REPORT NUMBER: SPNCAP-MCW-12-01

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

FORD MOTOR COMPANY
2012 FORD EXPLORER 5-DOOR SUV

NHTSA NUMBER: MC 0206

PREPARED BY:
MEDICAL COLLEGE OF WISCONSIN
5000 WEST NATIONAL AVENUE
RESEARCH 151
MILWAUKEE, WISCONSIN 53295

TEST DATE: 25 OCTOBER 2011

REPORT DATE: 8 NOVEMBER 2011

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF CRASHWORTHINESS STANDARDS
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1200 NEW JERSEY AVE, SE, ROOM W43-410
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Prepared by: _____

Date: 12/1/11

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FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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4. Title and Subtitle Final report of New Car Assessment Program Side Impact Pole Testing of a 2012 Ford Explorer 5-Door SUV NHTSA No. MC 0206		*5. Report Date* 8 November 2011 *6. Performing Organization Code* MCW
7. Author(s) Frank Pintar, Project Manager Mark Meyer, Project Engineer		*8. Performing Organization Report No.* SPNCAP-MCW-12-01
9. Performing Organization Name and Address Medical College of Wisconsin 5000 W. National Ave. Milwaukee, WI 53295		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-09-D-00123
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards, NVS-111 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590		*13. Type of Report and Period Covered:* October 25 to November 8 *14. Sponsoring Agency Code* NVS-111

15. Supplementary Notes

16. Abstract

A 32.0 km/h (20 mph), 75° oblique Side NCAP Test was conducted on the subject 2012 Ford Explorer 5-Door 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. The test was conducted at the Medical College of Wisconsin (MCW) in Milwaukee, Wisconsin on 25 October 2011.

The impact velocity was 32.0 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 24 °C. The test vehicle's post-test maximum static crush was 558 mm at level 2 & 3. The test vehicle's occupant performance is as follows:

		Driver ATD (SID-IIs)	
	Units	Threshold	Result
Head Injury Criteria (HIC_{36})	N/a	1000	483
Resultant Lower Spine Acceleration	G's	82	53.4
Total Pelvic Force (Acetabular & Pelvic)	NWT	5525	3005.6
Maximum Thoracic Rib Deflection	mm	38	27.3
Maximum Abdomen Rib Deflection	mm	45	17.9

The doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.

17. Key Words New Car Assessment Program (NCAP) Side impact Pole Part 572V SID-IIs		*18. Distribution Statement* Copies of this report are available from: National Highway Traffic Safety Administration Technical Reference Division 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590	
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Form DOT F1700.7 (8-72)

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SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the FY'12 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00123. The purpose of this test is to generate comparative side impact performance in a 2012 Ford Explorer 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated August 2011.

SECTION 2
SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2012 Ford Explorer 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.0 km/h. The test was conducted at the Medical College of Wisconsin, in Milwaukee, Wisconsin, on 25 October 2011. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One (1) 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 2011. Camera locations and other pertinent camera information are included in this report.

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

- Head center of gravity tri-axial (X, Y, Z)accelerometers (primary and redundant)
- Upper neck tri-axial (X, Y, Z) force load cells and tri-axial (X, Y, Z) moment load cells
- Thorax upper, middle, and lower rib (Y) displacement potentiometers
- Abdomen upper and lower rib (Y) displacement potentiometers
- Lower spine tri-axial (X, Y, Z) accelerometers
- Illiac wing (Y) force load cell
- Acetabulum (Y) force load cell

The test vehicle was instrumented with twenty-one (21) structural accelerometers. The rigid pole was instrumented with eight (8) loadcells. All data channels were recorded with a fully self contained on-board DTS TDAS Pro Data Acquisition System. The data were digitally sampled at 12.5 kHz and processed according to SAEJ211-1(March 1995).

One (2) real-time video cameras and ten (10) high-speed video cameras were used to document the impact event. The pre test and post test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in the data sheets. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

All of the above was conducted in accordance to the Report Laboratory Test Procedure for New Car Assessment Program Side Impact Rigid Pole Testing dated August 2011.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 558 mm at level 2 & 3, 0 mm rearward of the vertical impact line.

Test summaries, post test observations, vehicle, pole, camera, and occupant measurements are presented in datasheets 1-16. Appendix A contains the still photograph prints. 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:

OCCUPANT SUMMARY			
Head Injury Criteria (HIC_{36})	**Driver ATD (SID-IIs)**		
	Units	**IARV**	**Result**
Head Injury Criteria (HIC_{36})	N/a	1000	483
Resultant Lower Spine Acceleration	G's	82	53.4
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	NWT	5525	3005.6
Maximum Thoracic Rib Deflection	mm	38*	27.3
Maximum Abdominal Rib Deflection	mm	45*	17.9

Head Injury Criterion (HIC) is the standardized calculation using resultant head acceleration to assess head injury. Generally, a higher HIC represents an increase in the likelihood of a serious head injury. HIC_{36} specifies a time 'window' of 36 milliseconds over which the integral is calculated. T1 and T2 represent the time of the lower and upper bounds of the window in which the HIC is calculated.

The resultant lower spine acceleration is the single equivalent of the X, Y, and Z accelerations.

The sum of the pelvic forces is used to assess the likelihood of injury to the pelvis during a side impact crash. Higher pelvic forces correspond to an increase in the likelihood of sustaining a severe pelvis injury.

*Proposed IARV

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION		
Restraint Type	**Left front (driver) occupant Location 01**	
	Mounted	Deployed
Frontal Airbag	Yes – Steering Wheel	Did Not Deploy
Knee Airbag	No	N/a
Side Torso/Abdomen/Pelvis Airbag	Yes – Seat Back	Deployed
Combo Head/Torso Side Airbag	No	Did Not Deploy
Side Curtain Airbag	Yes – Roof Rail	Deployed
Seat Belt Pretensioner	Yes	N/a
Seat Belt Load Limiter	Yes	N/a

These test data and report can be found in detail on the NHTSA website at www.nhtsa.dot.gov.

A brief summary of the crash test can be located at www.safercar.gov

TEST NOTES

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

VEHICLE INFORMATION	
NHTSA No.	MC 0206
Model Year	2012
Make	Ford
Model	Explorer
Body Style	5 – Door SUV
VIN	1FMHK7B81CGA12075
Body Color	Red Candy
Odometer Reading (km/mi)	171.5 mi.
Engine Displacement (L)	3.5
Type/No. of Cylinders	6
Engine Placement	Lateral
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	FWD
Roof Rack	Yes
Sunroof/T-Top	No
Running Boards	No
Tilt Steering	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes
All-Wheel Drive (AWD)	No

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

Does owner's manual provide instructions to turn off automatic door locks? No

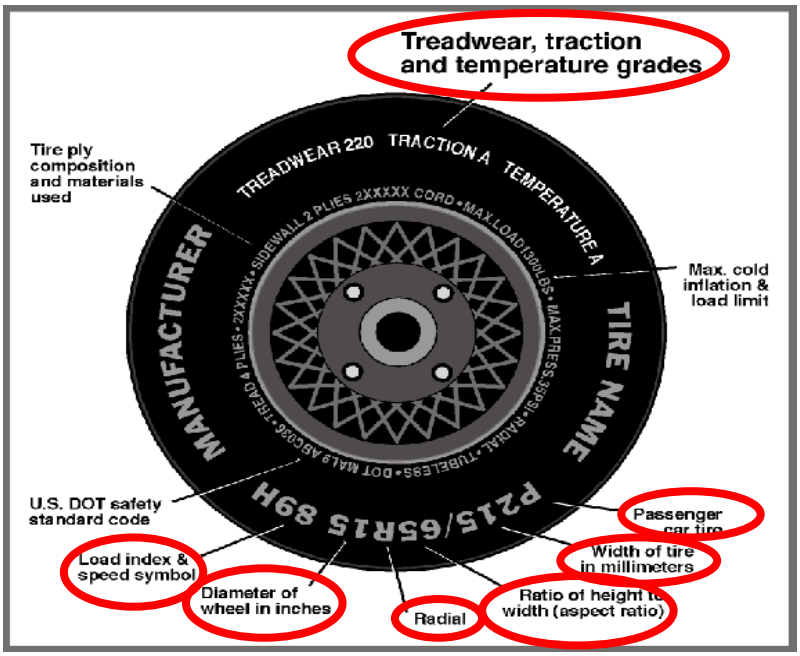
DATA FROM CERTIFICATION LABEL			
Manufacturer	Ford Motor Company	GVWR (kg)	2794
Date of Manufacture	August 2011	GAWR Front(kg)	1397
Vehicle Type	SUV	GAWR Rear (kg)	1497

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION					
	Front	**Rear**	**Third**	**Total**	
Designated Seating Capacity (DSC)	2	3	2	7	
Capacity Weight (VCW) kg				727.6	(A)
DSC X 68.04 kg				476.3	(B)
Rated Cargo Weight (RCLW)				136.1*	(A-B)

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

VEHICLE SEAT TYPE							
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat			X	X	X		
Third Row Seat			X	X	X		

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



TIRE PLACARD INFORMATION		
Measured Parameter	**Front**	**Rear**
Recommended Cold Tire Pressure (kPa)	240	240
Recommended Tire Size	P245/65R17	P245/65R17

TIRE SIDEWALL INFORMATION		
Measured Parameter	**Front**	**Rear**
Max. Tire Pressure (kPa)	350	350
Tire Size on Vehicle	P245/65R17	P245/65R17
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Fortera HL	Fortera HL
Tire Type	Passenger	Passenger
Tire Width	245	245
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index/Speed Symbol	105T	105T
Treadware	540	540
Traction Grade	A	A
Temperature Grade	B	B
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon

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

TIRE PRESSURES					
	Units	**LF**	**RF**	**LR**	**RR**
As Delivered	kpa	239.9	239.9	238.6	239.9
Tire Placard	kpa	240	240	240	240
Owner's Manual	kpa	240	240	240	240
As Tested	kpa	240	240	240	240

TEST VEHICLE AXLE WEIGHTS										
	Units	**As Delivered (UVW)**			**As Tested (ATW)**			**Fully Loaded**		
		Front	**Rear**	**Total**	**Front**	**Rear**	**Total**	**Front**	**Rear**	**Total**
Left	kg	555.2	461.8		592.8	508.5		558.4	557.0	
Right	kg	563.4	431.7		577.9	511.7		560.2	522.1	
Ratio	%	55.6	44.4		53.4	46.6		50.9	49.1	
Totals	kg	1118.6	893.5	2012.1	1170.7	1020.2	2190.9	1118.6	1079.1	2197.7

TARGET TEST WEIGHT CALCULATION			
	Units		
Total Delivered Weight (UVW)	kg	2012.1	(A)
Sum of Actual Weight of 1 P572 ATDs (SID-IIs) Used	kg	49.5	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136.1	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	2197.7	(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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW	
Ballast	**Weight (kg)**
Steel Plates added to non-struck rear floor	90

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

TEST VEHICLE ATTITUDES AND CG					
	Units	**As Delivered**	**As Tested**	**Fully Loaded**	**Meets Requirement**
Driver Door Sill Angle (Front to Rear)*	Deg.	-0.5	-0.5	-0.5	Yes
Front Pass. Door Sill Angle (Front to Rear)*	Deg.	-0.8	-0.8	-0.7	Yes
Front Bumper Angle (Left to Right)	Deg.	0.6	0.6	0.6	Yes
Rear Bumper Angle (Left to Right)	Deg.	0.3	0.3	0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1272	1334	1407	
Vehicle CG Left (+) / Right (-) from Long. Centerline)	mm	11	5	15	

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

SCRL ANGLE RANGE			
	SCRL (°)		
	Max	**Min**	**Mid**
Driver Seat	6.0	-1.0	4.0
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat			

SCRL ANGLE RANGE						
Seat	**As Tested SCRL Angle (Mid) (°)**	**As Tested SCRP Height (mm)**	**SCRP Height Position**	**SCRP Height (mm)**		
				Rearmost	**Mid-Fore/Aft**	**Forward-Most**
Driver's Seat	4.0	-35.8	Max	-25.1	-29.7	-35.8
	4.0	-5.70	Mid	5.93	0.9	-5.70
	4.0	25.2	Min	37.1	31.5	25.2
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Front Center Seat*			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat*			Max			
			Mid			
			Min			

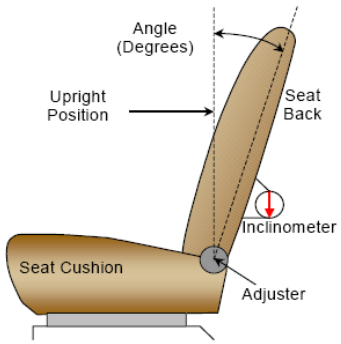
*If applicable

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

SEAT FORE/AFT TRAVEL				
Seat	**Total Fore/Aft Travel**		**Test Position from Forward-most Position**	
	mm	**Detents***	**mm**	**Detents***
Driver Seat	272	N/a	0	N/a
Front Passenger Seat	252	56	0	
Front Center Seat*				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*				

*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 5th 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.



FRONT SEAT ASSEMBLY

SEAT BACK ANGLE ADJUSTMENT				
Seat	**Total Seat Back Angle Range**		**Test Position from Most Upright**	
	Degrees	**Detents***	**Degrees**	**Detents***
Driver Seat w/ Seated Dummy	Not-Measured	Not-Measured	12.7	6
Front Passenger Seat	Not-Measured	Not-Measured	12.4	6
Front Center Seat*				
Struck Side Rear Seat	Fixed	N/a	Fixed	N/a
Non-Struck Side Rear Seat	Fixed	N/a	Fixed	N/a
Rear Center Seat*				

*If applicable

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

Seat Belt Anchorage Adjustment
Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

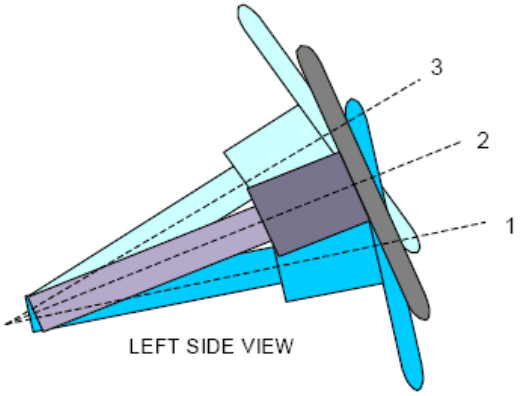
SEAT BELT ANCHORAGE ADJUSTMENT (D-RING)		
	Total No. of Positions	**Placement**
Driver Seat	4	Highest Position

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

SEAT BELT ANCHORAGE ADJUSTMENT (D-RING)		
	Total No. of Positions	**Placement**
Driver Seat	3	Lowest Position

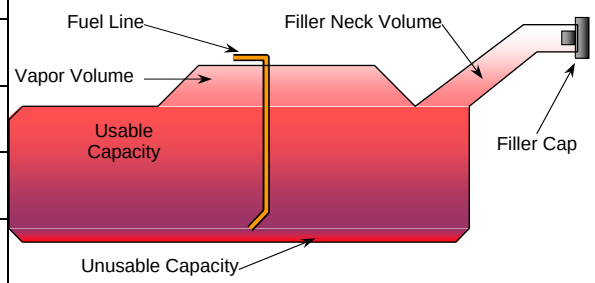
Steering Column Adjustment
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

STEERING COLUMN ADJUSTMENT			
	Degrees	**Fore/Aft Position (mm)**	
Lowermost, Pos. No. 1	28.3°	25 mm	
Geometric Center, Pos. No. 2	31.3°	25 mm	
Uppermost, Pos. No. 3	34.2°	25 mm	
Telescoping Steering Wheel Travel	N/a	50 mm	
Test Position	31.3°	25 mm	



STEERING COLUMN ASSEMBLY

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

FUEL TANK CAPACITY DATA			
Description	**Units**	**Value**	
Usable Capacity of Standard Equipment Fuel Tank	L	70.4	
Usable Capacity of Optional Equipment Fuel Tank	L	0.0	
Usable Capacity of Standard Tank as Specified in Owner's Manual	L	70.4	
Usable Capacity of Optional Tank as Specified in Owner's Manual	L	0.0	
Amount of Stoddard Added for Test	L	65.9	
% Usable Capacity (92%-94%)	%	93.6	
1/3 of Usable Capacity	23.5		

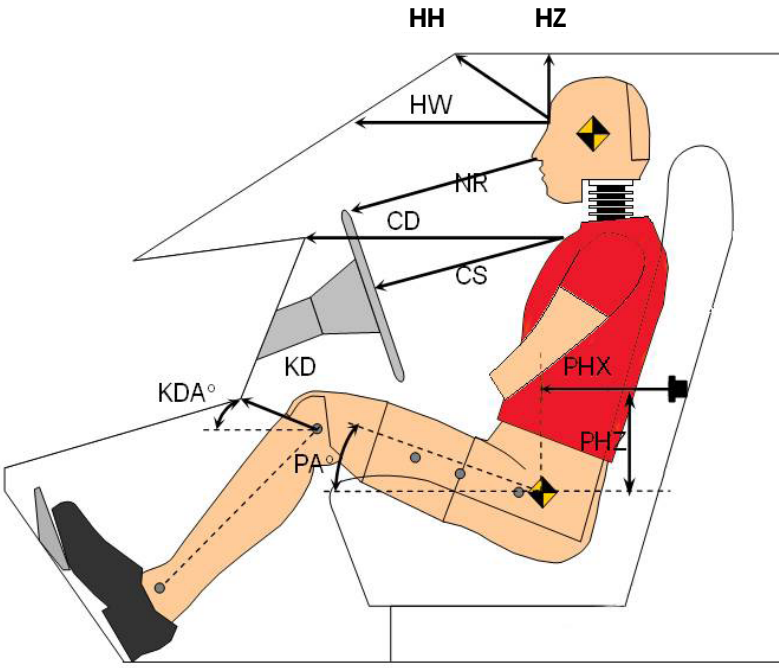
VEHICLE FUEL TANK ASSEMBLY

Fuel Pump
The vehicle is equipped with an electronic fuel pump. Key is "ON" position. The fuel pump is on the left side.

