

REPORT NUMBER: SINCAP-CAL-12-007

**NEW CAR ASSESSMENT PROGRAM (NCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**Ford Motor Co
2013 Ford Focus
Four Door Sedan**

NHTSA No: MD0213

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



November 12, 2012

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
MAIL CODE: NVS-111
1200 NEW JERSEY AVE SE, ROOM W43-410
WASHINGTON, D.C. 20590**

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Vanessa Walsh, Project Engineer

Date: November 12, 2012

Approved by: *David Travale*
David Travale, Technical Director
Transportation Test Operations

Date: November 12, 2012

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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		6. Performing Organization Code CAL																												
Vanessa Walsh, Project Engineer David J. Travale, Technical Director		8. Performing Organization Report No. CAL-DOT-2013-007																												
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		14. Sponsoring Agency Code NVS-111																												
15. Supplementary Notes																														
16. Abstract A 55/28, (61.90 kph / 38.5 mph), 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2013 Ford Focus four door sedan in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at Calspan Corporation's Transportation Test Operations facility in Buffalo, New York on October 12, 2012. The impact velocity of the Moving Deformable Barrier (MDB) was 62.40 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 6°C. The target vehicle's maximum post-test static crush was 205 mm located at level 3. The test vehicle's occupant performance data is as follows:																														
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<p>* Proposed IARV</p> <p>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.</p>																														
17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave. SE Washington, D.C. 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
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SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00126. The purpose of this test is to generate comparative side impact performance in a 2013 Ford Focus four door sedan.

The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2012.

SECTION 2

SUMMARY OF TEST RESULTS

A 2013 Ford Focus four door sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.40 km/h (38.77 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Calspan Corporation's Transportation Test Operations Center in Buffalo, New York on October 12, 2012. Pretest and post- test photographs of the test vehicle, the MDB and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2012. The side impact event was documented by 9 high-speed and 2 real-time cameras. Camera locations are included in this report.

The Dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen forward, middle, and rear y-axis load cells

Lower spine (T12) tri-axial accelerometers

Public symphysis y-axis load cell

PASSENGER ATD (SID-IIs)

Primary and redundant head CG tri-axial accelerometers

Chest upper rib, middle rib, and lower rib y-axis displacement potentiometers

Abdomen upper rib and lower rib y-axis displacement potentiometers

Lower spine (T12) tri-axial accelerometers

Acetabulum and iliac wing y-axis load cells

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

DUMMY INJURY VALUES

Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC36)		1000	94.98
Maximum Thorax Rib Deflection	mm	44	32.60
Combined Abdominal Force	N	2500	944.83
Pubic Symphysis Force	N	6000	-1906.56

Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC36)		1000	314.07
Lower Spine (T12) Resultant Acceleration	G	82	52.37
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2516.84
Maximum Thoracic Rib Deflection	mm	38*	25.33
Maximum Abdominal Rib Deflection	mm	45*	30.14

*Proposed IARV

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	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 - Torso/Pelvis Airbag	Yes	Yes	No	NA
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	Yes	Yes	No	NA
Other				

GENERAL COMMENTS:

1. P1 serial number - F034
2. P4 serial number - 300

Data Anomalies:

- None

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

This section contains information reporting for the following Data Sheets:

Data Sheet No. 1 - General Test and Vehicle Parameter Data

Data Sheet No. 2 – Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data

Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions

Data Sheet No. 4 – Dummy Lateral Clearance Dimensions

Data Sheet No. 5 – Camera and Instrumentation Data

Data Sheet No. 6 – Test Vehicle Accelerometer Locations

Data Sheet No. 7 – MDB Accelerometer Locations

Data Sheet No. 8 – Post-Test Observations

Data Sheet No. 9 – MDB Summary of Results

Data Sheet No. 10 – Test Vehicle Profile Measurements

Data Sheet No. 11 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 12 – MDB Exterior Static Crush Measurements

Data Sheet No. 13 – FMVSS No. 301 Static Rollover Results

Data Sheet No. 14 – Dummy/Vehicle Temperature and Humidity Stabilization Data

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MD0213
Model Year	2013
Make	Ford
Model	Focus
Body Style	Four Door Sedan
VIN	1FADP3E27DL103760
Body Color	Light gray/silver
Odometer Reading (km/mi)	60 / 37
Engine Displacement (L)	2.0
Type/No. Cylinders	I4
Engine Placement	Transverse
Transmission Type	Manual
Transmission Speeds	5-Speed
Overdrive	No
Final Drive	Front Wheel Drive
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Feature	--
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
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
Driver Seat Belt Pretensioners	Yes
Rear Pass. Seat Belt Pretensioners	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	--

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co
Date of Manufacture	07/12
Vehicle Type	Passenger

GVWR (kg)	1,810
GAWR Front (kg)	940
GAWR Rear (kg)	883

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				375.0	(A)
DSC X 68.04 kg				340.2	(B)
Cargo Weight (RCLW) (kg)				34.8	(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							

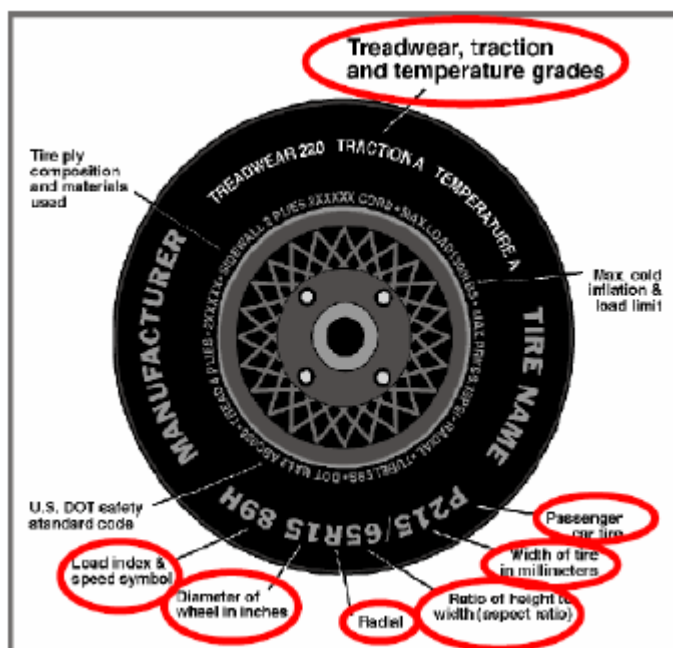
DATA SHEET NO. 1 ... (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

VEHICLE TIRE INFORMATION

Collected for year, make, model, & VIN, all items circled in red, tire manufacturer and tire name.



TIRE SIDEWALL INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Recommended Cold Tire Pressure (kPa)	240	240
Recommended Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Continental	Continental
Tire Model	ContiproContact	ContiproContact
Treadwear	500	500
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	91H	91H
Tire Material	Rubber	Rubber
DOT Safety Code Left	A3AEAXH62212	A3AEAXH62212
DOT Safety Code Right	A3AEAXH62212	A3AEAXH62212

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

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	249	244	234	230
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	240	240	240	240
As Tested	kPa	240	240	240	240

MDB TIRE SPECIFICATIONS

	Units	Requirement	LF	RF	LR	RR
Tire Size		P205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 ± 21	207	207	207	207

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	401.5	263.5		438.5	339.0		444.0	339.5	
Right	kg	384.5	275.0		399.5	314.5		394.5	316.0	
Ratio	%	59	41		56	44		56	44	
Totals	kg	786.0	538.5	1,324.5	838.0	653.5	1,491.5	838.5	655.5	1,494.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1,324.5	(A)
Sum of Actual Weight of 2 P572 ATDS Used	kg	136.8	(B)
Rated Cargo / Luggage Weight (RCLW)	kg	34.8	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1,496.1	(A+B+C)

Does the measured As Test Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to – 9 kg)? Yes No

TEST VEHICLE ATTITUDES AND CG

Measurement Description	Units	Fully Loaded	As Tested	Meets Requirement**
LF	mm	674	676	Yes
RF	mm	685	680	Yes
RR	mm	667	666	Yes
LR	mm	672	667	Yes
Vehicle CG (Aft of Front Axle)	mm	1,161	1,159	
Vehicle CG (Left+)/Right(-) from Longitudinal Centerline)	mm	-38	-33	

*** The "As Tested" vehicle attitude measurements must be equal to or within ± 10mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. Indicate "Yes" or "No" for "Meets Requirements".

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

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Trunk Carpeting	4.0
Spare Tire	11.0
Jack	2.5
Ballast / Equipment Added	0.0

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passengers' seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	17.2	12.2	14.7
Front Passenger Seat	N/A	N/A	N/A
Front Center Seat*	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed

**if applicable*

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid-Fore/Aft	Forward-Most
Driver Seat	14.7	35	Max	51	61	76
			Mid	20	35	48
			Min	0	18	25
Front Passenger Seat	Not Adjustable	Not Adjustable	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Front Center Seat*	N/A	N/A	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Non-Struck Side Rear Seat	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-
Rear Center Seat*	Fixed	Fixed	Max	-	-	-
			Mid	-	-	-
			Min	-	-	-

**if applicable*

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

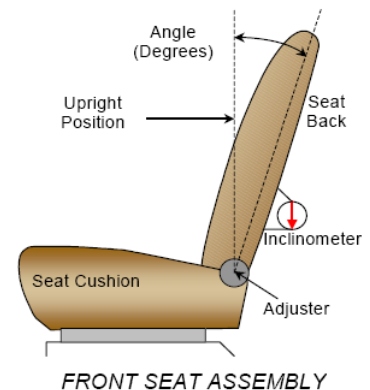
SEAT FORE / AFT POSITION

Seat	Total Fore / Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	250	26	128	13
Front Passenger Seat	250	26	130	13
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

**if applicable*

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/ Seated Dummy	-12.6 to 56.0	N/A	11.6	N/A
Front Passenger Seat	-13.7 to 54.0	N/A	12.0	N/A
Front Center Seat*	N/A	N/A	N/A	N/A
Struck Side Rear Seat w/ Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*	Fixed	Fixed	Fixed	Fixed

**if applicable*

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. For this test zero is defined as the uppermost position.

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

HEAD RESTRAINT ADJUSTMENT

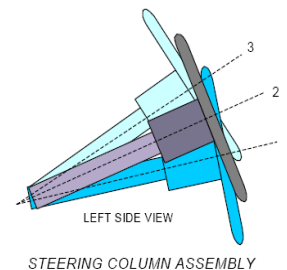
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position. For this test zero is defined as the uppermost position.

	Total # of Positions	Placed in Position #
Driver Seat	3	0
Rear Seat	3	3

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

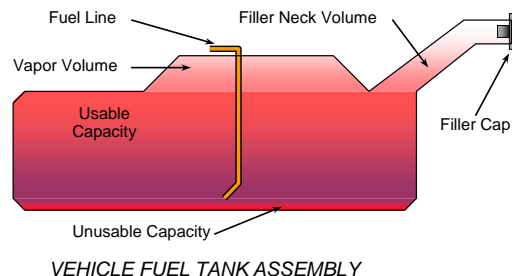
	Degrees	Fore/Aft Position (mm)
Lowermost – Position 1	19.4	0
Geometric Center – Position 2	22.4	21
Uppermost – Position 3	25.5	42
Telescoping Steering Wheel Travel		42
Test Position	22.4	21



FUEL PUMP

Describe the fuel pump type, details about how it operates, and the location of the fuel filler neck.

The vehicle is equipped with an electric fuel pump. The fuel filler neck is on the left side of the vehicle. The pump creates positive pressure in the fuel lines, pushing the gasoline to the engine. See form 1 for more information.



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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

FUEL TANK CAPACITY

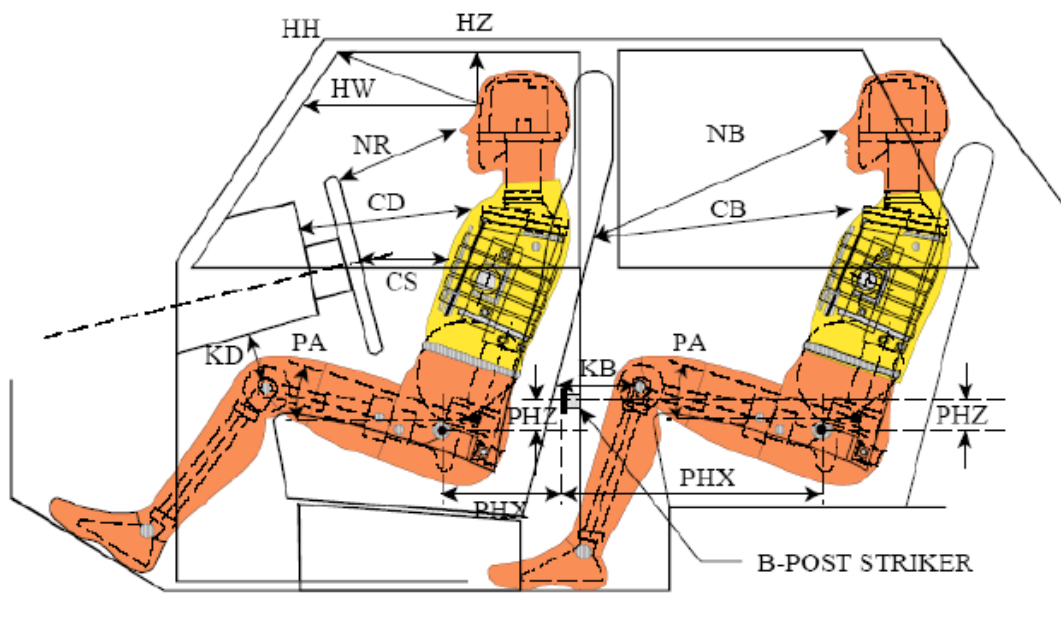
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	46.9
Usable Capacity of "Optional Tank" (see Form No. 1)	N/A
Usable Capacity of Standard Tank (see Owner's Manual)	46.9
Usable Capacity of Optional Tank (see Owner's Manual)	N/A
93% of Usable Capacity	43.7
Actual Amount of Solvent Used in Test	43.5
1/3 of Usable Capacity	15.6

Is the Actual Amount of Solvent Used in the test equal to 93% ± 1% of the Usable Capacity stated in Form No. 1? **Yes** **No**

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
 REAR DUMMY PHX & PHZ
 MEASUREMENTS FOR A 4-DOOR
 VEHICLE WOULD USE THE C-POST
 STRIKER AS A REFERENCE POINT

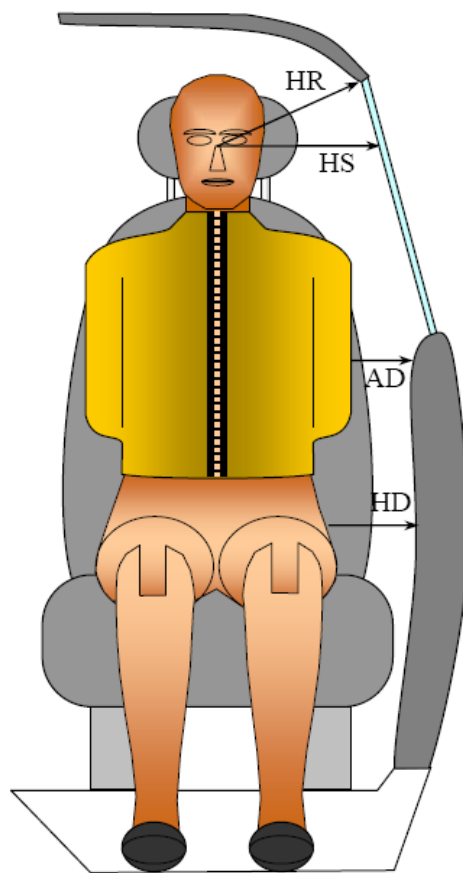
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Description	Driver (Serial No. F034)		Passenger (Serial No. 300)	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	430			
HW		Header to Windshield	720			
HZ	HZ	Head to Roof Liner	154		259	
NR	NB	Nose to Rim/Seat Back	492		467	
CD	CB	Chest to Dash/Seat Back	636		449	
CS		Chest to Steering Wheel	437			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	142	26.8	229	19.8
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	149	30.9	220	21.1
PAX°	PAX°	Pelvic Tilt Angle X		-27.5		21.5
	PAY°	Pelvic Tilt Angle Y				0.3
PHX	PHX	Hip Point to Striker (X-Axis)	176		245	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	112		290	

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012



FRONT VIEW OF DUMMY

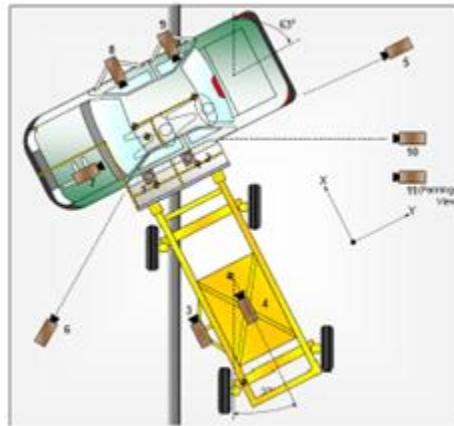
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver (Serial No. F034)	Passenger (Serial No. 300)
HR	Head to Side Header	mm	165	240
HS	Head to Side Window	mm	310	365
AD	Arm to Door	mm	96	139
HD	Hip Point to Door	mm	147	164

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	569	1001	5369	14	1000
2	Overhead Close-up	569	1001	5369	20	1000
3	Left Impact Point (MDB)	-1470	0	-847	12.5	1000
4	Side Overall (MDB)	-1140	0	-847	6.5	1000
5	Rear	-4581	11794	960	50	1000
6	Left Front	2678	1038	973	24	1000
7	Driver Front (OB)				12.5	1000
8	Driver Side (OB)				6.5	1000
9	Passenger Side (OB)				6.5	1000
10	Real-time Left Rear				Zoom	30
11	Real-time Inrun				Zoom	30

Notes: *Reference: Impact Point projected to Ground*
 +X = To Front of MDB, +Y = To Right of MDB, +Z = Down
 *All measurements accurate to ± 6 mm.

If applicable, explain why camera(s) did not operate as intended: All cameras operated normally.

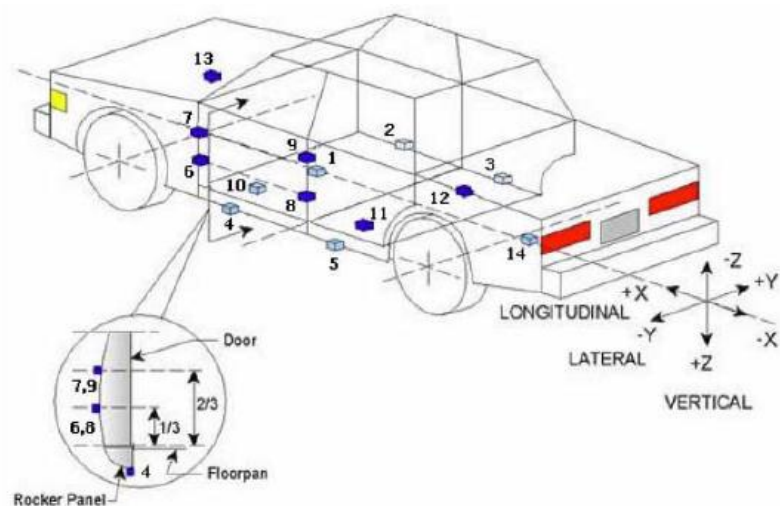
INSTRUMENTATION

Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	7
Total	62

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012



TEST VEHICLE ACCELEROMETER LOCATIONS

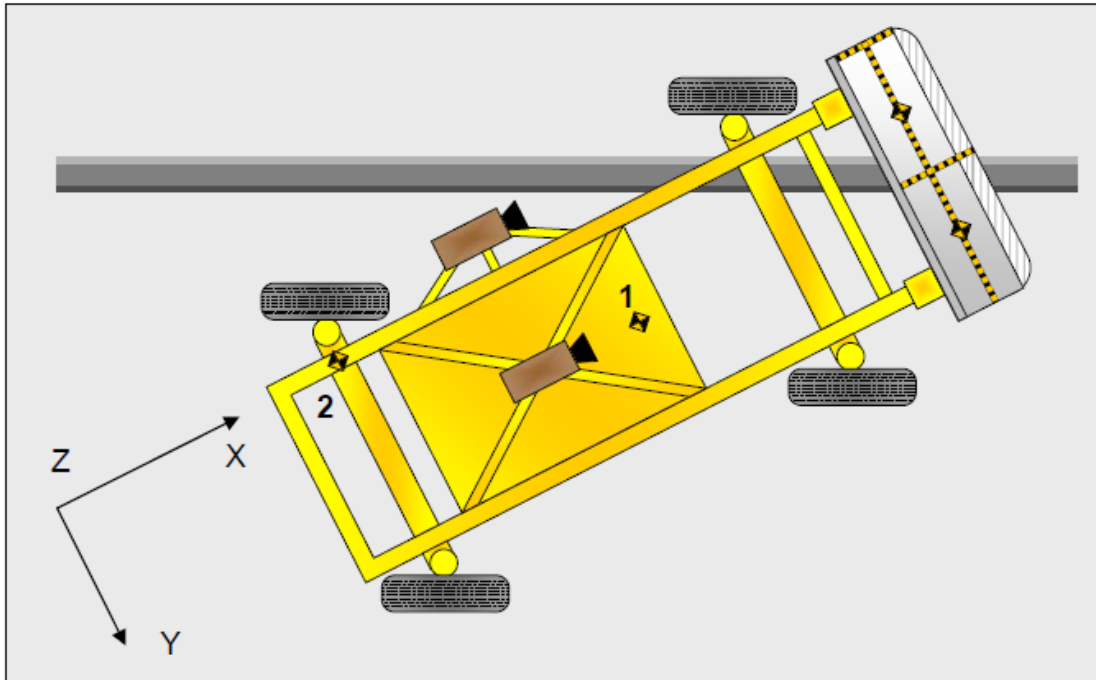
No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2,337	40	-468
2	Right Sill at Front Seat	2,794	666	-277
3	Right Sill at Rear Seat	1,962	657	-288
4	Left Sill at Front Door	2,774	-634	-253
5	Left Sill at Rear Door	1,927	-632	-264
6	A-Post Lower	3,071	-641	-339
7	A-Post Middle	3,083	-644	-978
8	B-Post Lower	2,138	-683	-518
9	B-Post Middle	2,109	-689	-762
10	Front Seat Track	2,233	-543	-271
11	Rear Seat Structure	1,091	-533	-575
12	Rt. Rear Occ. Compartment	2,075	397	-197
13	Engine Block	3,881	148	-751
14	Rear Above Axle	1,194	-82	-512

Reference: X – Rear surface of vehicle (+ forward)
Y – Vehicle centerline (+ to right)
Z – Ground plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012



MDB ACCELEROMETER LOCATIONS

No.	Accelerometer Location	Coordinates (mm)		
		X	Y	Z
1	MDB CG	1859	0	-330
2	MDB Rear	386	-660	-660

Reference: X – Face of MDB (+ forward)
Y – MDB centerline (+ to right)
Z – Ground plane (+ down)

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

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	None	Curtain Airbag
Top of Head	Side Header	Side Header
Left Side of Head	Curtain Airbag & Side Header	Curtain Airbag
Back of Head	Headrest	Rear Center Seat Headrest
Left Shoulder	Torso/Pelvis & Curtain Airbag	Passenger Side Door
Upper Torso	Torso/Pelvis and Seat Back	Passenger Side Door
Lower Torso	Seat Back	Passenger Side Door
Left Hip	Torso/Pelvis Airbag & Seat Back	Passenger Side Door & Seat Pan
Left Knee	Driver's Door	Passenger Side Door

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch/Other
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	0	0	0	0	0
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Width of Opening at Striker (mm)	NA	NA	NA	NA	NA

POST-TEST SEAT PERFORMANCE

Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Remained structurally attached
Sill Separation	No separation
Windshield Damage	Cracked along the Driver's A-Pillar
Side Window Damage	Driver and Passenger window shattered during impact event
Other Notable Effects	None

**DATA SHEET NO. 8 ... (CONTINUED)
POST-TEST OBSERVATIONS**

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Airbag 1 - Curtain	Yes	Yes	Yes	Yes
Side Airbag 2 - Torso/Pelvis Airbag	Yes	Yes	No	NA
Seat Belt Pretensioner	Yes	NA	No	NA
Seat Belt Load Limiter	Yes	NA	No	NA
Other				

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2646
Vertical Impact Reference Line (Aft of Front Axle - Intended Impact Point)	mm		382
Actual Impact Point (Aft of Frontal Axle)	mm		389
Horizontal Offset (+ forward / - rearward)	mm	+/- 50 of Intended Impact Point	-7
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	7

**DATA SHEET NO. 9
MDB SUMMARY OF RESULTS**

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1,250
Overall Length Including Honeycomb Frame	4,120
Wheelbase of Framework Carriage	2,600
CG Location of Front Axle	1,120

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	392.5	297.5	690.0
Right	kg	386.0	291.5	677.5
Ratio	%	57.4%	42.6%	100.0%
Totals	kg	778.5	589.0	1367.5

SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.40
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.35
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.5
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed angle to MDB Forward Line of Motion	degrees	26.0 to 28.0	27.0

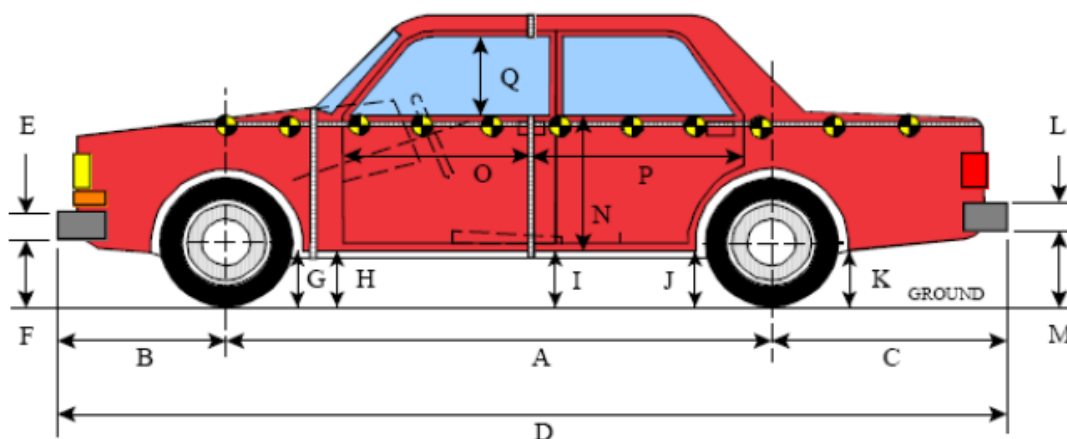
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	168
B	Top of Bumper	533	700	Right	133
C	Mid-Level	686	800	Left	129
D	Top of Stack	813	800	Left	119

**DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012



LEFT SIDE VIEW

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

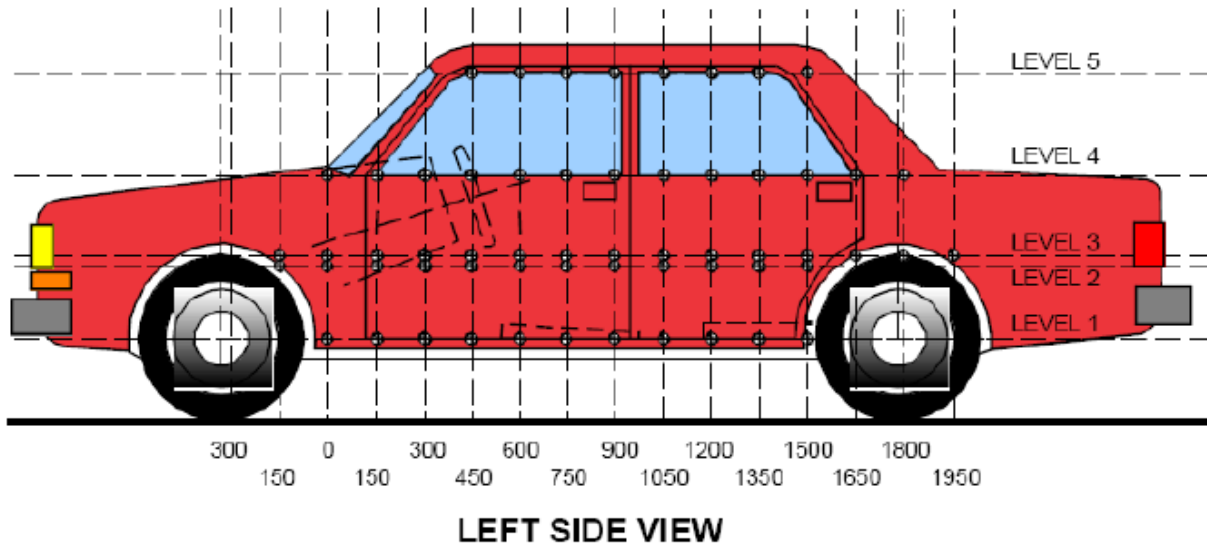
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2,646	2,640	-6
B	Front Axle to FSOV	893	892	-1
C	Rear Axle to RSOV	987	992	5
D	Total Length at Centerline	4,531	4,524	-4
E	Front Bumper Thickness	125	125	0
F	Front Bumper Bottom to Ground	417	422	5
G	Sill Height at Front Wheel Well	145	153	8
H	Sill Height at Front Door Leading Edge	143	145	2
I	Sill Height at B Pillar	146	151	5
J1	Sill Height at Rear Wheel Well	148	155	7
J2	Pinch Weld Height at Rear Wheel Well	143	146	3
K	Sill Height Aft of Rear Wheel Well	203	207	4
L	Rear Bumper Thickness	135	135	0
M	Rear Bumper Bottom to Ground	457	454	-3
N	Sill Height to Window Bottom of Front Window Sill	696	675	-21
O	Front Door Leading Edge to Impact CL	763	746	-17
P	Rear Door Trailing Edge to Impact CL	1,135	1,099	-36
Q	Front Window Opening	401	433	32
R	Right Side Length	4,396	4,392	-4
S	Left Side Length	4,391	4,371	-20
T	Maximum Vehicle Width	1,779	1,629	-151

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012



MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Units	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	mm	314	147	1500
2	Driver Hip Point	mm	517	200	900
3	Mid-Door	mm	613	205	900
4	Window Sill	mm	848	166	1650
5	Window Top	mm	1,373	10	1200

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. 11 ... (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450				742					743					-1	
-300				776					774					2	
-150			905	796				883	791				22	5	
0	874	894	894	814		852	861	860	806		22	33	34	8	
150	869	886	886	829		749	759	800	814		120	127	86	15	
300	865	887	889	840		726	738	772	782		139	149	117	58	
450	859	888	891	849		718	745	745	787		141	143	146	62	
600	856	889	893	858		714	742	729	787		142	147	164	71	
750	854	889	894	864	424	711	720	713	785	420	143	169	181	79	4
900	854	888	893	867	581	712	688	688	782	577	142	200	205	85	4
1050	855	886	892	873	604	712	700	720	789	595	143	186	172	84	9
1200	853	882	888	873	607	707	728	722	781	597	146	154	166	92	10
1350	854	878	885	873	608	708	725	702	760	599	146	153	183	113	9
1500	852	874	882	872	606	705	717	689	736	599	147	157	193	136	7
1650	848	869	876	869	601	702	700	685	703	595	146	169	191	166	6
1800	844	867	871	869	587	754	694	719	750	582	90	173	152	119	5
1950		875	880	861	541		796	778	789	536		79	102	72	5
2100				853					813					40	
2250				847					813					34	
2400				840					824					16	
2550				829					825					4	
2700				813					812					1	
2850				787					790					-3	
3000															

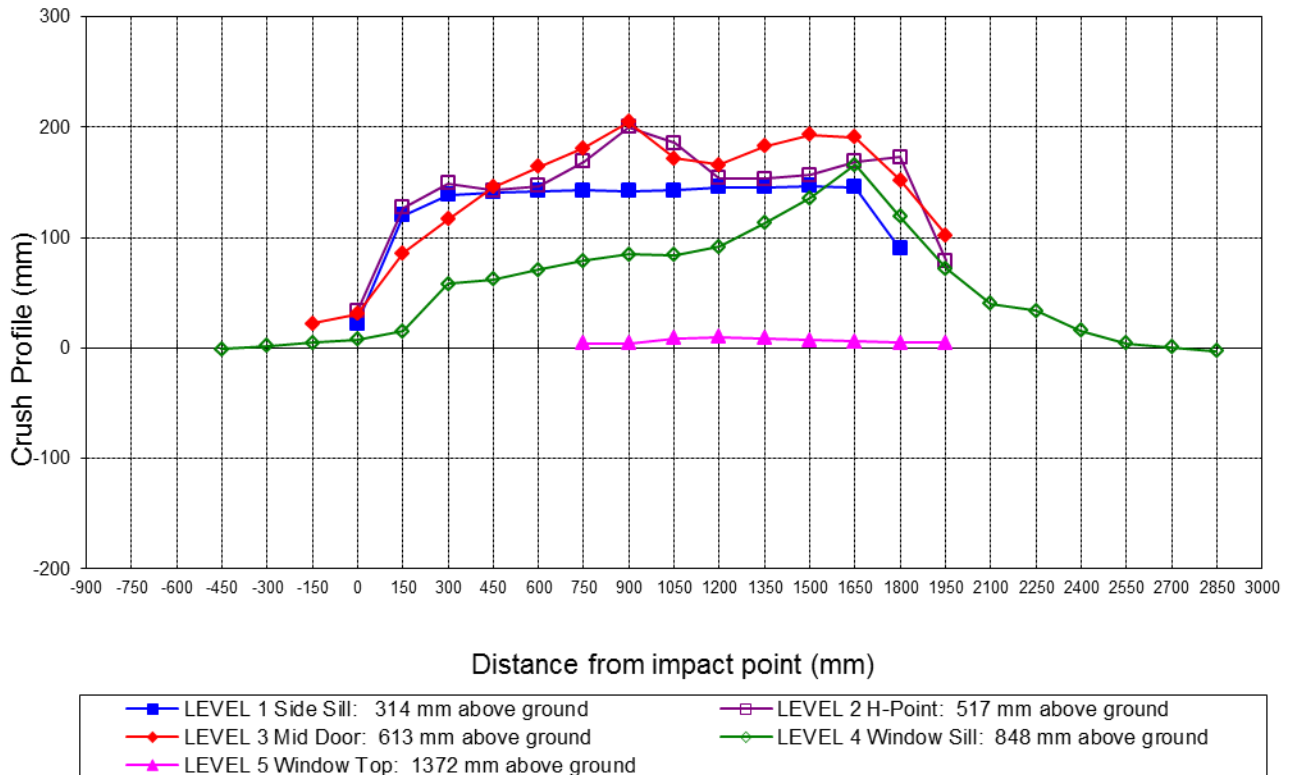
NOTE: Pre-test measurements are taken when the vehicle is in the "As Tested" weight condition.
 Vehicle measurements forward of the vertical impact reference line are negative.
 The crush profile grid is established prior to test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012

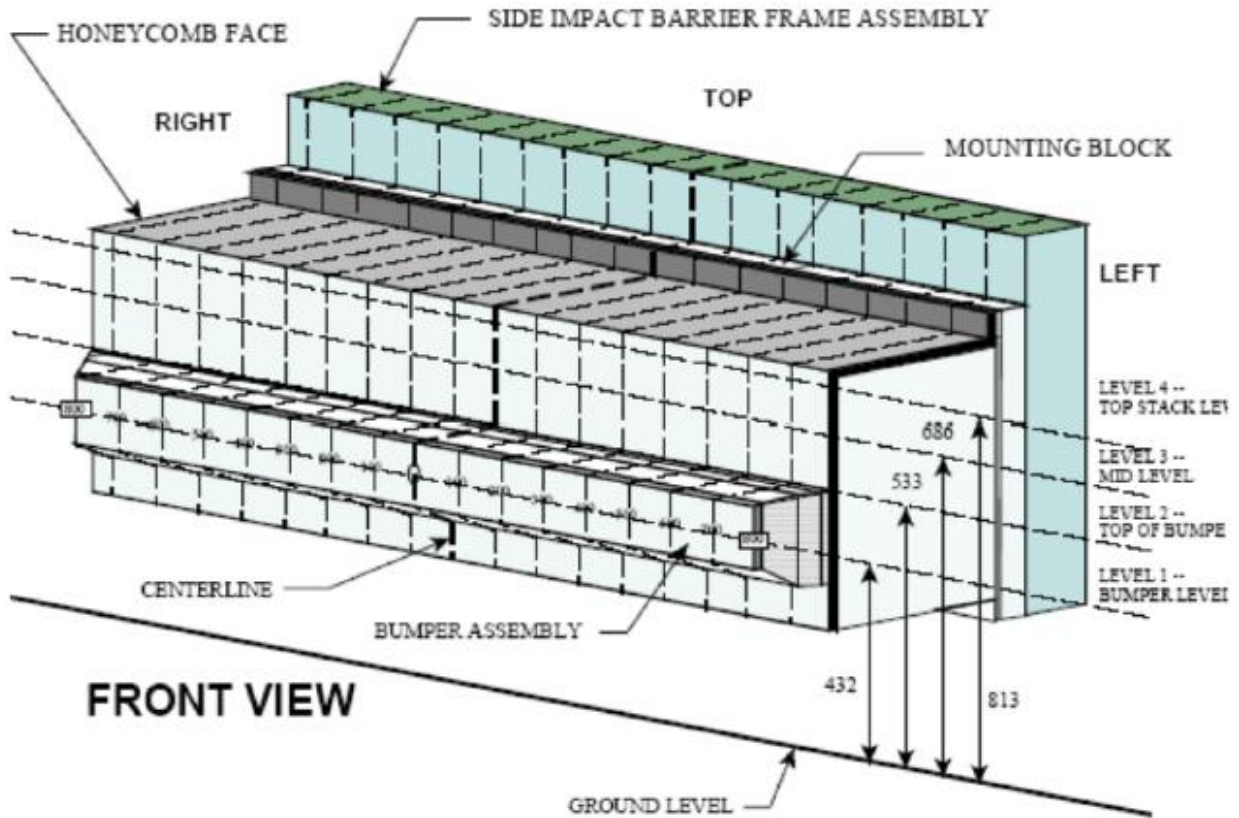
Vehicle Exterior Crush Measurements - Visual Representation



**DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS**

Test Vehicle: 2013 Ford Focus four door sedan
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
 Test Date: 10/12/2012



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center								C/L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	157	158	152	146	144	145	141	139	138	136	136	135	134	134	135	148	168
2	133	133	132	129	121	115	102	103	114	113	115	115	115	116	116	118	124
3	77	40	20	22	27	37	46	52	28	20	20	23	29	41	65	90	129
4	54	21	5	9	19	31	46	41	39	39	39	39	44	52	60	77	119

**DATA SHEET NO. 13
FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle:	<u>2013 Ford Focus four door sedan</u>	NHTSA No.:	<u>MD0213</u>
Test Program:	<u>NCAP Side MDB Impact Test</u>	Test Date:	<u>10/12/2012</u>
Test Time:	<u>2:18 PM</u>	Temperature:	<u>6 ° C</u>

- | | | |
|---|-----------------------------|-----|
| A. From impact until vehicle motion ceases:
(Maximum allowable is 1 oz.) | <u>0</u> | oz. |
| B. For the 5-minute period after motion ceases:
(Maximum allowable is 5 oz.) | <u>0</u> | oz. |
| C. For the following 25 minutes:
(Maximum allowable is 1 oz./minute) | <u>0</u> | oz. |
| D. Spillage Details: | <u>No Spillage Occurred</u> | |

FMVSS NO. 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	71	300	371
90° to 180°	62	300	362
180° to 270°	61	300	361
270° to 360°	72	300	372

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE

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

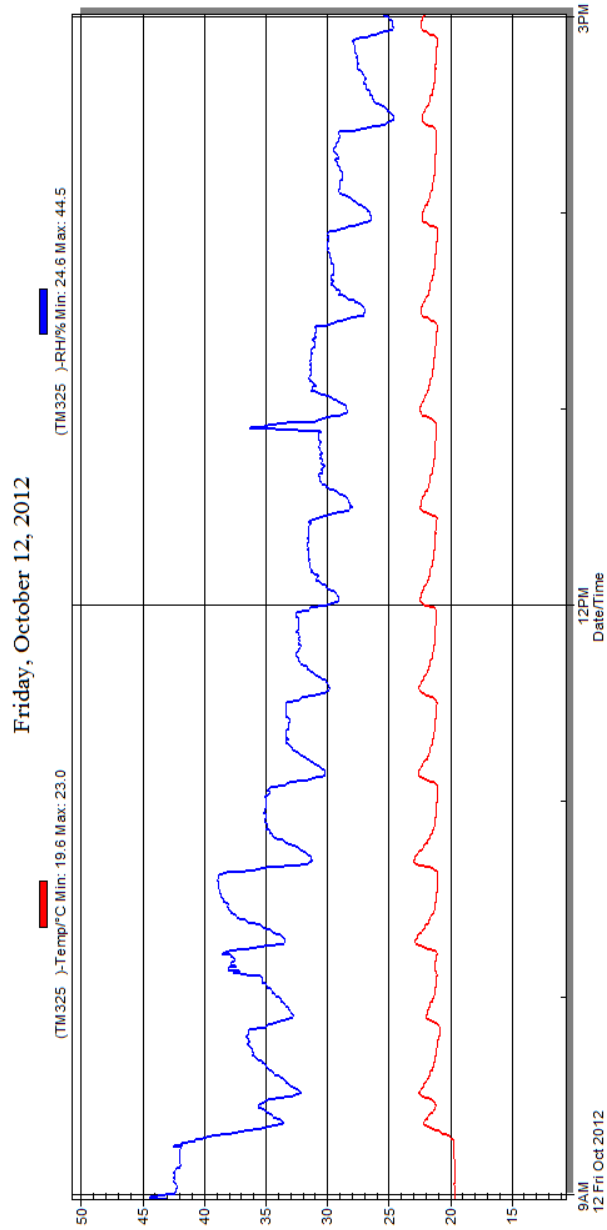
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 14
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2013 Ford Focus four door sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No.: MD0213
Test Date: 10/12/2012



Temperature and Humidity Stabilization Chart/Data for Dummies and Test Vehicle

APPENDIX A
PHOTOGRAPHS

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



Figure A-2: As-Delivered Left Rear 3/4 View of Test 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 Front ¾ View of Test Vehicle

