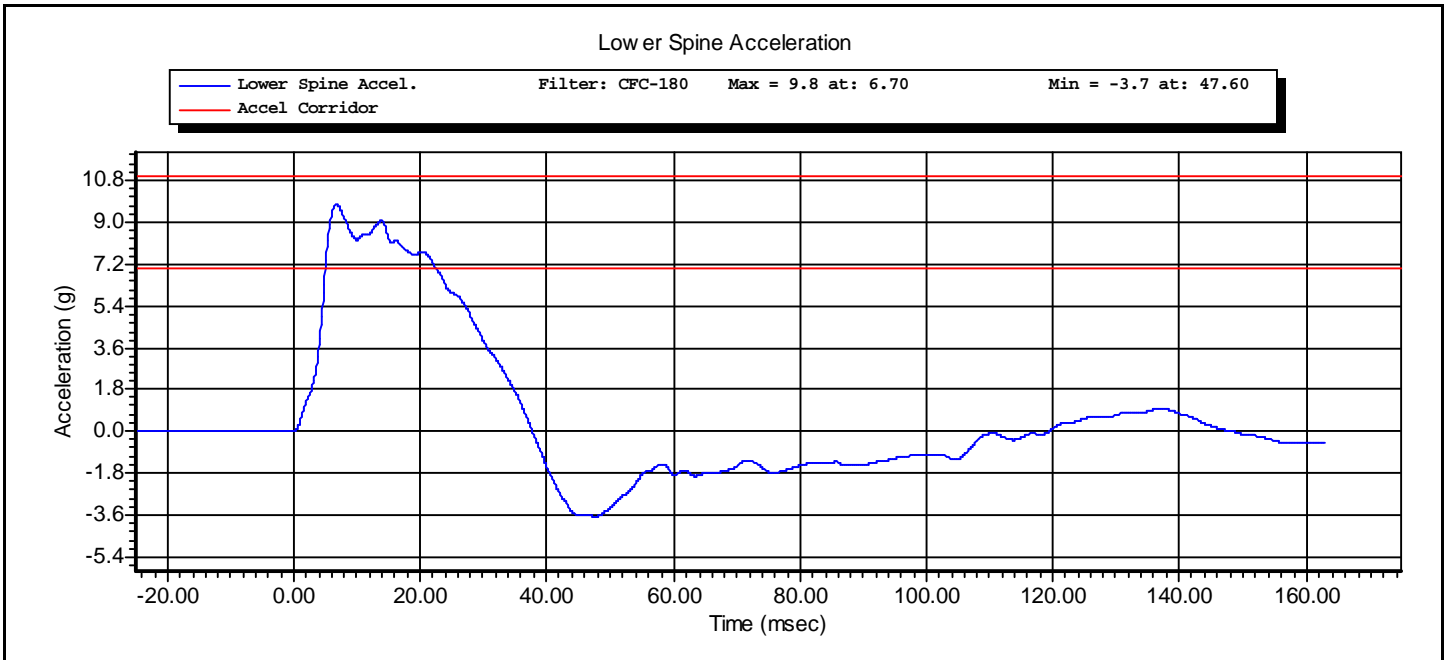
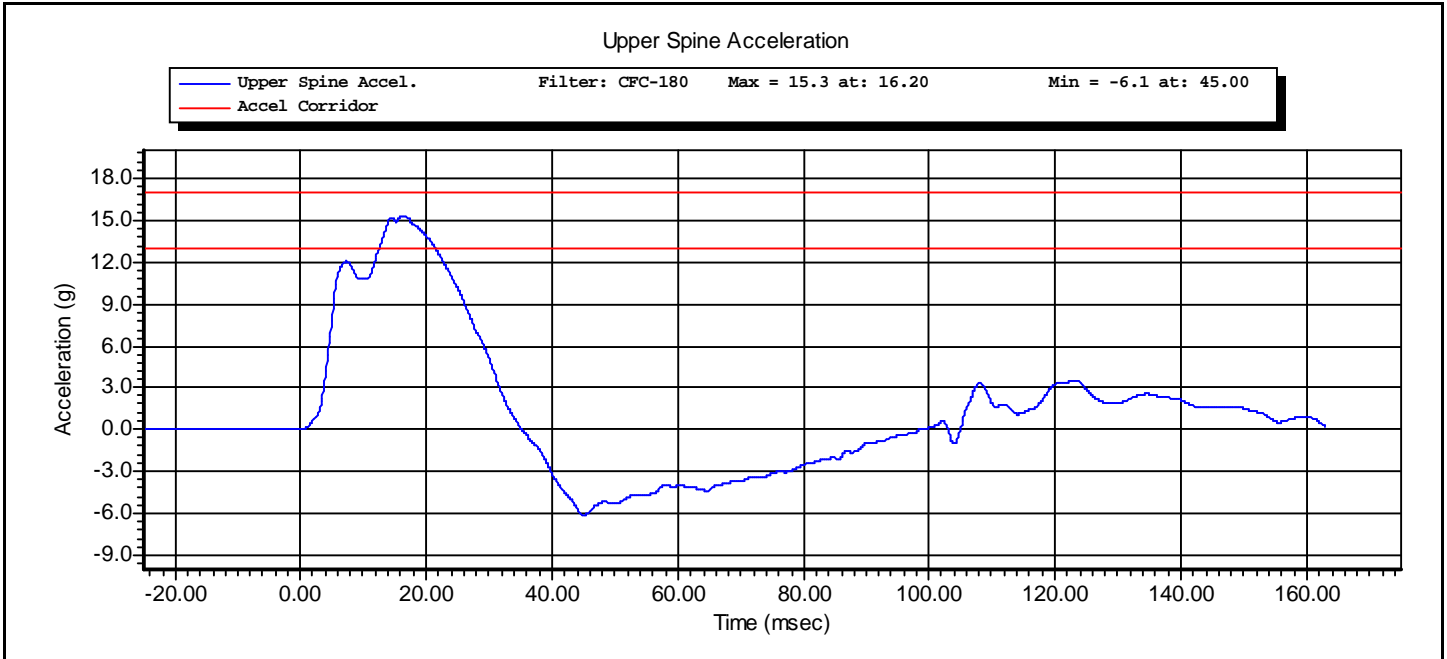
Test ID: **Thorax Without Arm** Test Time: **8:01:57 PM**

Test Date: **12/22/2010**

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax Without Arm	Test Date:	12/22/2010
Test Number:	1	Test Time:	8:01:57 PM









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VERIFICATION REPORT

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	12/22/2010
Test Number:	1	Test Time:	8:34:34 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	28 %RH P
Velocity	6.60 -- 6.80	6.65 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	33.0 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	27.2 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	31.8 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	33.9 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	38.5 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	33.6 g P
Shoulder Deflection	31.0 -- 40.0	36.3 mm P

