

**FINAL REPORT NUMBER: SPNCAP-TRC-12-002**

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

**Ford Motor Company  
2012 Ford Expedition XL SUV  
NHTSA NUMBER: MC0215**

**PREPARED BY:  
Transportation Research Center Inc.  
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P. O. Box B-67  
East Liberty, OH 43319**



**Report Date: March 15, 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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Prepared By: IL Project Operations Team

Approved By: *Margaret Susan*

Approval Date: March 15, 2012

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: \_\_\_\_\_

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COTR, New Car Assessment Program  
NHTSA, Office of Crashworthiness Standards

Date: \_\_\_\_\_

Technical Report Documentation Page

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<p>16. Abstract</p> <p>A 32.2 km/h (20 mph), 75° oblique impact Side Pole NCAP Test was conducted on the subject vehicle, a 2012 Ford Expedition XL SUV, in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 6, 2011.</p> <p>The impact velocity was 32.3 km/h and the ambient temperature at the struck (driver's side) side of the target vehicle at the time of impact was 22° C. The test vehicle's post-test maximum crush was 449 mm at Level 3.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th></th> <th style="text-align: center;"><u>Threshold</u></th> <th style="text-align: center;"><u>Front SID-IIs</u></th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria HIC):</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;"><u>407</u></td> </tr> <tr> <td>Resultant Lower Spine Acceleration:</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">82</td> <td style="text-align: center;"><u>69.8</u></td> </tr> <tr> <td>Total Pelvic Force:</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;"><u>5135.1</u></td> </tr> <tr> <td colspan="4">(sum of acetabular and iliac forces)</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38</td> <td style="text-align: center;"><u>35.1</u></td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45</td> <td style="text-align: center;"><u>51.7</u></td> </tr> </tbody> </table> <p>The door struck by the pole did not totally separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.</p>						<u>Threshold</u>	<u>Front SID-IIs</u>	Head Injury Criteria HIC):	N/A	1000	<u>407</u>	Resultant Lower Spine Acceleration:	g's	82	<u>69.8</u>	Total Pelvic Force:	N	5525	<u>5135.1</u>	(sum of acetabular and iliac forces)				Maximum Thoracic Rib Deflection	mm	38	<u>35.1</u>	Maximum Abdomen Rib Deflection	mm	45	<u>51.7</u>
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**SECTION 1**  
**TEST PURPOSE AND PROCEDURE**

**TEST PURPOSE AND PROCEDURE**

This side impact test was conducted as part of the MY 2012 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00125. The purpose of this test is to generate comparative side impact performance in a 2012 Ford Expedition XL SUV manufactured by Ford Motor Company. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated August 30, 2011.

**SECTION 2**  
**SUMMARY OF TEST RESULTS**

A rigid pole side impact test was conducted on a model year 2012 Ford Expedition XL SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.3 km/h. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on December 6, 2011. Pre-test and post-test photographs of the test vehicle and the side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated August 30, 2011. Camera locations and other pertinent camera information are included in this report.

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

- Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

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

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	IARV	Result
Head Injury Criteria (HIC <sub>36</sub> )	NA	1000	407
Lower Spine Acceleration	G	82	69.8
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	5135.1
Maximum Thoracic Rib Deflection	mm	38*	35.1
Maximum Abdominal Rib Deflection	mm	45*	51.7

\* Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear Passenger Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	No	NA		
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso)	Yes	Yes	No	NA
Side Airbag 3 (None)	NA	NA	NA	NA
Seat Belt Pretensioner	Yes	Yes	No	NA
Seat Belt Load Limiter	NA	NA	NA	NA
Other	NA	NA	NA	NA

### GENERAL COMMENTS

The driver door became jammed shut during impact. No fuel system fluid spilled during or following the impact.

**SECTION 3**  
**OCCUPANT AND VEHICLE INFORMATION**

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

Test Vehicle: 2012 Ford Expedition XL SUV  
Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
Test Date: 12/06/11

**TEST VEHICLE INFORMATION AND OPTIONS**

NHTSA No.	MC0215	Traction Control System (TCS)	Yes
Model Year	2012	Auto-Leveling System	No
Make	Ford	Automatic Door Locks (ADL)	Yes
Model	Expedition XL	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	NA
VIN	1FMJU1F54CEF02630	Driver Frontal Airbag	Yes
Body Color	Dark blue	Driver Curtain Airbag	Yes
Odometer Reading (miles)	5.3	Driver Head/Torso Airbag	No
Engine Displacement (L)	5.4	Driver Torso Airbag	Yes
Number of Cylinders	8	Driver Torso/Pelvis Airbag	No
Engine Placement	longitudinally-placed	Driver Pelvis Airbag	No
Transmission Type	automatic	Driver Knee Airbag	No
Transmission Speeds	4	Rear Passenger Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	RWD	Rear Passenger Torso Airbag	No
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof / T-Top	No	Rear Passenger Pelvis Airbag	No
Running Boards	Yes	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rr. Pass. Seat Belt Pretensioner	No
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Passenger Load Limiter	Yes
All-Wheel Drive (AWD)	No	Other Safety Restraint	No

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

Yes

**DATA FROM CERTIFICATION LABEL**

Manufactured By	Ford Motor Company	GVWR (kg)	3311
Date of Manufacture	9-11	GAWR Front (kg)	1497
Vehicle Type	SUV	GAWR Rear (kg)	1928

**VEHICLE SEATING AND WEIGHT CAPACITY DATA**

	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	3	3	8
Vehicle Capacity Weight (VCW) (kg)				737
DSC x 68.04 kg				545
Rated Cargo and Luggage Weight (RCLW) (kg)				192

**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	Yes	No	No		No	Yes	No
Rear or Second Row Seat	No	No	Yes	No	No	Yes	No
Third Row Seat	No	No	Yes	No	Yes	No	No



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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**TIRE PRESSURES**

	Units	LF	RF	LR	RR
As Delivered	kPa	240	240	240	240
Tire Placard	kPa	240	240	240	240
Owner's Manual	kPa	NA	NA	NA	NA
As Tested	kPa	241	241	241	241

**TEST VEHICLE AXLE WEIGHTS**

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	615.0	657.8		656.6	705.0		636.8	750.4	
Right	kg	625.4	639.4		648.4	706.0		626.2	716.6	
Ratio	%	48.9	51.1		48.0	52.0		46.3	53.7	
Totals	kg	1240.4	1297.2	2537.6	1305.0	1411.0	2716.0	1263.0	1467.0	2730.0

**TARGET TEST WEIGHT CALCULATION**

Measured Parameter	Units	Value	
Total As Delivered Weight (UVW)	kg	2537.6	(A)
Actual Weight of 1 P572V ATD (SID-IIs) Dummy Used	kg	49.0	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTW)	kg	2722.6	(A+B+C)

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

**WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW**

Component Description	Weight (kg)
Steel plate mounted in cargo area	71.7
NA	NA
NA	NA

**TEST VEHICLE ATTITUDES AND CG**

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	Deg.	-0.7	-0.7	0.0	Yes
Front Passenger Sill Angle (front-to-rear)*	Deg.	-0.8	-0.8	-0.5	Yes
Front Bumper-Line Angle (left-to-right)**	Deg.	-0.1	0.3	-0.2	No
Rear Bumper-Line Angle (left-to-right)**	Deg.	-0.2	-0.2	-0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1539	1564	1617	
Vehicle CG (Left (+) / Right (-) from longitudinal Centerline)	mm	2.7	2.3	13.8	

\*ND=Nose Down (-), NU=Nose Up (+)    \*\*LD=Left Down (-), LU=Left Up (+)

\*\*\* The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements. Indicate "Yes" or "No" for "Meets Requirements".

**DATA SHEET NO. 2**

**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**SEAT POSITIONING**

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

**SCRL ANGLE RANGE**

Seat	SCRL(°)		
	Max.	Min.	Mid
Driver Seat	NA	NA	NA
Front Passenger Seat	NA	NA	NA
Front Center Seat*	NA	NA	NA
Struck Side Rear Seat	NA	NA	NA
Non-Struck Side Rear Seat	NA	NA	NA
Rear Center Seat*	NA	NA	NA

\* 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	Mid <sup>1</sup>	Mid <sup>1</sup>	Max.	NA	NA	44
			Mid	NA	NA	22
			Min.	NA	NA	0
Front Passenger Seat	Mid <sup>1</sup>	Mid <sup>1</sup>	Max.	NA	NA	NA
			Mid	NA	NA	NA
			Min.	NA	NA	NA
Front Center Seat*	NA	NA	Max.	NA	NA	NA
			Mid	NA	NA	NA
			Min.	NA	NA	NA
Struck Side Rear Seat	NA	NA	Max.	NA	NA	NA
			Mid	NA	NA	NA
			Min.	NA	NA	NA
Non-Struck Side Rear Seat	NA	NA	Max.	NA	NA	NA
			Mid	NA	NA	NA
			Min.	NA	NA	NA
Rear Center Seat*	NA	NA	Max.	NA	NA	NA
			Mid	NA	NA	NA
			Min.	NA	NA	NA

\* If applicable.

<sup>1</sup> Measurements were not recorded.

**DATA SHEET NO. 2 (CONTINUED)**

**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

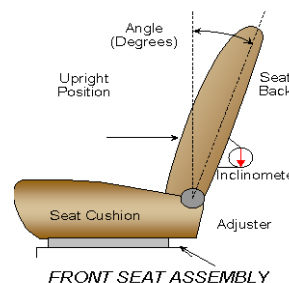
**SEAT FORE/AFT POSITION**

	Total Fore/Aft Travel		Test Position from Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	219.2	234	0	0
Front Passenger Seat	219.2	234	0	0
Front Center Seat*	NA	NA	NA	NA
Struck Side Rear Seat	NA	NA	NA	NA
Non-Struck Side Rear Seat	NA	NA	NA	NA
Rear Center Seat*	NA	NA	NA	NA

\* If applicable.

**SEAT BACK ANGLE ADJUSTMENT**

The driver's seat back is positioned such that the dummy's head is level. 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 passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1. For the 5<sup>th</sup> percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detent*
Driver Seat w/ Seated Dummy	NA	25	17.2	22
Front Passenger Seat	NA	25	16.7	NA
Front Center Seat*	NA	NA	NA	NA
Struck Side Rear Seat	NA	NA	NA	NA
Non-Struck Side Rear Seat	NA	NA	NA	NA
Rear Center Seat*	NA	NA	NA	NA

\* If applicable.

**SEAT BELT ANCHORAGE ADJUSTMENT**

Seat belt anchorages are adjusted with the information provided by the manufacturer on Form No. 1

	Total # of Positions	Placed in Position #
Driver Seat	5	1

**HEAD RESTRAINT ADJUSTMENT**

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	3	1

**DATA SHEET NO. 2 (CONTINUED)**

**SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA**

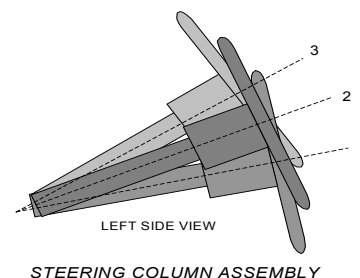
Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**STEERING COLUMN ADJUSTMENT**

Steering wheel and column adjustments are made so that the steering wheel hub it describes when moved through its full range of motion.

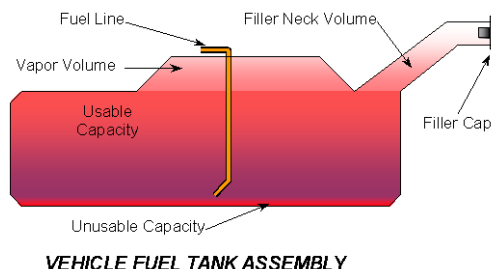
	Degrees	Fore/Aft Position, mm
Lowermost, Position No. 1	10.2	NA
Geometric Center, Position No. 2	25.5	NA
Uppermost, Position No. 3	30.6	NA
Telescoping Steering Wheel Travel		No feature
Test Position	20.4	NA



**FUEL PUMP**

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

The fuel tank is in front of rear axle, between left frame rail and prop-shaft. The filler neck enters at top rear center of tank. The filler cap is on left rear quarter panel. The fuel lines run along inside of left frame rail.



**FUEL TANK CAPACITY**

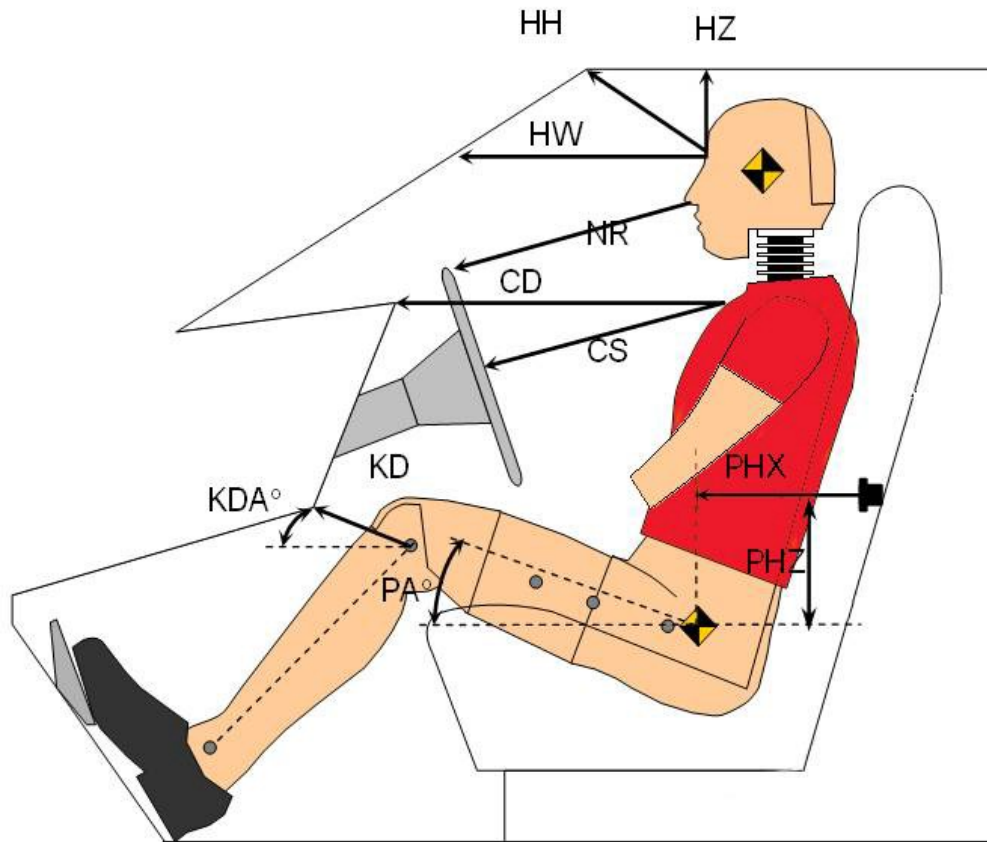
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	106.0
Usable Capacity of "Optional" Tank (see Form No. 1)	126.8
Usable Capacity of Standard Tank (see Owner's Manual)	106.0
Usable Capacity of Optional Tank (see Owner's Manual)	126.8
93% of Usable Capacity	98.6
Actual Amount of Solvent Used in Test	98.4
1/3 of Usable Capacity	35.3

Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated on Form No. 1?       YES       NO

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

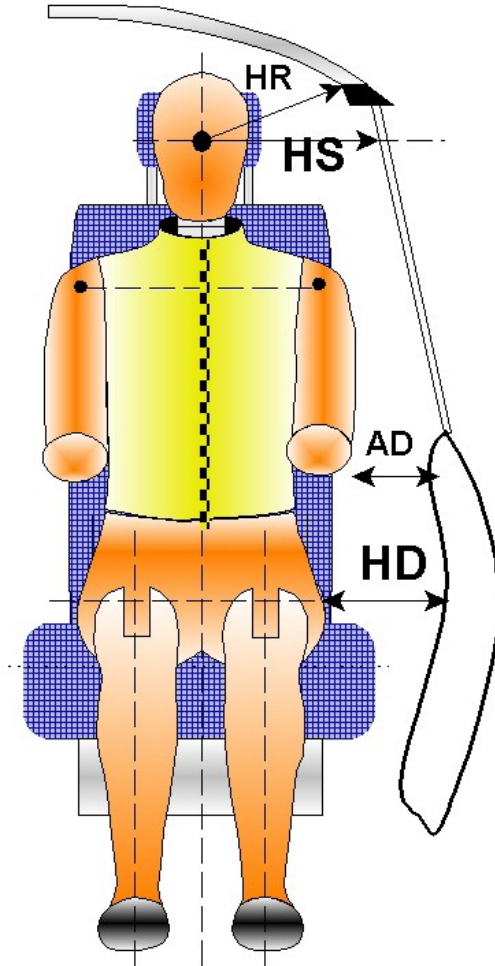


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	343	
HW	Head to Windshield	611	
HZ	Head to Roof	265	
NR	Nose to Rim	286	
CD	Chest to Dash	457	
CS	Chest to Steering Wheel	242	
KDL/KDLA°	Left Knee to Dash	110	25
KDR/KDRA°	Right Knee to Dash	112	25
PAX°	Pelvic Tilt Angle (X-axis)		89.6
PAY°	Pelvic Tilt Angle (Y-axis)		18.8
PHX	Hip Point to Striker (X-Axis)	346	
PHZ	Hip Point to Striker (Z-Axis)	0	

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

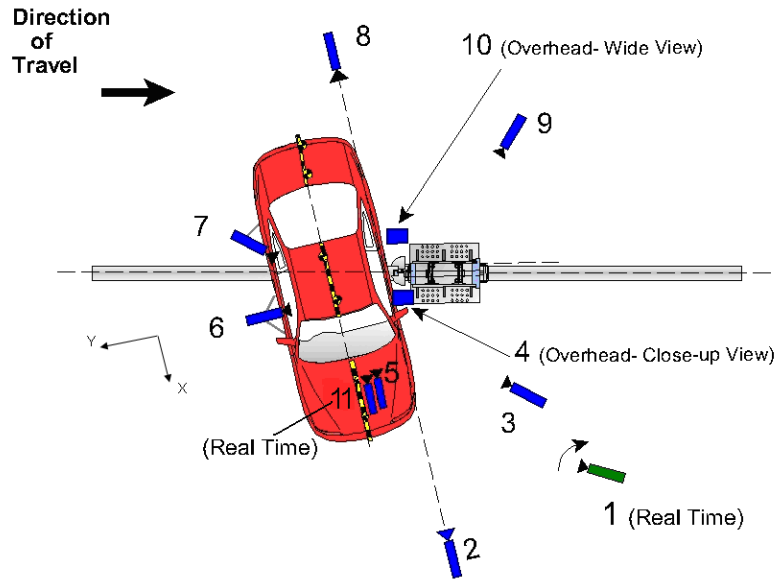


Code	Measurement Description	Length (mm)
HR	Head to Side Header	255
HS	Head to Side Window	353
AD	Arm to Door	136
HD	Hip Point to Door	175

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11



REFERENCE: (from point of impact for X and Y; from ground for Z)  
 + X = Forward of vehicle, + Y = Right of vehicle, + Z = Down

Camera No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1	Real time pan view of impact				zoom	30
2	Front ground level – impact view	-1676	6579	1292	16	1000
3	Impact side 45° – forward pole view	-1448	3734	1271	8.5	1000
4	Overhead Close-up view of impact	305	0	5650	75	1000
5	Onboard – dummy front view				16	1000
6	Onboard – dummy side view				22	1000
7	Onboard – dummy rear oblique view				8.5	1000
8	Rear ground level – impact view	1829	-4623	1435	8.5	1000
9	Impact side 45° – rearward pole view	-1295	-4953	1247	12.5	1000
10	Overhead wide view of impact	0	0	5650	16	1000
11	Real time dummy front view				6	30

All measurements accurate to +/- 6 mm.