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

Yes

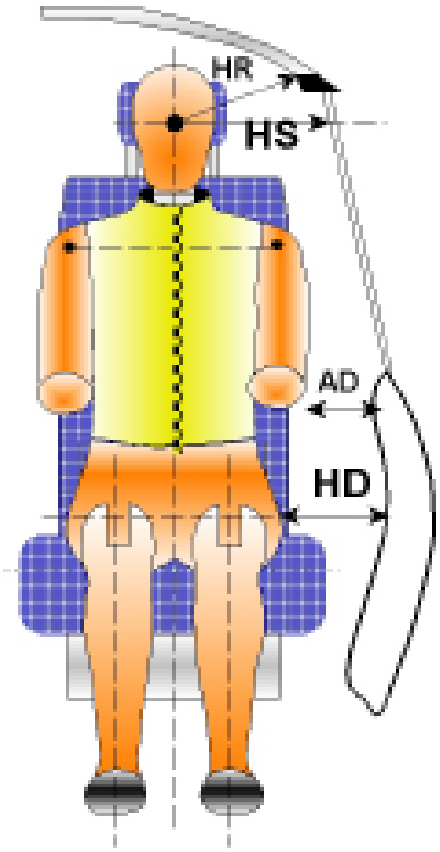
DATA SHEET NUMBER NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



Left Side View

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS			
Code	**Measurement Description**	**Driver**	
		Length (mm)	**Angle (°)**
HH	Head to Header	344	
HW	Head to Windshield	724	
HZ	Head to Roof	274	
NR	Nose to Rim	273	
CD	Chest to Dashboard	423	
CS	Chest to Steering Wheel	145	
KDL	Left Knee to Dash	93	
KDAL	Left Knee to Dash		24.9°
KDR	Right Knee to Dash	87	
KDAR	Right Knee to Dash		30.2°
PAX	Pelvic Tilt Angle (X-Axis)		0.0°
PAY	Pelvic Tilt Angle (Y-Axis)		20.1°
PHX	H-Point to Striker (X-Axis)	376.9	
PHZ	H-Point to Striker (Z-Axis)	90.3	

DATA SHEET NUMBER NO. 4
DUMMY LATERALL CLEARANCE DIMENSIONS

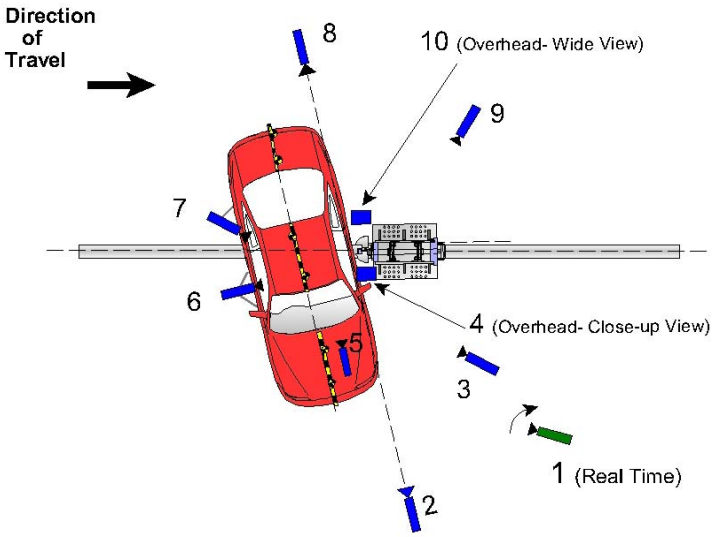


Front View of Dummy

DUMMY LATERAL CLEARANCE DIMENSIONS		
Code	**Measurement Description**	**Length (mm)**
HR	Head to Side Header	317
HS	Head to Side Window	444
AD	Arm to Door	173
HD	Hip Point to Door	185

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Camera Locations and Data



	View	Coordinates †			Lens Length	Operating Frame Rate
		X	Y	Z		
		mm	mm	mm	mm	fps
1	Rear Time (24 – 30 fps) Pan View of Impact				N/a	24
2	Front ground Level – Impact View	10973	-1372	-1310	50	1000
3	Impact Side 45° - Forward View of Pole	8230	-2743	-1457	35	1000
4	Overhead Close – Up View of Impact	28	367	-5906	12.5	1000
5	Onboard – Dummy Front View				25	1000
6	Onboard – Dummy Side View				12.5	1000
7	Onboard – Dummy Rear Oblique View				12.5	1000
8	Rear Ground Level – Impact View	-10058	-3200	-1334	50	1000
9	Impact Side 45° - Rearward Pole View	-5944	-6858	-1371	35	1000
10	Overhead Wide – View Impact	102	45	-5889	8	1000
11	Real – Time (24 – 30 fps)Dummy Front View				25	24

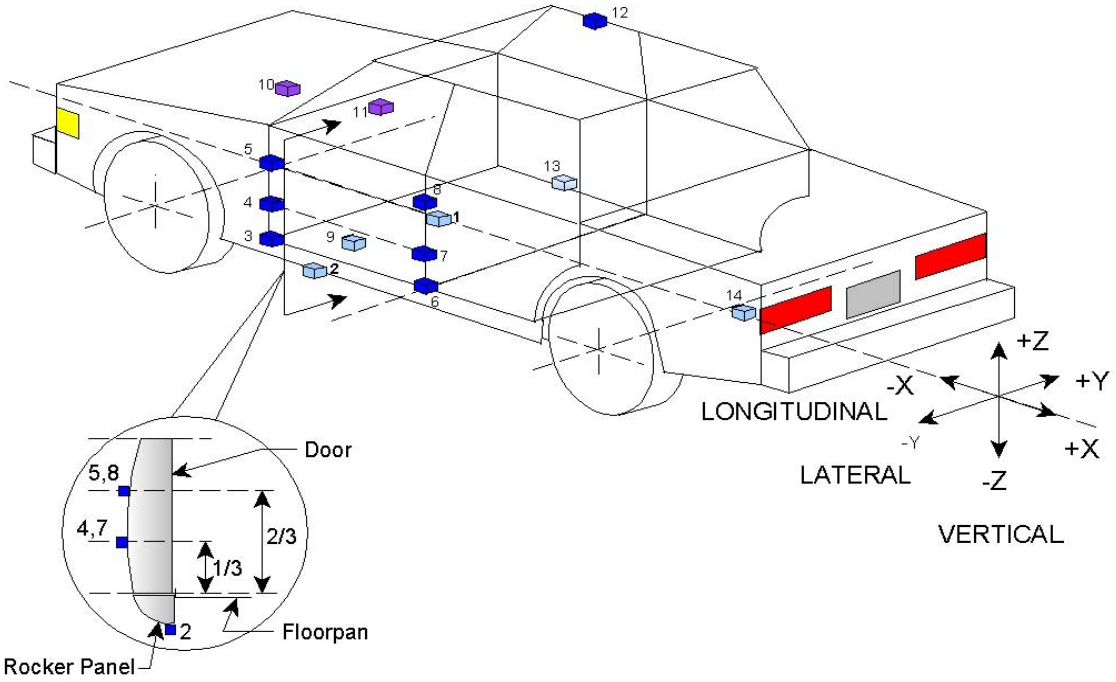
Origin		Orientation	
X	Impact Point	X	+(X) Forward
Y	Impact Point	Y	+(Y) Right
Z	Ground	Z	+(Z) Down

**All measurements accurate to +/- 6 mm*
Note: Vehicle was at a 15° angle to the rigid pole

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA (CONTINUED)

INSTRUMENTATION	
	Number of channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
Total No. of Data Channels	42

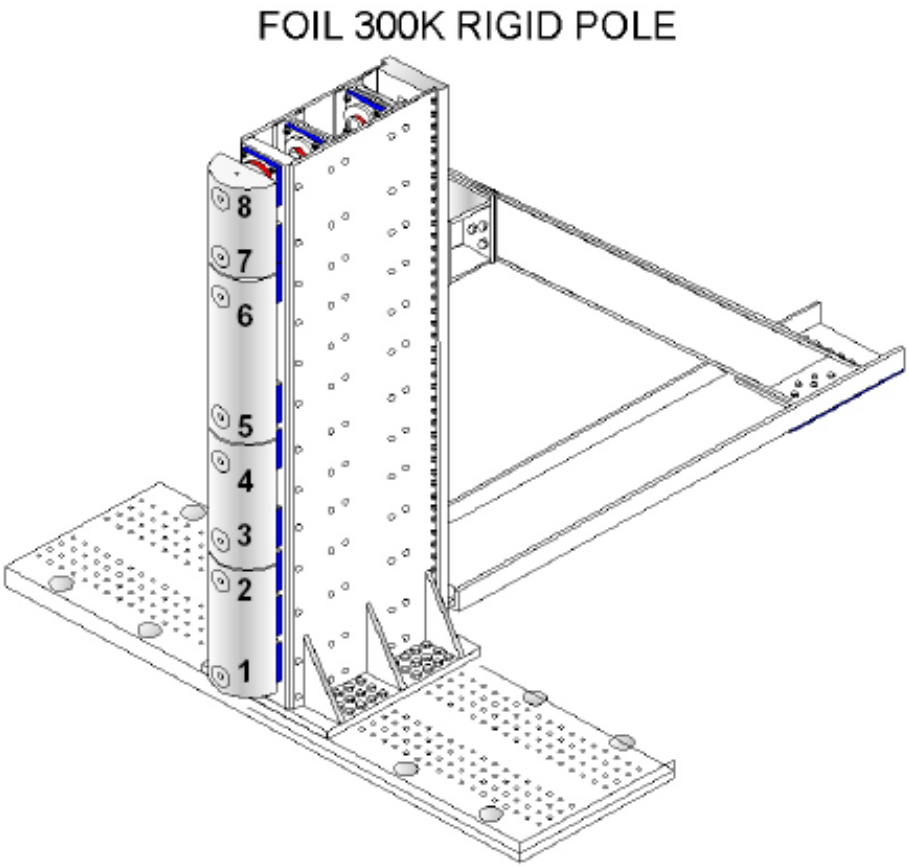
DATA SHEET NO. 6
VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER/SENSOR LOCATION				
Loc. no.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3023.3	70.2	-565.0
2	Left Floor Sill	3168.0	-810.7	-280.5
3	A-Pillar Sill	3424.9	-917.4	-523.5
4	A-Pillar Low	3507.5	-947.2	-779.6
5	A-Pillar Mid	3442.3	-903.8	-921.4
6	B-Pillar Sill	2392.2	-915.4	-559.3
7	B-Pillar Low	2388.5	-908.5	-742.1
8	B-Pillar Mid	2397.5	-908.6	-891.9
9	Driver Seat Track	2964.4	-610.1	-546.5
10	Engine Top	4316.3	80.1	-909.4
11	Firewall	3941.7	-134.1	-967.9
12	Right Roof	2260.9	667.1	-1036.1
13	Right Floor Sill	2678.3	777.7	-293.0
14	Rear Floorpan	1264.5	-4.67	-684.4

Origin		Orientation	
X	Test Vehicle Rear Bumper	X	+ Forward
Y	Test Vehicle Centerline	Y	+ Right
Z	Ground Plane	Z	+ Down

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA



LOAD CELL LOCATIONS	
ID	**Height From Ground (mm)**
1	77
2	477
3	632
4	969
5	1167
6	1638
7	1808
8	2030

*Measured From Top of Platform

DATA SHEET NUMBER NO. 8
POST TEST OBSERVATIONS

TEST DUMMY INFORMATION AND CONTACT POINTS	
Dummy Body Part	**Driver SID-IIs Dummy**
Face	To Side Curtain Airbag
Top of Head	To Side Curtain Airbag
Left Side of Head	To Side Curtain Airbag
Back of Head	Along Head Rest To Side Curtain Airbag
Left Shoulder	To Side Airbag
Upper Torso	To Side Airbag
Lower Torso	To Side Airbag
Left Hip	To Side Airbag
Left Knee	To Interior 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

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

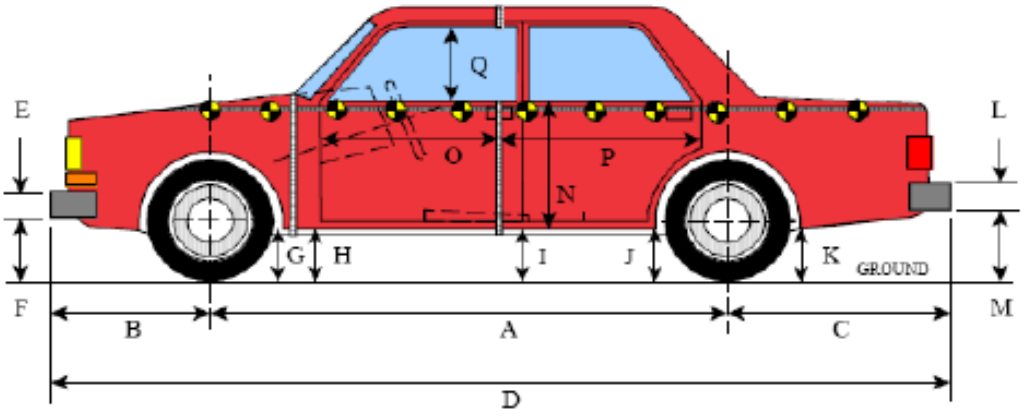
DATA SHEET NUMBER NO. 8
POST TEST OBSERVATIONS (CONTINUED)

POST TEST STRUCTURAL OBSERVATIONS	
Critical Areas of Performance	**Observations/Conclusions**
Pillar Performance	No Separation
Sill Separation	Max Sill Separation of 73 mm Along Top of Door at B-pillar; Door Remained Latched
Windshield Damage	Cracking Along Entire Windshield
Window Damage	No Damage
Other Notable Effects	None Noted

SUPPLEMENTAL RESTRAINT INFORMATION				
Restraint Type	**Struck Side Driver**		**Struck Side Rear Passenger**	
	Mounted	**Deployed**	**Mounted**	**Deployed**
Frontal Airbag	Yes – Steering Wheel	Did Not Deploy		
Knee Airbag	No	N/a		
Side Curtain Airbag	Yes – Side Header	Deployed Properly	Yes – Side Header	Deployed Properly
Side Torso/Abdomen/Pelvis Airbag	Yes – Seat Back	Deployed Properly	No	N/a
Seat Belt Pretensioner	Yes	Deployed Properly	Yes	Did Not Deploy
Seat Belt Load Limiter	Yes	N/a	No	N/a
Other	No	N/a	No	N/a

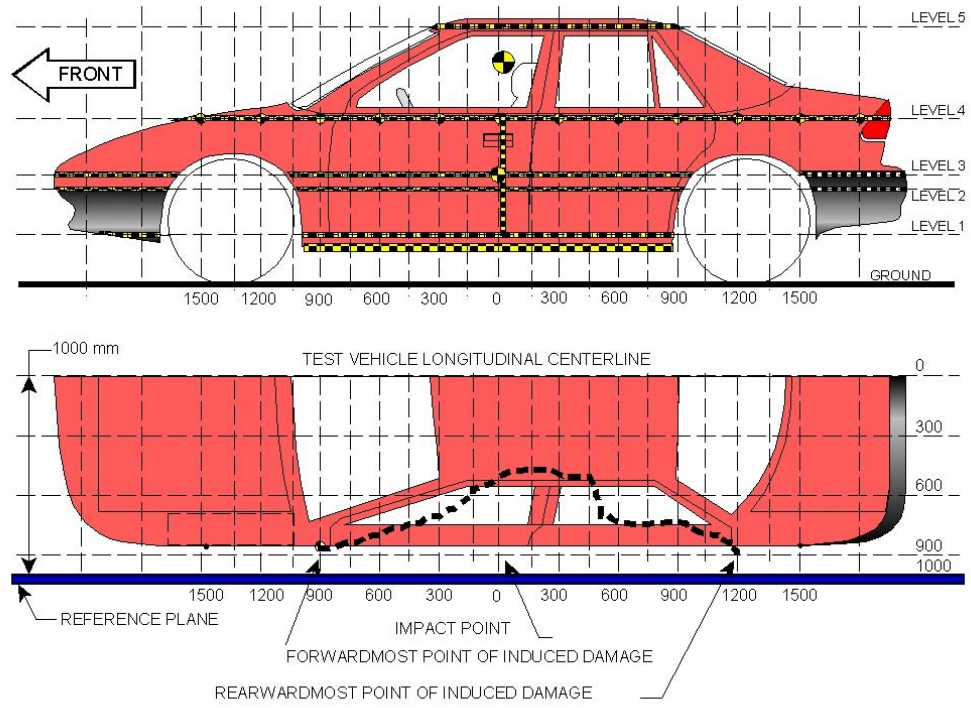
IMPACT SPEED			
Measured Parameter	**Units**	**Tolerance**	**Value**
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1110
Actual Impact Point (Aft of Front Axle)	mm		1114
Horizontal Offset (+ forward / - rear)	mm	+/- 38 of Intended Impact Point	-4
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.0
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.0

DATA SHEET NUMBER NO. 9
VEHICLE PROFILE MEASURMENTS



VEHICLE PRE- AND POST- TEST MEASUREMENT INFORMATION				
Code	**Description**	**Pre Test**	**Post Test**	**Difference**
		mm	**mm**	**mm**
A	Wheelbase	2865	2730	-135
B	Front Axle to FSOV	777	772	-5
C	Rear Axle to RSOV	993	996	3
D	Total Length at Centerline	5009	4936	-73
E	Front Bumper Thickness	306	306	0
F	Front Bumper Bottom to Ground	347	383	36
G	Sill Height at Front Wheel Well	307	277	-30
H	Sill Height at Front Door Leading Edge	310	275	-35
I	Sill Height at B-Pillar	315	303	-12
J1	Sill Height at Rear Wheel Well	267	264	-3
J2	Pinch Weld Height at Rear Wheel Well	320	328	8
K	Sill Height Aft of Rear Wheel Well	383	388	5
L	Rear Bumper Thickness	258	258	0
M	Rear Bumper Bottom to Ground	441	430	-11
N	Sill Height to Window Bottom Sill	933	929	-4
O	Front Door Leading Edge to Impact C/L	805	725	-80
P	Rear Door Trailing Edge to Impact C/L	1409	1154	-255
Q	Front Window Opening	430	380	-50
R	Right Side Length	4635	4665	30
S	Left Side Length	4635	4498	-137
T	Vehicle Width at B-Pillar	1976	1835	-141

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS



NOTE: All measurements are in millimeters (mm)

MAXIMUM EXTERIOR CRUSH MEASUREMENTS				
Level	**Measurement Description**	**Height Above Ground (mm)**	**Maximum Exterior Static Crush (mm)**	**Distance from Impact (mm)**
1	Sill Top	293	487	0
2	Occupant Hip Point	727	558	0
3	Mid-Door	727	558	0
4	Window Sill	1152	495	0
5	Window Top	1651	338	0

Note: All vehicle measurements taken at the vertical impact reference line.