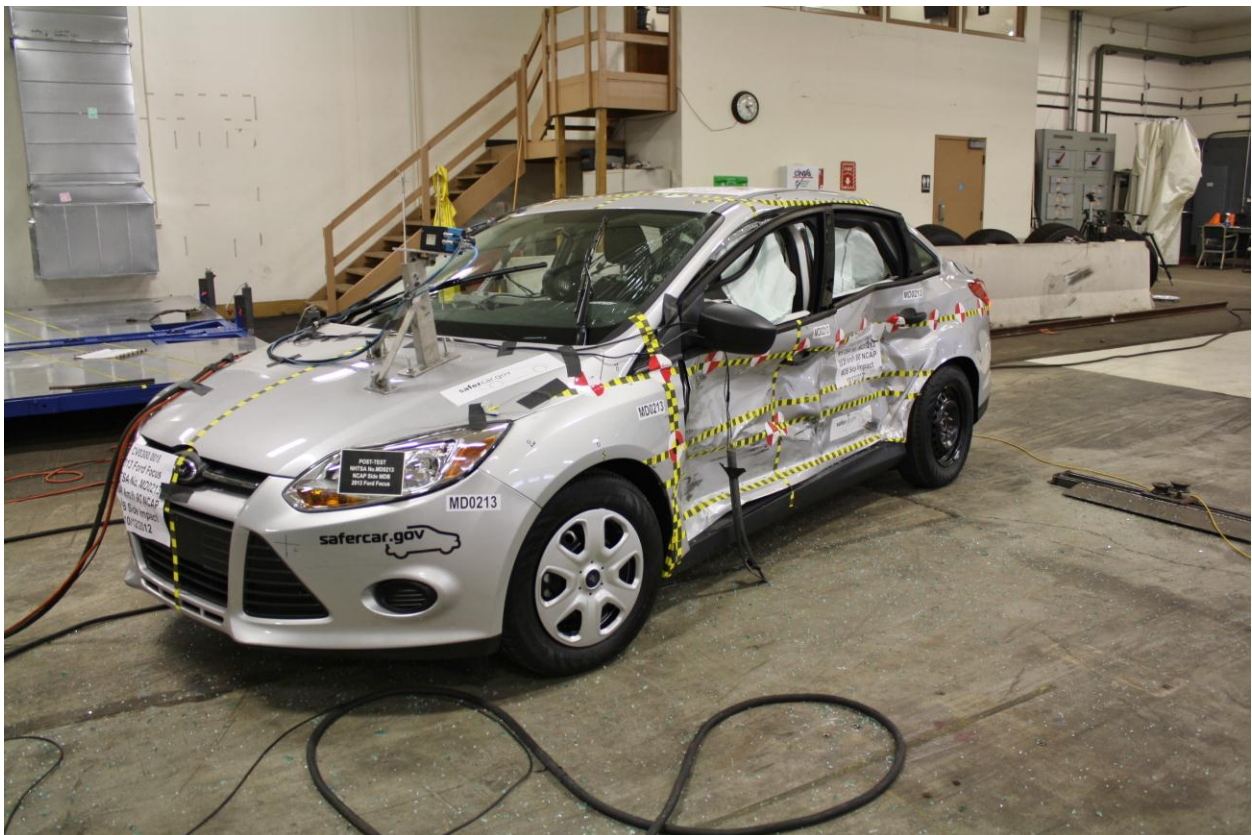


Figure A-6: Post-Test Left Front ¾ View of Test Vehicle



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 Side View of Test Vehicle

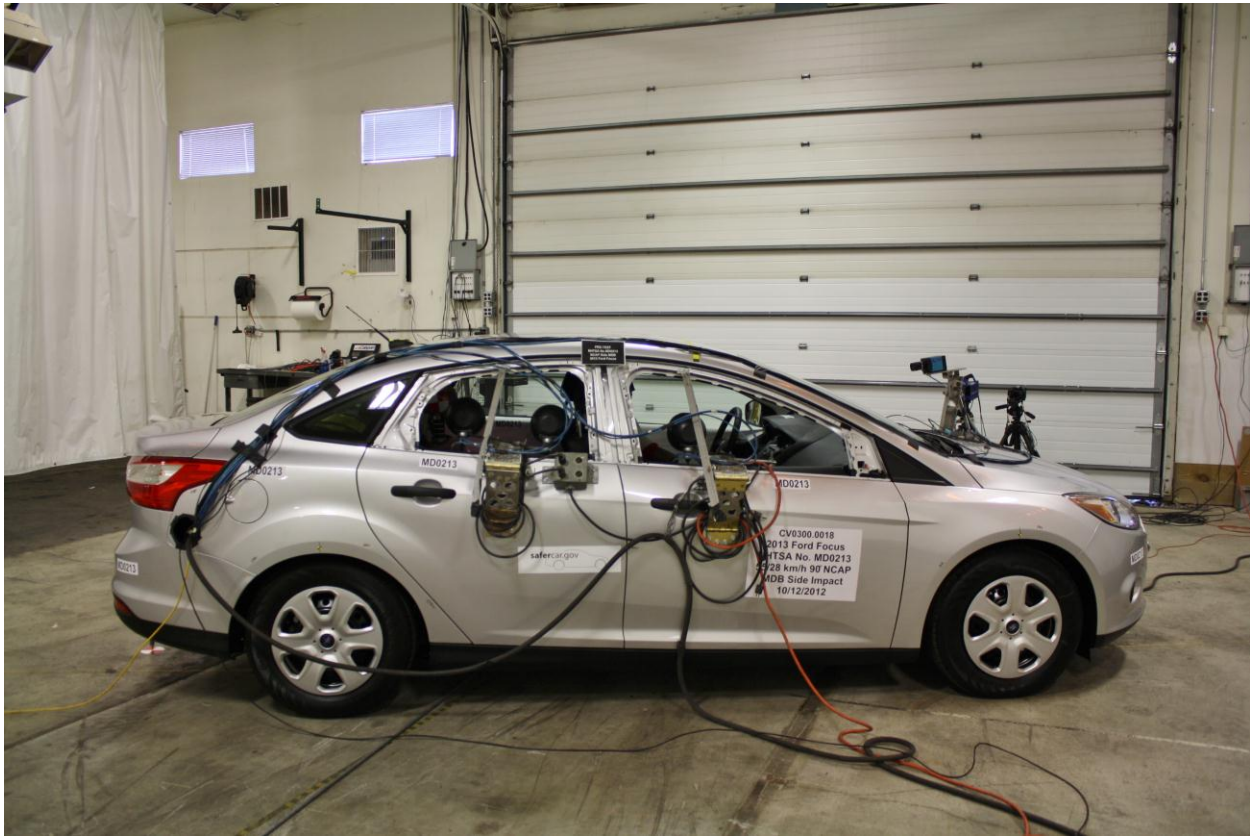


Figure A-13: Pre-Test Right Side View of Test Vehicle



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

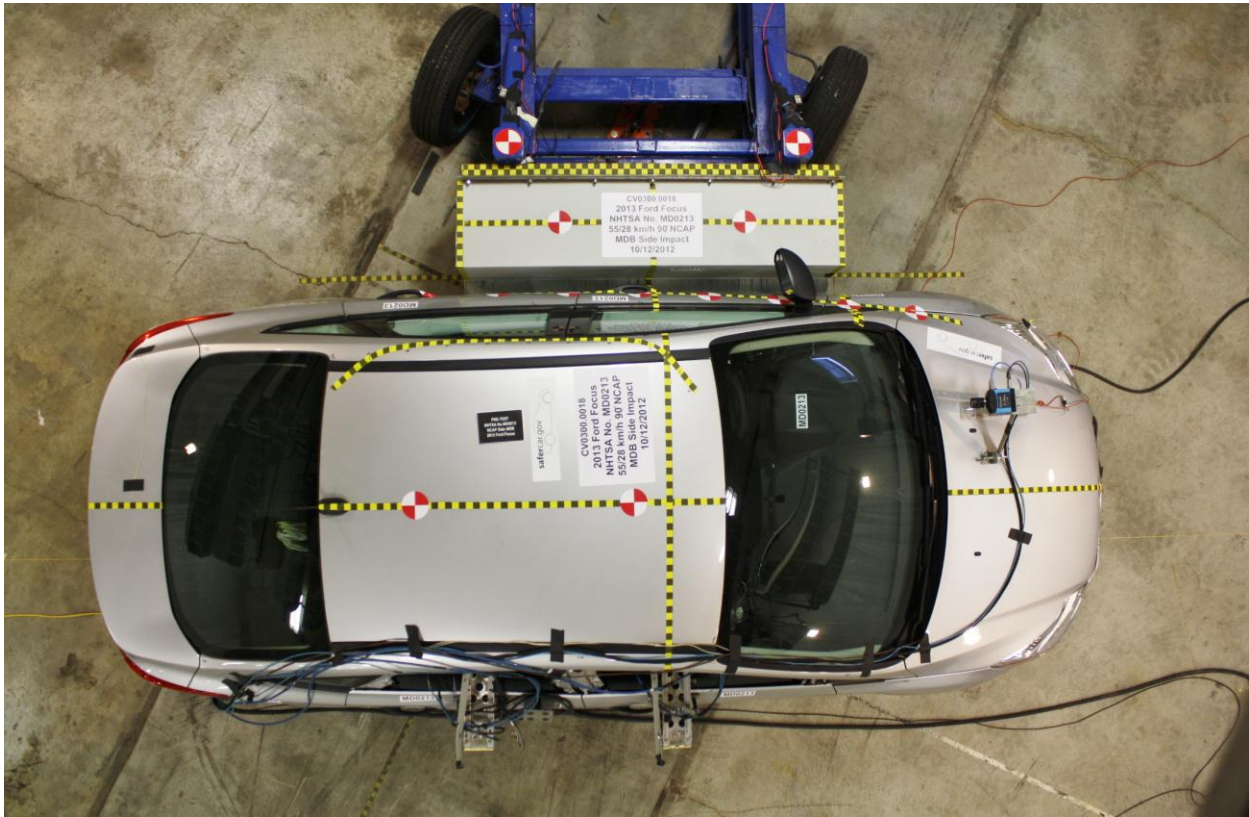


Figure A-15: Pre-Test Overhead View of the Test Area

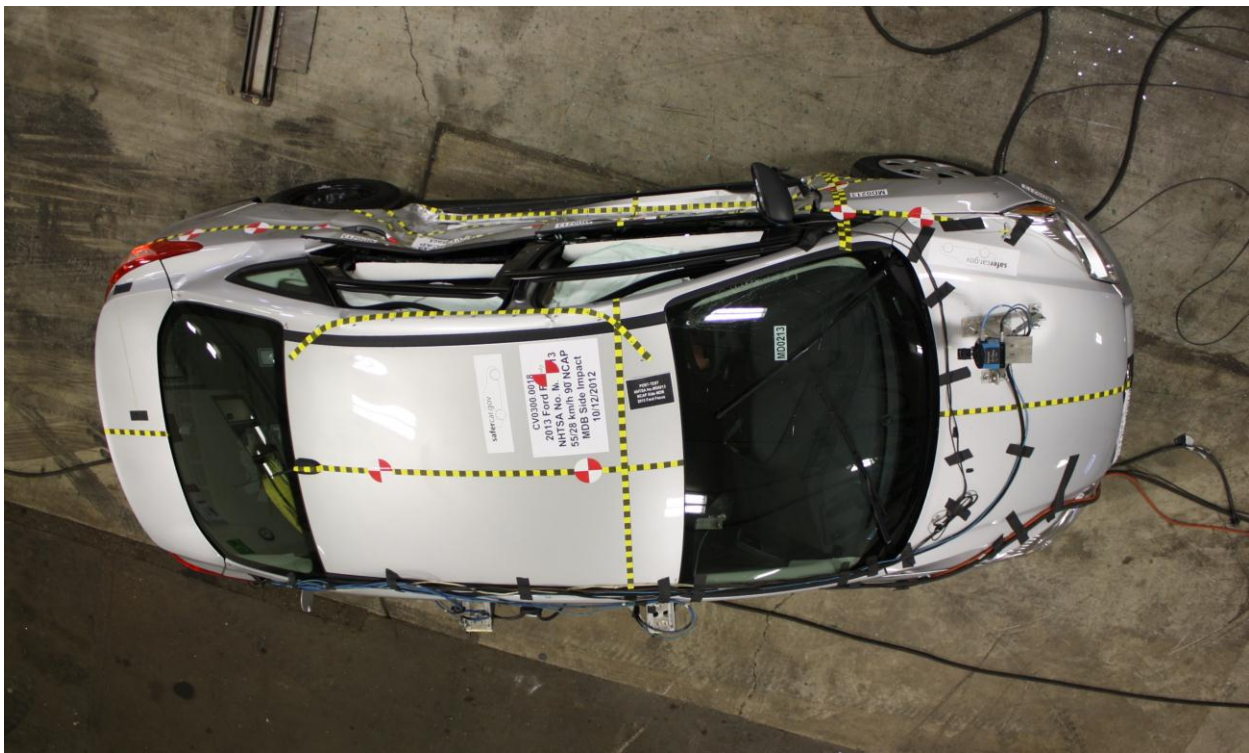


Figure A-16: Post-Test Overhead View of Test Area

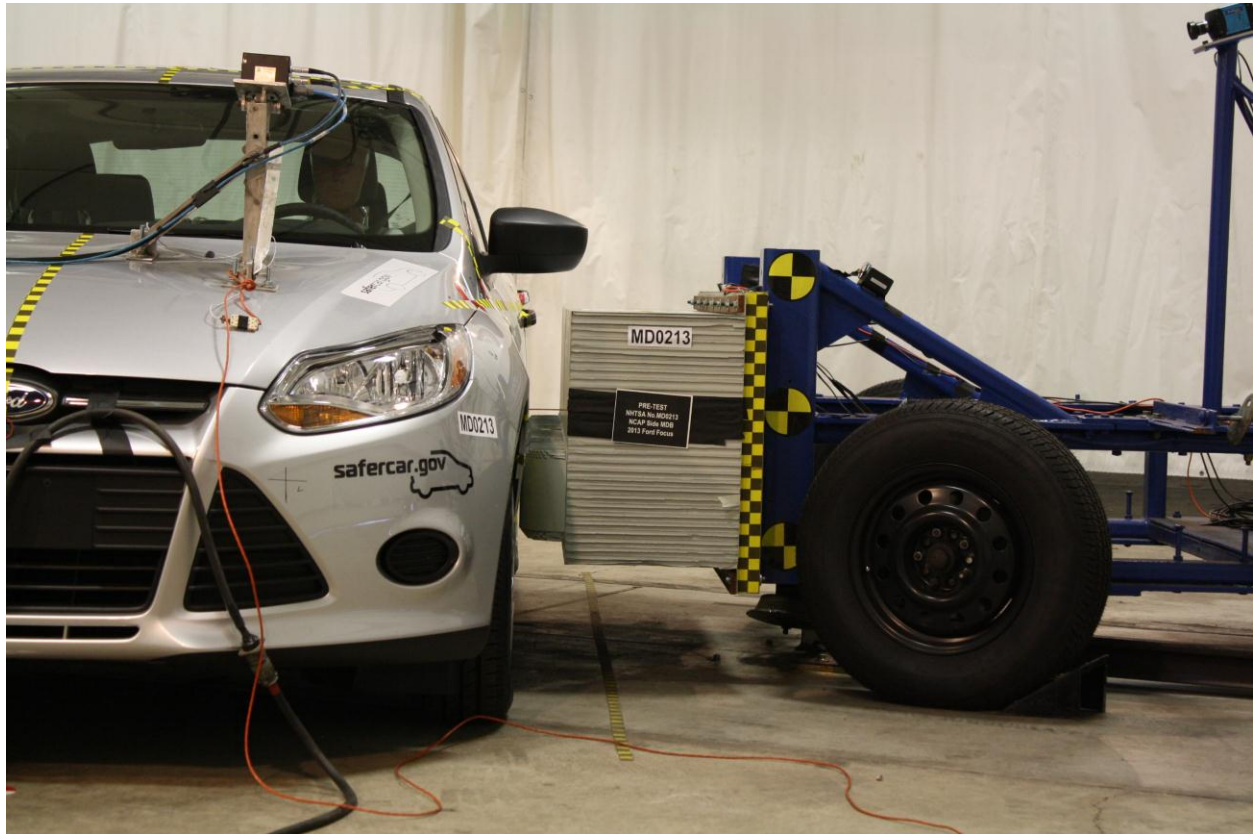


Figure A-17: Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



Figure A-18: Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



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



Figure A-20: Post-Test Close-up View of Impact Point Target



Figure A-21: Pre-Test Left Front Door Latch Close-Up

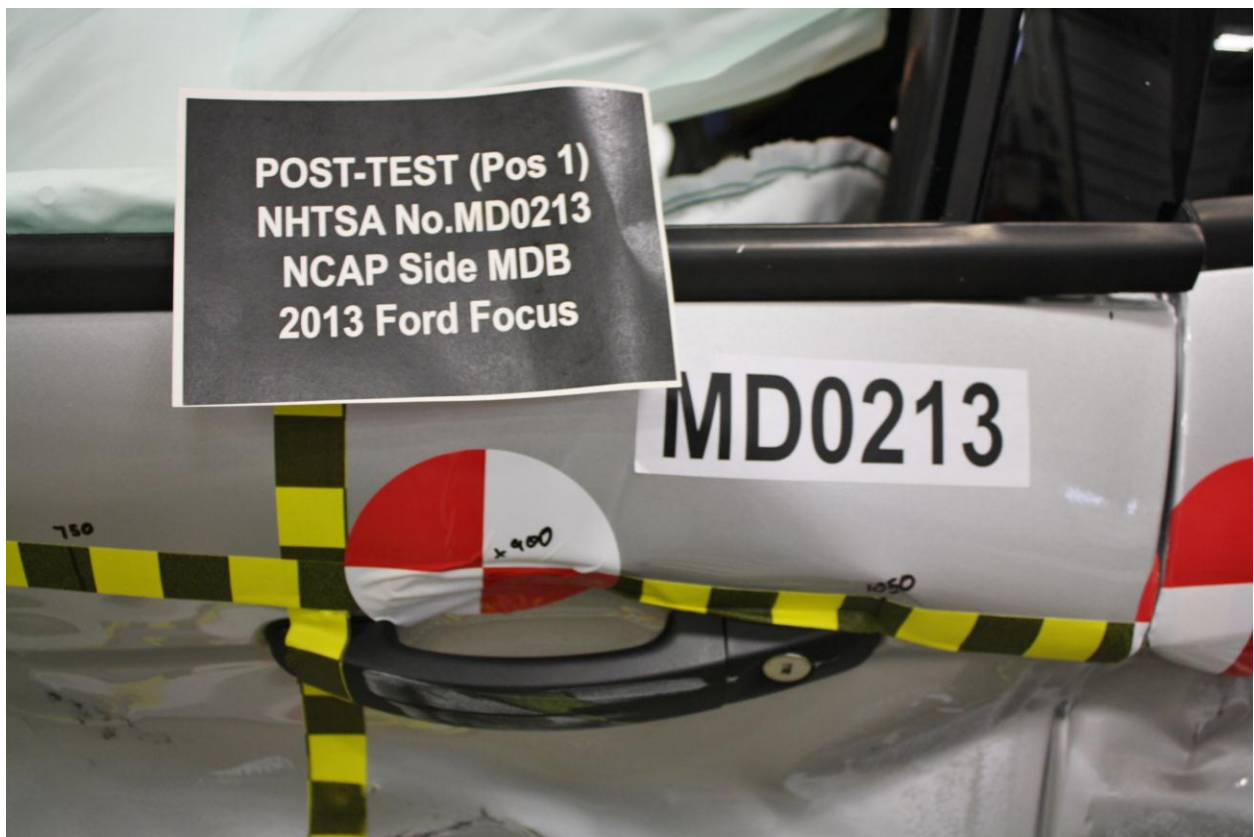


Figure A-22: Post-Test Left Front Door Latch Close-Up



Figure A-23: Pre-Test Left Rear Door Latch Close-Up



Figure A-24: Post-Test Left Rear Door Latch Close-Up



Figure A-25: Pre-Test Front Close-up View of Driver Dummy



Figure A-26: Post-Test Front Close-up View of Driver Dummy



Figure A-27: Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Figure A-28: Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-29: Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-30: Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Figure A-31: Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Figure A-32: Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Figure A-33: Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Figure A-34: Pre-Test Placement of Driver Dummy's Feet



Figure A-35: Pre-Test View of Belt Anchorage for Driver Dummy



Figure A-36: Pre-Test Left Side View of Steering Wheel



Figure A-37: View of Disengaged Parking Brake



Figure A-38: Pre-Test View of Parking Brake



Figure A-39: Pre-Test Close-Up Left Side View of Driver Seat Track

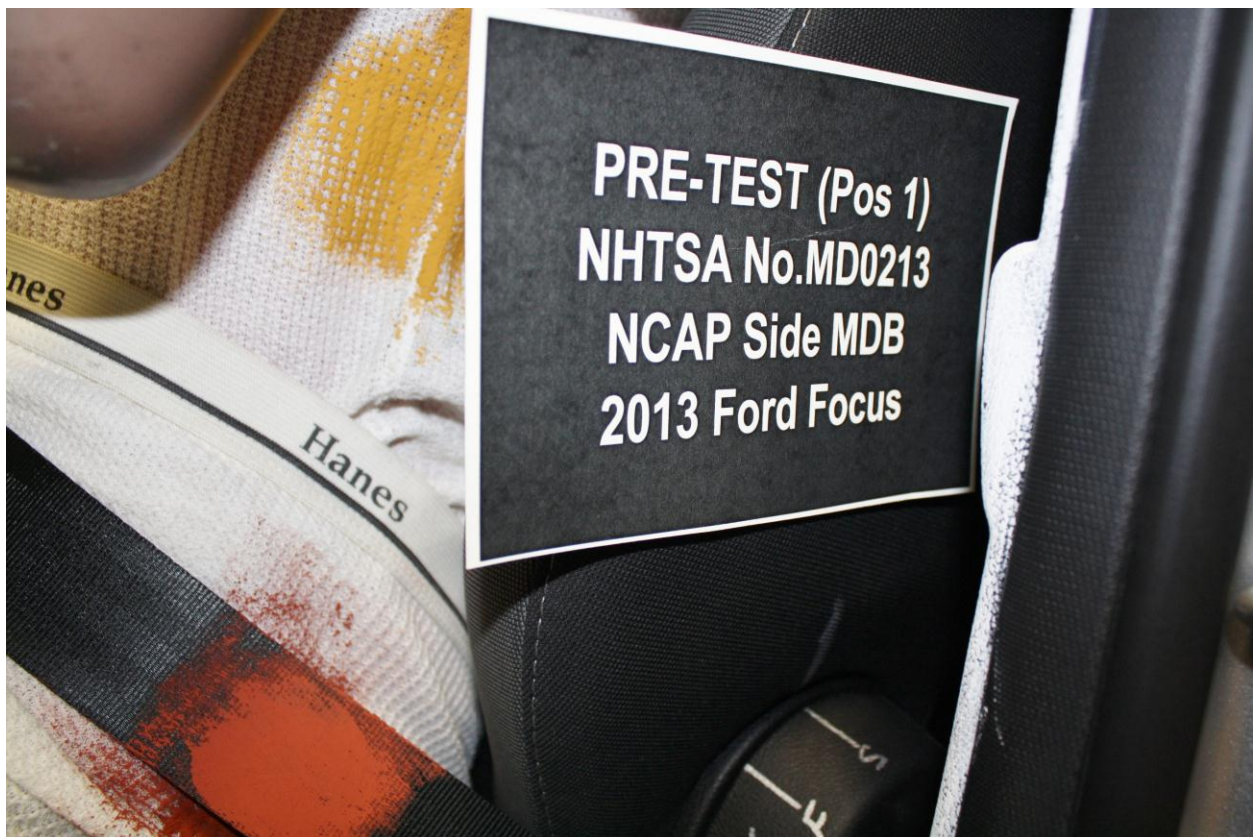


Figure A-40: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-41: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-42: Pre-Test Driver Dummy and Door Clearance View



Figure A-43: Post-Test Driver Dummy and Door Clearance View



Figure A-44: Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-45: Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Figure A-46: Pre-Test Driver Inner Door Panel View



Figure A-47: Post-Test Driver Inner Door Panel View



Figure A-48: Post-Test Driver Dummy Close-Up Head Contact with Vehicle View



Figure A-49: Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



Figure A-50: Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View

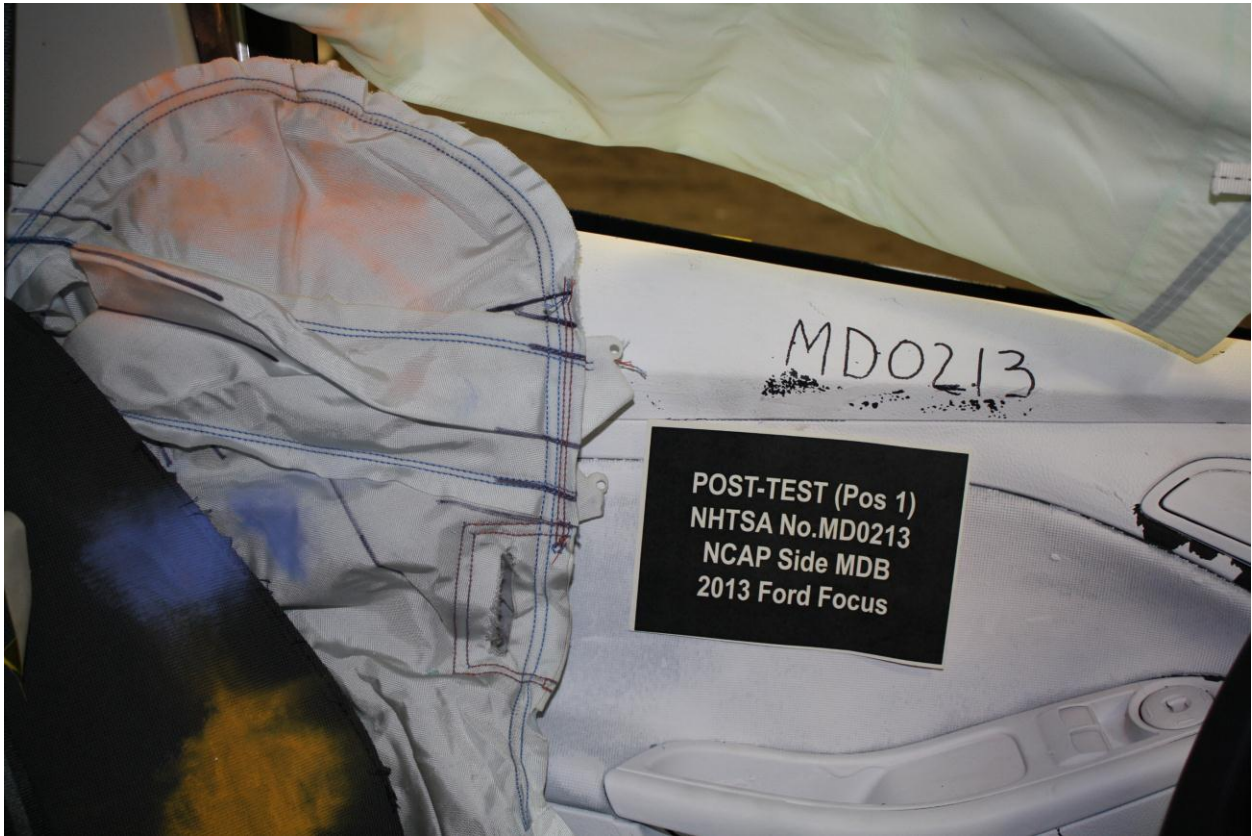


Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact View

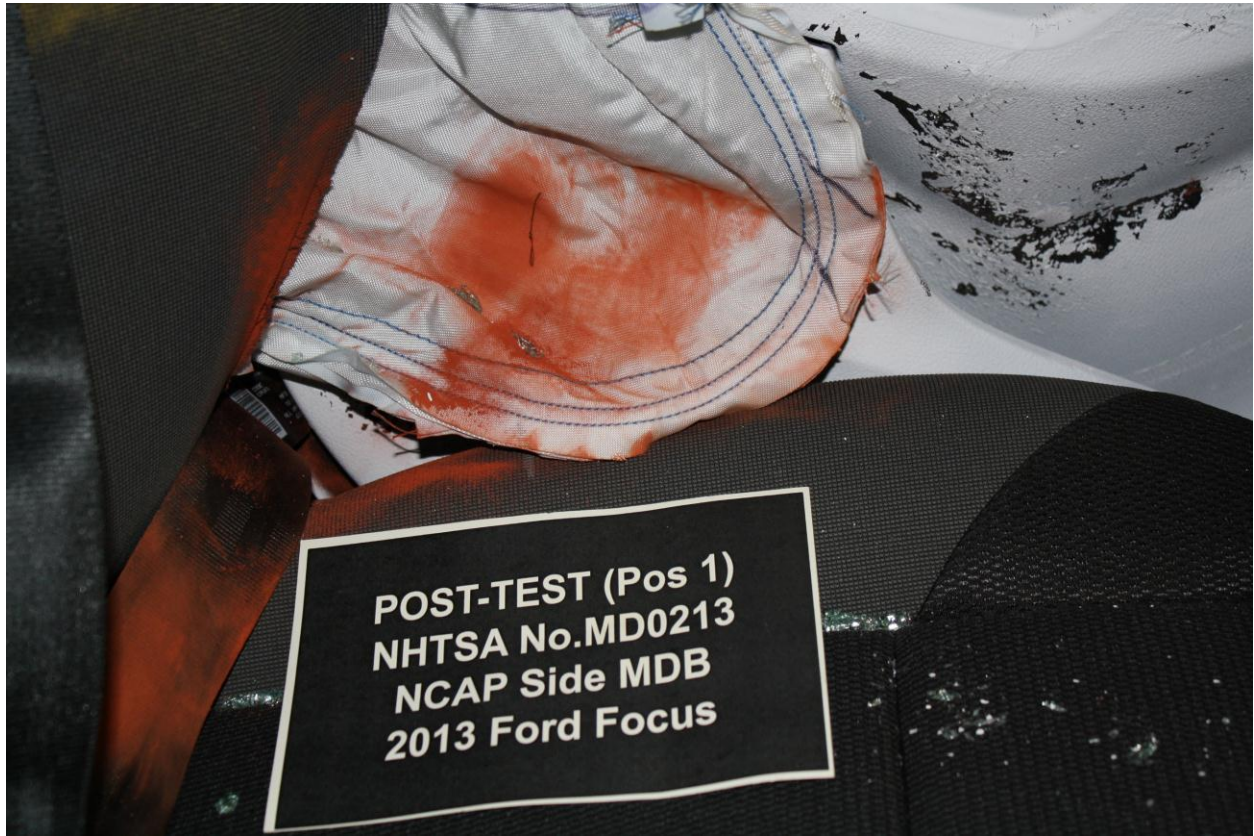


Figure A-53: Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-54: Post-Test Driver Dummy Close-Up Knee Contact View



Figure A-55: Pre-Test Left Side View of Passenger Dummy Showing Belt and Chalking

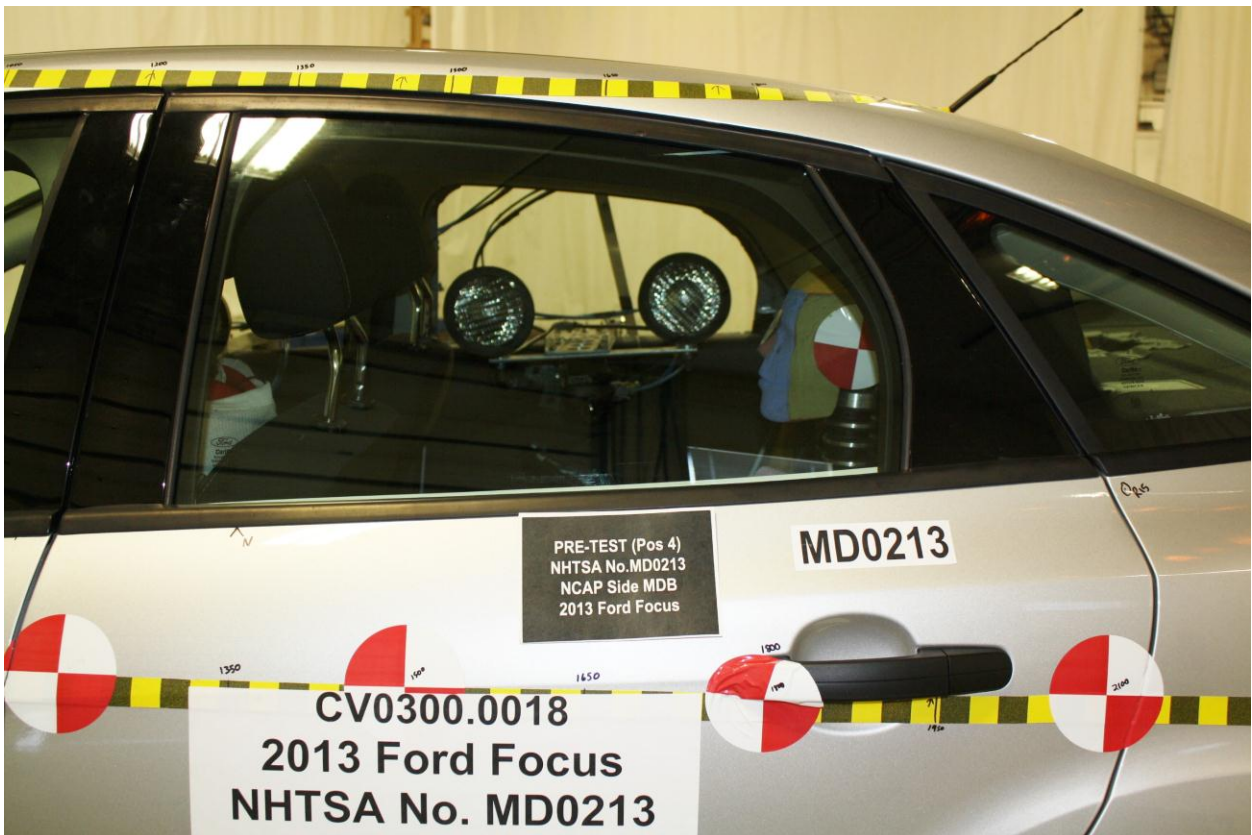


Figure A-56: Pre-Test Left Side View of Passenger Dummy Shoulder and Door Top View



Figure A-57: Post-Test Left Side View of Passenger Dummy Shoulder and Door Top View



Figure A-58: Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

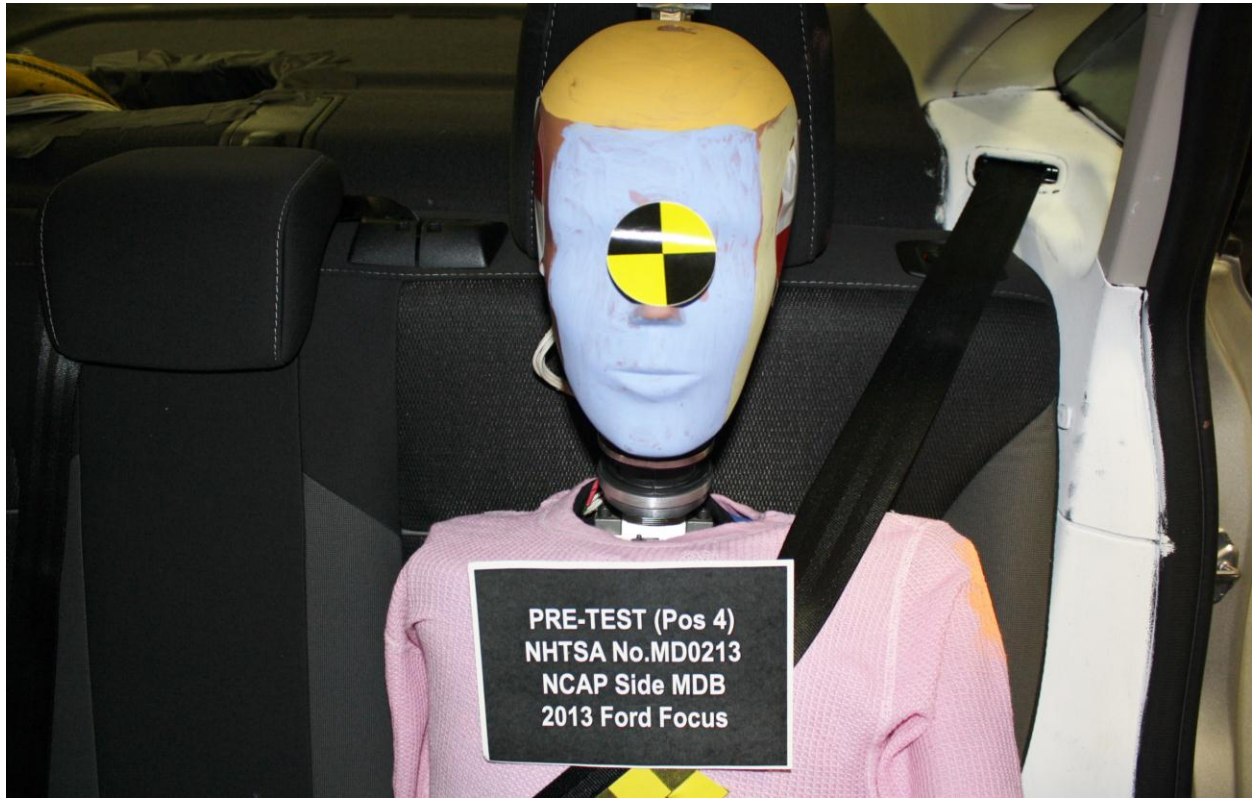


Figure A-59: Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



Figure A-60: Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



Figure A-61: Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan

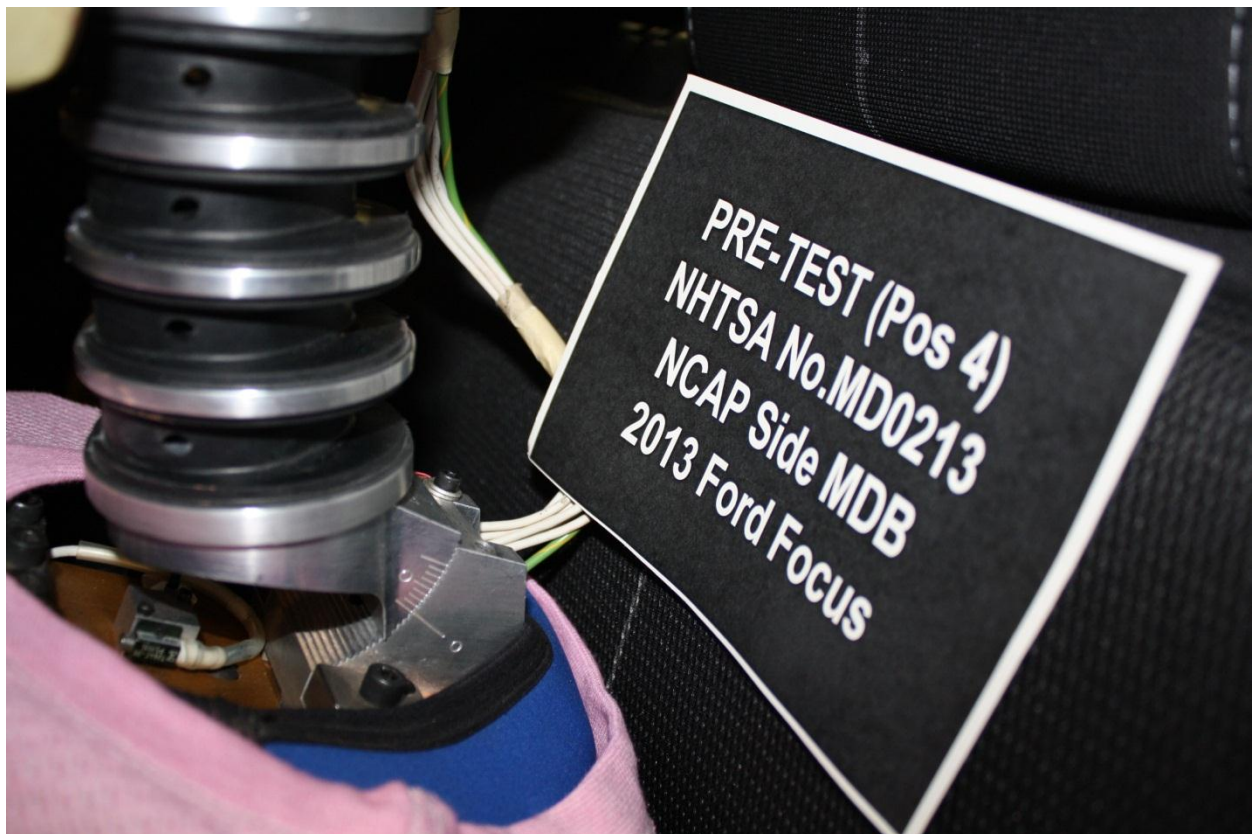


Figure A-62: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

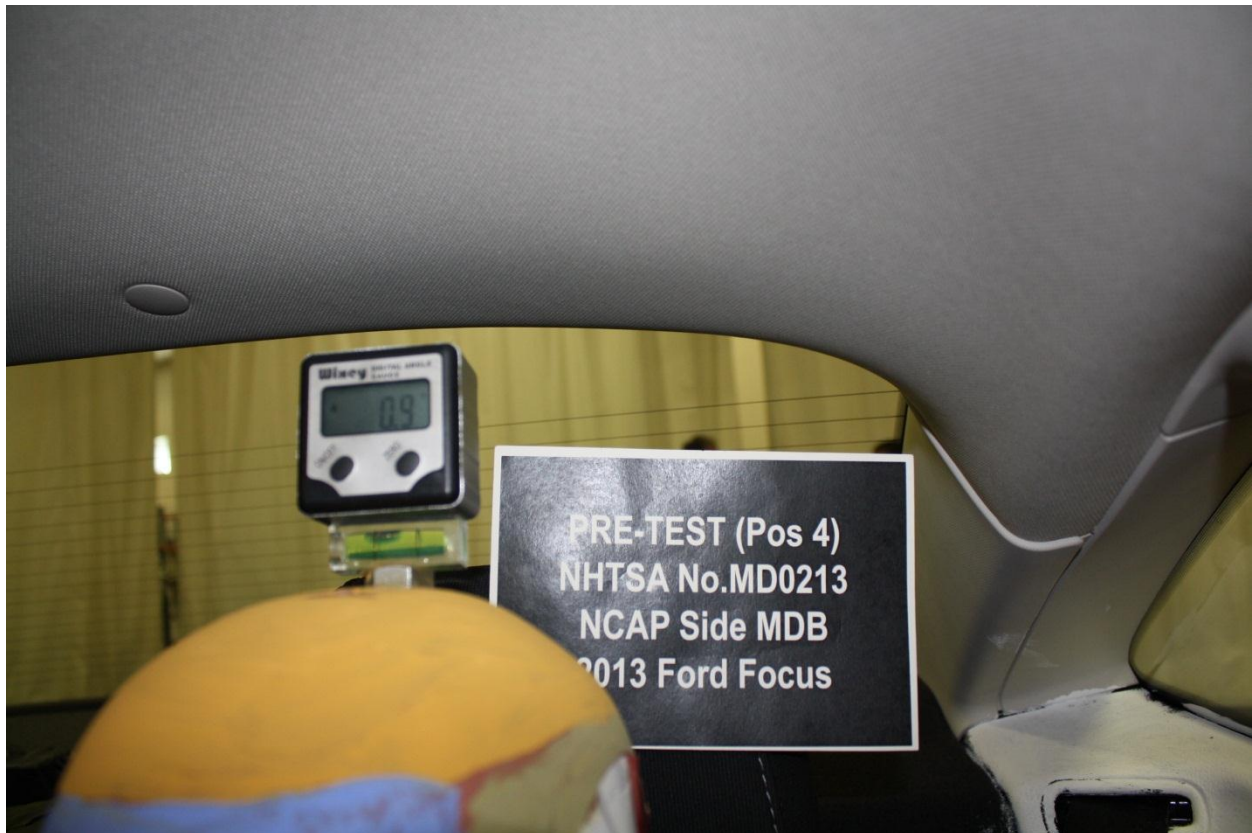


Figure A-63: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Figure A-64: Pre-Test Placement of Rear Passenger Dummy's Feet



Figure A-65: Pre-Test View of Belt Anchorage for Rear Passenger Dummy

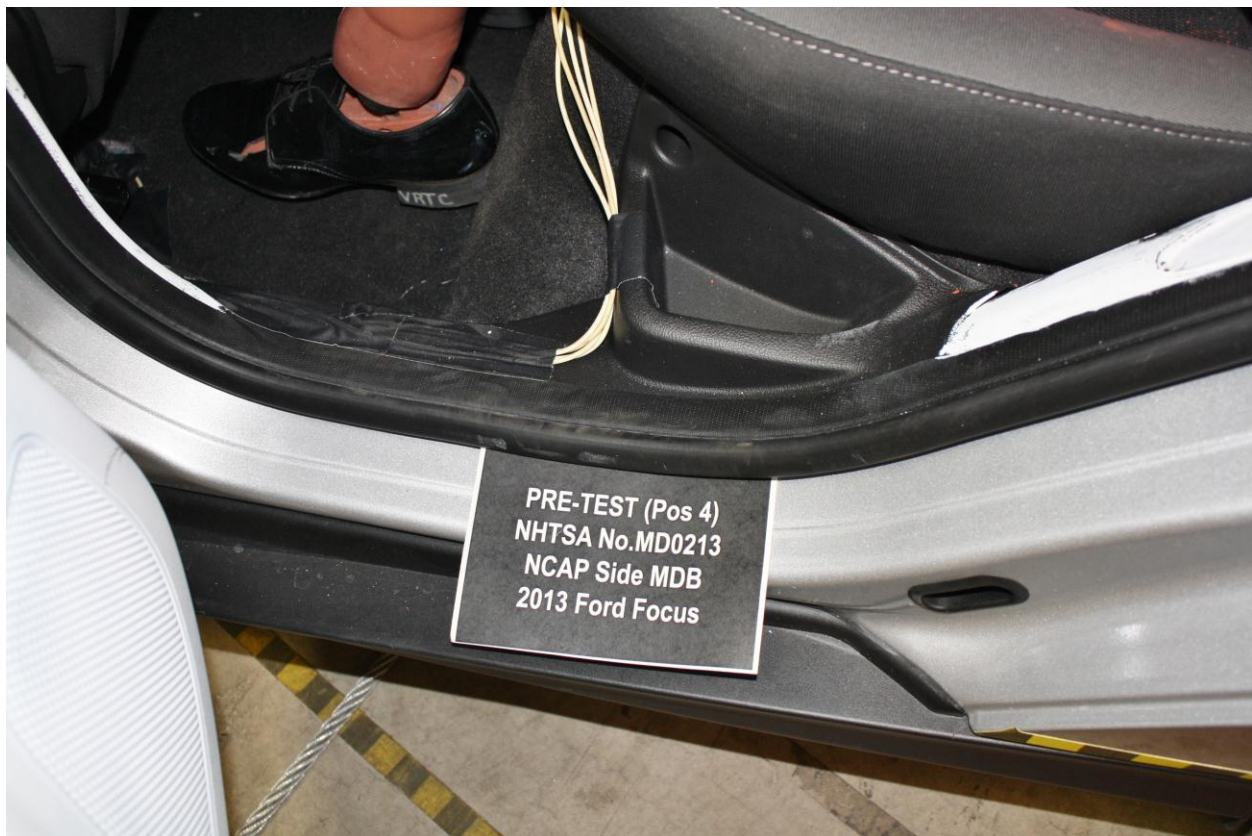


Figure A-66: Pre-Test Close-Up Left Side View of Rear Passenger Seat Track



Figure A-67: Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Figure A-68: Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Figure A-69: Pre-Test Passenger Dummy and Door Clearance View



Figure A-70: Post-Test Passenger Dummy and Door Clearance View



Figure A-71: Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-72: Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-73: Pre-Test Passenger Inner Door Panel View



Figure A-74: Post-Test Passenger Inner Door Panel View



Figure A-75: Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle View



Figure A-76: Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View

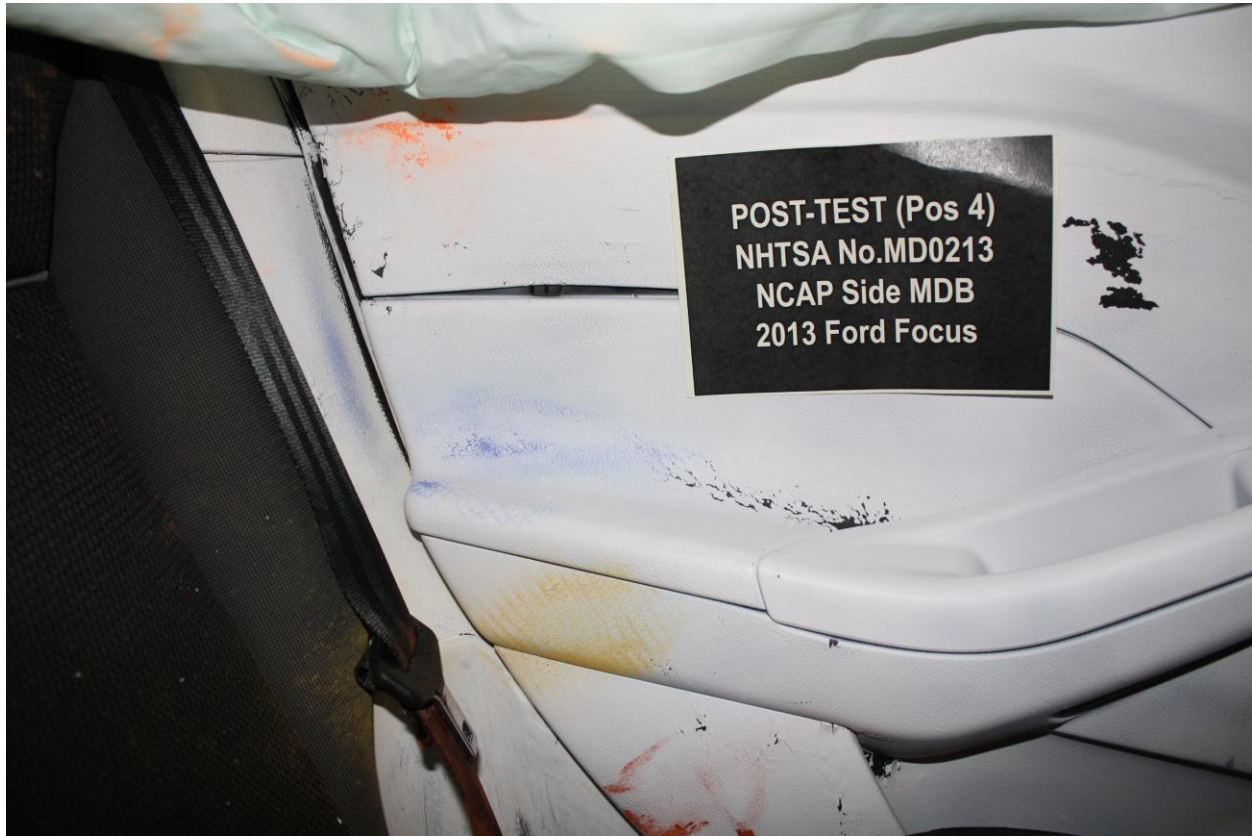


Figure A-77: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

Photo Not Applicable

Figure A-78: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



Figure A-79: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact View

Photo Not Applicable

Figure A-80: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-81: Post-Test Rear Passenger Dummy Close-Up Knee Contact View



Figure A-82: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-83: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-84: Pre-Test Front View of MDB Impactor Face



Figure A-85: Post-Test Front View of MDB Impactor Face



Figure A-86: Pre-Test Top View of MDB Impactor Face



Figure A-87: Post-Test Top View of MDB Impactor Face



Figure A-88: Pre-Test Left Side View of MDB Impactor Face



Figure A-89: Post-Test Left Side View of MDB Impactor Face



Figure A-90: Pre-Test Right Side View of MDB Impactor Face



Figure A-91: Post-Test Right Side View of MDB Impactor Face

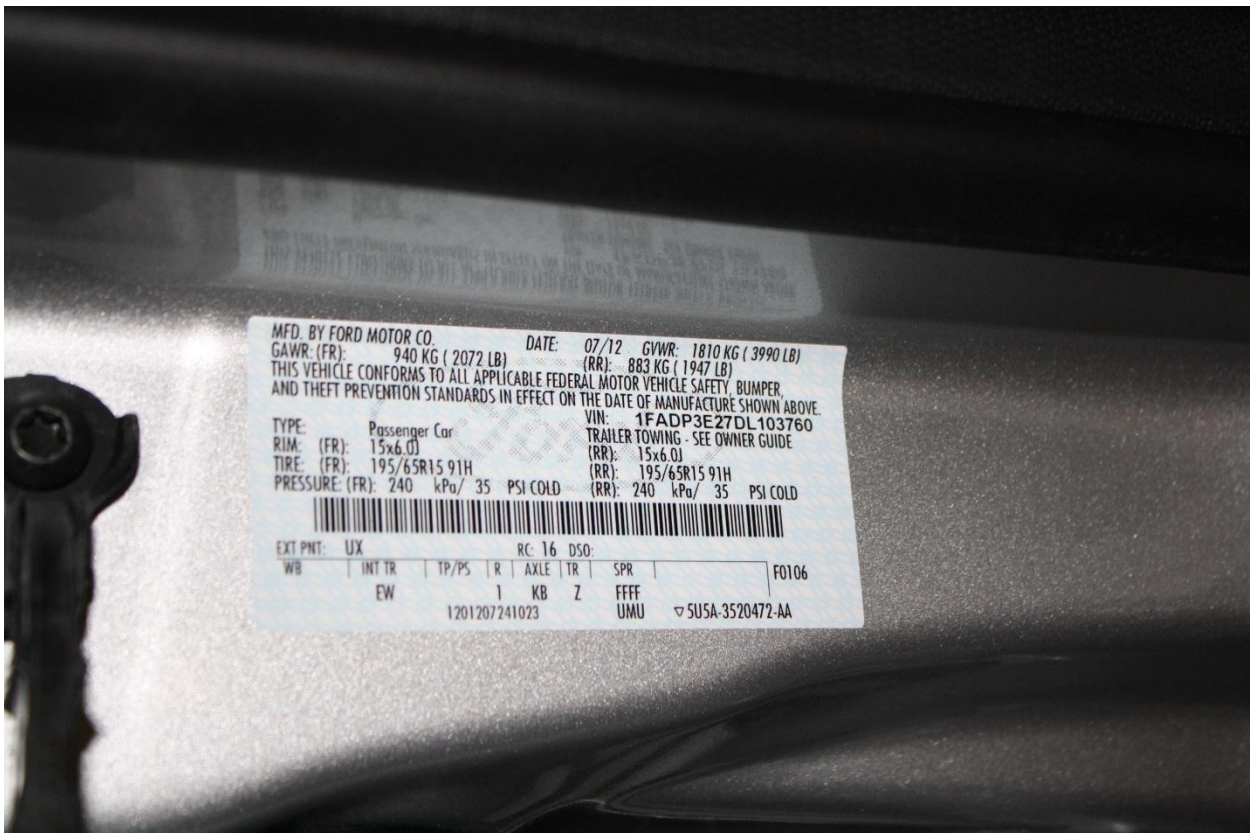


Figure A-92: Close-Up View of Vehicle's Certification Label



Figure A-93: Close-Up View of Vehicle's Tire Information Placard or Label

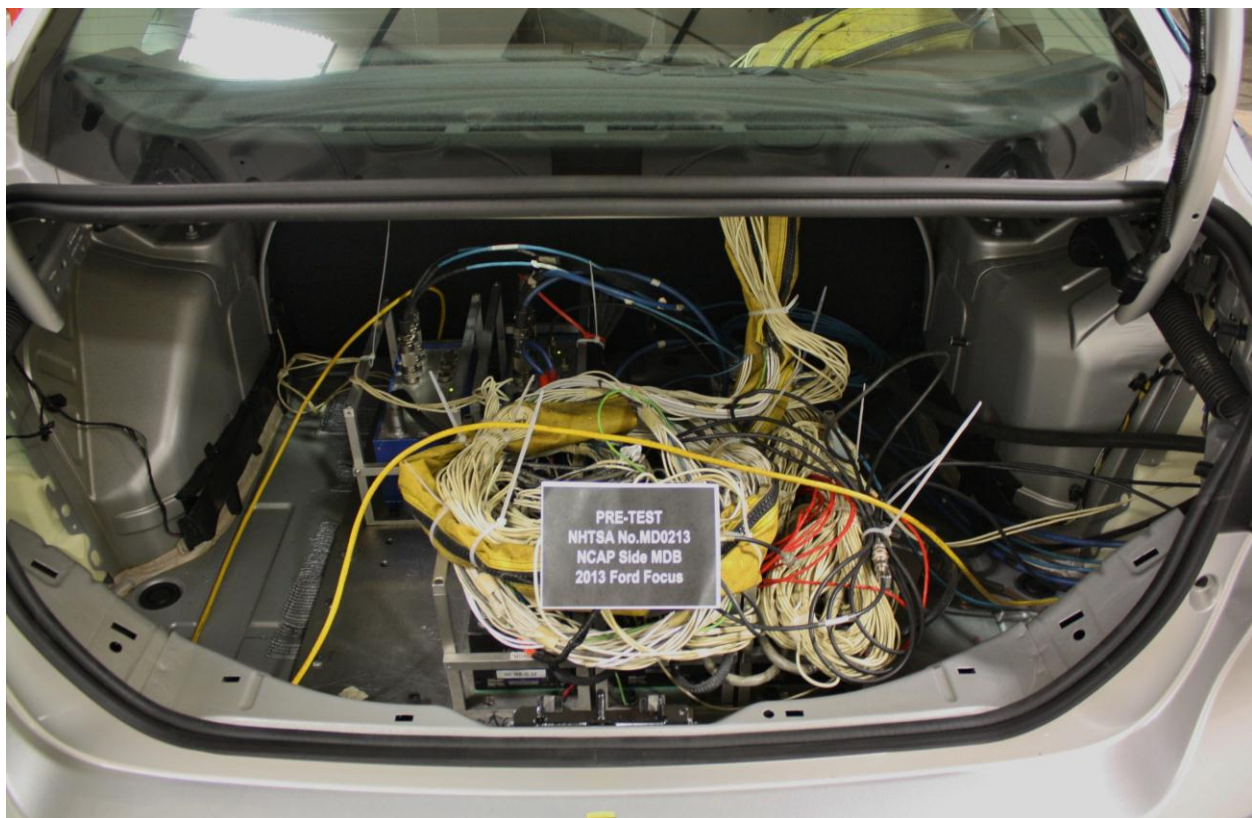


Figure A-94: Pre-Test Ballast View



Figure A-95: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-96: FMVSS No. 301 Static Rollover 0 Degrees



Figure A-97: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-98: FMVSS No. 301 Static Rollover 180 Degrees

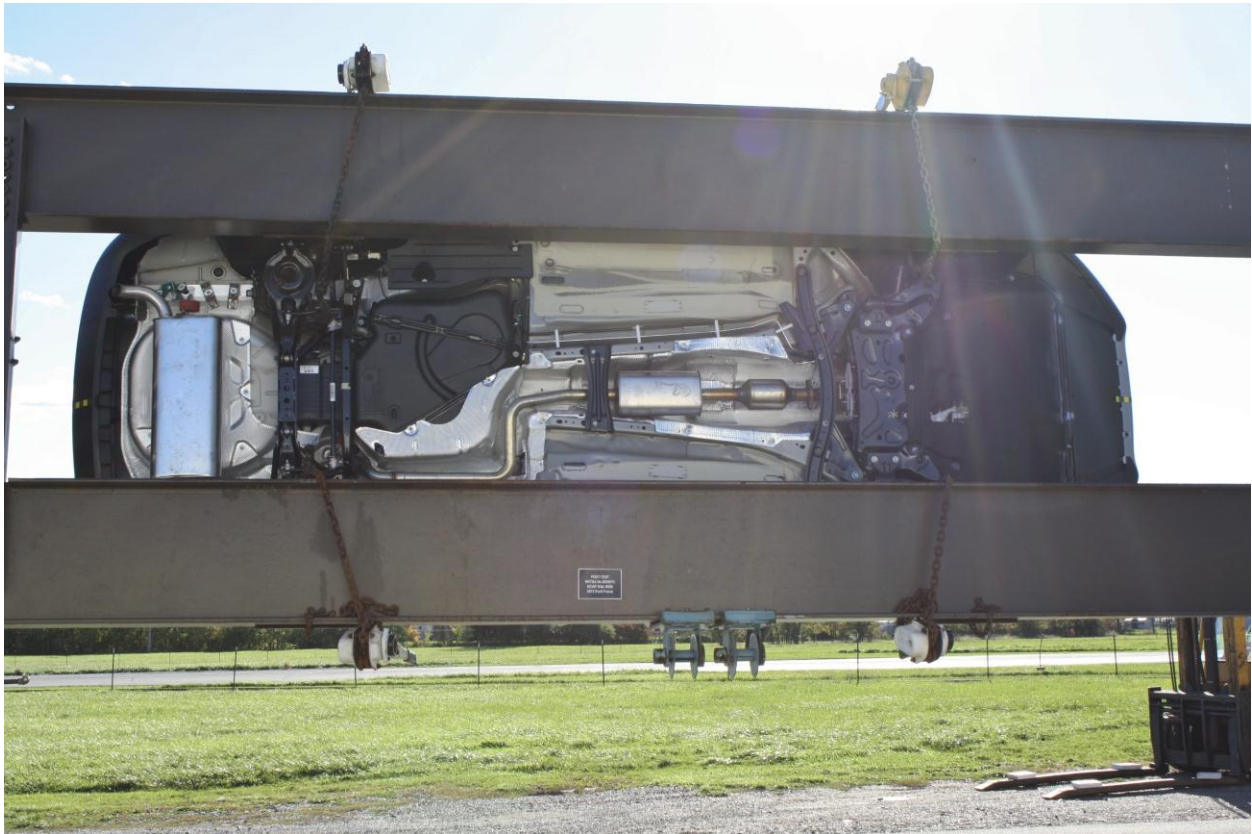


Figure A-99: FMVSS No. 301 Static Rollover 270 Degrees



Figure A-100: FMVSS No. 301 Static Rollover 360 Degrees



Figure A-101: Impact Event

		VEHICLE DESCRIPTION FOCUS 2013 4-DOOR SEDAN S 5-PASSENGER 2.0L I4 GDI ENGINE 5-SPD MANUAL TRANSMISSION		DL 103760		EPA DOT Fuel Economy and Environment Gasoline Vehicle	
Go Further ford.com		EXTERIOR INOCT SILVER METALLIC INTERIOR CHARCOAL BLACK CLOTH SEATS		Fuel Economy 30 MPG combined city/hwy 26 city 36 highway 3.4 gallons per 100 miles		You save \$2,700 in fuel costs over 5 years compared to the average new vehicle.	
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE				Annual fuel cost \$1,800		Fuel Economy & Greenhouse Gas Rating (tailpipe only) Smog Rating (tailpipe only) 8 (Best)	
EXTERIOR • 17" STEEL WHEELS WITH COVERS • HALOGEN HEADLAMPS		INTERIOR • DRIVER SEAT 4-WAY MANUAL • MANUAL PASS SEAT - 2-WAY • 2ND ROW FOLD FLAT SEATING • AIR CONDITIONING • AUXILIARY AUDIO INPUT JACK • CENTER CONSOLE W/STORAGE • DUAL SUNVISORS • FRONT ROW POWER WINDOWS • TILT/TELESCOPE STR COLUMN		FUNCTIONAL • ADVANCETRAC W/ESC • AM/FM SINGLE CD/MP3, 4SPKR • EASY FUEL CAP/LESS FILLER • FRONT DISC REAR DRUM BRAKES (ABS) • MIRRORS - POWER OPERATED, MANUAL FOLDING, BLACK • 1-TOUCH DOWN DRIVER WINDOW • REAR WINDOW DEFROSTER • VARIABLE INTERVAL WIPERS		SAFETY/SECURITY • DRIVER/PASSENGER AIR BAGS • SIDE AIR BAGS/CURTAINS • LATCH CHILD SAFETY SYSTEM • REMOTE KEYLESS ENTRY • SECURLOCK PASS ANTI THEFT	
INCLUDED ON THIS VEHICLE EQUIPMENT GROUP 100A		PRICE INFORMATION BASE PRICE \$16,200.00 TOTAL OPTIONS TOTAL VEHICLE & OPTIONS DESTINATION & DELIVERY 16,200.00 / 795.00		WARRANTY • 3YR/36,000 BUMPER / BUMPER • 5YR/60,000 POWERTRAIN • 5YR/60,000 ROADSIDE ASSIST		Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 22 MPG and costs \$11,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.50 per gallon. MSRP is miles per gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.	
OPTIONAL EQUIPMENT 50 STATE EMISSIONS P2EV EMISSIONS		(MSRP) NO CHARGE / NO CHARGE		GOVERNMENT 5-STAR SAFETY RATINGS Overall Vehicle Score Not Rated Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.		IIHS Ratings Top Safety Pick Award Winner Frontal Offset GOOD Side Impact GOOD Rear Impact GOOD Roof Strength GOOD The Institute rates vehicles Good, Acceptable, Marginal, or Poor based on performance.	
SOLD TO Lake Ford Lincoln 439 South Main Street Lawlstown PA 17044		RAMP ONE RA5R		DEALER NO. 16V 458		TOTAL MSRP \$16,995.00	
SHIP TO (IF OTHER THAN SOLD TO)		RAMP TWO MICHIGAN		FINAL ASSEMBLY PLANT MICHIGAN		This label is affixed pursuant to the Federal Automobile Information Disclosure Act. Gasoline, Licenses, and Title Fees, State and Local taxes are not included. Dealer installed options or accessories are not included unless listed above.	
SHIP THROUGH		METHOD OF TRANSP. RAIL		ITEM #: 16-2700 QIT 2		CG171 N RA 2X 315 000207 07 17 12	
Ford Extended Service Plan		Ford ESP is the only extended service plan honored at every Ford dealership in the U.S. and Canada. See your dealer for additional details or visit www.FordCare.com for more information.		Ford Credit		Choose the vehicle you want. Whether you decide to lease or finance, you'll find the choices that are right for you. See your Ford Dealer for details at visit. www.Ford.com	

Figure A-102: Monroney Label

Adjusting the Head Restraint

Raise

Pull up the head restraint.