**NOTE:** Vehicle was at a 75° angle to the rigid pole.

If applicable, explain why camera(s) did not run: NA

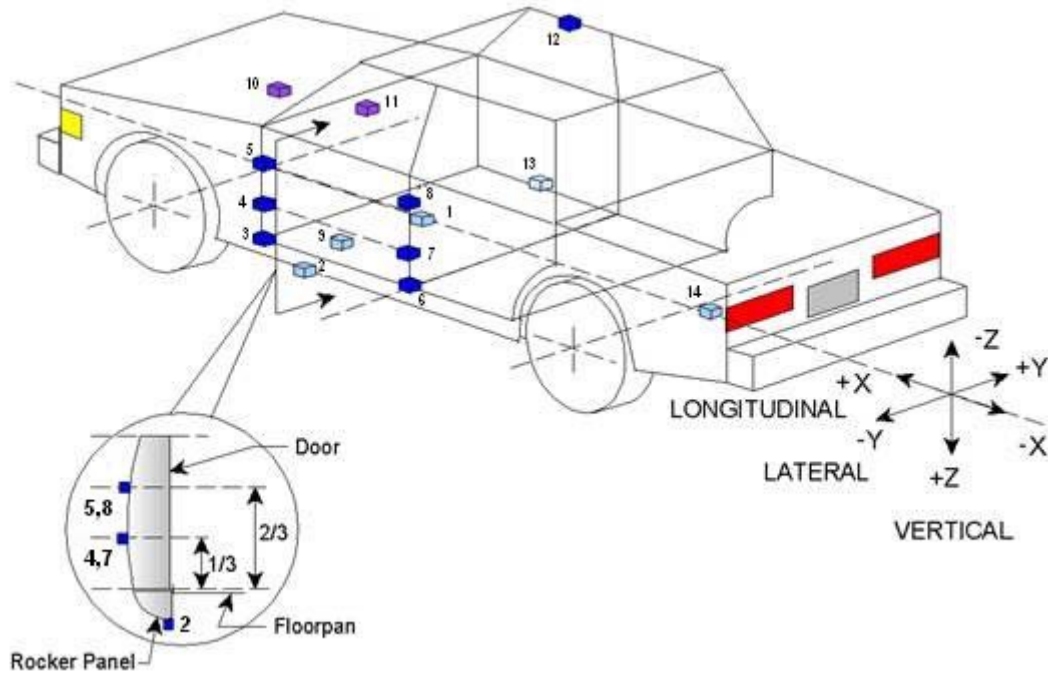
**INSTRUMENTATION**

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
<b>TOTAL</b>	<b>42</b>

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11



	Accelerometer/Sensor Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3530	150	-655
2	Left Floor Sill	3597	-730	-560
3	A-Pillar Sill	3910	-820	-550
4	A-Pillar Low	3992	-890	-770
5	A-Pillar Mid	4005	-860	-1153
6	B-Pillar Sill	2825	-830	-528
7	B-Pillar Low	2890	-900	-699
8	B-Pillar Mid	2890	-900	-1149
9	Driver Seat Track	3131	-630	-679
10	Engine Top	4696	200	-1195
11	Firewall	3954	-5	-1255
12	Right Roof	3230	625	-1784
13	Right Floor Sill	3222	730	-585
14	Rear Floorpan	1492	25	748

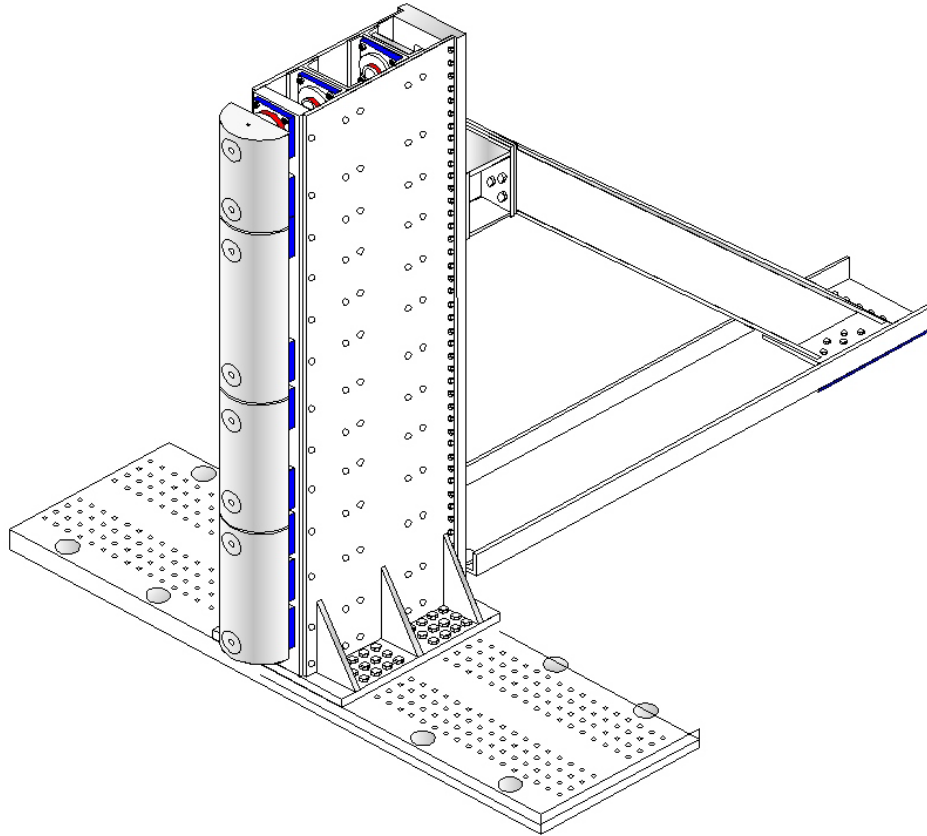
*Reference:* X - Test Vehicle Rear Bumper (+ forward)  
 Y - Test Vehicle Centerline (+ to right)  
 Z - Ground Plane (+ down)

**DATA SHEET NO. 7**  
**RIGID POLE LOAD CELL DATA**

Test Vehicle: 2012 Ford Expedition XL SUV  
Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
Test Date: 12/06/11

**FOIL 300K RIGID POLE**



Load Cell Locations	
ID	Height From Top of Carrier (mm)
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**TEST DUMMY INFORMATION AND CONTACT POINTS**

Dummy Body Part	Driver SID-IIs Dummy
Face	None
Top of Head	None
Left Side of Head	Side curtain airbag
Back of Head	Head restraint
Upper Torso	Side airbag
Lower Torso	Seat back, Side airbag
Left Hip	Door panel
Left Knee	Seat cushion, door panel

**POST-TEST DOOR PERFORMANCE**

Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	No
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, Record Width of Opening at Striker (mm)	N/A	N/A	N/A	N/A	N/A

\* Indicate "Yes", "No", or "N/A".

**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	Yes	Yes	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	Yes	Yes	No	No

\* Indicate "Yes", "No", or "N/A".

**POST-TEST STRUCTURAL OBSERVATIONS**

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No separation
Sill Separation	No separation
Windshield Damage	Cracked across roof line and down A-pillar
Side Window Damage	Left front window broken out
Other Notable Effects	None

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Struck Side (Driver)		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Front Airbag	Yes	No		
Knee Airbag	No	No		
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso)	Yes	Yes	No	NA
Side Airbag 1 (None)	NA	NA	NA	NA
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other	NA	NA	NA	NA

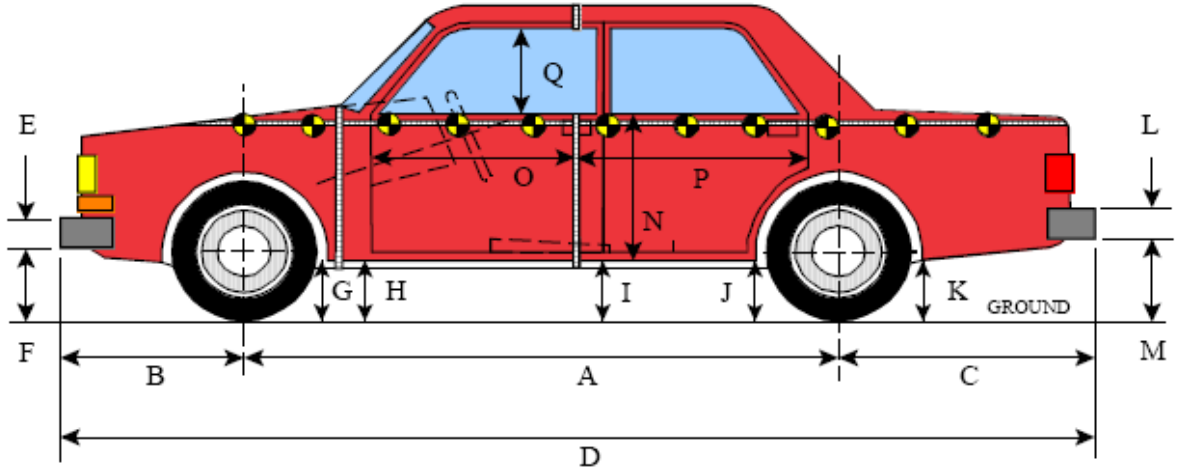
**VEHICLE SPEED, VEHICLE ANGLE AT IMPACT AND IMPACT POINT LOCATION DATA**

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1568
Actual Impact Point (Aft of Front Axle)	mm		1567
Horizontal Offset ( + forward / - rearward)	mm	+/- 38 of Intended Impact point	1
Angle Between Vehicle's Longitudinal Centerline and Line of Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.3
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.3

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

Test Vehicle: 2012 Ford Expedition XL SUV  
Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
Test Date: 12/06/11



**LEFT SIDE VIEW**

All MEASUREMENTS IN (mm) WITH TOLERANCE OF  $\pm 3$ mm

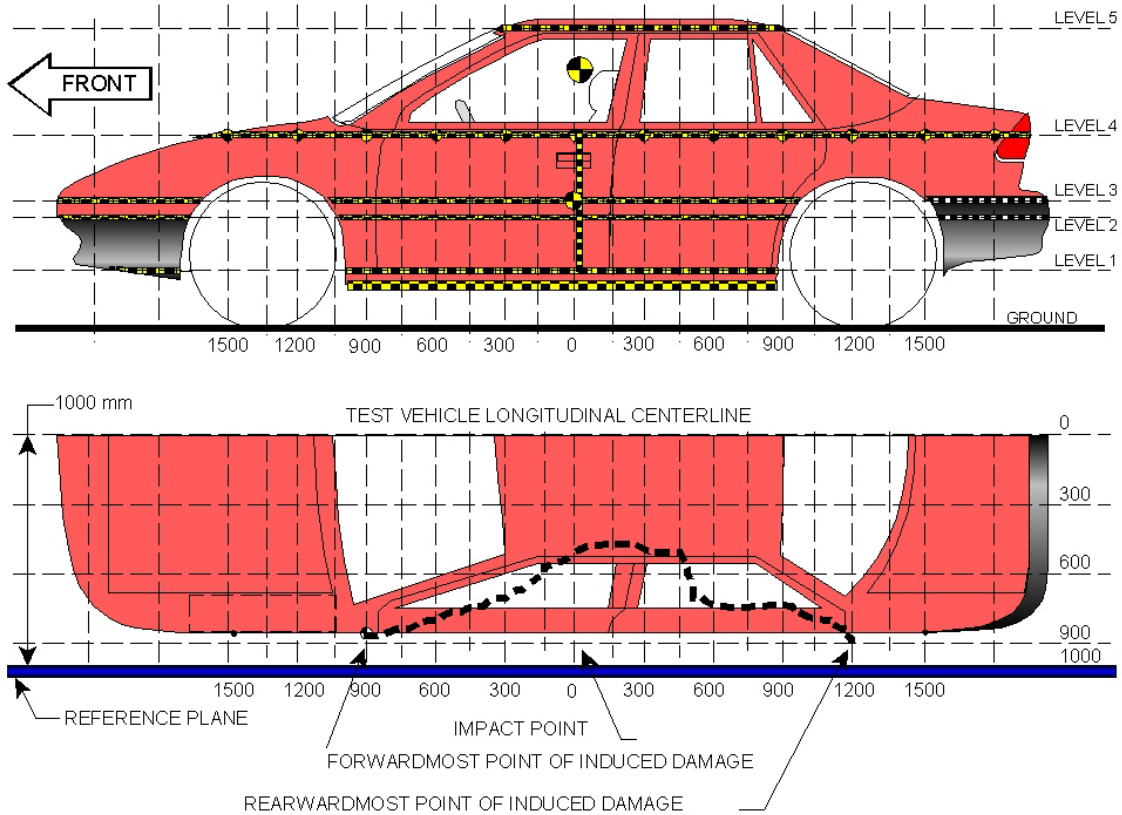
**VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION**

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3010	2930	80
B	Front Axle to Front Surface of Vehicle	990	990	0
C	Rear Axle to Rear Surface of Vehicle	1200	1200	0
D	Total Length at Centerline	5200	5200	0
E	Front Bumper Thickness	220	220	0
F	Front Bumper Bottom to Ground	446	492	-46
G	Sill Height at Front Wheel Well	415	414	1
H	Sill Height at Front Door Leading Edge	417	412	5
I	Sill Height at "B" Pillar	437	442	-5
J1	Sill Height at Rear Wheel Well	405	451	-46
J2	Pinch Weld Height at Rear Wheel Well	446	501	-55
K	Sill Height Aft of Rear Wheel Well	480	522	-42
L	Rear Bumper Thickness	115	115	0
M	Rear Bumper Bottom to Ground	570	603	-33
N	Sill Height to Bottom of Front Window Sill	830	825	5
O	Front Door Leading Edge to Impact CL	660	690	-30
P	Rear Door Trailing Edge to Impact CL	1571	1475	96
Q	Front Window Opening	555	555	0
R	Right Side Length	4965	4930	35
S	Left Side Length	4970	4830	140
T	Vehicle Width at "B" Pillars	1565	1396	169

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11



NOTE: All measurements are in millimeters (mm)

**MAXIMUM EXTERIOR CRUSH MEASUREMENTS**

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	517	434	300
2	Occupant H-Point	943	445	300
3	Mid-Door	890	449	300
4	Window Sill	1176	399	300
5	Window Top	1784	150	450

**NOTE:** Measurements were taken along the vertical impact reference line.  
 Vehicle measurements forward of the vertical impact reference line are negative.

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

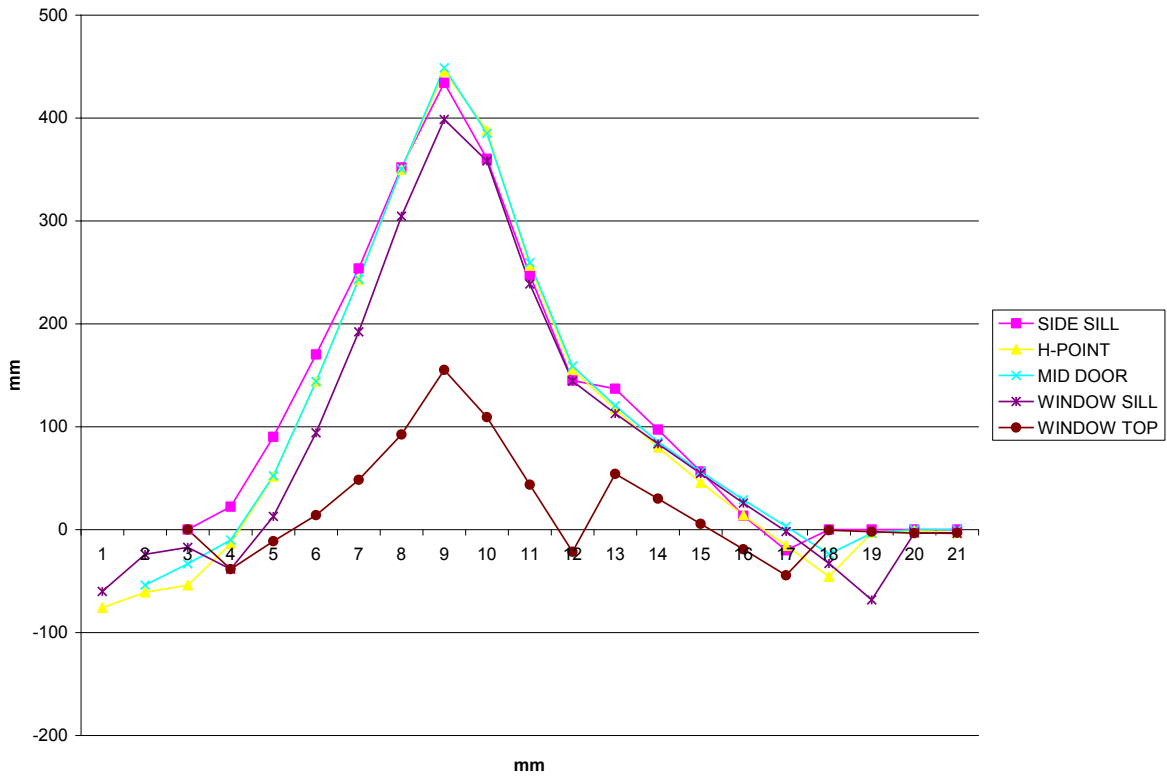
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900	0	984	0	903	0	0	1060	0	963	0	0	-76	0	-60	0
-750	0	985	983	912	0	0	1046	1037	936	0	0	-61	-54	-24	0
-600	0	972	978	920	0	0	1026	1012	937	0	0	-54	-33	-17	0
-450	974	971	972	926	0	951	985	982	965	0	22	-14	-10	-39	0
-300	973	977	977	933	871	883	925	925	920	965	90	52	52	13	-94
-150	974	982	982	940	829	803	838	838	846	882	170	144	144	94	-53
0	975	986	985	946	783	721	743	742	754	815	254	243	243	192	-32
150	976	989	989	951	733	625	639	638	646	735	352	350	350	305	-2
300	979	991	991	955	697	545	546	543	556	641	434	445	449	399	56
450	979	992	992	958	692	619	604	607	600	542	360	388	385	358	150
600	980	993	994	960	691	732	737	734	722	583	247	257	260	239	108
750	980	992	993	961	690	835	836	834	816	647	145	156	159	144	43
900	979	992	992	963	690	842	875	872	850	712	137	118	120	113	-22
1050	979	992	991	964	691	881	912	906	881	636	97	80	85	83	56
1200	979	991	991	965	692	922	946	934	911	661	56	46	56	54	30
1350	979	990	990	966	692	966	976	961	940	686	13	14	29	26	6
1500	979	989	989	966	694	999	1005	986	968	711	-20	-16	3	-2	-17
1650	0	990	994	965	695	0	1035	1018	998	738	0	-46	-24	-33	-43

**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 the test based on an estimated impact point. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy’s head.

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

Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11



**DATA SHEET NO. 11**

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

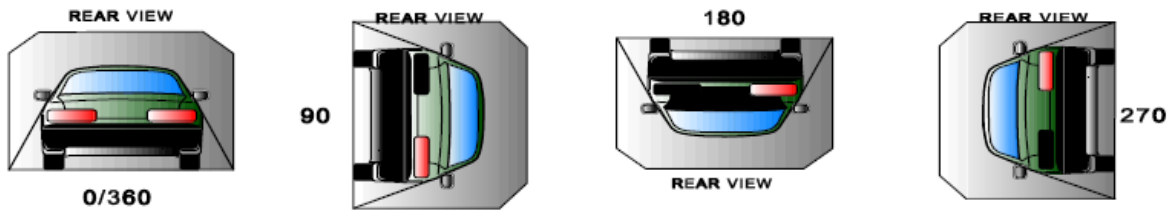
Test Vehicle: 2012 Ford Expedition XL SUV  
 Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
 Test Date: 12/06/11

**Test Time:** 16:35    **Temperature:** 22

- A. From impact until vehicle motion ceases: 0 oz.  
 (Maximum allowable is 1 ounce)
- B. For the 5 minute period after motion ceases: 0 oz.  
 (Maximum allowable is 5 ounces)
- C. For the following 25 minutes: 0 oz.  
 (Maximum allowable is 1 ounce/minute)
- D. Spillage Details: 0 oz.

**FMVSS 301 STATIC ROLLOVER DATA**



**ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS**

Test Phase	Rotation Time	Hold Time	Total Time
0 to 90	120	300	420
90 to 180	120	300	840
180 to 270	120	300	1260
270 to 360	120	300	1680

**FMVSS NO. 301 ROLLOVER SPILLAGE TABLE**

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

**ROLLOVER SOLVENT SPILLAGE LOCATION TABLE**

Test Phase	Spillage Location
0 to 90	0
90 to 180	0
180 to 270	0
270 to 360	0

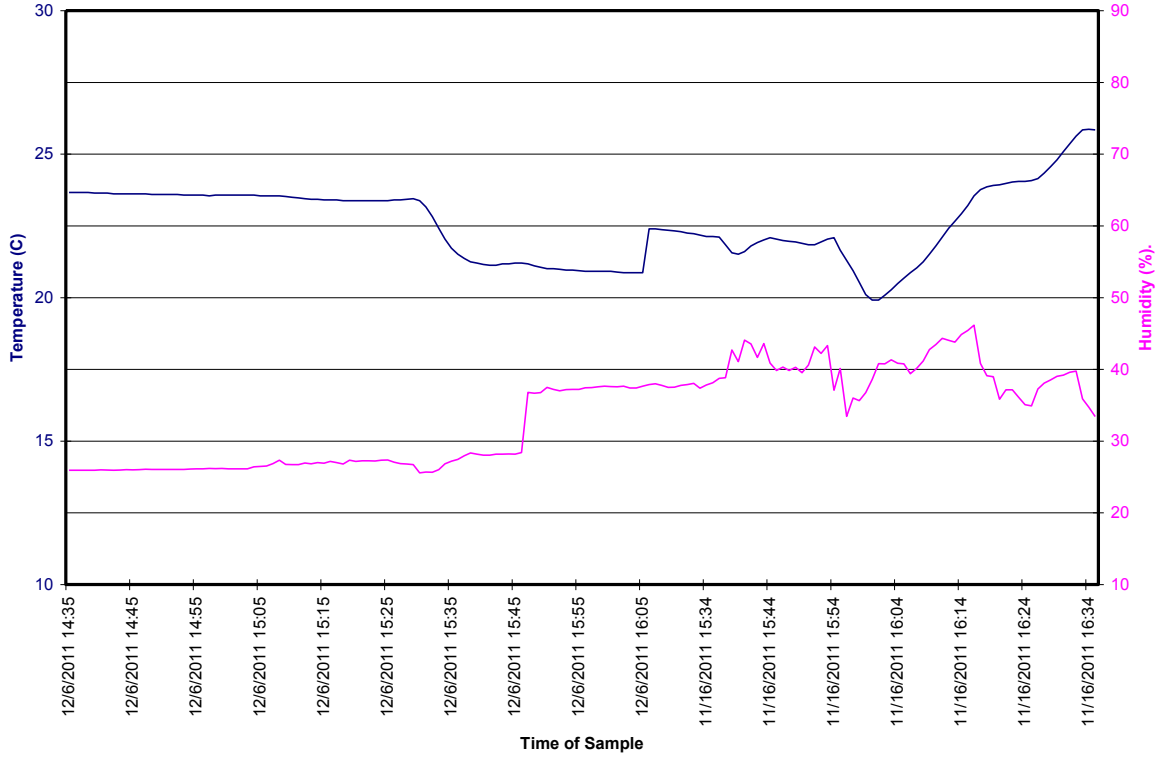
**DATA SHEET NO. 12**

**DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA**

Test Vehicle: 2012 Ford Expedition XL SUV  
Test Program: SPNCAP Side Impact

NHTSA No.: MC0215  
Test Date: 12/06/11

**MC0215 75 Degree Oblique Rigid Pole Impact 111206; Test Time 16:35**



**APPENDIX A  
PHOTOGRAPHS**

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<b>002</b>	As Delivered Left Rear 3/4 View of Test Vehicle	<b>A-4</b>
<b>003</b>	Pre-Test Frontal View of Test Vehicle	<b>A-5</b>
<b>004</b>	Post-Test Frontal View of Test Vehicle	<b>A-5</b>
<b>005</b>	Pre-Test Left Front 3/4 View of Test Vehicle	<b>A-6</b>
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<b>011</b>	Pre-Test Rear View of Test Vehicle	<b>A-9</b>
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<b>013</b>	Pre-Test Right Side View of Test Vehicle	<b>A-10</b>
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<b>017</b>	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	<b>A-12</b>
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<b>019</b>	Pre-Test Close-Up View of Impact Point Target	<b>A-13</b>
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<b>021</b>	Pre-Test Front Close-Up View of Dummy Head and Chest	<b>A-14</b>
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<b>023</b>	Pre-Test Left Side View of Dummy Showing Belt and Chalking	<b>A-15</b>
<b>024</b>	Pre-Test Left Side View of Dummy Shoulder and Door Top View	<b>A-15</b>
<b>025</b>	Post-Test Left Side View of Dummy Shoulder and Door Top View	<b>A-16</b>
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<b>034</b>	Pre-Test Left Side View of Steering Wheel	<b>A-20</b>

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<b>037</b>	Pre-Test Close-Up Left Side View of Driver Seat Track	<b>A-22</b>
<b>038</b>	Pre-Test Close-Up Left Side View of Driver Seat Back	<b>A-22</b>
<b>039</b>	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	<b>A-23</b>
<b>040</b>	Pre-Test Dummy and Door Clearance View	<b>A-23</b>
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<b>042</b>	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	<b>A-24</b>
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<b>044</b>	Pre-Test Inner Driver Door Panel View	<b>A-25</b>
<b>045</b>	Post-Test Inner Driver Door Panel View Showing Dummy Contact Location	<b>A-26</b>
<b>046</b>	Post-Test Dummy Close-Up Head Contact with Vehicle View	<b>A-26</b>
<b>047</b>	Post-Test Dummy Close-Up Head Contact with Side Airbag View	<b>A-27</b>
<b>048</b>	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	<b>A-27</b>
<b>049</b>	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	<b>A-28</b>
<b>050</b>	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	<b>A-28</b>
<b>051</b>	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	<b>A-29</b>
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<b>054</b>	Close-Up View of Vehicle Certification Label	<b>A-30</b>
<b>055</b>	Close-Up View of Vehicle Tire Information Placard or Label	<b>A-31</b>
<b>056</b>	Pre-Test Pole Barrier Front View	<b>A-31</b>
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<b>061</b>	Post-Test Primary and Redundant Speed Trap Read-Out	<b>A-34</b>
<b>062</b>	FMVSS No. 301 Static Rollover 0 Degrees	<b>A-34</b>
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<b>066</b>	FMVSS No. 301 Static Rollover 360 Degrees	<b>A-36</b>
<b>067</b>	Impact Event	<b>A-37</b>
<b>068</b>	Monroney Label	<b>A-37</b>
<b>069</b>	Head Restraint Use and Adjustment Information from Vehicle Owner Manual	<b>A-38</b>