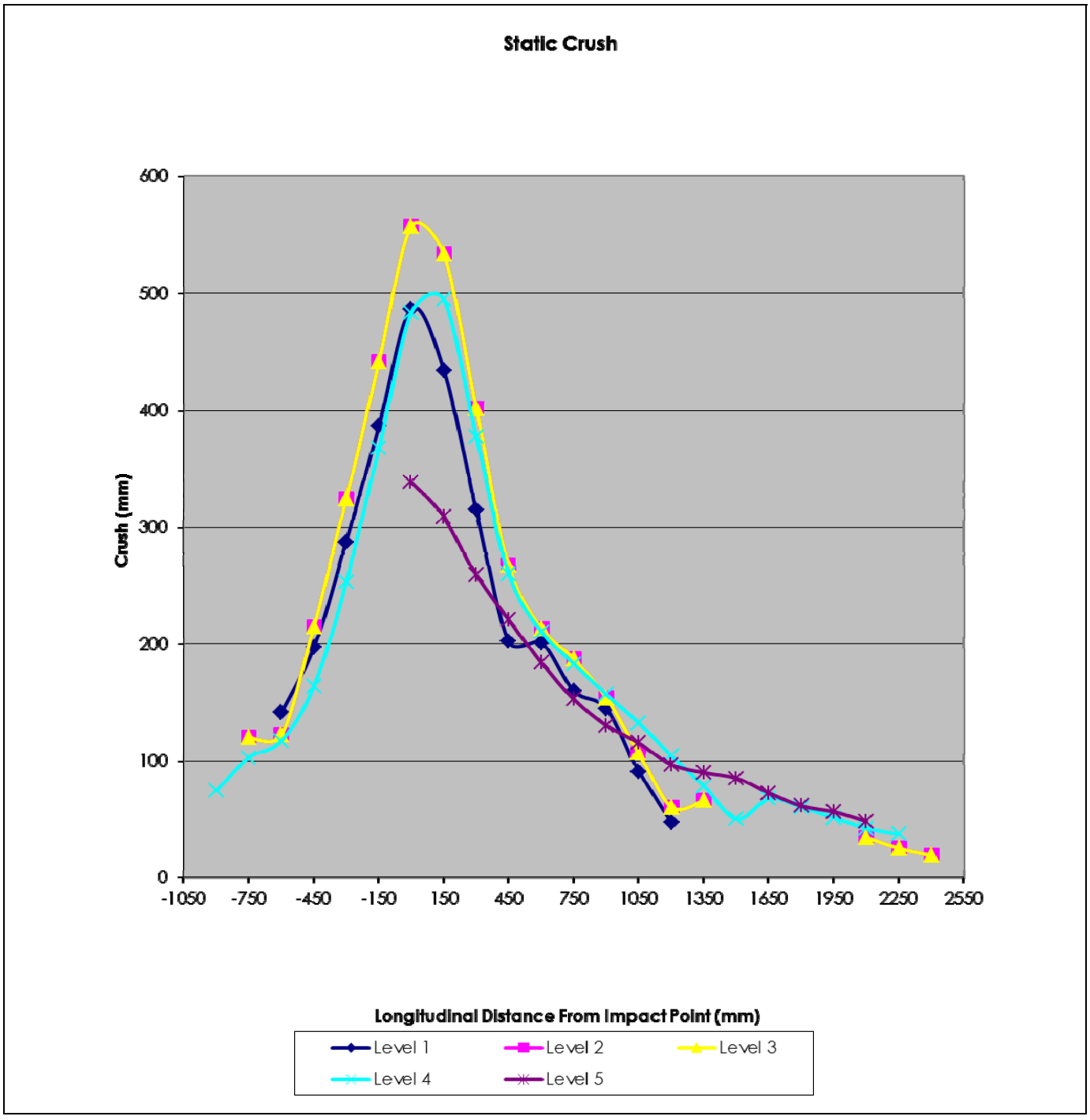
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS
(CONTINUED)

Note: All dimensions are in millimeters with a tolerance of ±3 mm

TEST VEHICLE STATIC CRUSH

Level		1			2			3			4			5		
		293			727			727			1152			1651		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1650															
	-1500				190	244	54	190	244	54	356	390	34			
	-1350										334	380	46			
	-1200										319	375	56			
	-1050										303	370	67			
	-900										292	366	74			
	-750				160	281	121	160	281	121	280	383	103			
	-600	243	385	142	177	300	123	177	300	123	270	388	118			
	-450	249	446	197	186	401	215	186	401	215	251	415	164			
	-300	249	536	287	185	509	324	185	509	324	253	506	253			
	-150	248	635	387	183	625	442	183	625	442	248	616	368			
	0	249	736	487	182	740	558	182	740	558	240	724	484	495	833	338
	150	250	685	435	182	716	534	182	716	534	231	726	495	473	782	309
	300	250	565	315	183	585	402	183	585	402	227	605	378	466	725	259
	450	248	450	202	185	452	267	185	452	267	222	482	260	465	686	221
	600	249	450	201	185	399	214	185	399	214	220	431	211	463	647	184
	750	250	410	160	185	372	187	185	372	187	219	402	183	462	615	153
	900	250	395	145	187	341	154	187	341	154	220	377	157	462	593	131
	1050	250	341	91	189	296	107	189	296	107	222	355	133	461	577	116
	1200	252	299	47	172	232	60	172	232	60	225	330	105	463	560	97
	1350				159	225	66	159	225	66	229	307	78	463	553	90
	1500										235	285	50	463	548	85
	1650										239	306	67	472	544	72
	1800										245	305	60	477	538	61
	1950										253	304	51	482	538	56
	2100				181	215	34	181	215	34	264	306	42	491	539	48
	2250				220	245	25	220	245	25	277	314	37			
	2400				253	272	19	253	272	19						

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

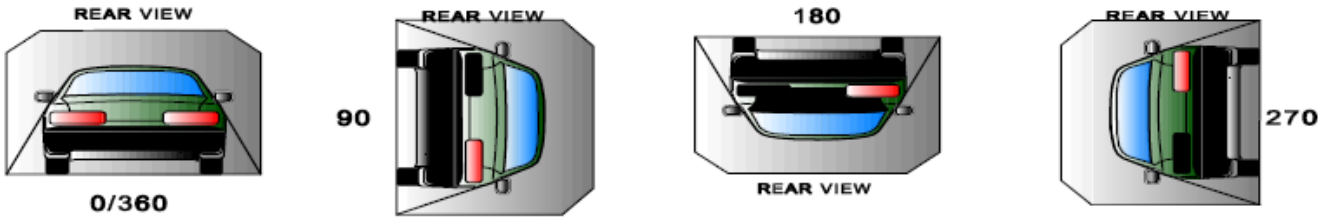


DATA SHEET NO. 11
FMVSS 301 STATIC ROLLOVER RESULTS

Temperature at Time of Impact: 24° C Test Time: 2:45 pm

STODDARD SOLVENT SPILLAGE MEASUREMENTS				
Period	**Description**	**Maximum Allowable Spillage**	**Spillage**	
			Amount	**Location**
A	From Impact Until Vehicle Motion Ceases	1 oz	0	N/a
B	5 Minutes After Vehicle Motion Ceases	5 oz	0	N/a
C	Next 25 Minutes	1 oz/minute	0	N/a
D				

FMVSS 301 STATIC ROLLOVER DATA



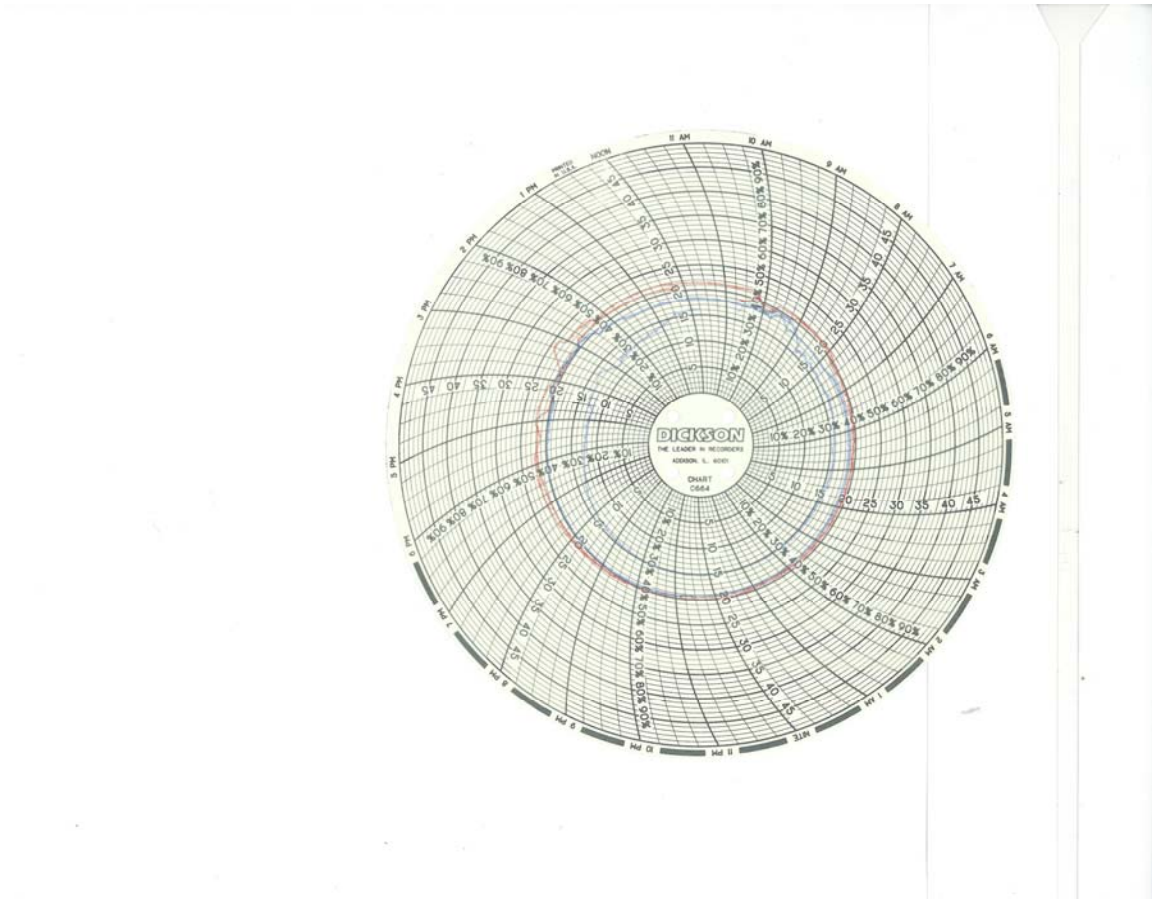
ROLLOVER SOLVENT COLLECTION TIME TABLE			
Test phase	**Rotation Time (sec.)**	**Hold Time (sec.)**	**Total Time (sec.)**
0° to 90°	64	300	364
90° to 180°	66	300	366
180° to 270°	69	300	369
270° to 360°	67	300	367

DATA SHEET NO. 11
FMVSS 301 STATIC ROLLOVER RESULTS (CONTINUED)

FMVSS NO. 301 ROLLOVER SPILLAGE TABLE				
	First Five Minutes (oz)	Sixth Minute (oz)	Seventh Minute (oz)	Eighth Minute (oz)
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

SPILLAGE LOCATION	
0° to 90°	N/a
90° to 180°	N/a
180° to 270°	N/a
270° to 360°	N/a

DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA



APPENDIX A

PHOTOGRAPHS

LIST OF PHOTOGRAPHS

LIST OF PHOTOGRAPHS (CONTINUED)