Lower

1. Press and hold button C.
2. Push the head restraint down.

Remove

1. Pull up the head restraint until it reaches the highest adjustment position.
2. Press and hold buttons C and D.
3. Pull the head restraint up.

Install

Align the steel stems into the guide sleeves and push the head restraint down until it locks. Make sure the front of the head restraint faces the front of the vehicle.

Tilting Head Restraints (If Equipped)

The front head restraints may have a tilting feature for extra comfort. To tilt the head restraint, do the following:



1. Adjust the seat back to an upright driving/riding position.
2. Tilt the head restraint forward by gently pulling the top of the head restraint.

Once it is in its forward-most position, tilting it forward once more will release it to the upright position.

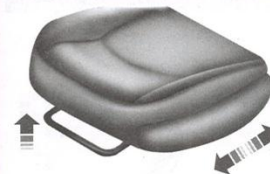
Note: Do not attempt to force the head restraint backward after it is

Figure A-103: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

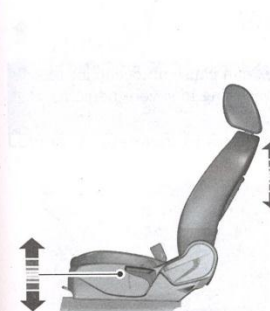
MANUAL SEATS

WARNING: Never adjust the driver's seat or seatback when the vehicle is moving.

WARNING: Rock the seat backward and forward after releasing the lever to make sure that it is fully engaged.



Moving the Seat Backward and Forward



Adjust the Height of the Driver's Seat

- Hold the steering wheel with your arms slightly bent.
- Bend your legs slightly so that you can press the pedals fully.
- Position the shoulder strap of the safety belt over the center of your shoulder and position the lap strap tightly across your hips.

Make sure that your driving position is comfortable and that you can maintain full control of your vehicle.

HEAD RESTRAINTS

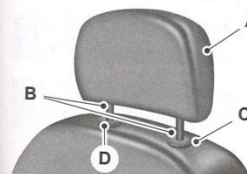
WARNING: To minimize the risk of neck injury in the event of a crash, the driver and passenger occupants should not sit in and/or operate the vehicle, until the head restraint is placed in its proper position. The driver should never adjust the head restraint while the vehicle is in motion.

WARNING: The adjustable head restraint is a safety device. Whenever possible, it should be installed and properly adjusted when the seat is occupied.

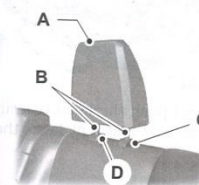
WARNING: Install the head restraint properly to minimize the risk of neck injury in the event of a crash.

Note: Adjust the seatback to an upright driving position before adjusting any head restraint. Adjust the head restraint so that the top of it is level with the top of your head and as far forward as possible, remaining comfortable. For occupants of extremely tall stature, adjust the head restraint to its highest position.

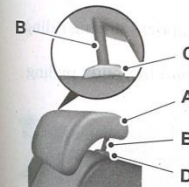
Front Seat Head Restraints



Rear Seat Outboard Head Restraints



Rear Seat Center Head Restraints



The head restraints consist of:

- A. An energy absorbing head restraint
- B. Two steel stems
- C. Guide sleeve adjust and release button

Figure A-104: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS

Driver & Passenger Dummy Instrumentation Plots

Fig.	Description	Page
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 Acceleration Primary vs. Time	B-6
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-7
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-7
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-8
8	Driver Thorax Rib Deflection Maximum vs. Time	B-8
9	Driver Anterior Abdominal Force (Y) vs. Time	B-9
10	Driver Middle Abdominal Force (Y) vs. Time	B-9
11	Driver Posterior Abdominal Force (Y) vs. Time	B-10
12	Driver Total Abdominal Force (Y) vs. Time	B-10
13	Driver Pubic Symphysis Force (Y) vs. Time	B-11
14	Passenger Head Acceleration (X) vs. Time Primary	B-11
15	Passenger Head Acceleration (Y) vs. Time Primary	B-12
16	Passenger Head Acceleration (Z) vs. Time Primary	B-12
17	Passenger Head Resultant Acceleration Primary vs. Time	B-13
18	Passenger Lower Spine T12 Acceleration (X) vs. Time	B-13
19	Passenger Lower Spine T12 Acceleration (Y) vs. Time	B-14
20	Passenger Lower Spine T12 Acceleration (Z) vs. Time	B-14
21	Passenger Lower Spine T12 Resultant Acceleration vs. Time	B-15
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-15
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-16
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-16

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 & Passenger Dummy Instrumentation Data

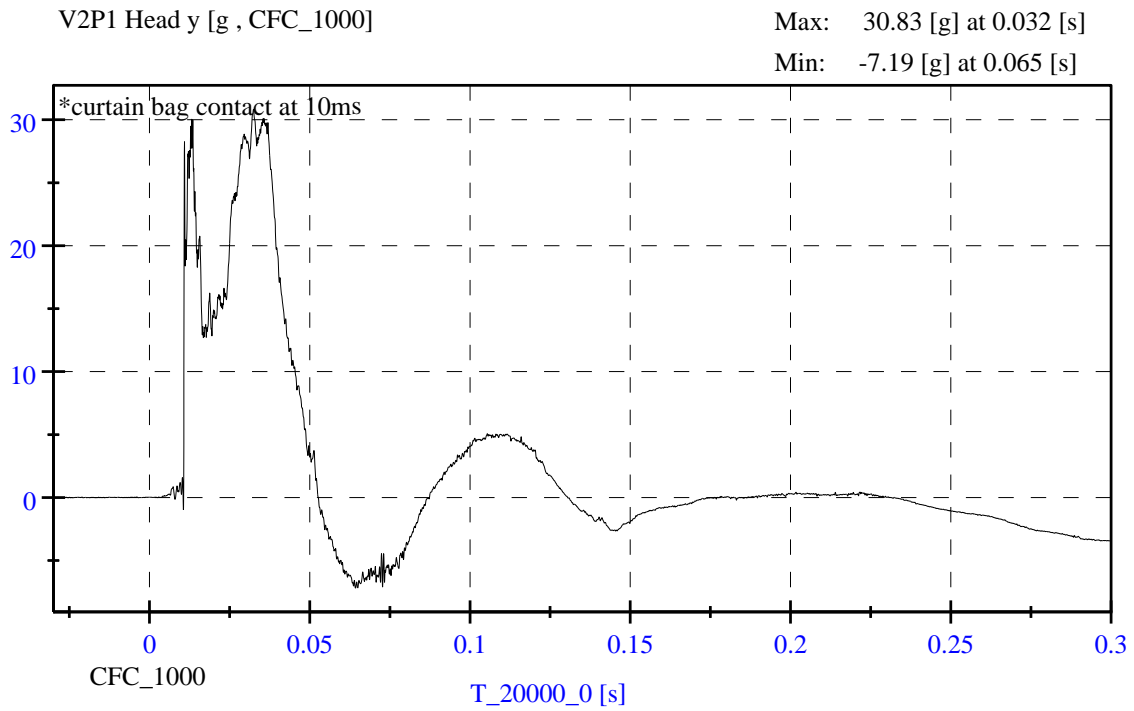
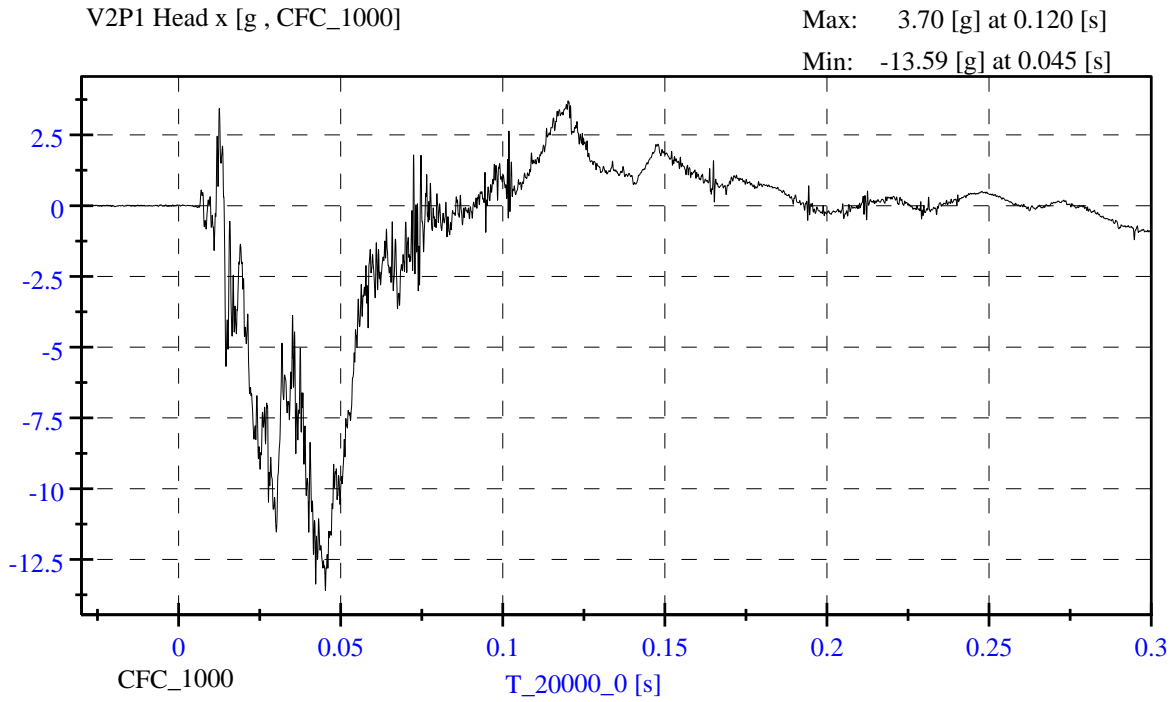
Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

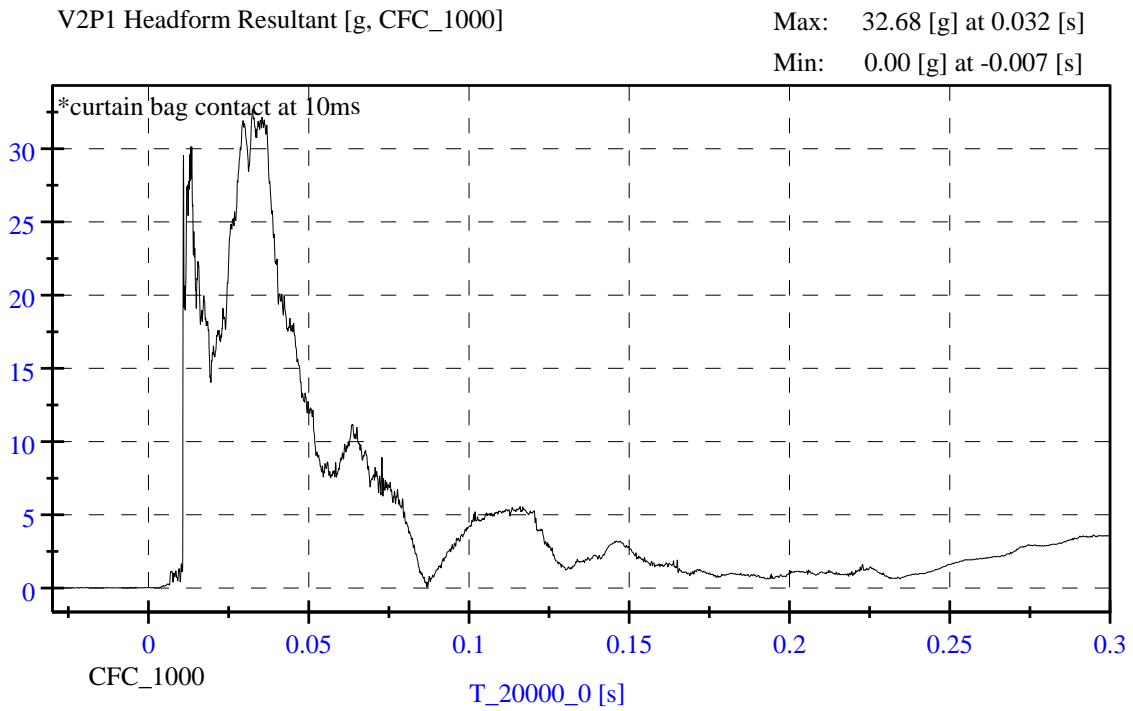
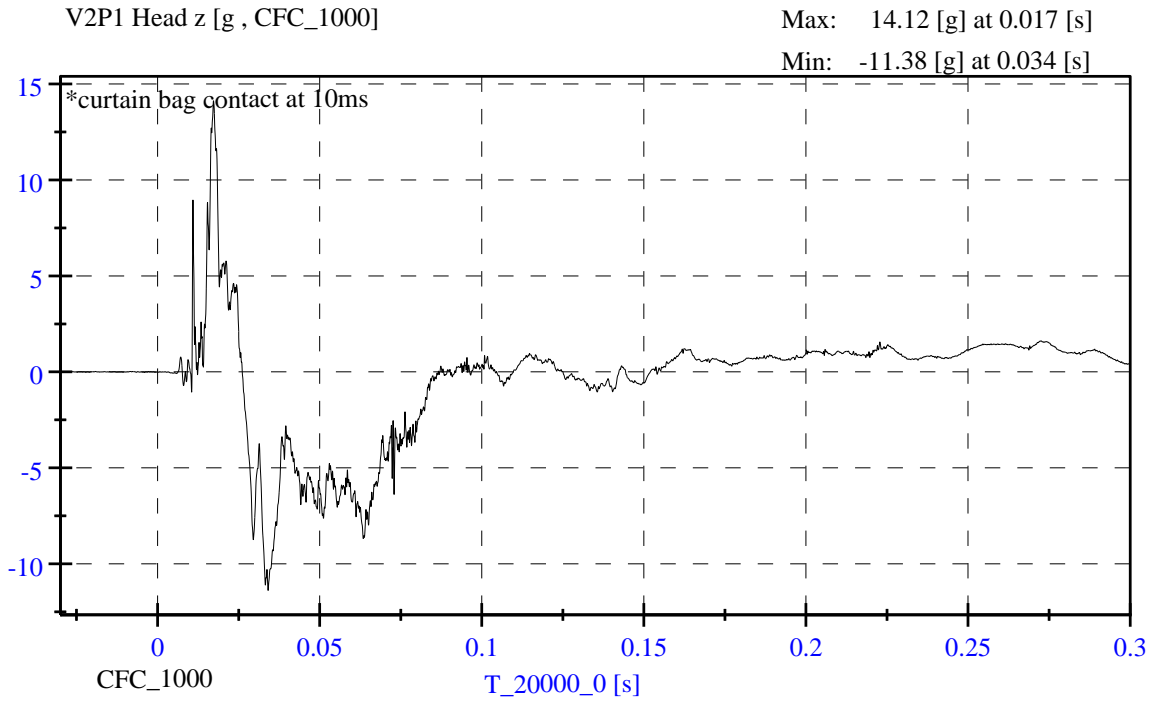
Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

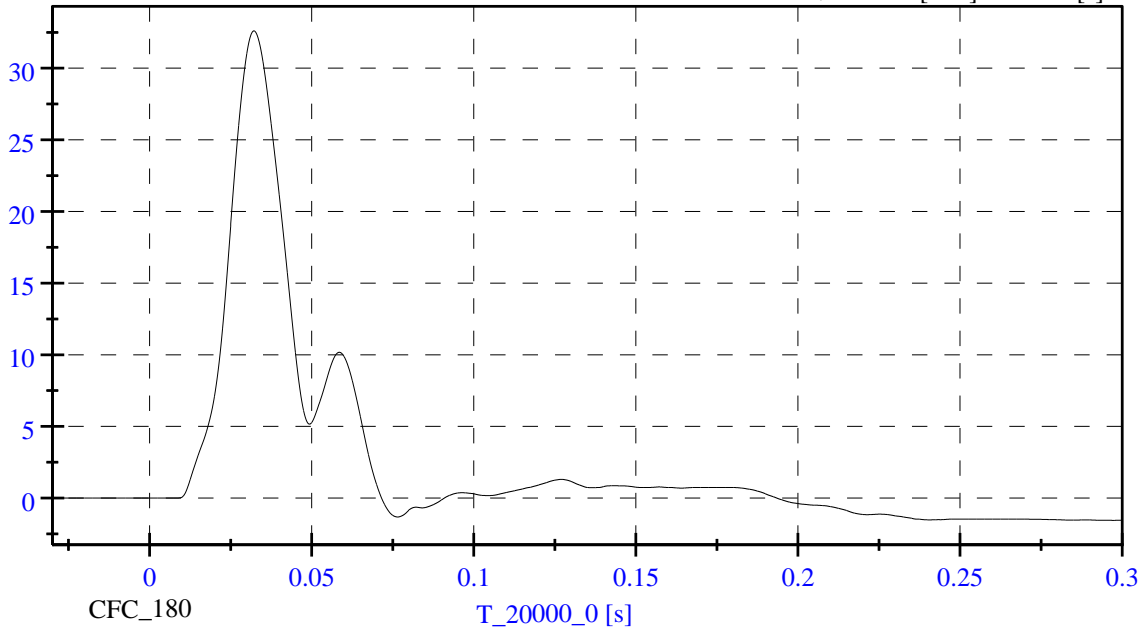




V2P1 Upper Thorax Rib Dy [mm , CFC_180]

Max: 32.60 [mm] at 0.032 [s]

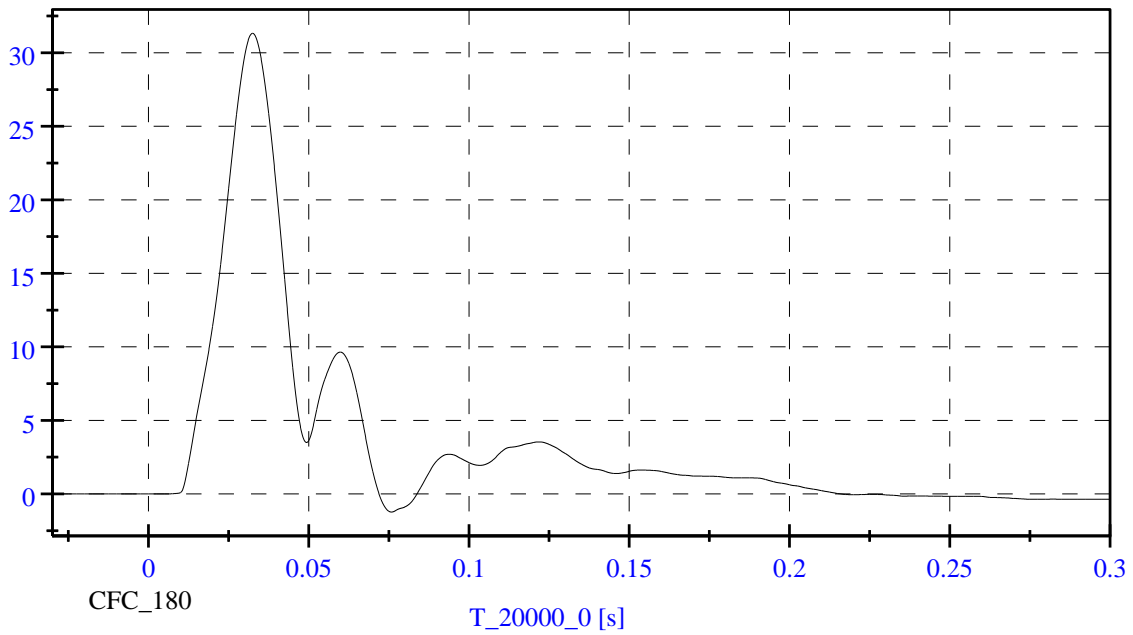
Min: -1.56 [mm] at 0.300 [s]

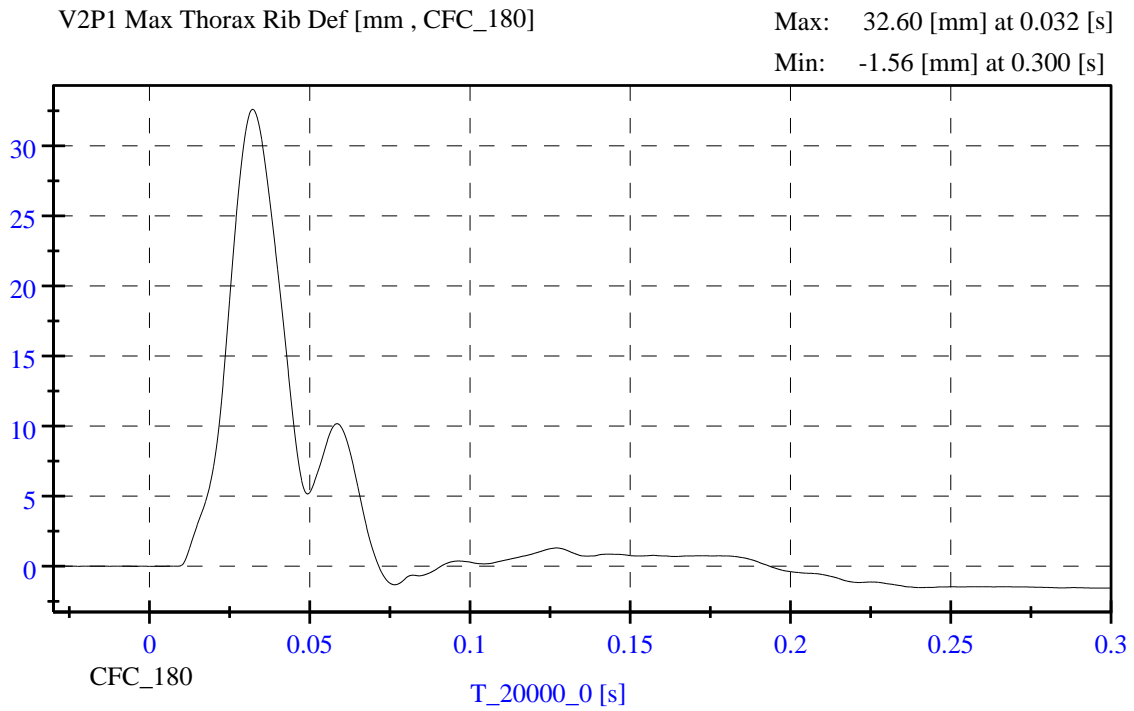
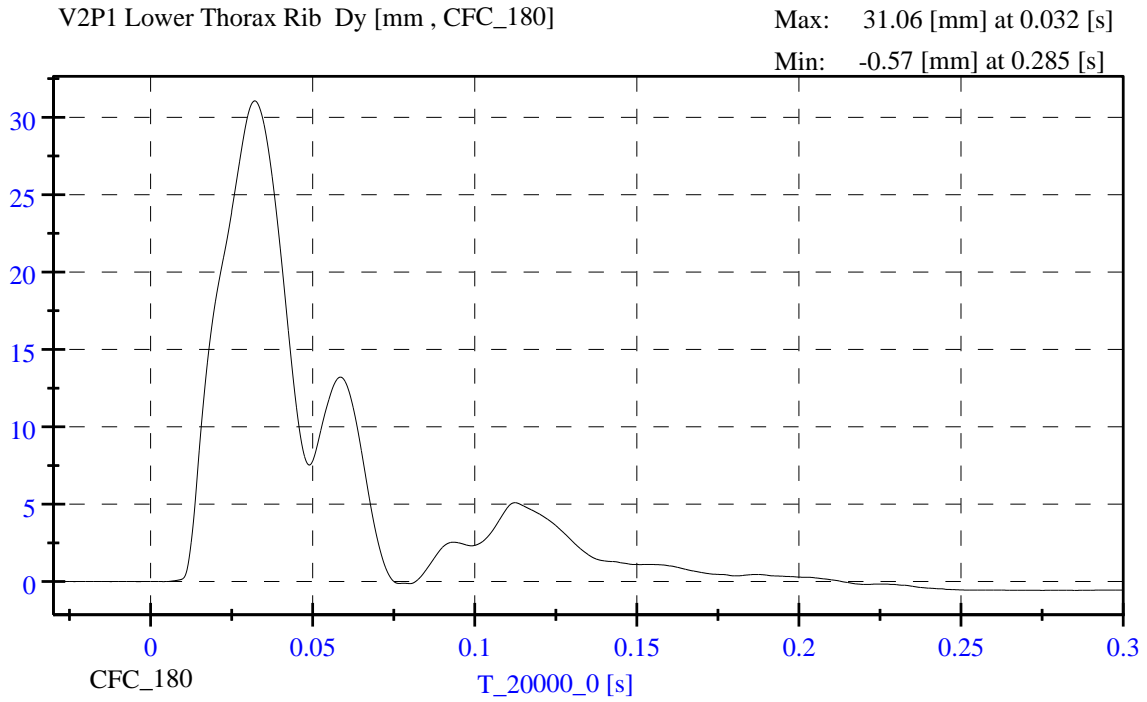


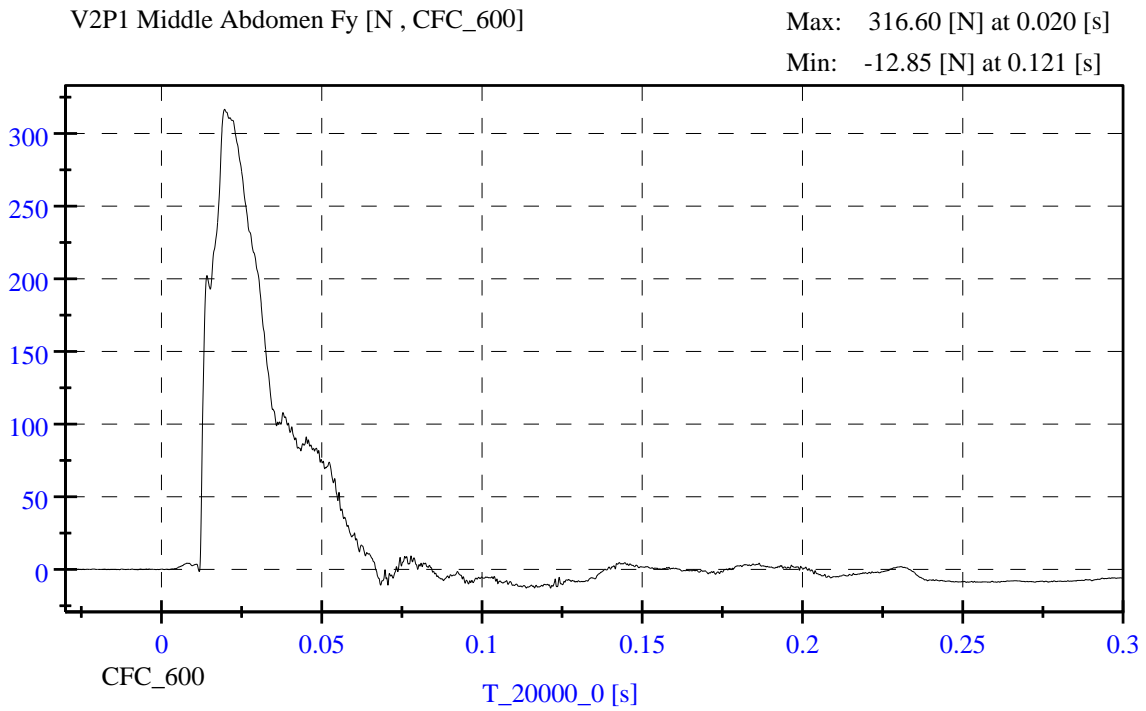
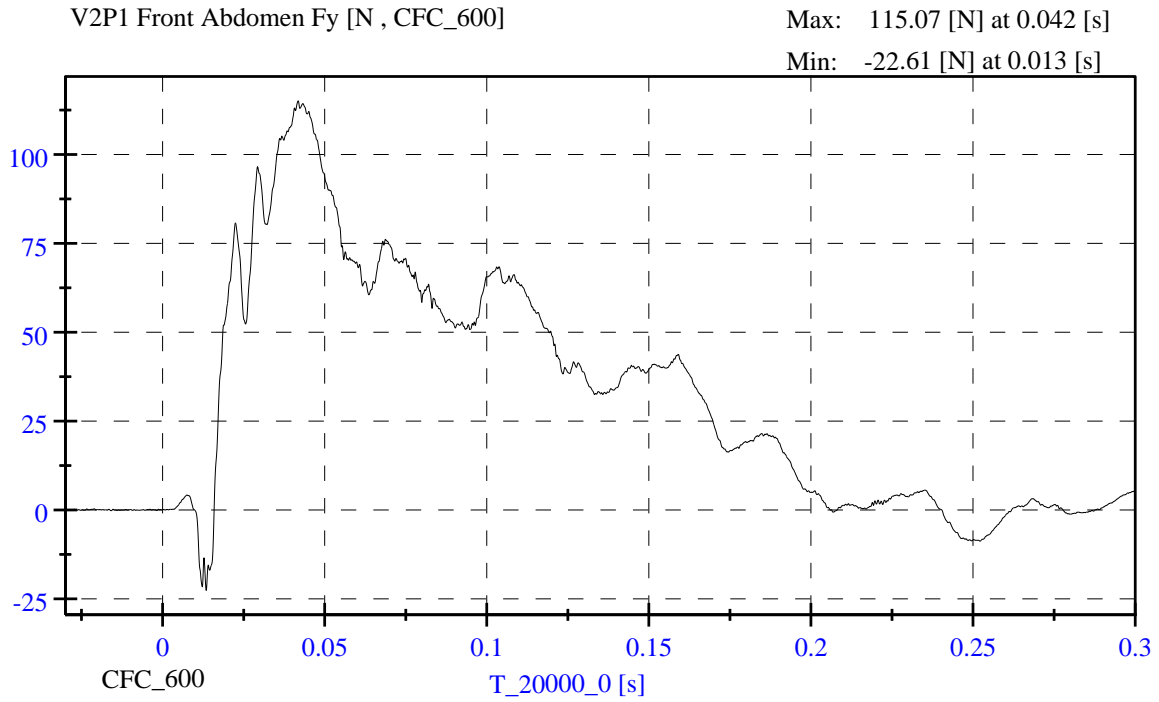
V2P1 Middle Thorax Rib Dy [mm , CFC_180]

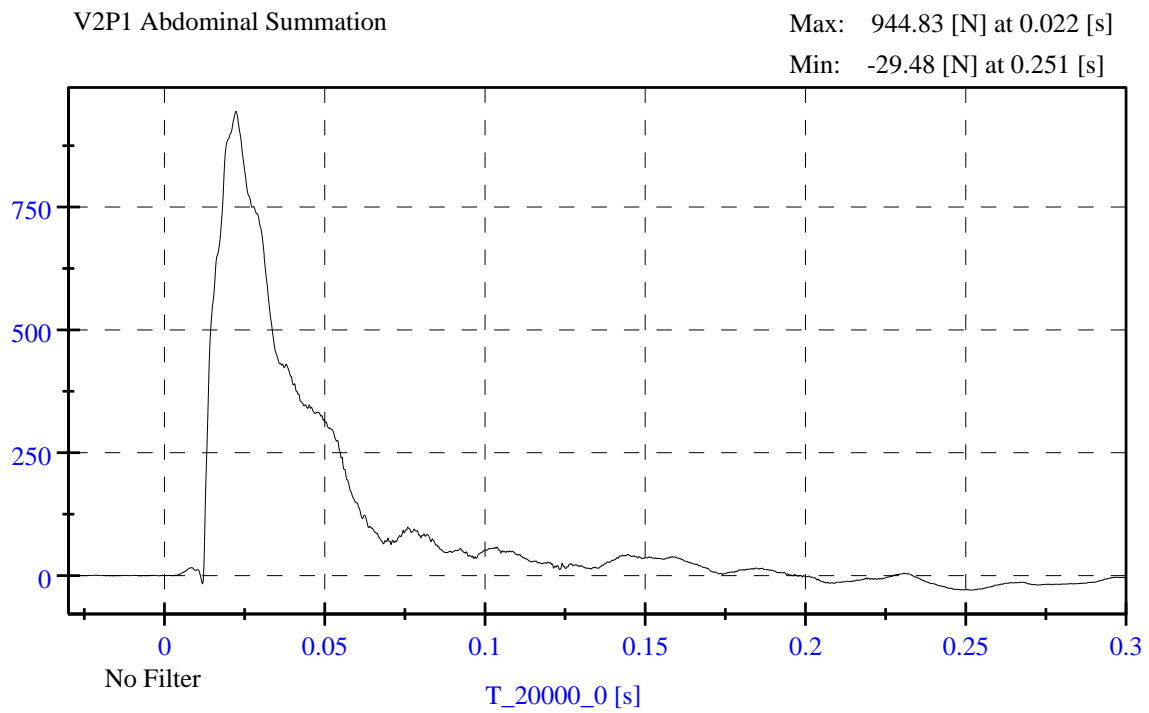
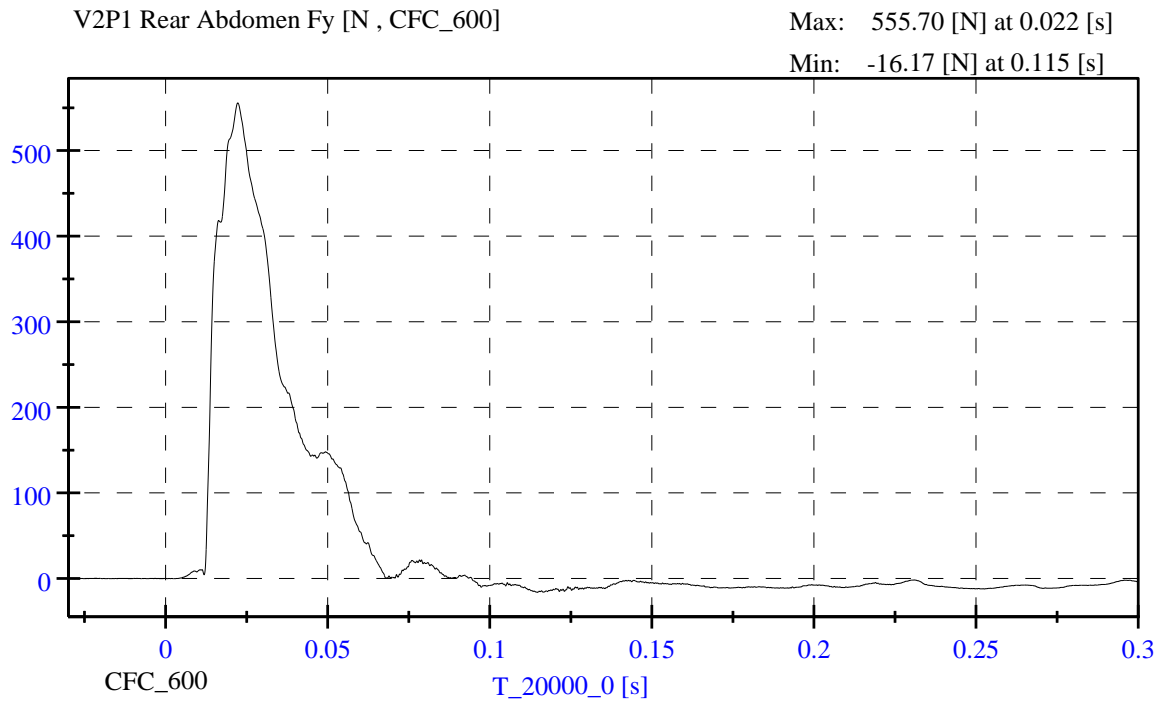
Max: 31.32 [mm] at 0.033 [s]

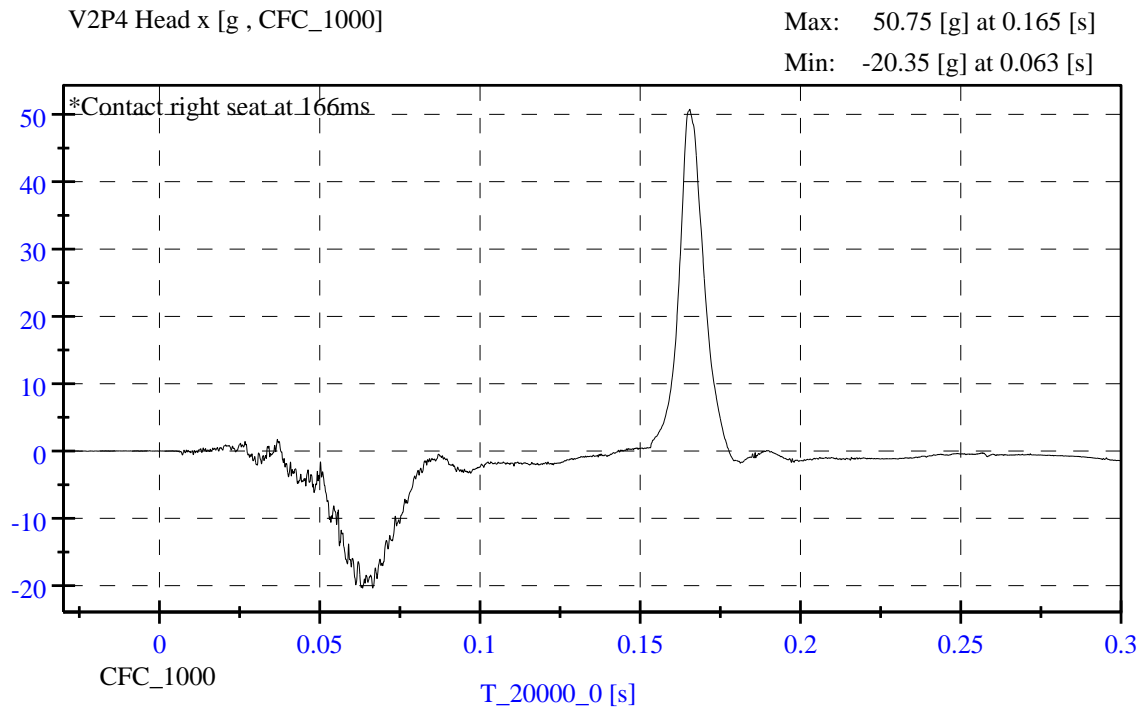
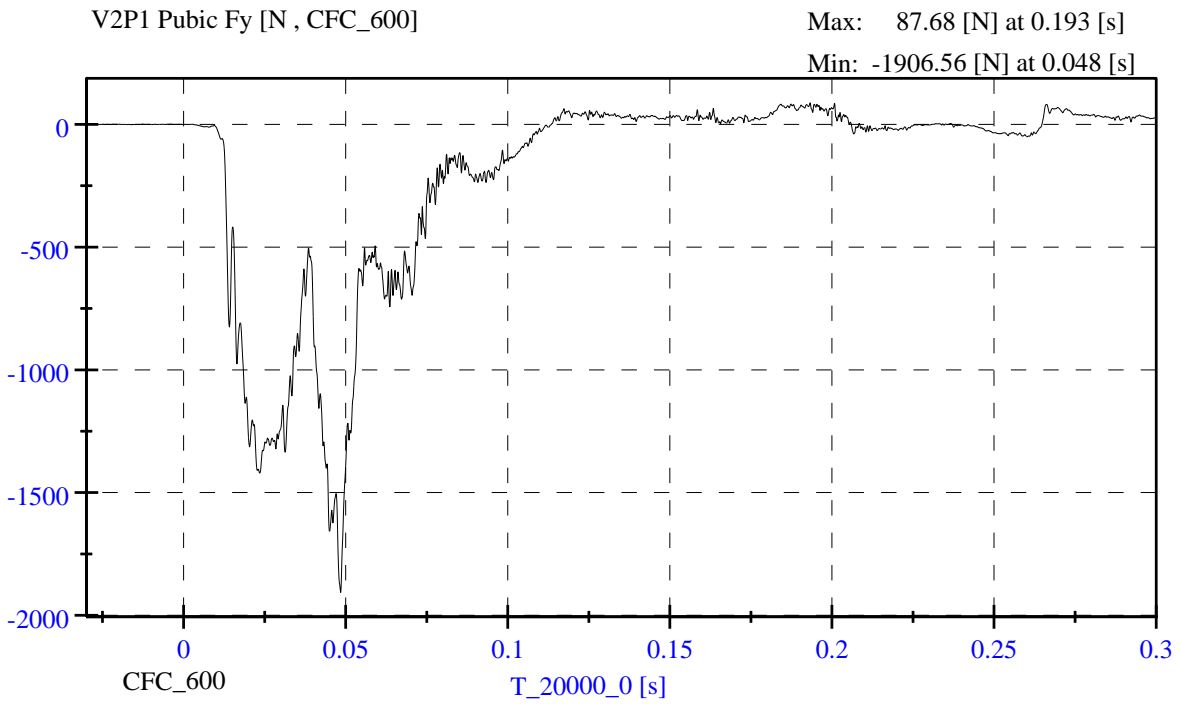
Min: -1.23 [mm] at 0.076 [s]

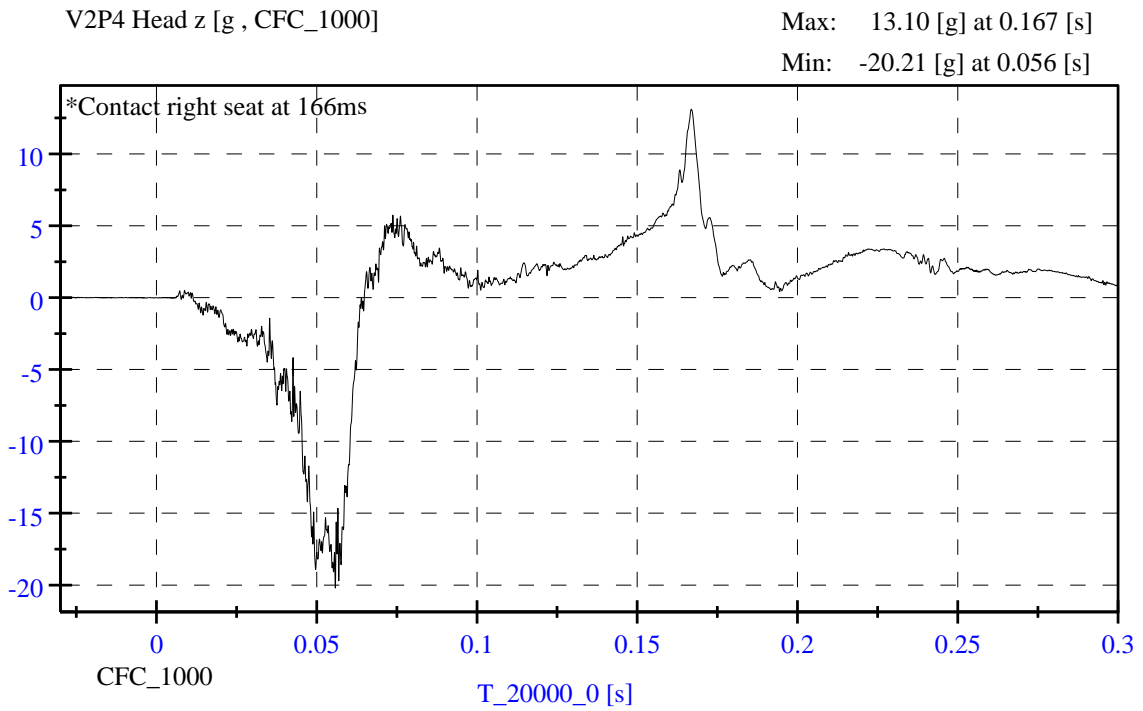
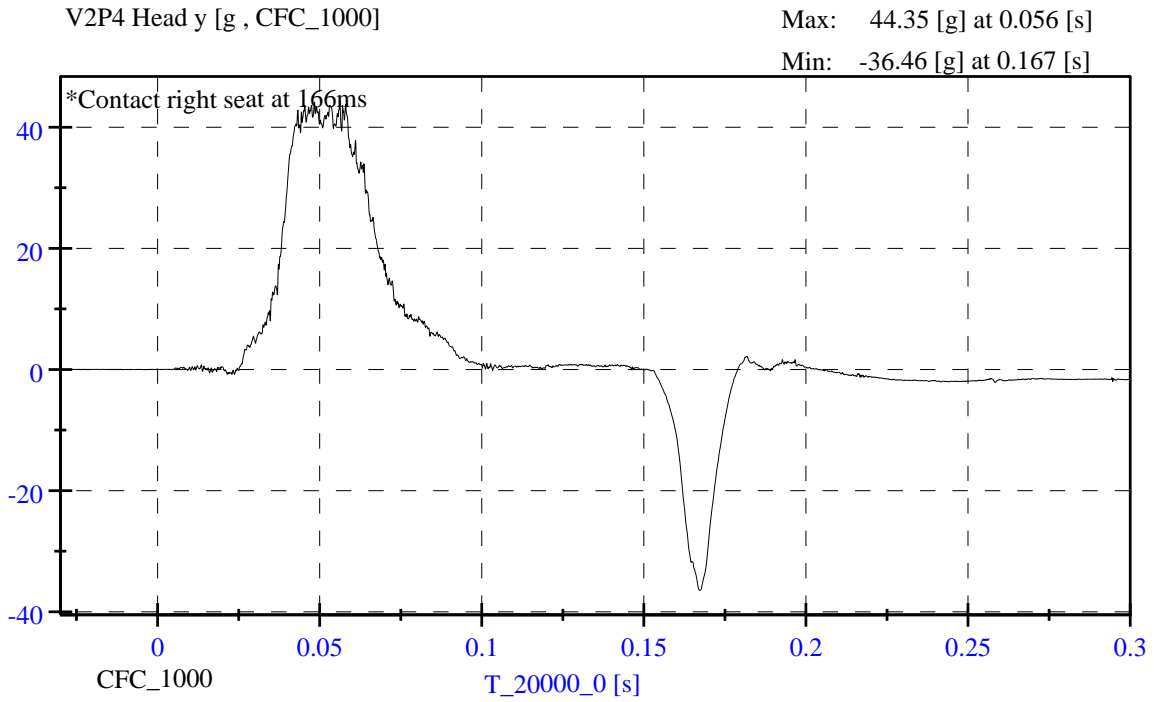


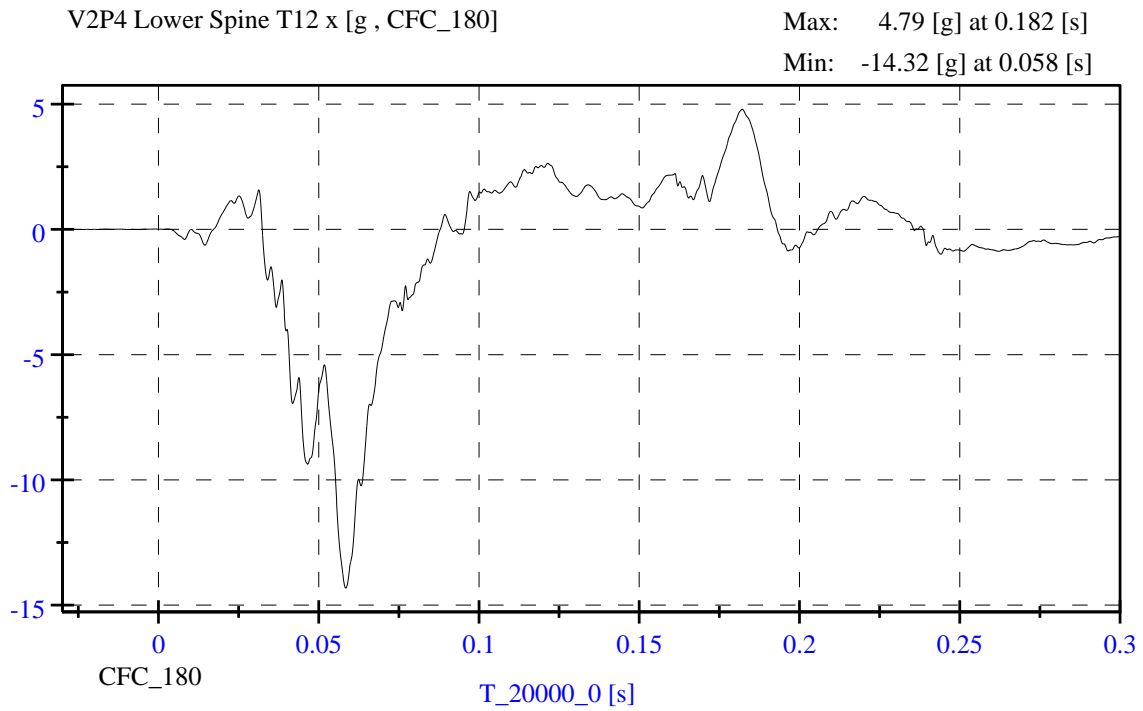
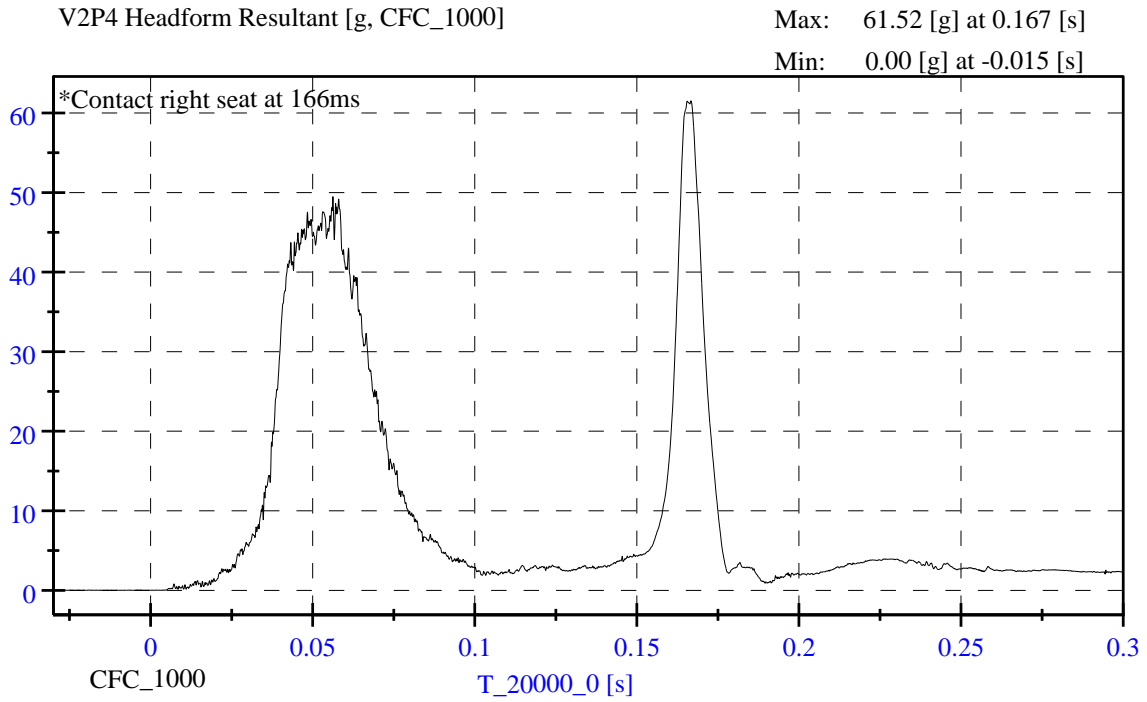


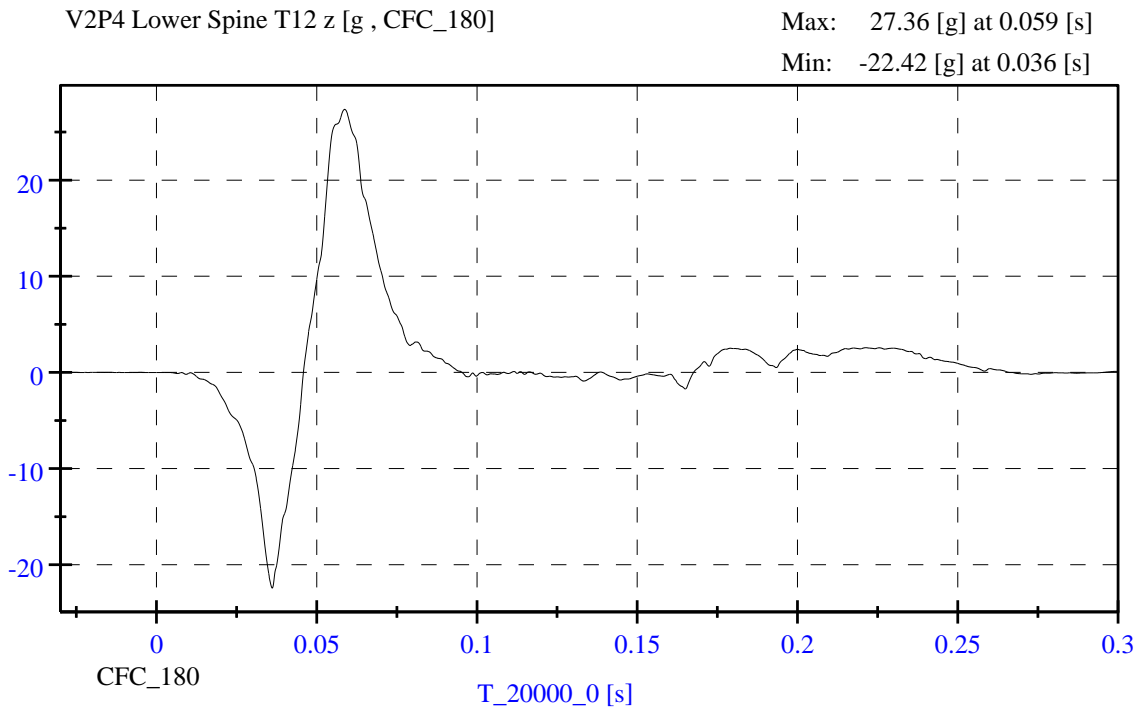
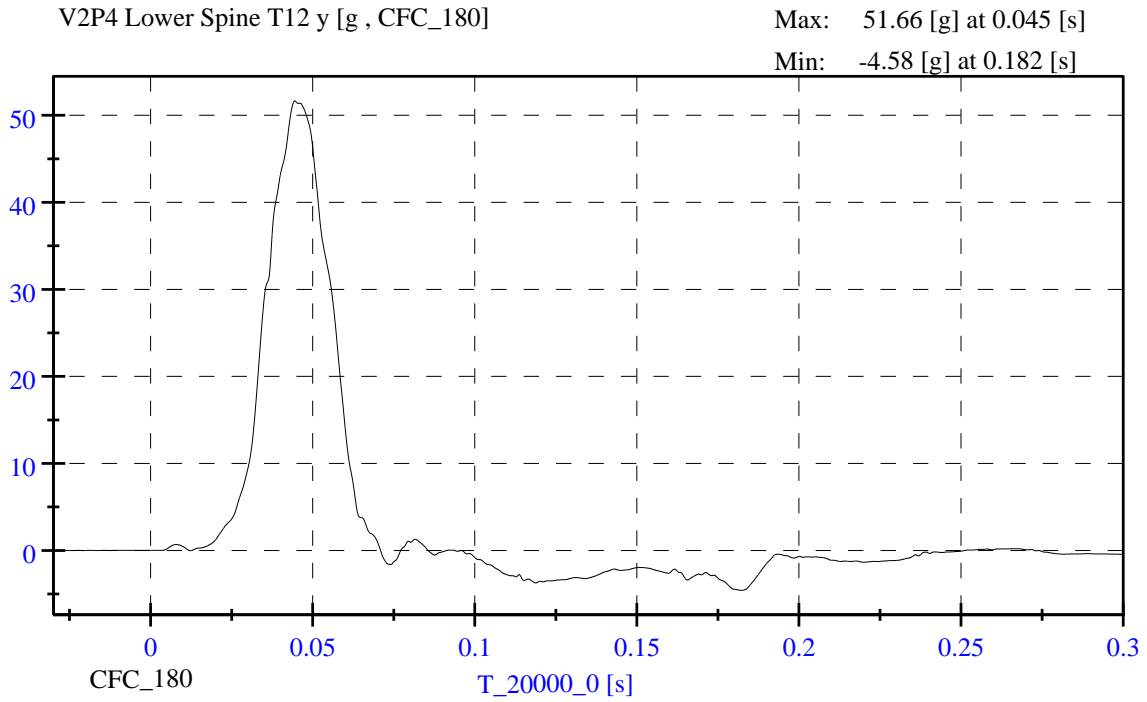