**001** As Delivered Right Front 3/4 View of Test Vehicle



**002** As Delivered Left Rear 3/4 View of Test Vehicle



**003** Pre-Test Frontal View of Test Vehicle



**004** Post-Test Frontal View of Test Vehicle



**005** Pre-Test Left Front 3/4 View of Test Vehicle



**006** Post-Test Left Front 3/4 View of Test Vehicle



**007** Pre-Test Left Side View of Test Vehicle



**008** Post-Test Left Side View of Test Vehicle



**009** Pre-Test Left Rear 3/4 View of Test Vehicle



**010** Post-Test Left Rear 3/4 View of Test Vehicle



011 Pre-Test Rear View of Test Vehicle



012 Post-Test Rear View of Test Vehicle



**013** Pre-Test Right Side View of Test Vehicle



**014** Post-Test Right Side View of Test Vehicle



015 Pre-Test Overhead View of Test Area



016 Post-Test Overhead View of Test Area



**017** Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



**018** Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



019 Pre-Test Close-Up View of Impact Point Target



020 Post-Test Close-Up View of Impact Point Target Showing Impact Location



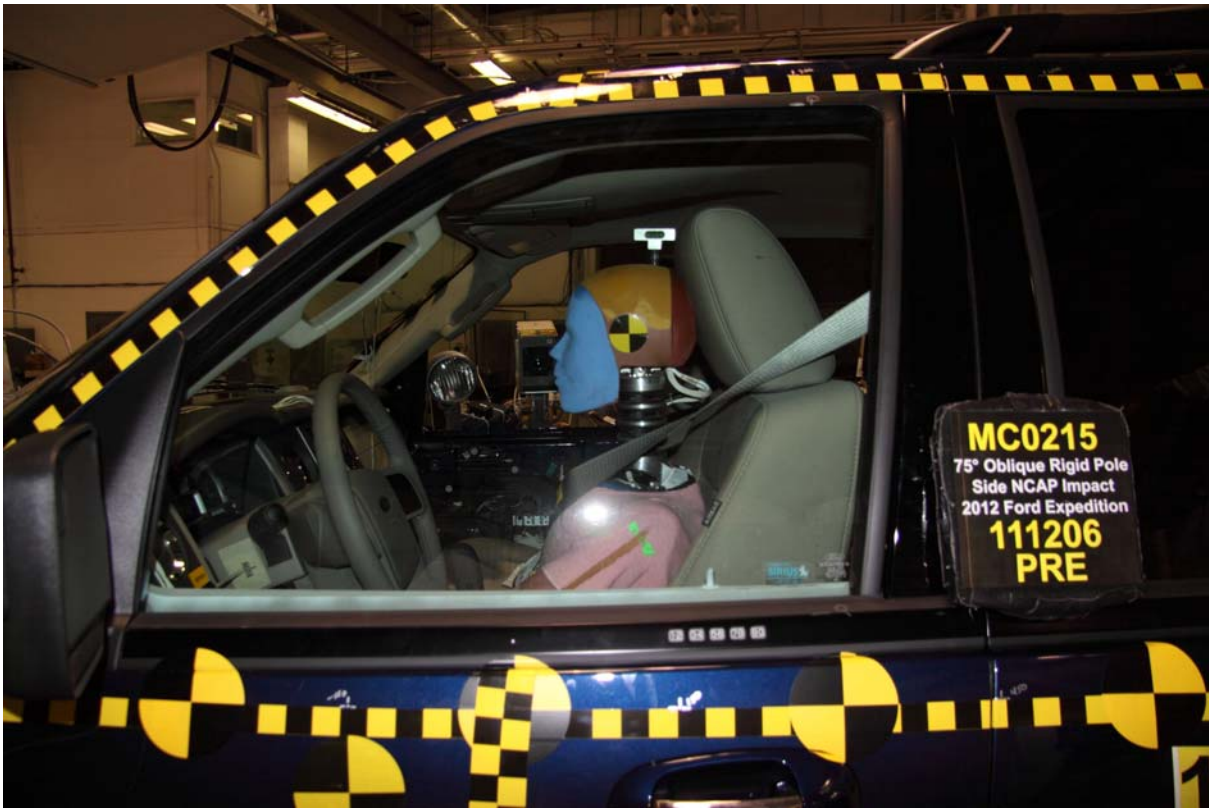
**021** Pre-Test Front Close-Up View of Dummy Head and Chest



**022** Post-Test Front Close-Up View of Dummy



023 Pre-Test Left Side View of Dummy Showing Belt and Chalking



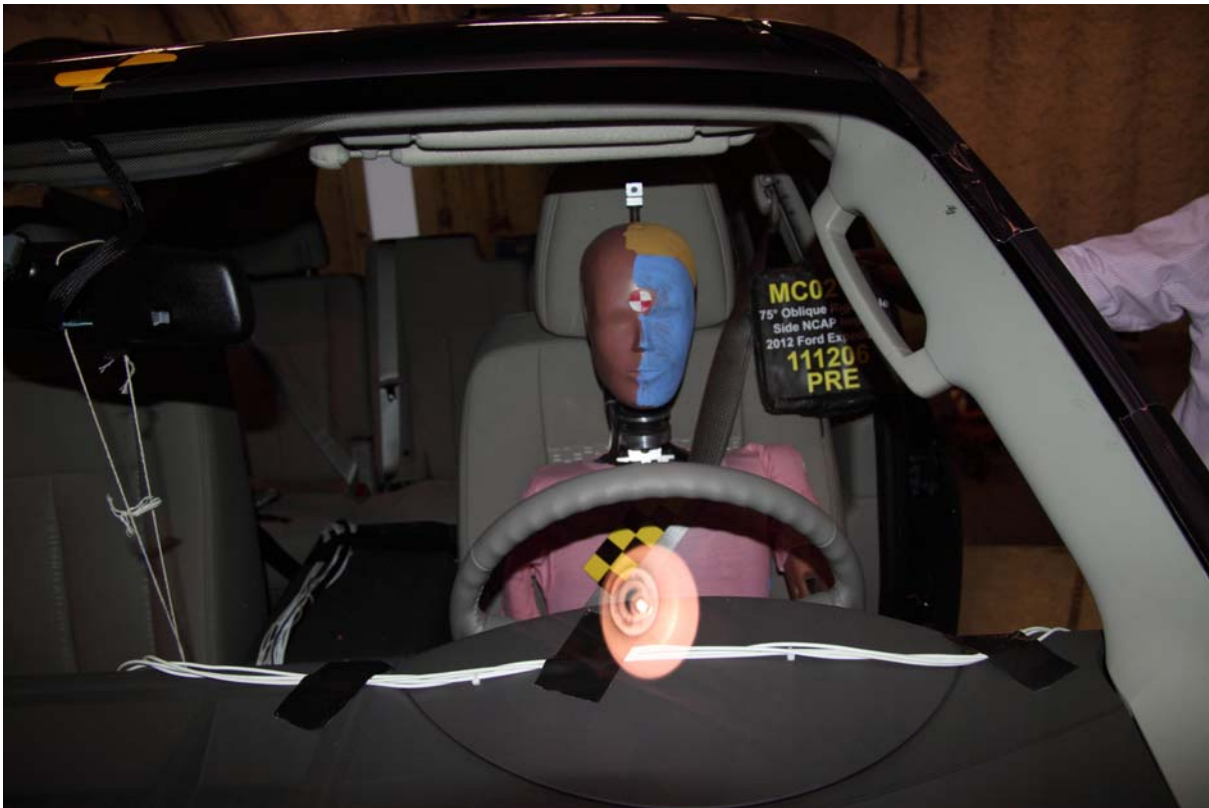
024 Pre-Test Left Side View of Dummy Shoulder and Door Top View



**025** Post-Test Left Side View of Dummy Shoulder and Door Top View



**026** Pre-Test Front View of Seat Back Prior to Dummy Positioning



**027** Pre-Test Front View of Dummy Head and Shoulders in Relation to Head Restraint



**028** Pre-Test Front View of Seat Pan Prior to Dummy Positioning



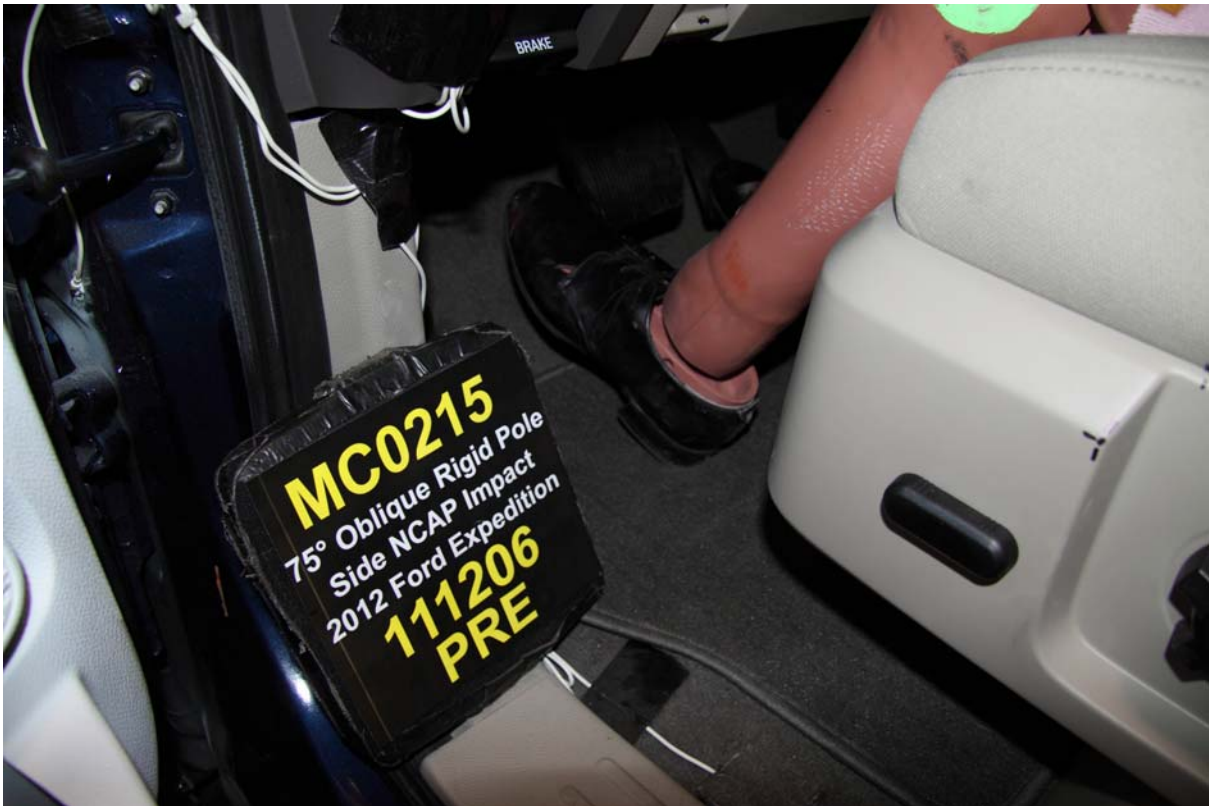
**029** Pre-Test Overhead View of Dummy Thighs on Seat Pan



**030** Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



031 Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



032 Pre-Test Placement of Dummy's Feet



**033** Pre-Test View of Belt Anchorage for Dummy



**034** Pre-Test Left Side View of Steering Wheel

Photo Not Available

**035** Pre-Test View of Disengaged Parking Brake



**036** Pre-Test View of Parking Brake



037 Pre-Test Close-Up Left Side View of Driver Seat Track



038 Pre-Test Close-Up Left Side View of Driver Seat Back

Photo Not Available

**039** Pre-Test Close-Up View of Driver Seat Back or Head Restraint



**040** Pre-Test Dummy and Door Clearance View



**041** Post-Test Dummy and Door Clearance View



**042** Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



**043** Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



**044** Pre-Test Inner Driver Door Panel View



**045** Post-Test Inner Driver Door Panel View Showing Dummy Contact Location



**046** Post-Test Dummy Close-Up Head Contact with Vehicle View



**047** Post-Test Dummy Close-Up Head Contact with Side Airbag View



**048** Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



**049** Post-Test Dummy Close-Up Torso Contact with Side Airbag View



**050** Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



**051** Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



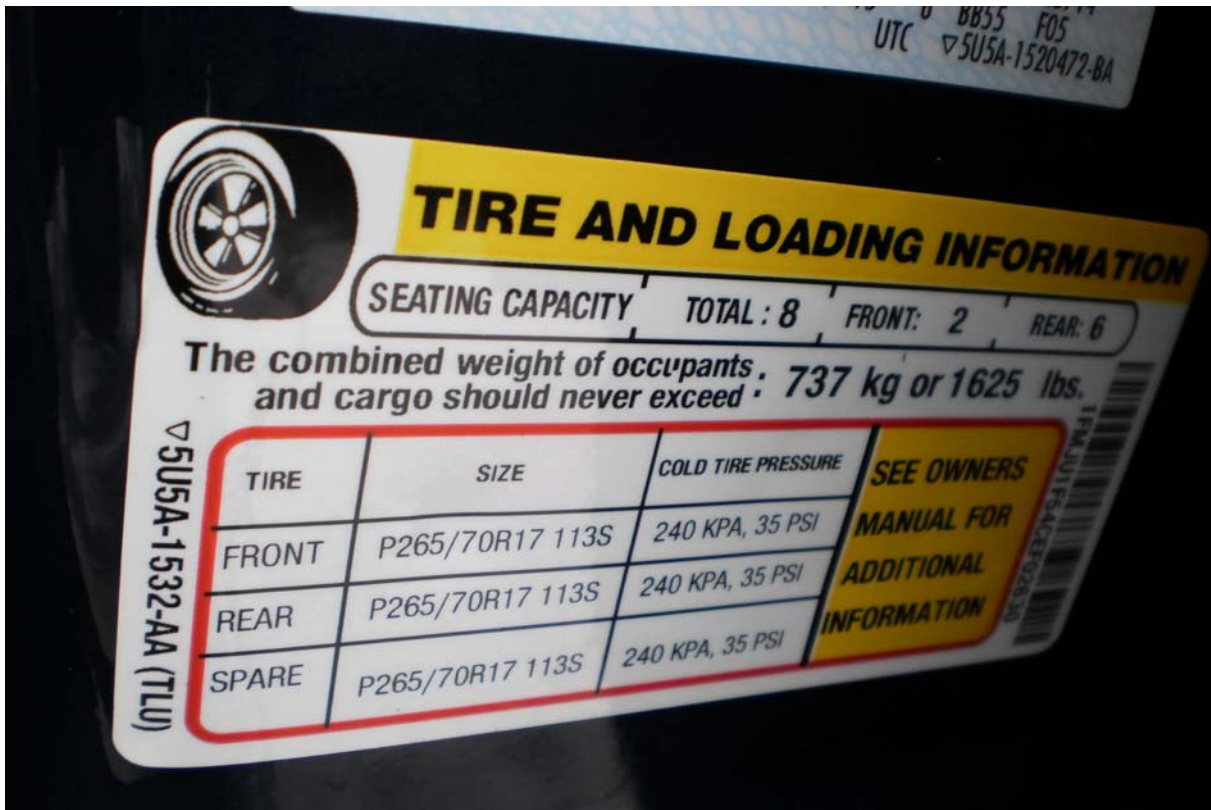
**052** Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



053 Post-Test View of Fuel Filler Cap or Fuel Filler Neck



054 Close-Up View of Vehicle's Certification Label



055 Close-Up View of Vehicle's Tire Information Placard or Label



056 Pre-Test Pole Barrier Front View



**057** Post-Test Pole Barrier Front View



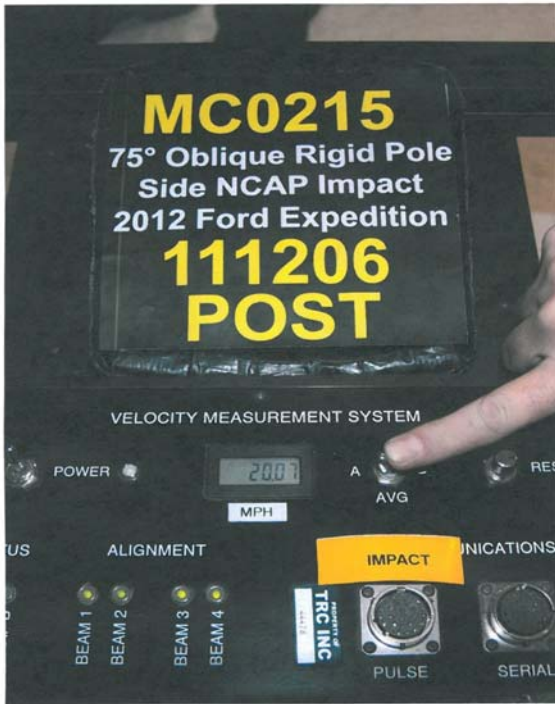
**058** Pre-Test Pole Barrier Side View



**059** Post-Test Pole Barrier Side View



**060** Pre-Test Ballast View



**061** Post-Test Primary and Redundant Speed Trap Read-Out



**062** FMVSS No. 301 Static Rollover 0 Degrees



**063** FMVSS No. 301 Static Rollover 90 Degrees



**064** FMVSS No. 301 Static Rollover 180 Degrees



**065** FMVSS No. 301 Static Rollover 270 Degrees



**066** FMVSS No. 301 Static Rollover 360 Degrees



067 Impact Event

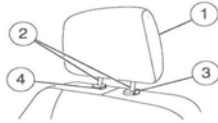
VEHICLE DESCRIPTION		2012 EXP XL 4X2 XL 8-PASSENGER 3.5L 6-CYL V6 ENGINE 6-SPEED AUTOMATIC O/D TRANS		EXTERIOR DARK BLUE PEARL METALLIC INTERIOR STONE CLOTH BUCKET SEATS		# F02630			
<b>EXPEDITION</b>									
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE									
<b>EXTERIOR</b> • BILLET 4-SEA CHROME RUNNING BOARD • LUGGAGE RACK AND CROSSLAMPS • LIFTGATE WITH FLIP-UP LAMP • REAR INT WIPER/WASH/DEFROST • FOG LAMP • AUTO LAMP-AUTO ON/OFF HOLDMP		• CLASS IV TRAILER TOW PKG • TRAILER SWAY CONTROL • FOG LAMP/REAR WET LAMP • FOG OPTION, CLIMATE • POWER LOCKS, 2ND WINDOW • 15-GAL. CAPACITY FUEL TANK • 15-GAL. CAPACITY FUEL TANK		<b>PRICE INFORMATION</b> STANDARD VEHICLE PRICE \$36,305.00 INCLUDED ON THIS VEHICLE • LICENSE PLATE BRACKET • CALIFORNIA EMISSIONS SYSTEM • HEAVY DUTY TRAILER TOW TOTAL OPTIONS 1,483.00 TOTAL VEHICLE & OPTIONS 37,770.00 DESTINATION & DELIVERY 995.00		<b>OPTIONAL EQUIPMENT</b> FRONT LICENSE PLATE BRACKET NO CHARGE CALIFORNIA EMISSIONS SYSTEM NO CHARGE HEAVY DUTY TRAILER TOW 1,483.00 TOTAL OPTIONS 1,483.00		<b>WARRANTY</b> • 4-WHEEL DISC BRAKES w/ABS • SECURELOCK PASS. ANTI-THEFT • SECURELOCK KEYLESS KEYPAD • PERIMETER ALARM • 170/75R1500 BUMPER / BUMPER • 170/75R1500 POWERSTEERING • 5YR/60,000 ROADSIDE ASSIST	
<b>EPA Fuel Economy Estimates</b>									
<b>GASOLINE CITY MPG</b> <b>14</b> Expected range for most drivers 11 to 17 MPG		<b>Dual Fuel Vehicle* Gasoline-Ethanol(E85)</b> <b>Estimated Annual Fuel Cost</b> <b>\$3,469</b> Based on 15,000 miles at \$3.70 per gallon of gasoline		<b>GASOLINE HIGHWAY MPG</b> <b>20</b> Expected range for most drivers 16 to 24 MPG		*Fuel economy when operating on E85 will vary, often below that shown. See Fuel Economy Guide for more information.			
<b>See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov</b>									
<b>SOLD TO 378 422</b> Pricing Feedback Ford, Inc. P.O. BOX 3789 FORD, MO 64678		<b>ONE: DEALER NO.</b> <b>RA03 27B 422</b>		<b>METHOD OF TRANSFER:</b> <b>RAIL</b>		<b>ITEM #</b> <b>27-5300 OIT 2</b>			
<b>SHIP TO (owner home address)</b> TWO		<b>1FMJU1F4CEP02630</b>							
<b>SHIP THROUGH:</b> KTP LT, TRK.		<b>FINAL ASSEMBLY POINT</b> BHS01 N RB ZX 215 001555 08 30 11		The date is affected by the date of the vehicle's manufacture. Check the vehicle's VIN for the date of manufacture. See the vehicle's owner's manual for more information.					
<b>EXTENDED SERVICE PLAN</b>									
Ford Extended Service Plan is the only service contract backed by Ford and honored at all Ford and Lincoln Mercury Dealers. Ask your dealer for prices and additional details or see our website at <a href="http://www.ford.com">www.ford.com</a> .									
<b>SAFER CAR</b>		<b>GOVERNMENT SAFETY RATINGS</b>							
<b>Frontal Crash</b> Star ratings based on the risk of injury in a frontal impact.		<b>Driver Passenger</b> Star ratings based on the risk of injury in a frontal impact.		<b>Not Rated</b> Not Rated		<b>Not Rated</b> Not Rated			
<b>Side Crash</b> Star ratings based on the risk of injury in a side impact.		<b>Front seat</b> Not Rated		<b>Rear seat</b> Not Rated		<b>Not Rated</b> Not Rated			
<b>Rollover</b> Star ratings based on the risk of rollover in a single vehicle crash.		<b>***</b>							
Star ratings range from 1 to 5 stars (*****), with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA).									
<a href="http://www.safercar.gov">www.safercar.gov</a> or call 1-888-327-4236									

068 Monroney Label

### Seating and Safety Restraints

The adjustable head restraints consist of :

- a trimmed energy absorbing foam and structure (1),
- two steel stems (2),
- a guide sleeve adjust/release button (3),
- and a guide sleeve unlock/remove button (4).



To adjust the head restraint, do the following:

1. Adjust the seatback to an upright driving/riding position.
2. Raise the head restraint by pulling up on the head restraint.



3. Lower the head restraint by pressing and holding the guide sleeve adjust/release button and pushing down on the head restraint.