All test parameters are within specifications

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

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

Test ID: **Thorax With Arm** Test Time: **8:34:34 PM** Test Date: **12/22/2010**



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REFERENCE EQUIPMENT

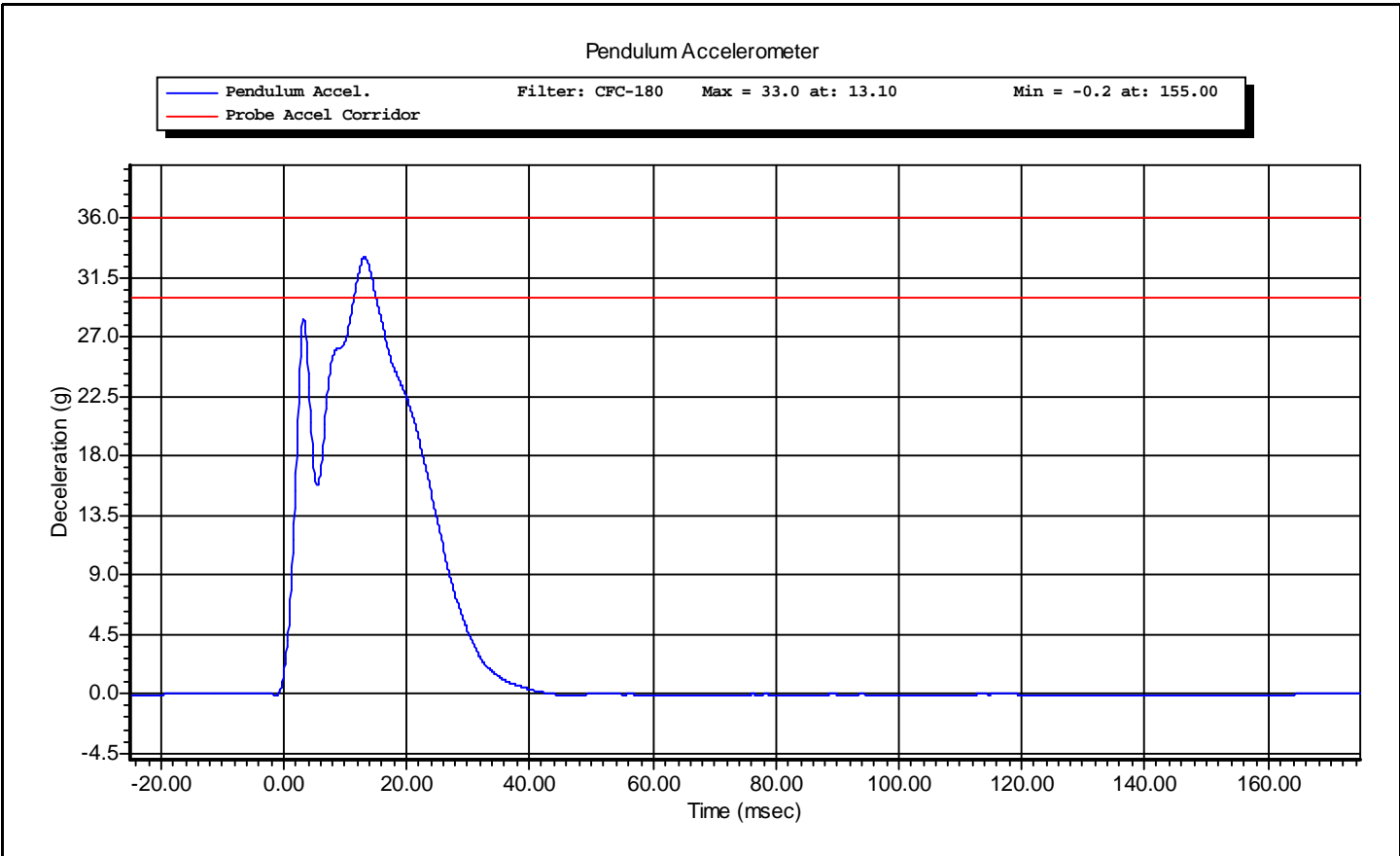
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DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1121	4/7/2010
Servo	180-3885	DS-1151	4/7/2010
Servo	180-3885	DS-1156	4/7/2010
Endevco	7264-2000	P58884	10/19/2010
Endevco	7264-2000	P64147	10/8/2010
Servo	180-3885	DS-1063	4/7/2010

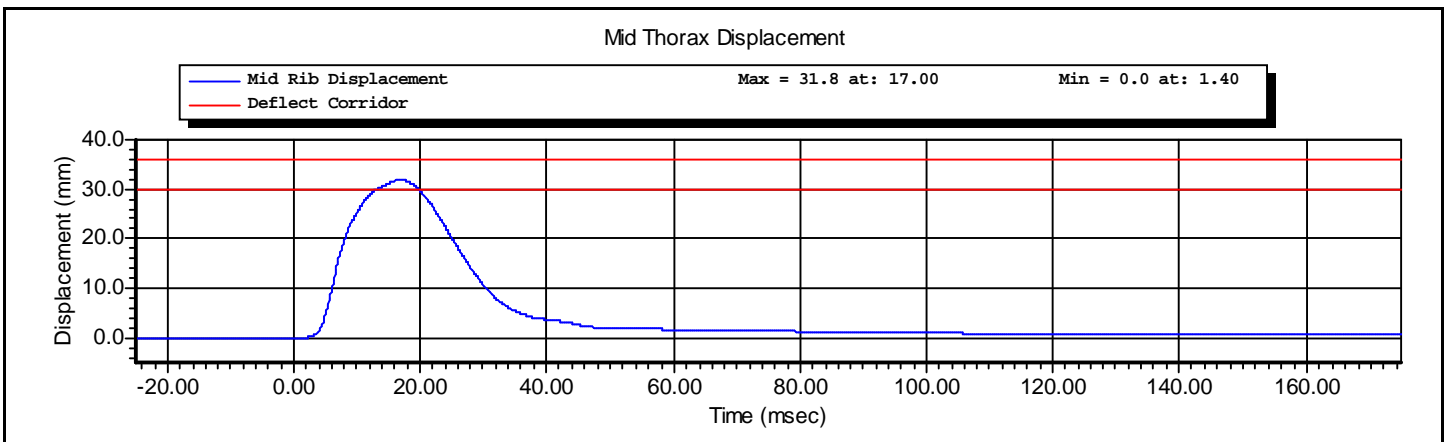
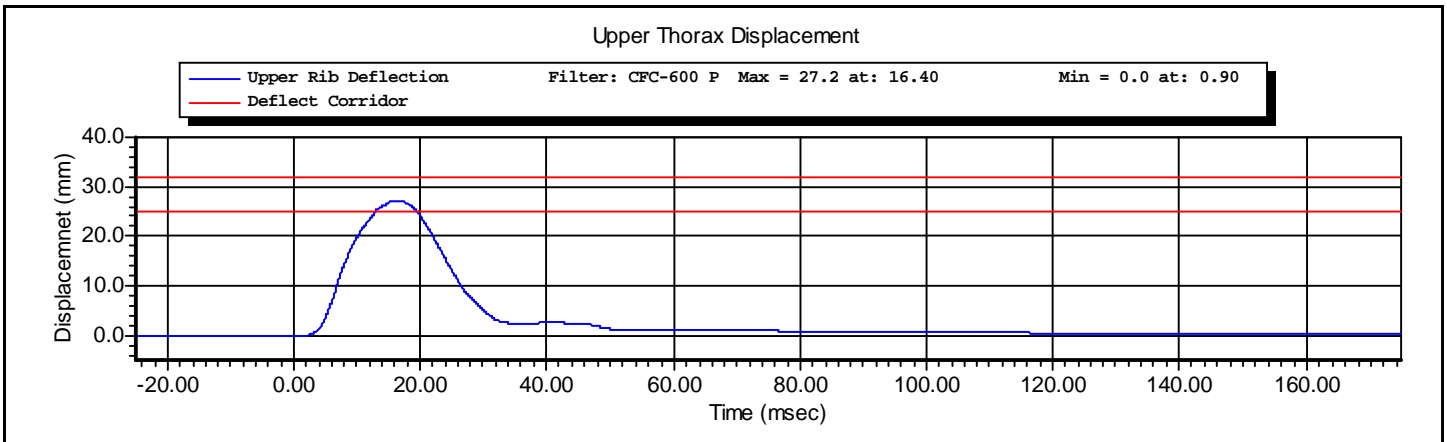
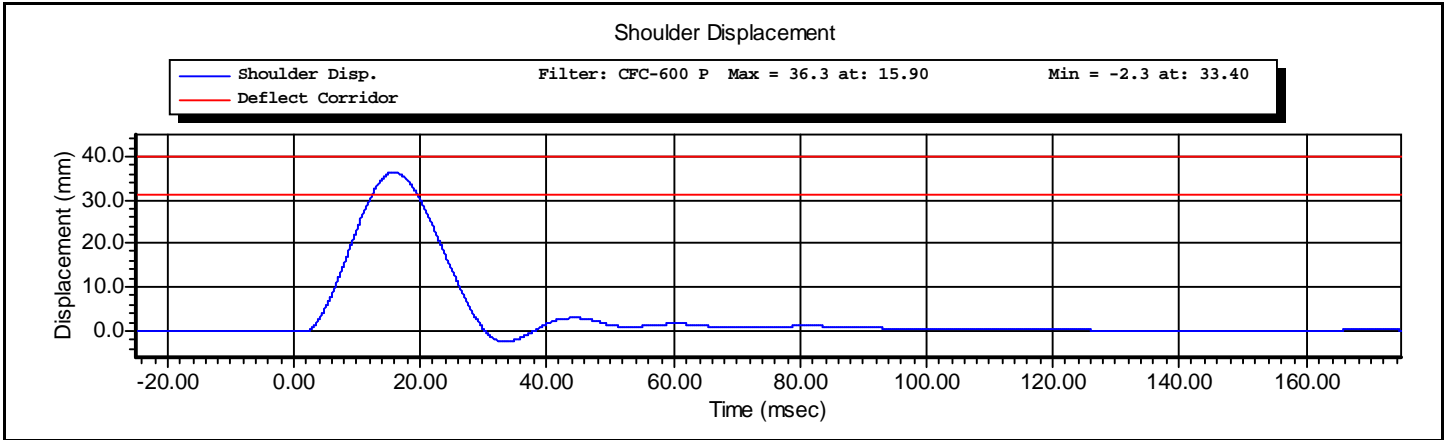
Test ID: **Thorax With Arm**