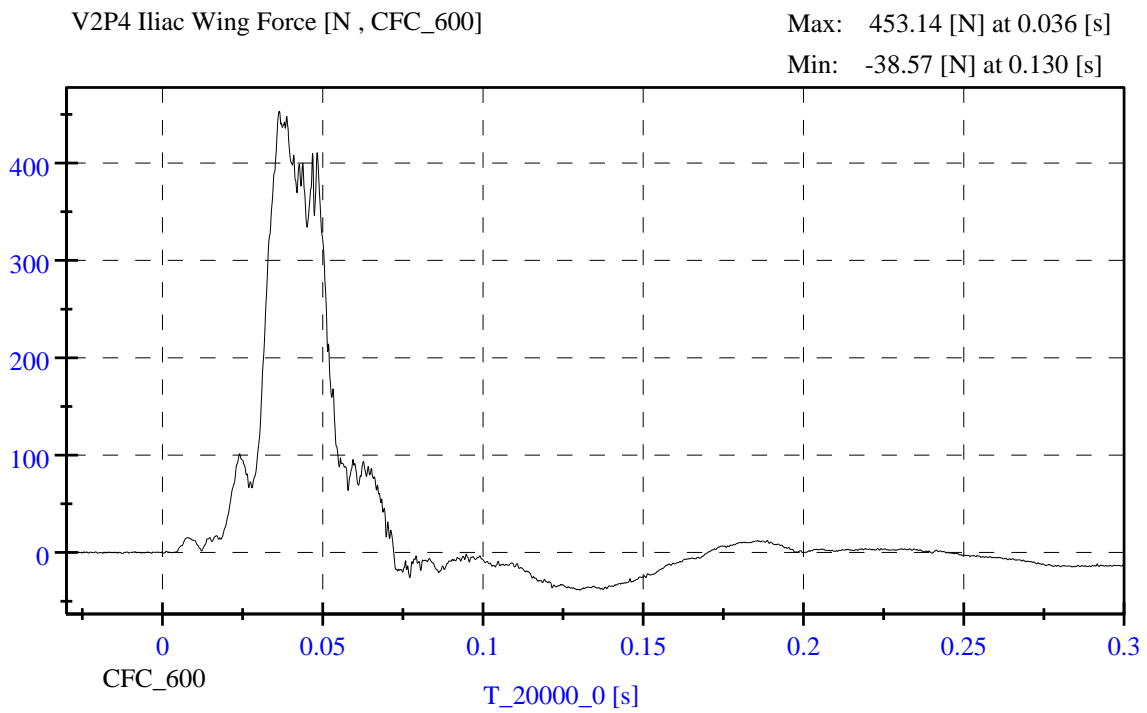
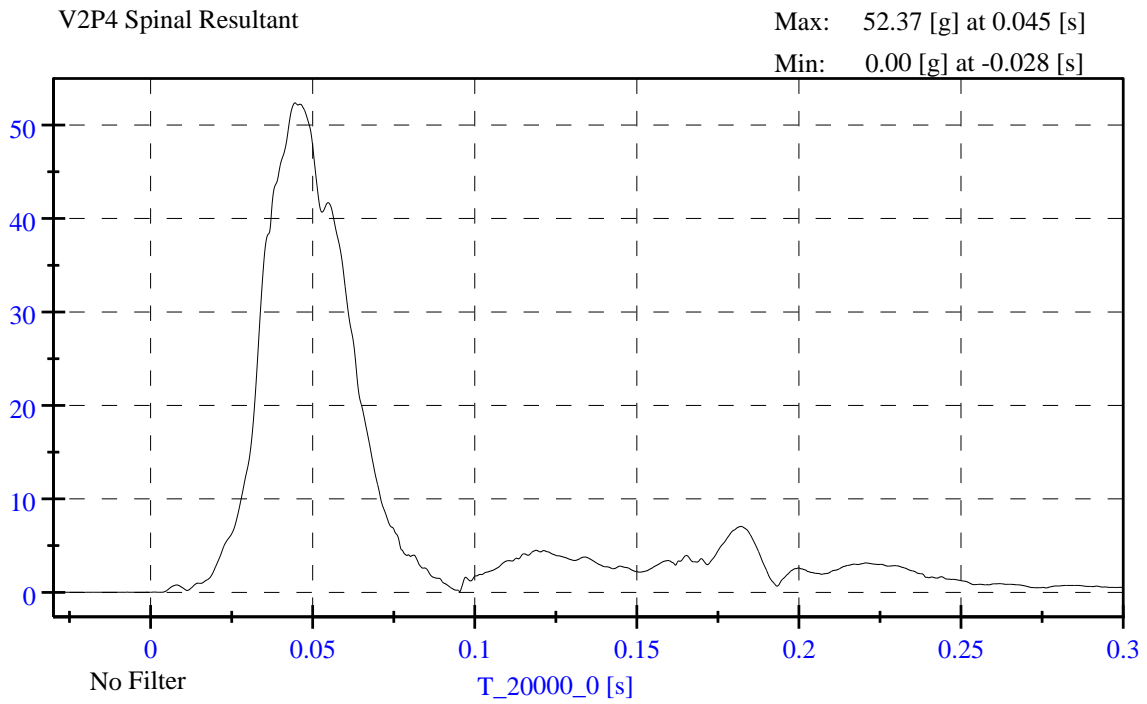


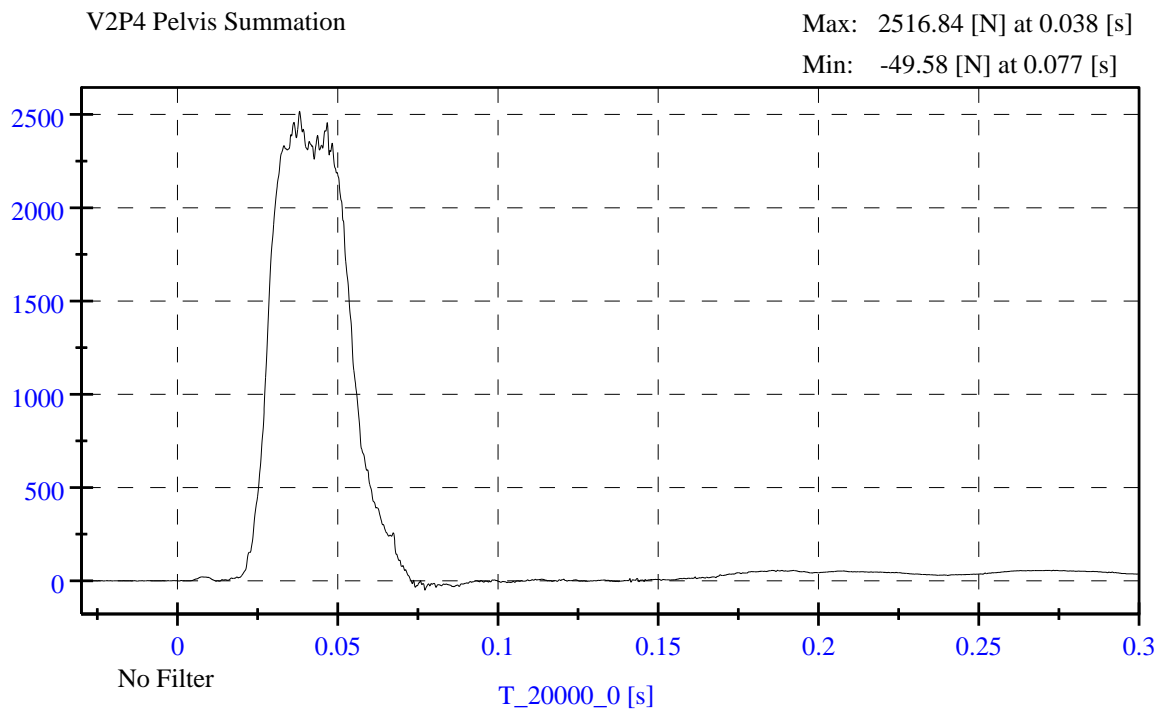
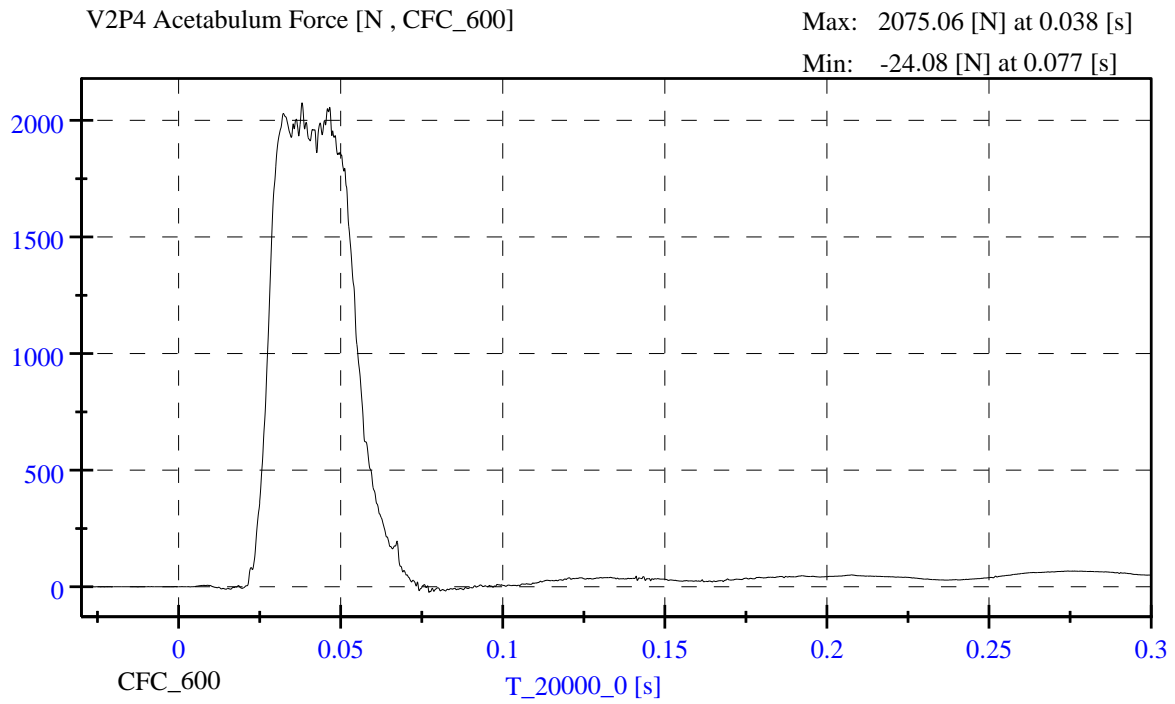












APPENDIX C

DUMMY PERFORMANCE CALIBRATION TEST DATA

CALIBRATION TEST RESULTS

PRE-TEST

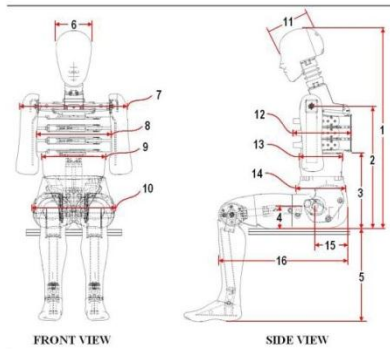
EUROSID 2 (ES-2RE) MALE – DRIVER ATD

SERIAL NO: F034

(CONFIGURED FOR LEFT SIDE IMPACT)

ES-2re External Measurements

NHTSA S/N F034



Dim. No.	Description	Specification (mm)	Result (mm)	Pass/Fail
1	Sitting Height	900-918	913	Pass
2	Seat to Shoulder Joint	558-572	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346-356	355	Pass
4	Seat to Hip Joint (center of bolt)	97-103	100	Pass
5	Sole to Seat, Sitting	433-451	445	Pass
6	Head Width	152-158	155	Pass
7	Shoulder/Arm Width	461-479	468	Pass
8	Thorax Width	322-332	327	Pass
9	Abdomen Width	273-287	284	Pass
10	Pelvis Lap Width	359-373	371	Pass
11	Head Depth	196-206	201	Pass
12	Thorax Depth	262-272	269	Pass
13	Abdomen Depth	194-204	200	Pass
14	Pelvis Depth	235-245	238	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150-160	156	Pass
16	Back of Buttocks to Front Knee	597-615	607	Pass

Technician: SZ

Date: 10/03/2012



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/2/2012
Test Number:	1	Test Time:	2:10:18 PM

Component Part Number	Component Serial Number
455-1007	1916409

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	47 %RH P
Resultant Acceleration	125 -- 155	147 g P
Oscillation	0.0 -- 15.0	2.4 % P
Fore-Aft Acceleration	-15.00 -- 15.00	6.90 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:10:18 PM**

Test Date: **10/2/2012**



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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	5/17/2012
Endevco	7264-2000	P52022	5/17/2012
Endevco	7264-2000	P52040	5/17/2012

Test Time: 2:10:18 PM

Test Date: 10/2/2012

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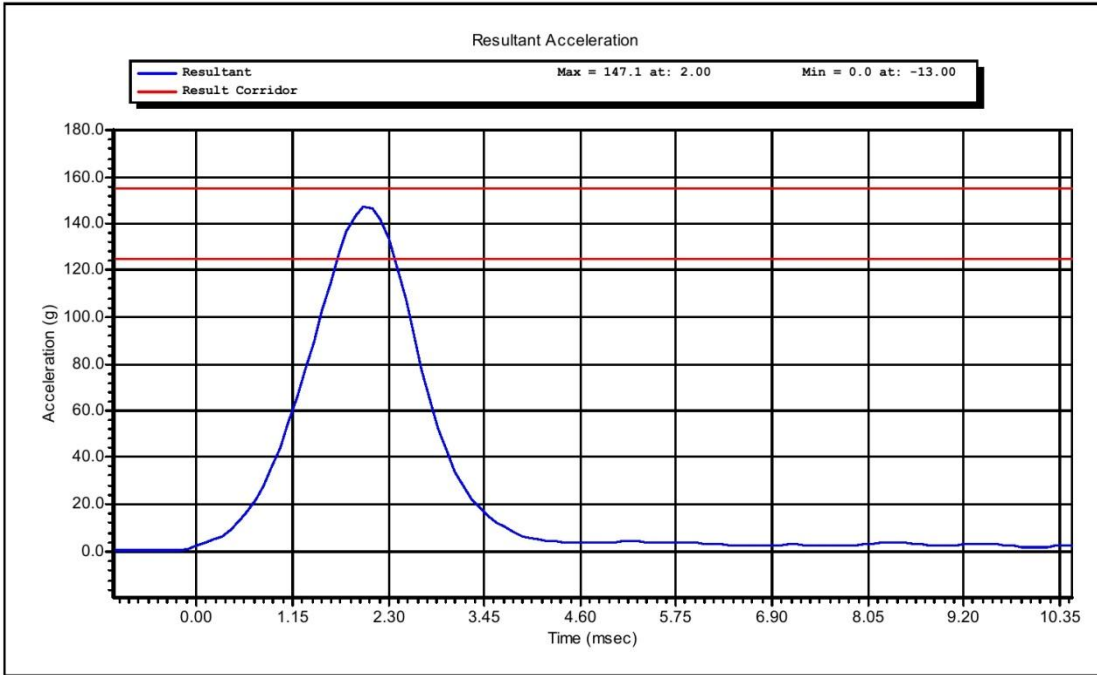


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/2/2012
Test Number:	1	Test Time:	2:10:18 PM



Test Time: **2:10:18 PM**

Test Date: **10/2/2012**

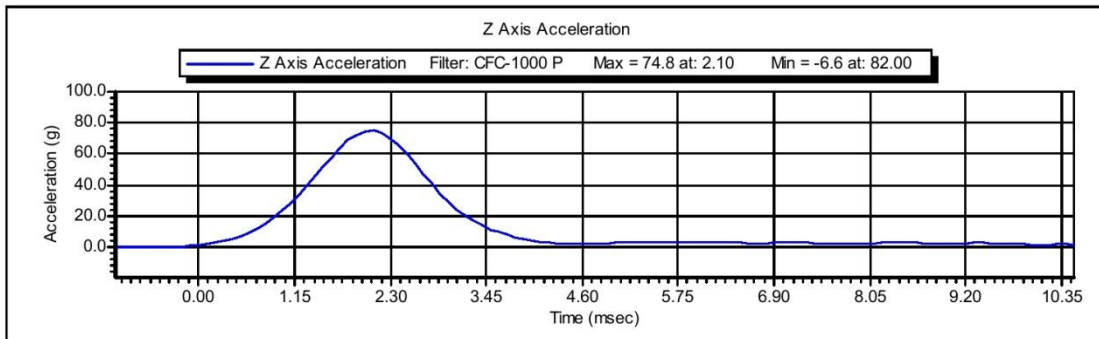
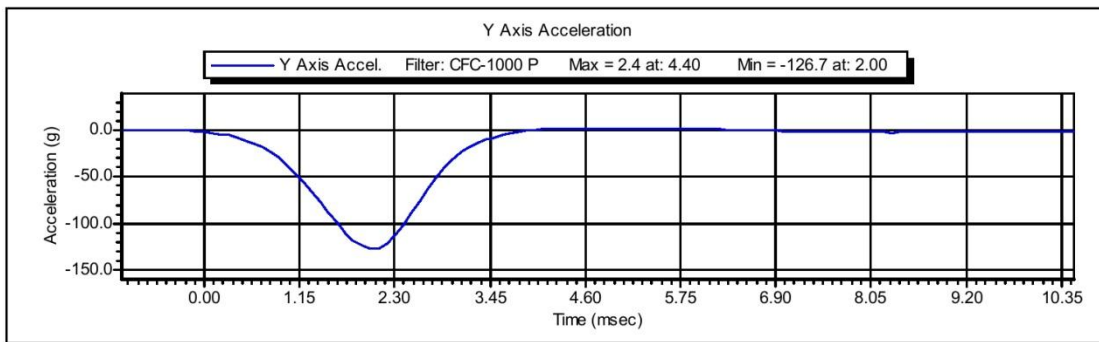
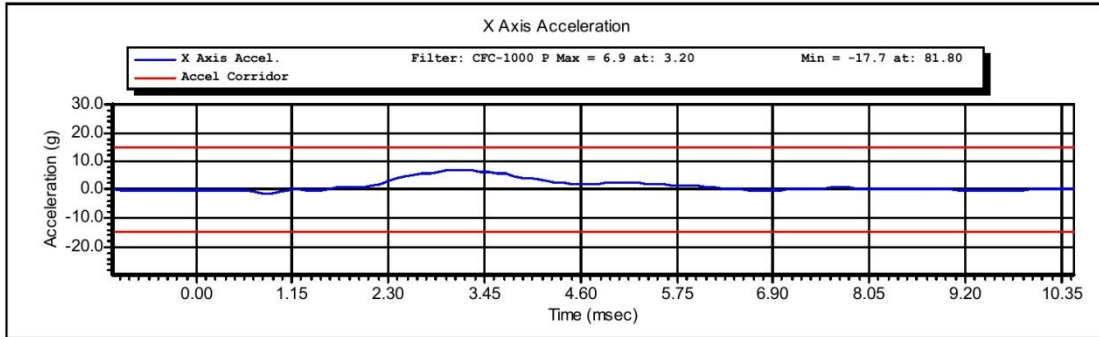
Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



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Test Time: 2:10:18 PM

Test Date: 10/2/2012

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VERIFICATION REPORT

Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	8:12:30 AM

Component Part Number	Component Serial Number
455-2002	

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	60 %RH P
Velocity	3.30 -- 3.50	3.47 m/s P
Maximum Neck Flexion Angle	49.0 -- 59.0	51.6 degrees P
Time At Maximum Neck Flexion	54.0 -- 66.0	59.8 ms P
Decay to Zero Degrees	53.0 -- 88.0	62.1 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **8:12:30 AM**

Test Date: **10/3/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
DentonATD	7000428	094	5/30/2012
DentonATD	7000428	095	5/30/2012
DentonATD	7000428	093	5/30/2012

Test Time: **8:12:30 AM**

Test Date: **10/3/2012**

Copyright 2006 Denton ATD, Inc. LabPac II Version: 1.8.5.0

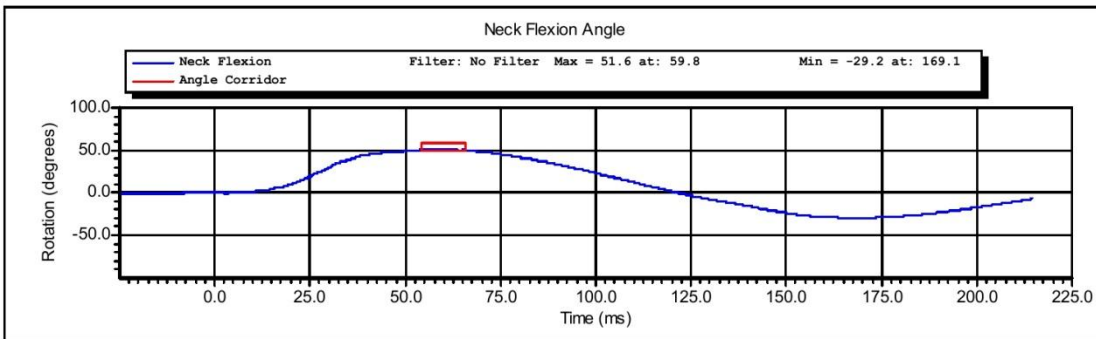
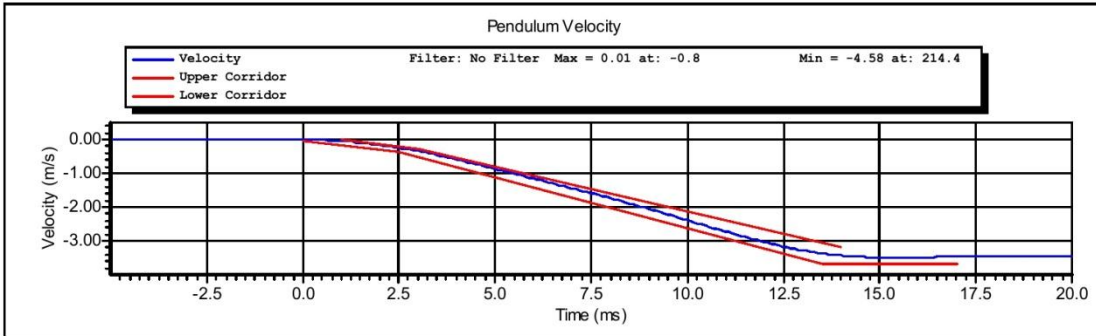


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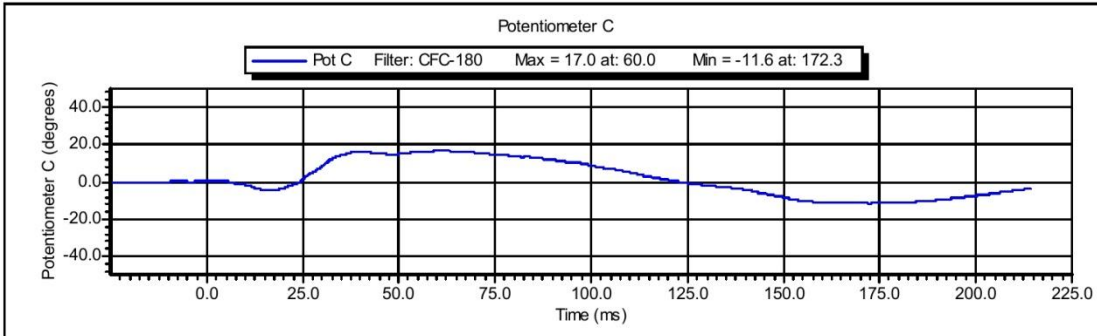
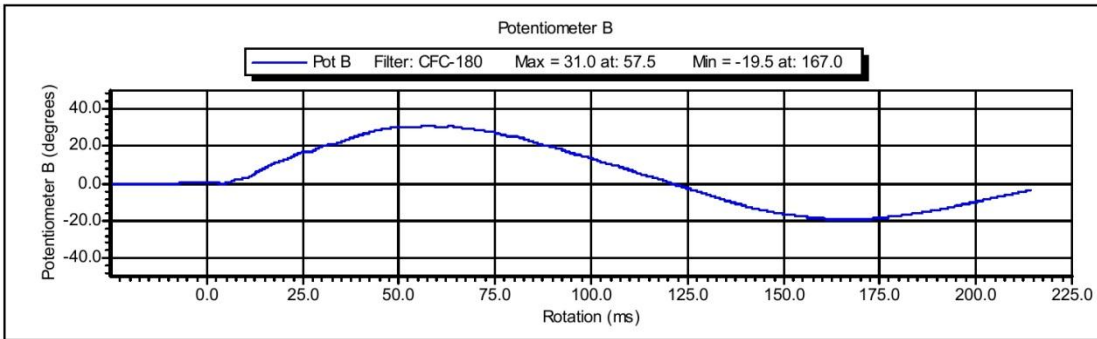
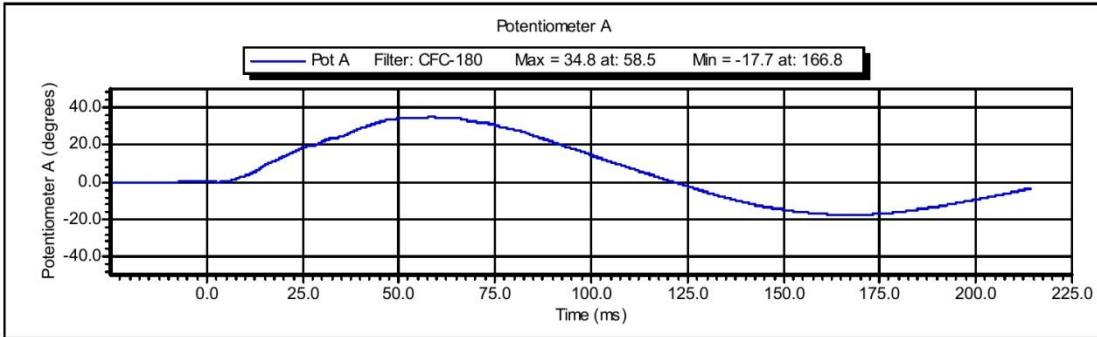
Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	8:12:30 AM



Test Time: **8:12:30 AM**

Test Date: **10/3/2012**

Copyright 2003 Denton ATD, Inc. LabPaqII Version: 1.8.5.0



Test Time: 8:12:30 AM

Test Date: 10/3/2012

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	3	Test Time:	4:22:17 PM

Component Part Number	Component Serial Number
Arm 960715-313	07018

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10.0 -- 70.0	54.4 %RH P
Velocity	4.20 -- 4.40	4.25 m/s P
Pendulum Acceleration	-10.50 -- -7.50	-10.46 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **4:22:17 PM**

Test Date: **10/3/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012

Test Time: 4:22:17 PM

Test Date: 10/3/2012

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

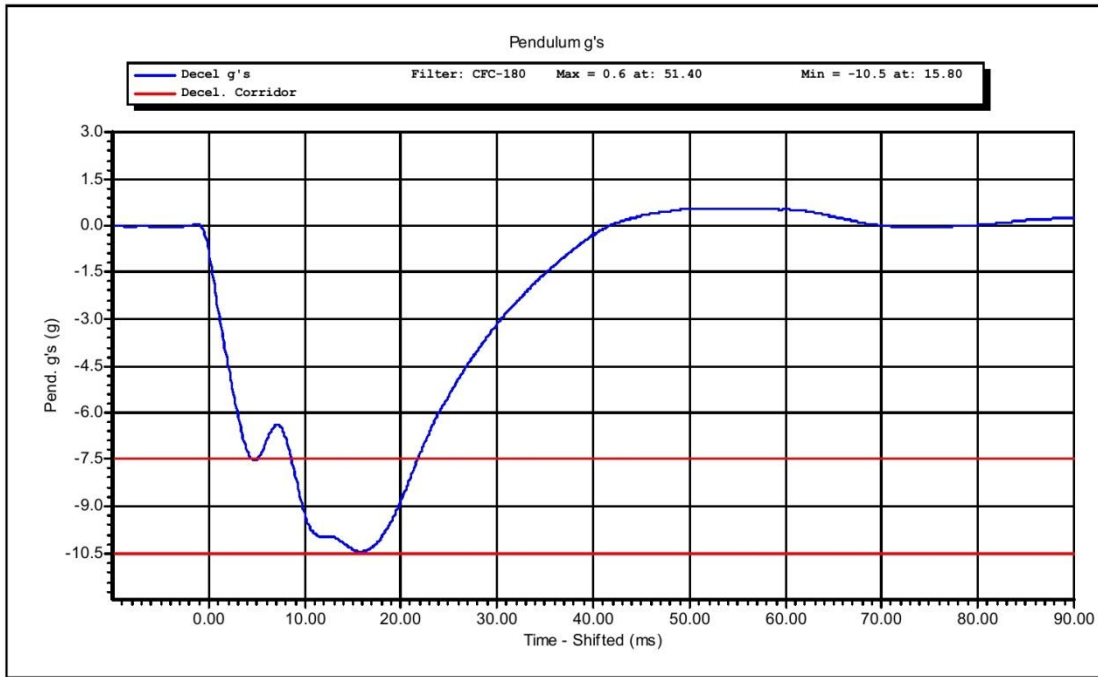


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Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	3	Test Time:	4:22:17 PM



Test Time: **4:22:17 PM**

Test Date: **10/3/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:14:51 PM

Component Part Number	Component Serial Number
455-3100	07203

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10.0 -- 70.0	48.0 %RH P
Velocity	3.90 -- 4.10	3.96 m/s P
Rib Displacement	-51.00 -- -46.00	-46.43 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **3:14:51 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 3:14:51 PM

Test Date: 10/2/2012

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

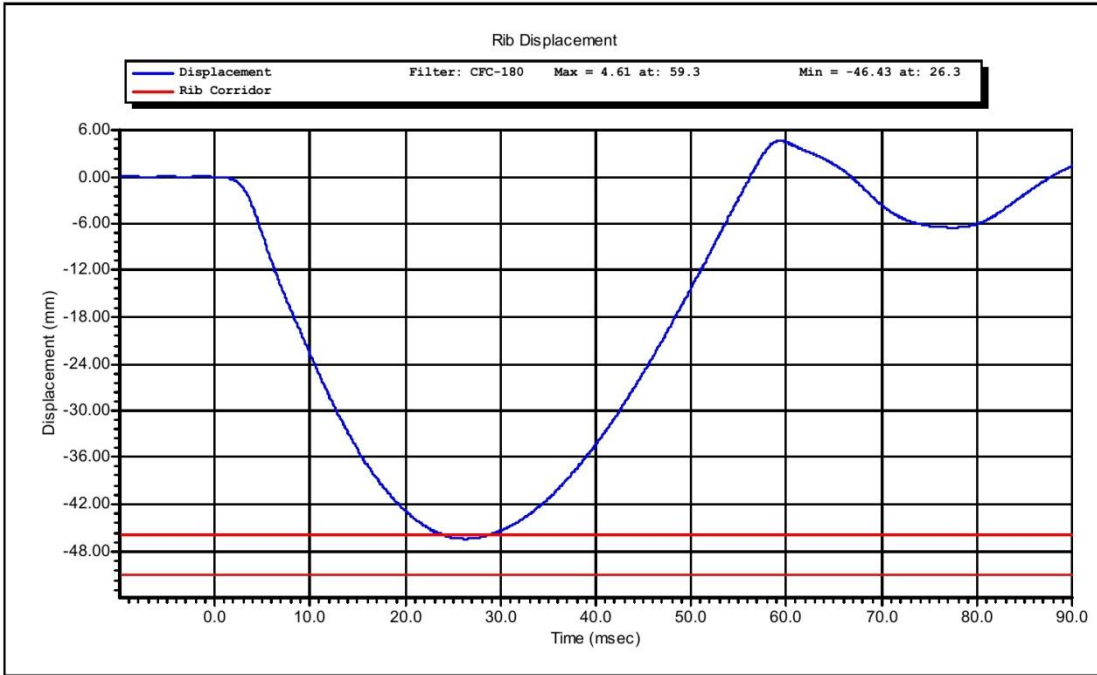


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:14:51 PM



Test Time: **3:14:51 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:28:15 PM

Component Part Number	Component Serial Number
455-3100	07203

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10.0 -- 70.0	48.6 %RH P
Velocity	2.90 -- 3.10	2.98 m/s P
Rib Displacement	-40.00 -- -36.00	-36.30 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **3:28:15 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: **3:28:15 PM**

Test Date: **10/2/2012**

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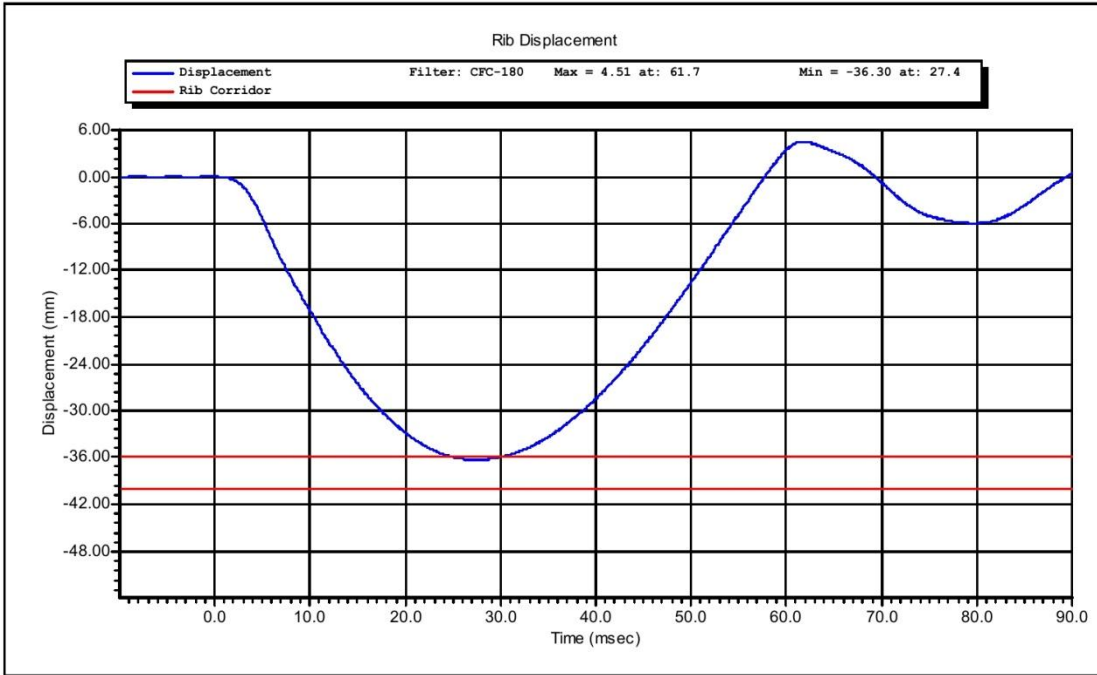


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:28:15 PM



Test Time: **3:28:15 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:36:02 PM

Component Part Number	Component Serial Number
455-3100	07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.6 deg C P
Humidity	10.0 -- 70.0	49.0 %RH P
Velocity	3.90 -- 4.10	3.96 m/s P
Rib Displacement	-51.00 -- -46.00	-47.68 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **3:36:02 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 3:36:02 PM

Test Date: 10/2/2012

Copyright 2006 Denton ATD, Inc. LabPaq II Version: 1.8.5.0

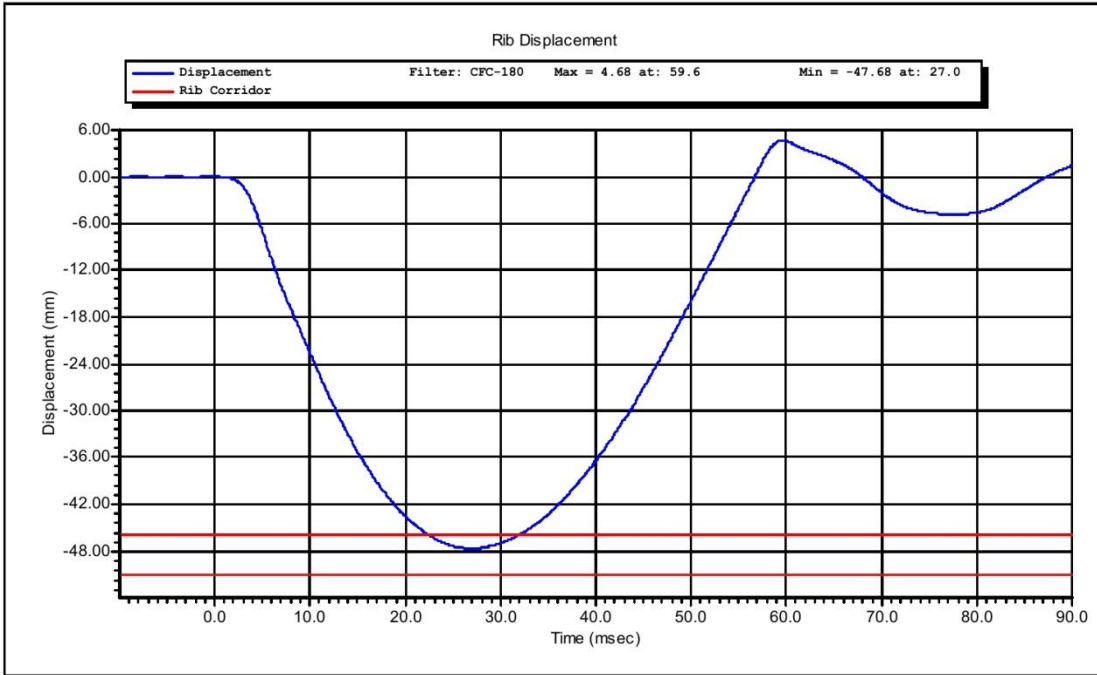


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4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:36:02 PM



Test Time: **3:36:02 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:49:50 PM

Component Part Number	Component Serial Number
455-3100	07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10.0 -- 70.0	50.5 %RH P
Velocity	2.90 -- 3.10	2.96 m/s P
Rib Displacement	-40.00 -- -36.00	-37.13 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **3:49:50 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 3:49:50 PM

Test Date: 10/2/2012

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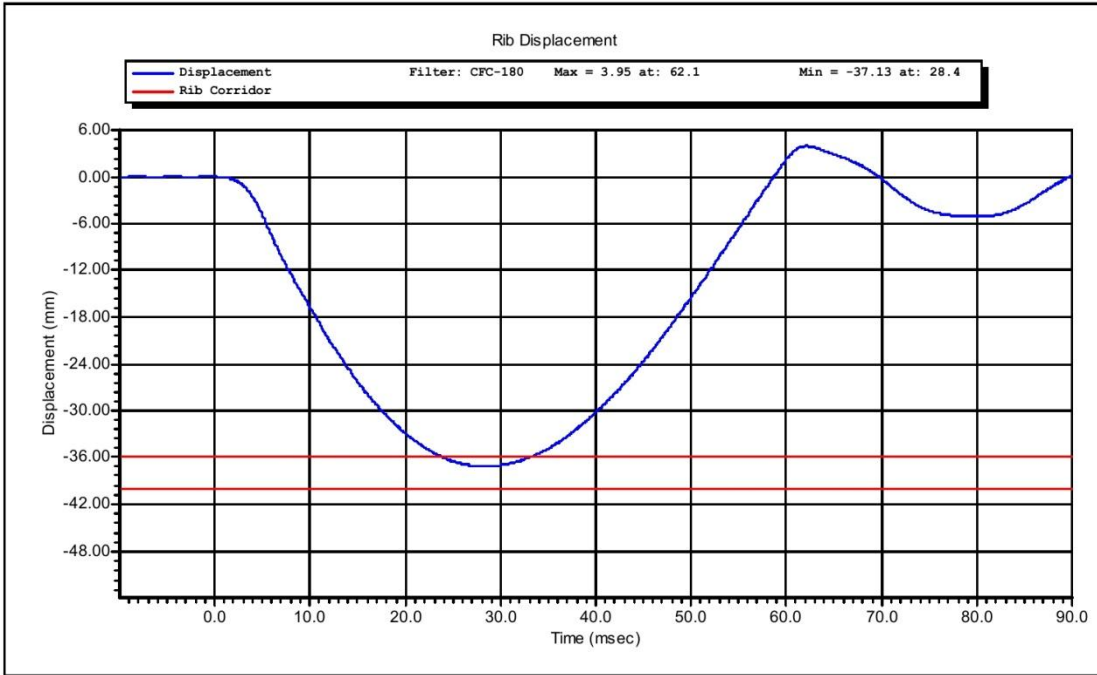


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	3:49:50 PM



Test Time: **3:49:50 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	4:17:29 PM

Component Part Number	Component Serial Number
455-3100	07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10.0 -- 70.0	45.0 %RH P
Velocity	3.90 -- 4.10	3.95 m/s P
Rib Displacement	-51.00 -- -46.00	-48.42 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **4:17:29 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 4:17:29 PM

Test Date: 10/2/2012

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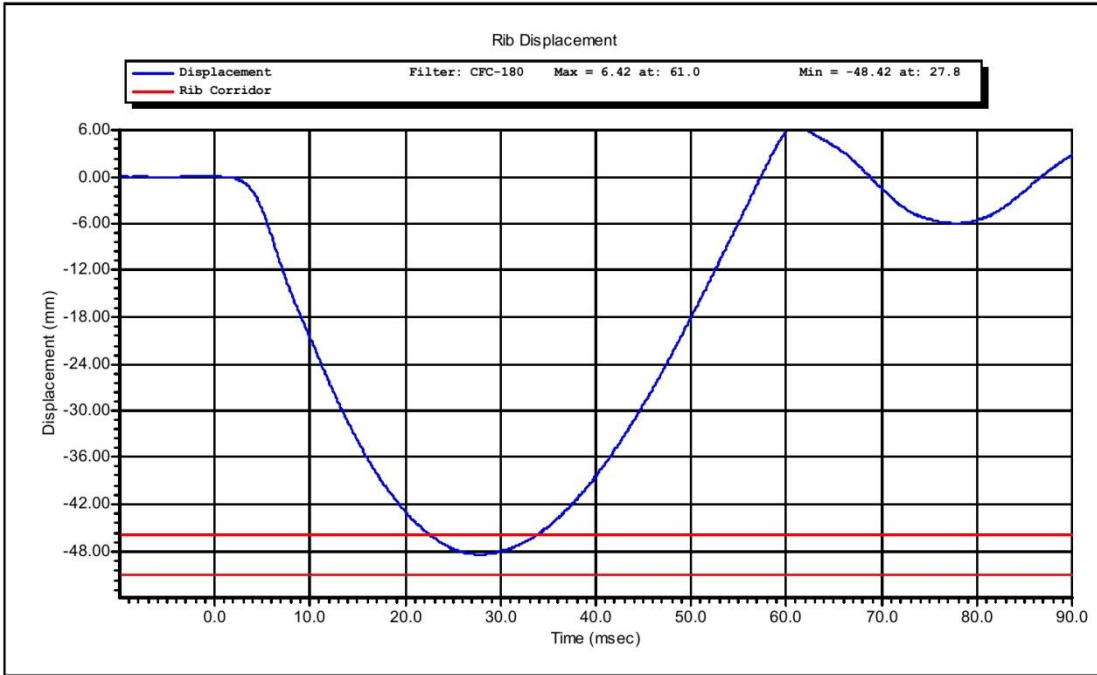


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 4.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	4:17:29 PM



Test Time: **4:17:29 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	4:31:47 PM

Component Part Number	Component Serial Number
455-3100	07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10.0 -- 70.0	45.5 %RH P
Velocity	2.90 -- 3.10	2.96 m/s P
Rib Displacement	-40.00 -- -36.00	-37.53 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **4:31:47 PM**

Test Date: **10/2/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 4:31:47 PM

Test Date: 10/2/2012

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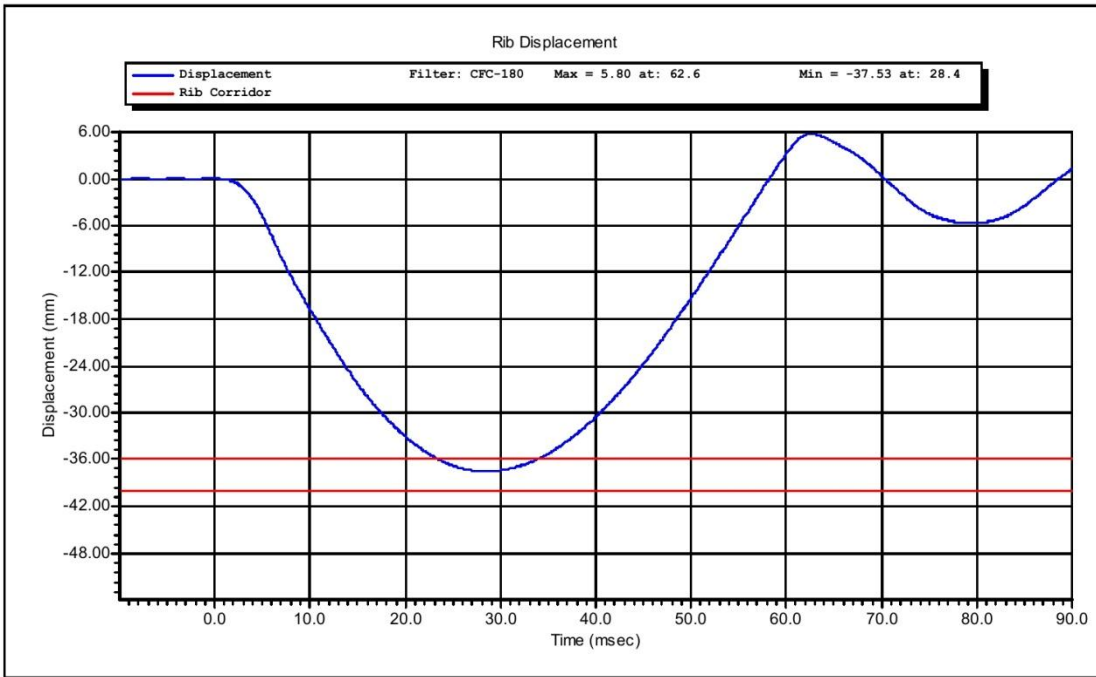


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3.0	Test Date:	10/2/2012
Test Number:	1	Test Time:	4:31:47 PM



Test Time: **4:31:47 PM**

Test Date: **10/2/2012**

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VERIFICATION REPORT

Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	2:00:27 PM

Component Part Number	Component Serial Number
Upper Rib - 175-4002	07203
Middle Rib - 175-4002	07205
Lower Rib - 175-4002	07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10.0 -- 70.0	54.0 %RH P
Velocity	5.40 -- 5.60	5.47 m/s P
Upper Rib Displacement	34.0 -- 41.0	37.8 mm P
Middle Rib Displacement	37.0 -- 45.0	41.5 mm P
Lower Rib Displacement	37.0 -- 44.0	39.9 mm P
Impactor Force	5100 -- 6200	5761 N P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:00:27 PM**

Test Date: **10/3/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Honeywell	MLT-38000	DS-183	5/17/2012
Honeywell	MLT-38000	DS-184	5/17/2012
Honeywell	MLT-38000	DS-182	5/17/2012

Test Time: 2:00:27 PM

Test Date: 10/3/2012

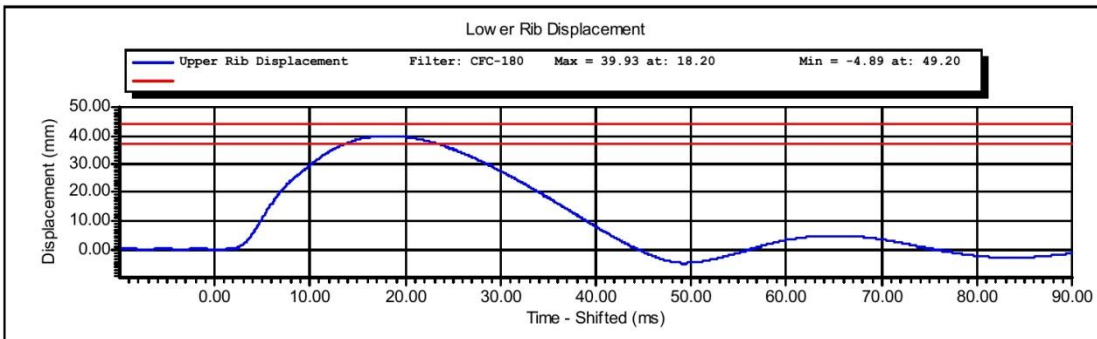
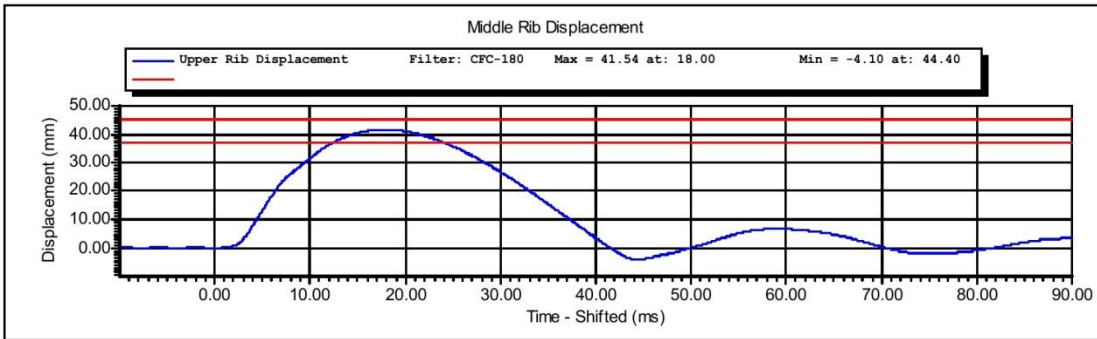
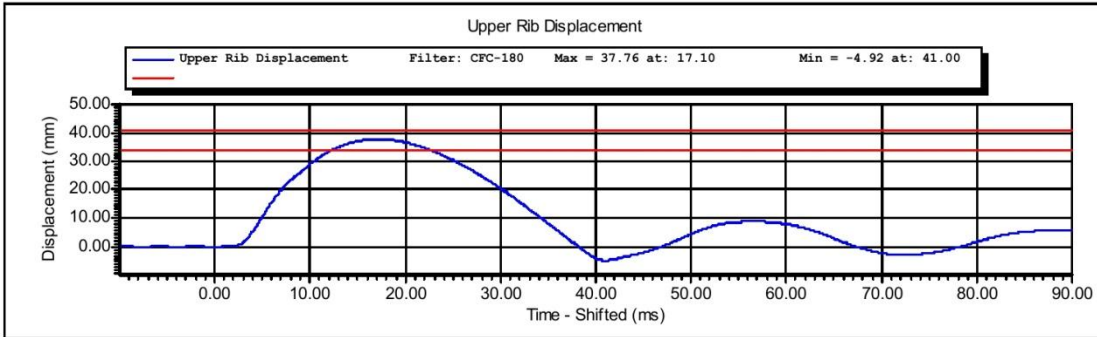
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Test Time: 2:00:27 PM

Test Date: 10/3/2012

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Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	2:34:30 PM

Component Part Number	Component Serial Number
455-4001	04/83

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	54 %RH P
Velocity	3.90 -- 4.10	4.04 m/s P
Peak Abdominal Force	-2.70 -- -2.20	-2.30 kN P
Time At Peak Abdominal Force	10.0 -- 12.3	10.8 ms P
Maximum Pendulum Force	-4.80 -- -4.00	-4.63 kN P
Time at Peak Pendulum Force	10.6 -- 13.0	11.7 ms P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:34:30 PM**

Test Date: **10/3/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Denton	2631	LC-1512	5/21/2012
Denton	2631	LC-1526	5/21/2012
Denton	2631	LC-1516	5/21/2012