Properly adjust the head restraint so that the top of the head restraint is even with the top of your head and positioned as close as possible to the back of your head. For occupants of extremely tall stature, adjust the head restraint to its full up position.

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### Seating and Safety Restraints

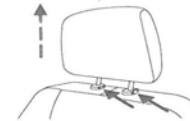
**WARNING:** The adjustable head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied.

To remove the adjustable head restraint, do the following:

1. Pull up the head restraint until it reaches the highest adjustment position.



2. Simultaneously press and hold both the adjust/release button and the unlock/remove button, then pull up on the head restraint.



To reinstall the adjustable head restraint, do the following:

1. Insert the two stems into the guide sleeve collars.
2. Push the head restraint down until it locks.



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## 069 Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

**APPENDIX B**  
**VEHICLE AND DUMMY RESPONSE DATA PLOTS**

## TABLE OF DATA PLOTS

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

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

[www.nhtsa.dot.gov](http://www.nhtsa.dot.gov).

### Additional Driver Dummy Instrumentation Data

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

### **Vehicle Instrumentation Data**

Vehicle Center of Gravity Acceleration (X)  
Vehicle Center of Gravity Acceleration (Y)  
Vehicle Center of Gravity Acceleration (Z)  
    Left Floor Sill Acceleration (Y)  
    Left A-Pillar Sill Acceleration (Y)  
    Left Lower A-Pillar Acceleration (Y)  
    Left Mid A-Pillar Acceleration (Y)  
    Left B-Pillar Sill Acceleration (Y)  
    Left Lower B-Pillar Acceleration (Y)  
    Left Mid B-Pillar Acceleration (Y)  
Driver Seat Track at Dummy Hip Point Acceleration (Y)  
    Engine Top Acceleration (X)  
    Engine Top Acceleration (Y)  
    Firewall Center Acceleration (Y)  
Right Roof at Vertical Impact Reference Line Acceleration (Y)  
Right Sill at Vertical Impact Reference Line Acceleration (Y)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)  
Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

### **Pole Instrumentation Data**

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

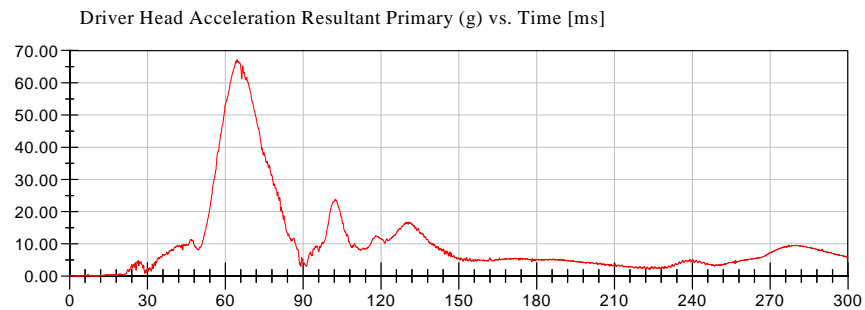
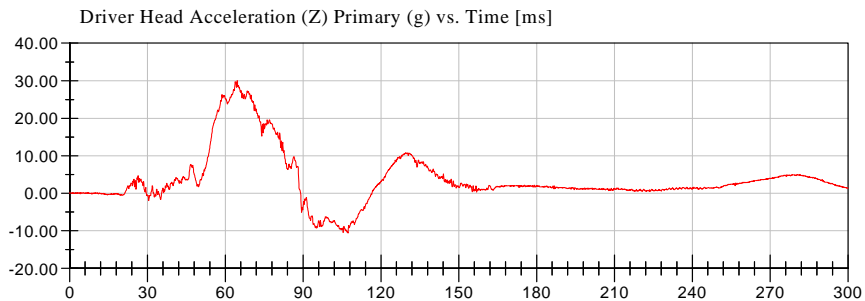
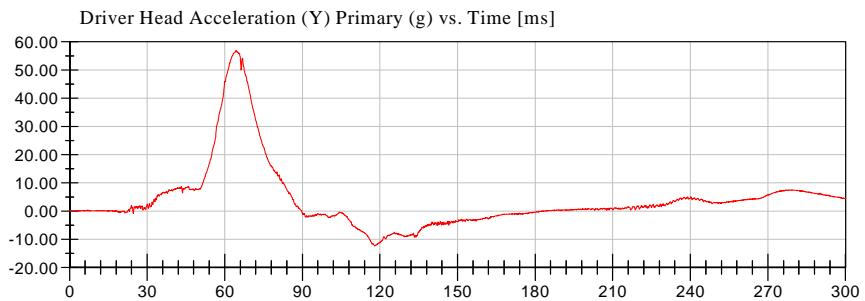
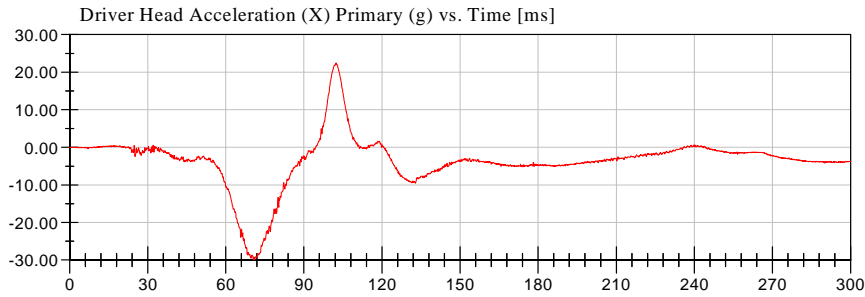
**NHTSA**

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Test Date: 12/06/2011

Test Lab: CTF

Test Number: 111206 (MC0215)



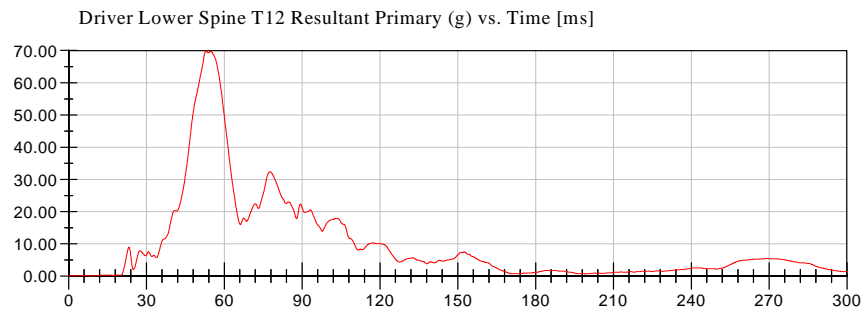
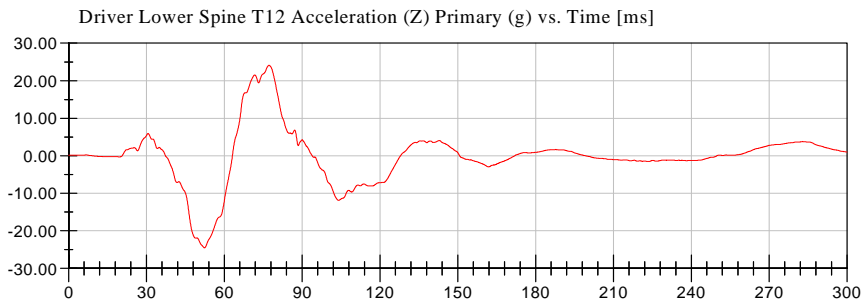
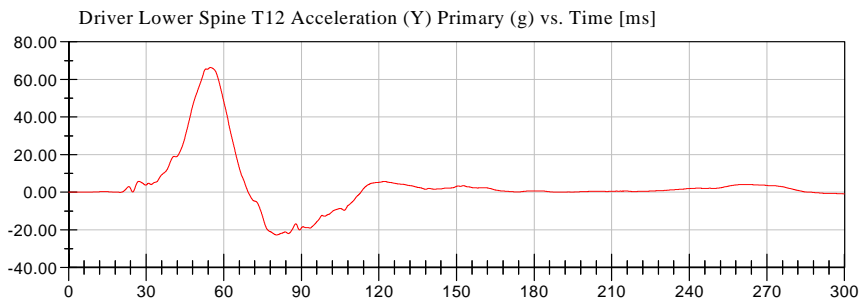
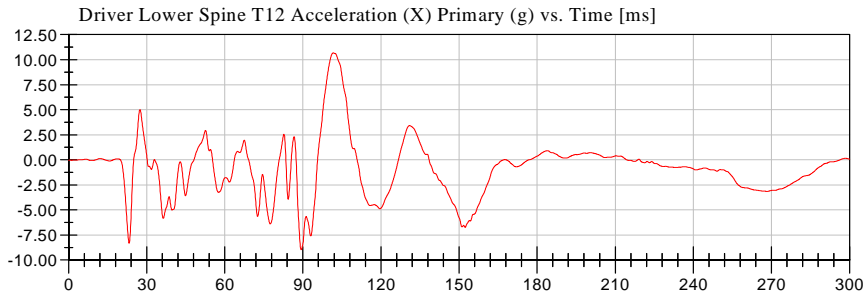
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Test Date: 12/06/2011

Test Lab: CTF

Test Number: 111206 (MC0215)



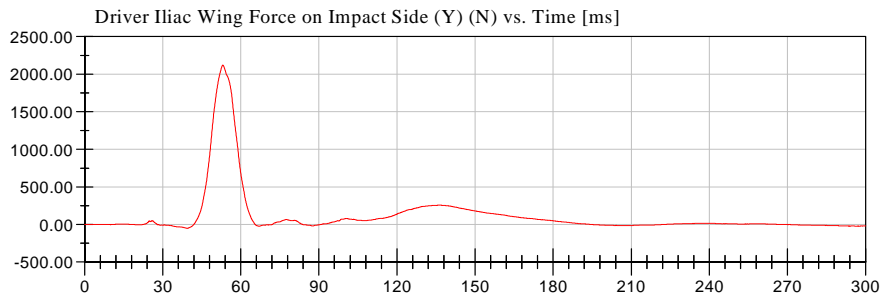
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Position #1 SID IIs Dummy (305)

Test Date: 12/06/2011

Test Lab: CTF

Test Number: 111206 (MC0215)



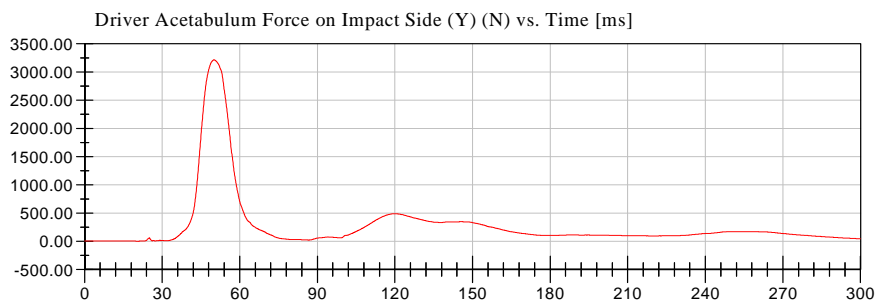
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2,120.87 N at 53.12 ms

**<Min>**

-50.27 N at 39.44 ms

CFC\_600



**<Max>**

3,214.63 N at 50.08 ms

**<Min>**

-2.50 N at 20.48 ms

CFC\_600



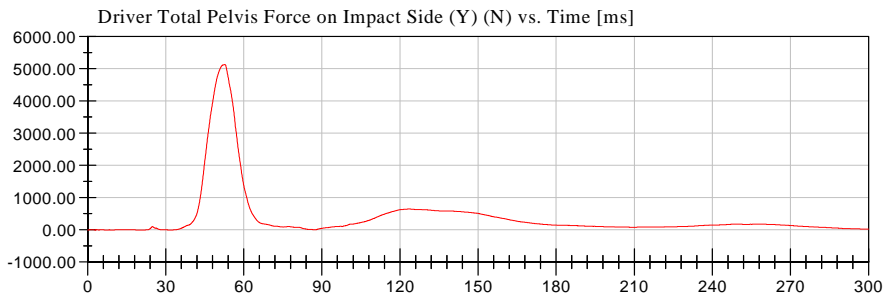
**NHTSA**

Position #1 SID IIs Dummy (305)

Test Date: 12/06/2011

Test Lab: CTF

Test Number: 111206 (MC0215)



<Max>

5,135.09 N at 52.72 ms

<Min>

-5.17 N at 20.40 ms

CFC\_600



**APPENDIX C**  
**DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA**

**TABLE OF CALIBRATION MEASUREMENTS AND PLOTS**  
**SID-IIs (Driver) Dummy**  
**Description**

**Table 1.** External Measurements

**Table 2.** Head Drop Test

Resultant Head Acceleration (G's) vs. Time (ms)  
Head (X) Acceleration (G's) vs. Time (ms)  
Head (Y) Acceleration (G's) vs. Time (ms)  
Head (Z) Acceleration (G's) vs. Time (ms)

**Table 3.** Lateral Neck Pendulum Test

Pendulum Velocity (m/s) vs. Time (ms)  
Flexion Angle (°) vs. Time (ms)  
Moment About Occipital Condyle (Nm) vs. Time (ms)

**Table 4.** Shoulder Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Shoulder Displacement (mm) vs. Time (ms)  
Upper Spine Acceleration (G's) vs. Time (ms)

**Table 5.** Thorax (With Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Shoulder Displacement (mm) vs. Time (ms)  
Upper Rib Displacement (mm) vs. Time (ms)  
Middle Rib Displacement (mm) vs. Time (ms)  
Lower Rib Displacement (mm) vs. Time (ms)  
Upper Spine Acceleration (G's) vs. Time (ms)  
Lower Spine Acceleration (G's) vs. Time (ms)

**Table 6.** Thorax (Without Arm) Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Upper Rib Displacement (mm) vs. Time (ms)  
Middle Rib Displacement (mm) vs. Time (ms)  
Lower Rib Displacement (mm) vs. Time (ms)  
Upper Spine Acceleration (G's) vs. Time (ms)  
Lower Spine Acceleration (G's) vs. Time (ms)

**Table 7.** Abdomen Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Upper Abdominal Rib Displacement (mm) vs. Time (ms)  
Lower Abdominal Rib Displacement (mm) vs. Time (ms)  
Lower Spine Acceleration (G's) vs. Time (ms)

**Table 8.** Pelvis Plug Quasi-Static Test (Optional\*)

**Table 9.** Pelvis Acetabulum Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Pelvis (Y) Acceleration (G's) vs. Time (ms)  
Acetabulum Force (N) vs. Time (ms)

**Table 10.** Pelvis Iliac Impact Test

Impactor Acceleration (G's) vs. Time (ms)  
Pelvis (Y) Acceleration (G's) vs. Time (ms)  
Iliac Force (N) vs. Time (ms)

## Pre-Test Calibration Sheets

**Transportation Research Center Inc.**  
**SIDI's Dummy - Level D**  
**External Dimensions**  
**Serial No. 305 Calibration No.06**  
**Date: 11/28/11**

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	777	Yes
B	Shoulder Pivot Height	437.0 - 453.0	441	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	144	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	102	Yes
F	Thigh Clearance	119.0 - 135.0	134	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	533	Yes
L	Popliteal Height	343.0 - 369.0	354	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length (right)	216.0 - 232.0	220	Yes
P	Foot Length (left)	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	313	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	864	Yes
Z	Waist Circumference	761.0 - 791.0	779	Yes

Technician



Approved



Revised 9/29/2005



# Transportation Research Center Inc.

Left Lateral Head Drop  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/23/2011

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	30 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	116.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.5 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

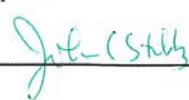
**Test meets specifications.**

**Comments:**

Technician

  
\_\_\_\_\_

Approved

  
\_\_\_\_\_

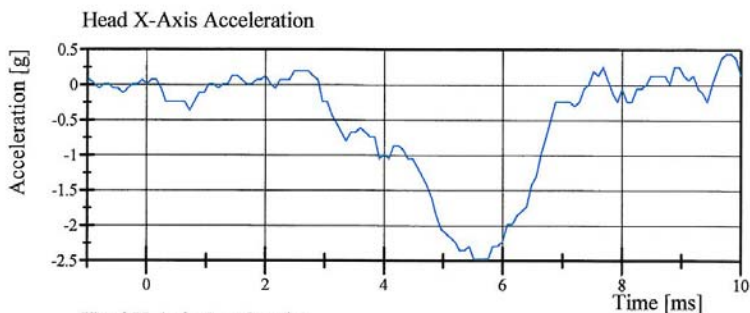
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Polarity in accordance with SAE J211.

11.23.2011 17:30:59 231

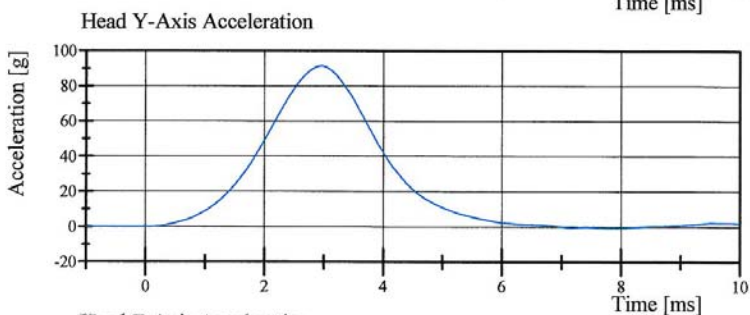


# Transportation Research Center Inc.

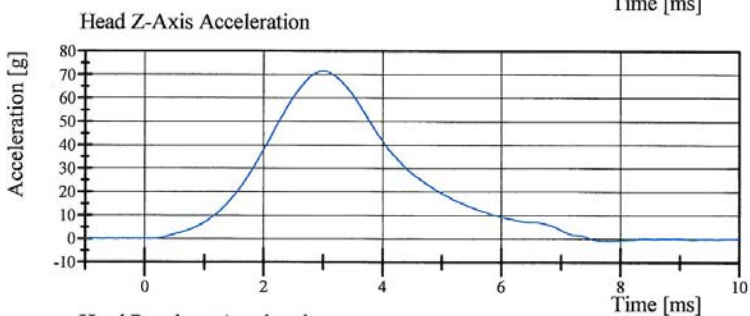
Left Lateral Head Drop  
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Test Date: 11/23/2011



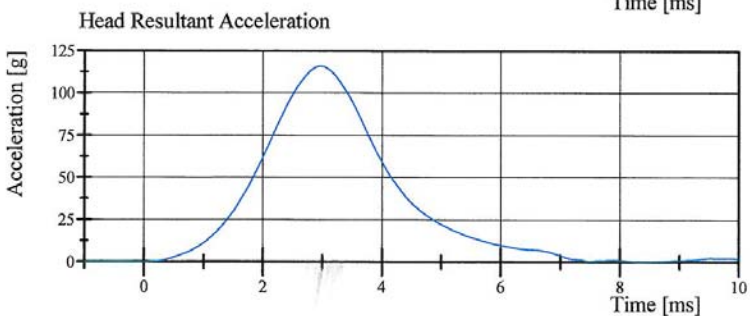
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Min: -2.5 gn at 5.5 ms



Filter Class: CFC\_1000  
Max: 91.5 gn at 3.0 ms  
Min: -0.7 gn at 7.8 ms



Filter Class: CFC\_1000  
Max: 71.5 gn at 3.0 ms  
Min: -1.0 gn at 7.8 ms



Filter Class: CFC\_1000  
Max: 116.1 gn at 3.0 ms  
Min: 0.0 gn at -1.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.23.2011 17:31:08 231



# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/25/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.611 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.277 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.389 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.585 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.603 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.900 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-72.0 deg	Yes
Time of Peak	50 - 70 ms	62.4 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N-m	40.5 N-m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N-m	102 - 126 ms	115.6 ms	Yes

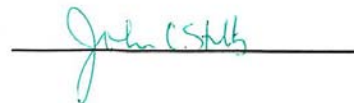
**Test meets specifications.**

**Comments:**

Technician



Approved



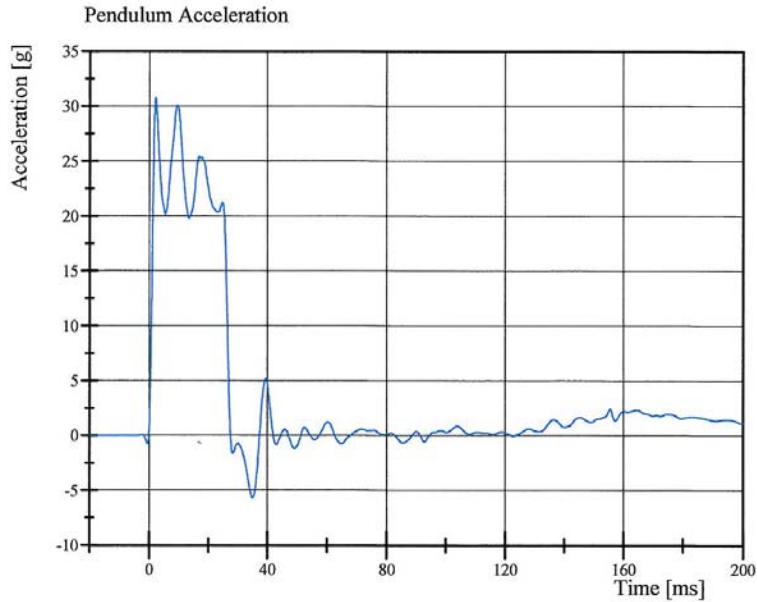
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Polarity in accordance with SAE J211.