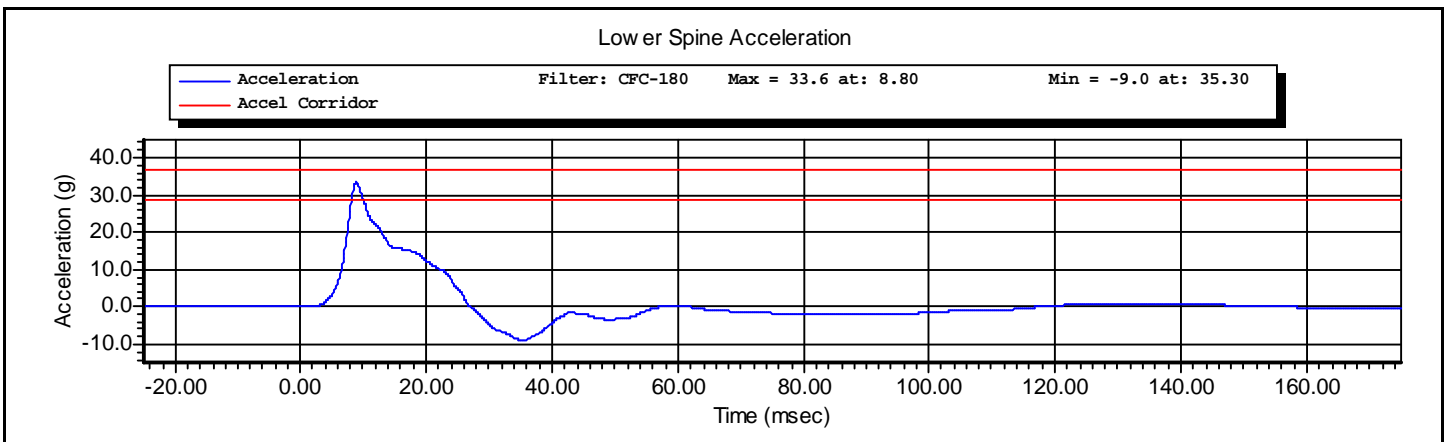
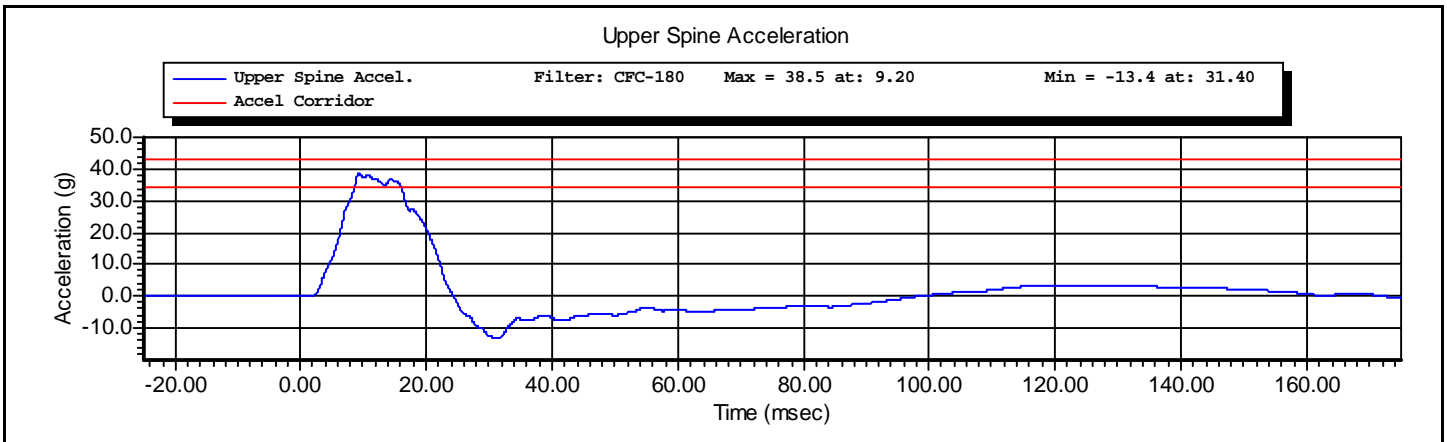
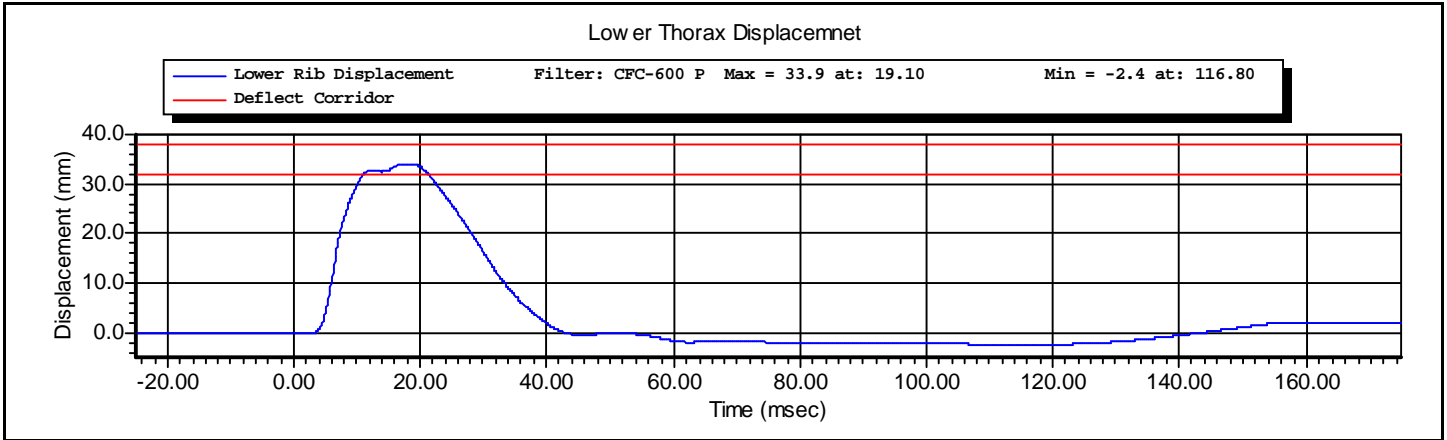
Test Time: **8:34:34 PM**