Figure 001: As Delivered Right Front 3-4 View of Test Vehicle

Figure 002: As Delivered Left Rear 3-4 View of Test Vehicle

Figure 003: Pre-Test Frontal View of Test Vehicle

Figure 004: Post-Test Frontal View of Test Vehicle

Figure 005: Pre-Test Left Front 3-4 View of Test Vehicle

Figure 006: Post-Test Left Front 3-4 View of Test Vehicle

Figure 007: Pre-Test Left Side View of Test Vehicle

Figure 008: Post-Test Left Side View of Test Vehicle

Figure 009: Pre-Test Left Rear 3-4 View of Test Vehicle

Figure 010: Post-Test Left Rear 3-4 View of Test Vehicle

Figure 011: Pre-test rear view of test vehicle

Figure 012: Post-Test Rear View of Test Vehicle

Figure 013: Pre-Test Right Side View of Test Vehicle

Figure 014: Post-Test Right Side View of Test Vehicle

Figure 015: Pre-Test Overhead View of Test Area

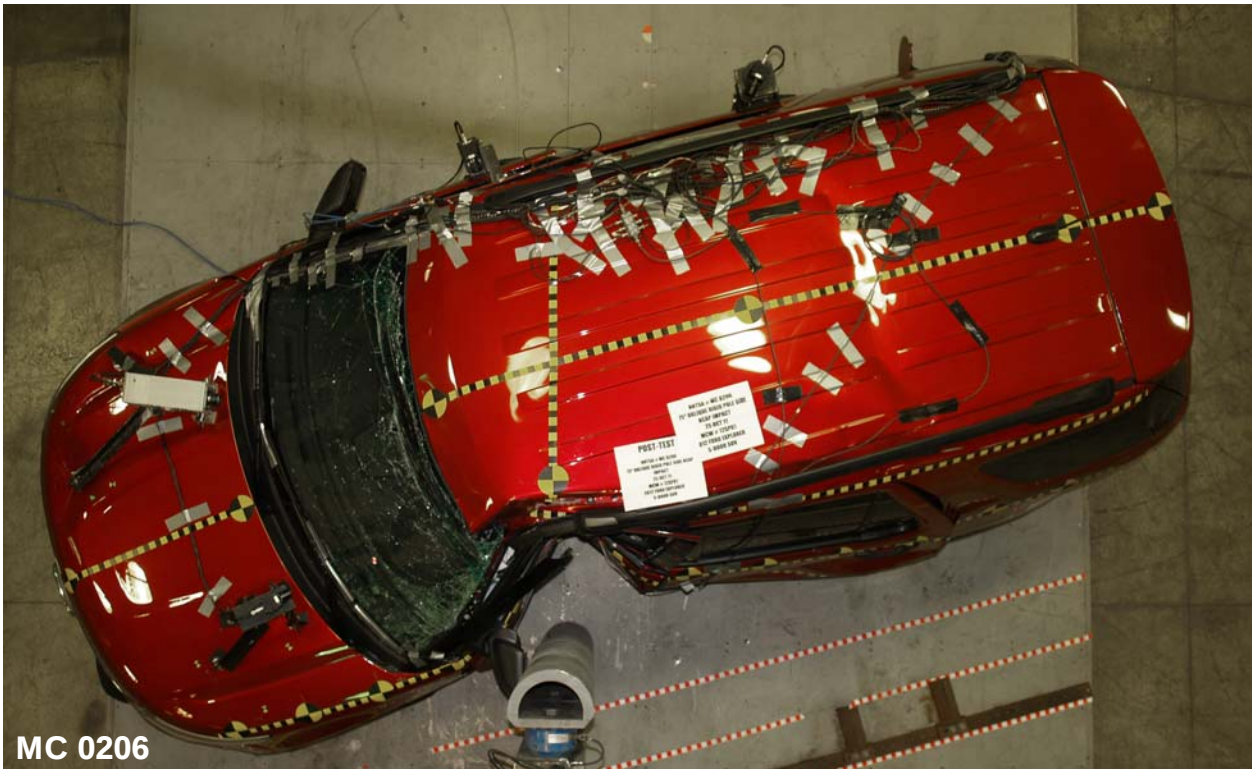


Figure 016: Post-Test Overhead View of Test Area

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

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

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

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

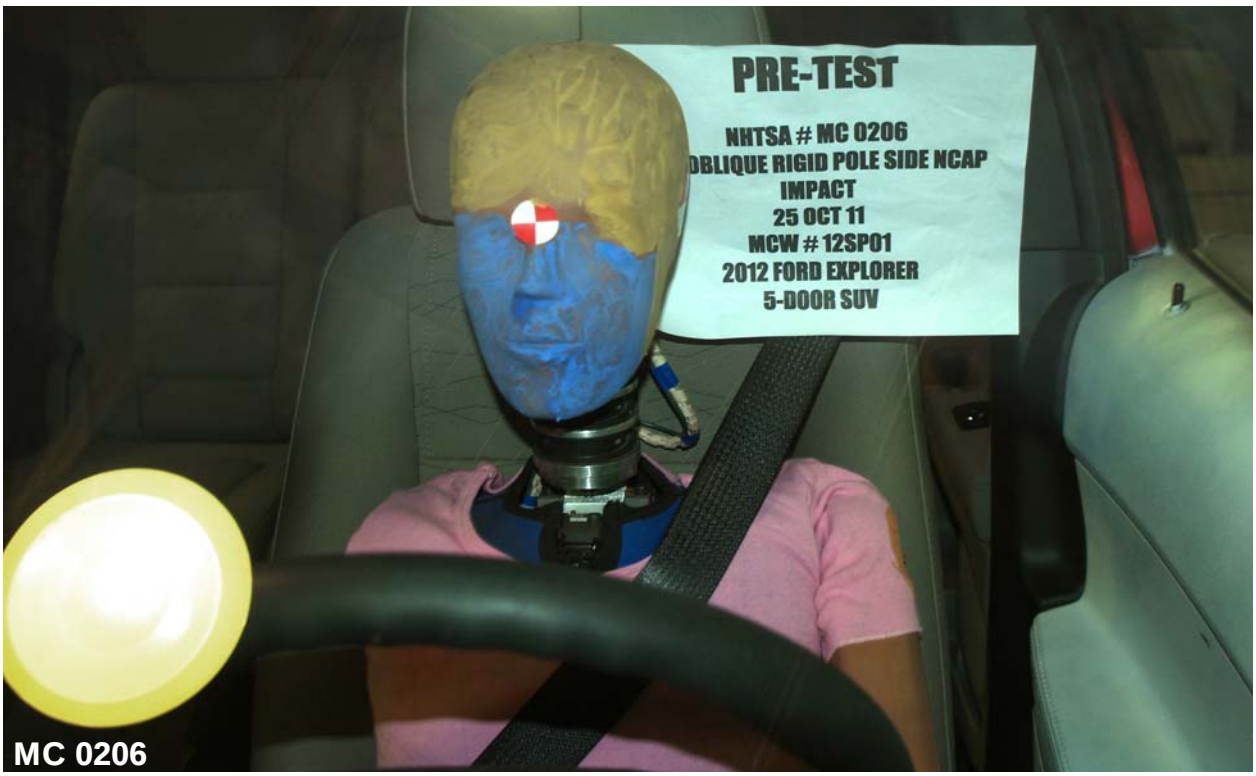


Figure 021: Pre-Test Front Close-Up View of Dummy Head and Chest

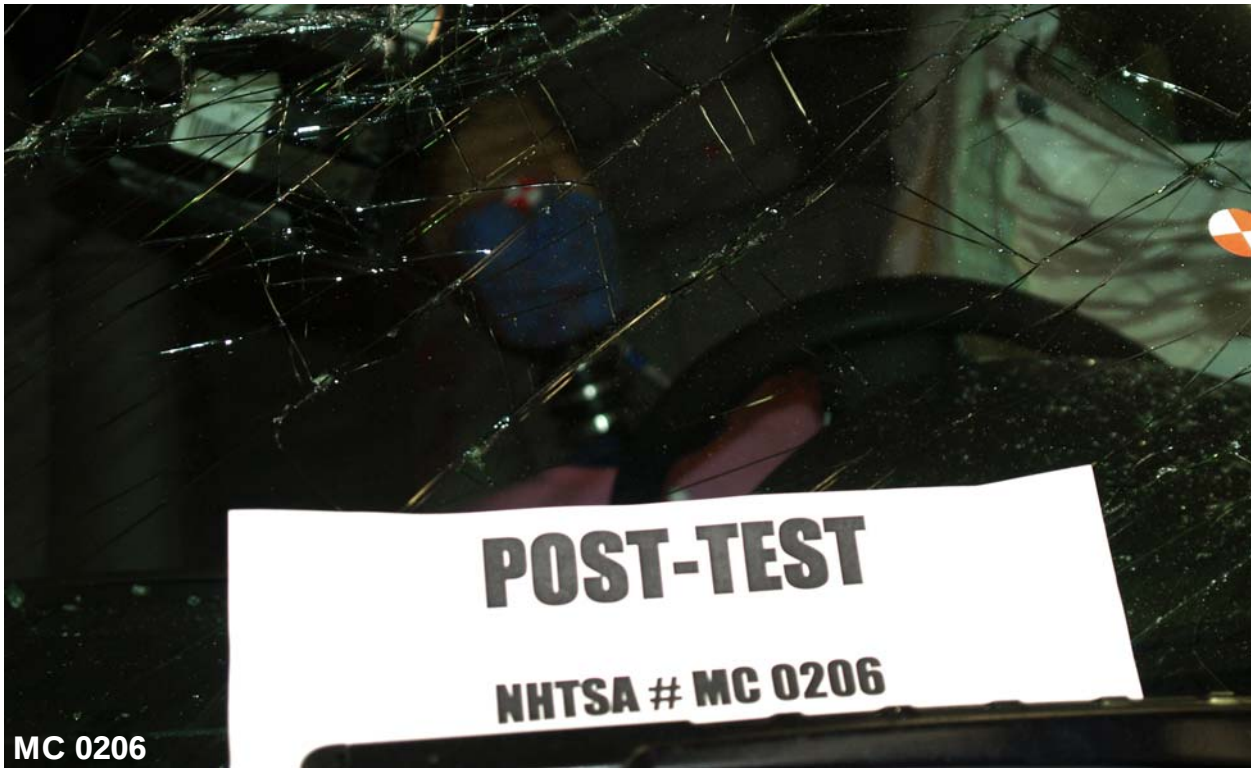


Figure 022: Post-Test Front Close-Up View of Dummy

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

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

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

Figure 026: Pre-Test Frontal View of Seat Back Prior to Dummy Positioning