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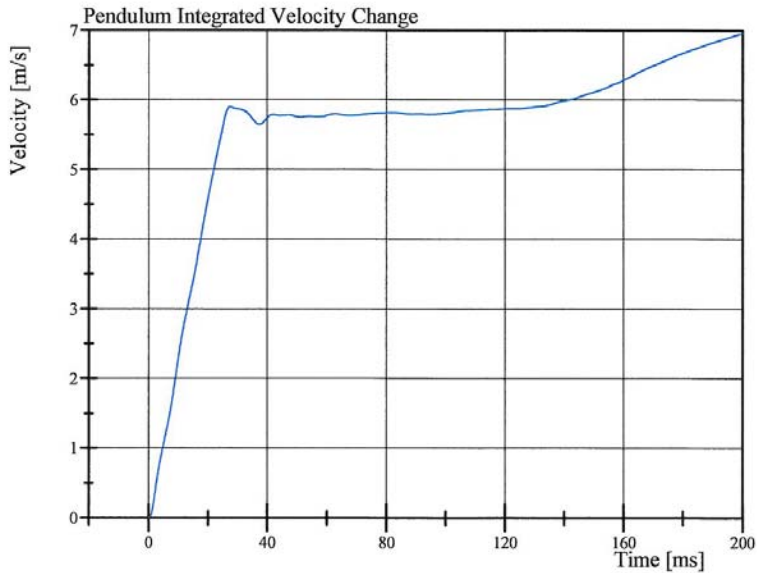


# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/25/2011



Filter Class: CFC\_180  
Max: 30.7 gn at 2.2 ms  
Min: -5.7 gn at 34.9 ms



Filter Class: CFC\_180  
Max: 7.0 m/s at 200.0 ms  
Min: 0.0 m/s at 0.0 ms

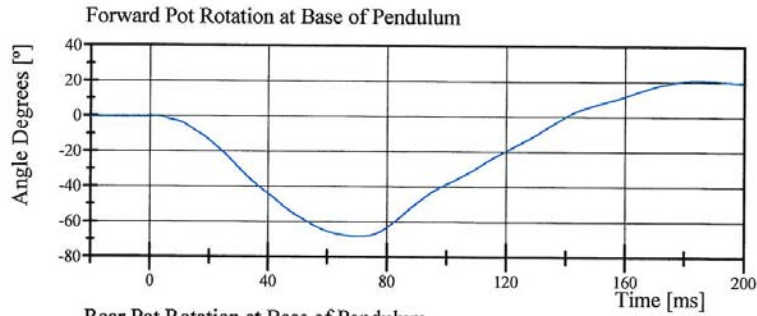
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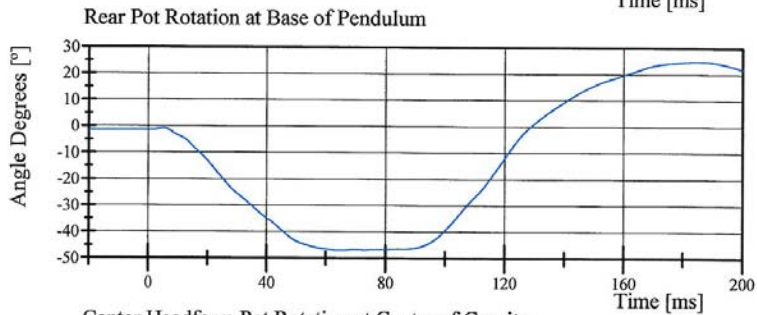


# Transportation Research Center Inc.

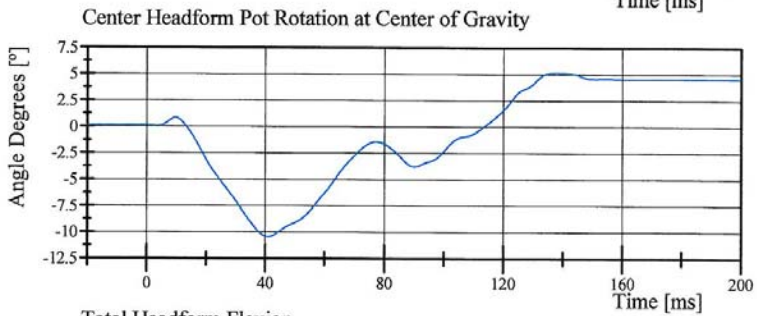
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SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/25/2011



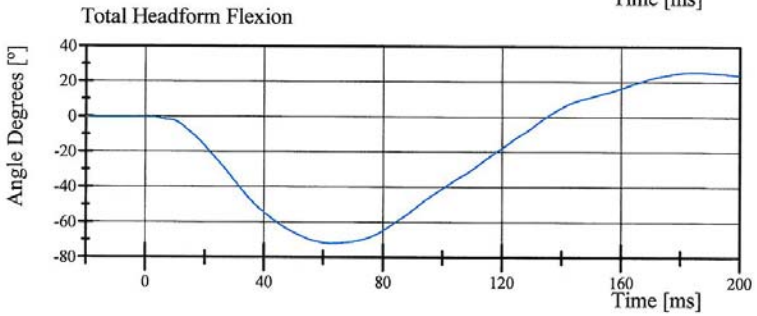
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Min: -68.2 ° at 70.3 ms



Filter Class: CFC\_60  
Max: 24.8 ° at 186.5 ms  
Min: -47.0 ° at 64.8 ms



Filter Class: CFC\_60  
Max: 5.2 ° at 137.8 ms  
Min: -10.5 ° at 41.0 ms



Filter Class: CFC\_60  
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Min: -72.0 ° at 62.4 ms

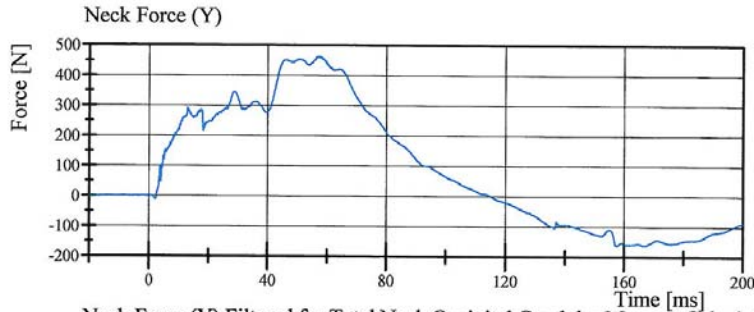
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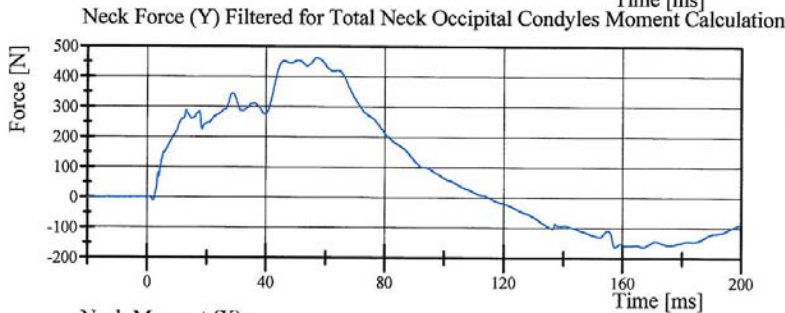


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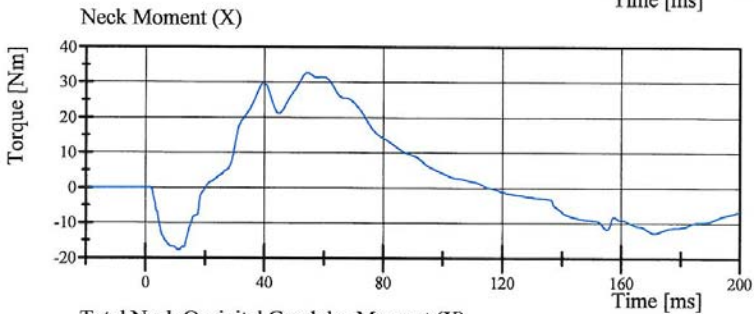
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SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/25/2011



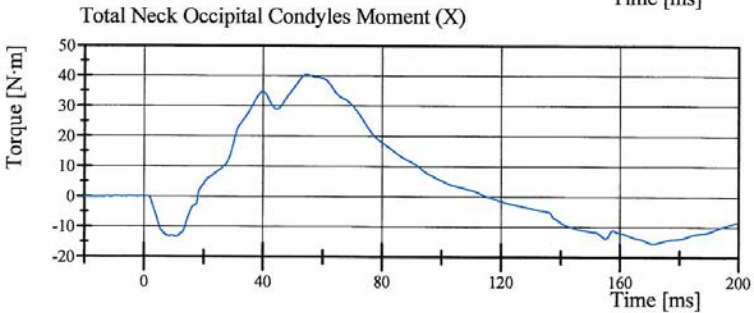
Filter Class: CFC\_1000  
Max: 463.3 N at 56.8 ms  
Min: -162.0 N at 157.5 ms



Filter Class: CFC\_600  
Max: 462.4 N at 56.7 ms  
Min: -161.8 N at 157.6 ms



Filter Class: CFC\_600  
Max: 32.7 Nm at 54.0 ms  
Min: -17.8 Nm at 111.1 ms



Filter Class: Without\_(Consta  
Max: 40.5 N·m at 54.8 ms  
Min: -15.4 N·m at 171.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.25.2011 07:39:01 634



## Transportation Research Center Inc.

Left Lateral Shoulder  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-16.1 g	Yes
Shoulder Displacement	28 - 37 mm	30.3 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.3 g	Yes

**Test meets specifications.**

**Comments:**

Technician



Approved



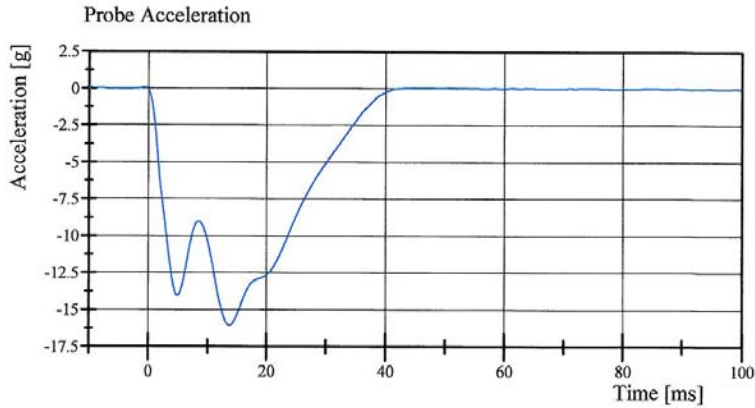
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 08:58:58 833

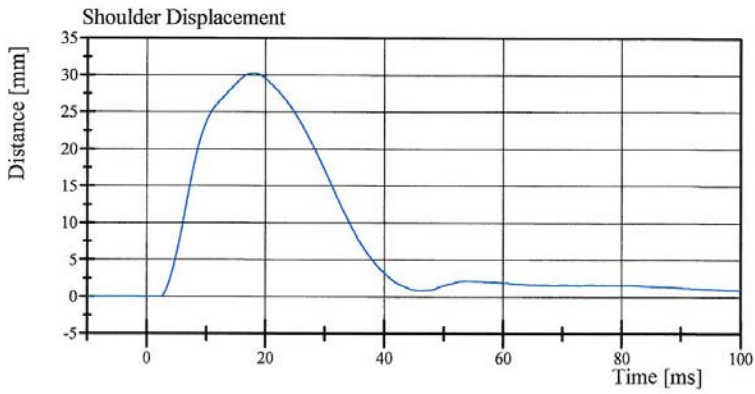


# Transportation Research Center Inc.

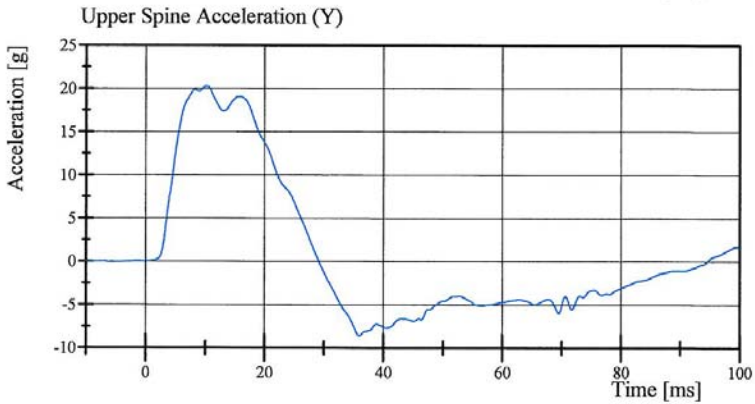
Left Lateral Shoulder  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



Filter Class: CFC\_180  
Max: 0.1 gn at -0.6 ms  
Min: -16.1 gn at 13.7 ms



Filter Class: CFC\_600  
Max: 30.3 mm at 18.1 ms  
Min: -0.0 mm at 2.3 ms



Filter Class: CFC\_180  
Max: 20.3 gn at 10.2 ms  
Min: -8.6 gn at 35.9 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 08:59:06 833



# Transportation Research Center Inc.

Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 7-2  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.707 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.7 g	Yes
Shoulder Displacement	31 - 40 mm	31.3 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	26.2 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	31.1 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	33.8 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	39.7 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	33.2 g	Yes

**Test meets specifications.**

**Comments:**

Technician



Approved



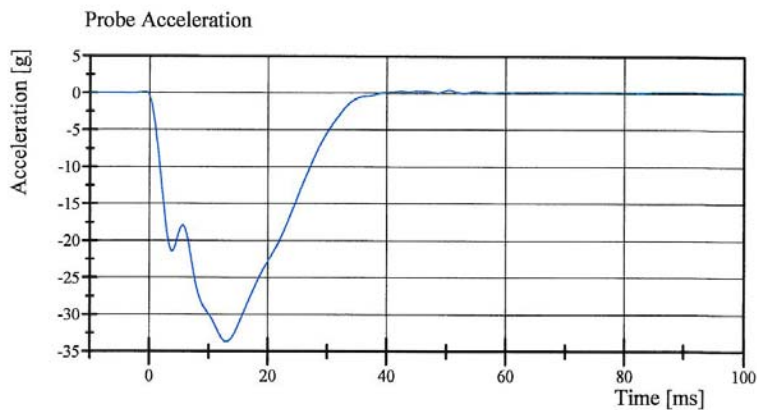
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:18:54 620

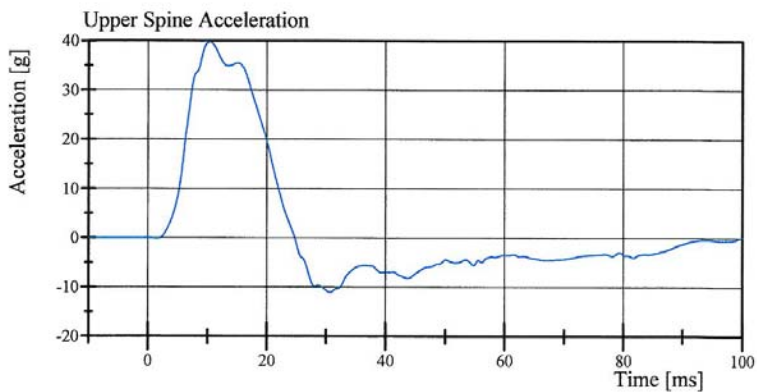


# Transportation Research Center Inc.

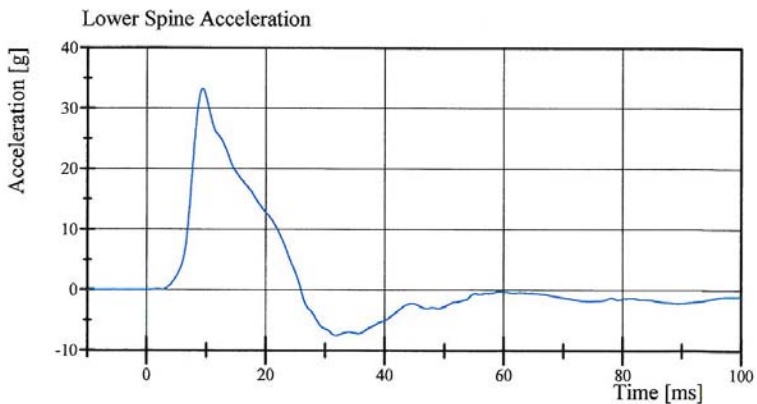
Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 7-2  
Test Date: 11/28/2011



Filter Class: CFC\_180  
Max: 0.4 gn at 50.4 ms  
Min: -33.7 gn at 13.0 ms



Filter Class: CFC\_180  
Max: 39.7 gn at 10.4 ms  
Min: -11.0 gn at 30.6 ms



Filter Class: CFC\_180  
Max: 33.2 gn at 9.4 ms  
Min: -7.5 gn at 31.8 ms

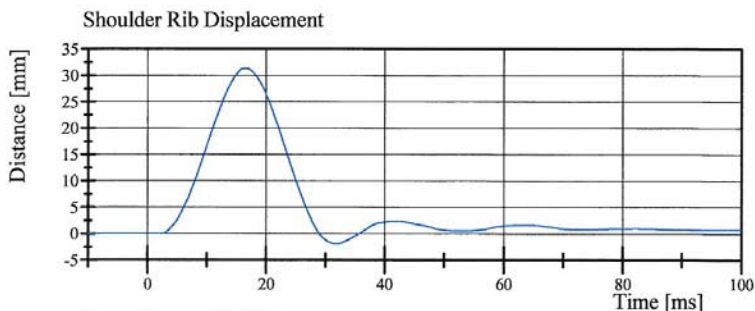
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:19:02 620

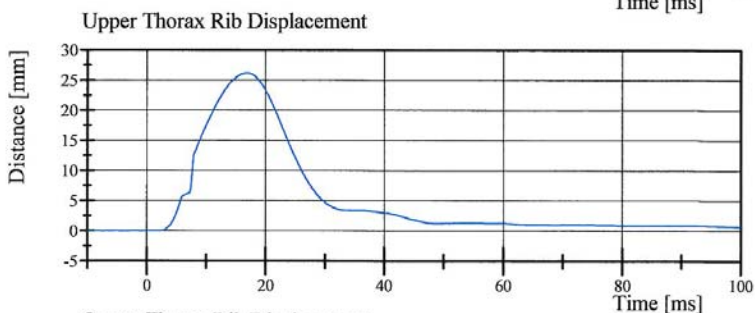


# Transportation Research Center Inc.

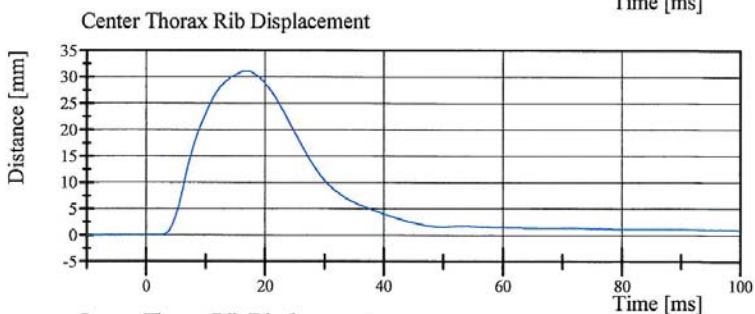
Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 7-2  
Test Date: 11/28/2011



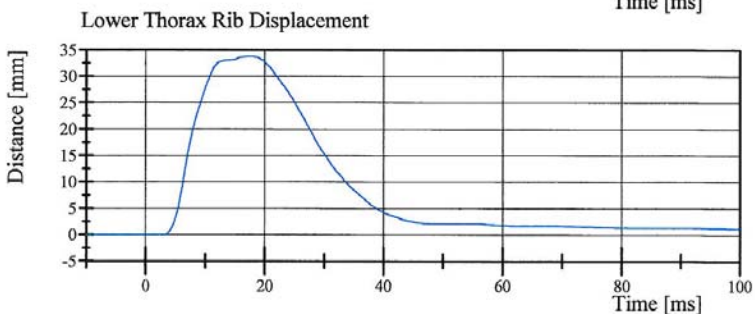
Filter Class: CFC\_600  
Max: 31.3 mm at 16.6 ms  
Min: -1.9 mm at 31.8 ms



Filter Class: CFC\_600  
Max: 26.2 mm at 17.0 ms  
Min: -0.0 mm at -9.2 ms



Filter Class: CFC\_600  
Max: 31.1 mm at 16.9 ms  
Min: -0.0 mm at -4.6 ms



Filter Class: CFC\_600  
Max: 33.8 mm at 17.7 ms  
Min: -0.0 mm at -6.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:19:03 620



## Transportation Research Center Inc.

Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.369 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.2 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.9 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.9 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	16.0 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.5 g	Yes

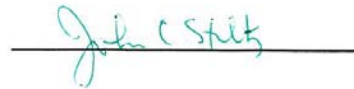
**Test meets specifications.**

**Comments:**

Technician



Approved



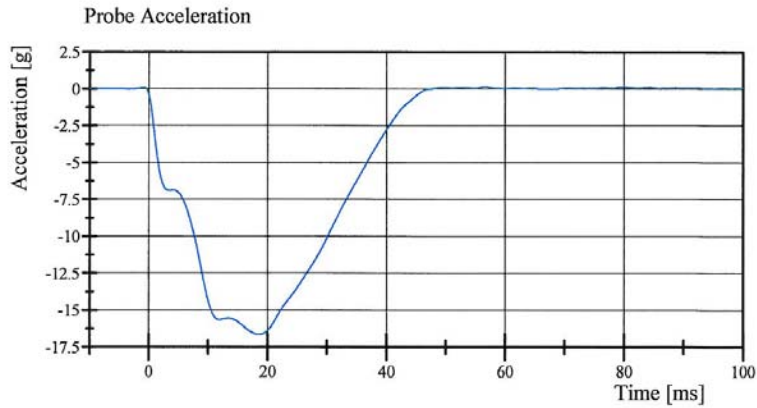
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:52:25 811

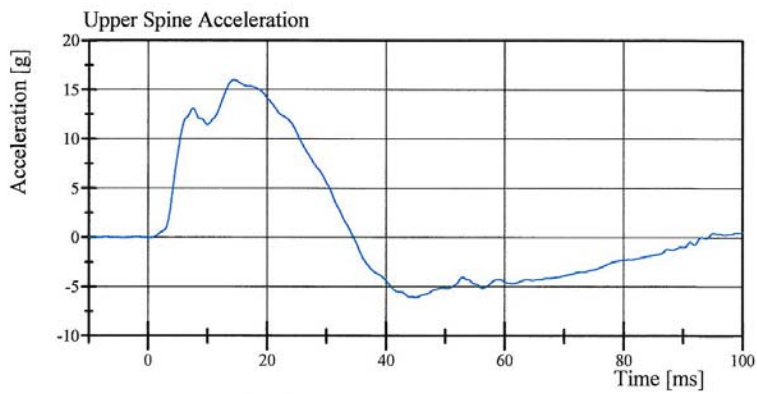


# Transportation Research Center Inc.

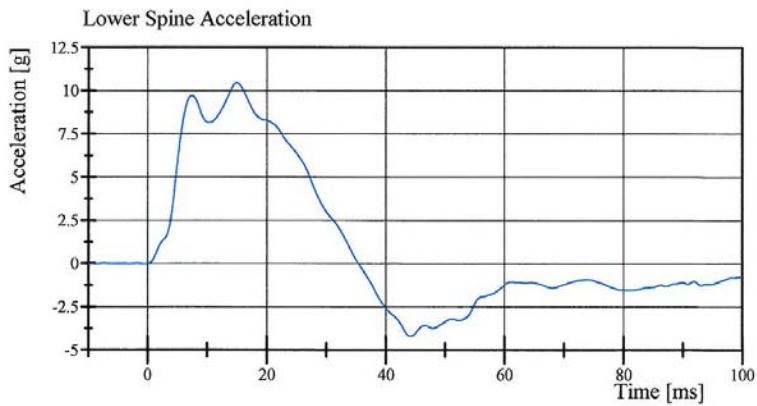
Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



Filter Class: CFC\_180  
Max: 0.1 gn at 56.6 ms  
Min: -16.6 gn at 18.6 ms



Filter Class: CFC\_180  
Max: 16.0 gn at 14.4 ms  
Min: -6.1 gn at 45.0 ms



Filter Class: CFC\_180  
Max: 10.5 gn at 15.0 ms  
Min: -4.2 gn at 44.2 ms

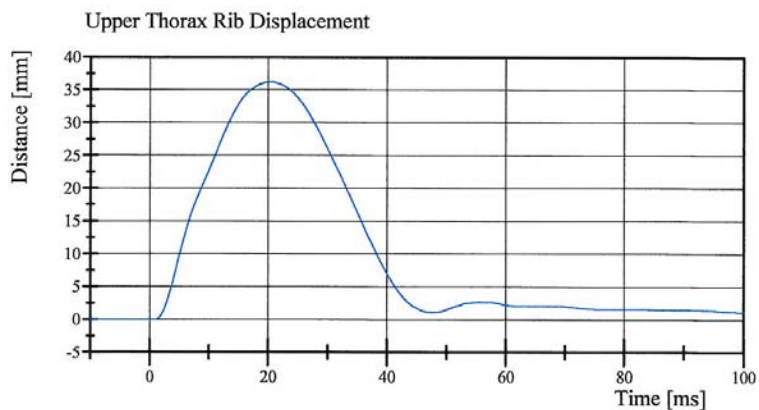
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:52:37 811