Test Date: **12/22/2010**

Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Thorax With Arm	Test Date:	12/22/2010
Test Number:	1	Test Time:	8:34:34 PM









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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/22/2010
Test Number:	1	Test Time:	6:05:13 PM

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	28 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Probe Acceleration	12.0 -- 16.0	15.4 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	39.4 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	35.7 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: **6:05:13 PM**

Test Date: **12/22/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

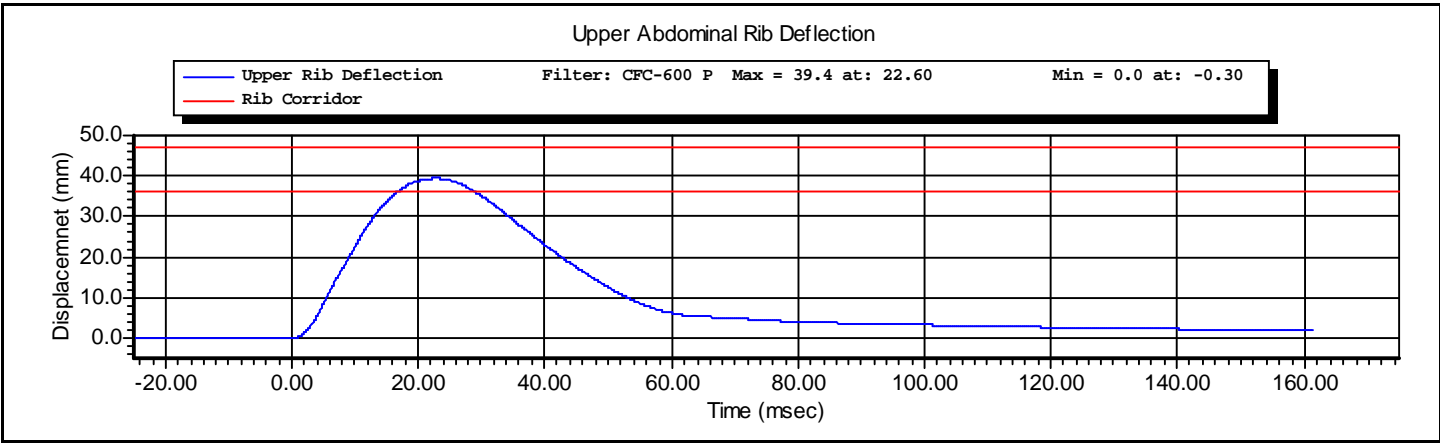
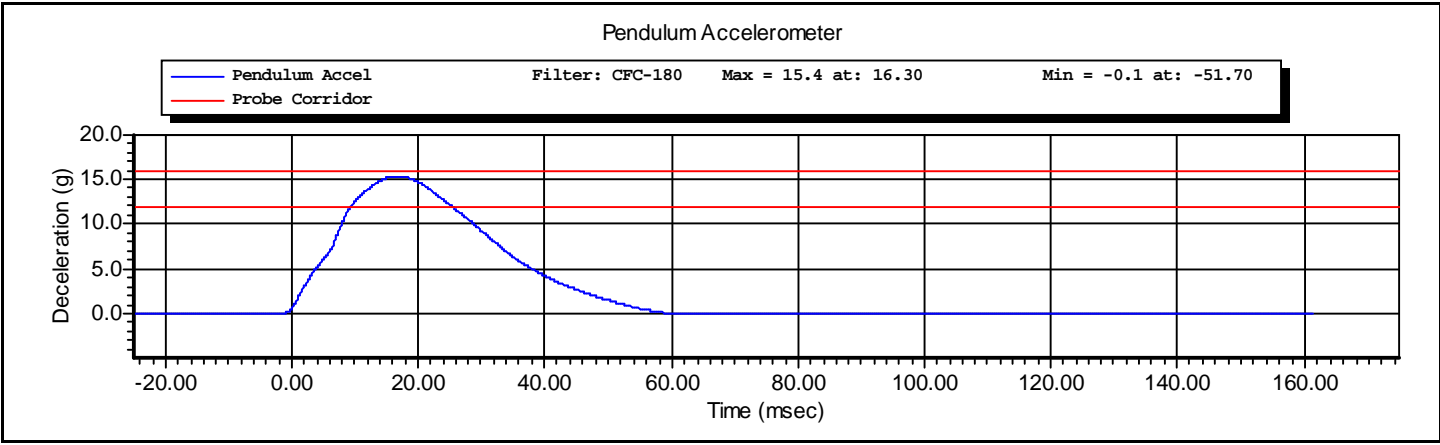
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Servo	180-3885	DS-1162	4/7/2010
Servo	180-3885	DS-1622	9/24/2010
Endevco	7264-2000	P64147	10/8/2010