Figure 027: Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint

Figure 028: Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning

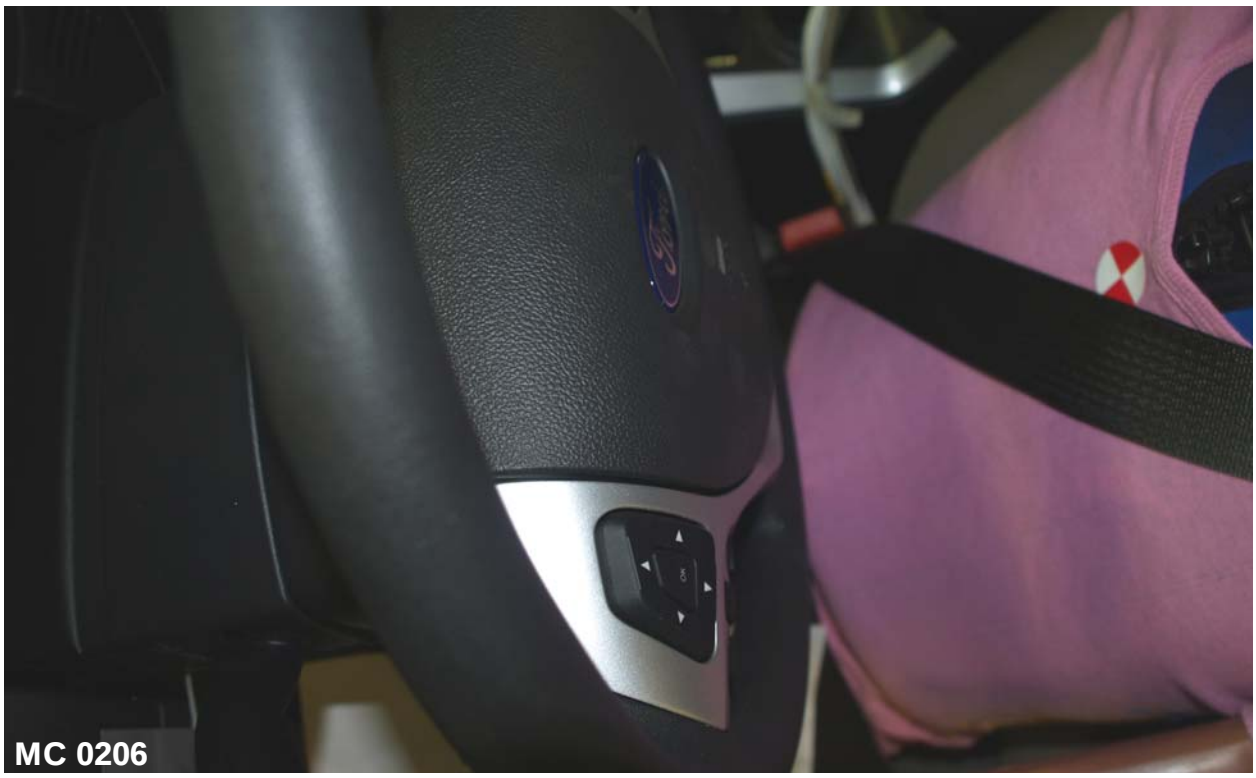


Figure 029: Pre-Test Overhead View of Dummy Thighs on Seat Pan

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

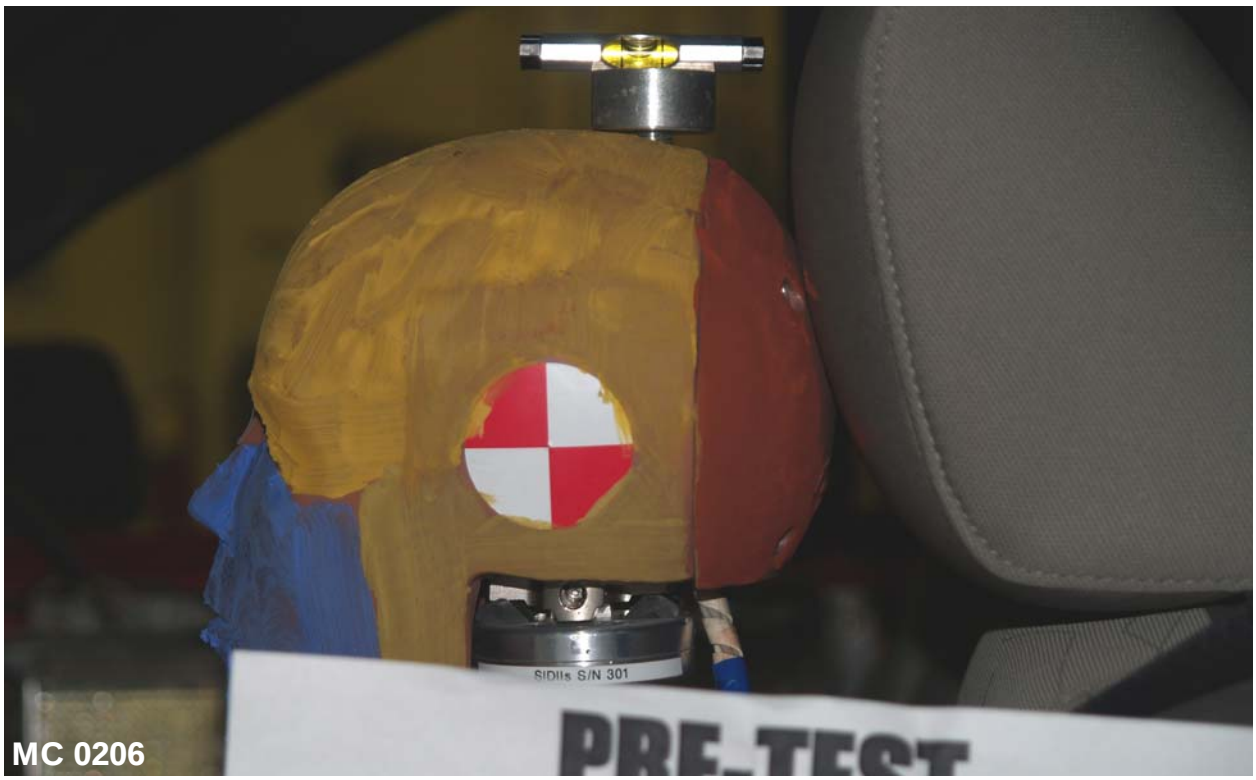


Figure 031: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level

Figure 032: Pre-Test Placement of Dummy's Feet

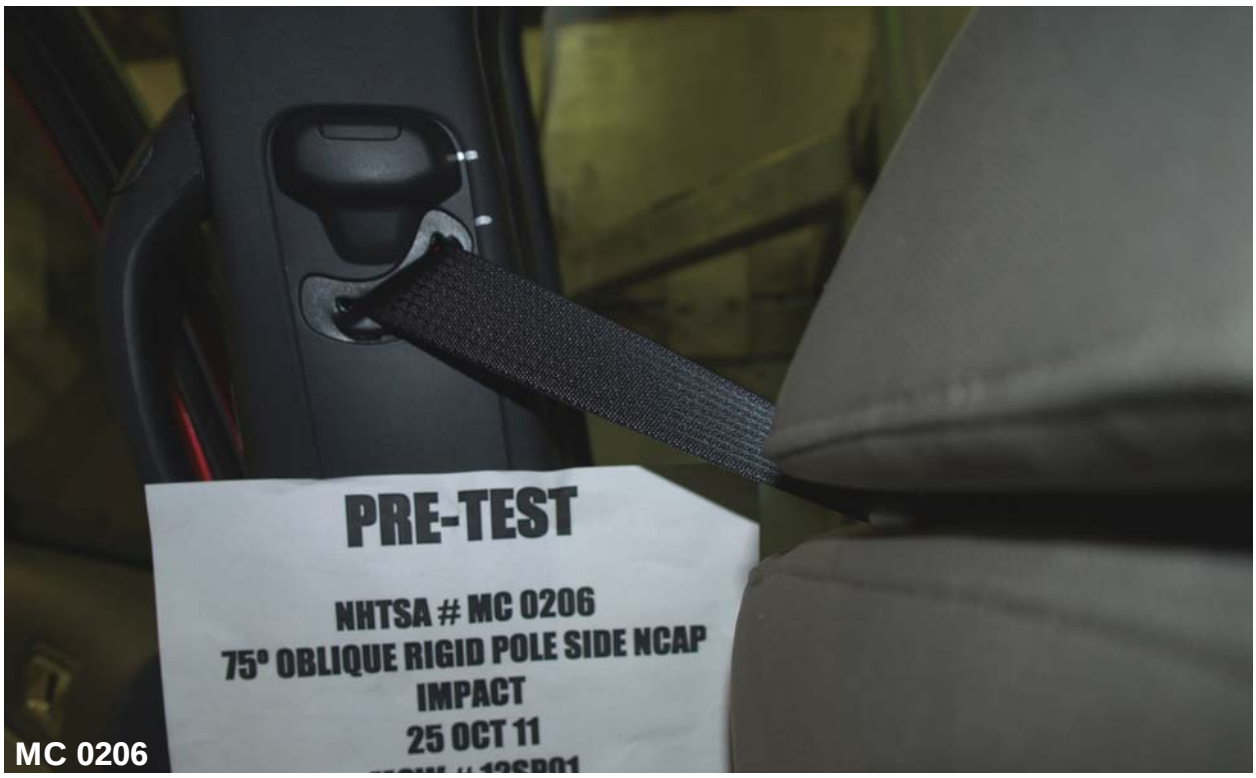


Figure 033: Pre-Test View of Belt Anchorage for Dummy

Figure 034: No. 034 - Pre-Test Left Side View of Steering Wheel

Figure 035: Pre-Test View of Disengaged Parking Brake

Figure 036: Pre-Test View of Parking Brake

Figure 037: Pre-Test Close-Up Left Side View of Drive Seat Track

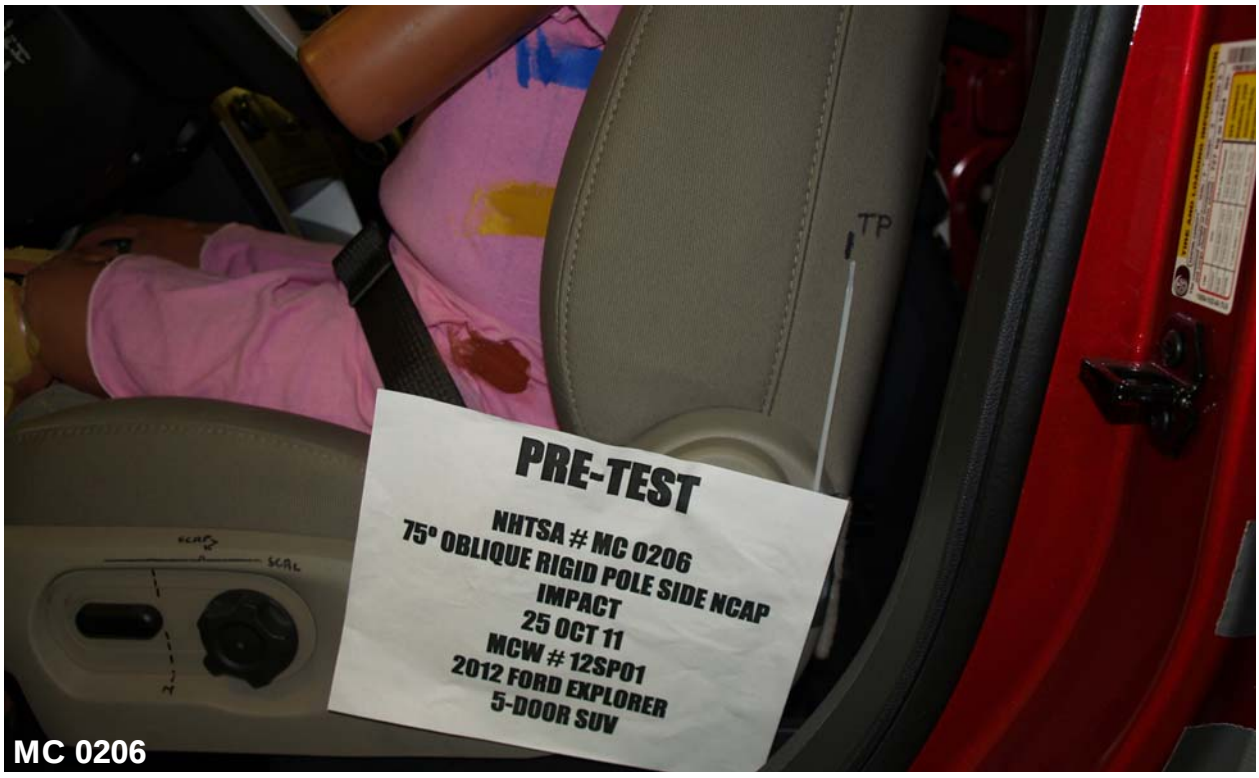


Figure 038: Pre-Test Close-Up Left Side View of Driver Seat Back

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

Figure 040: Pre-Test Dummy and Door Clearance View

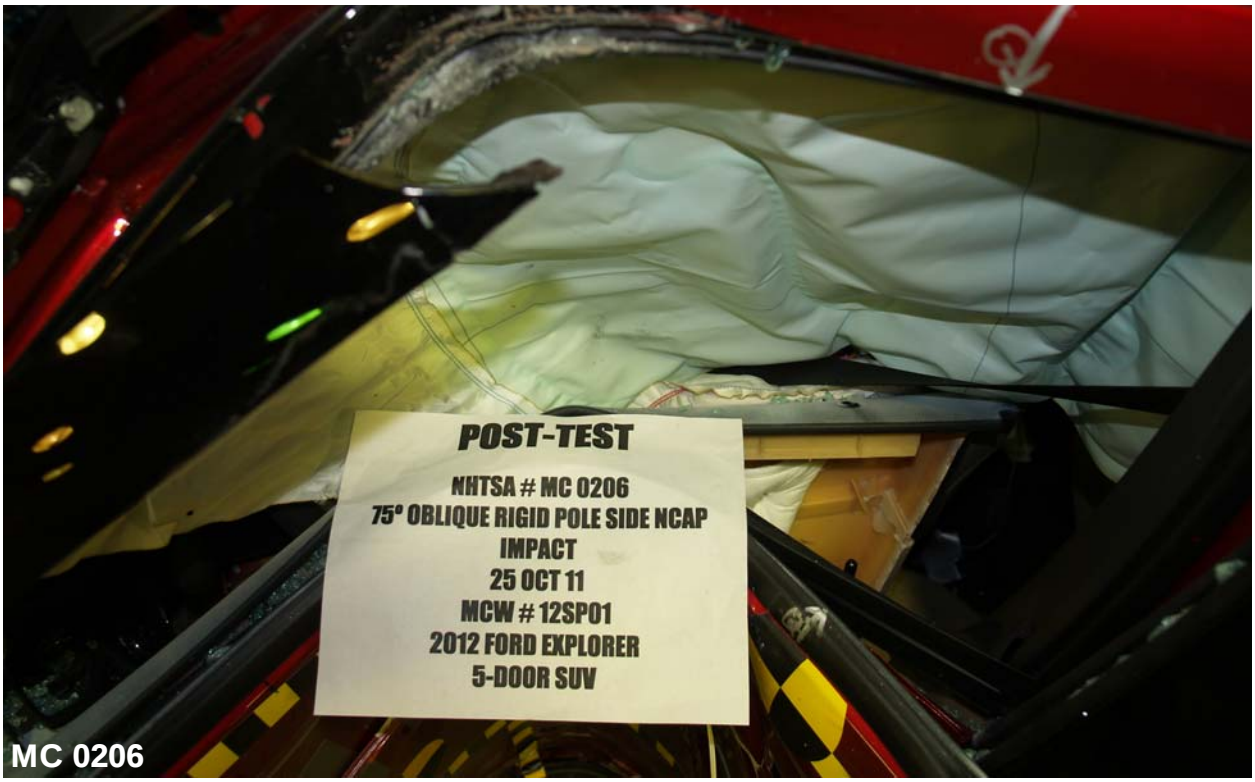


Figure 041: Post-Test Dummy and Door Clearance View

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

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

Figure 044: Pre-Test Inner Door Panel View

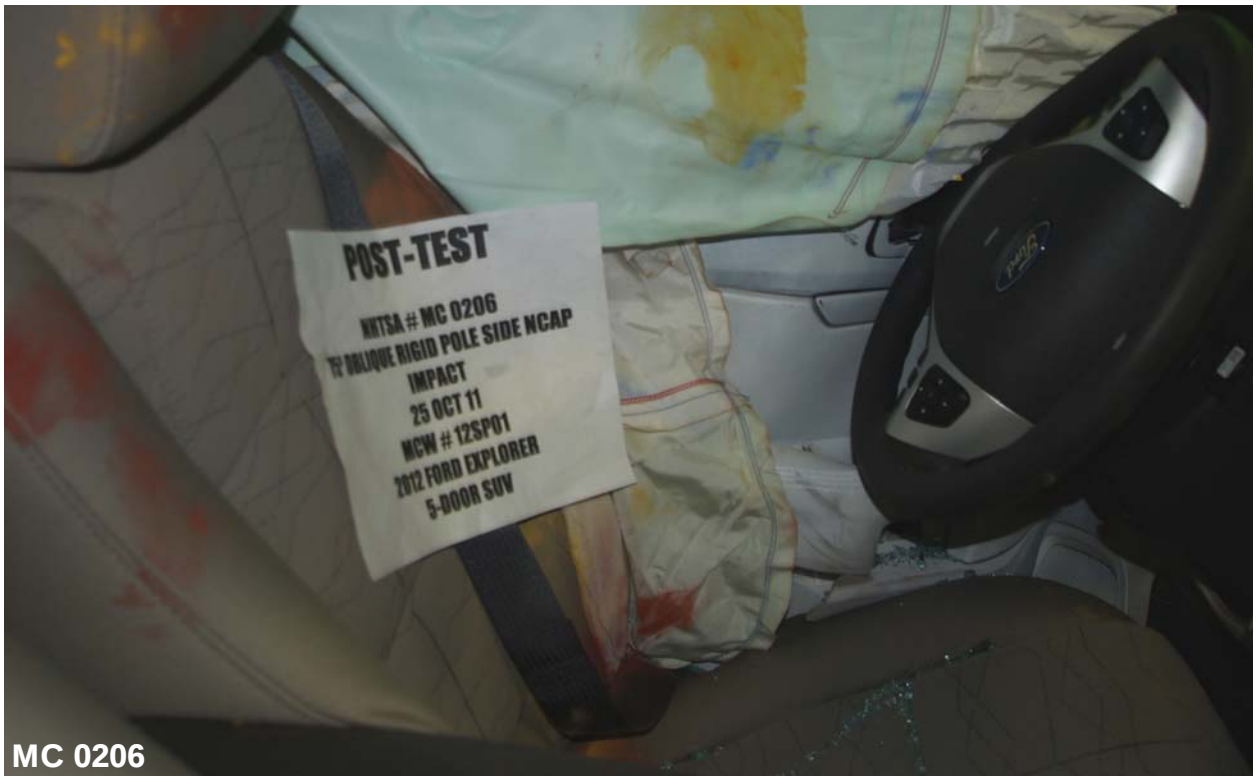


Figure 045: Post-Test Inner Door Panel View Showing Dummy Contact Locations

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

Figure 047: Post-Test Dummy Close-Up Head Contact with Side Air bag View

Not Applicable

MC 0206

Figure 048: Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View - N/a