Test Time: 2:34:30 PM

Test Date: 10/3/2012

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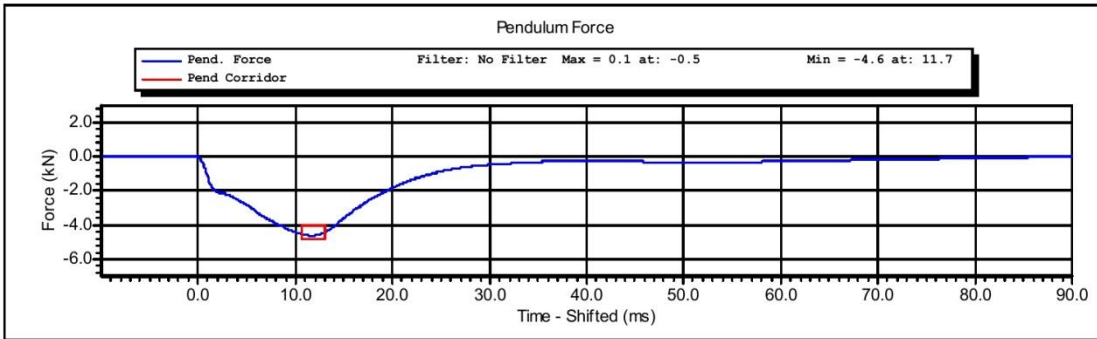
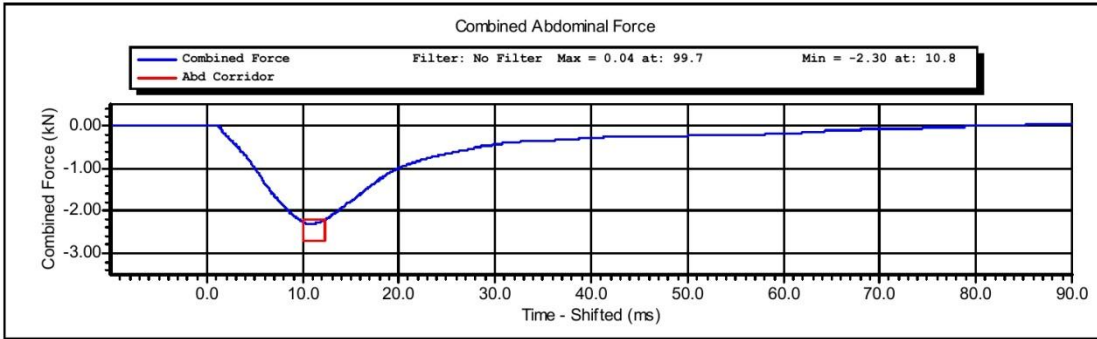


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Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	2:34:30 PM



Test Time: **2:34:30 PM**

Test Date: **10/3/2012**

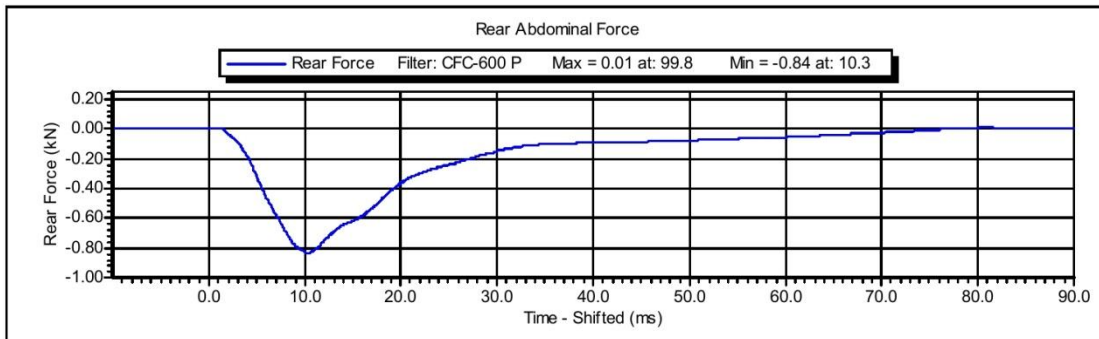
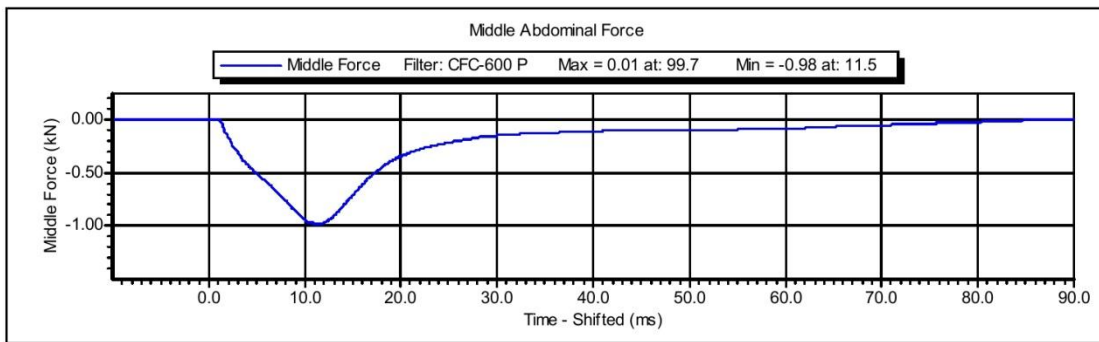
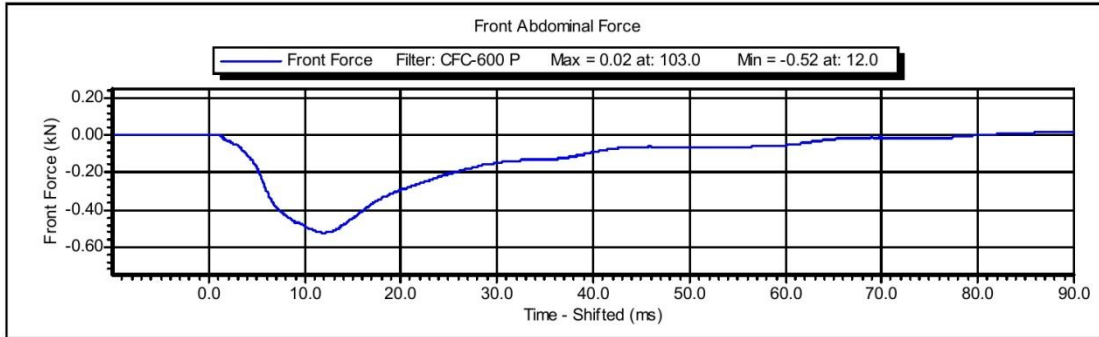
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Test Time: 2:34:30 PM

Test Date: 10/3/2012

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VERIFICATION REPORT

Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/2/2012
Test Number:	3	Test Time:	2:28:17 PM

Component Part Number	Component Serial Number
175-5501	DI8371

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10 -- 70	50 %RH P
Velocity	5.95 -- 6.15	6.15 m/s P
Maximum Headform Flexion Angle	45.0 -- 55.0	46.8 degrees P
Time at Maximum Headform Flexion Angle	39.0 -- 53.0	45.8 ms P
Decay to Zero Degrees	37.0 -- 57.0	38.2 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:28:17 PM**

Test Date: **10/2/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
DentonATD	7000428	094	5/30/2012
DentonATD	7000428	095	5/30/2012
DentonATD	7000428	093	5/30/2012

Test Time: 2:28:17 PM

Test Date: 10/2/2012

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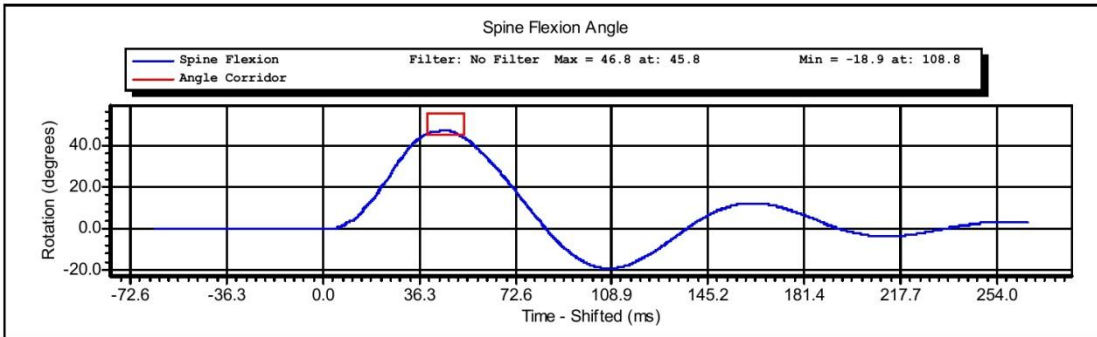
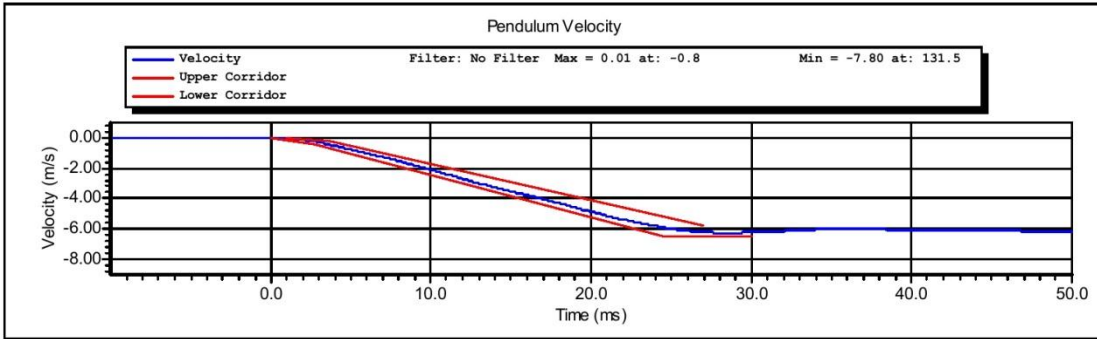


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Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/2/2012
Test Number:	3	Test Time:	2:28:17 PM



Test Time: **2:28:17 PM**

Test Date: **10/2/2012**

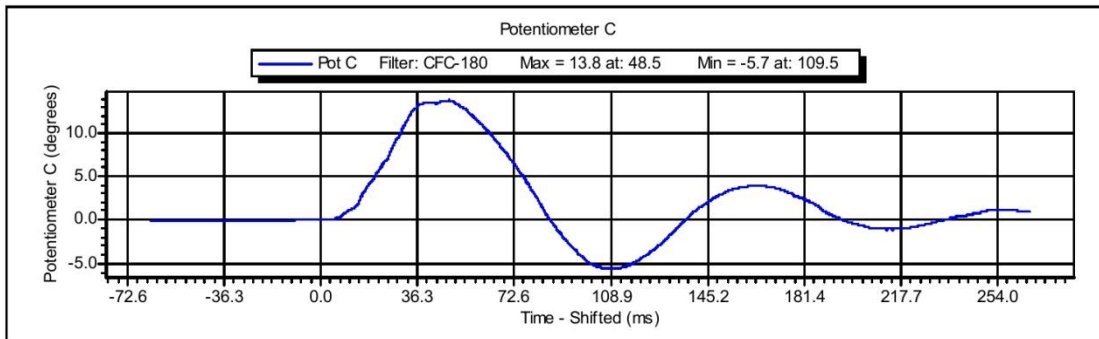
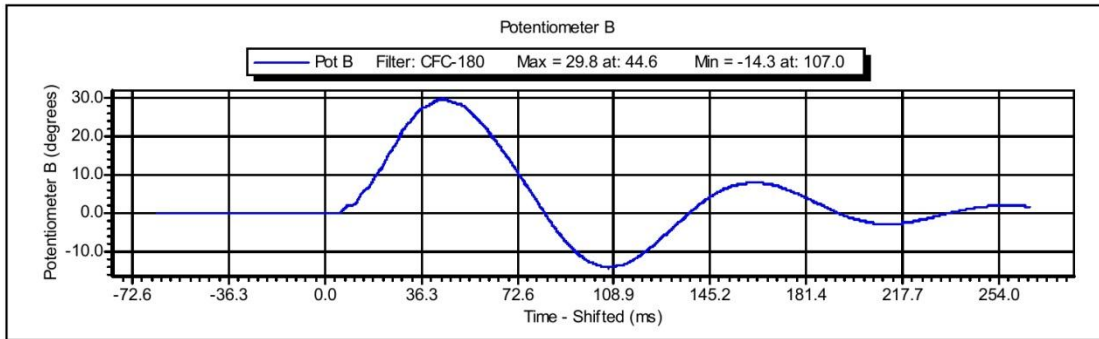
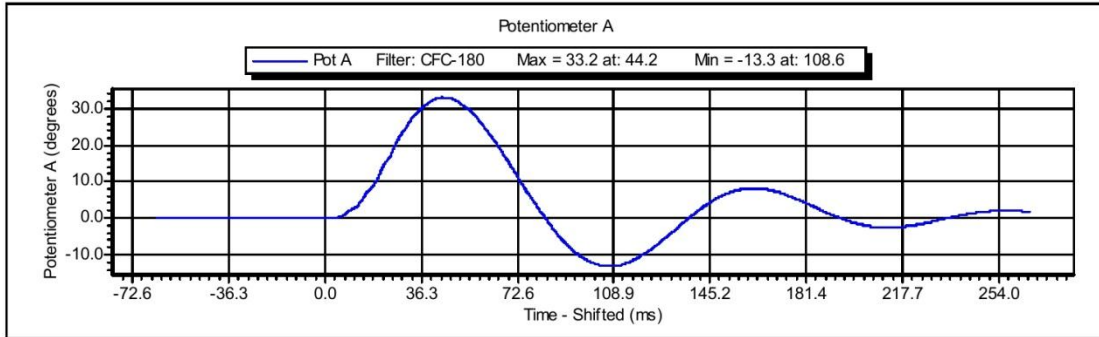
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Test Time: 2:28:17 PM

Test Date: 10/2/2012

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VERIFICATION REPORT

Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	2:56:30 PM

Component Part Number	Component Serial Number
455-4003	0703L

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10 -- 70	56 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Peak Pendulum Force	-5.40 -- -4.70	-4.97 kN P
Time at Peak Pendulum Force	11.80 -- 16.10	14.32 ms P
Peak Pubic Symphysis Force	-1.59 -- -1.23	-1.35 kN P
Time at Peak Pubic Symphysis Force	12.20 -- 17.00	15.82 ms P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:56:30 PM**

Test Date: **10/3/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Denton	3096	LC-465Fy	5/21/2012

Test Time: 2:56:30 PM

Test Date: 10/3/2012

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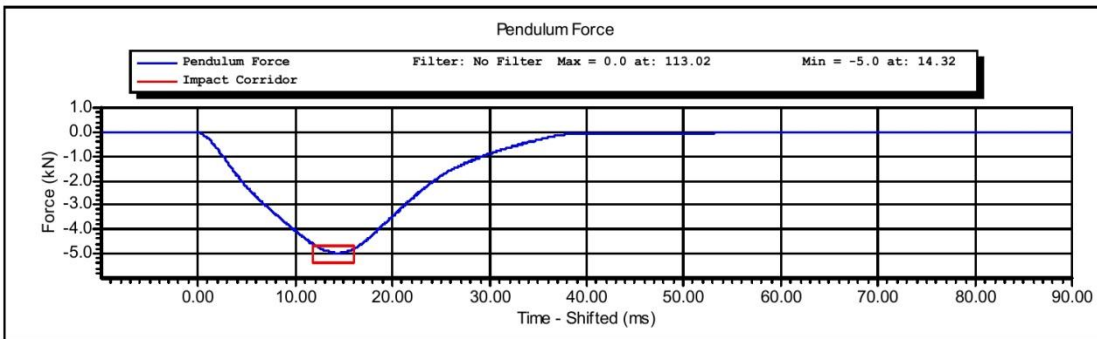
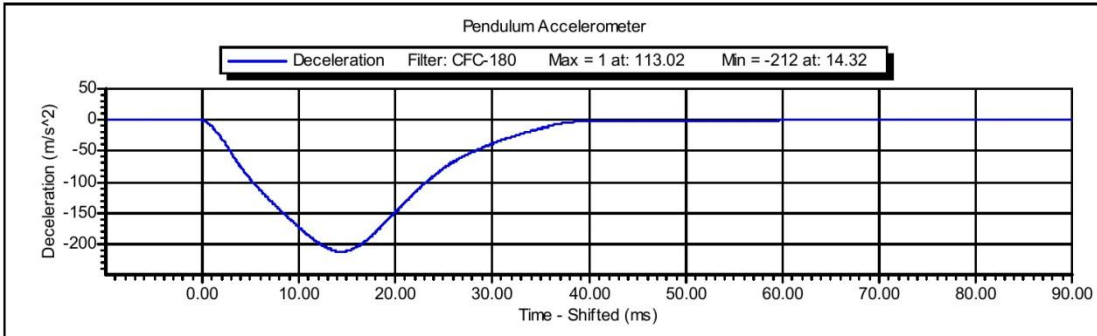


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Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/3/2012
Test Number:	1	Test Time:	2:56:30 PM



Test Time: **2:56:30 PM**

Test Date: **10/3/2012**

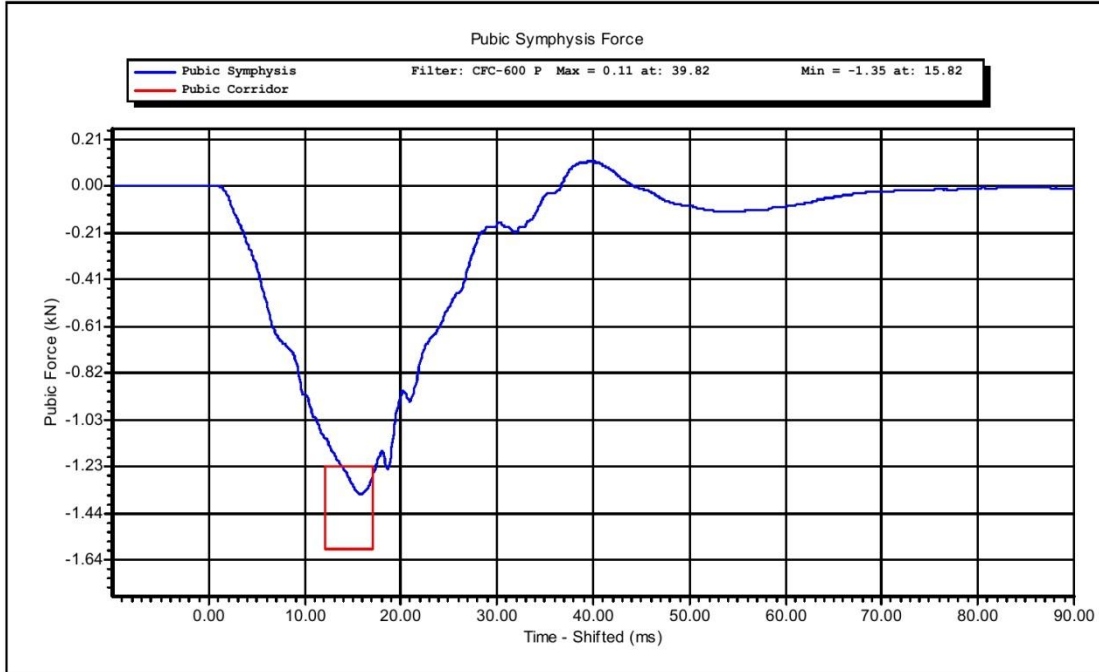
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Test Time: 2:56:30 PM

Test Date: 10/3/2012

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CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL No: 300

(CONFIGURED FOR LEFT SIDE IMPACT)



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SID-IIsD External Measurements

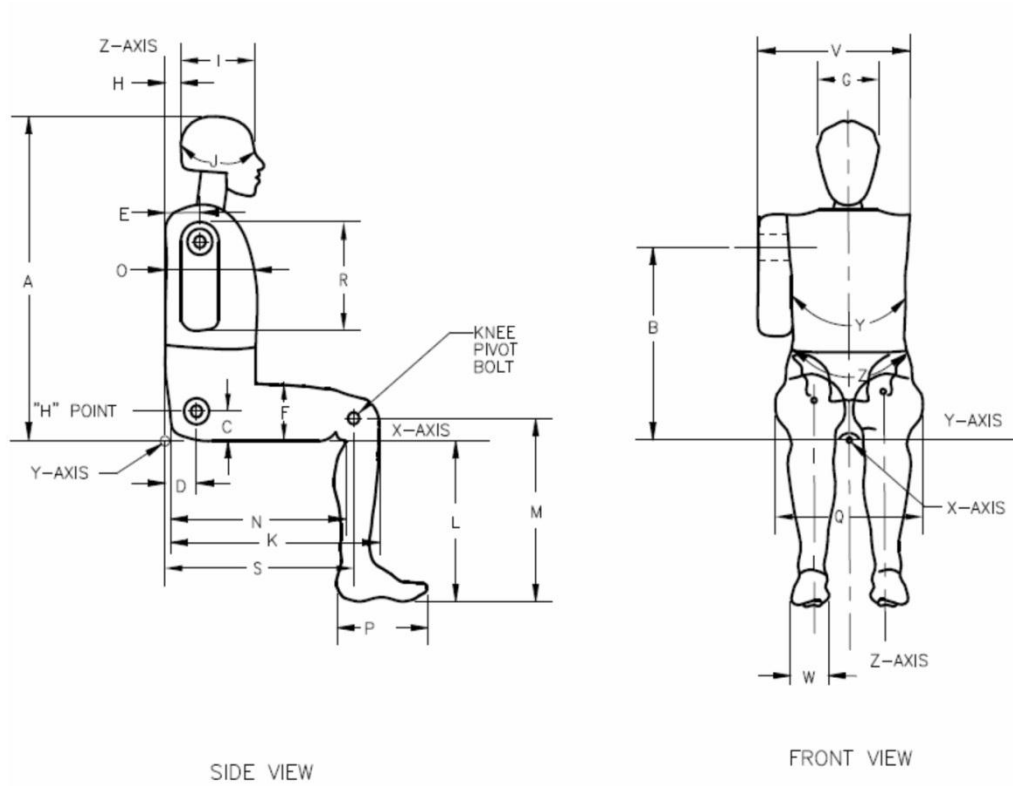
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	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	144	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	98	Yes
F	Thigh Clearance	119.0 - 135.0	121	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	43	Yes
I	Head Depth	178.0 - 188.0	182	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	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	432	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	316	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to Seat back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	344	Yes
W	Foot Width (right)	78.0 - 94.0	86	Yes
W	Foot Width (left)	78.0 - 94.0	86	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	866	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

Technician: SPZ

Date: 10/04/2012

SID-IIsD External Dimension Reference Diagram





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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:	300		
Test ID:		Test Date:	9/21/2012
Test Number:	1	Test Time:	10:17:48 AM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.3 deg C P
Humidity	10 -- 70	50 %RH P
Resultant Acceleration	115.0 -- 137.0	134.1 g P
Oscillation	0.0 -- 15.0	2.2 % P
Fore-Aft Acceleration	-15.0 -- 15.0	6.2 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **10:17:48 AM**

Test Date: **9/21/2012**



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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	P51685	5/21/2012
Endevco	7264-2000	P51682	5/21/2012
Endevco	7264-2000	P51699	5/21/2012

Test Time: 10:17:48 AM

Test Date: 9/21/2012

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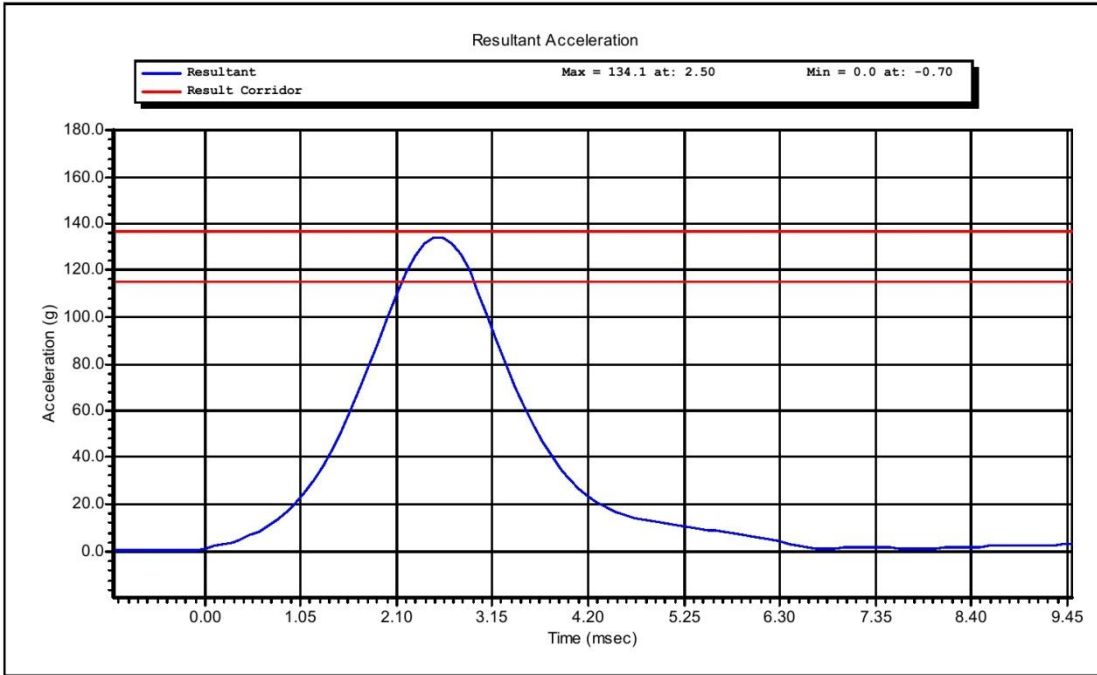


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	9/21/2012
Test Number:	1	Test Time:	10:17:48 AM



Test Time: **10:17:48 AM**

Test Date: **9/21/2012**

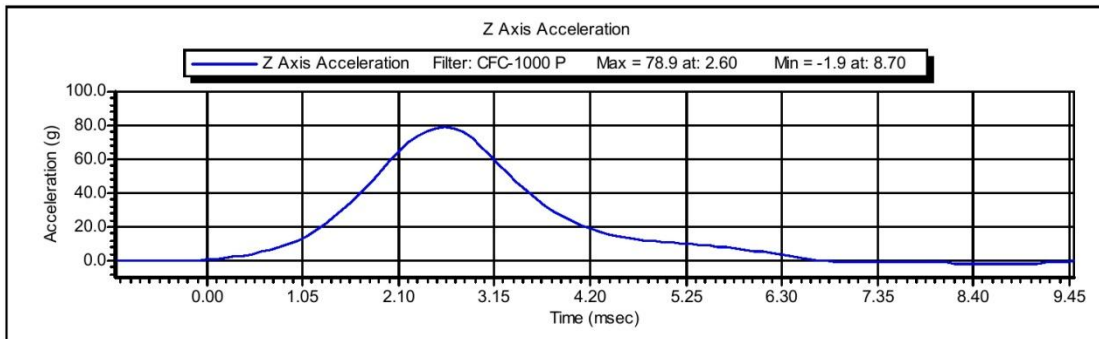
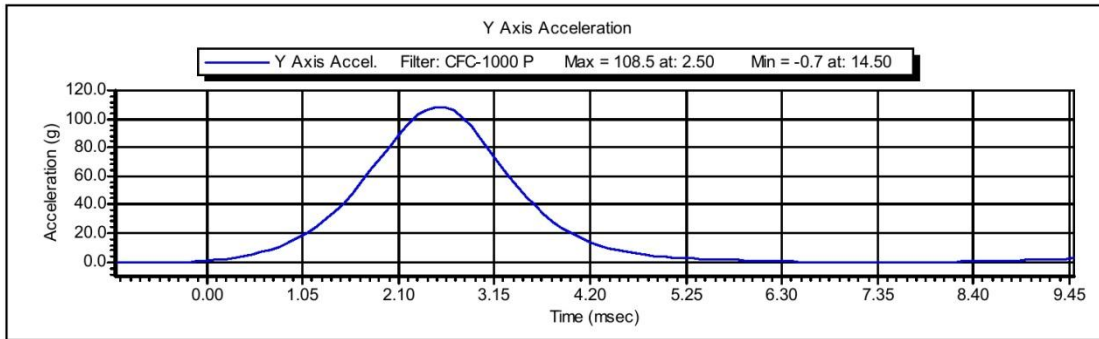
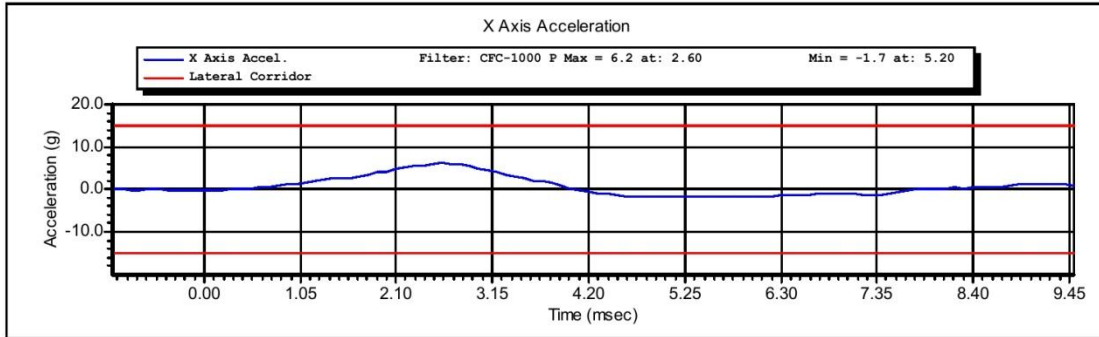
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Test Time: 10:17:48 AM

Test Date: 9/21/2012

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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:	300		
Test ID:		Test Date:	9/27/2012
Test Number:	1	Test Time:	4:04:06 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	41 %RH P
Velocity	5.51 -- 5.63	5.57 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.32 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.46 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.74 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.60 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.63 m/s P
Max D Plane Rotation	71.0 -- 81.0	71.7 degrees P
Time at Max Rotation	50.0 -- 70.0	61.4 ms P
Moment about OC	-44.0 -- -36.0	-41.5 Nm P
Moment Decay to Zero	102.0 -- 126.0	115.1 ms P

All test parameters are within specifications

Technician: **M. Goehle**

Supervisor: **D. Travale**

Test Time: **4:04:06 PM**

Test Date: **9/27/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
Denton	1716A	LC-1591 Fy	5/21/2012
Denton	1716A	LC-1591 Mx	5/21/2012
DentonATD	78051-342	184	5/30/2012
DentonATD	78051-342	174	5/30/2012
DentonATD	78051-342	185	5/30/2012

Test Time: 4:04:06 PM

Test Date: 9/27/2012

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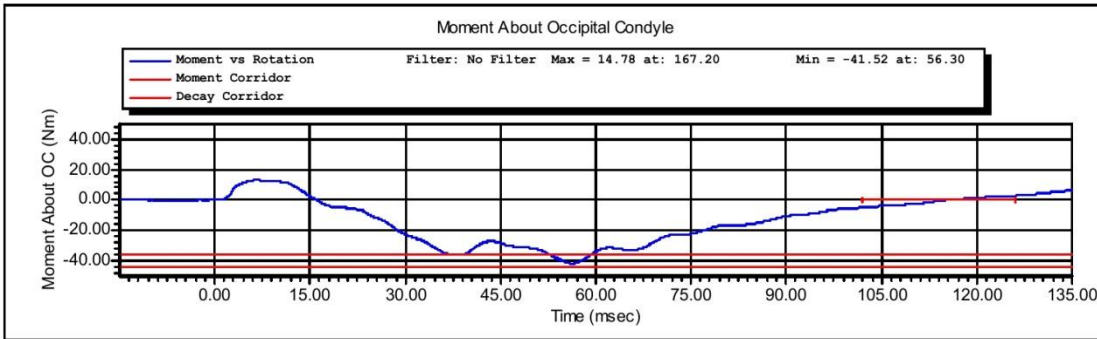
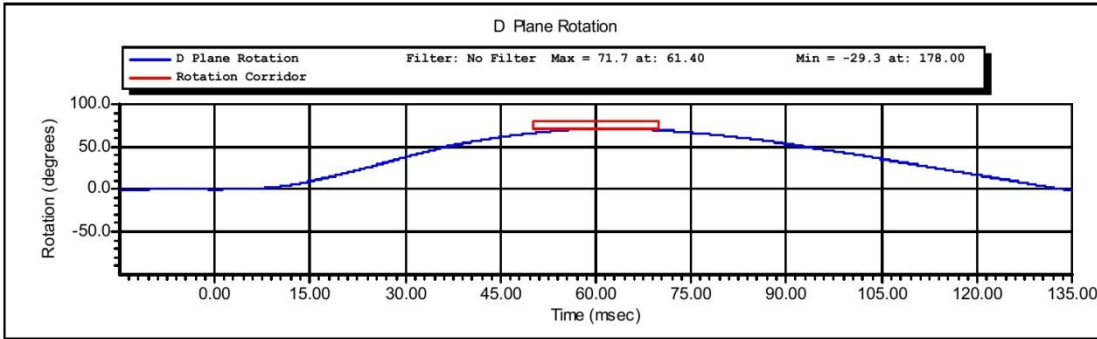


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Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	9/27/2012
Test Number:	1	Test Time:	4:04:06 PM



Test Time: **4:04:06 PM**

Test Date: **9/27/2012**

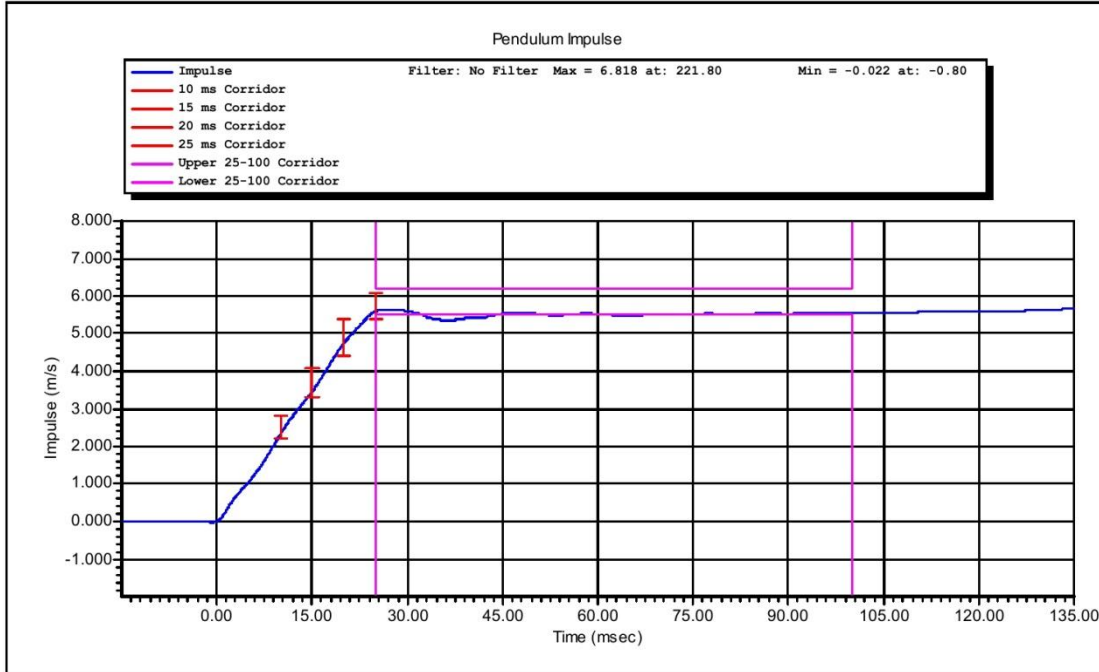
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Test Time: 4:04:06 PM

Test Date: 9/27/2012

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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:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:04:21 PM

Component Part Number	Component Serial Number
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.30 deg C P
Humidity	10.0 -- 70.0	46.0 %RH P
Velocity	4.20 -- 4.40	4.35 m/s P
Probe Acceleration	13.0 -- 18.0	16.3 g P
Shoulder Deflection	28.0 -- 37.0	31.2 mm P
T1 Acceleration	17.0 -- 22.0	20.9 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **1:04:21 PM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1063	5/15/2012
Endevco	7264-2000	P51915	5/18/2012

Test Time: 1:04:21 PM

Test Date: 10/4/2012

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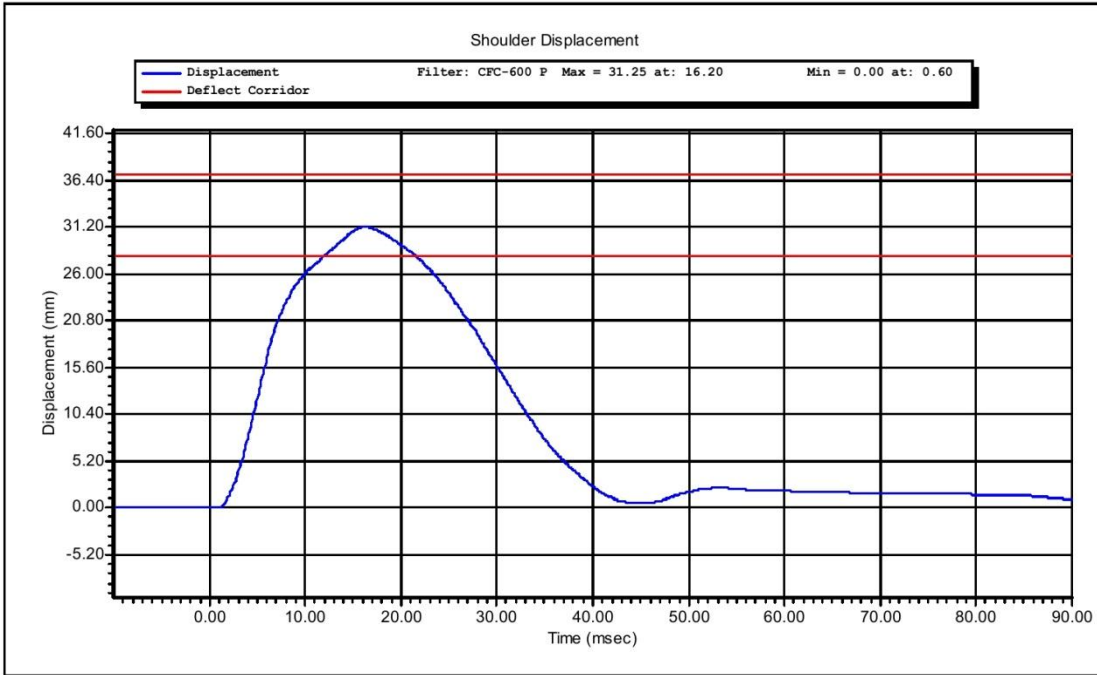


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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:04:21 PM



Test Time: **1:04:21 PM**

Test Date: **10/4/2012**

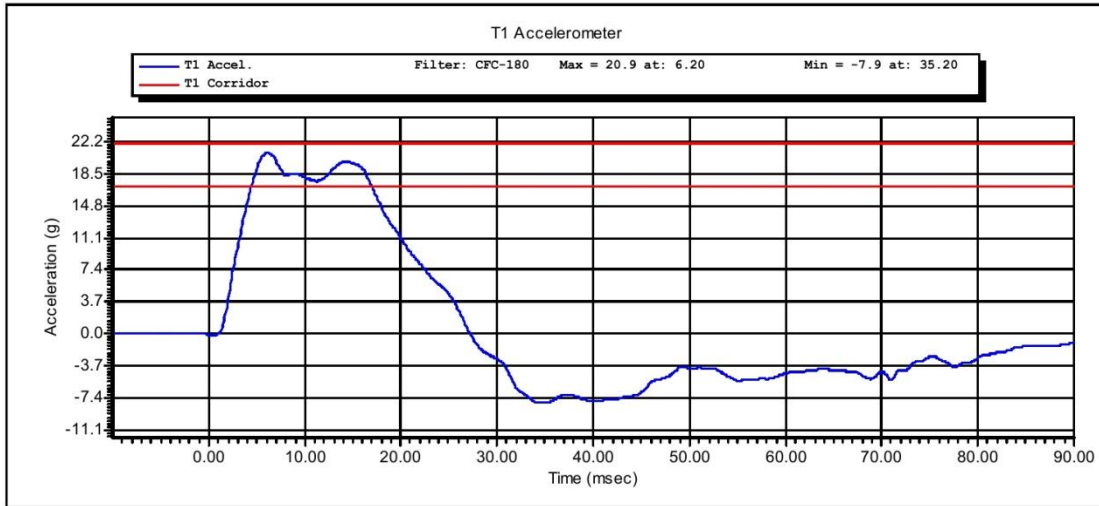
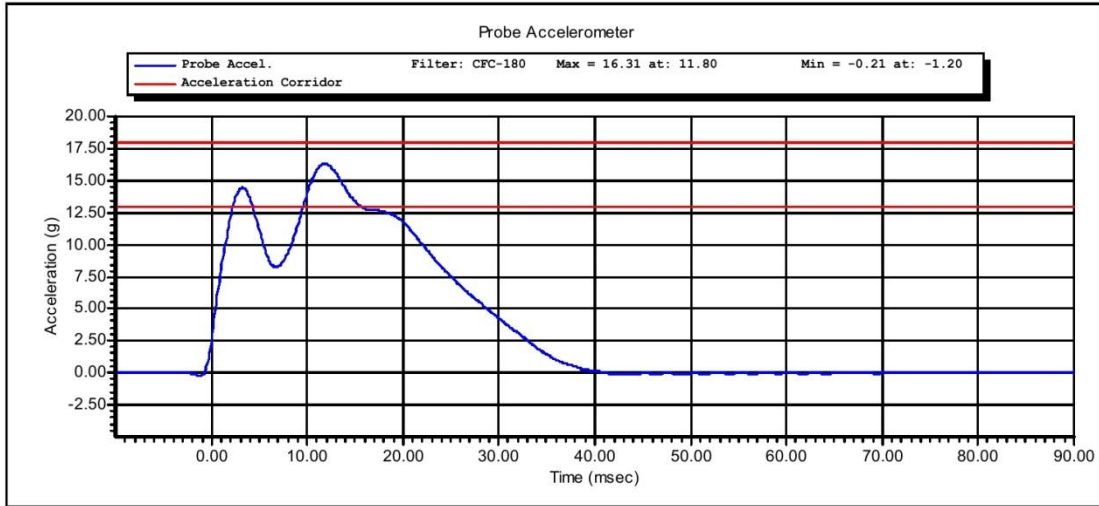
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Test Date: 10/4/2012

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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:25:04 PM

Component Part Number	Component Serial Number
Thorax Ribs 1,2,3	2024, 2061, 2062

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.3 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	4.20 -- 4.40	4.37 m/s P
Probe Acceleration	14.0 -- 18.0	16.1 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	37.0 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	42.0 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	37.6 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	16.3 g P
Lower Spine Acceleration T12	7.0 -- 11.0	9.3 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **1:25:04 PM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1121	5/16/2012
Servo	180-3885	DS-1151	5/15/2012
Servo	180-3885	DS-1156	5/15/2012
Endevco	7264-2000	P51915	5/18/2012
Endevco	7264-2000	P64147	5/18/2012

Test Time: 1:25:04 PM

Test Date: 10/4/2012

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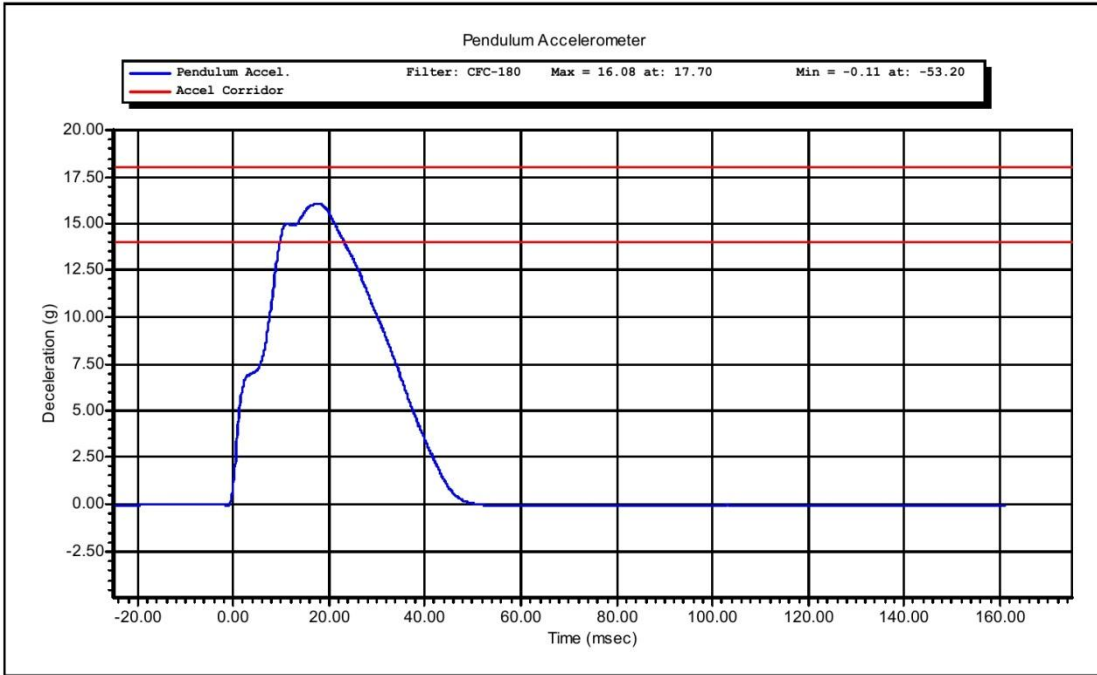


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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:25:04 PM



Test Time: **1:25:04 PM**

Test Date: **10/4/2012**

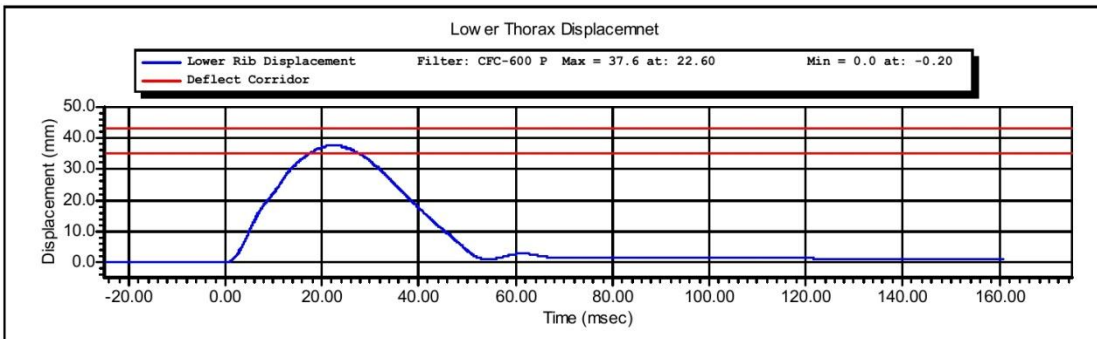
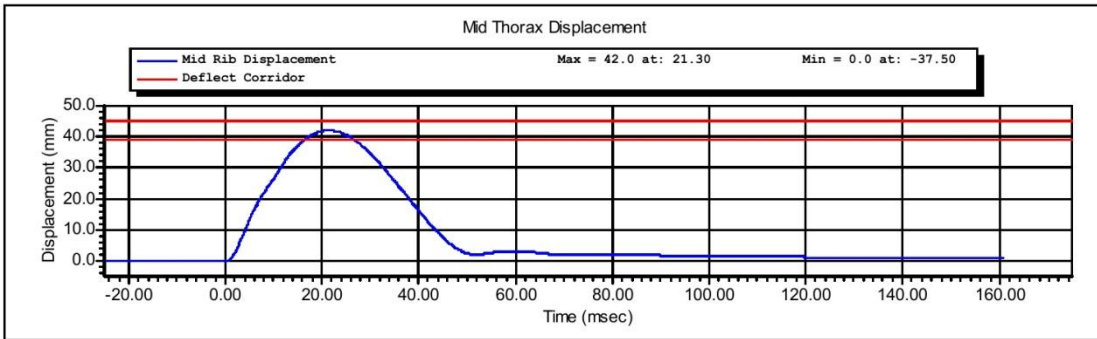
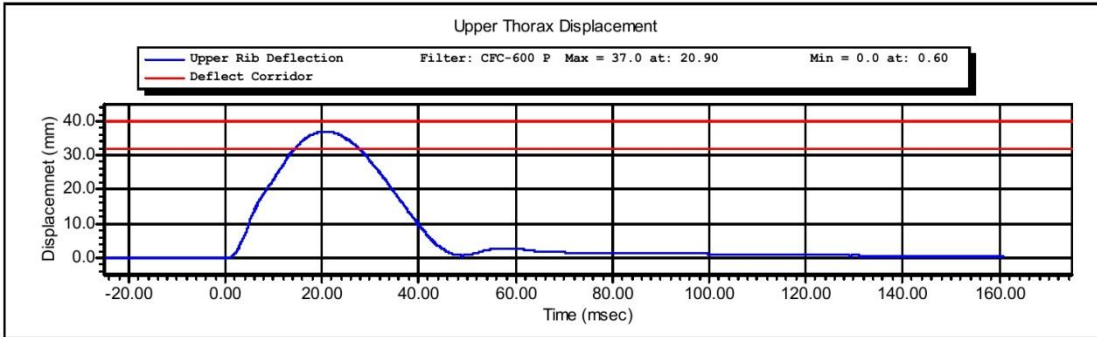
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Test Time: 1:25:04 PM

Test Date: 10/4/2012

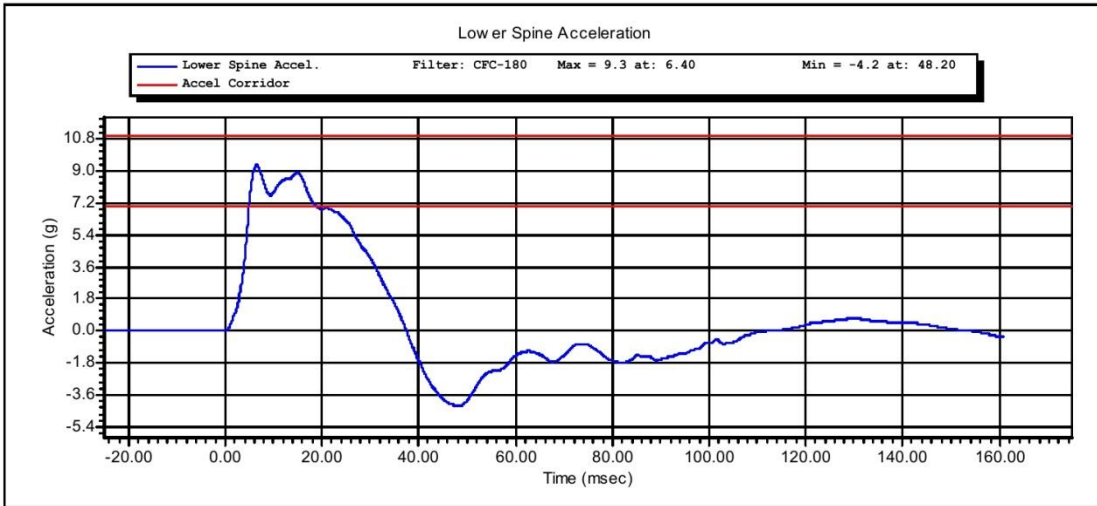
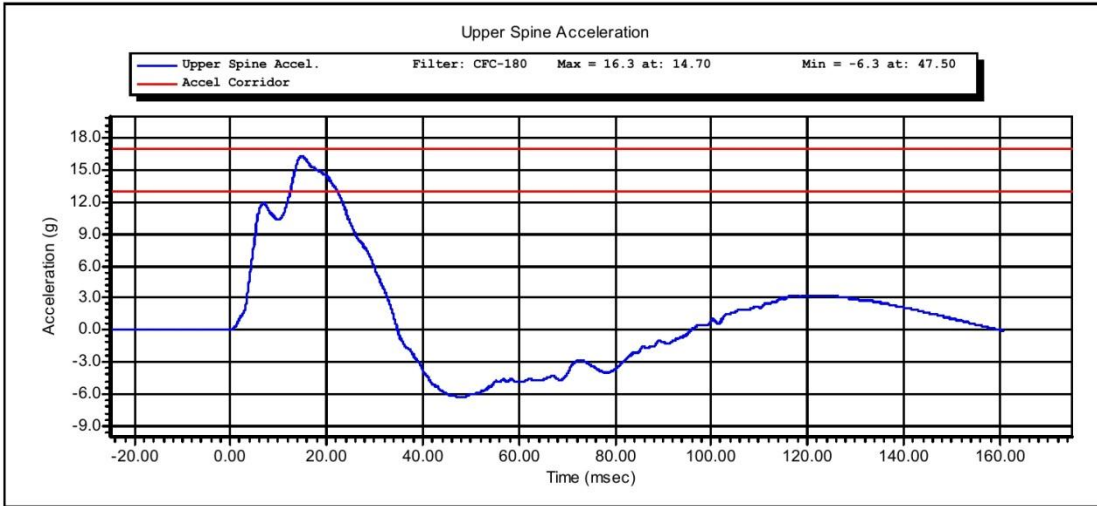
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Test Time: 1:25:04 PM

Test Date: 10/4/2012

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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:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	2:20:12 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	2024, 2061, 2062
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.3 deg C P
Humidity	10 -- 70	44 %RH P
Velocity	6.60 -- 6.80	6.74 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	33.2 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	27.6 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	32.1 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	33.3 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	39.8 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	33.8 g P
Shoulder Deflection	31.0 -- 40.0	35.5 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:20:12 PM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1121	5/16/2012
Servo	180-3885	DS-1151	5/15/2012
Servo	180-3885	DS-1156	5/15/2012
Endevco	7264-2000	P51915	5/18/2012
Endevco	7264-2000	P64147	5/18/2012
Servo	180-3885	DS-1063	5/15/2012