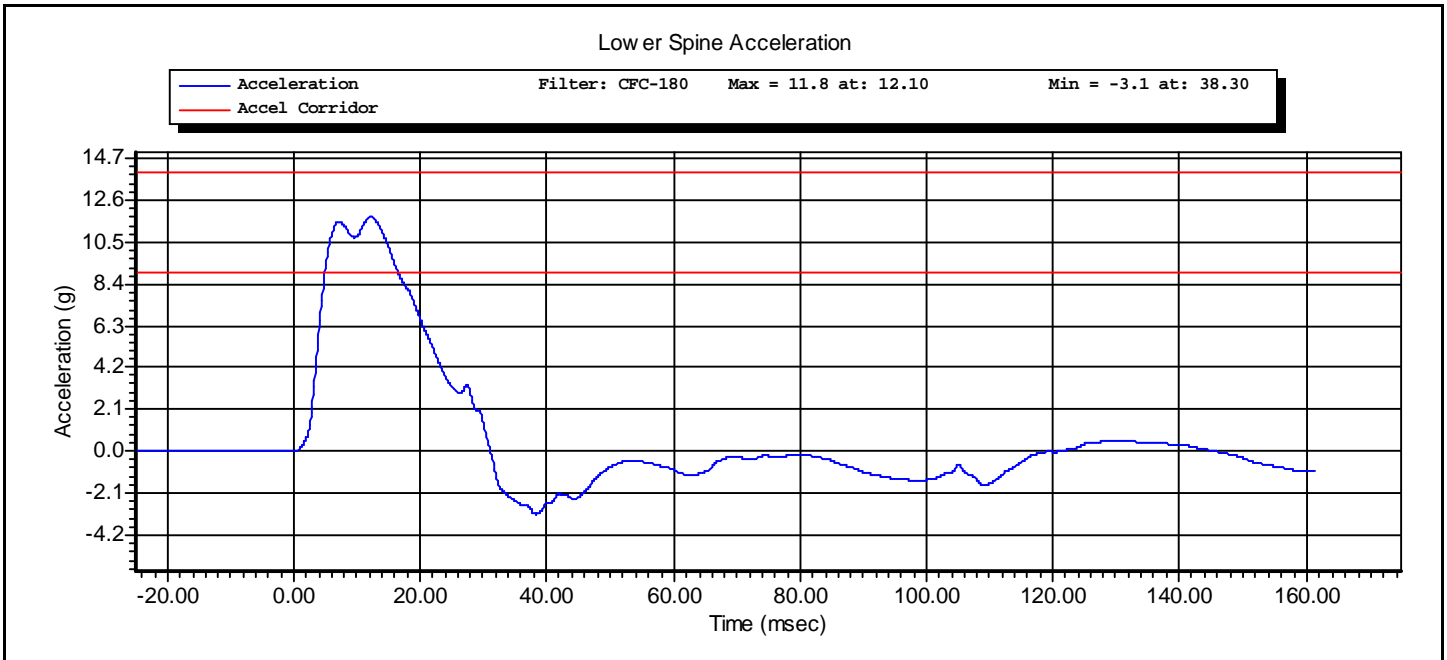
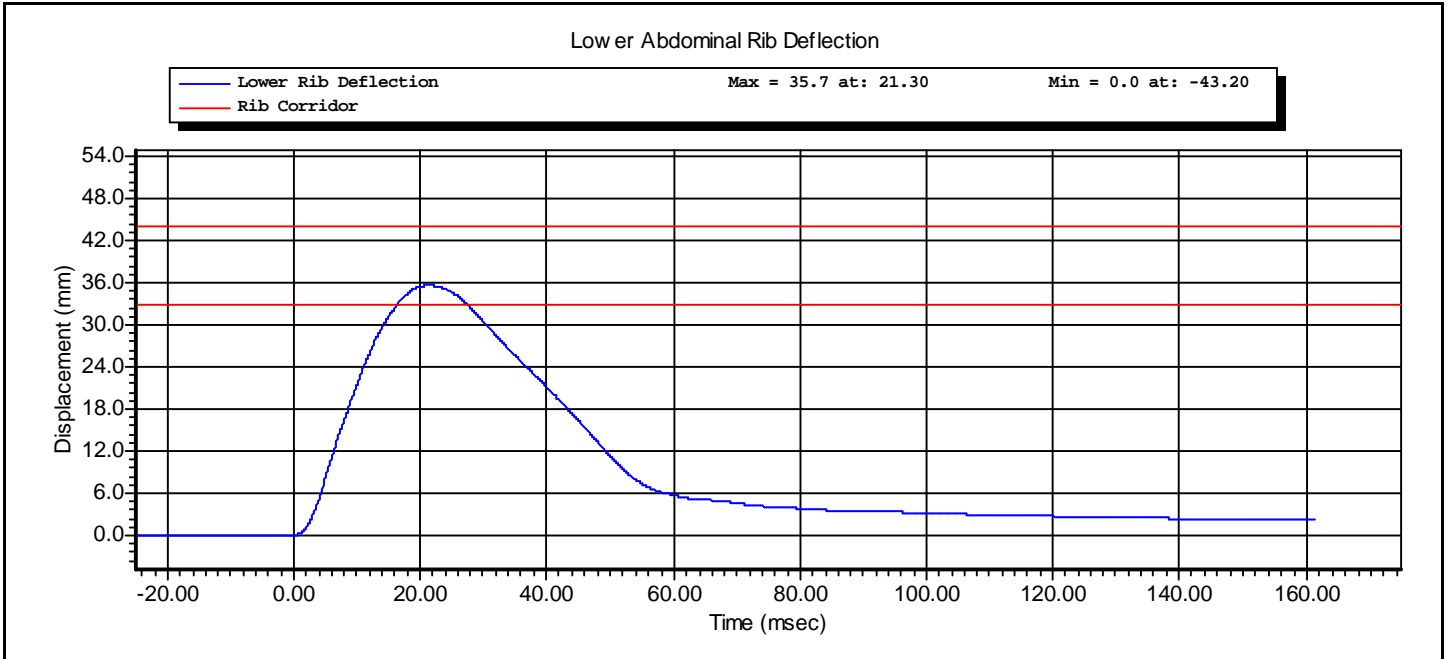
Test ID: **Abdomen**

Test Time: **6:05:13 PM**

Test Date: **12/22/2010**

Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Abdomen	Test Date:	12/22/2010
Test Number:	1	Test Time:	6:05:13 PM







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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: _____

Test ID: **Pelvis Iliac**

Test Time: **9:01:23 AM**

Test Date: **12/23/2010**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

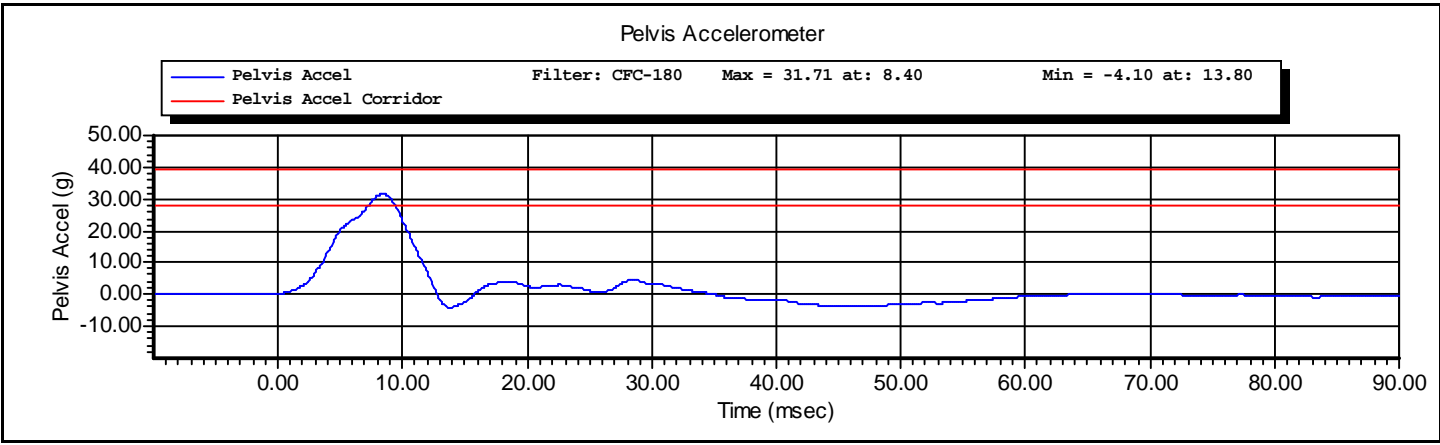
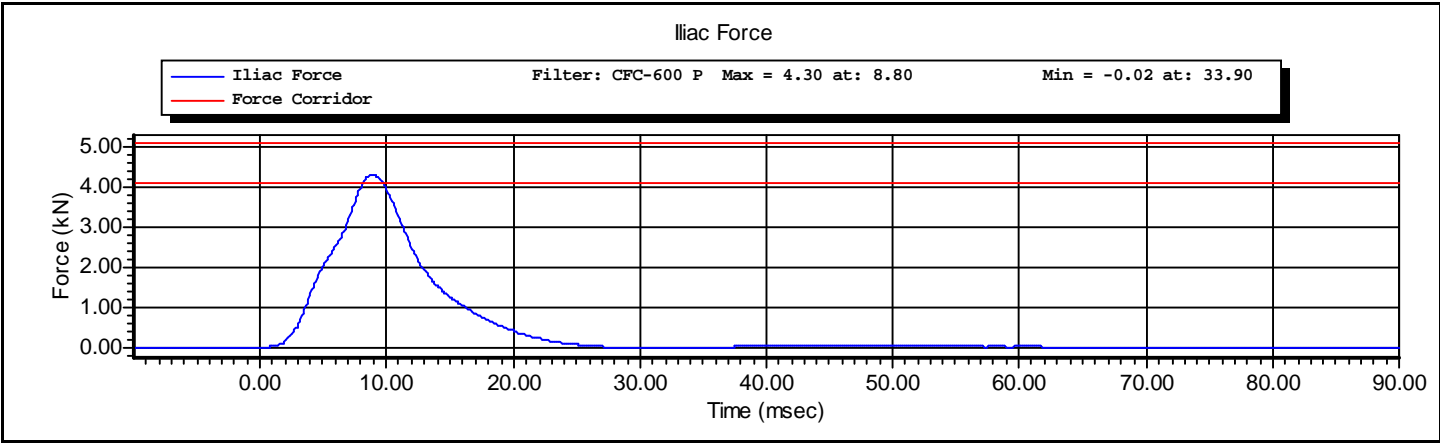
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	12/13/2010
DentonATD	3228J	LC-279 Fy	4/12/2010