Figure 049: Post-Test Dummy Close-Up Torso Contact with Side Air bag View

Not Applicable

MC 0206

Figure 050: Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View - N/a

Figure 051: Post-Test Dummy Close-Up Pelvis Contact with Side Air bag View

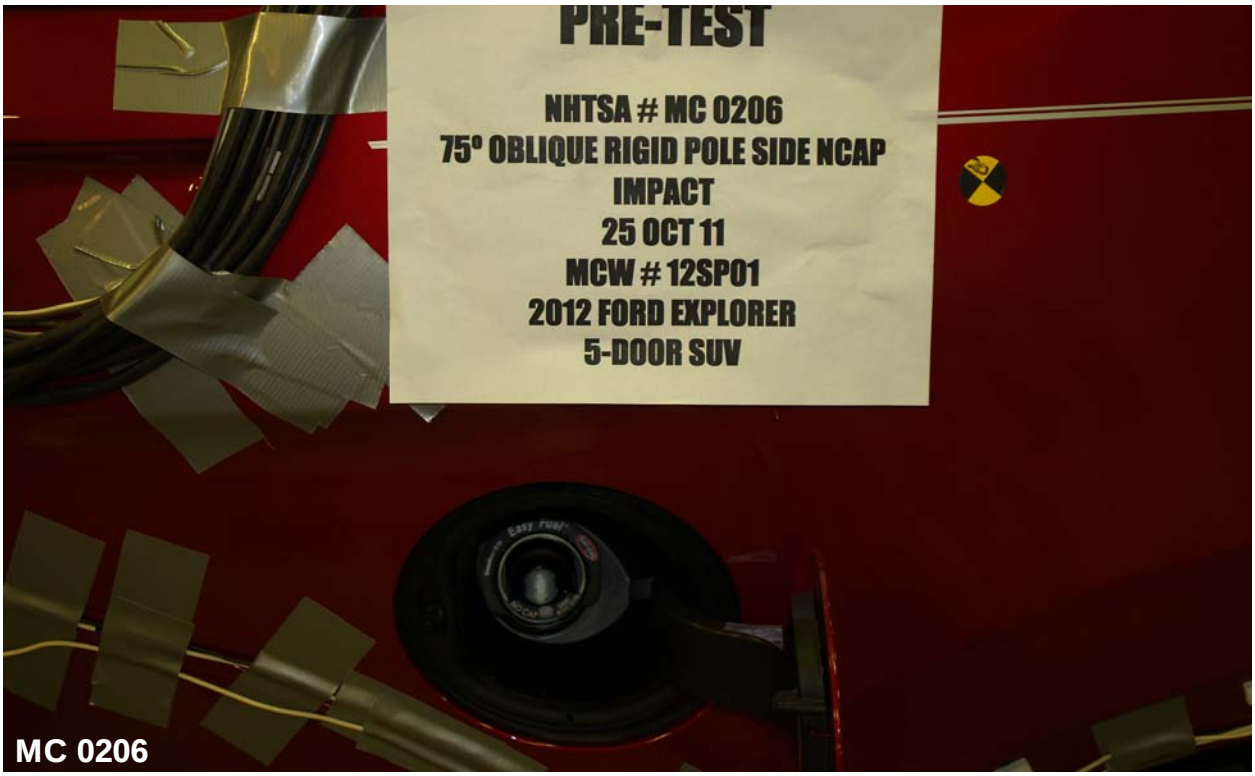


Figure 052: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

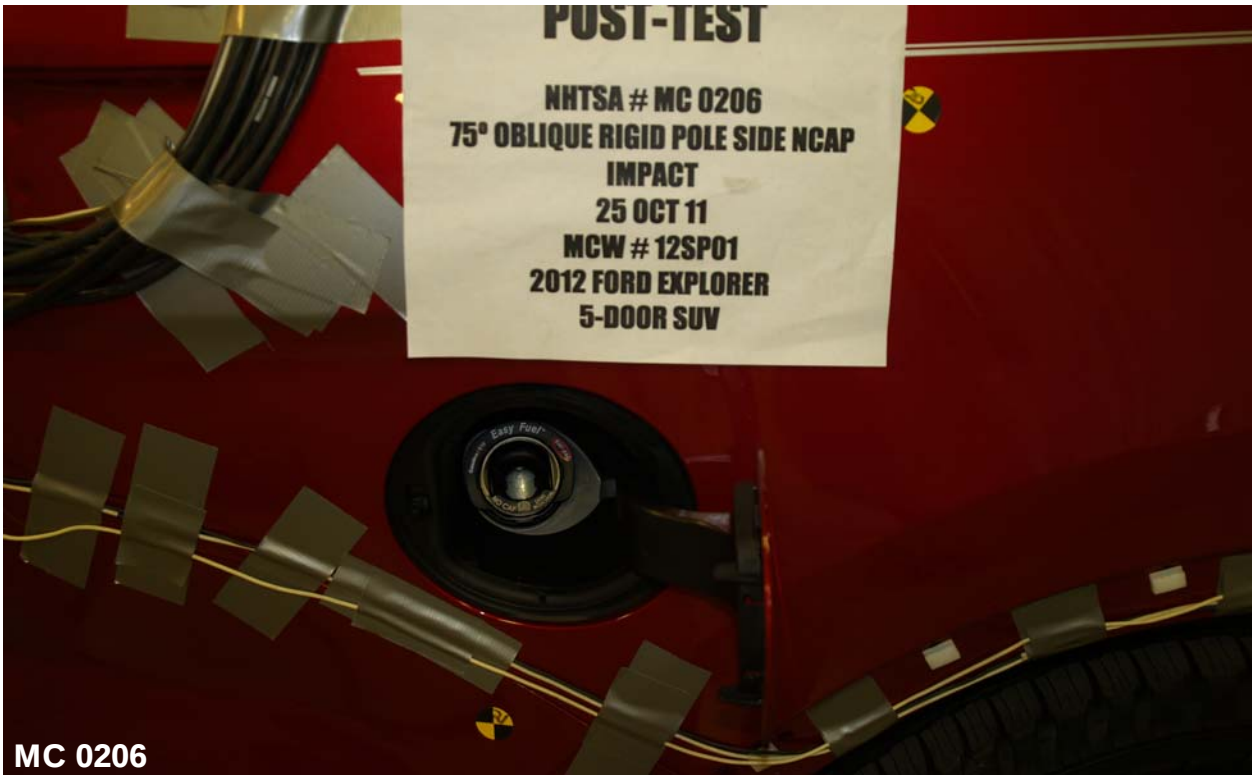


Figure 053: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

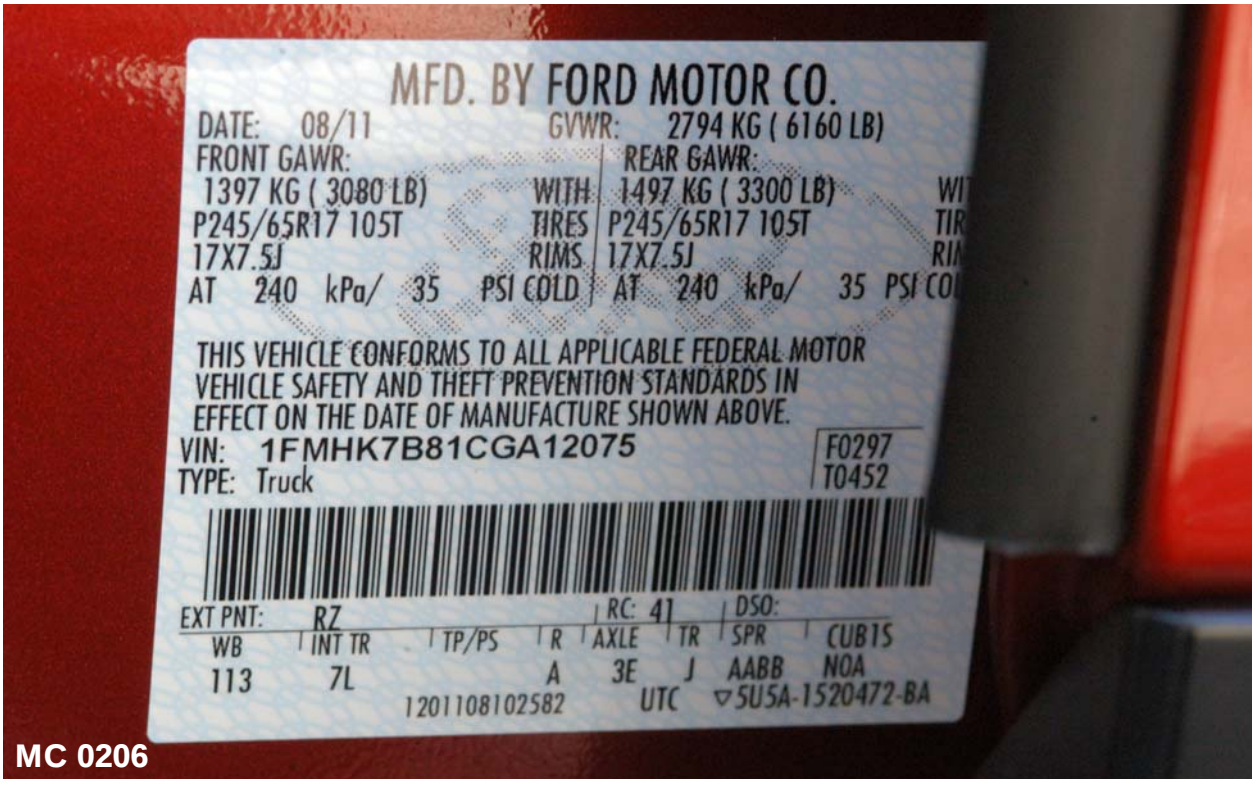


Figure 054: Close-Up View of Vehicle's Certification Label

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

Figure 056: Pre-Test Pole Barrier Front View

Figure 057: Post-Test Pole Barrier Front View

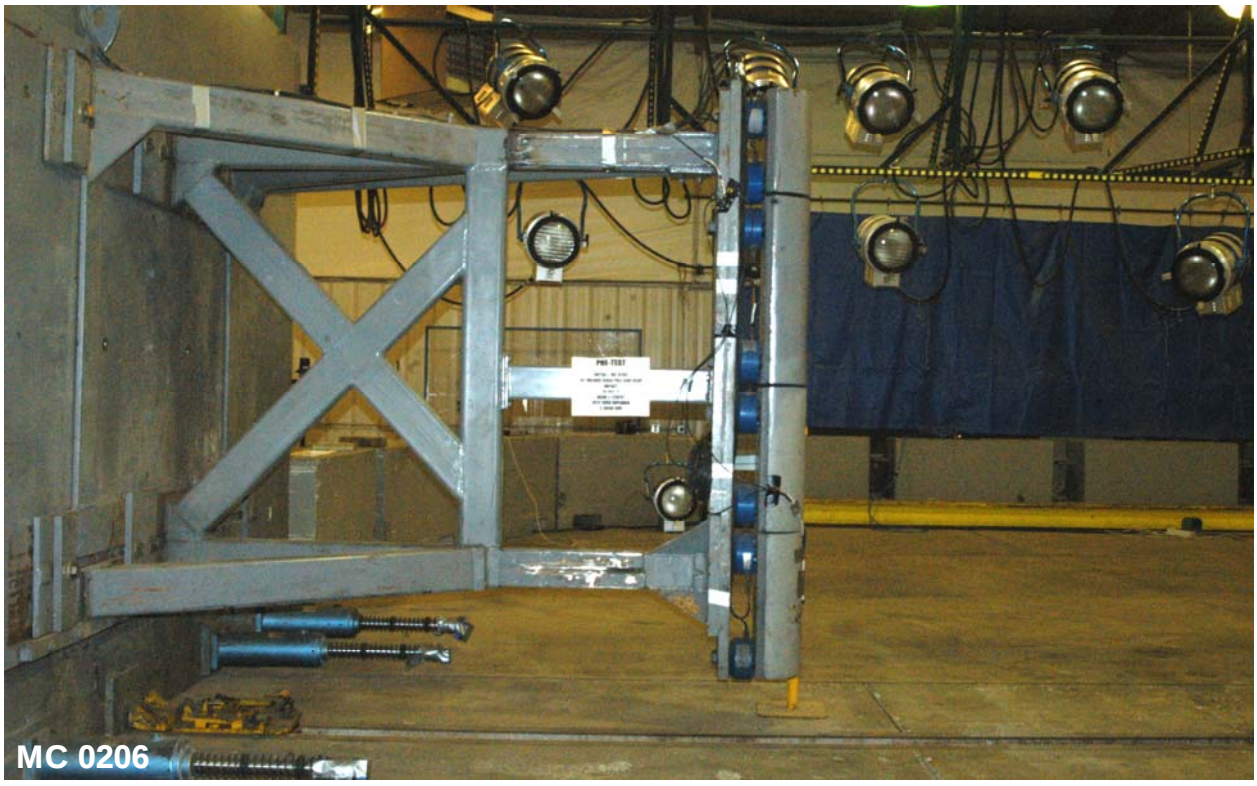


Figure 058: Pre-Test Pole Barrier Side View

Figure 059: Post-Test Pole Barrier Side View

Figure 060: Pre-Test Ballast View

Figure 061: Post-Test Primary and Redundant Speed Trap Read-Out

Figure 062: FMVSS No. 301 Static Rollover 0 Degrees

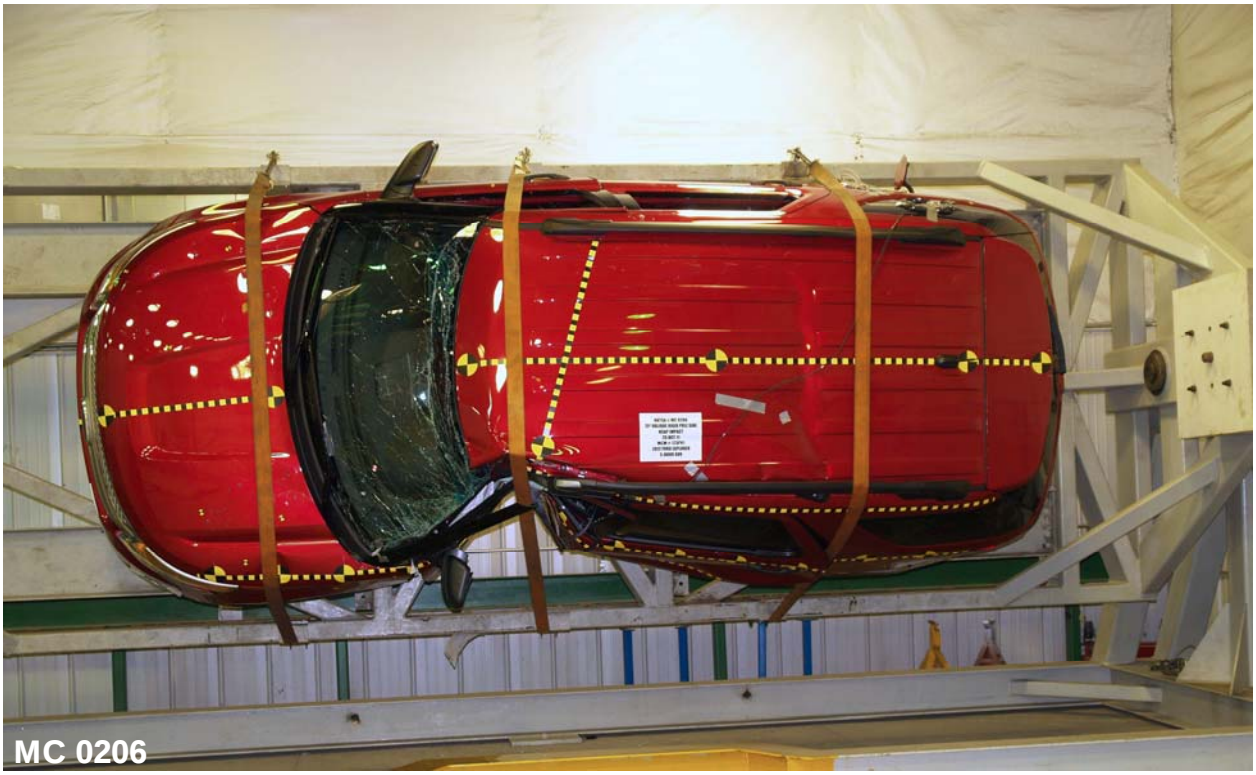


Figure 063: FMVSS No. 301 Static Rollover 90 Degrees

Figure 064: FMVSS No. 301 Static Rollover 180 Degrees

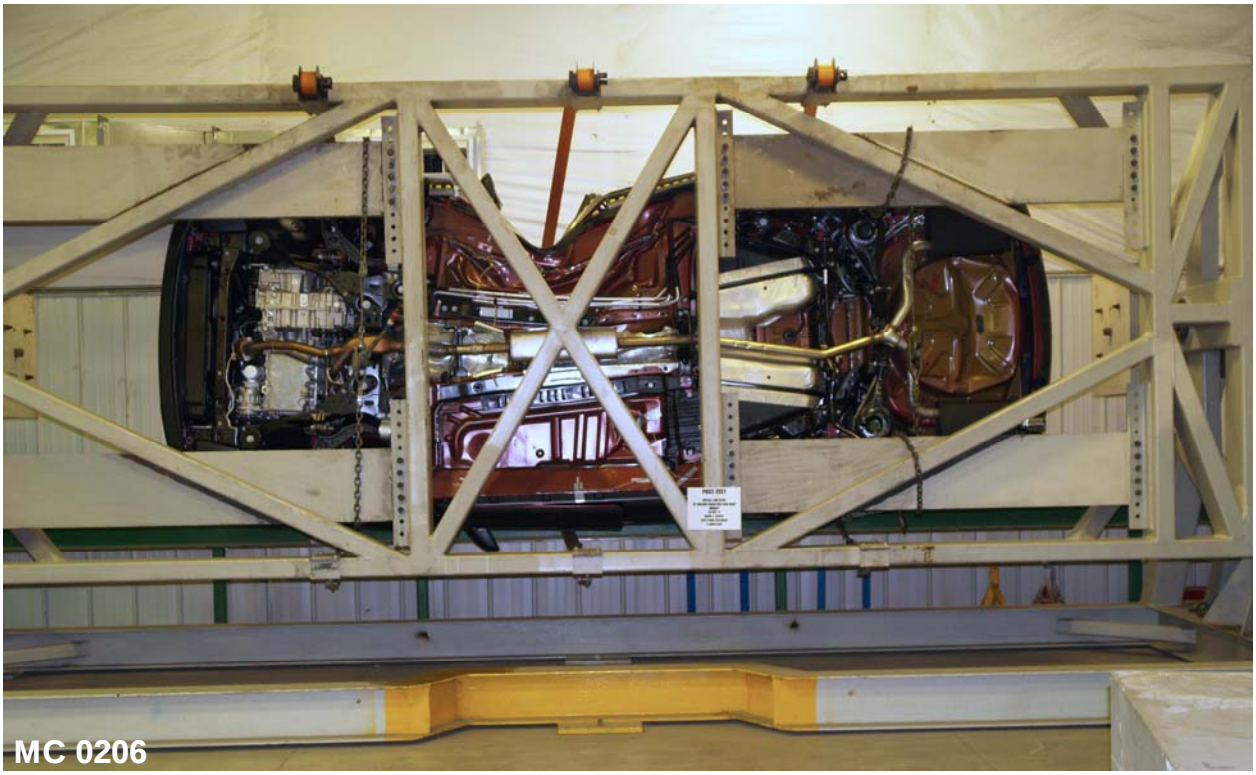
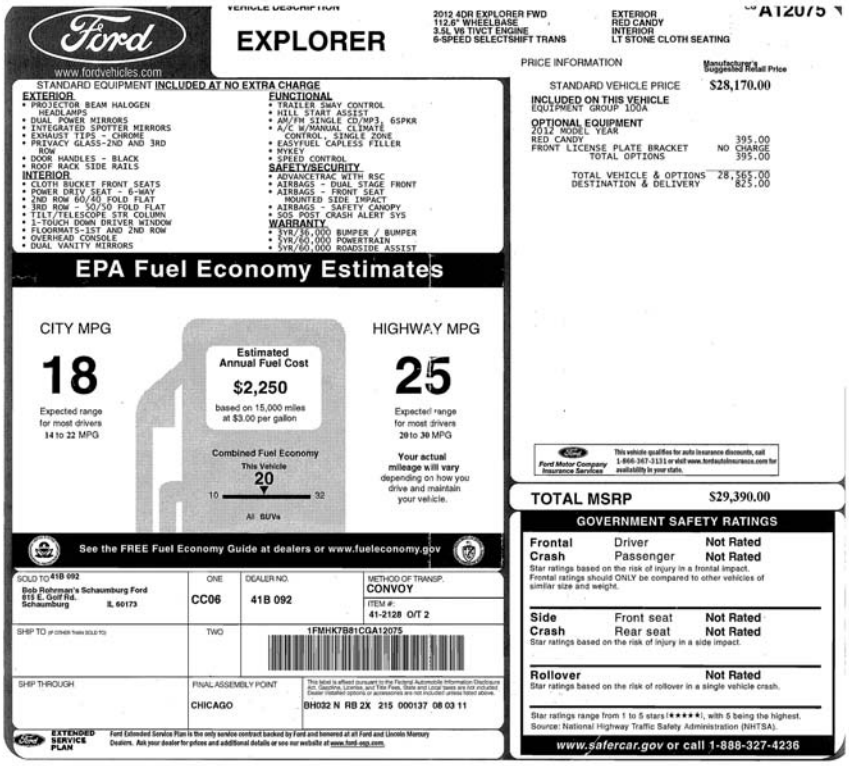


Figure 065: FMVSS No. 301 Static Rollover 270 Degrees

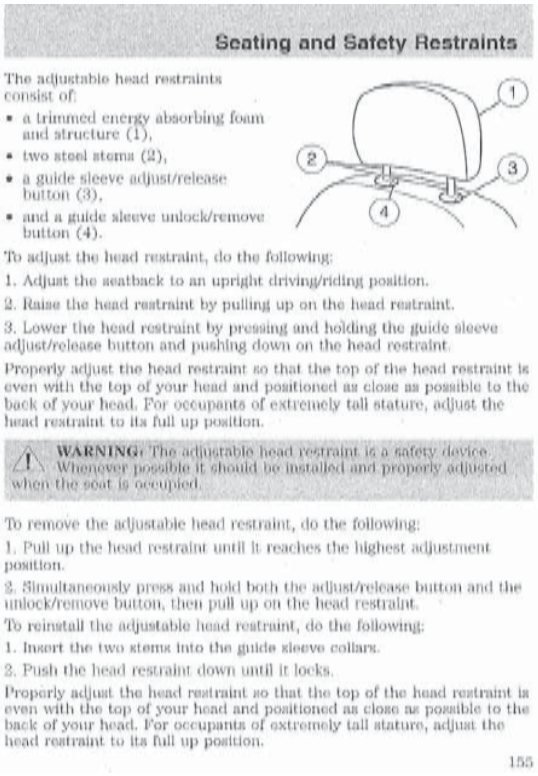
Figure 066: No. 066 FMVSS No. 301 Static Rollover 360 Degrees

Figure 067: Impact Event



MC 0206

Figure 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.

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.