Test Time: 2:20:12 PM

Test Date: 10/4/2012

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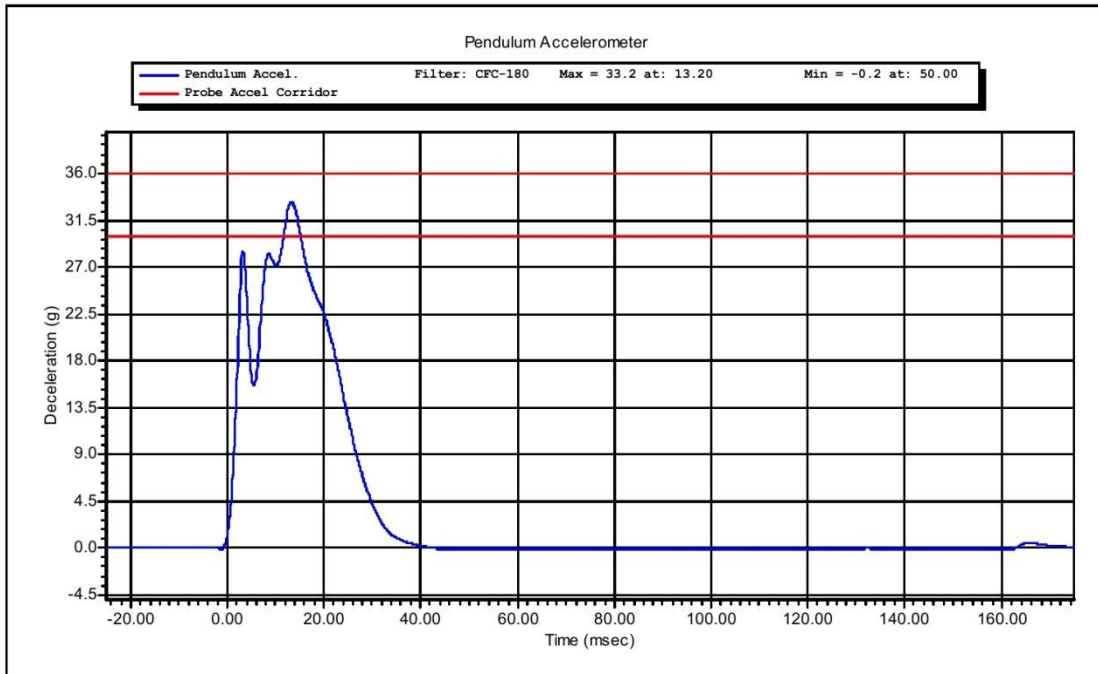


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Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	2:20:12 PM



Test Time: **2:20:12 PM**

Test Date: **10/4/2012**

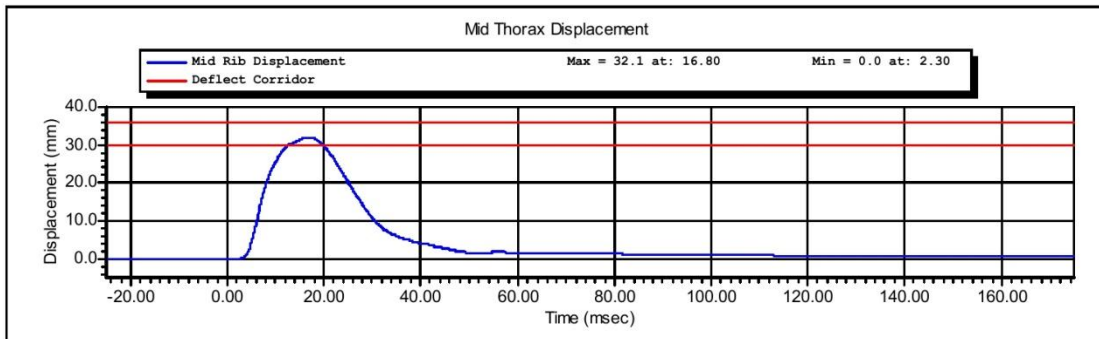
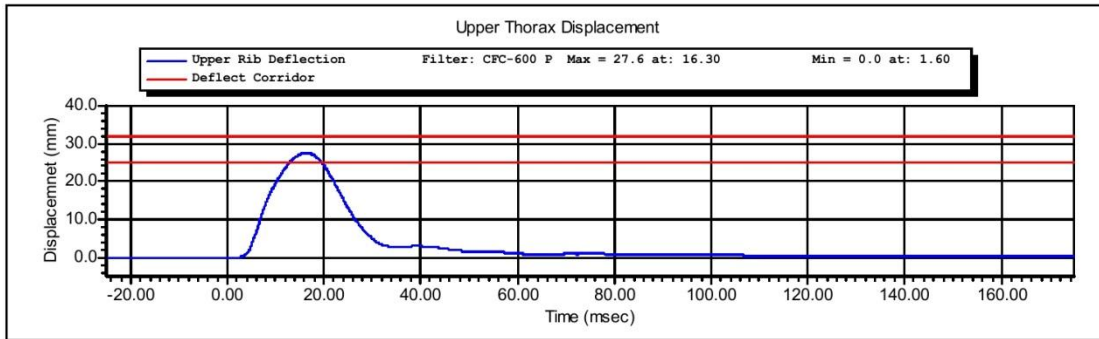
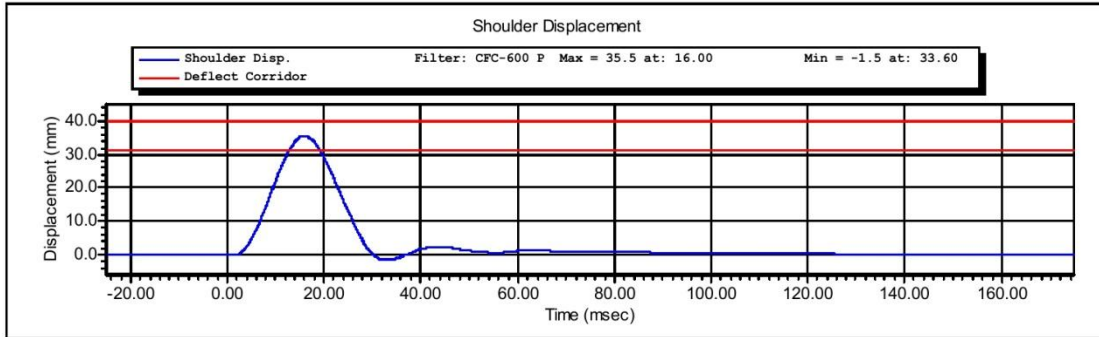
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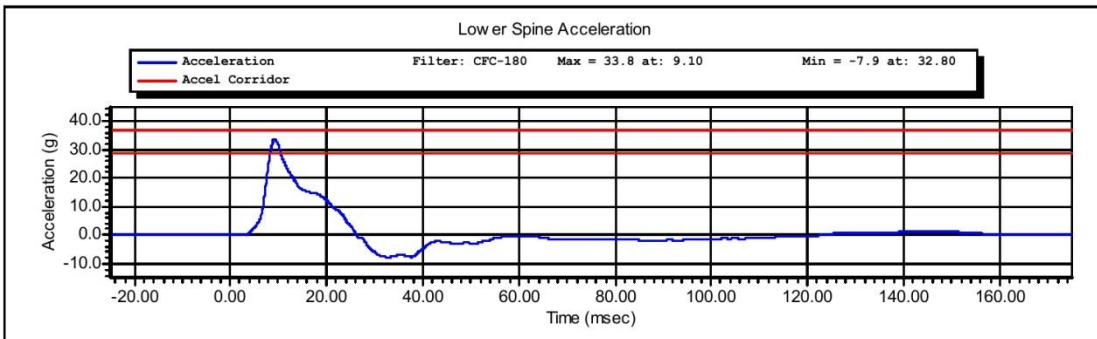
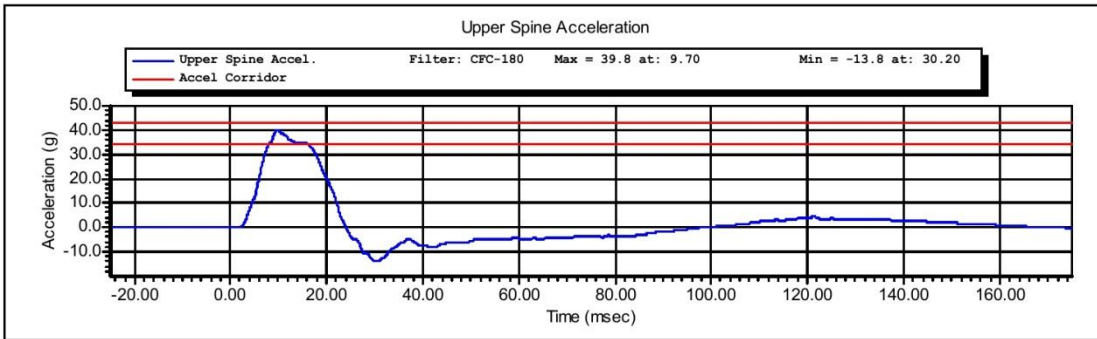
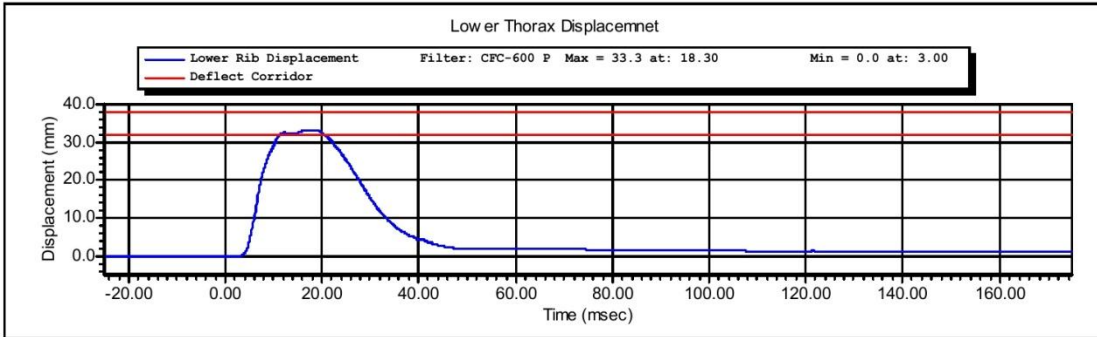
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Test Time: 2:20:12 PM

Test Date: 10/4/2012

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Test Time: 2:20:12 PM

Test Date: 10/4/2012

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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:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:44:08 PM

Component Part Number	Component Serial Number
Abdomen Ribs 4, 5	2024, 2061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.3 deg C P
Humidity	10 -- 70	45 %RH P
Velocity	4.20 -- 4.40	4.34 m/s P
Probe Acceleration	12.0 -- 16.0	15.1 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	39.7 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	36.6 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	11.9 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **1:44:08 PM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1162	5/15/2012
Servo	180-3885	DS-1622	5/15/2012
Endevco	7264-2000	P64147	5/18/2012

Test Time: 1:44:08 PM

Test Date: 10/4/2012

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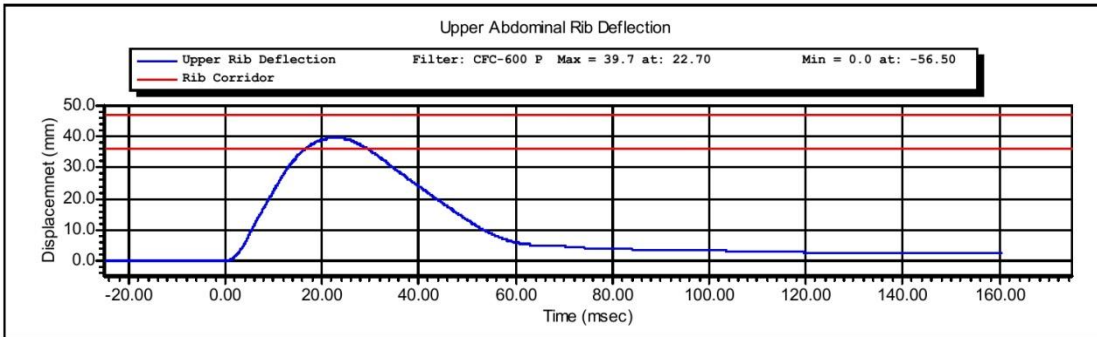
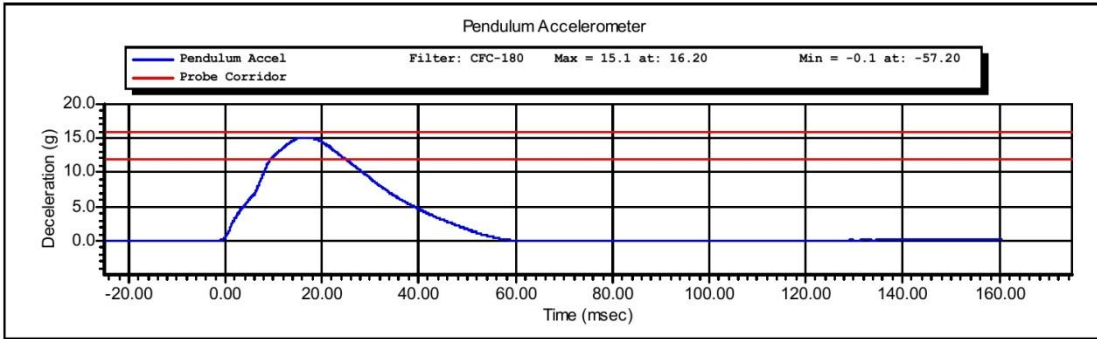


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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	1:44:08 PM



Test Time: **1:44:08 PM**

Test Date: **10/4/2012**

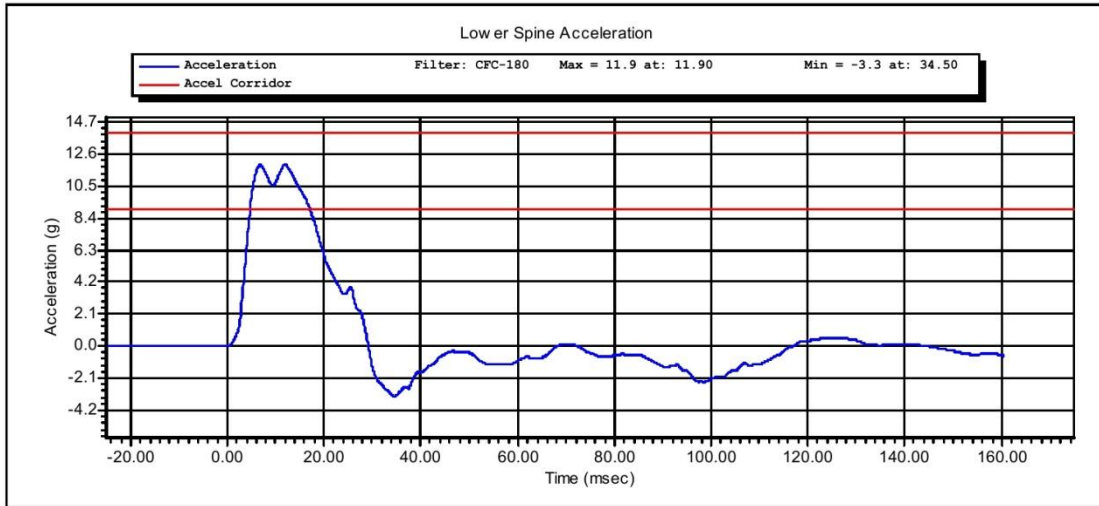
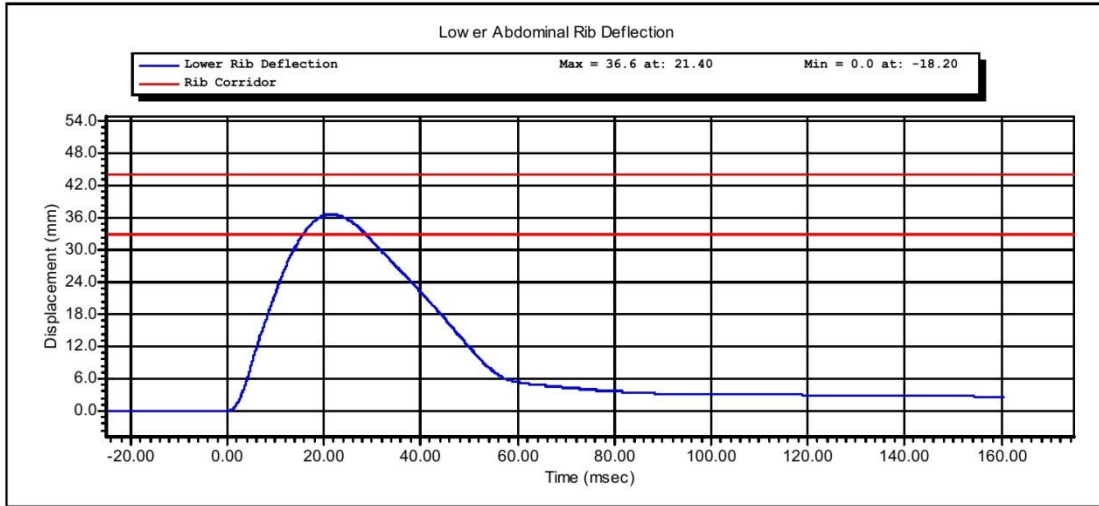
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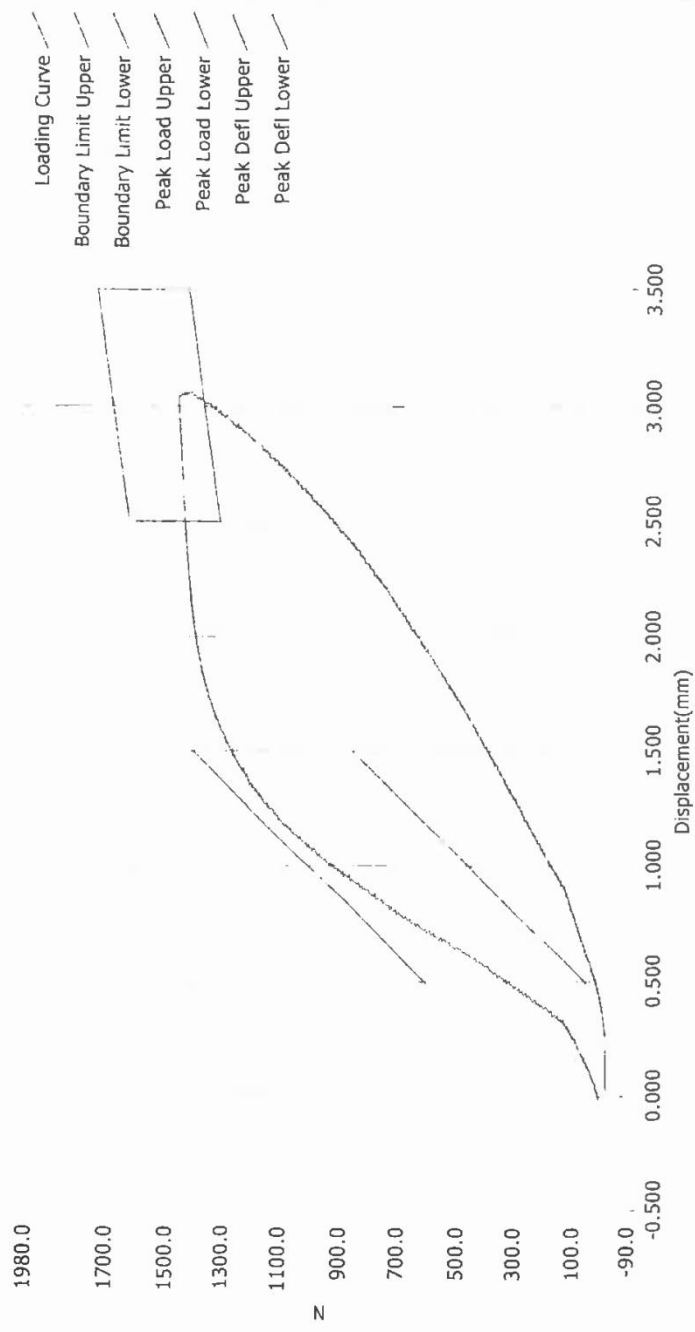
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Test Date: 10/4/2012

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Cert 10/04/2012

Resultant Data - SIDIIs Plug Compression



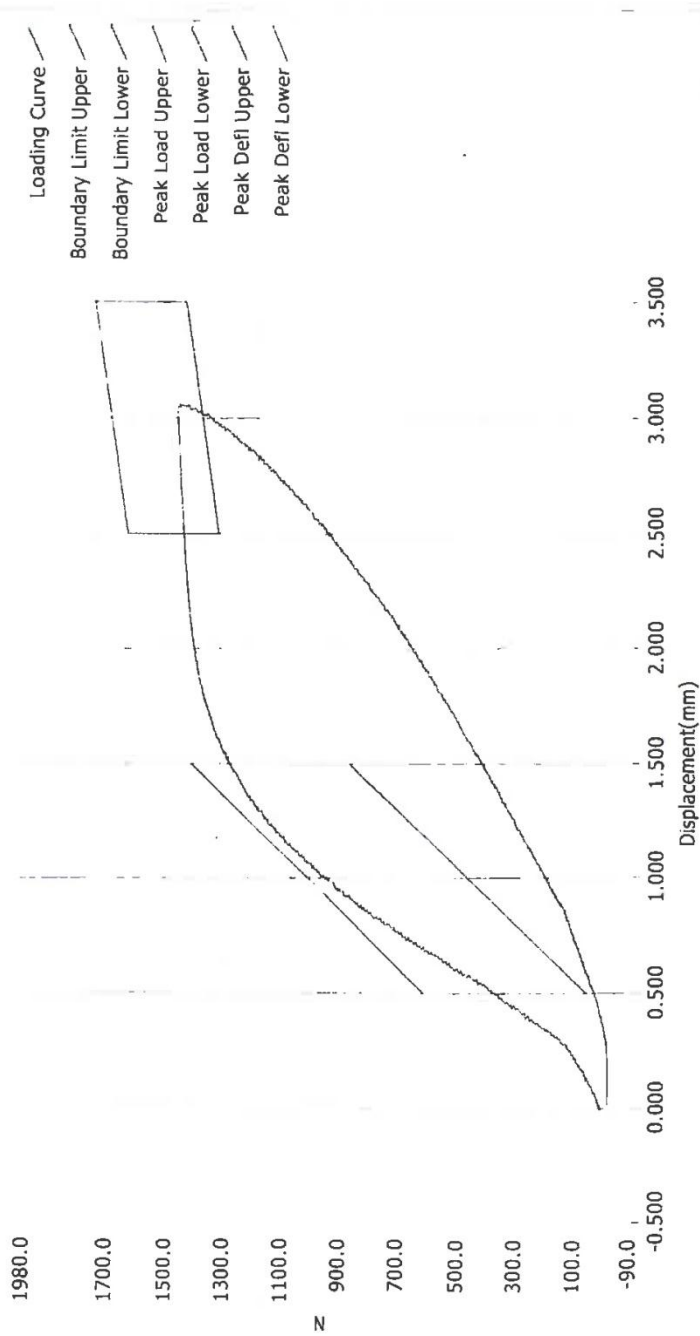
ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
Cert ID	ATD Serial Number	9/22/2010	12:47 PM
	36311		
	SIDIIs		

Current Date : 9/22/2010 Current Time : 12:48:19

CRASH

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		9/22/2010	11:49 AM

Cert ID	ATD Serial Number	ATD Type
	36286	SIDIIs

Current Date : 9/22/2010 Current Time : 11:50:02



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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:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	11:19:39 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DJ0890
FTSS Cert Plug 1449N	36311
Humanetics Crash Plug 1442N	36286

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.7 deg C P
Humidity	10 -- 70	45 %RH P
Velocity	6.60 -- 6.80	6.60 m/s P
Peak Probe Acceleration	38.0 -- 47.0	44.5 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.2 g P
Peak Acetabulum Force	3.60 -- 4.30	3.71 kN P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **11:19:39 AM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Endevco	7264-2000	P16517	5/18/2012
DentonATD	3249J	LC-275a	5/21/2012

Test Time: 11:19:39 AM

Test Date: 10/4/2012

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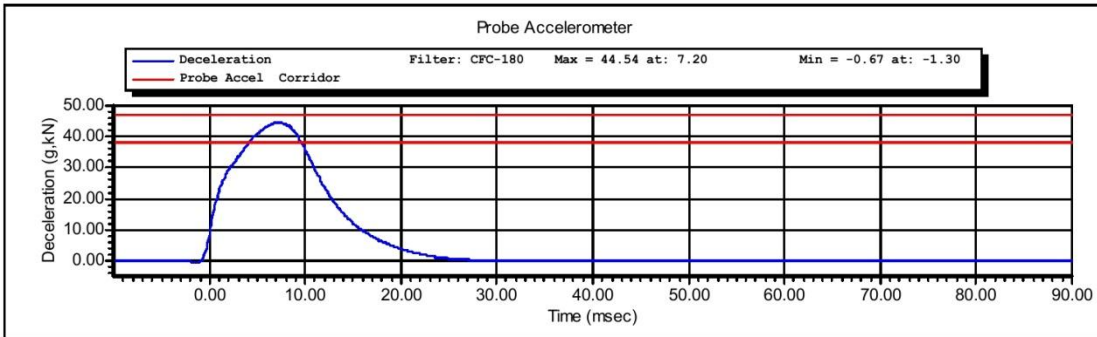
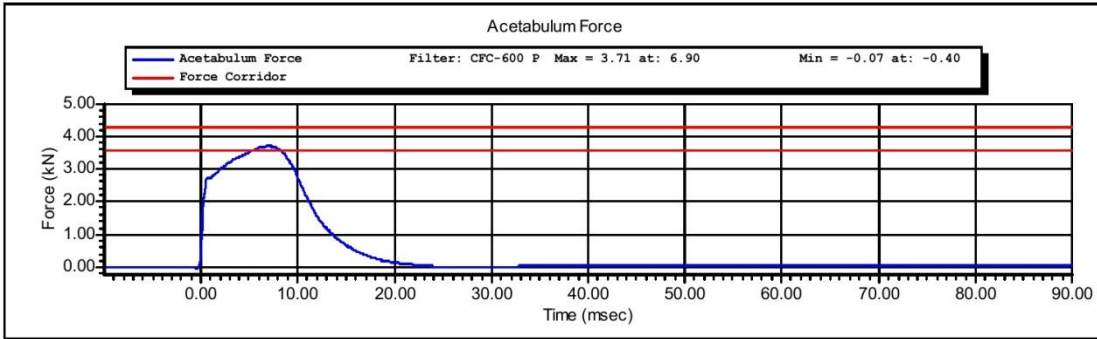


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	11:19:39 AM



Test Time: **11:19:39 AM**

Test Date: **10/4/2012**

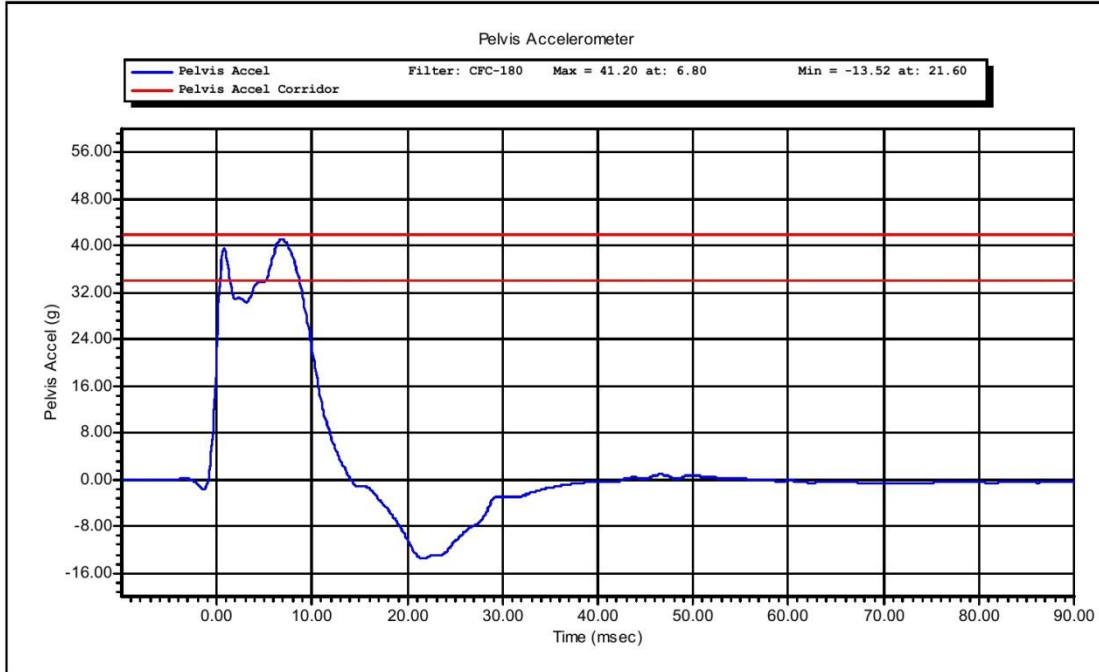
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Test Time: 11:19:39 AM

Test Date: 10/4/2012

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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:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	9:50:13 AM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DJ0890

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.0 deg C P
Humidity	10 -- 70	49 %RH P
Velocity	4.20 -- 4.40	4.32 m/s P
Peak Probe Acceleration	36.0 -- 45.0	41.3 g P
Peak Pelvis Acceleration	28.0 -- 39.0	34.3 g P
Peak Iliac Force	4.10 -- 5.10	4.50 kN P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **9:50:13 AM**

Test Date: **10/4/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Endevco	7264-2000	P16517	5/18/2012
DentonATD	3228J	LC-279 Fy	5/21/2012

Test Time: **9:50:13 AM**

Test Date: **10/4/2012**

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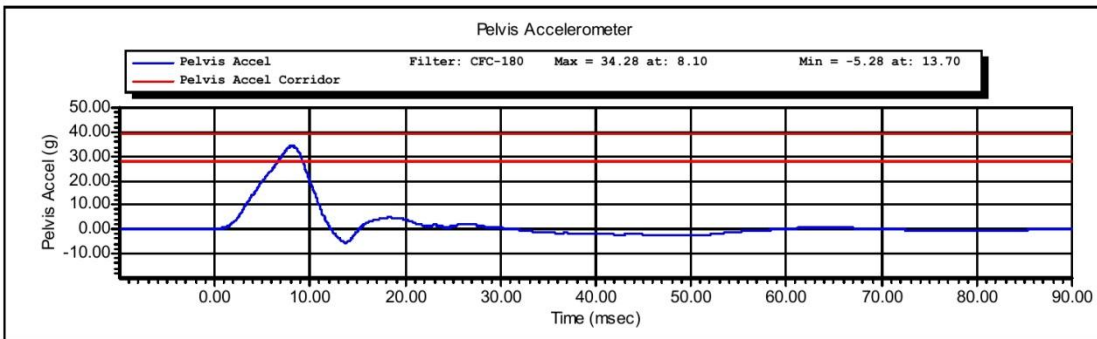
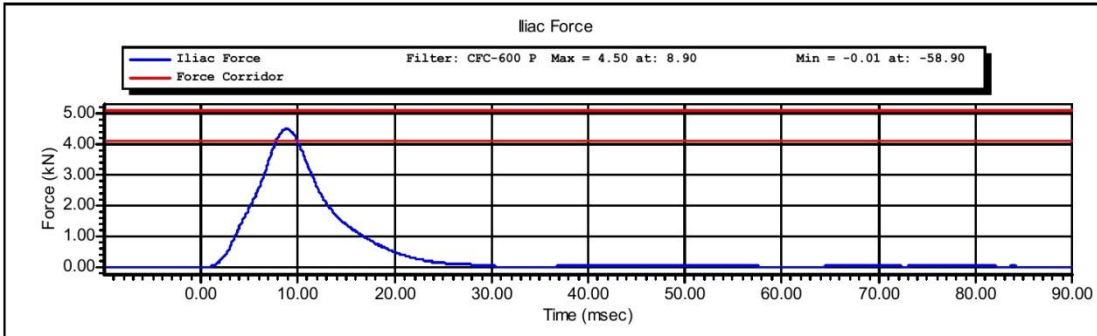


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/4/2012
Test Number:	1	Test Time:	9:50:13 AM



Test Time: **9:50:13 AM**

Test Date: **10/4/2012**

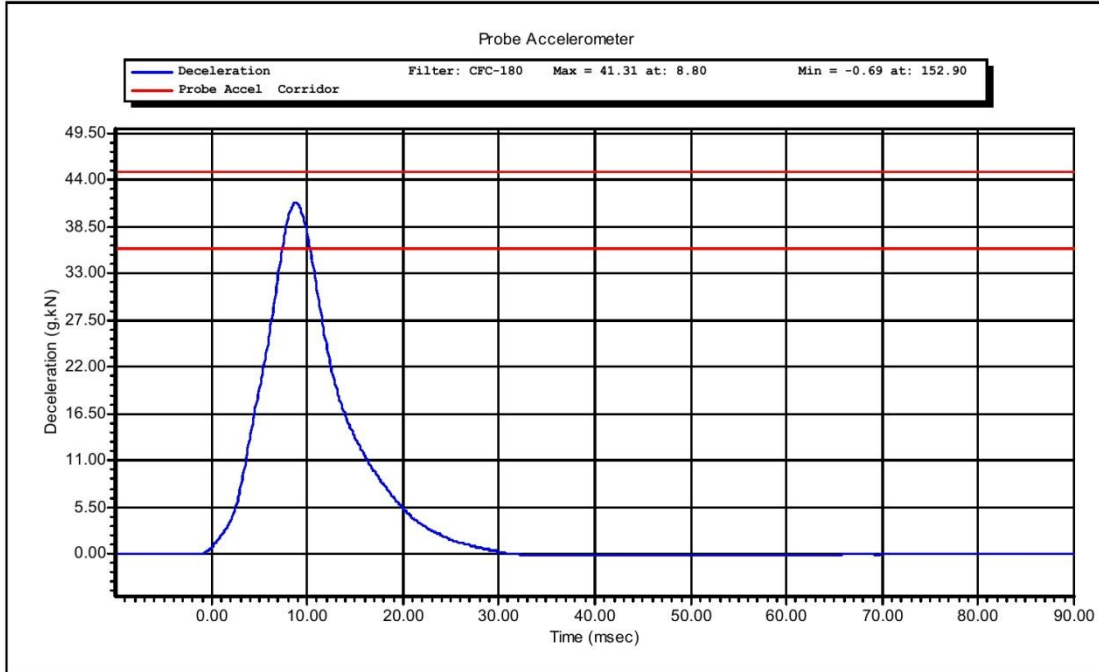
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Test Time: 9:50:13 AM

Test Date: 10/4/2012

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CALIBRATION TEST RESULTS

POST-TEST

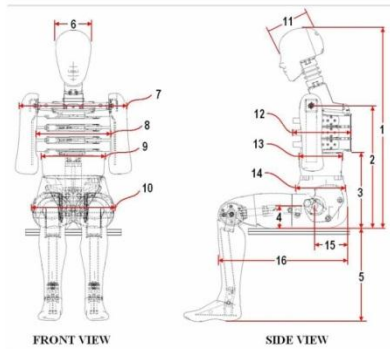
EUROSID 2 (ES-2RE) MALE – DRIVER ATD

SERIAL NO: F034

(CONFIGURED FOR LEFT SIDE IMPACT)

ES-2re External Measurements

NHTSA S/N F034



Dim. No.	Description	Specification (mm)	Result (mm)	Pass/Fail
1	Sitting Height	900-918	913	Pass
2	Seat to Shoulder Joint	558-572	562	Pass
3	Seat to Lower Face of Thoracic Spine Box	346-356	355	Pass
4	Seat to Hip Joint (center of bolt)	97-103	100	Pass
5	Sole to Seat, Sitting	433-451	440	Pass
6	Head Width	152-158	156	Pass
7	Shoulder/Arm Width	461-479	467	Pass
8	Thorax Width	322-332	327	Pass
9	Abdomen Width	273-287	284	Pass
10	Pelvis Lap Width	359-373	371	Pass
11	Head Depth	196-206	201	Pass
12	Thorax Depth	262-272	269	Pass
13	Abdomen Depth	194-204	199	Pass
14	Pelvis Depth	235-245	238	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150-160	156	Pass
16	Back of Buttocks to Front Knee	597-615	607	Pass

Technician: SPZ

Date: 10/18/2012



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VERIFICATION REPORT

Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:15:30 PM

Component Part Number	Component Serial Number
455-1007	1916409

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	37 %RH P
Resultant Acceleration	125 -- 155	144 g P
Oscillation	0.0 -- 15.0	1.7 % P
Fore-Aft Acceleration	-15.00 -- 15.00	8.04 g P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test Time: **6:15:30 PM**

Test Date: **10/17/2012**



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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	5/17/2012
Endevco	7264-2000	P52022	5/17/2012
Endevco	7264-2000	P52040	5/17/2012

Test Time: **6:15:30 PM**

Test Date: **10/17/2012**

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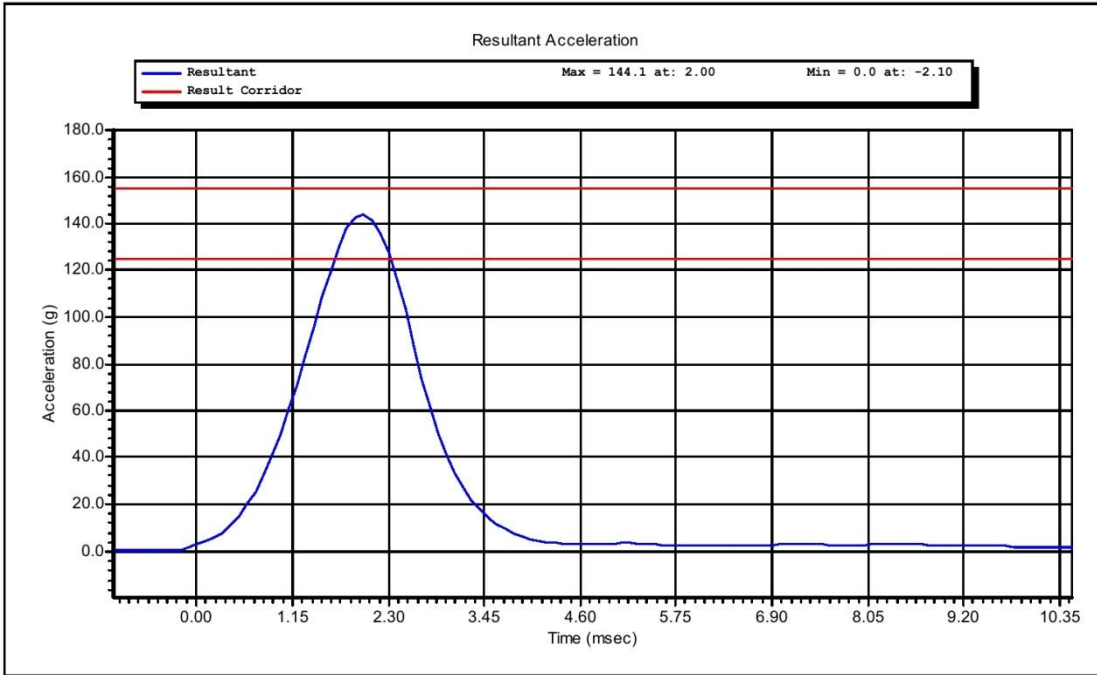


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:15:30 PM



Test Time: **6:15:30 PM**

Test Date: **10/17/2012**

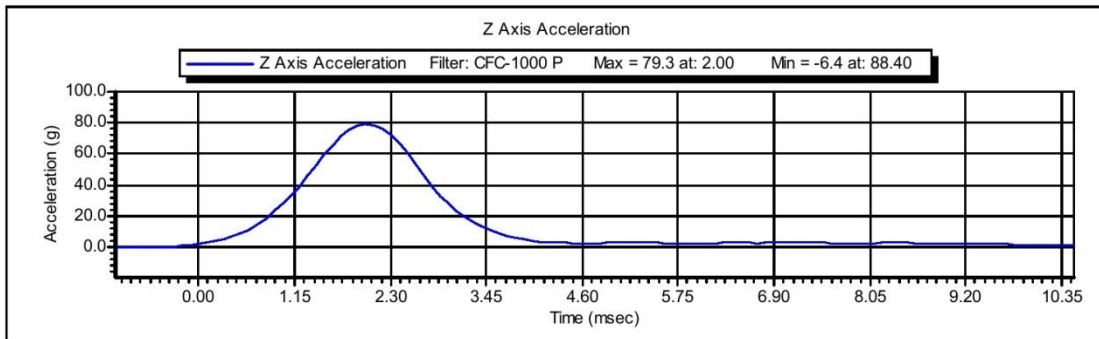
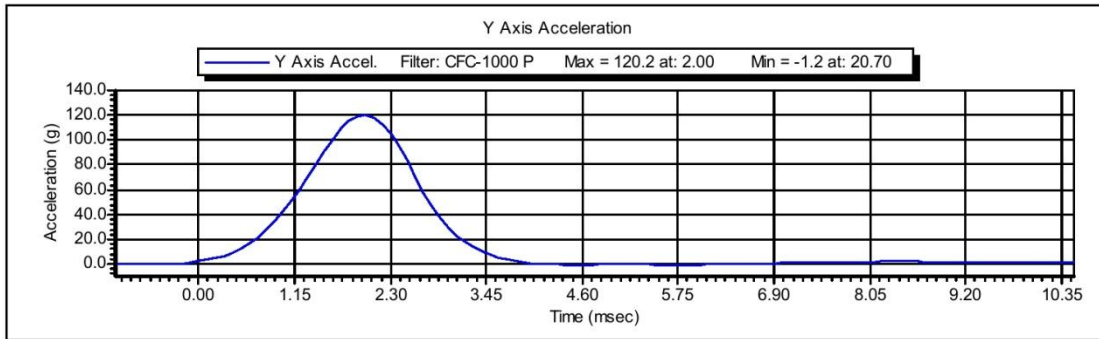
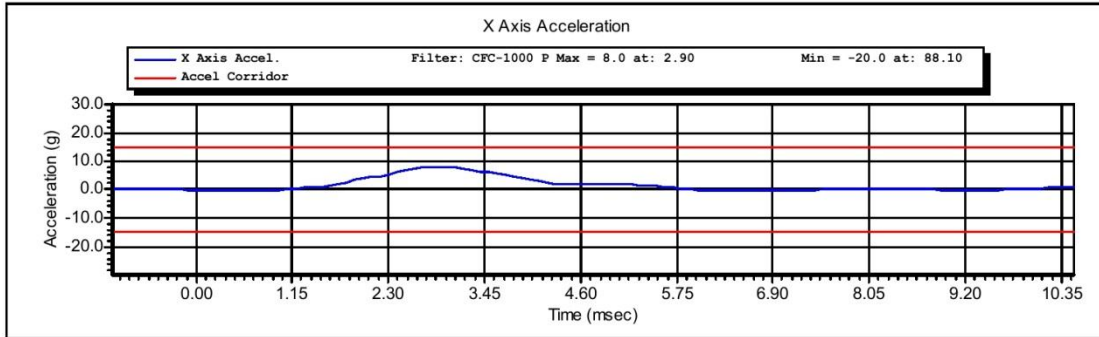
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Test Time: 6:15:30 PM

Test Date: 10/17/2012

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VERIFICATION REPORT

Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	4:05:26 PM

Component Part Number	Component Serial Number
455-2002 Neck	

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	36 %RH P
Velocity	3.30 -- 3.50	3.47 m/s P
Maximum Neck Flexion Angle	49.0 -- 59.0	53.0 degrees P
Time At Maximum Neck Flexion	54.0 -- 66.0	60.9 ms P
Decay to Zero Degrees	53.0 -- 88.0	61.7 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test Time: **4:05:26 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
DentonATD	7000428	094	5/30/2012
DentonATD	7000428	095	5/30/2012
DentonATD	7000428	093	5/30/2012

Test Time: 4:05:26 PM

Test Date: 10/17/2012

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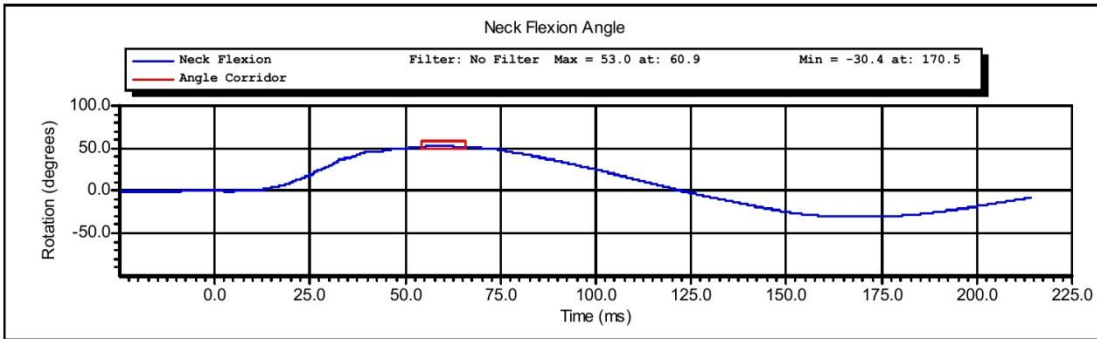
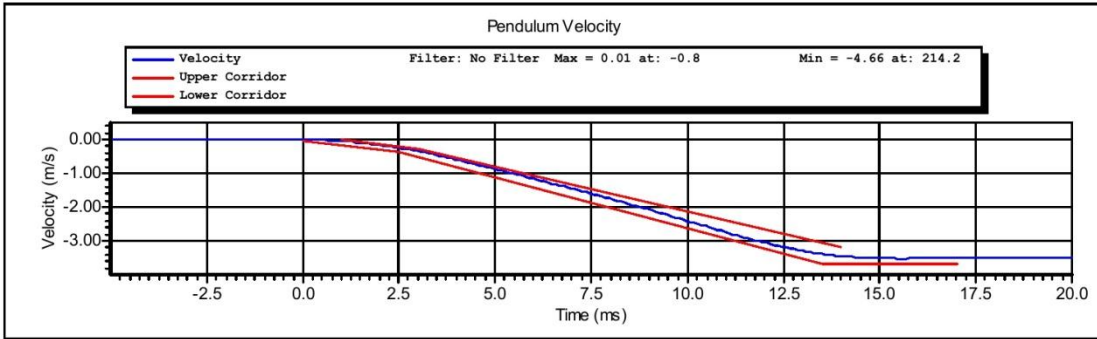


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Test Name:	Neck Flexion	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	4:05:26 PM



Test Time: **4:05:26 PM**

Test Date: **10/17/2012**

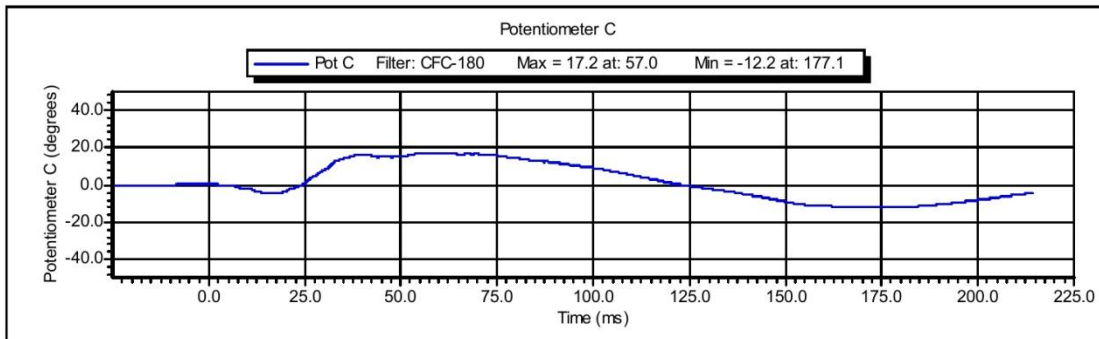
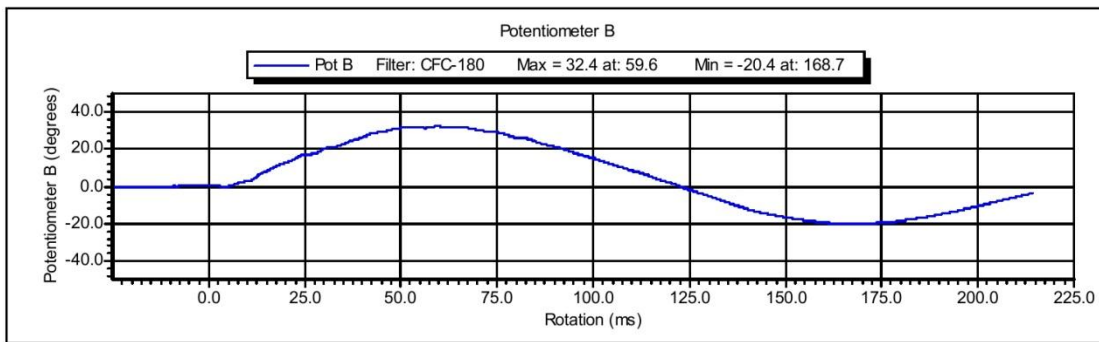
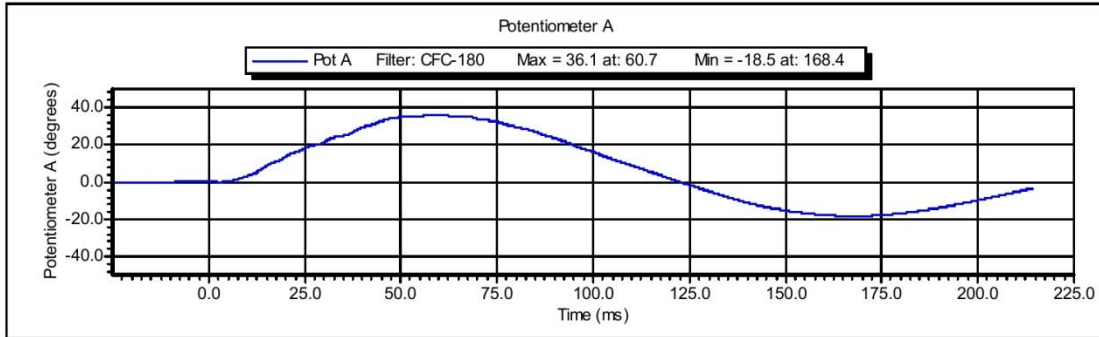
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Test Time: 4:05:26 PM

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VERIFICATION REPORT

Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	10:25:28 AM

Component Part Number	Component Serial Number
Arm 960715-313	07018

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10.0 -- 70.0	35.0 %RH P
Velocity	4.20 -- 4.40	4.26 m/s P
Pendulum Acceleration	-10.50 -- -7.50	-9.32 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **10:25:28 AM**

Test Date: **10/18/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012

Test Time: 10:25:28 AM

Test Date: 10/18/2012

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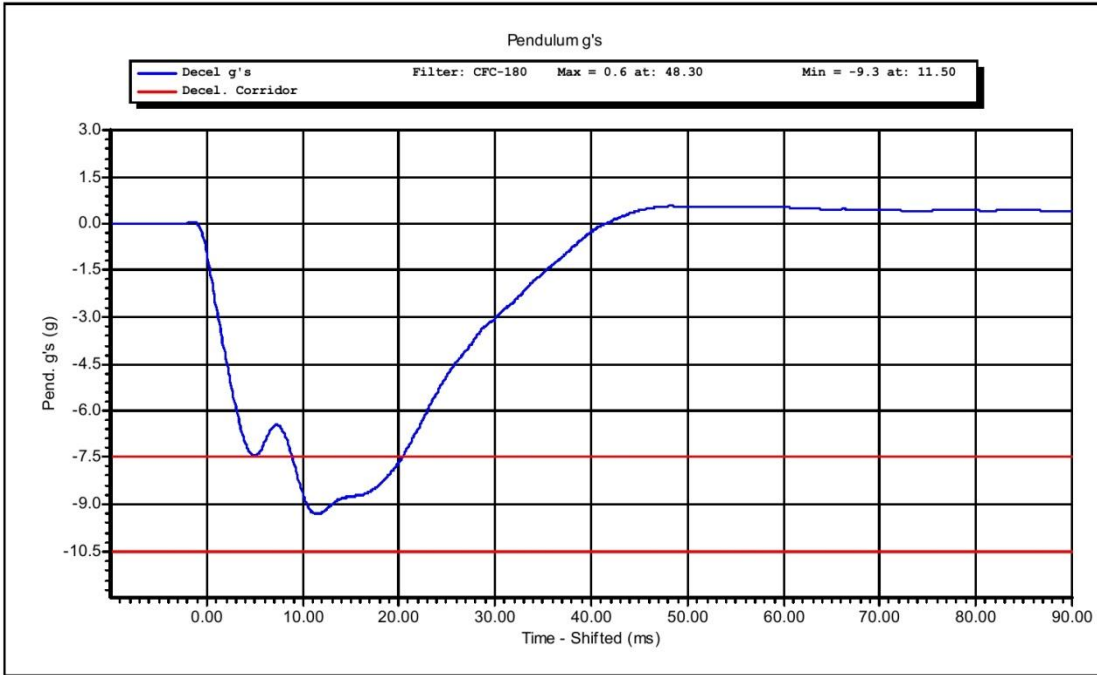


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Test Name:	Shoulder Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	10:25:28 AM



Test Time: **10:25:28 AM**

Test Date: **10/18/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper 4.0 m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	1:18:29 PM

Component Part Number	Component Serial Number
455-3100	

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	3.90 -- 4.10	3.97 m/s P
Rib Displacement	-51.00 -- -46.00	-46.63 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **1:18:29 PM**

Test Date: **10/17/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 1:18:29 PM