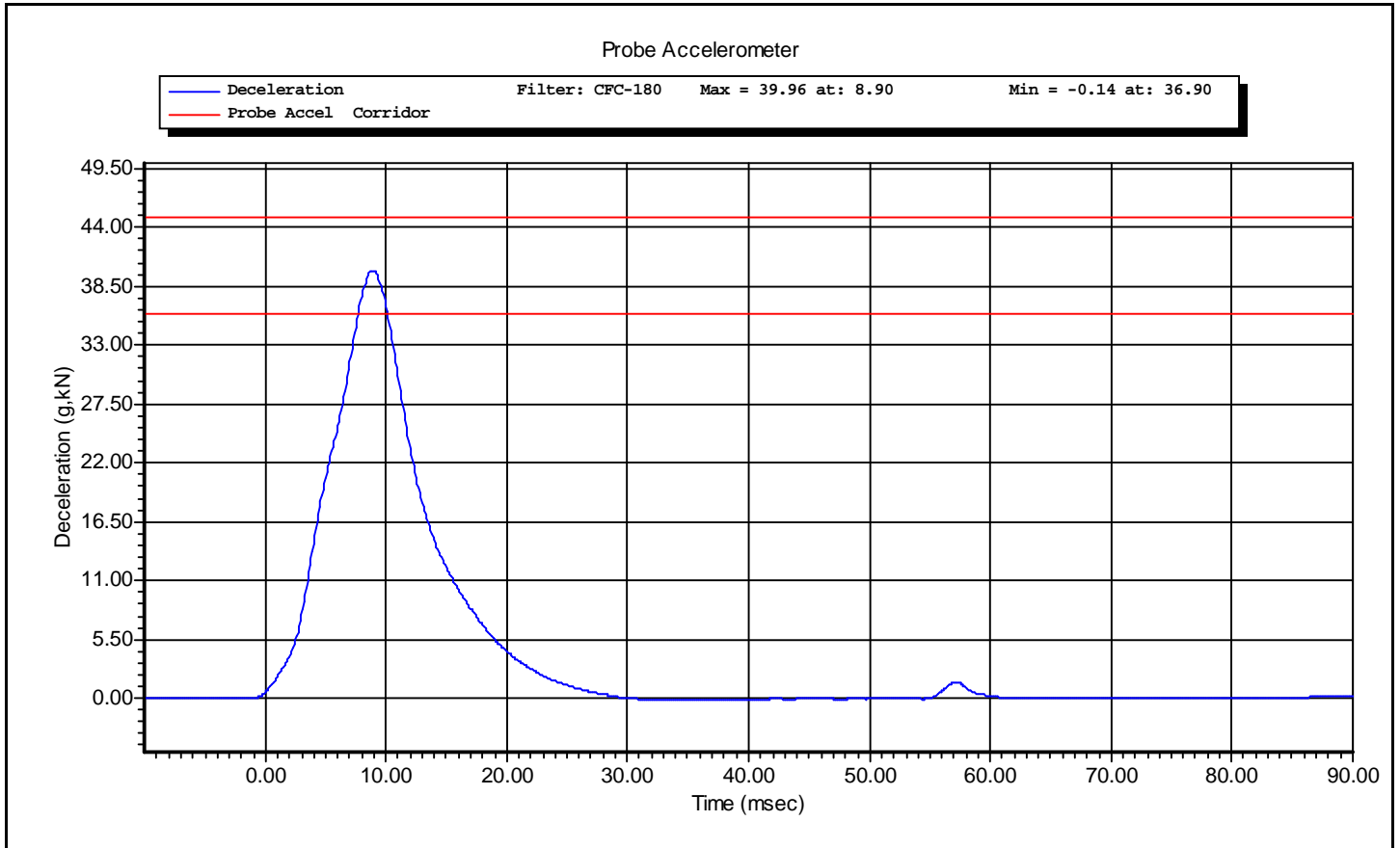
Test ID: **Pelvis Iliac**

Test Time: **9:01:23 AM**

Test Date: **12/23/2010**

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







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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Pelvis Acetabulum	Test Date:	12/22/2010
Test Number:	1	Test Time:	9:05:45 PM

Comments:

Pelvis Flesh SN 1034

Pelvis Plug Used For Certification:
 FTSS S/N 14064
 Force @ 3mm = 1615N

Pelvis Plug Used For Full Scale Test:
 FTSS S/N 12173
 Force @ 3mm = 1614N

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	30 %RH P
Velocity	6.60 -- 6.80	6.62 m/s P
Peak Probe Acceleration	38.0 -- 47.0	45.7 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.9 g P
Peak Acetabulum Force	3.60 -- 4.30	4.02 kN P

All test parameters are within specifications

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

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

Test ID: **Pelvis Acetabulum** Test Time: **9:05:45 PM** Test Date: **12/22/2010**