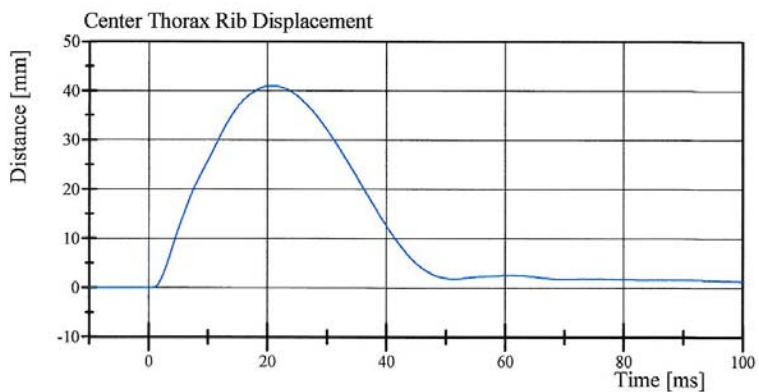


# Transportation Research Center Inc.

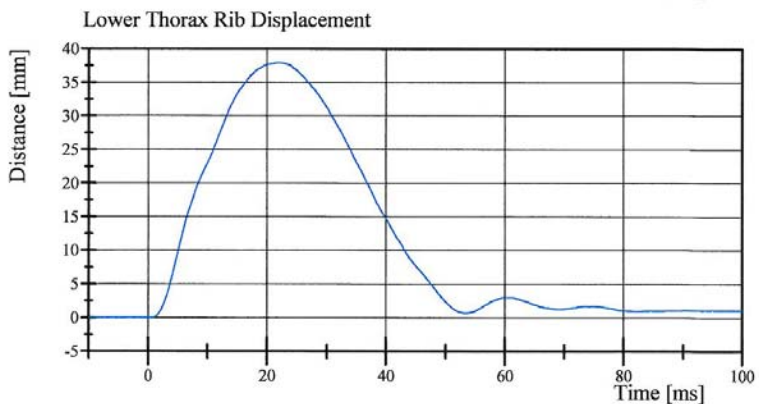
Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



Filter Class: CFC\_600  
Max: 36.2 mm at 20.5 ms  
Min: -0.0 mm at -1.6 ms



Filter Class: CFC\_600  
Max: 40.9 mm at 20.6 ms  
Min: -0.0 mm at -9.9 ms



Filter Class: CFC\_600  
Max: 37.9 mm at 22.0 ms  
Min: -0.0 mm at 0.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 10:52:37 811



## Transportation Research Center Inc.

Left Lateral Abdomen  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-15.1 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	39.8 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	35.3 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	12.10 g	Yes

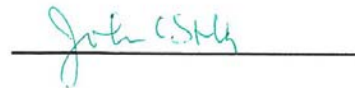
**Test meets specifications.**

**Comments:**

Technician



Approved



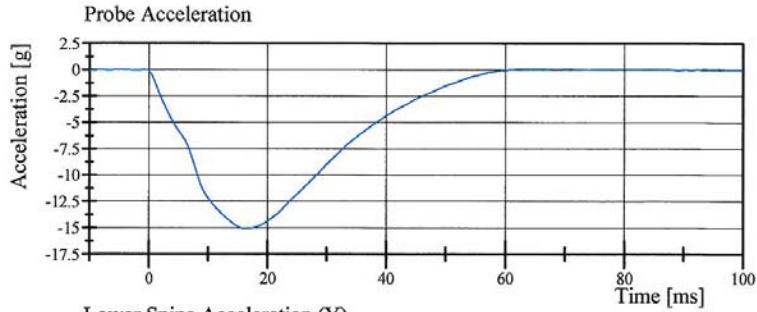
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 11:04:35 642

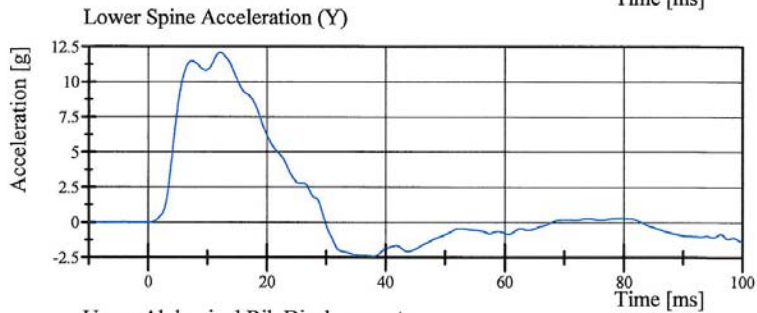


# Transportation Research Center Inc.

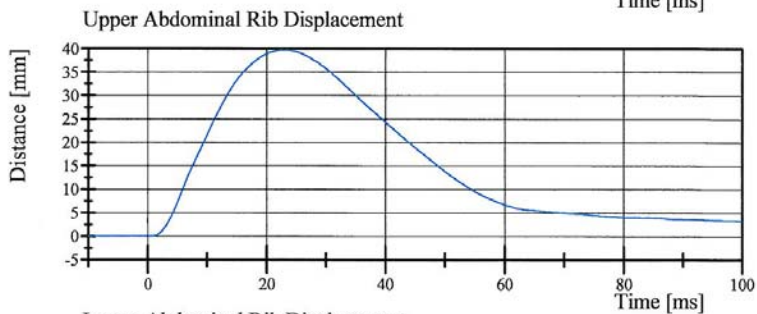
Left Lateral Abdomen  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



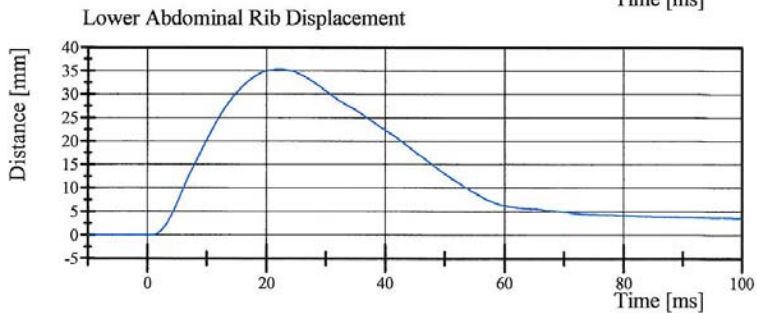
Filter Class: CFC\_180  
Max: 0.1 gn at 62.3 ms  
Min: -15.1 gn at 16.5 ms



Filter Class: CFC\_180  
Max: 12.1 gn at 12.2 ms  
Min: -2.4 gn at 38.1 ms



Filter Class: CFC\_600  
Max: 39.8 mm at 22.9 ms  
Min: -0.0 mm at 0.6 ms



Filter Class: CFC\_600  
Max: 35.3 mm at 21.9 ms  
Min: -0.0 mm at 0.8 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 11:04:43 642



## Transportation Research Center Inc.

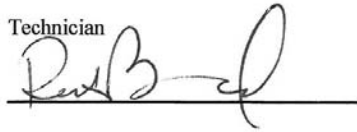
Left Lateral Pelvis  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-41.34 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	36.8 g	Yes
Acetabulum Force	3,600 - 4,300 N	3,975.6 N	Yes

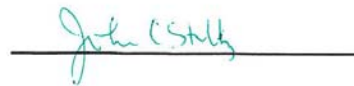
**Test meets specifications.**

**Comments:**

Technician



Approved



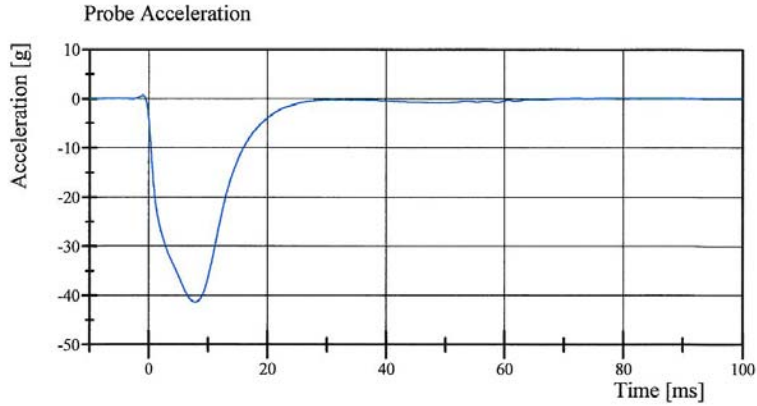
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 12:41:46 451

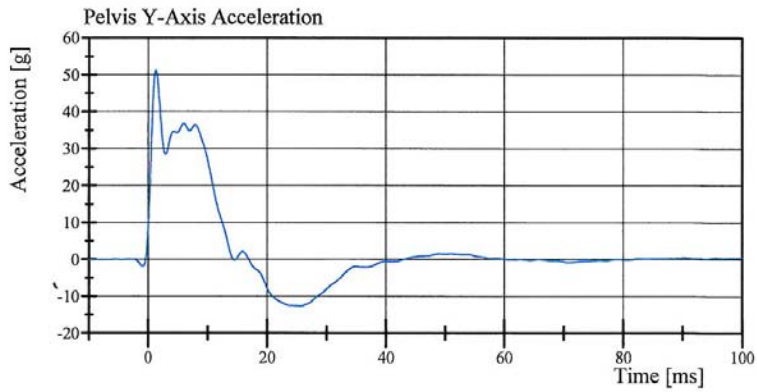


# Transportation Research Center Inc.

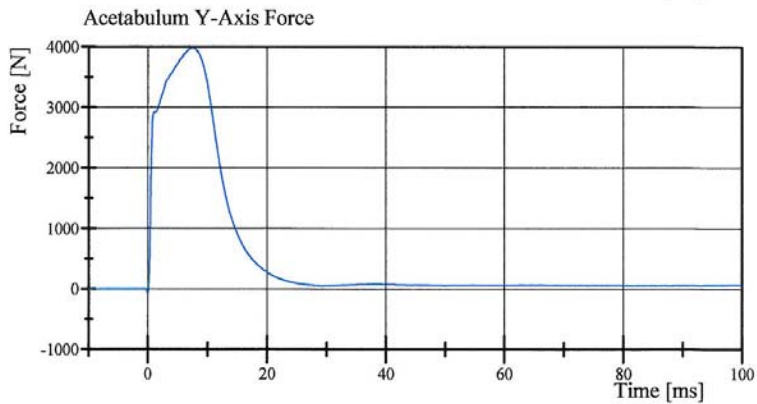
Left Lateral Pelvis  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



Filter Class: CFC\_180  
Max: 0.6 gn at -1.0 ms  
Min: -41.3 gn at 7.8 ms



Filter Class: CFC\_180  
Max: 51.2 gn at 1.3 ms  
Min: -12.6 gn at 25.7 ms



Filter Class: CFC\_600  
Max: 3,975.6 N at 7.5 ms  
Min: -67.5 N at 0.0 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 12:41:54 451



# Transportation Research Center Inc.

Left Lateral Iliac  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.25 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-41.8 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.5 g	Yes
Iliac Force	4,100 - 5,100 N	5,065.1 N	Yes

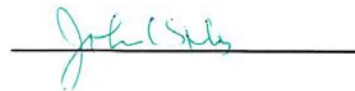
**Test meets specifications.**

**Comments:**

Technician



Approved



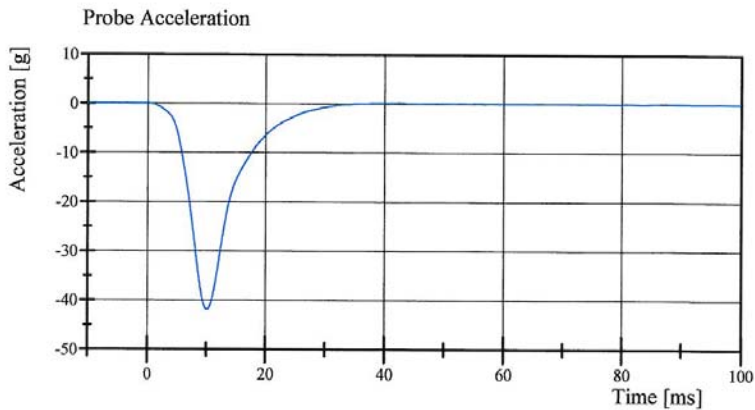
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 14:52:12 634

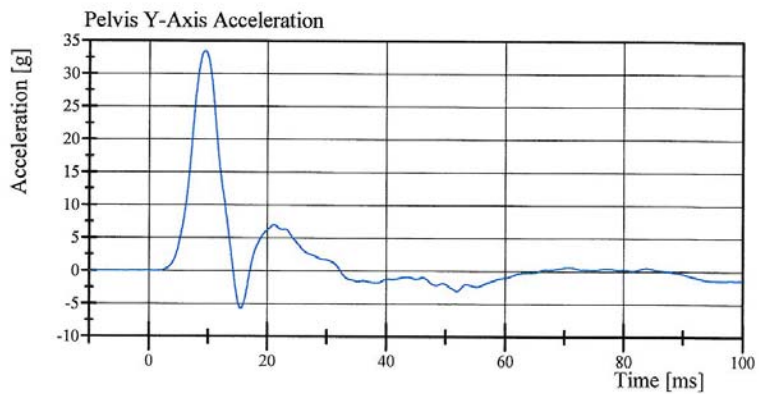


# Transportation Research Center Inc.

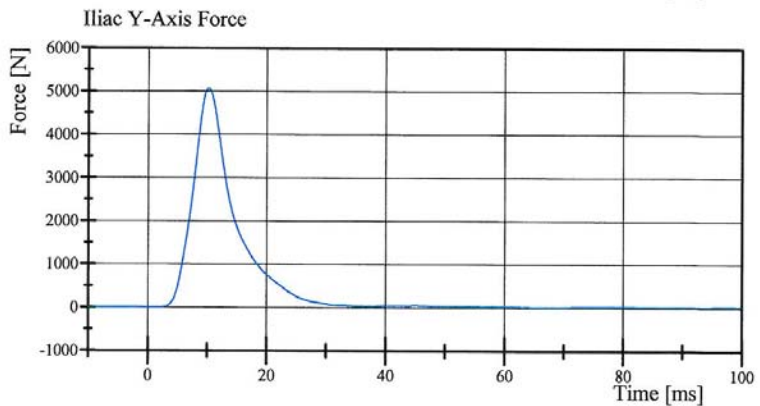
Left Lateral Iliac  
SID IIs Serial No. 305 Certification No. 7-1  
Test Date: 11/28/2011



Filter Class: CFC\_180  
Max: 0.2 gn at 42.6 ms  
Min: -41.8 gn at 10.2 ms



Filter Class: CFC\_180  
Max: 33.5 gn at 9.4 ms  
Min: -5.7 gn at 15.5 ms



Filter Class: CFC\_600  
Max: 5,065.1 N at 10.2 ms  
Min: -0.8 N at -6.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

11.28.2011 14:52:19 634



## Post-Test Calibration Sheets

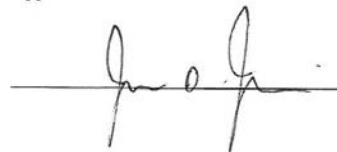
**Transportation Research Center Inc.**  
**SIDIIs Dummy - Level D**  
**External Dimensions**  
**Serial No. 305 Calibration No.08**  
**Date: 12/09/11**

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	778	Yes
B	Shoulder Pivot Height	437.0 - 453.0	442	Yes
C	H-Point Height	79.0 - 89.0	84	Yes
D	H-Point from Seat Back	141.0 - 151.0	144	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	101	Yes
F	Thigh Clearance	119.0 - 135.0	134	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	543	Yes
K	Buttock to Knee Length	514.0 - 540.0	533	Yes
L	Popliteal Height	343.0 - 369.0	353	Yes
M	Knee Pivot to Floor Height	393.0 - 409.0	401	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	207	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	313	Yes
R	Arm Length	249.0 - 259.0	253	Yes
S	Knee Joint to seat Back	478.0 - 493.0	482	Yes
V	Shoulder Width (only one arm installed)	341.0 - 357.0	350	Yes
W	Foot Width (right)	78.0 - 94.0	84	Yes
W	Foot Width (left)	78.0 - 94.0	84	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	868	Yes
Z	Waist Circumference	761.0 - 791.0	779	Yes

Technician



Approved



Revised 9/29/2005



# Transportation Research Center Inc.

Left Lateral Head Drop  
SID IIs Serial No. 305 Certification No. 8-3  
Test Date: 12/8/2011

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	115.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-2.3 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

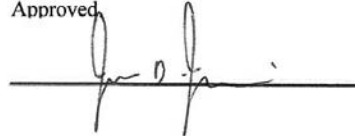
**Test meets specifications.**

**Comments:**

Technician



Approved



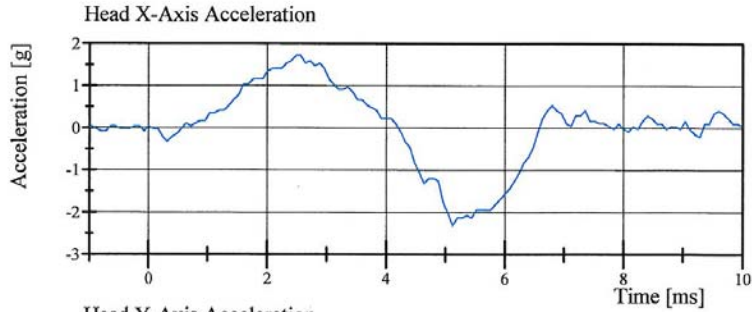
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.08.2011 15:13:36 233

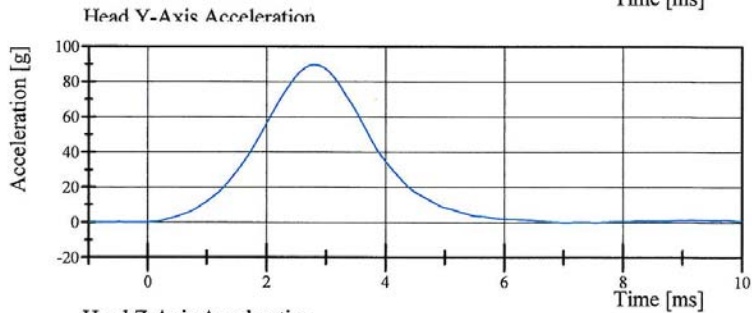


# Transportation Research Center Inc.

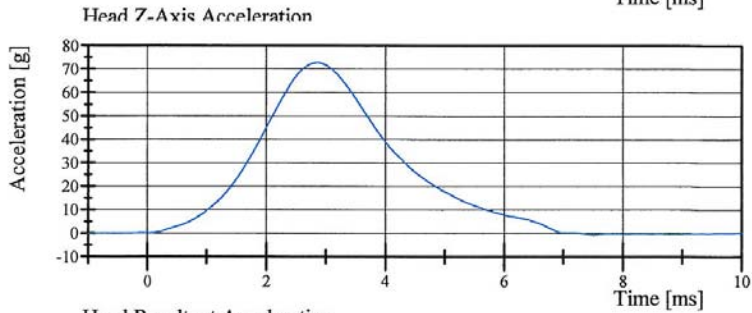
Left Lateral Head Drop  
SID IIs Serial No. 305 Certification No. 8-3  
Test Date: 12/8/2011



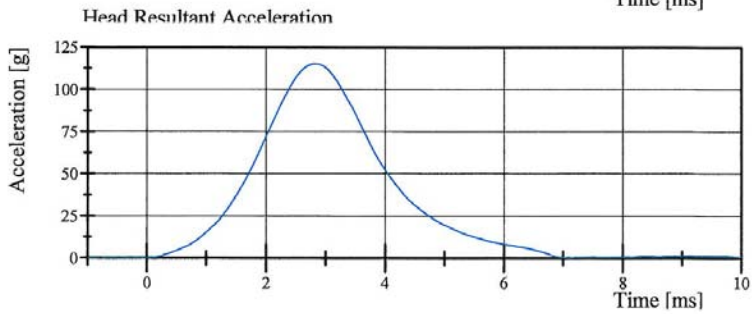
Filter Class: CFC\_1000  
Max: 1.7 gn at 2.5 ms  
Min: -2.3 gn at 5.1 ms



Filter Class: CFC\_1000  
Max: 89.6 gn at 2.8 ms  
Min: -0.2 gn at 7.0 ms



Filter Class: CFC\_1000  
Max: 72.8 gn at 2.9 ms  
Min: -0.7 gn at 7.5 ms



Filter Class: CFC\_1000  
Max: 115.3 gn at 2.8 ms  
Min: 0.0 gn at -0.6 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.08.2011 15:13:42 233



# Transportation Research Center Inc.

Left Lateral Neck

SID IIs Serial No. 305 Certification No. 8-6

Test Date: 12/8/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.611 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.305 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.467 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.697 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.668 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.909 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-77.3 deg	Yes
Time of Peak	50 - 70 ms	68.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	37.6 N·m	Yes
Total Neck Occipital Condyles Moment			
Decay Time to 0 N·m	102 - 126 ms	125.4 ms	Yes

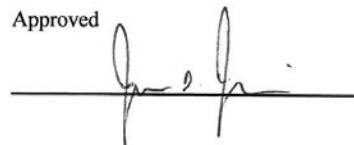
**Test meets specifications.**

**Comments:**

Technician



Approved



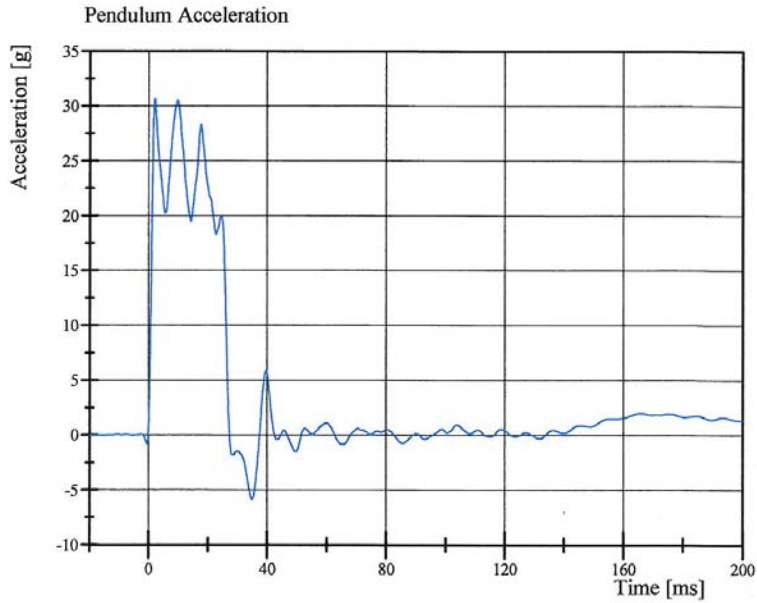
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.08.2011 13:49:55 634