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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MC 0206

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

APPENDIX B

ATD AND VEHICLE RESPONSE DATA

The following plots are provided in the test report

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

Additional Driver Dummy Instrumentation Data

Driver Head Acceleration (X) Redundant
Driver Head Acceleration (Y) Redundant
Driver Head Acceleration (Z) Redundant
Driver Upper Thorax Rib Deflection (Y)
Driver Middle Thorax Rib Deflection (Y)
Driver Lower Thorax Rib Deflection (Y)
Driver Upper abdomen rib deflection (Y)
Driver Lower abdomen rib deflection (Y)
Driver Shoulder Contact Switch
Driver Pelvis Contact Switch

Vehicle Instrumentation Data

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

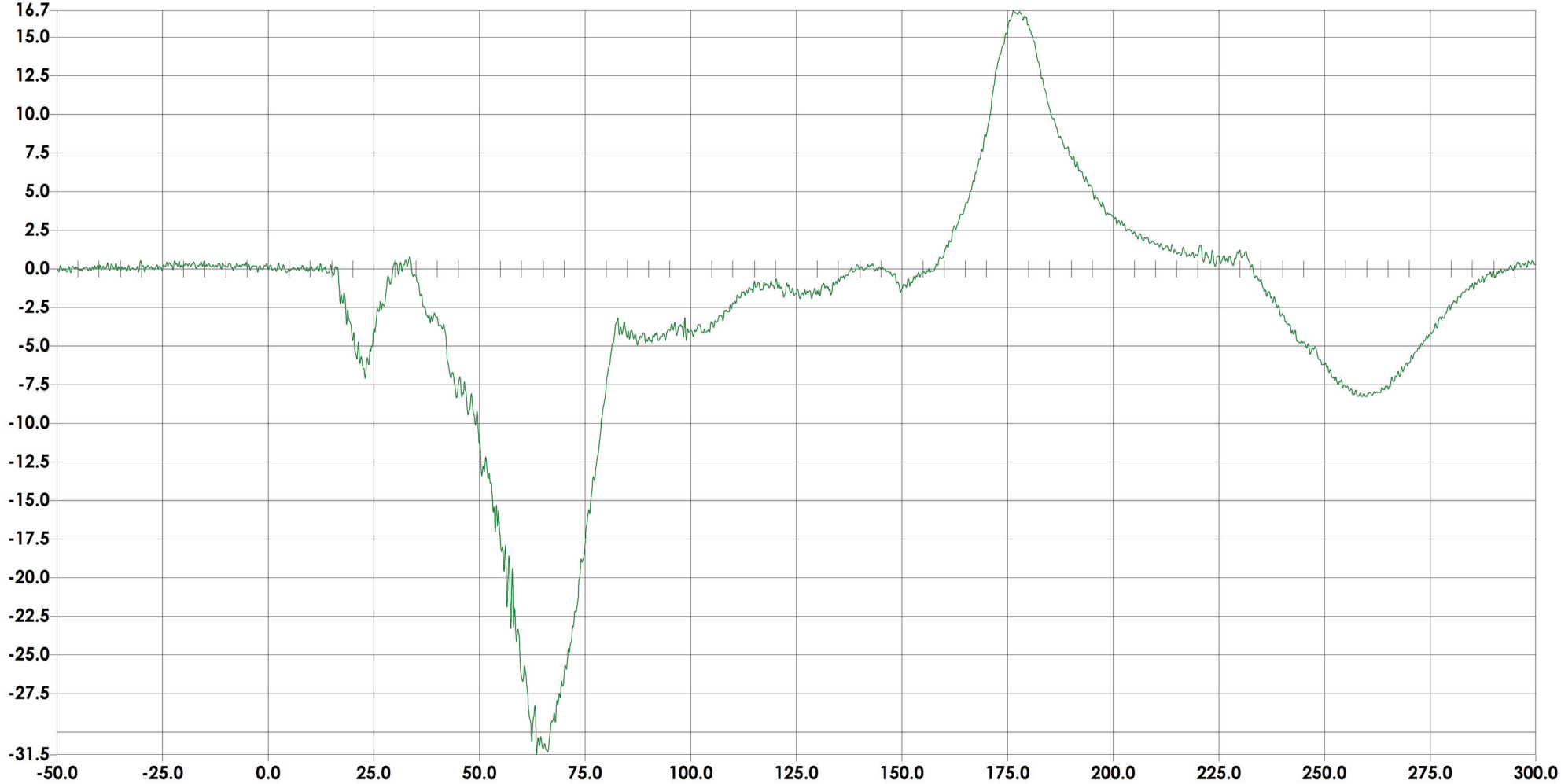
Pole Instrumentation Data

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)

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC1000**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264-2000TZ
		Pretrigger Points	625	Serial Number	J43444

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (X) Primary vs. Time



Max	16.73	G'S	at	176.32	msec
Min	-31.46	G'S	at	63.52	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 001

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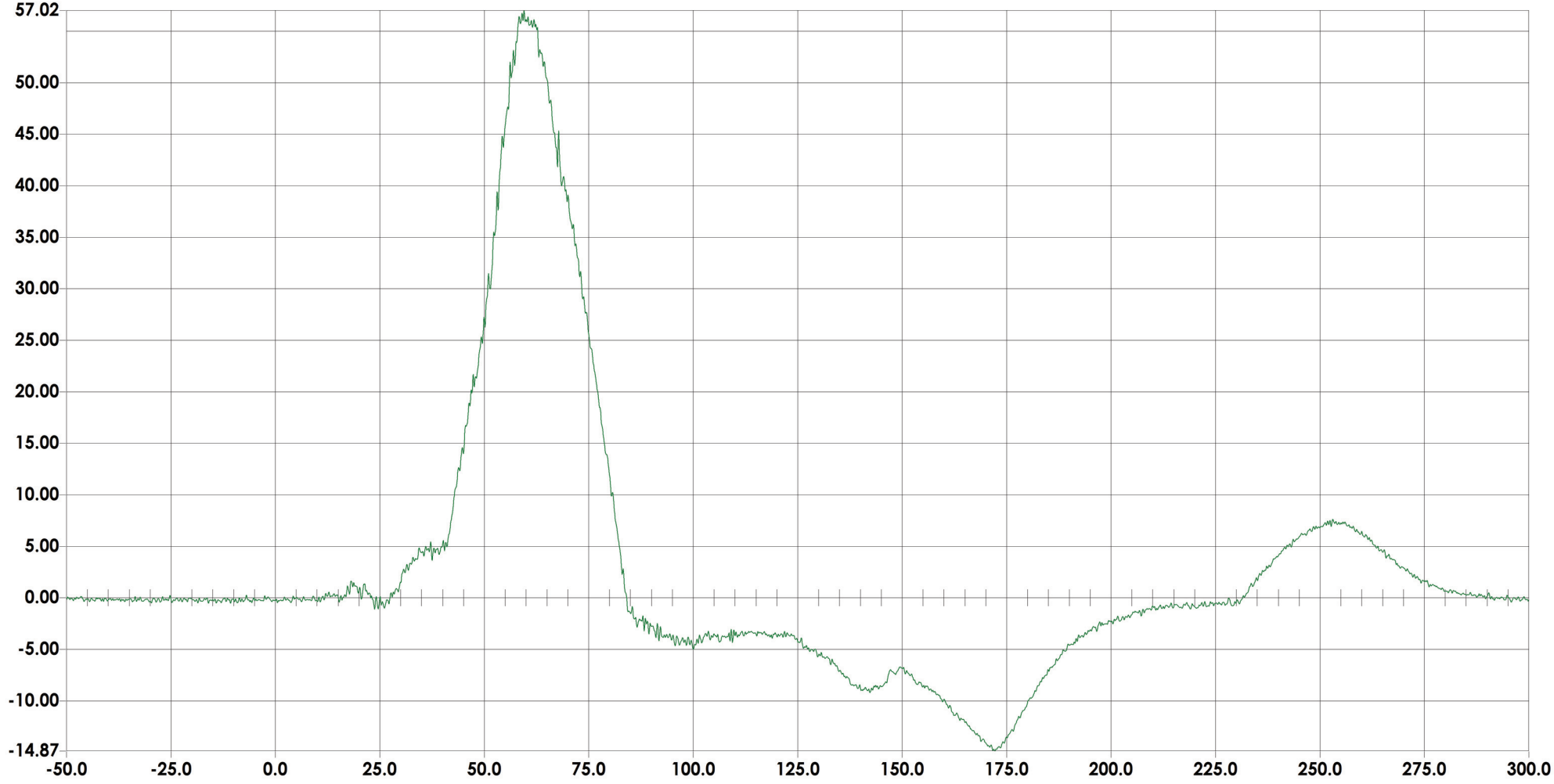
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC1000**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264-2000
		Pretrigger Points	625	Serial Number	J43739

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Y) Primary vs. Time



Max	57.02	G'S	at	59.52	msec
Min	-14.87	G'S	at	172.24	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 002

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5000 West National Ave
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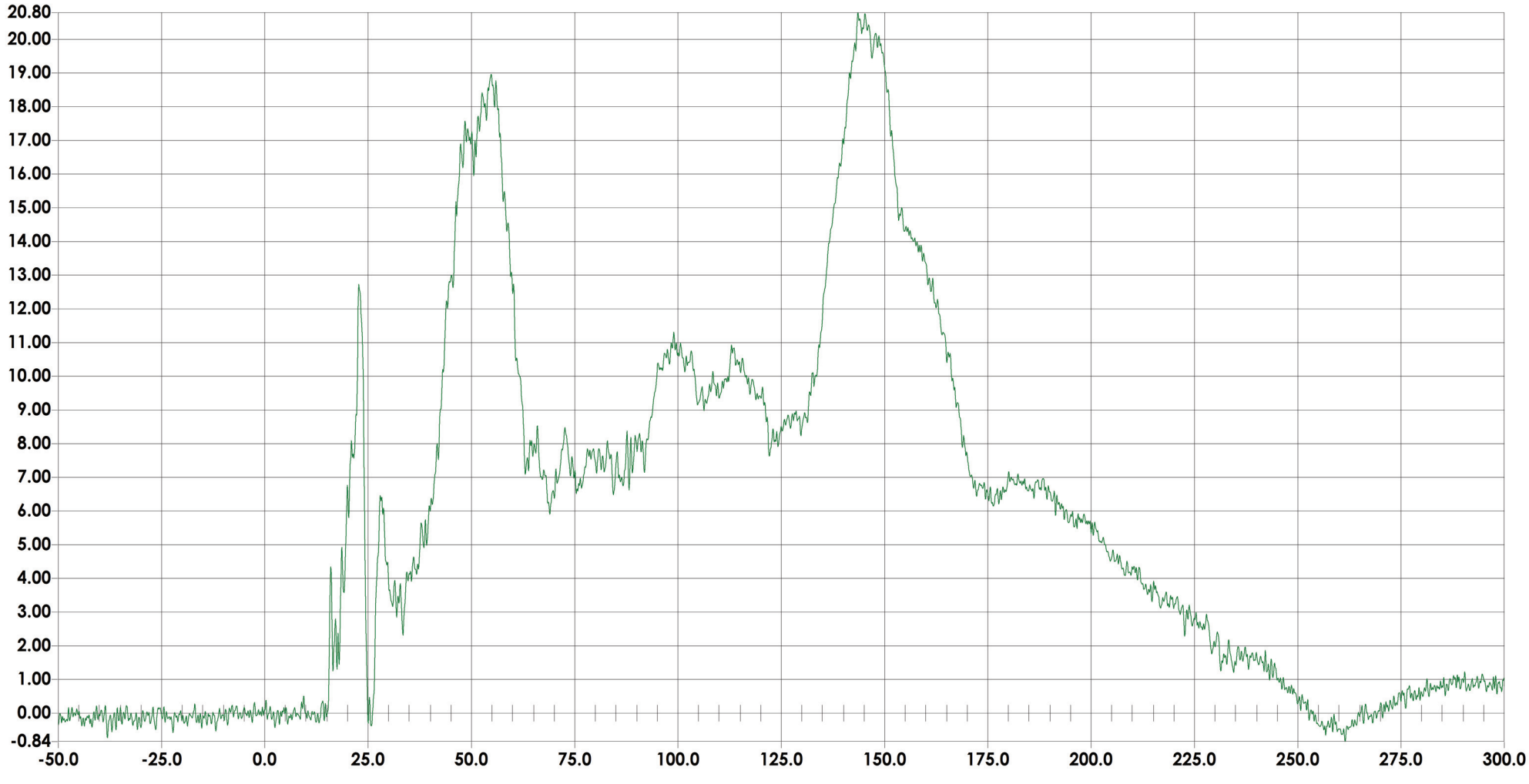
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC1000**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
		Pretrigger Points	625	Serial Number	P21673

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Z) Primary vs. Time



Max	20.80	G'S	at	143.52	msec
Min	-0.84	G'S	at	261.44	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 003

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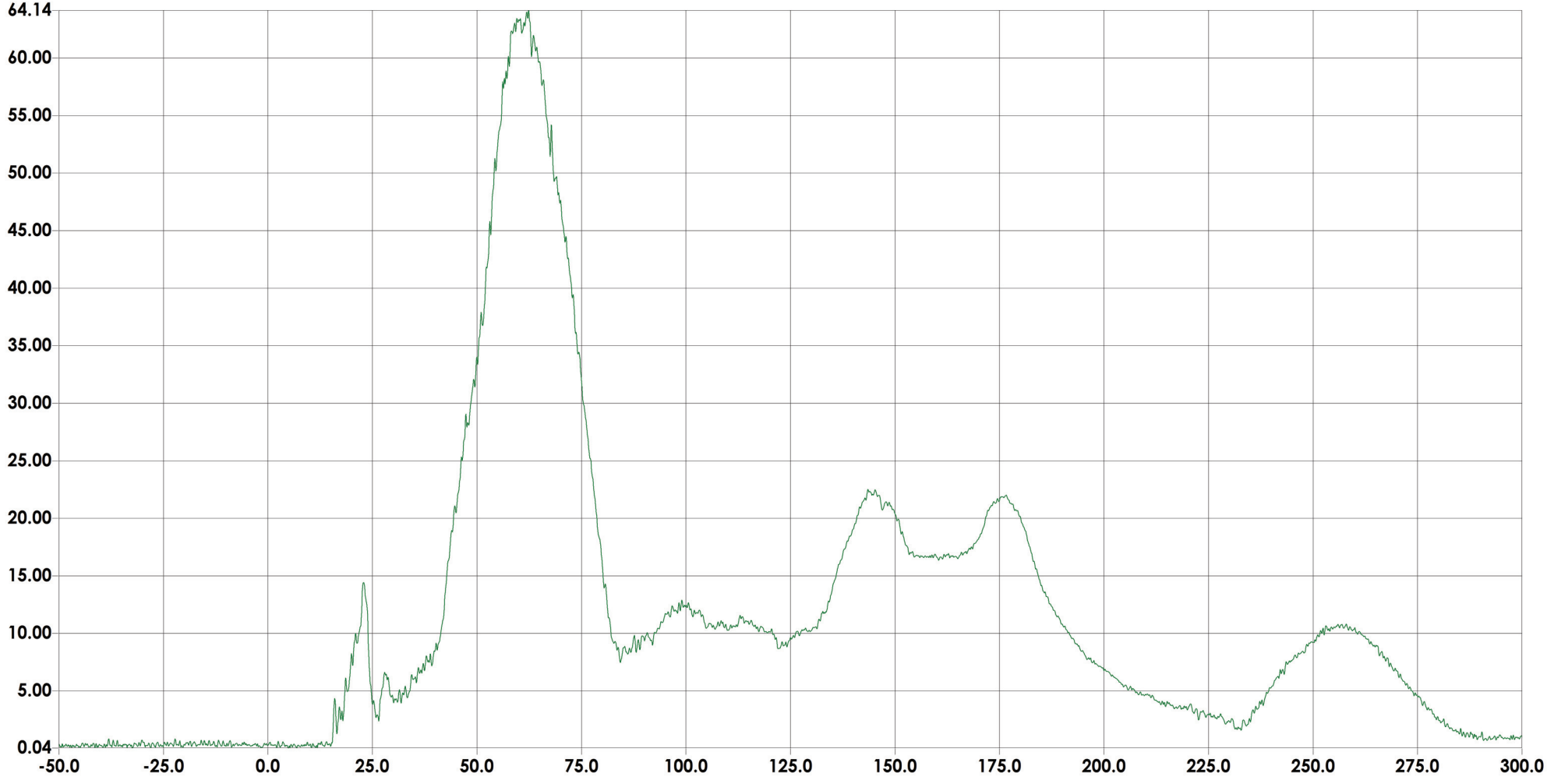
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC1000**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2h

MEDICAL COLLEGE OF WISCONSIN

Driver Head Resultant Primary vs. Time



Max	64.14	G'S	at	62.32	msec
Min	0.04	G'S	at	4.96	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 043

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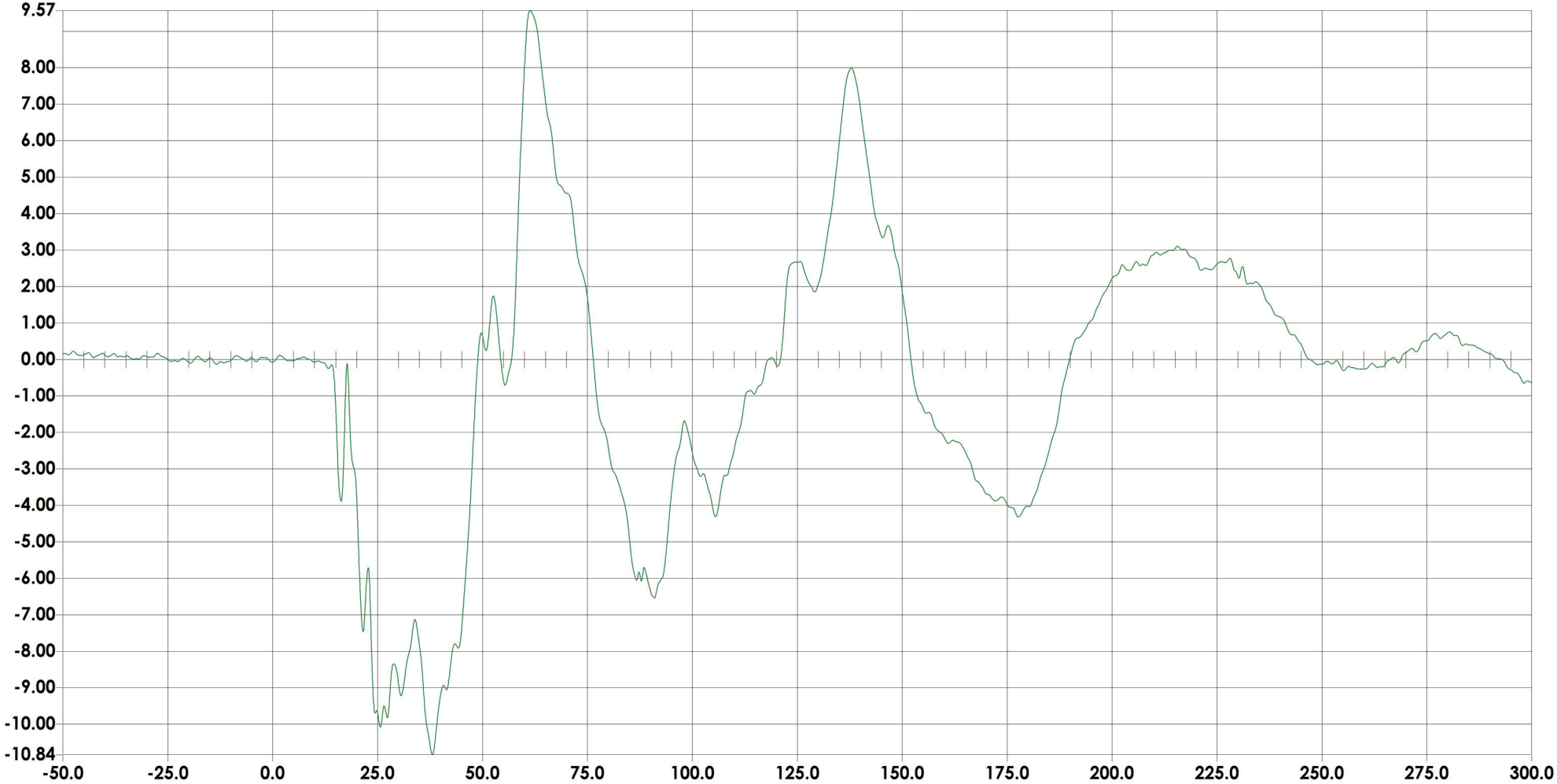
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC180**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264B-2000T
		Pretrigger Points	625	Serial Number	B13098