Test Date: 10/17/2012

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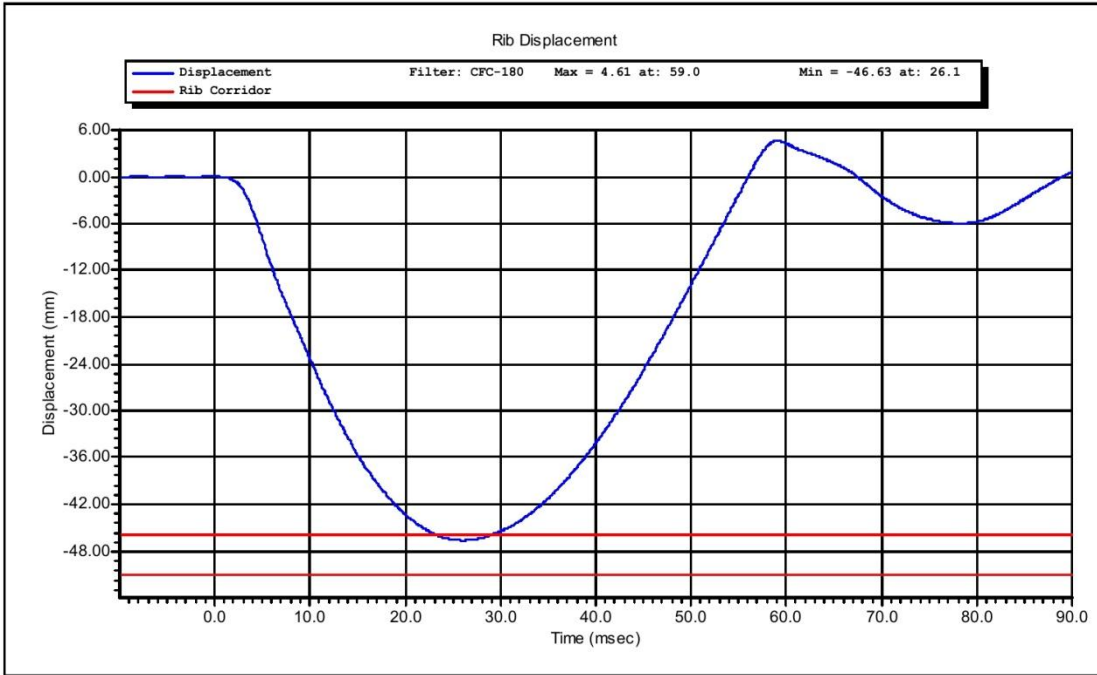


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper 4.0 m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	1:18:29 PM



Test Time: **1:18:29 PM**

Test Date: **10/17/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Upper 3.0 m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	2:14:17 PM

Component Part Number	Component Serial Number
455-3100	07203

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	2.90 -- 3.10	2.97 m/s P
Rib Displacement	-40.00 -- -36.00	-36.46 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:14:17 PM**

Test Date: **10/17/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 2:14:17 PM

Test Date: 10/17/2012

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4.0m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	2:34:29 PM

Component Part Number	Component Serial Number
455-3100	07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.2 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	3.90 -- 4.10	3.97 m/s P
Rib Displacement	-51.00 -- -46.00	-48.07 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:34:29 PM**

Test Date: **10/17/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-184	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: **2:34:29 PM**

Test Date: **10/17/2012**

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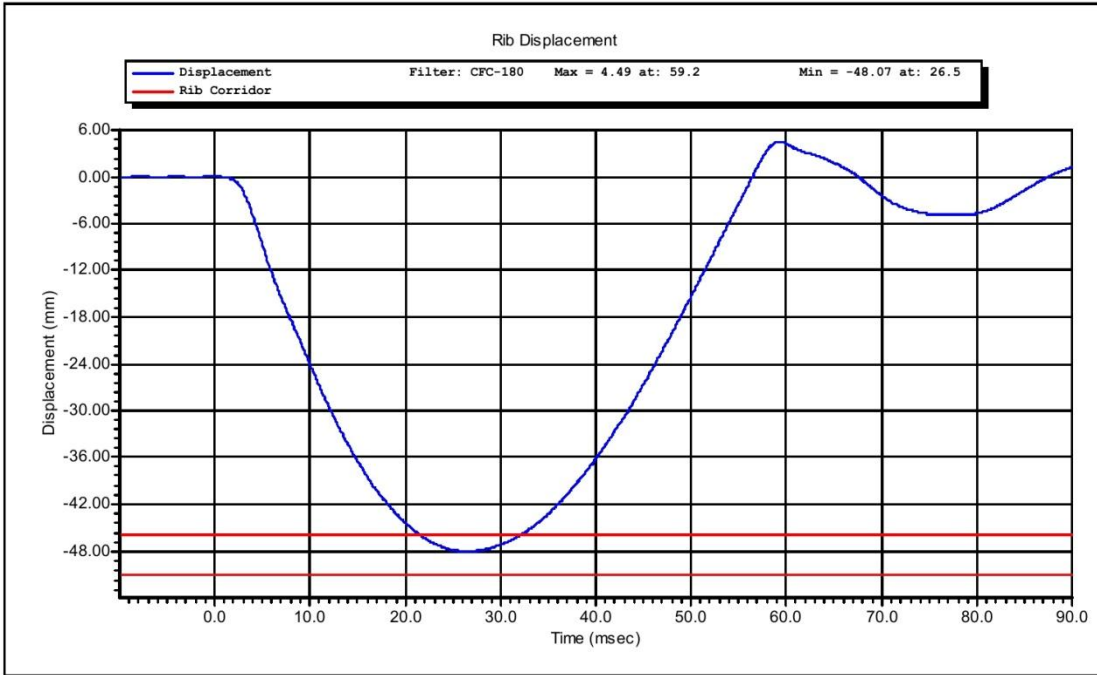


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4455 Genesee Street, Buffalo, New York 14225 - Phone (716)632-7500

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 4.0m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	2:34:29 PM



Test Time: **2:34:29 PM**

Test Date: **10/17/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Middle Rib 3.0	Test Date:	10/17/2012
Test Number:	1	Test Time:	2:49:59 PM

Component Part Number	Component Serial Number
455-3100	07205

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	2.90 -- 3.10	2.98 m/s P
Rib Displacement	-40.00 -- -36.00	-37.57 mm P
Drop Height	454 -- 464	459 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **2:49:59 PM**

Test Date: **10/17/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-183	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: **2:49:59 PM**

Test Date: **10/17/2012**

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VERIFICATION REPORT

Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower 4.0m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	3:13:33 PM

Component Part Number	Component Serial Number
455-3100	07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10.0 -- 70.0	29.0 %RH P
Velocity	3.90 -- 4.10	3.96 m/s P
Rib Displacement	-51.00 -- -46.00	-48.12 mm P
Drop Height	807.0 -- 823.0	815.0 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **3:13:33 PM**

Test Date: **10/17/2012**



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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 3:13:33 PM

Test Date: 10/17/2012

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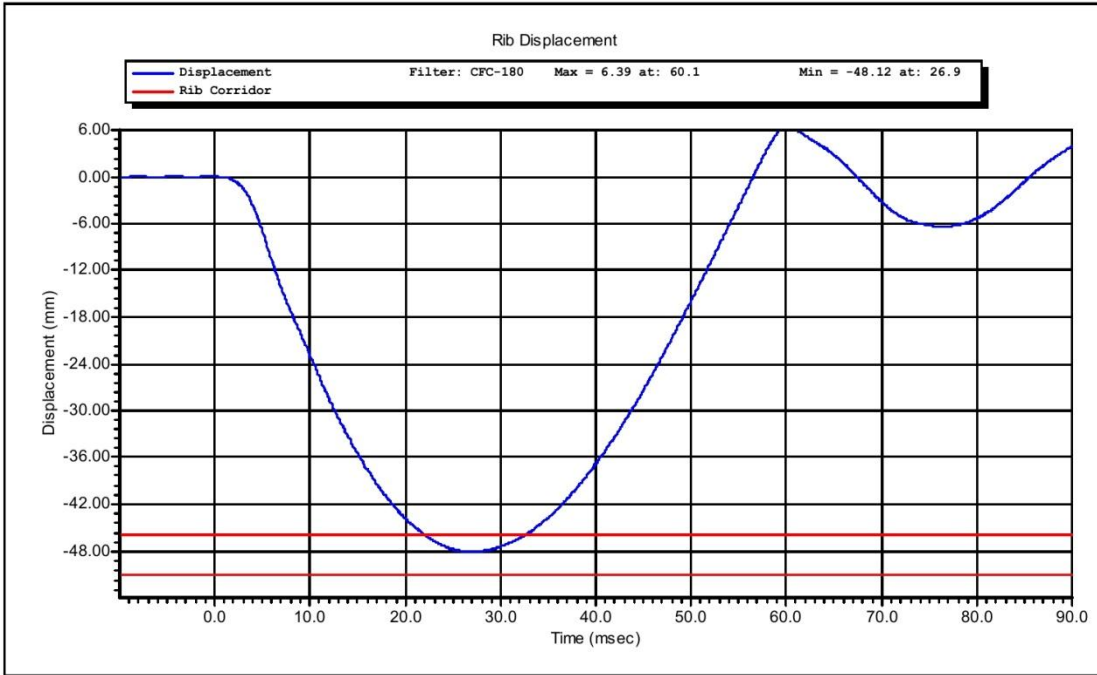


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	4.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower 4.0m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	3:13:33 PM



Test Time: **3:13:33 PM**

Test Date: **10/17/2012**

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VERIFICATION REPORT

REFERENCE EQUIPMENT

<u>Manufacturer</u>	<u>Model</u>	<u>Serial Number</u>	<u>Calibration Date</u>
Honeywell	MLT-38000	DS-182	5/17/2012
DentonATD	Velocity Trap	1	1/11/2012
Endevco	7264-2000	P32222	5/23/2012

Test Time: 3:26:44 PM

Test Date: 10/17/2012

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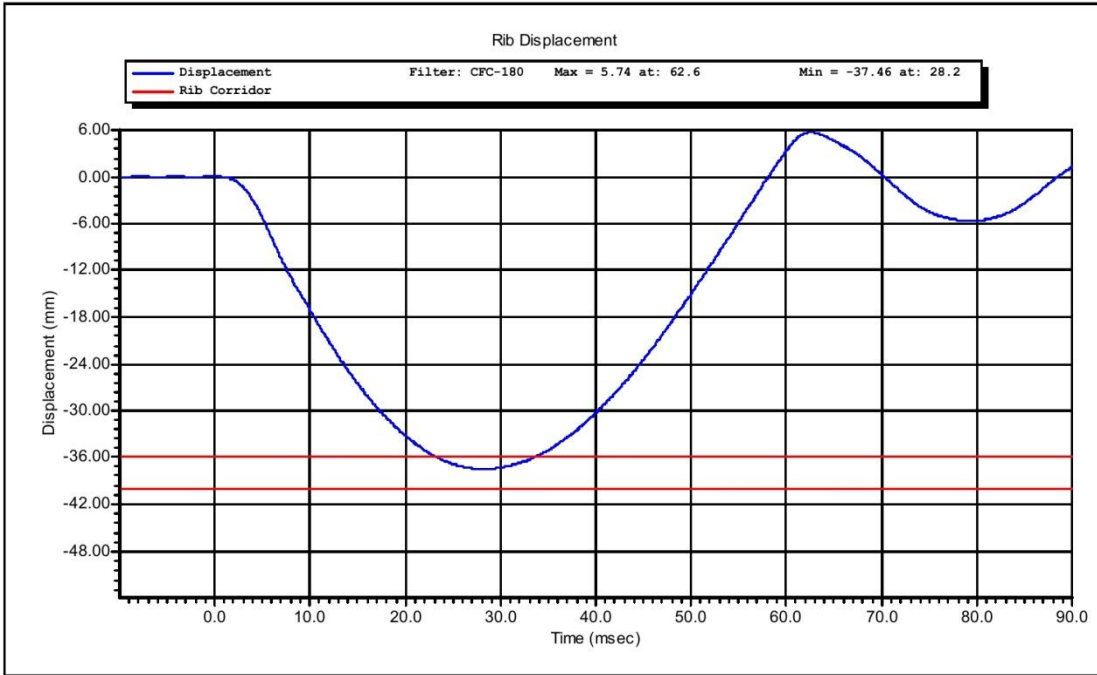


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Test Name:	Full Rib Module Impact	Revision:	12/14/2006
Sub Test Name:	3.0 Meters/Second	Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:	Lower Rib 3.0 m/s	Test Date:	10/17/2012
Test Number:	1	Test Time:	3:26:44 PM



Test Time: **3:26:44 PM**

Test Date: **10/17/2012**

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VERIFICATION REPORT

Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:59:46 AM

Component Part Number	Component Serial Number
Upper Rib - 175-4002	07203
Middle Rib - 175-4002	07205
Lower Rib - 175-4002	07209

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.5 deg C P
Humidity	10.0 -- 70.0	36.0 %RH P
Velocity	5.40 -- 5.60	5.49 m/s P
Upper Rib Displacement	34.0 -- 41.0	38.3 mm P
Middle Rib Displacement	37.0 -- 45.0	41.8 mm P
Lower Rib Displacement	37.0 -- 44.0	39.1 mm P
Impactor Force	5100 -- 6200	5495 N P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **9:59:46 AM**

Test Date: **10/18/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Honeywell	MLT-38000	DS-183	5/17/2012
Honeywell	MLT-38000	DS-184	5/17/2012
Honeywell	MLT-38000	DS-182	5/17/2012

Test Time: 9:59:46 AM

Test Date: 10/18/2012

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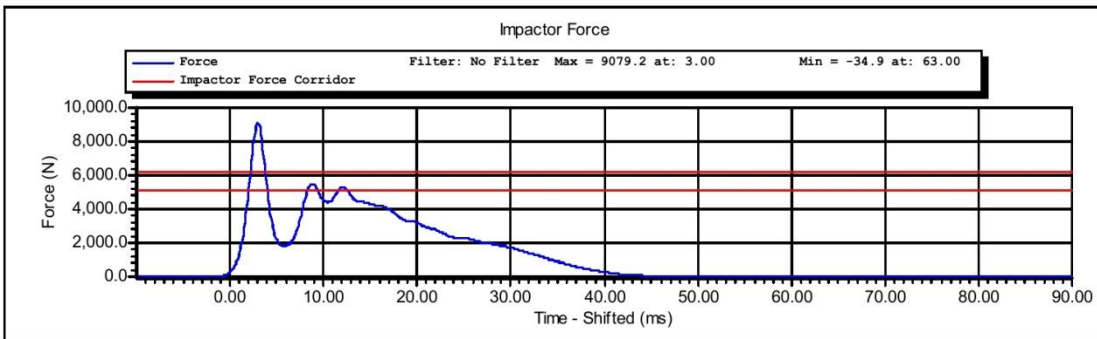
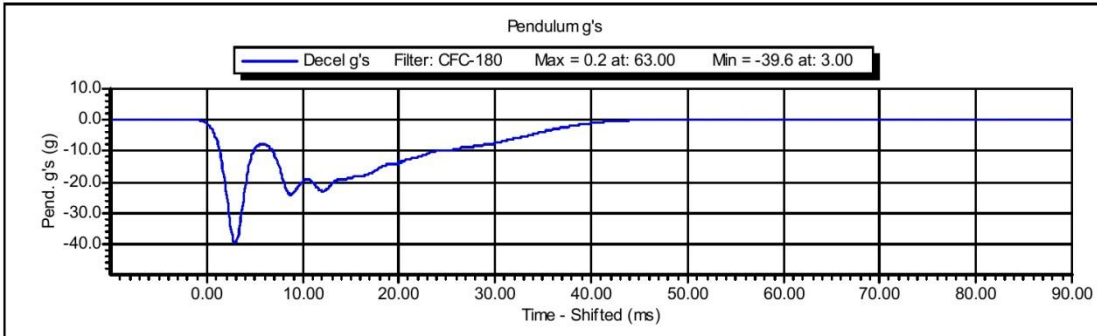


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Test Name:	Thorax Impact	Revision:	8/15/2008
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:59:46 AM



Test Time: **9:59:46 AM**

Test Date: **10/18/2012**

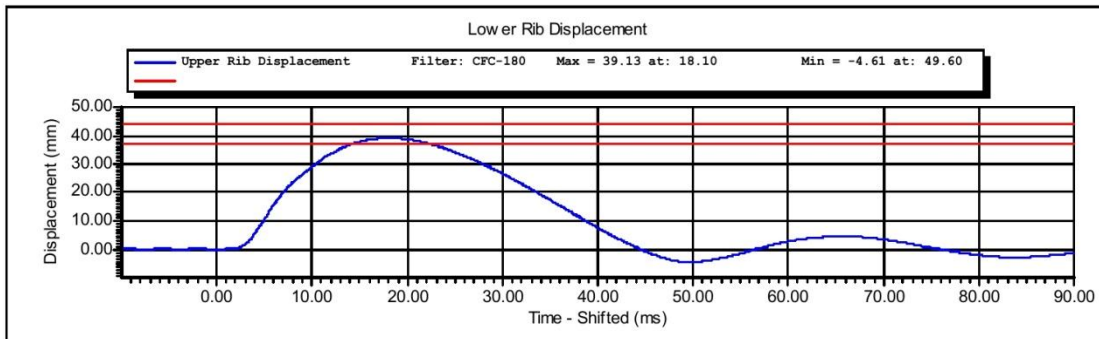
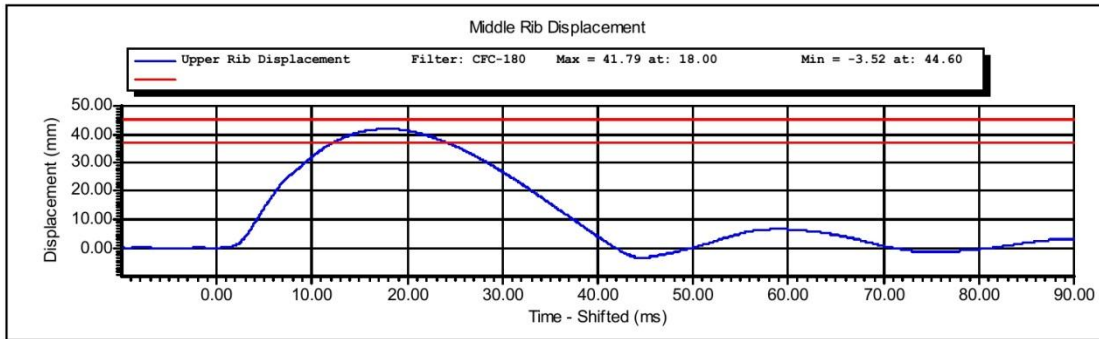
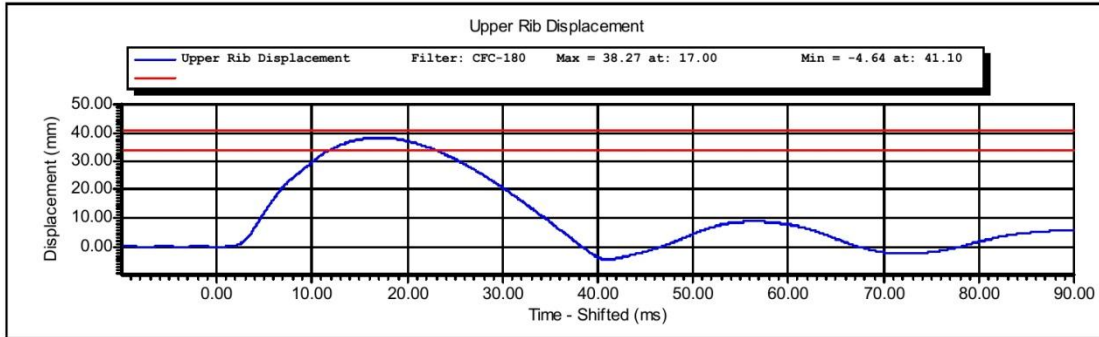
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Test Time: 9:59:46 AM

Test Date: 10/18/2012

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VERIFICATION REPORT

Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:41:59 AM

Component Part Number	Component Serial Number
455-4001	04/83

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.4 deg C P
Humidity	10 -- 70	36 %RH P
Velocity	3.90 -- 4.10	4.02 m/s P
Peak Abdominal Force	-2.70 -- -2.20	-2.42 kN P
Time At Peak Abdominal Force	10.0 -- 12.3	10.7 ms P
Maximum Pendulum Force	-4.80 -- -4.00	-4.56 kN P
Time at Peak Pendulum Force	10.6 -- 13.0	11.2 ms P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **9:41:59 AM**

Test Date: **10/18/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Denton	2631	LC-1512	5/21/2012
Denton	2631	LC-1526	5/21/2012
Denton	2631	LC-1516	5/21/2012

Test Time: 9:41:59 AM

Test Date: 10/18/2012

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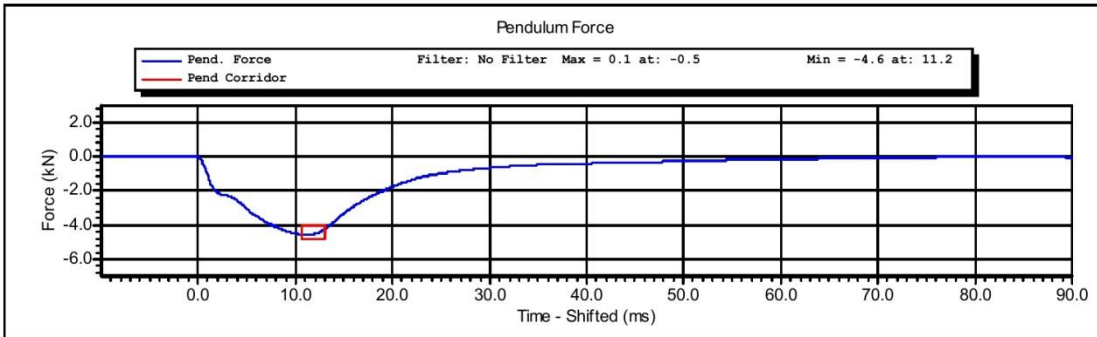
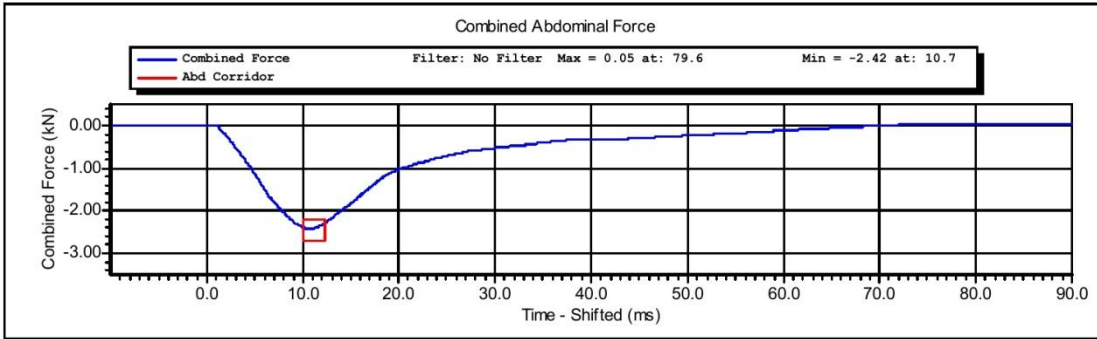


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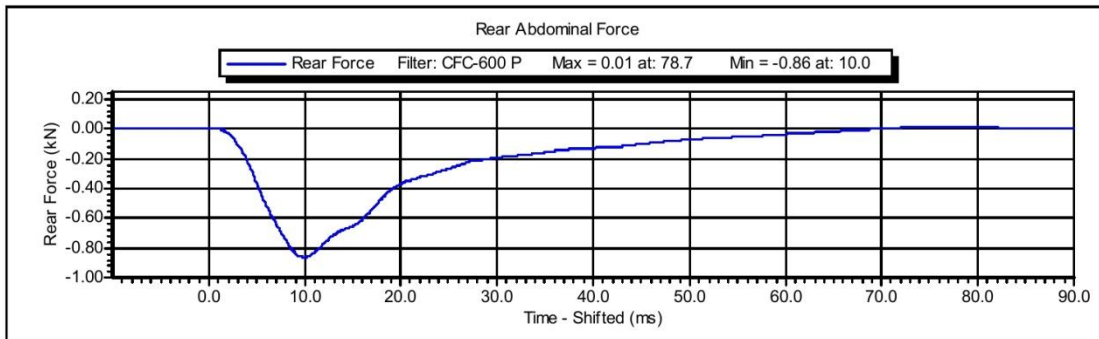
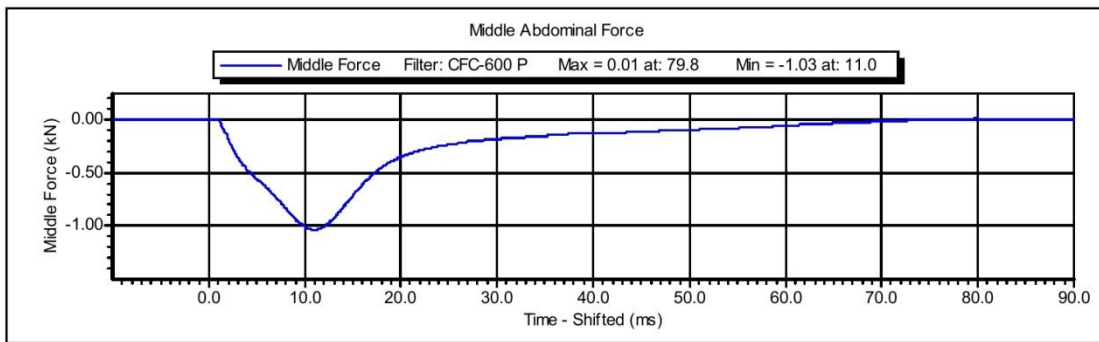
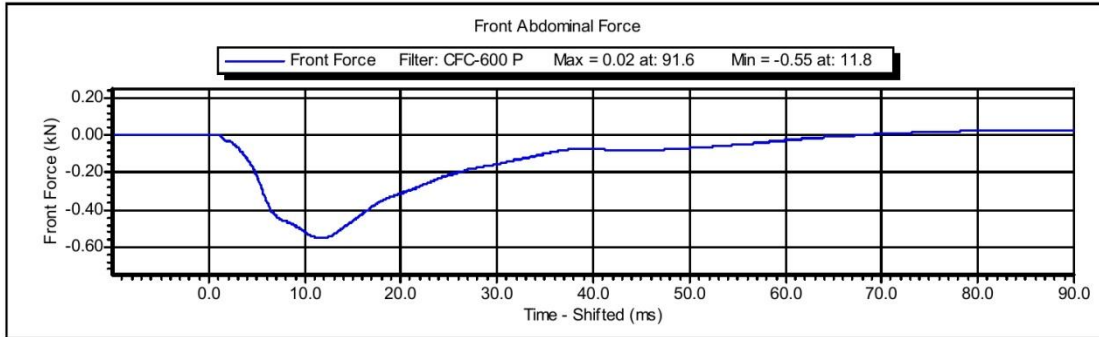
Test Name:	Abdominal Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:41:59 AM



Test Time: **9:41:59 AM**

Test Date: **10/18/2012**

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Test Time: 9:41:59 AM

Test Date: 10/18/2012

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VERIFICATION REPORT

Test Name:	Lumbar Spine	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	5:29:33 PM

Component Part Number	Component Serial Number
175-5501	DI8371

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.1 deg C P
Humidity	10 -- 70	38 %RH P
Velocity	5.95 -- 6.15	6.15 m/s P
Maximum Headform Flexion Angle	45.0 -- 55.0	46.3 degrees P
Time at Maximum Headform Flexion Angle	39.0 -- 53.0	45.7 ms P
Decay to Zero Degrees	37.0 -- 57.0	40.5 ms P
Velocity Corridor	--	P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test Time: **5:29:33 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
DentonATD	7000428	094	5/30/2012
DentonATD	7000428	095	5/30/2012
DentonATD	7000428	093	5/30/2012

Test Time: 5:29:33 PM

Test Date: 10/17/2012

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VERIFICATION REPORT

Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:20:07 AM

Component Part Number	Component Serial Number
455-4003	0703L

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	36 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Peak Pendulum Force	-5.40 -- -4.70	-4.99 kN P
Time at Peak Pendulum Force	11.80 -- 16.10	13.55 ms P
Peak Pubic Symphysis Force	-1.59 -- -1.23	-1.37 kN P
Time at Peak Pubic Symphysis Force	12.20 -- 17.00	15.35 ms P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **9:20:07 AM**

Test Date: **10/18/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Denton	3096	LC-465Fy	5/21/2012

Test Time: 9:20:07 AM

Test Date: 10/18/2012

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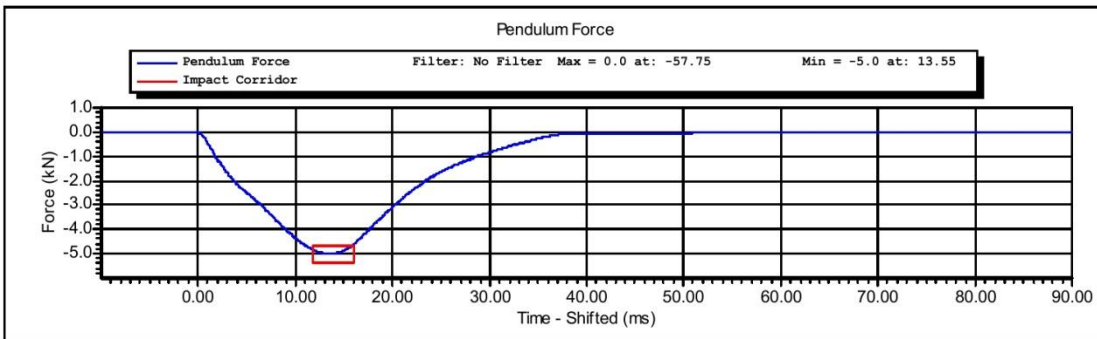
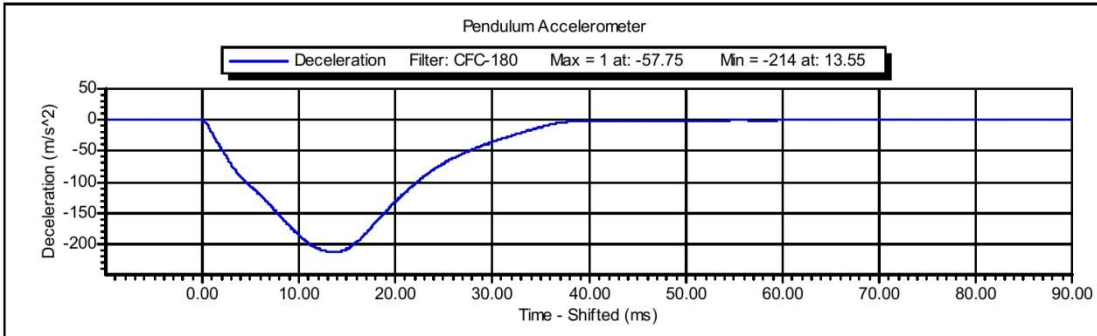


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Test Name:	Pelvis Impact	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	ES-2re		
ATD Serial Number:	F034		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	9:20:07 AM



Test Time: **9:20:07 AM**

Test Date: **10/18/2012**

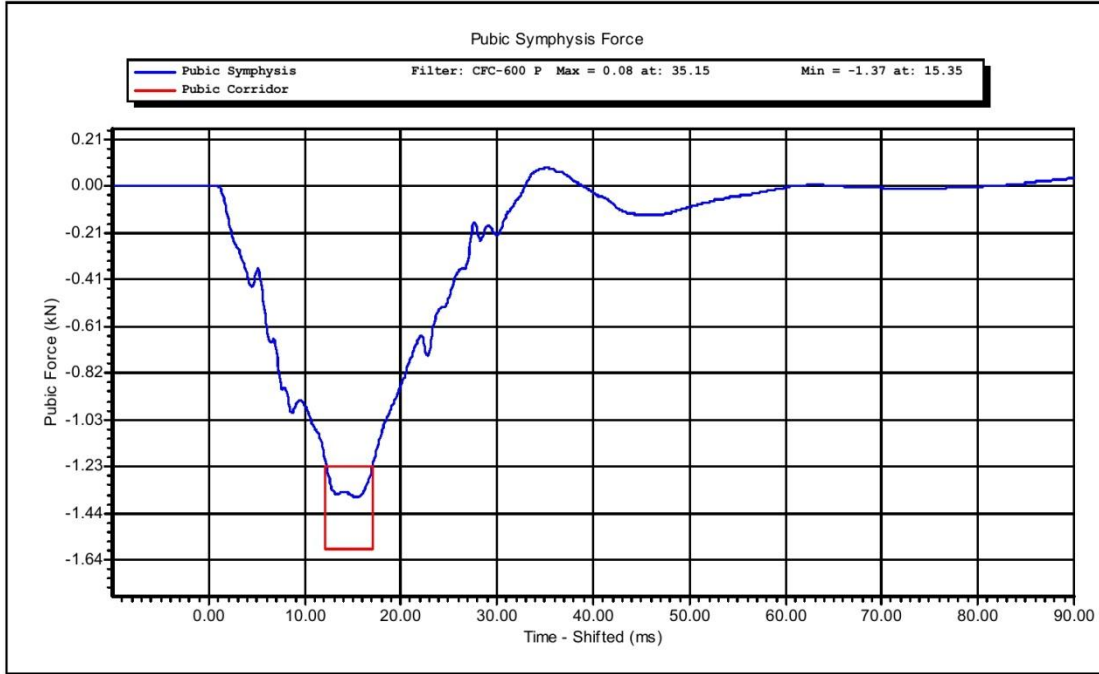
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Test Time: 9:20:07 AM

Test Date: 10/18/2012

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CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SERIAL No: 300

(CONFIGURED FOR LEFT SIDE IMPACT)



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SID-IIsD External Measurements

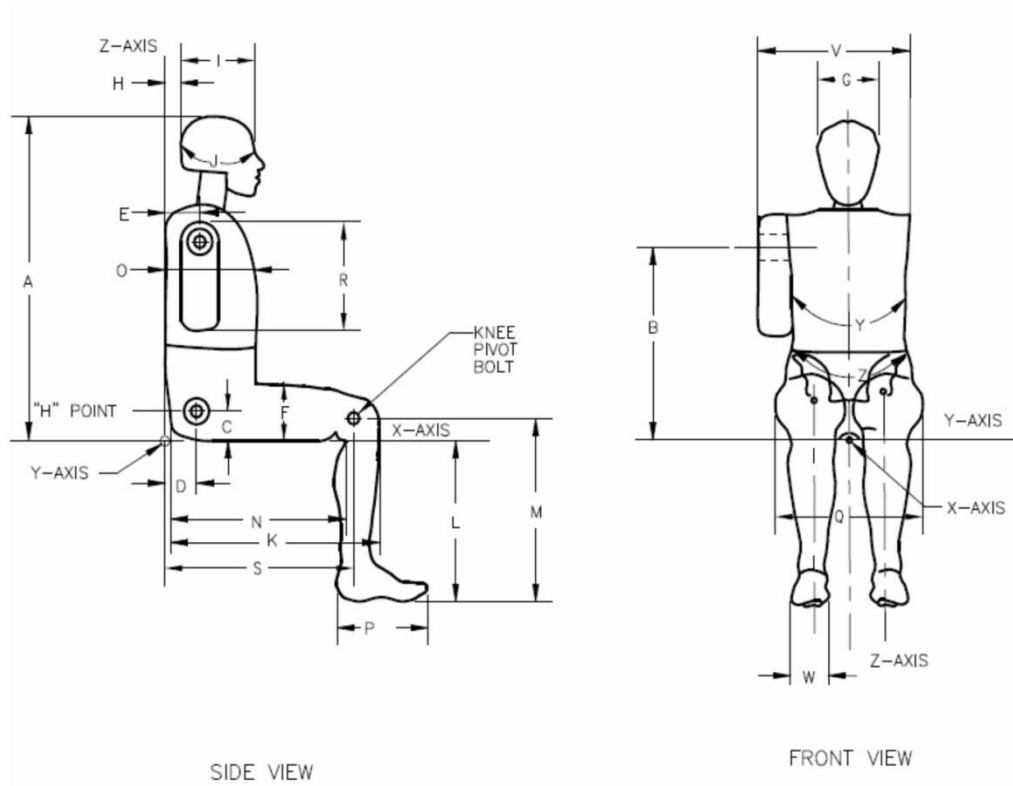
NHTSA ATD S/N 300

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	782	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	144	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	546	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	353	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	316	Yes
R	Arm Length	249.0 - 259.0	255	Yes
S	Knee Joint to Seat back	478.0 - 493.0	484	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	344	Yes
W	Foot Width (right)	78.0 - 94.0	86	Yes
W	Foot Width (left)	78.0 - 94.0	86	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	866	Yes
Z	Waist Circumference	761.0 - 791.0	777	Yes

Technician: SPZ

Date: 10/18/2012

SID-IIIsD External Dimension Reference Diagram





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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:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	9:07:55 AM

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

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.2 deg C P
Humidity	10 -- 70	35 %RH P
Resultant Acceleration	115.0 -- 137.0	129.3 g P
Oscillation	0.0 -- 15.0	7.7 % P
Fore-Aft Acceleration	-15.0 -- 15.0	6.3 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **9:07:55 AM**

Test Date: **10/17/2012**



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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	P51685	5/21/2012
Endevco	7264-2000	P51682	5/21/2012
Endevco	7264-2000	P51699	5/21/2012

Test Time: 9:07:55 AM

Test Date: 10/17/2012

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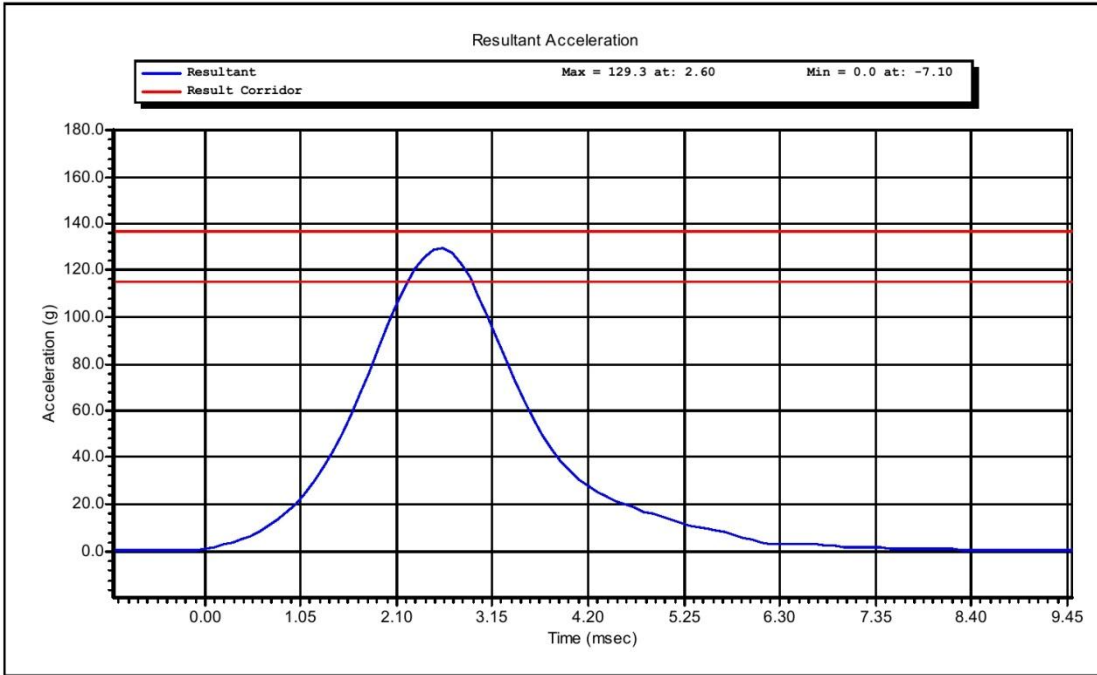


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Test Name:	Head Drop	Revision:	12/14/2006
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	9:07:55 AM



Test Time: **9:07:55 AM**

Test Date: **10/17/2012**

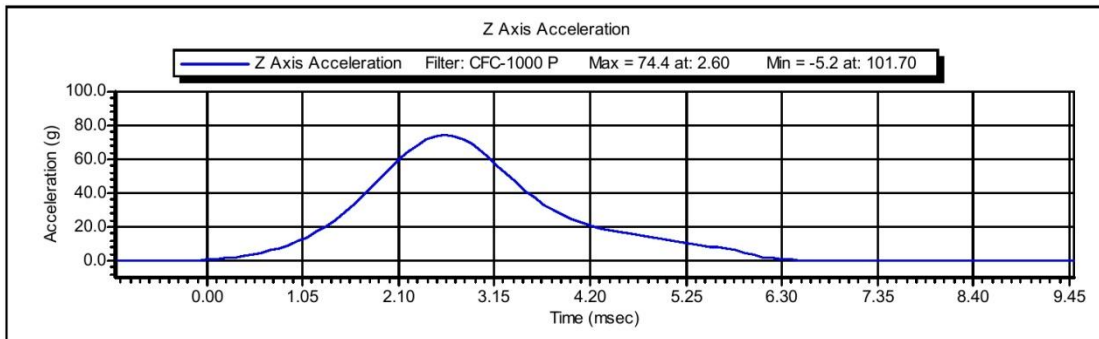
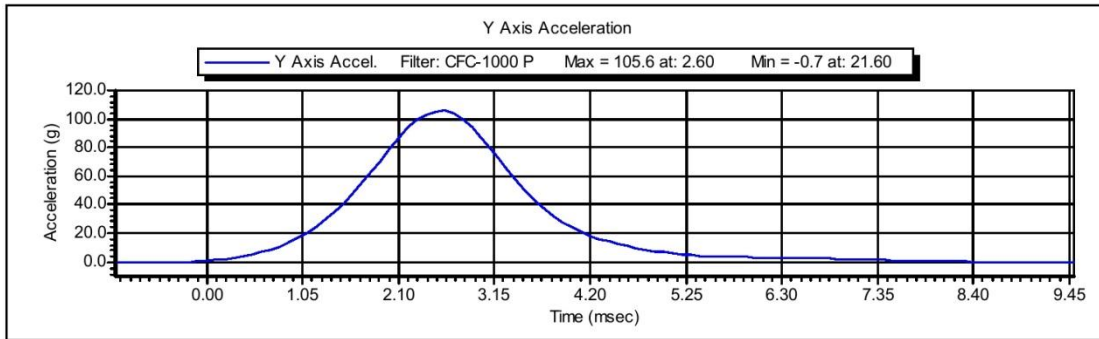
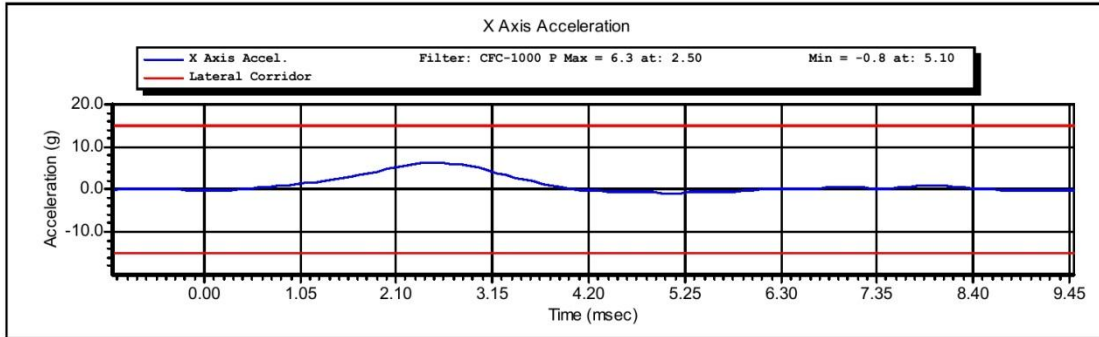
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Test Time: 9:07:55 AM

Test Date: 10/17/2012

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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:	300		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	10:54:07 AM

Component Part Number	Component Serial Number
Neck - 180-2000	DG7061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.8 deg C P
Humidity	10 -- 70	38 %RH P
Velocity	5.51 -- 5.63	5.59 m/s P
Pendulum Impulse at 10 ms	2.20 -- 2.80	2.38 m/s P
Pendulum Impulse at 15 ms	3.30 -- 4.10	3.44 m/s P
Pendulum Impulse at 20 ms	4.40 -- 5.40	4.60 m/s P
Pendulum Impulse at 25 ms	5.40 -- 6.10	5.49 m/s P
Pendulum Impulse between 25 and 100 ms	5.50 -- 6.20	5.51 m/s P
Max D Plane Rotation	71.0 -- 81.0	72.6 degrees P
Time at Max Rotation	50.0 -- 70.0	59.8 ms P
Moment about OC	-44.0 -- -36.0	-43.3 Nm P
Moment Decay to Zero	102.0 -- 126.0	115.9 ms P

All test parameters are within specifications

Technician: **A. Rudniski**

Supervisor: **D. Travale**

Test Time: **10:54:07 AM**

Test Date: **10/18/2012**



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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	1/11/2012
Endevco	7231CT	C15016	8/15/2012
Denton	1716A	LC-1591 Fy	5/21/2012
Denton	1716A	LC-1591 Mx	5/21/2012
DentonATD	78051-342	184	5/30/2012
DentonATD	78051-342	174	5/30/2012
DentonATD	78051-342	185	5/30/2012

Test Time: 10:54:07 AM

Test Date: 10/18/2012

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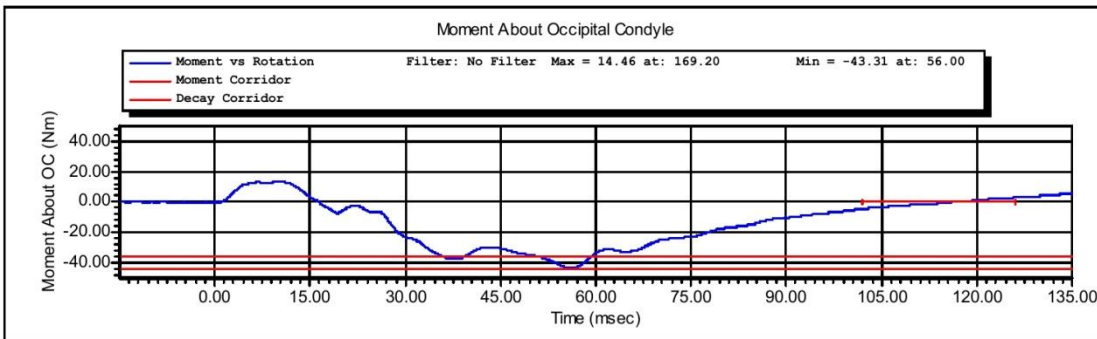
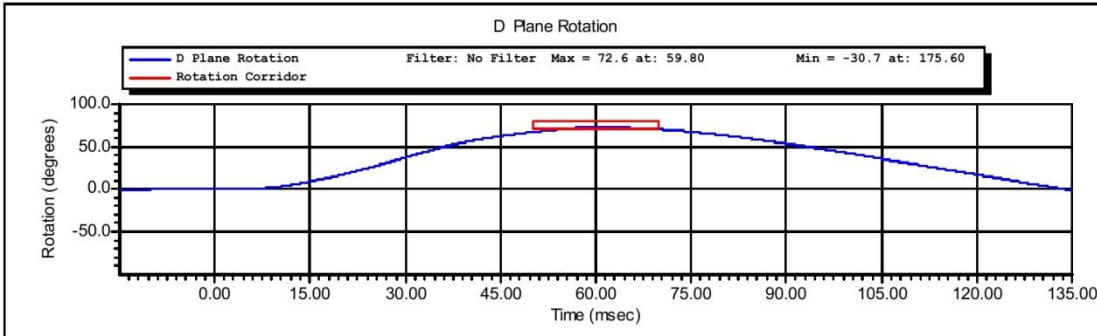


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Test Name:	Neck Pendulum	Revision:	8/24/2009
Sub Test Name:	Left Side	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/18/2012
Test Number:	1	Test Time:	10:54:07 AM



Test Time: **10:54:07 AM**

Test Date: **10/18/2012**

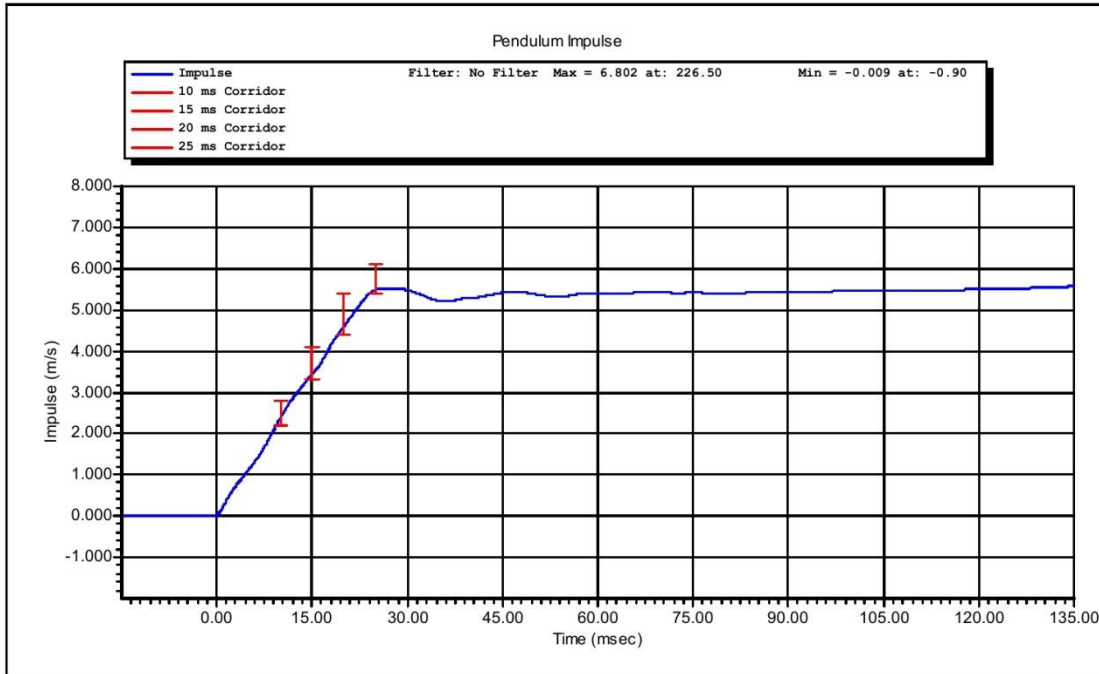
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Test Time: 10:54:07 AM

Test Date: 10/18/2012

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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:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:14:37 PM

Component Part Number	Component Serial Number
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.10 deg C P
Humidity	10.0 -- 70.0	35.0 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Probe Acceleration	13.0 -- 18.0	16.2 g P
Shoulder Deflection	28.0 -- 37.0	30.19 mm P
T1 Acceleration	17.0 -- 22.0	20.1 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **6:14:37 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1063	5/15/2012
Endevco	7264-2000	P51915	5/18/2012

Test Time: 6:14:37 PM

Test Date: 10/17/2012

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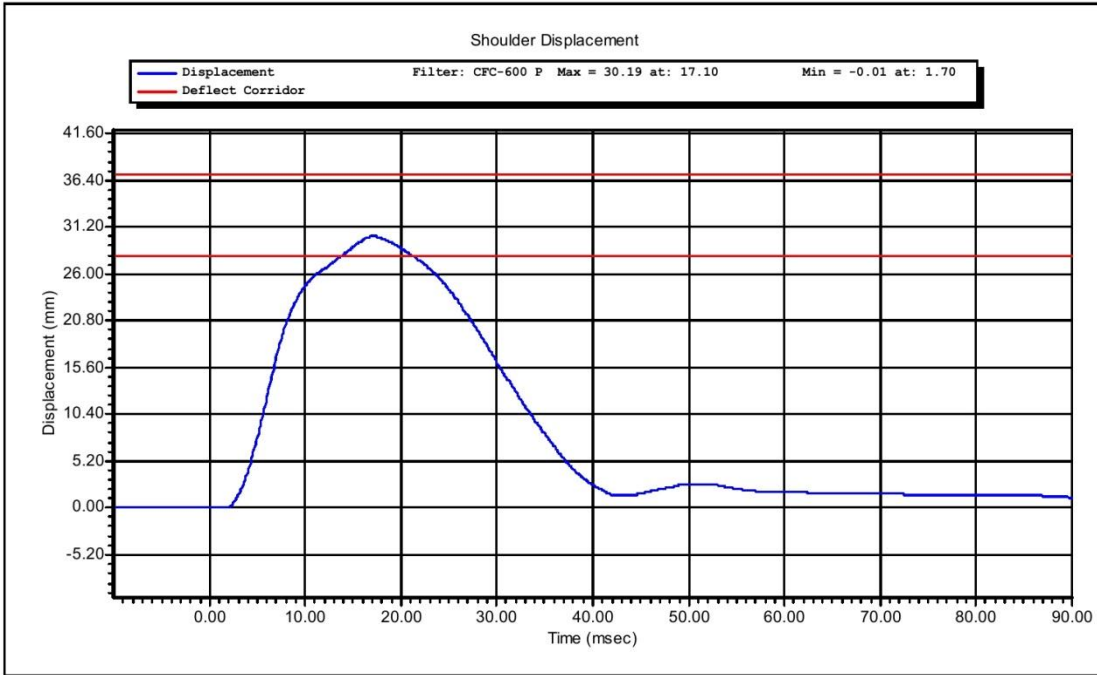


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Test Name:	Shoulder Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:14:37 PM