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VERIFICATION REPORT

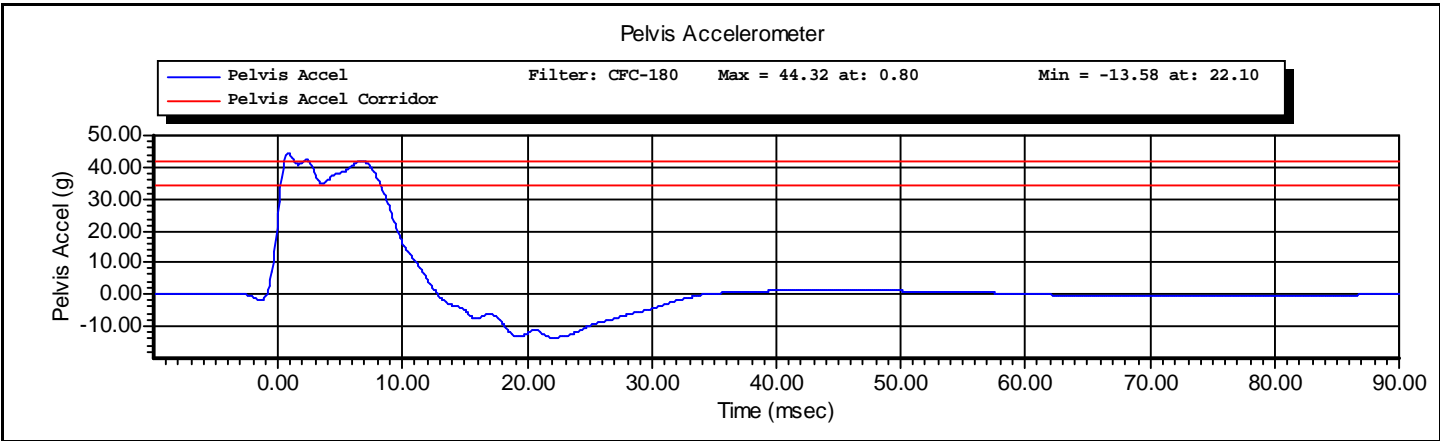
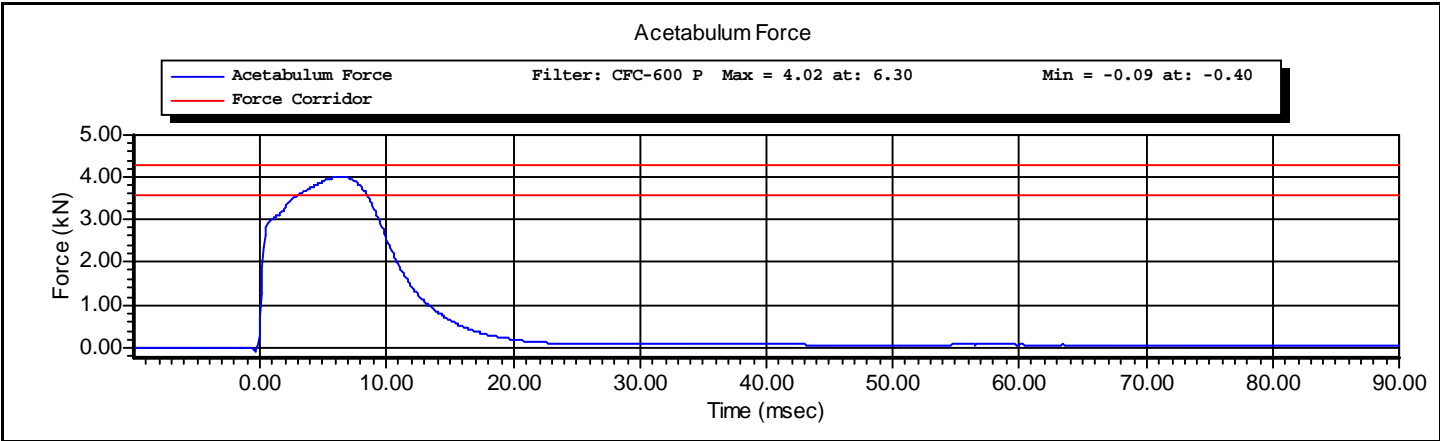
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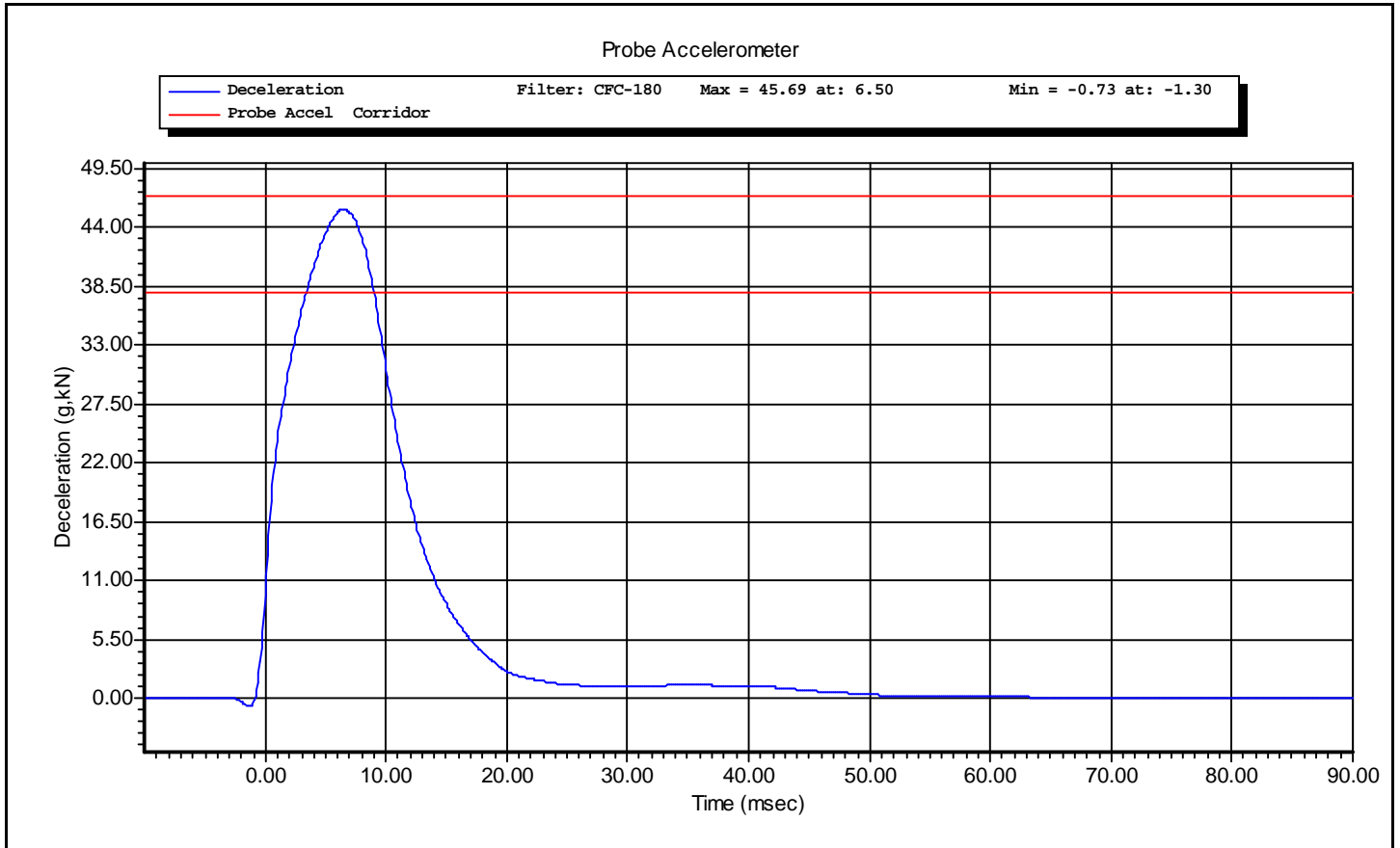
<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
DentonATD	Velocity Trap	1	1/11/2010
Endevco	7264-2000	P66930	10/5/2010
Endevco	7264-2000	P51671	12/13/2010
DentonATD	3249J	LC-275a	4/12/2010
Endevco	7264-2000	P47300	12/13/2010