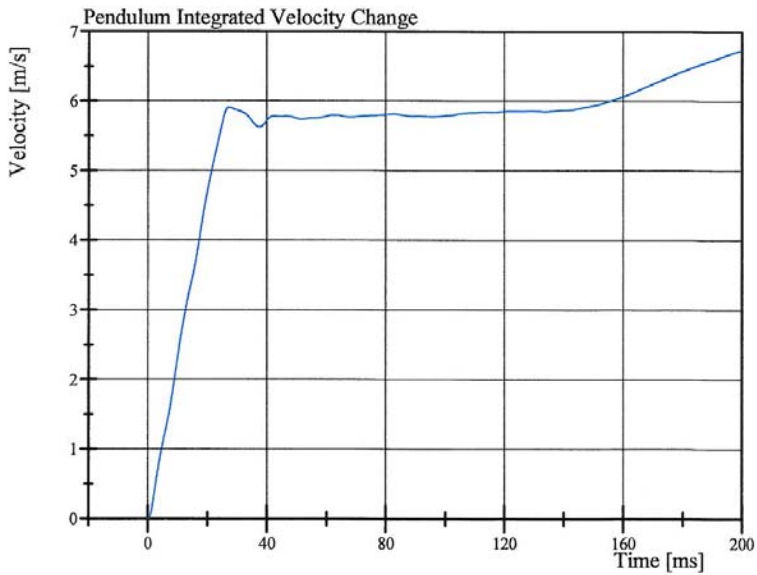


# Transportation Research Center Inc.

Left Lateral Neck  
SID IIs Serial No. 305 Certification No. 8-6  
Test Date: 12/8/2011



Filter Class: CFC\_180  
Max: 30.7 gn at 2.2 ms  
Min: -5.9 gn at 35.0 ms



Filter Class: CFC\_180  
Max: 6.7 m/s at 200.0 ms  
Min: 0.0 m/s at 0.0 ms

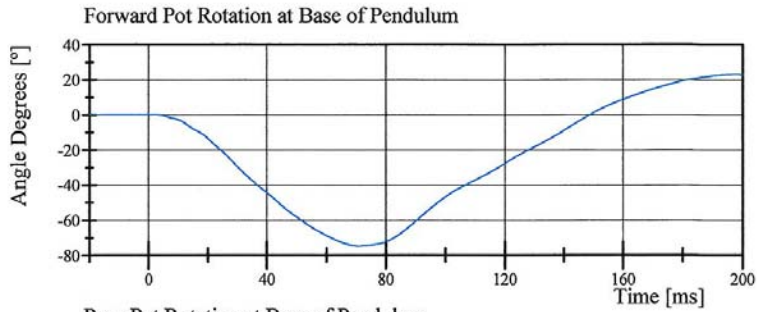
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.08.2011 13:50:03 634

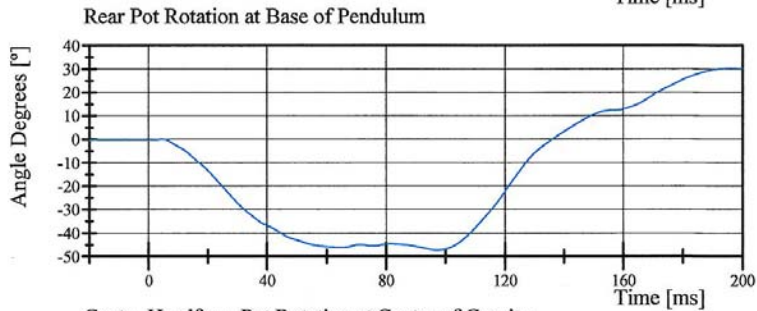


# Transportation Research Center Inc.

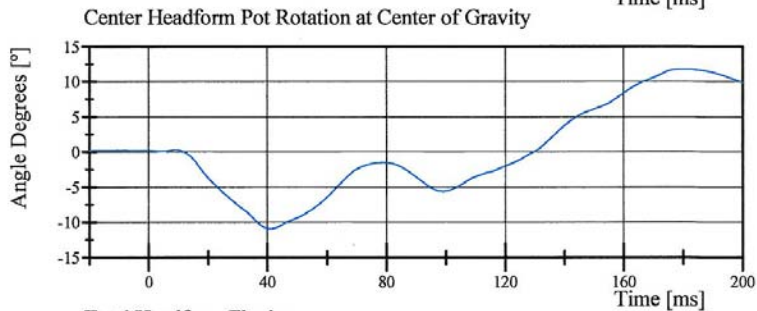
Left Lateral Neck  
SID IIs Serial No. 305 Certification No. 8-6  
Test Date: 12/8/2011



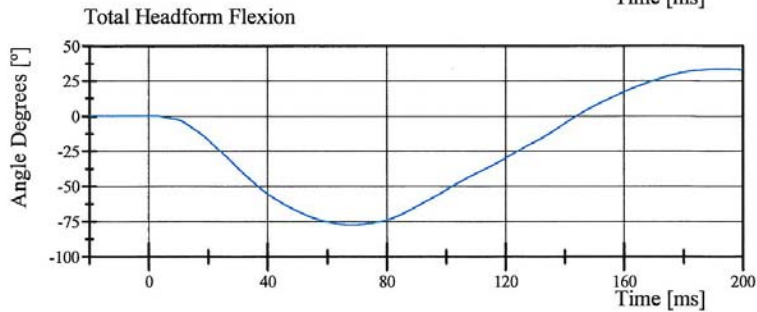
Filter Class: CFC\_60  
Max: 23.1 ° at 197.8 ms  
Min: -74.7 ° at 70.8 ms



Filter Class: CFC\_60  
Max: 30.3 ° at 196.0 ms  
Min: -47.4 ° at 97.0 ms



Filter Class: CFC\_60  
Max: 11.8 ° at 181.5 ms  
Min: -10.9 ° at 41.0 ms



Filter Class: CFC\_60  
Max: 33.7 ° at 192.8 ms  
Min: -77.3 ° at 68.6 ms

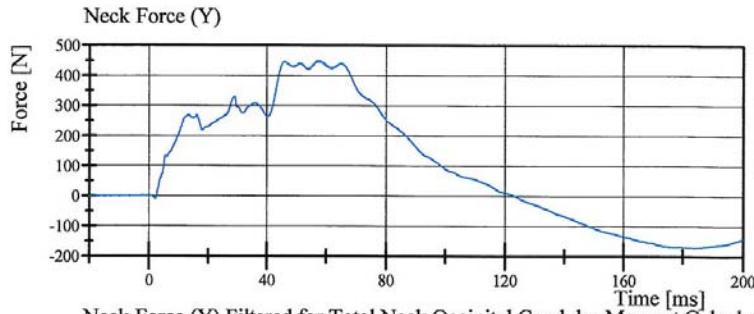
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.08.2011 13:50:04 634

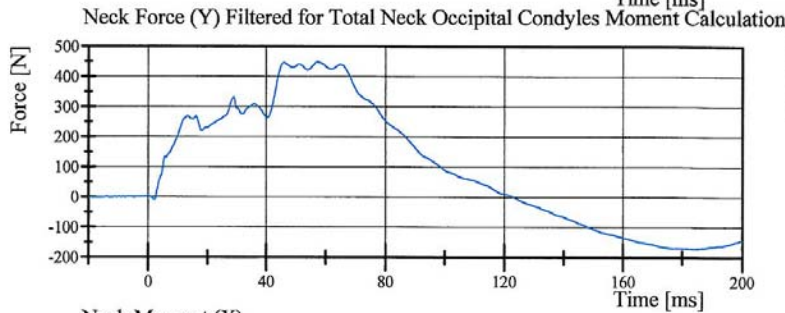


# Transportation Research Center Inc.

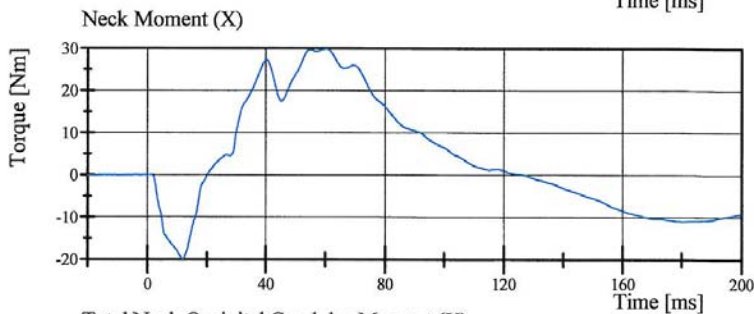
Left Lateral Neck  
SID IIs Serial No. 305 Certification No. 8-6  
Test Date: 12/8/2011



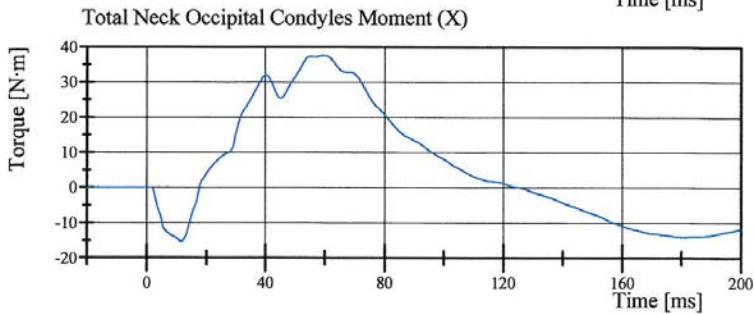
Filter Class: CFC\_1000  
Max: 450.2 N at 57.4 ms  
Min: -171.3 N at 183.4 ms



Filter Class: CFC\_600  
Max: 449.1 N at 57.4 ms  
Min: -170.5 N at 183.5 ms



Filter Class: CFC\_600  
Max: 29.9 Nm at 59.8 ms  
Min: -19.8 Nm at 11.8 ms



Filter Class: Without\_(Consta  
Max: 37.6 N·m at 59.8 ms  
Min: -15.3 N·m at 11.5 ms

## Transportation Research Center Inc.

Left Lateral Shoulder  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	26 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-13) - (-18) g	-15.9 g	Yes
Shoulder Displacement	28 - 37 mm	29.7 mm	Yes
Upper Spine Lateral Acceleration	17 - 22 g	20.1 g	Yes

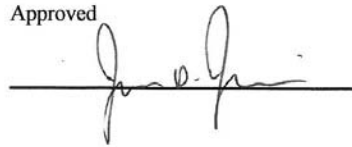
**Test meets specifications.**

**Comments:**

Technician



Approved



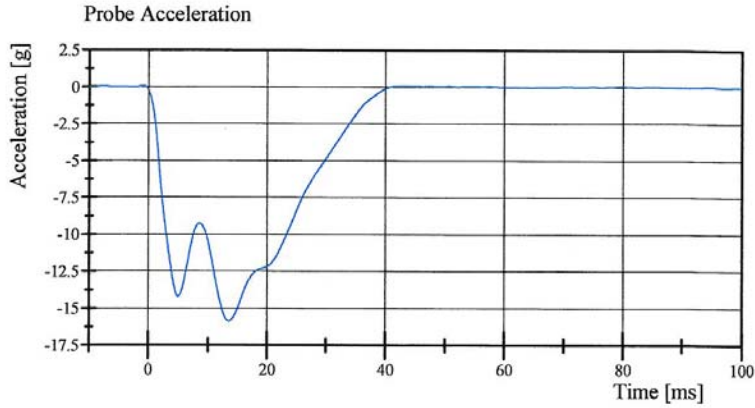
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 08:33:16 823

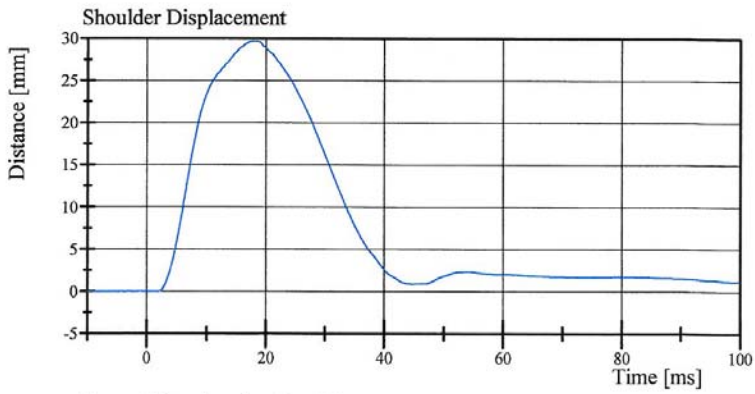


# Transportation Research Center Inc.

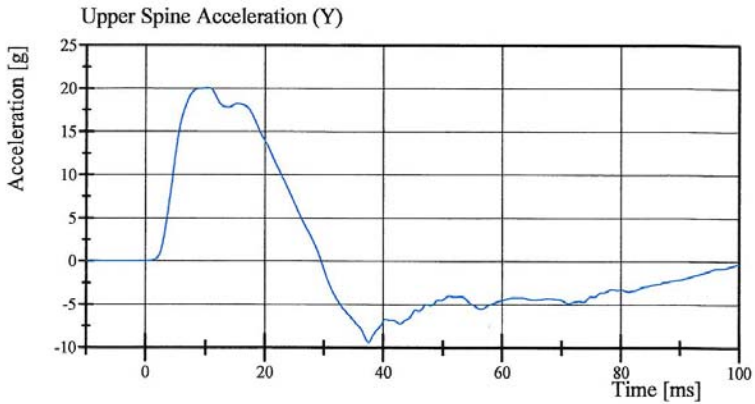
Left Lateral Shoulder  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



Filter Class: CFC\_180  
Max: 0.1 gn at 42.3 ms  
Min: -15.9 gn at 13.5 ms



Filter Class: CFC\_600  
Max: 29.7 mm at 17.8 ms  
Min: -0.0 mm at 1.8 ms



Filter Class: CFC\_180  
Max: 20.1 gn at 10.4 ms  
Min: -9.4 gn at 37.5 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 08:33:23 823



## Transportation Research Center Inc.

Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 8-2  
Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.725 m/s	Yes
Impactor Acceleration	(-30) - (-36) g	-33.8 g	Yes
Shoulder Displacement	31 - 40 mm	34.6 mm	Yes
Upper Thorax Rib Displacement	25 - 32 mm	27.0 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	30.9 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	32.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	38.9 g	Yes
Lower Spine Lateral Acceleration	29 - 37 g	36.9 g	Yes

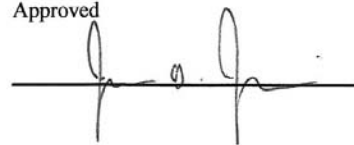
**Test meets specifications.**

**Comments:**

Technician



Approved



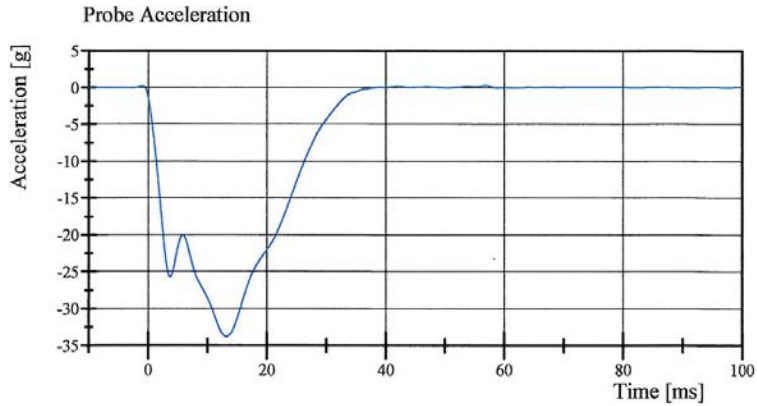
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 13:56:36 618

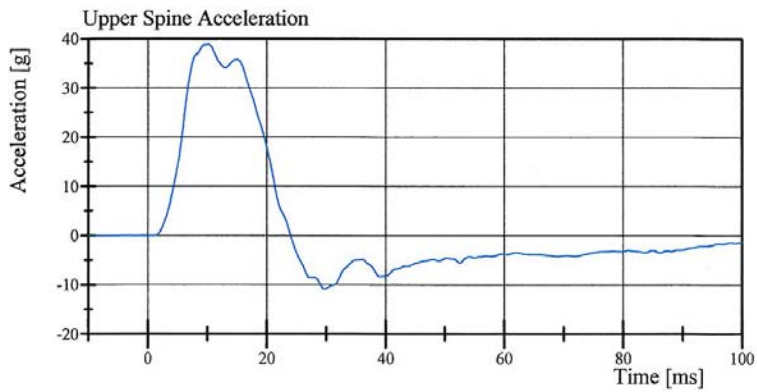


# Transportation Research Center Inc.

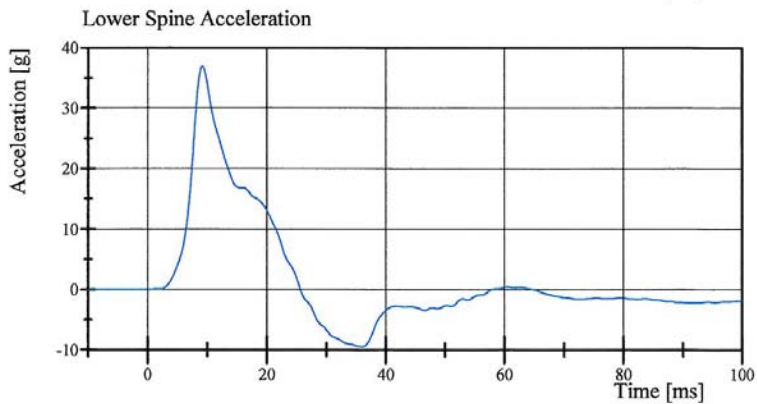
Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 8-2  
Test Date: 12/9/2011



Filter Class: CFC\_180  
Max: 0.3 gn at 56.9 ms  
Min: -33.8 gn at 13.2 ms



Filter Class: CFC\_180  
Max: 38.9 gn at 10.2 ms  
Min: -10.9 gn at 29.8 ms



Filter Class: CFC\_180  
Max: 36.9 gn at 9.2 ms  
Min: -9.5 gn at 36.0 ms

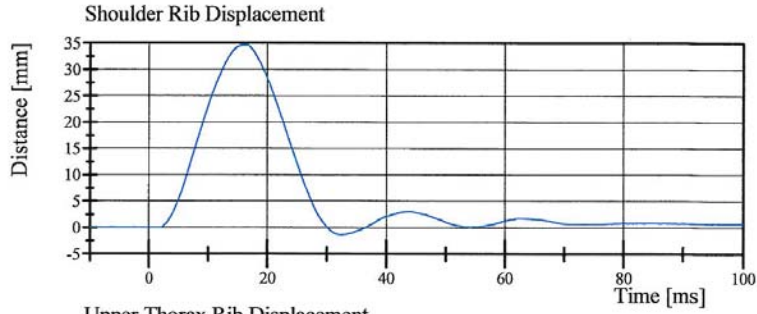
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 13:56:45 618

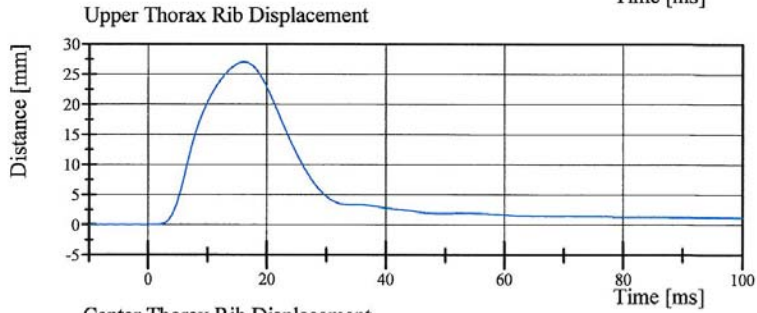


# Transportation Research Center Inc.

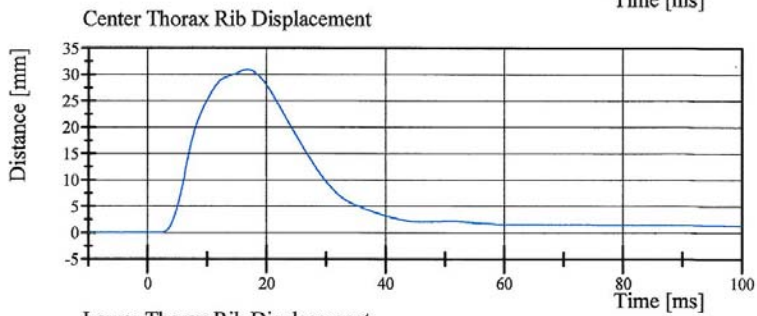
Left Lateral Thorax with Arm  
SID IIs Serial No. 305 Certification No. 8-2  
Test Date: 12/9/2011



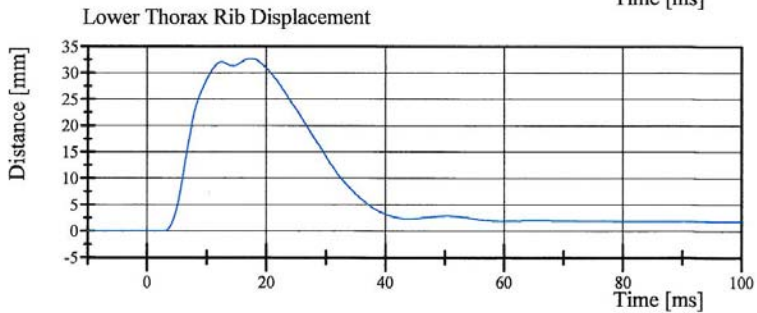
Filter Class: CFC\_600  
Max: 34.6 mm at 16.5 ms  
Min: -1.4 mm at 32.5 ms



Filter Class: CFC\_600  
Max: 27.0 mm at 16.2 ms  
Min: -0.0 mm at -9.1 ms



Filter Class: CFC\_600  
Max: 30.9 mm at 16.7 ms  
Min: -0.0 mm at -3.0 ms



Filter Class: CFC\_600  
Max: 32.6 mm at 17.5 ms  
Min: -0.0 mm at -3.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 13:56:45 618



## Transportation Research Center Inc.

Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.373 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-16.6 g	Yes
Upper Thorax Rib Displacement	32 - 40 mm	36.1 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	40.8 mm	Yes
Lower Thorax Rib Displacement	35 - 43 mm	37.3 mm	Yes
Upper Spine Lateral Acceleration	13 - 17 g	16.4 g	Yes
Lower Spine Lateral Acceleration	7 - 11 g	10.3 g	Yes