Test Time: **6:14:37 PM**

Test Date: **10/17/2012**

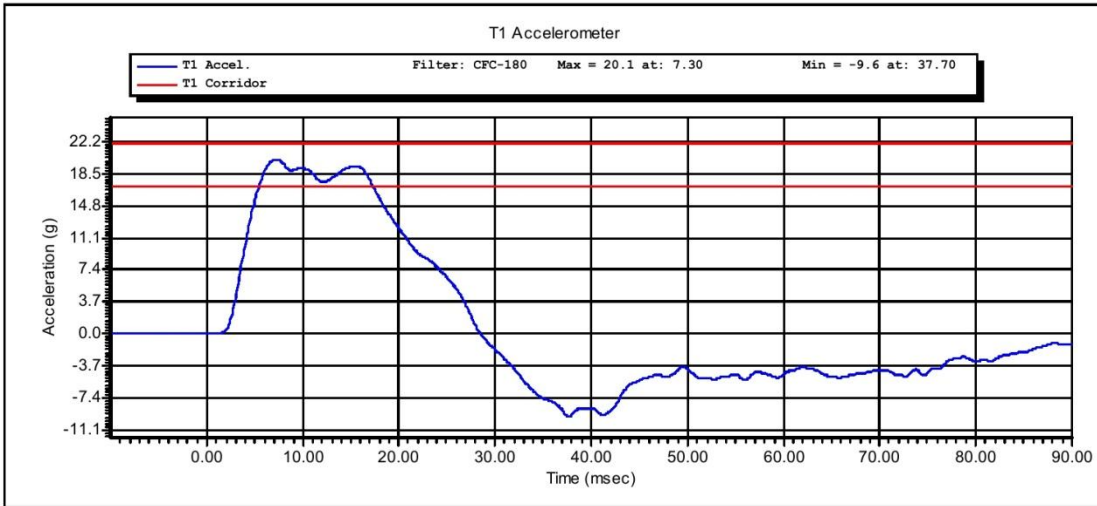
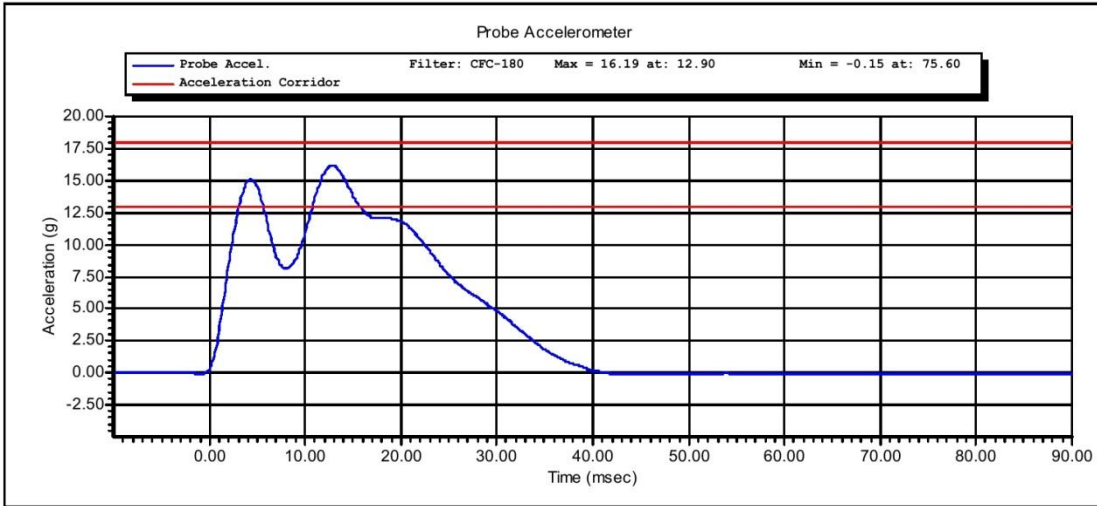
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Test Date: 10/17/2012

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VERIFICATION REPORT

Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	5:59:24 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3	2024, 2061, 2062

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.2 deg C P
Humidity	10 -- 70	35 %RH P
Velocity	4.20 -- 4.40	4.38 m/s P
Probe Acceleration	14.0 -- 18.0	16.6 g P
Upper Thorax Rib Deflection	32.0 -- 40.0	34.1 mm P
Mid Thorax Rib Deflection	39.0 -- 45.0	42.2 mm P
Lower Thorax Rib Deflection	35.0 -- 43.0	40.8 mm P
Upper Spine Acceleration T1	13.0 -- 17.0	15.2 g P
Lower Spine Acceleration T12	7.0 -- 11.0	10.1 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **5:59:24 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1121	5/16/2012
Servo	180-3885	DS-1151	5/15/2012
Servo	180-3885	DS-1156	5/15/2012
Endevco	7264-2000	P51915	5/18/2012
Endevco	7264-2000	P64147	5/18/2012

Test Time: 5:59:24 PM

Test Date: 10/17/2012

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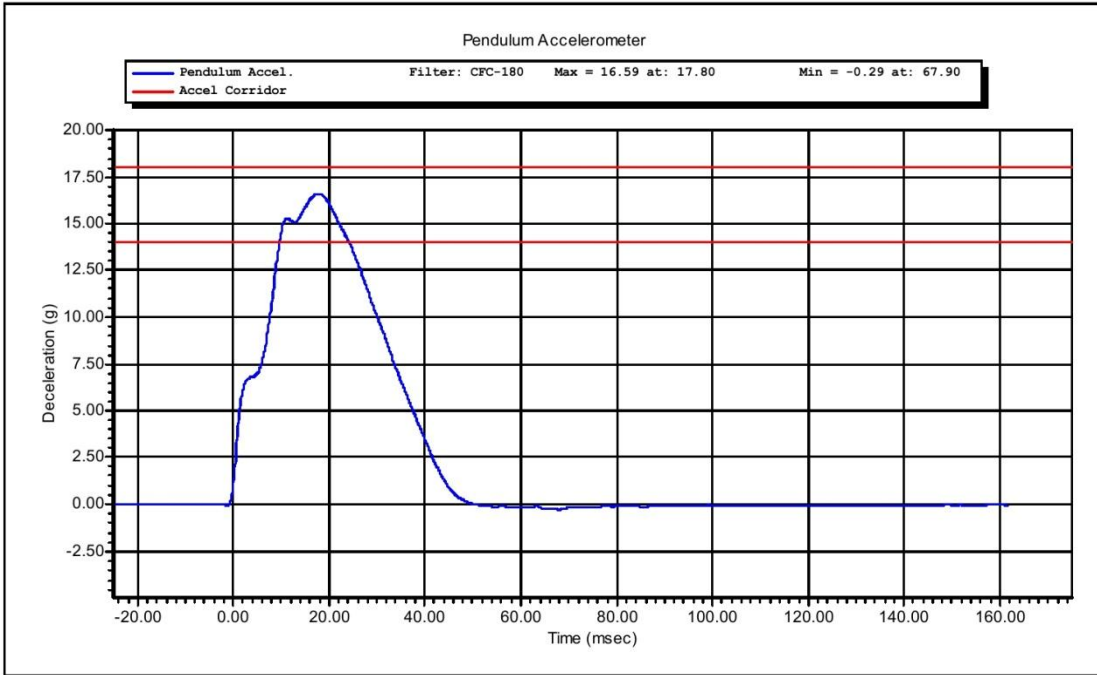


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Test Name:	Thorax Impact without Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	5:59:24 PM



Test Time: **5:59:24 PM**

Test Date: **10/17/2012**

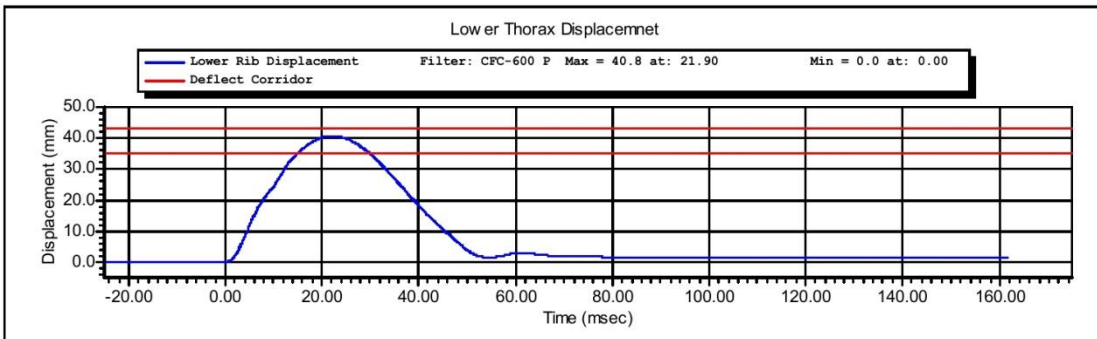
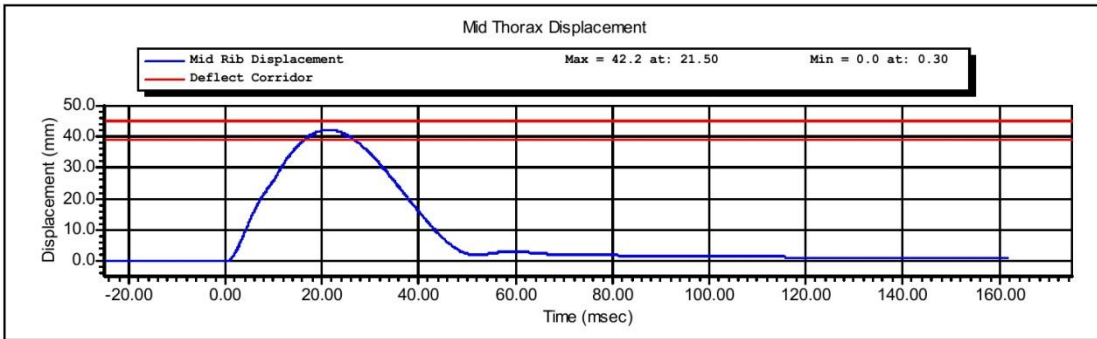
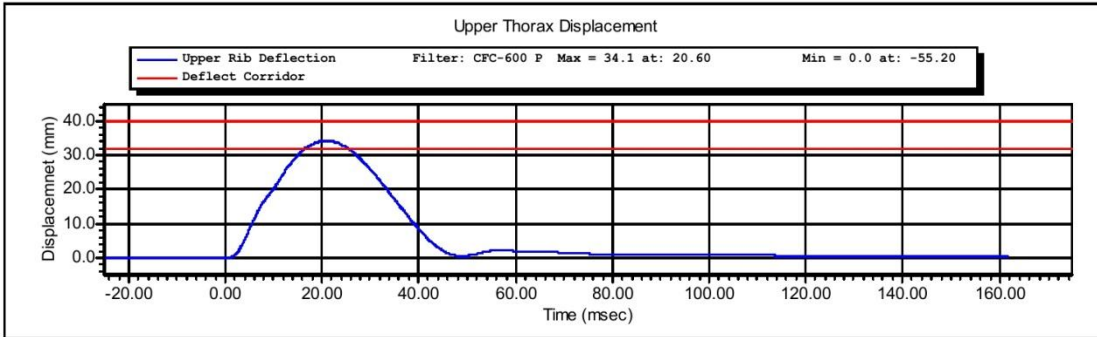
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Test Date: 10/17/2012

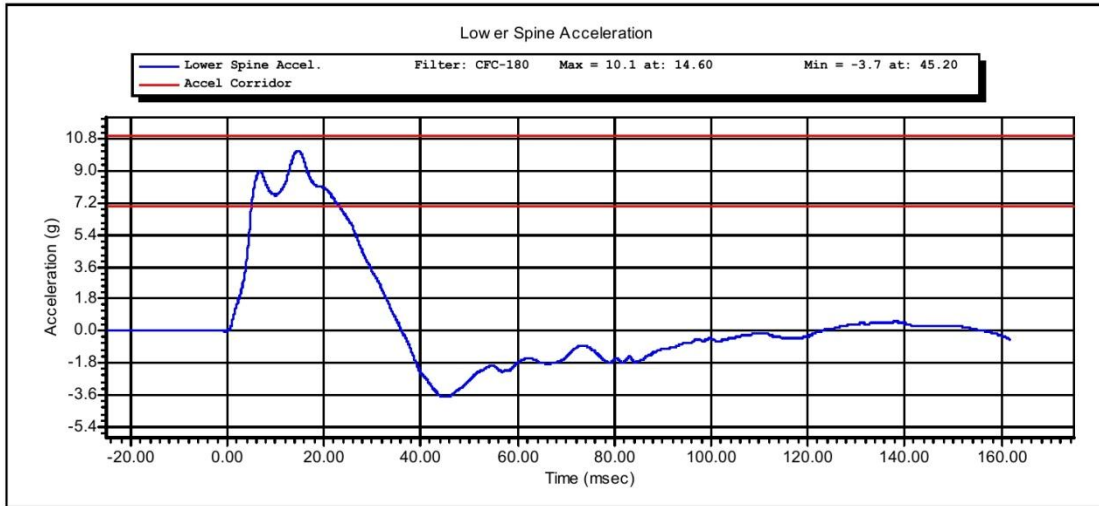
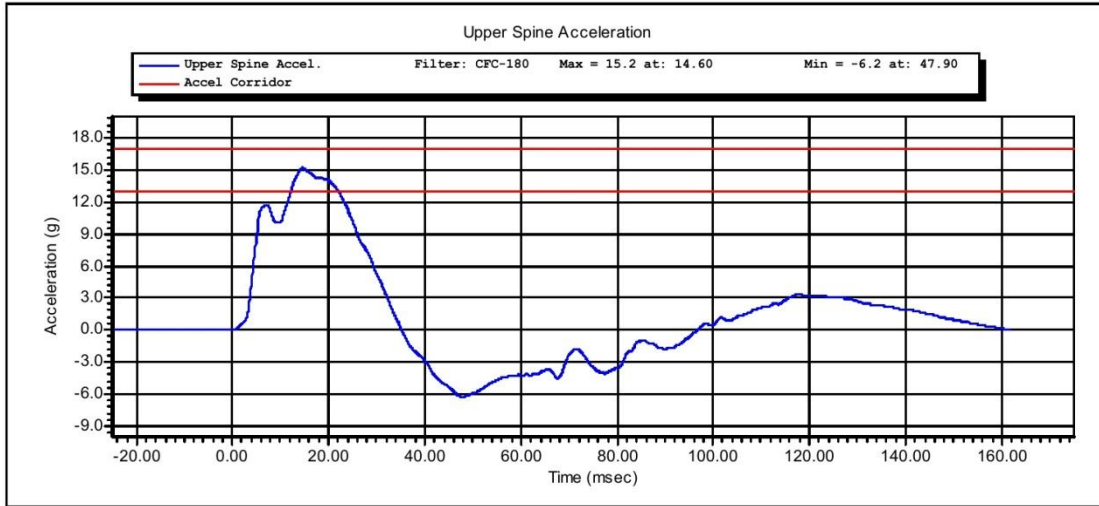
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Test Date: 10/17/2012

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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:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:59:53 PM

Component Part Number	Component Serial Number
Thorax Ribs 1, 2, 3 180-3362	2024, 2061, 2062
Shoulder Rib 180-3355	168
Left Arm 180-6011-1	822

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	39 %RH P
Velocity	6.60 -- 6.80	6.74 m/s P
Probe Acceleration after 5ms	30.0 -- 36.0	34.2 g P
Upper Thorax Rib Deflection	25.0 -- 32.0	27.0 mm P
Mid Thorax Rib Deflection	30.0 -- 36.0	32.5 mm P
Lower Thorax Rib Deflection	32.0 -- 38.0	34.0 mm P
Upper Spine Acceleration ("y")	34.0 -- 43.0	39.8 g P
Lower Spine Acceleration ("y")	29.0 -- 37.0	32.6 g P
Shoulder Deflection	31.0 -- 40.0	34.3 mm P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **6:59:53 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1121	5/16/2012
Servo	180-3885	DS-1151	5/15/2012
Servo	180-3885	DS-1156	5/15/2012
Endevco	7264-2000	P51915	5/18/2012
Endevco	7264-2000	P64147	5/18/2012
Servo	180-3885	DS-1063	5/15/2012

Test Time: 6:59:53 PM

Test Date: 10/17/2012

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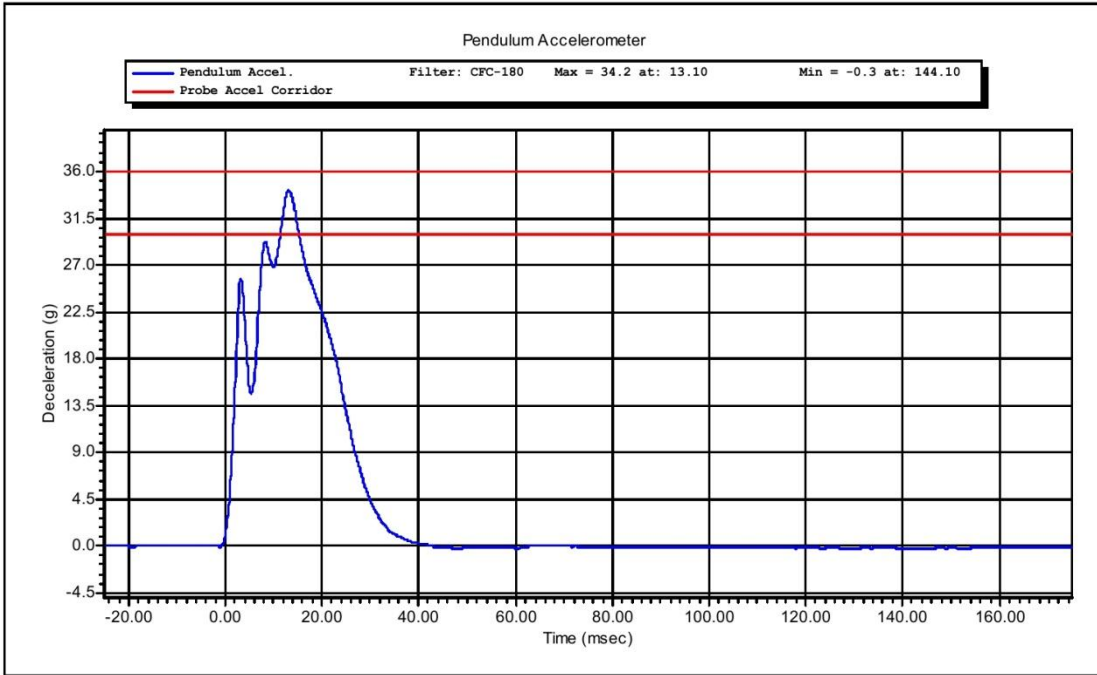


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Test Name:	Thorax Impact with Arm	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:59:53 PM



Test Time: **6:59:53 PM**

Test Date: **10/17/2012**

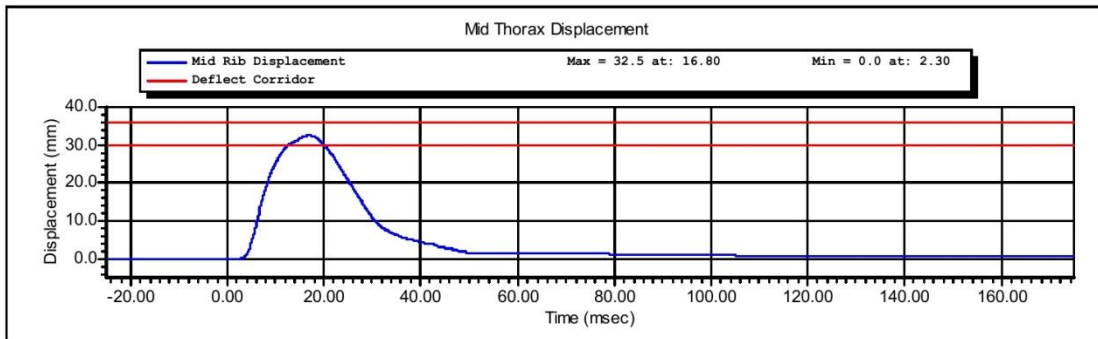
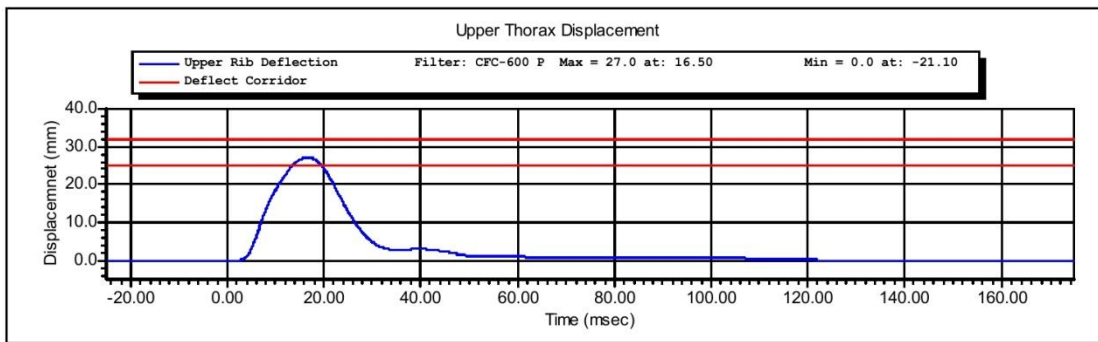
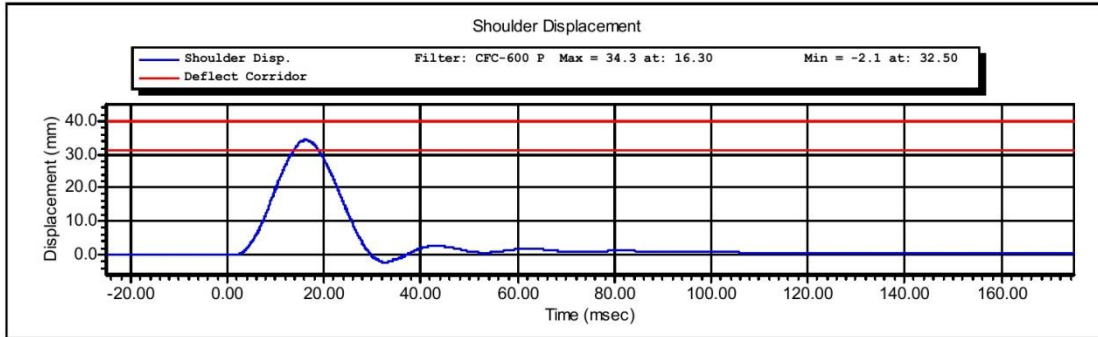
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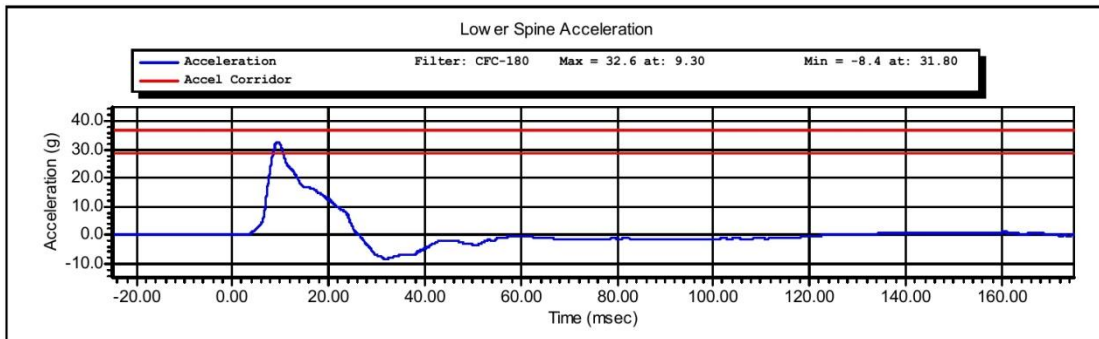
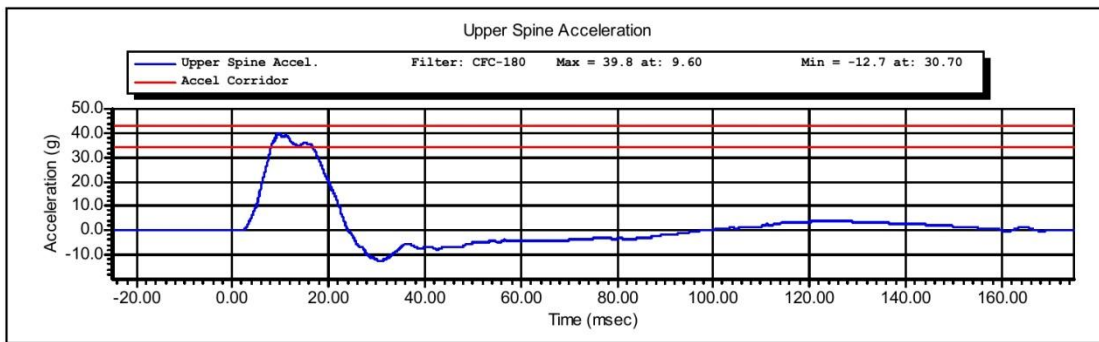
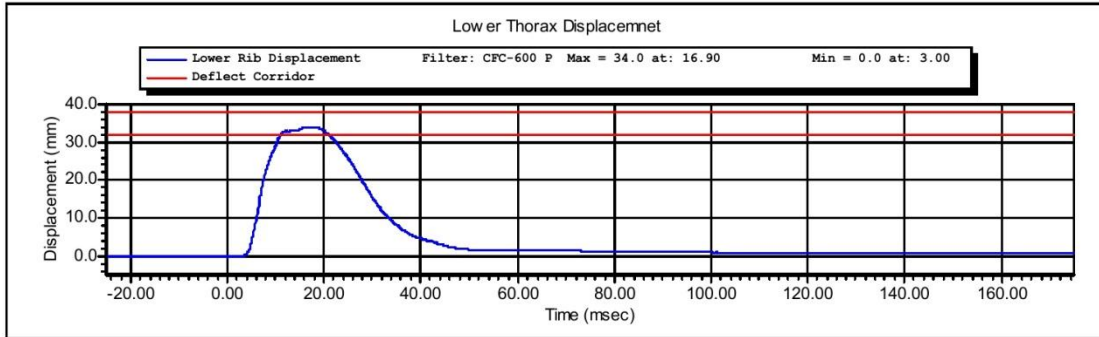
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Test Time: 6:59:53 PM

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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:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:36:16 PM

Component Part Number	Component Serial Number
Abdomen Ribs 4, 5	2024, 2061

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.1 deg C P
Humidity	10 -- 70	36 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Probe Acceleration	12.0 -- 16.0	14.9 g P
Upper Abdominal Rib Deflection	36.0 -- 47.0	40.2 mm P
Lower Abdominal Rib Deflection	33.0 -- 44.0	38.6 mm P
Lower Spine Acceleration - T12	9.0 -- 14.0	12.2 g P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **6:36:16 PM**

Test Date: **10/17/2012**

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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Servo	180-3885	DS-1162	5/15/2012
Servo	180-3885	DS-1622	5/15/2012
Endevco	7264-2000	P64147	5/18/2012

Test Time: **6:36:16 PM**

Test Date: **10/17/2012**

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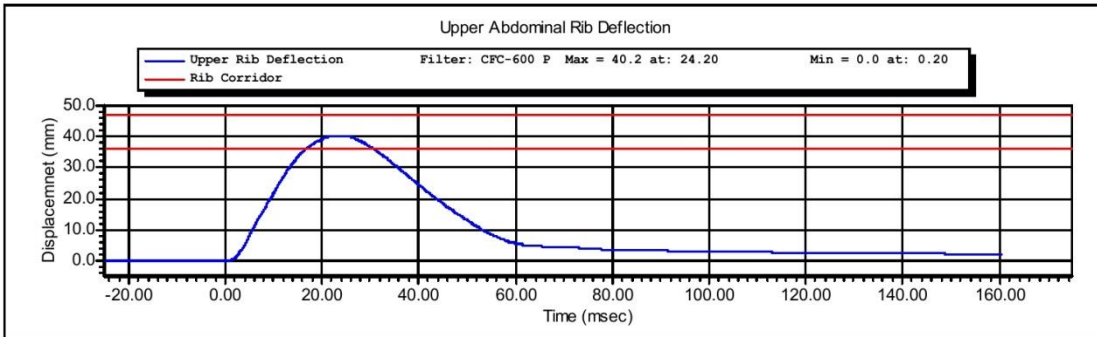
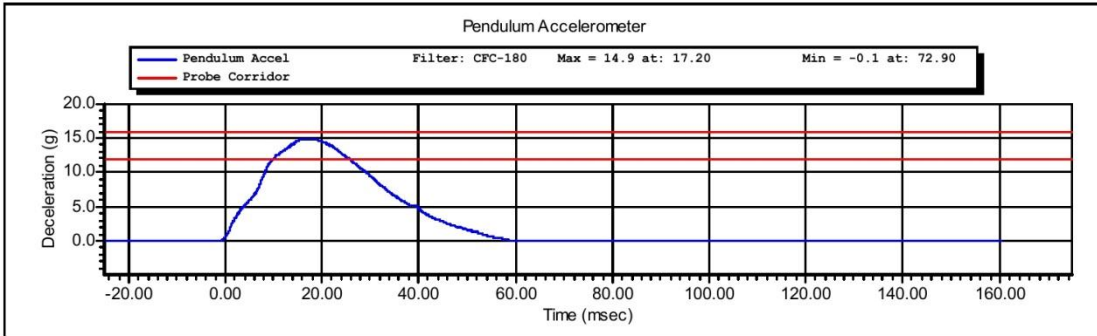


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Test Name:	Abdominal Impact	Revision:	8/24/2009
Sub Test Name:		Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	6:36:16 PM



Test Time: **6:36:16 PM**

Test Date: **10/17/2012**

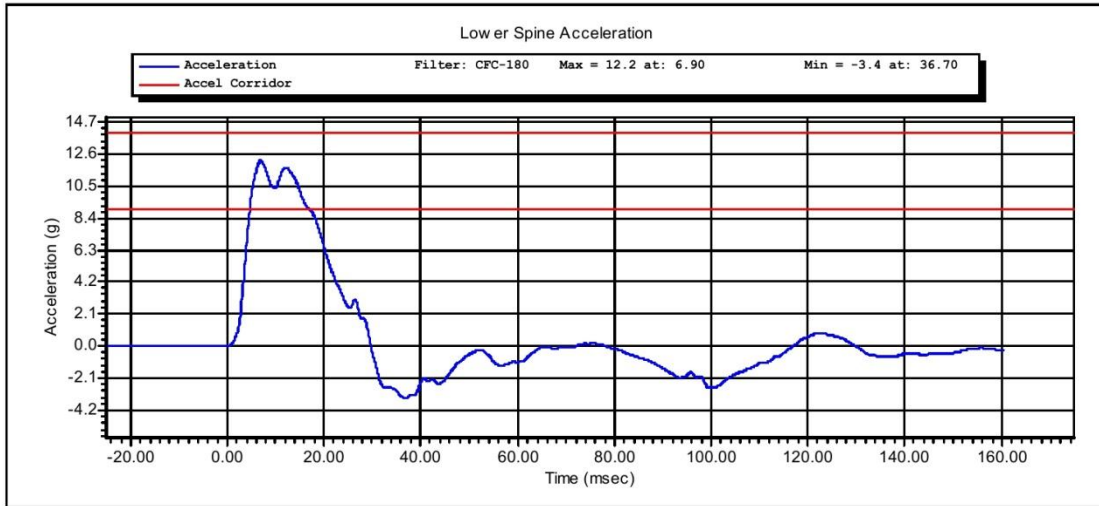
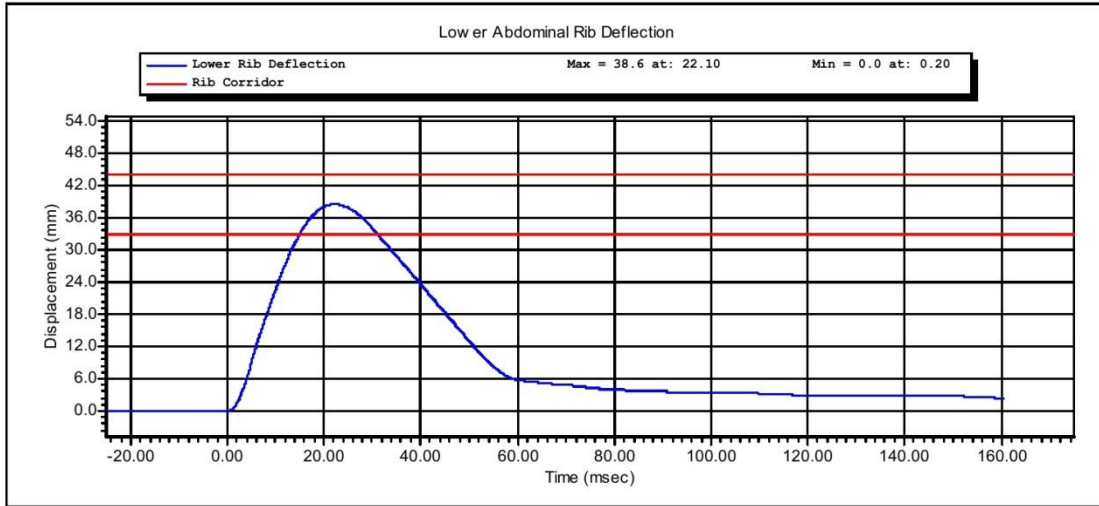
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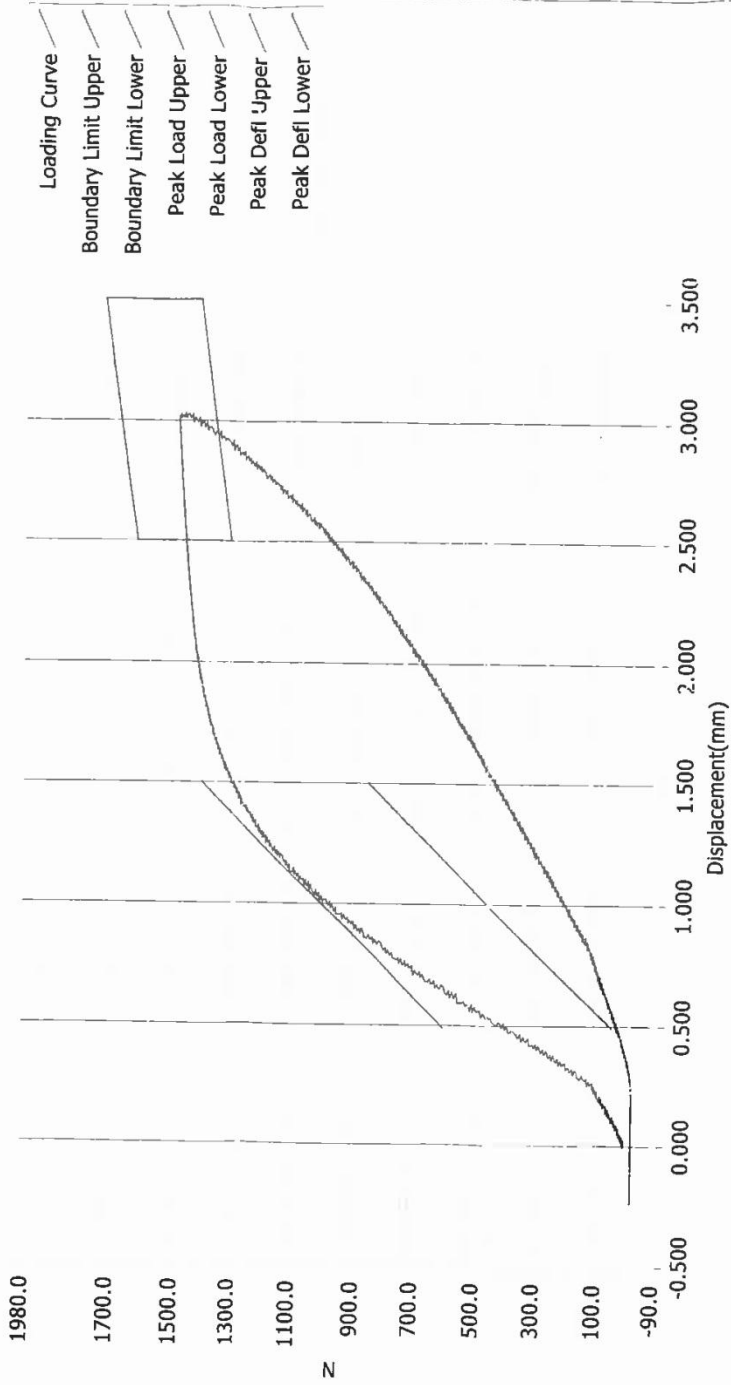
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Test Date: 10/17/2012

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Cert 10/17/12 JH

Resultant Data - SIDIIs Plug Compression



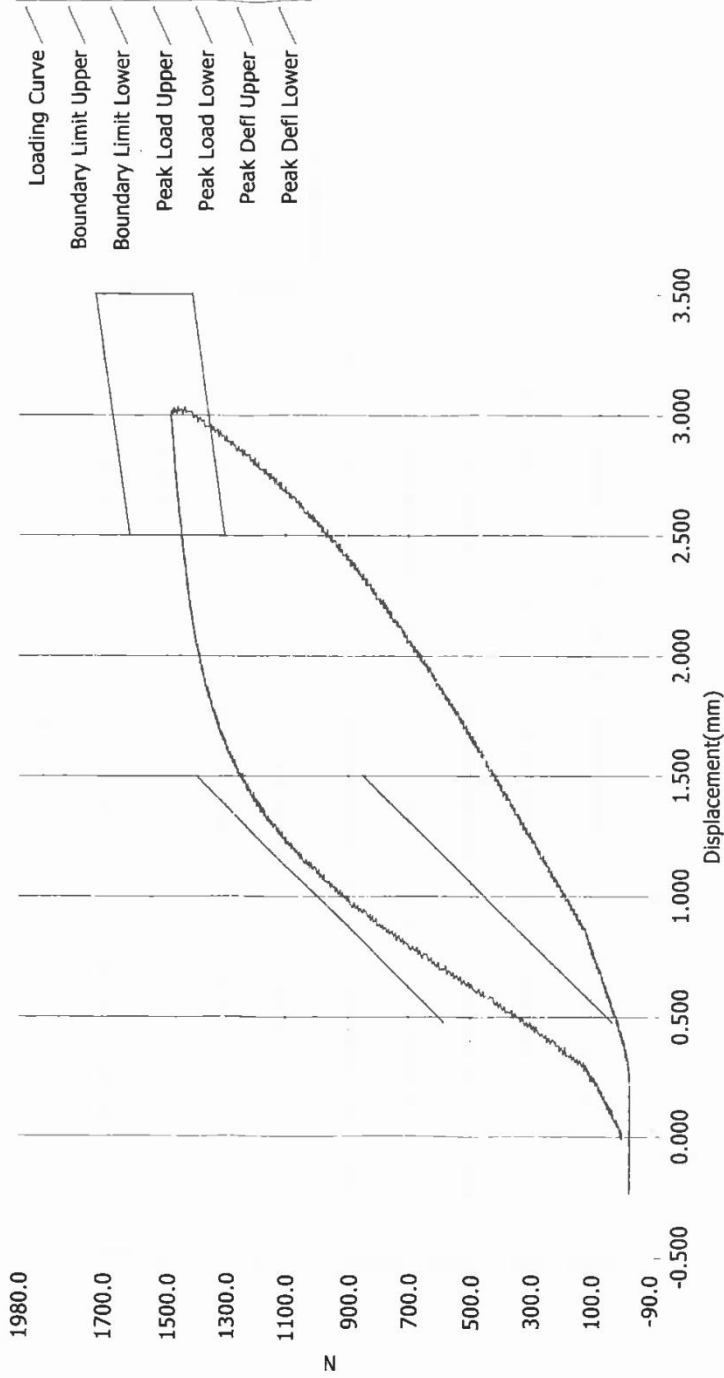
ATD Calibration Lab

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Cert ID	ATD Serial Number	ATD Type	
	36794	SIDIIs	

Current Date : 10/5/2010 Current Time : 22:18:18

Crash

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
		10/5/2010	9:05 PM

Cert ID	ATD Serial Number	ATD Type
	36789	SIDIIs

Current Date : 10/5/2010 Current Time : 21:06:52



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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:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	5:09:25 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DJ0890
FTSS Cert Plug - 1487N	36794
Humanetics Crash Plug - 1485N	36789

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	21.3 deg C P
Humidity	10 -- 70	35 %RH P
Velocity	6.60 -- 6.80	6.62 m/s P
Peak Probe Acceleration	38.0 -- 47.0	44.3 g P
Peak Pelvis Acceleration	34.0 -- 42.0	41.9 g P
Peak Acetabulum Force	3.60 -- 4.30	3.72 kN P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **5:09:25 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Endevco	7264-2000	P16517	5/18/2012
DentonATD	3249J	LC-275a	5/21/2012

Test Time: 5:09:25 PM

Test Date: 10/17/2012

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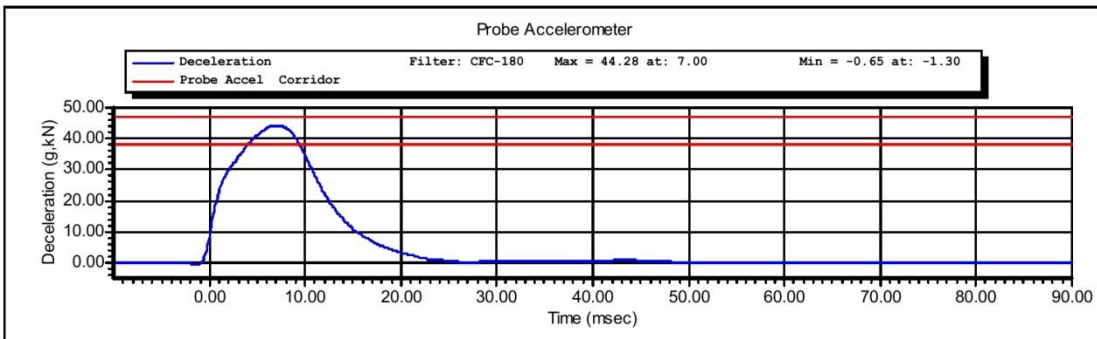
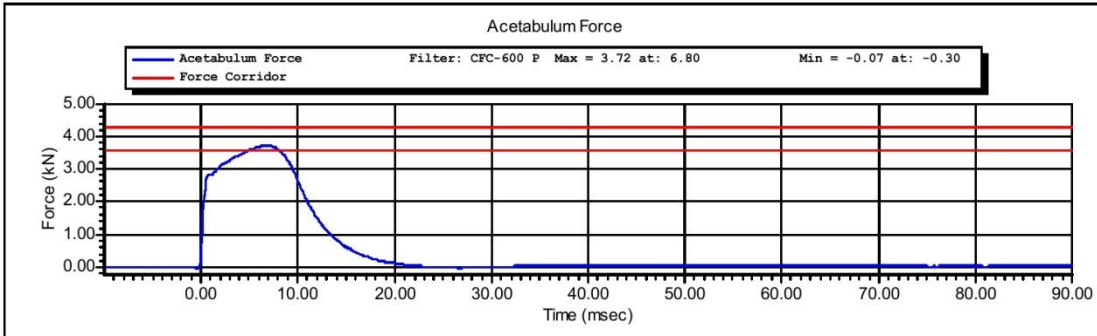


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Acetabulum Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	5:09:25 PM



Test Time: **5:09:25 PM**

Test Date: **10/17/2012**

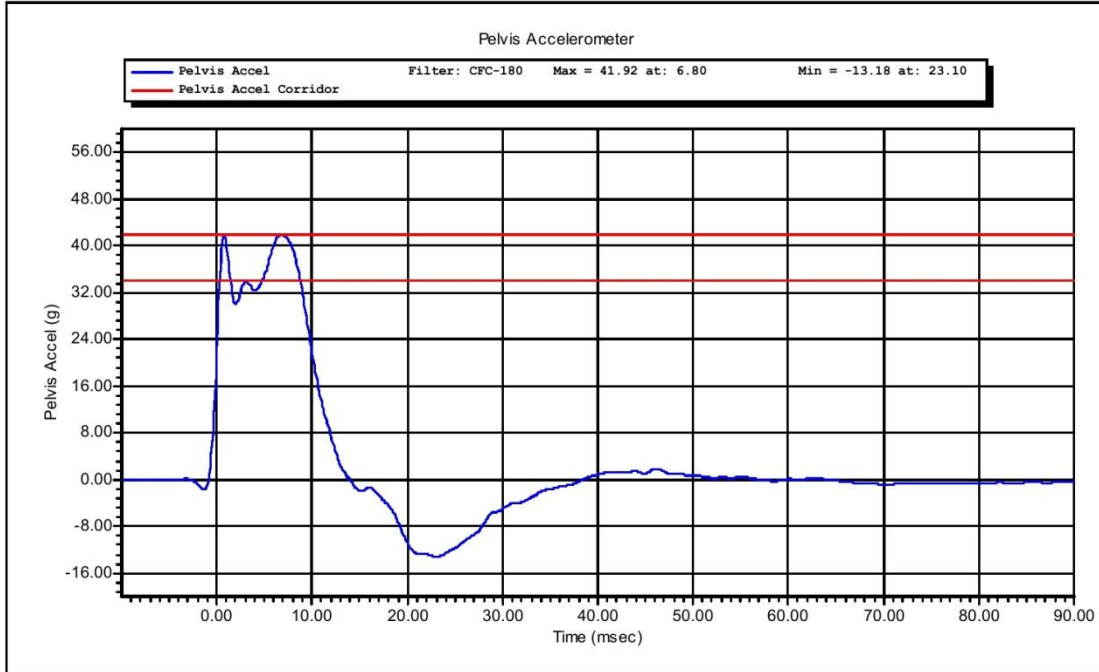
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VERIFICATION REPORT

Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
Test ID:		Test Date:	10/17/2012
Test Number:	1	Test Time:	4:21:39 PM

Component Part Number	Component Serial Number
180-4343 Pelvis Flesh	DJ0890

Test Parameters	Test Specifications	Test Results
Temperature	20.6 -- 22.2	22.0 deg C P
Humidity	10 -- 70	34 %RH P
Velocity	4.20 -- 4.40	4.36 m/s P
Peak Probe Acceleration	36.0 -- 45.0	41.5 g P
Peak Pelvis Acceleration	28.0 -- 39.0	34.5 g P
Peak Iliac Force	4.10 -- 5.10	4.63 kN P

All test parameters are within specifications

Technician: **S. Zito**

Supervisor: **D. Travale**

Test Time: **4:21:39 PM**

Test Date: **10/17/2012**



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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	1/11/2012
Endevco	7231CT	C14953	5/25/2012
Endevco	7264-2000	P16517	5/18/2012
DentonATD	3228J	LC-279 Fy	5/21/2012

Test Time: 4:21:39 PM

Test Date: 10/17/2012

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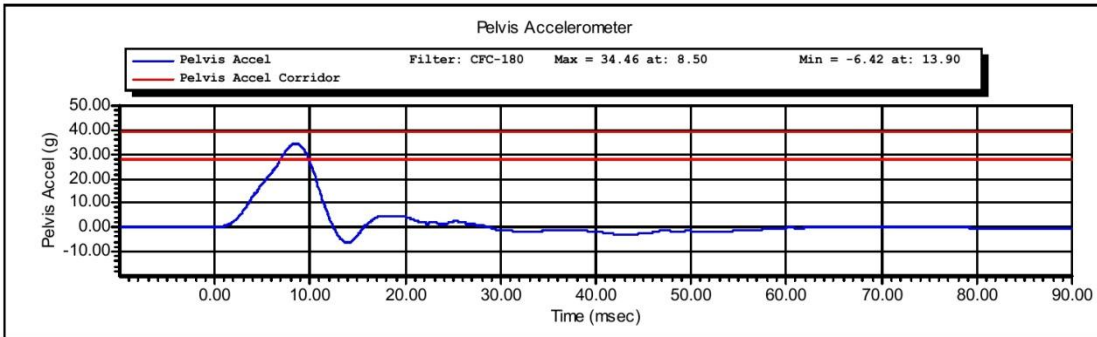
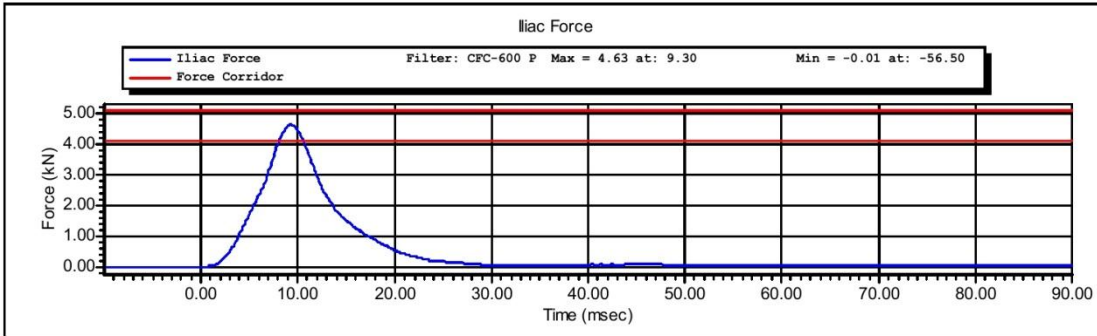


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Test Name:	Pelvis	Revision:	8/24/2009
Sub Test Name:	Iliac Impact	Spec Type:	NHTSA
ATD Type:	SID-IIs		
ATD Serial Number:	300		
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Test Time: **4:21:39 PM**

Test Date: **10/17/2012**

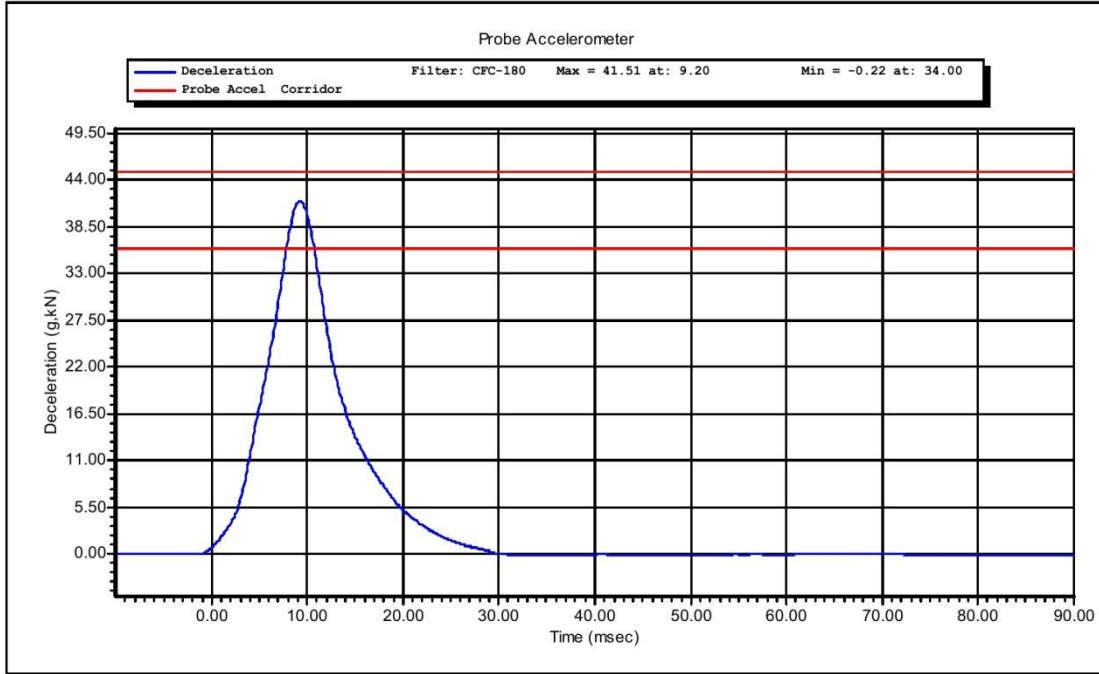
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Test Time: 4:21:39 PM

Test Date: 10/17/2012

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APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N: F034		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers	X		P58737	ENDEVCO	5/17/2012
	Y		P52022	ENDEVCO	5/17/2012
	Z		P52040	ENDEVCO	5/16/2012
Thorax Rib Displacement Potentiometers	Upper	Y	183	HONEYWELL	5/17/2012
	Middle	Y	184	HONEYWELL	5/17/2012
	Lower	Y	182	SERVO	5/17/2012
Abdomen Load Cells	Forward	Y	1512	DENTON	5/21/2012
	Middle	Y	1526	DENTON	5/21/2012
	Rear	Y	1516	DENTON	5/21/2012
Lower Spine Accelerometers (T12)	X		P51729	ENDEVCO	7/30/2012
	Y		P51873	ENDEVCO	5/17/2012
	Z		P52152	ENDEVCO	5/17/2012
Pubic Symphysis Load Cell	Y		465	DENTON	5/21/2012

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N: 300		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers	X		P51685	ENDEVCO	5/17/2012	
	Y		51682	ENDEVCO	5/17/2012	
	Z		P51699	ENDEVCO	5/17/2012	
Displacement Potentiometers	Shoulder		Y			
	Thoracic Rib	Upper	Y	1121	SERVO	5/15/2012
		Middle	Y	1151	SERVO	5/15/2012
		Lower	Y	1156	SERVO	5/15/2012
	Abdominal Rib	Upper	Y	1162	SERVO	5/15/2012
		Lower	Y	1622	SERVO	5/15/2012
Lower Spine Accelerometers (T12)	X		P58883	ENDEVCO	5/17/2012	
	Y		P64147	ENDEVCO	5/18/2012	
	Z		P58786	ENDEVCO	5/18/2012	
Acetabulum Load Cell	Y		275	DENTON	5/21/2012	
Iliac Wing Load Cell	Y		279FY	DENTON	5/21/2012	
Pelvis Plug (struck side)			36311	HUMANETICS	9/22/2010	
Pelvis Plug (non-struck side)						

Table 3 – Vehicle Instrumentation

Vehicle Instrumentation			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	A081429	MS	9/26/2012
	Vehicle Center of Gravity	Y	A081447	MS	8/10/2012
	Vehicle Center of Gravity	Z	A081463	MS	8/10/2012
2	Right Sill at Front Seat	X	A081413	MS	8/10/2012
	Right Sill at Front Seat	Y	A081417	MS	8/10/2012
	Right Sill at Front Seat	Z	A081443	MS	8/10/2012
3	Right Sill at Rear Seat	X	A081436	MS	8/10/2012
	Right Sill at Rear Seat	Y	A081453	MS	8/10/2012
	Right Sill at Rear Seat	Z	A081456	MS	8/10/2012
4	Left Sill at Front Door	Y	A081414	MS	9/5/2012
5	Left Sill at Rear Door	Y	A081418	MS	9/4/2012
6	Left A-Post Lower	Y	A081455	MS	9/4/2012
7	Left A-Post Middle	Y	A070861	MS	9/5/2012
8	Left B-Post Lower	Y	A005901	MS	9/5/2012
9	Left B-Post Middle	Y	A081431	MS	9/4/2012
10	Front Seat Track	Y	A005899	MS	9/4/2012
11	Rear Seat Track or Structure	Y	A081437	MS	9/4/2012
12	Right Rear Occ. Compartment	Y	A005903	MS	9/5/2012
13	Engine Block	X	A081461	MS	8/10/2012
	Engine Block	Y	A081425	MS	8/10/2012
14	Rear Floorpan Above Axle	X	A081445	MS	8/10/2012
	Rear Floorpan Above Axle	Y	A005869	MS	8/10/2012
	Rear Floorpan Above Axle	Z	A081433	MS	8/10/2012

TABLE 4 – MDB Instrumentation

MDB Instrumentation		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	C14901	ENDEVCO	9/14/2012
MDB Center of Gravity	Y	C16680	ENDEVCO	9/14/2012
MDB Center of Gravity	Z	CP30	ENDEVCO	9/14/2012
Left Frame at Rear Axle Centerline	X	C16507	ENDEVCO	9/14/2012
Left Frame at Rear Axle Centerline	Y	C16499	ENDEVCO	9/14/2012