Test ID: **Pelvis Acetabulum** Test Time: **9:05:45 PM**

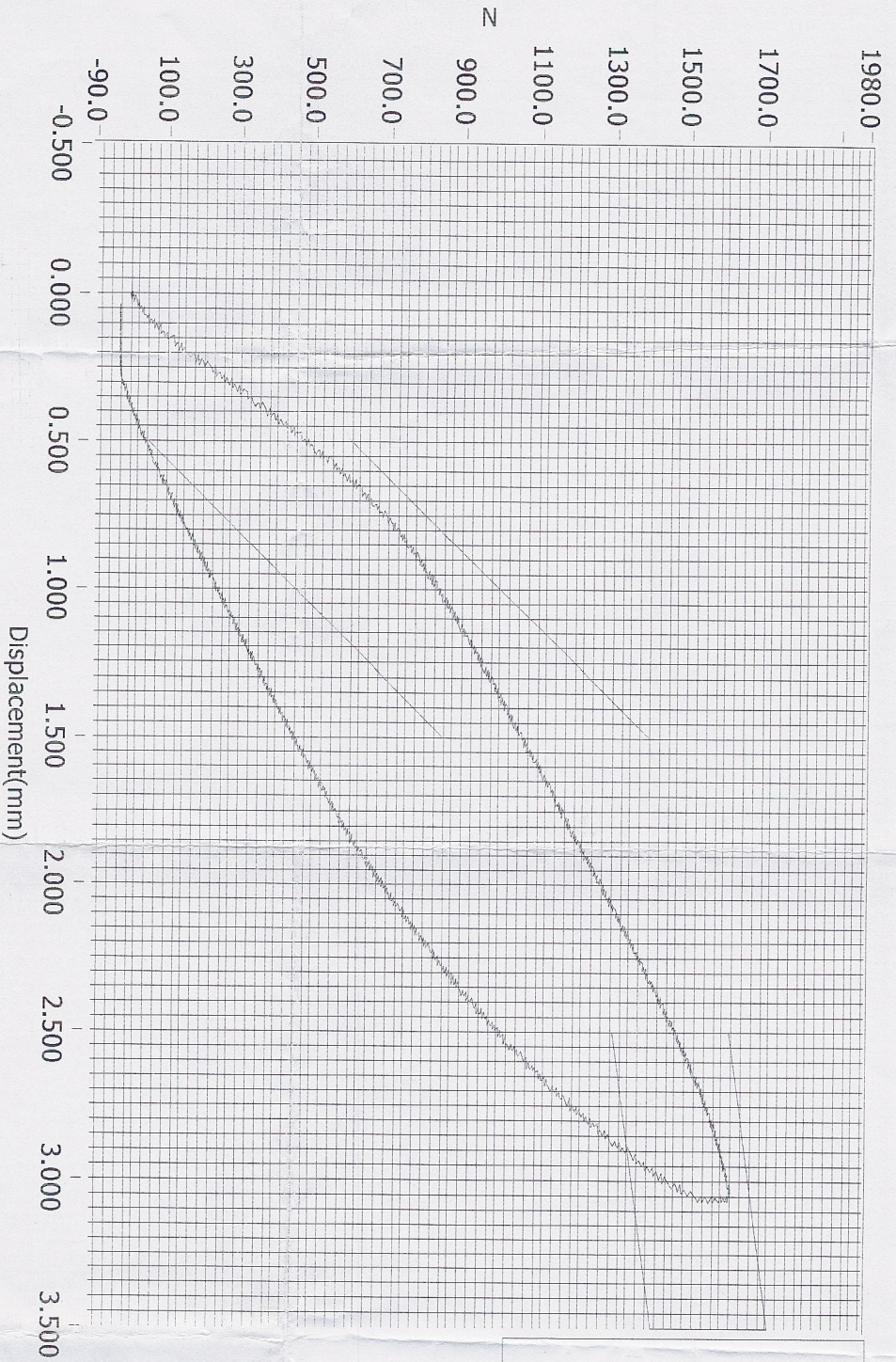
Test Date: **12/22/2010**

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	SID 300		
Test ID:	Pelvis Acetabulum	Test Date:	12/22/2010
Test Number:	1	Test Time:	9:05:45 PM





Resultant Data - SIDIIs Plug Compression

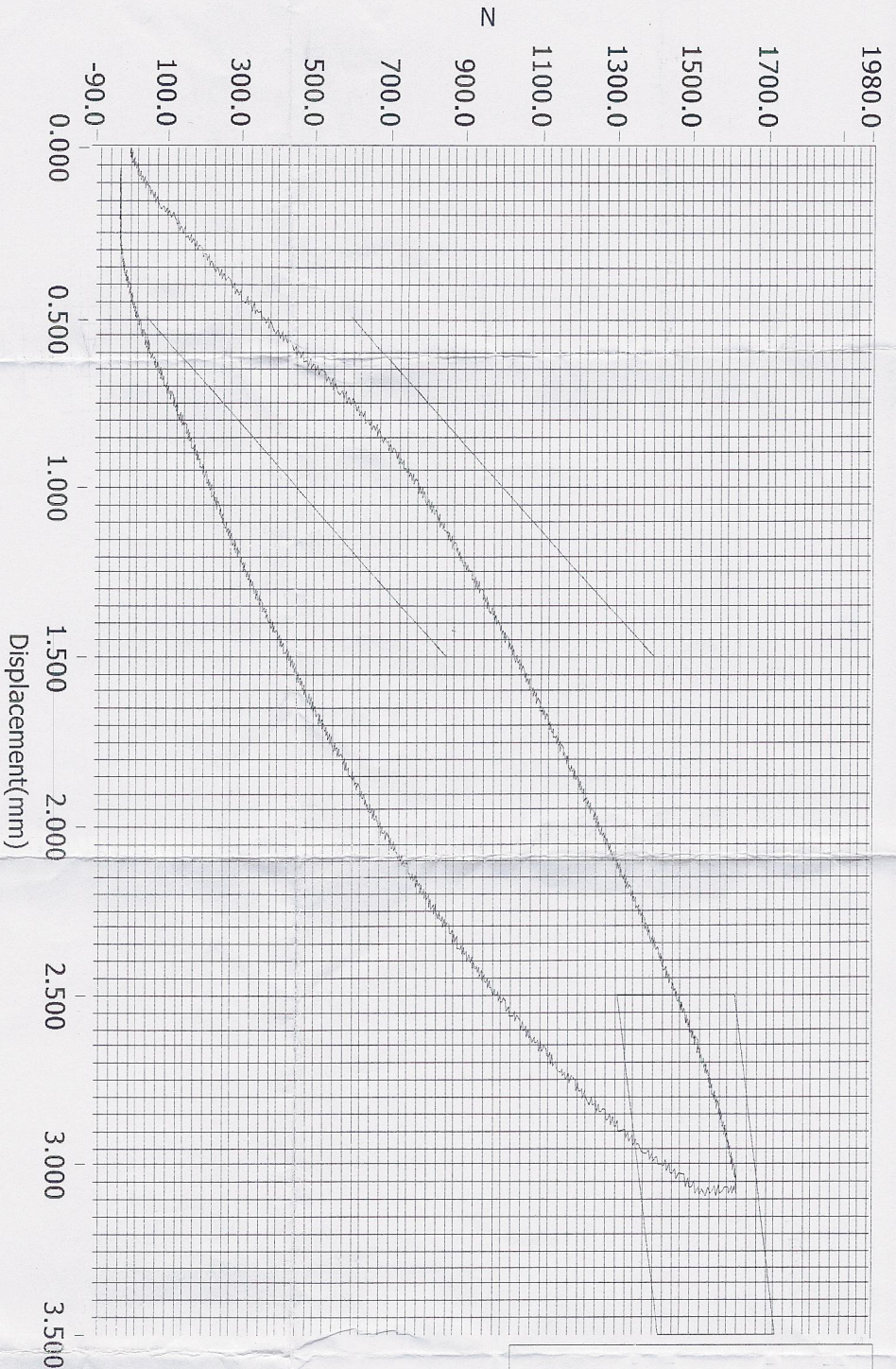


- <> Loading Curve
- <> Boundary Limit Upper
- <> Boundary Limit Lower
- <> Peak Load Upper
- <> Peak Load Lower
- <> Peak Defl Upper
- <> Peak Defl Lower

ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	14064	SIDIIs	
Current Date : 8/30/2007	Current Time : 10:05:53		

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>
<u>Cent ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	12173	SIDIIS	

Current Date : 7/3/2007

Current Time : 13:55:09