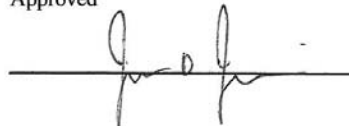
**Test meets specifications.**

**Comments:**

Technician



Approved



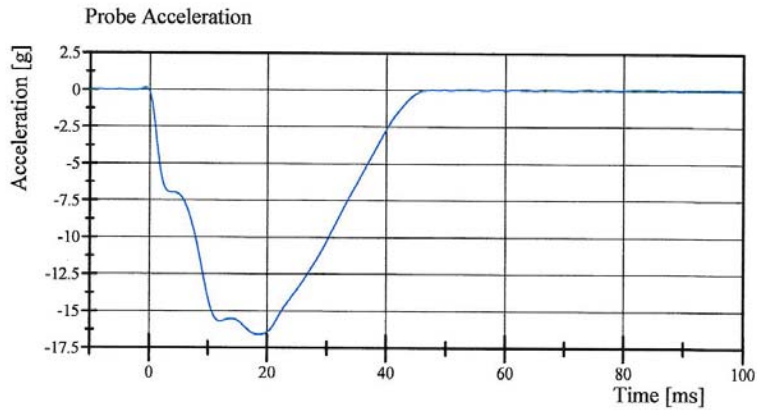
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 14:31:58 819

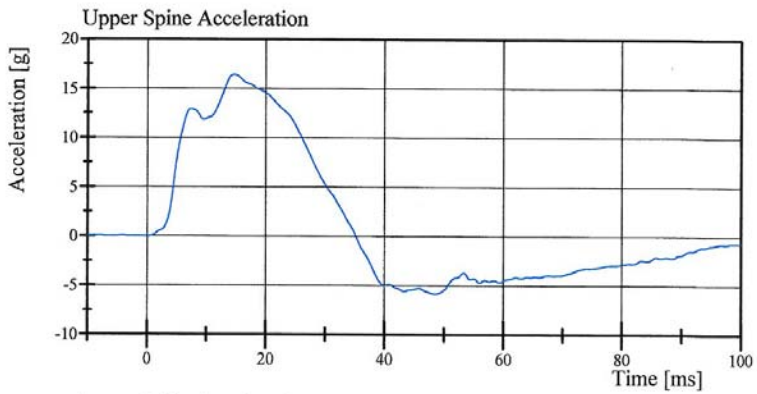


# Transportation Research Center Inc.

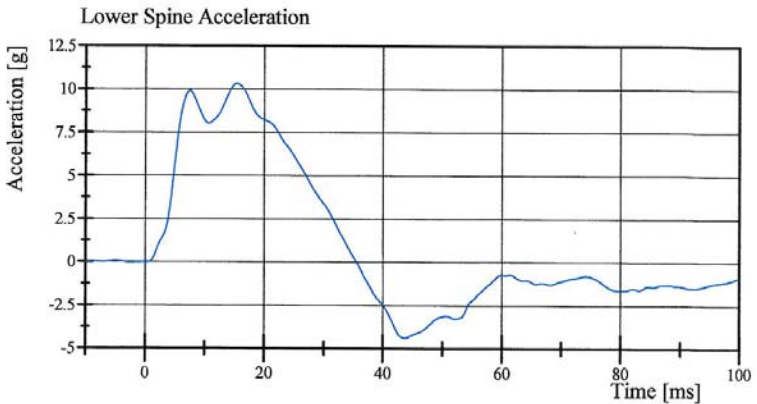
Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



Filter Class: CFC\_180  
Max: 0.1 gn at -0.6 ms  
Min: -16.6 gn at 18.6 ms



Filter Class: CFC\_180  
Max: 16.4 gn at 14.6 ms  
Min: -5.8 gn at 48.5 ms



Filter Class: CFC\_180  
Max: 10.3 gn at 15.4 ms  
Min: -4.4 gn at 43.7 ms

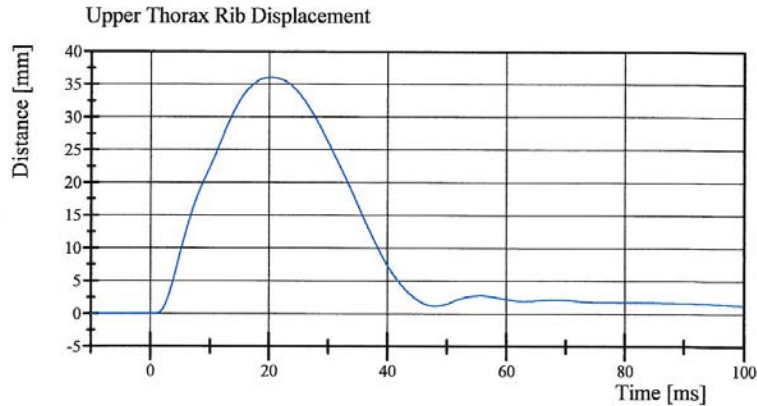
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 14:32:06 819

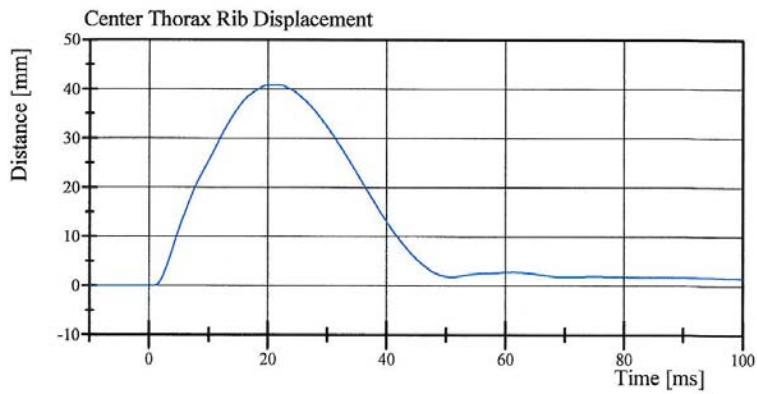


# Transportation Research Center Inc.

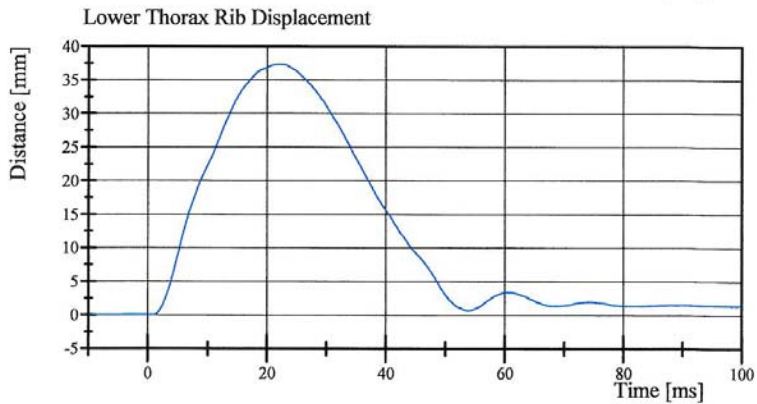
Left Lateral Thorax without Arm  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



Filter Class: CFC\_600  
Max: 36.1 mm at 20.2 ms  
Min: -0.0 mm at 1.0 ms



Filter Class: CFC\_600  
Max: 40.8 mm at 21.0 ms  
Min: -0.0 mm at -6.2 ms



Filter Class: CFC\_600  
Max: 37.3 mm at 22.2 ms  
Min: -0.0 mm at -7.1 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 14:32:06 819



## Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs Serial No. 305 Certification No. 8-1

Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.33 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-15.4 g	Yes
Upper Abdominal Rib Displacement	36 - 47 mm	40.1 mm	Yes
Lower Abdominal Rib Displacement	33 - 44 mm	35.1 mm	Yes
Lower Spine Lateral Acceleration	9 - 14.0 g	11.97 g	Yes

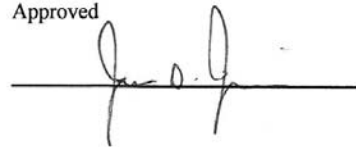
**Test meets specifications.**

**Comments:**

Technician



Approved



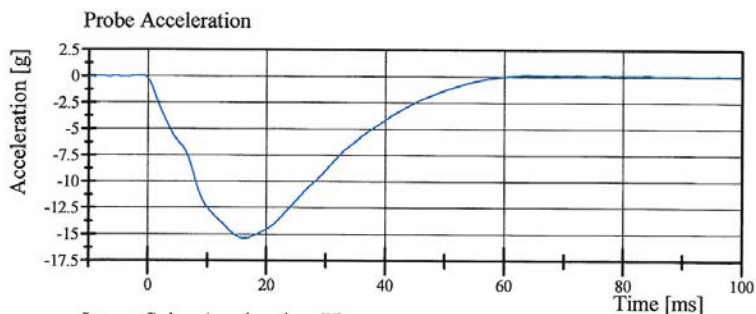
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 10:52:54 650

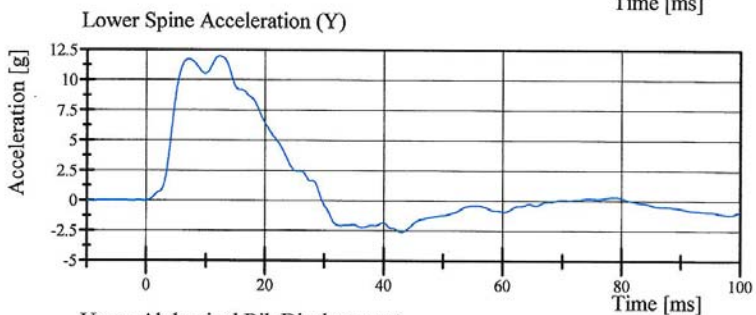


# Transportation Research Center Inc.

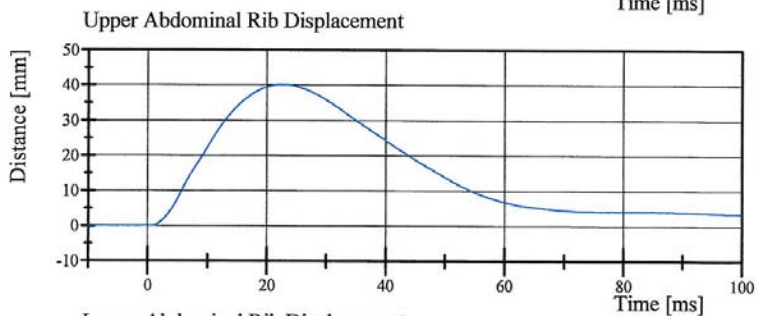
Left Lateral Abdomen  
SID II<sub>s</sub> Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



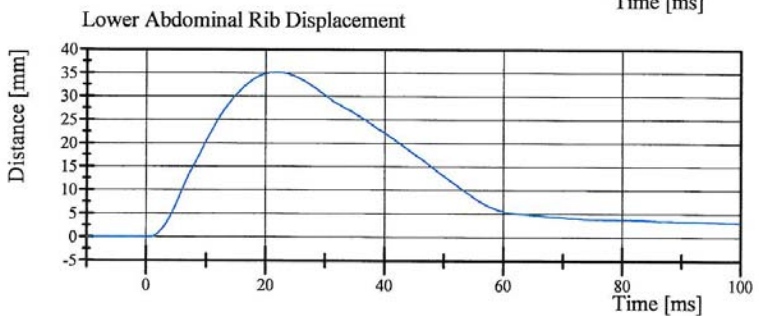
Filter Class: CFC\_180  
Max: 0.1 gn at 63.7 ms  
Min: -15.4 gn at 16.2 ms



Filter Class: CFC\_180  
Max: 12.0 gn at 12.2 ms  
Min: -2.6 gn at 43.0 ms



Filter Class: CFC\_600  
Max: 40.1 mm at 22.6 ms  
Min: -0.0 mm at 0.5 ms



Filter Class: CFC\_600  
Max: 35.1 mm at 22.1 ms  
Min: -0.0 mm at -6.9 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 10:53:01 650



# Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs Serial No. 305 Certification No. 8-1

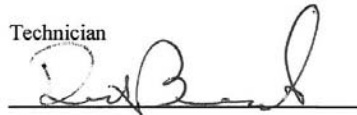
Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Pendulum Velocity	6.6 - 6.8 m/s	6.61 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-41.81 g	Yes
Peak Pelvis Lateral Acceleration after 6ms	34 - 42 g	37.3 g	Yes
Acetabulum Force	3,600 - 4,300 N	4,026.5 N	Yes

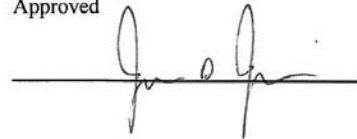
**Test meets specifications.**

**Comments:**

Technician



Approved



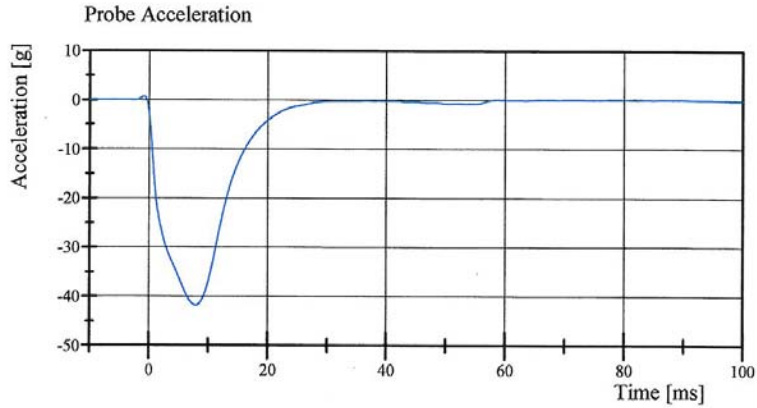
Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 11:07:09 445

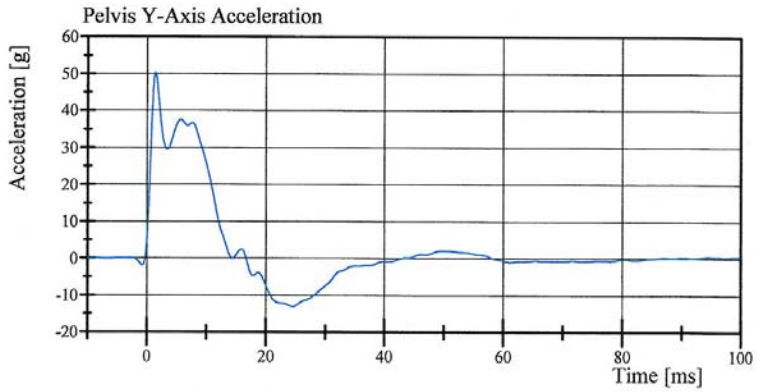


# Transportation Research Center Inc.

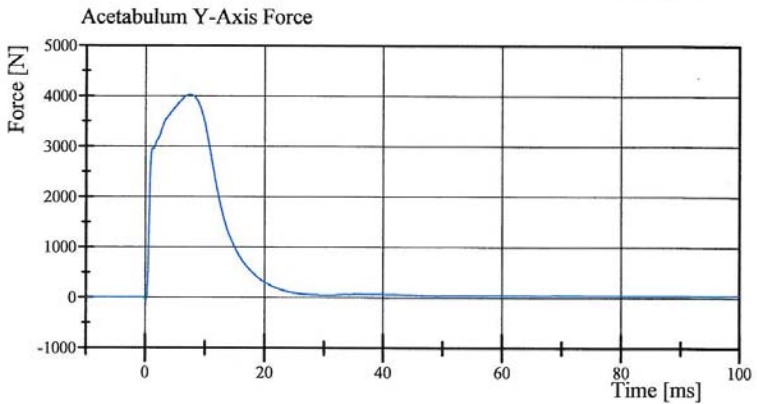
Left Lateral Pelvis  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



Filter Class: CFC\_180  
Max: 0.6 gn at -0.9 ms  
Min: -41.8 gn at 7.9 ms



Filter Class: CFC\_180  
Max: 50.2 gn at 1.4 ms  
Min: -13.1 gn at 24.6 ms



Filter Class: CFC\_600  
Max: 4,026.5 N at 7.4 ms  
Min: -63.1 N at 0.2 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 11:07:17 445



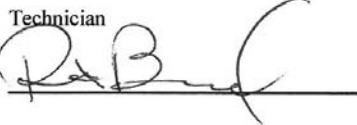
# Transportation Research Center Inc.

Left Lateral Iliac  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Pendulum Velocity	4.2 - 4.4 m/s	4.24 m/s	Yes
Impactor Acceleration	(-36) - (-45) g	-40.3 g	Yes
Peak Pelvis Lateral Acceleration	28 - 39 g	33.0 g	Yes
Iliac Force	4,100 - 5,100 N	4,853.8 N	Yes

**Test meets specifications.**

**Comments:**

Technician  


Approved  

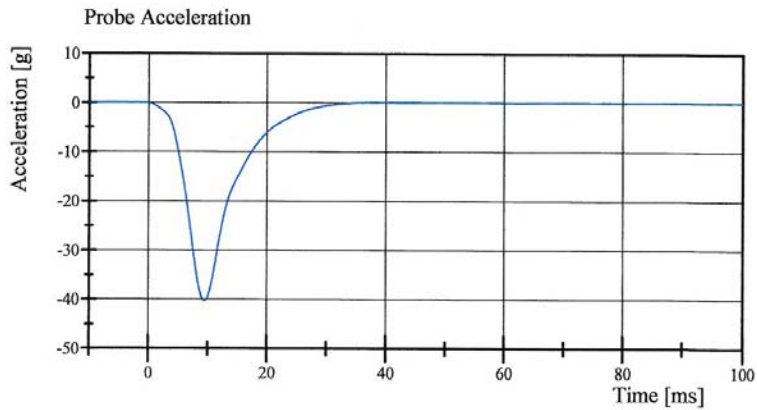

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 13:08:55 658

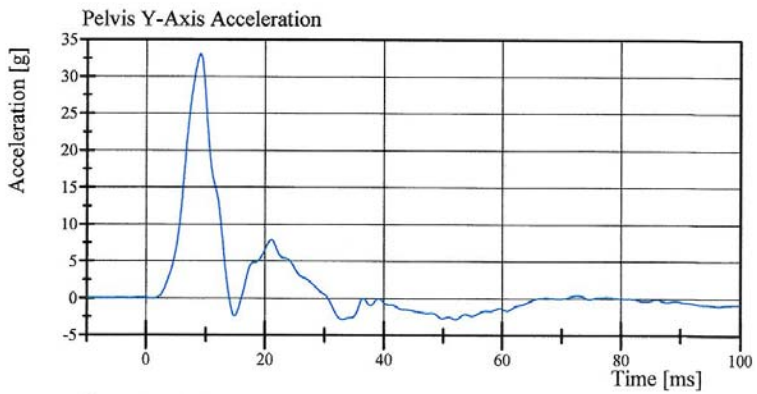


# Transportation Research Center Inc.

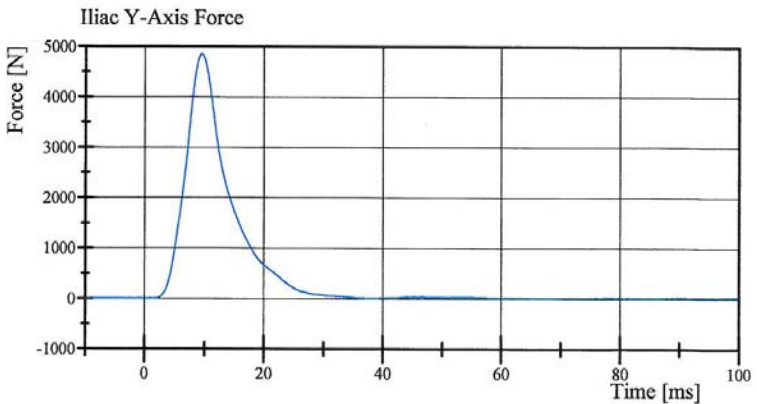
Left Lateral Iliac  
SID IIs Serial No. 305 Certification No. 8-1  
Test Date: 12/9/2011



Filter Class: CFC\_180  
Max: 0.1 gn at 44.5 ms  
Min: -40.3 gn at 9.4 ms



Filter Class: CFC\_180  
Max: 33.0 gn at 9.0 ms  
Min: -2.9 gn at 33.0 ms



Filter Class: CFC\_600  
Max: 4,853.8 N at 9.5 ms  
Min: -0.7 N at -6.7 ms

Specification Source: Procedures based on Final Rule effective 8/24/2009  
Polarity in accordance with SAE J211.

12.09.2011 13:09:09 658



**APPENDIX D**  
**TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA**

**TABLE 1 – Dummy Instrumentation (SID-IIs)**

				SID-IIs S/N 305			
				Serial Number	Manufacturer	Calibration Date	
Head Accelerometers				X	P51719	Endevco	9-Nov-11
				Y	P51272	Endevco	9-Nov-11
				Z	P58862	Endevco	9-Nov-11
Displacement Potentiometers	Shoulder			Y			
	Thoracic Rib	Upper	Y	1153	FTSS	9-Nov-11	
		Middle	Y	1161	FTSS	9-Nov-11	
		Lower	Y	1279	FTSS	9-Nov-11	
	Abdominal Rib	Upper	Y	1295	FTSS	9-Nov-11	
		Lower	Y	1136	FTSS	9-Nov-11	
Lower Spine Accelerometers (T12)				X	P50068	Endevco	9-Nov-11
				Y	P52051	Endevco	9-Nov-11
				Z	P51710	Endevco	9-Nov-11
Acetabulum Load Cell				Y	103-FY	FTSS	10-Nov-11
Iliac Wing Load Cell				Y	287-FY	Denton	10-Nov-11
Pelvis Plug (struck side)							
Pelvis Plug (non-struck side)							

**TABLE 2 – Vehicle Instrumentation**

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P73267	Endevco	19-Aug-11
Vehicle Center of Gravity	Y	P49039	Endevco	17-Aug-11
Vehicle Center of Gravity	Z	P73579	Endevco	16-Aug-11
Left Floor Sill	Y	P73595	Endevco	23-Nov-11
A-Pillar Sill	Y	P73603	Endevco	23-Nov-11
A-Pillar Low	Y	P73609	Endevco	22-Nov-11
A-Pillar Mid	Y	P73618	Endevco	11-Aug-11
B-Pillar Sill	Y	P73607	Endevco	22-Nov-11
B-Pillar Low	Y	P73387	Endevco	18-Aug-11
B-Pillar Mid	Y	P73569	Endevco	18-Aug-11
Driver Seat	Y	P73300	Endevco	22-Nov-11
Engine Top	X	P73284	Endevco	1-Dec-11
Engine Top	Y	P73297	Endevco	22-Nov-11
Firewall	Y	P69840	Endevco	28-Nov-11
Right Roof	Y	P64907	Endevco	24-Aug-11
Right Floor Sill	Y	P73291	Endevco	28-Nov-11
Rear Floor Pan	X	P73614	Endevco	30-Nov-11
Rear Floor Pan	Y	P73298	Endevco	22-Nov-11

**TABLE 3 – Pole Instrumentation**

Pole Instrumentation	Serial Number	Manufacturer	Calibration Date
Load Cell 1	86	Denton	26-Nov-10
Load Cell 2	91	Denton	26-Nov-10
Load Cell 3	89	Denton	26-Nov-10
Load Cell 4	77	Denton	26-Nov-10
Load Cell 5	90	Denton	26-Nov-10
Load Cell 6	88	Denton	26-Nov-10
Load Cell 7	92	Denton	26-Nov-10
Load Cell 8	78	Denton	9-Jun-11