MEDICAL COLLEGE OF WISCONSIN

G'S Driver Lower Spine T12 Acceleration (X) vs. Time



Max	9.57	G'S	at	61.36	msec
Min	-10.84	G'S	at	38.08	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 012

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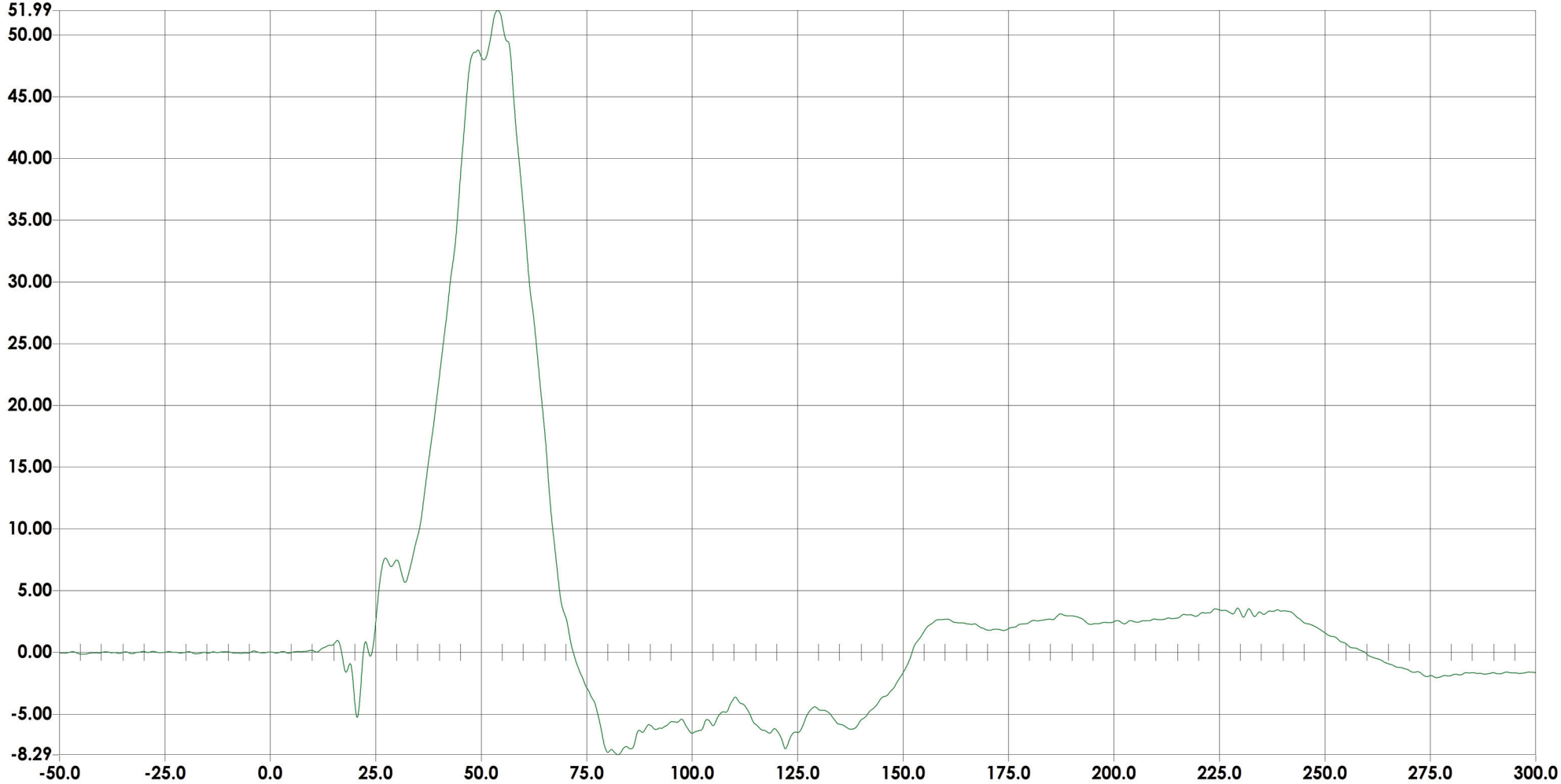
Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC180**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264-2000TZ
		Pretrigger Points	625	Serial Number	J22318

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Spine T12 Acceleration (Y) vs. Time



Max	51.99	G'S	at	53.92	msec
Min	-8.29	G'S	at	82.40	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 013

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5000 West National Ave
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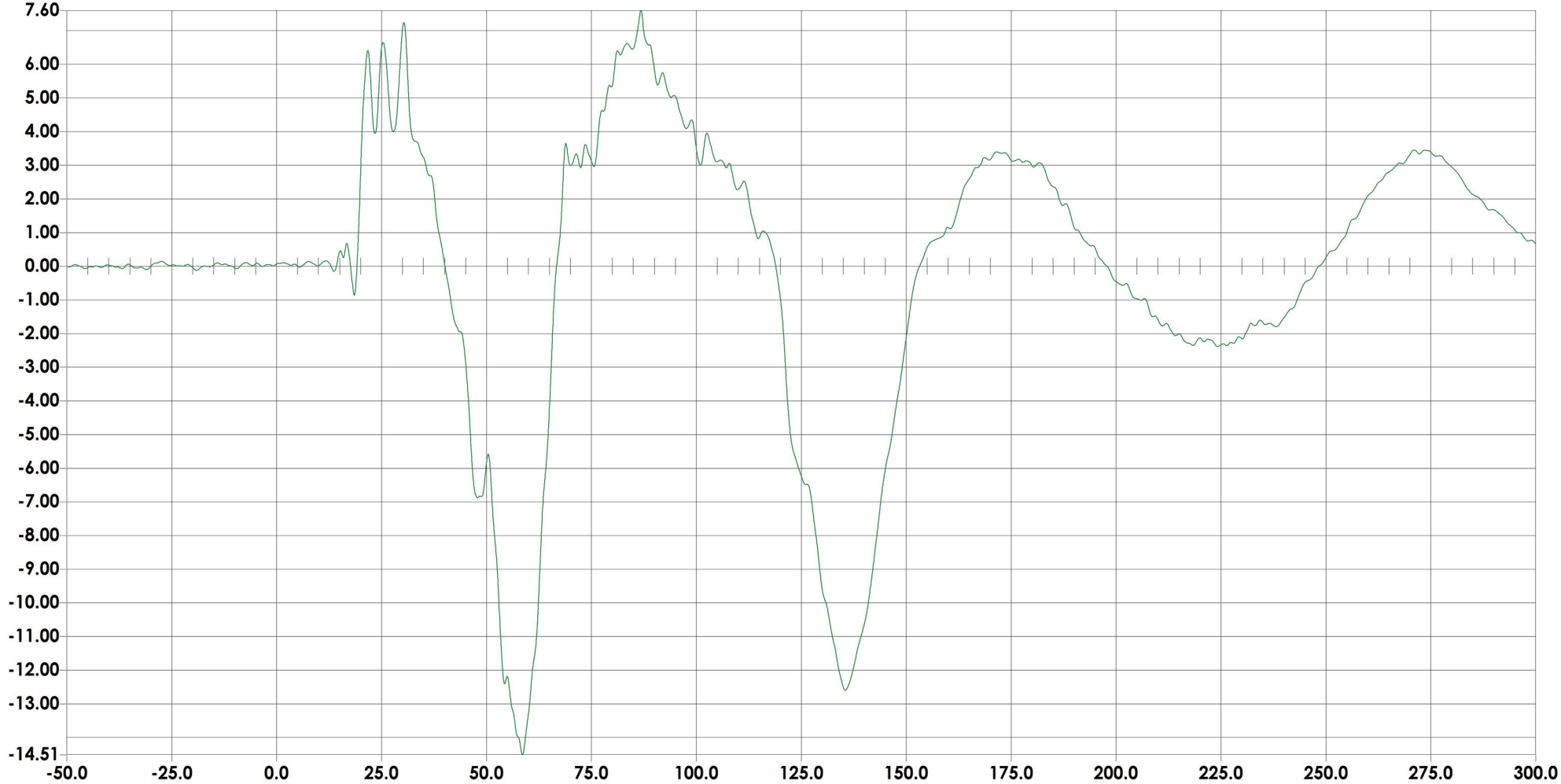
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC180**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264-2000TZ
		Pretrigger Points	625	Serial Number	J22189

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Spine T12 Acceleration (Z) vs. Time



Max	7.60	G'S	at	86.80	msec
Min	-14.51	G'S	at	58.56	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 014

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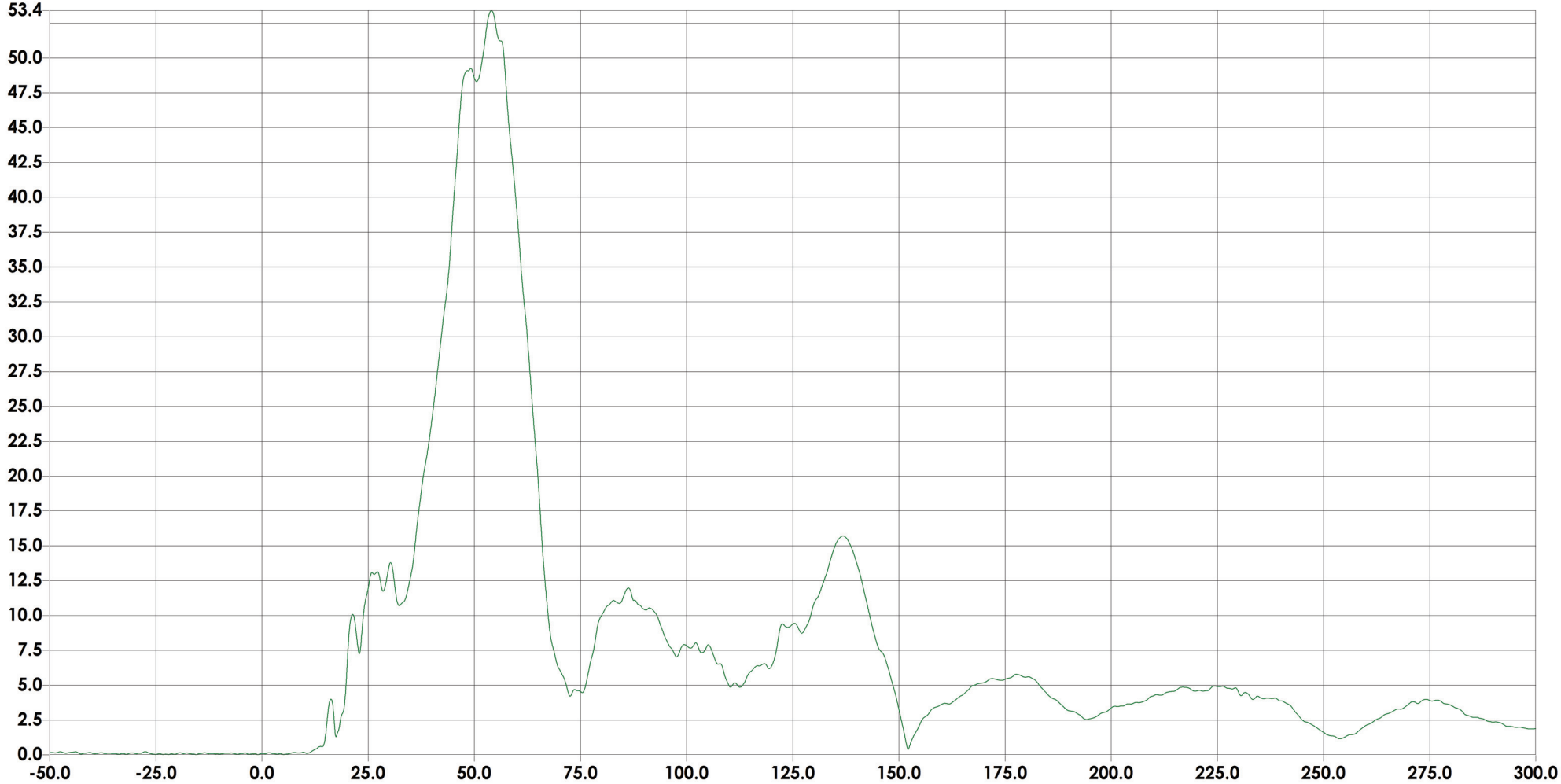
Research 151
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC180**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2h

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Spine T12 Resultant Acceleration vs. Time



Max	53.41	G'S	at	54.08	msec
Min	0.01	G'S	at	-15.44	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 044

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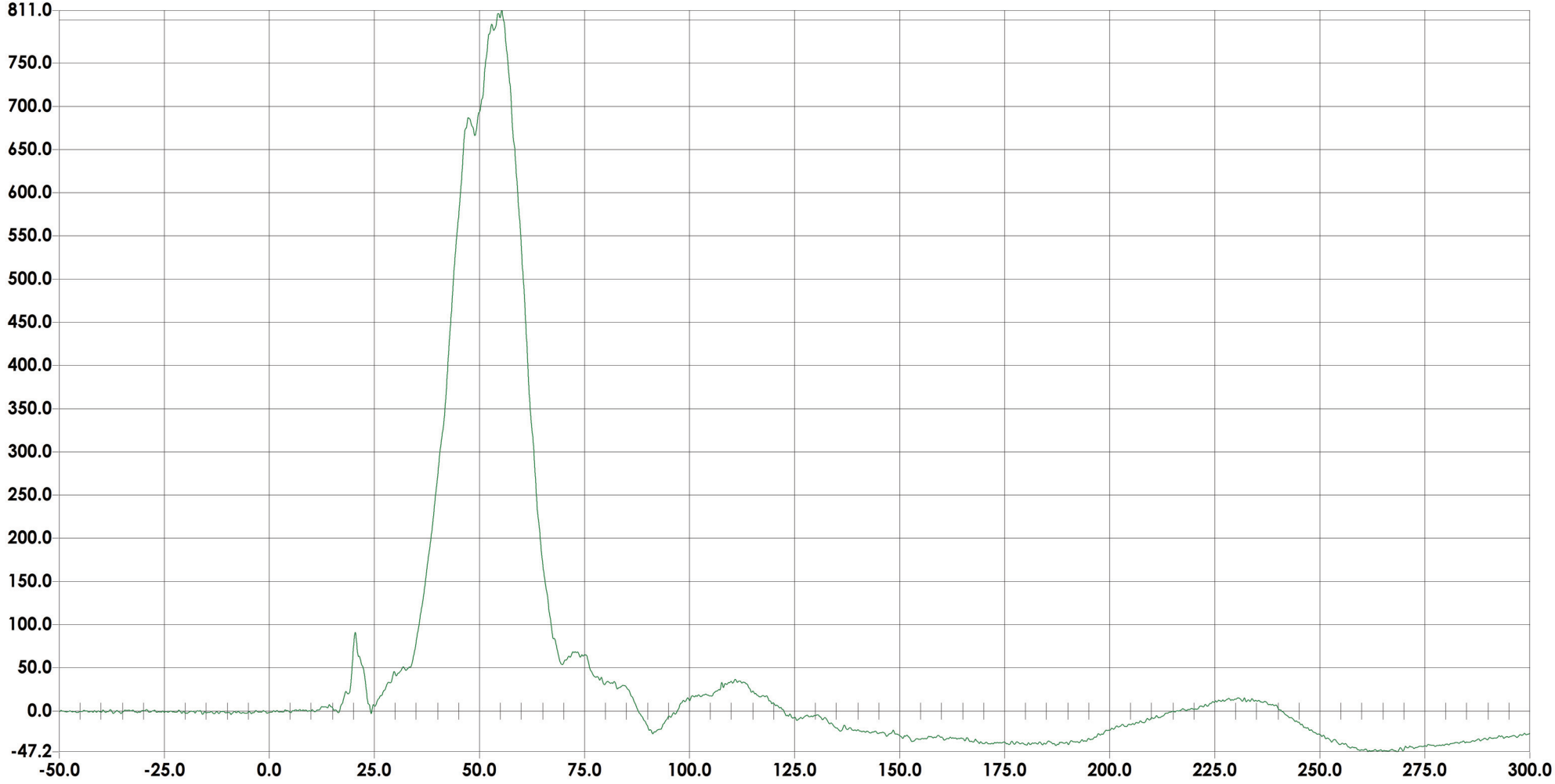
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC600**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	PVIL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	FTSS IF-507
		Pretrigger Points	625	Serial Number	IF-507_115

MEDICAL COLLEGE OF WISCONSIN

NWT Driver Iliac Wing Force on Impact Side (Y) vs. Time



Max	811.01	NWT	at	55.36	msec
Min	-47.15	NWT	at	268.40	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 015

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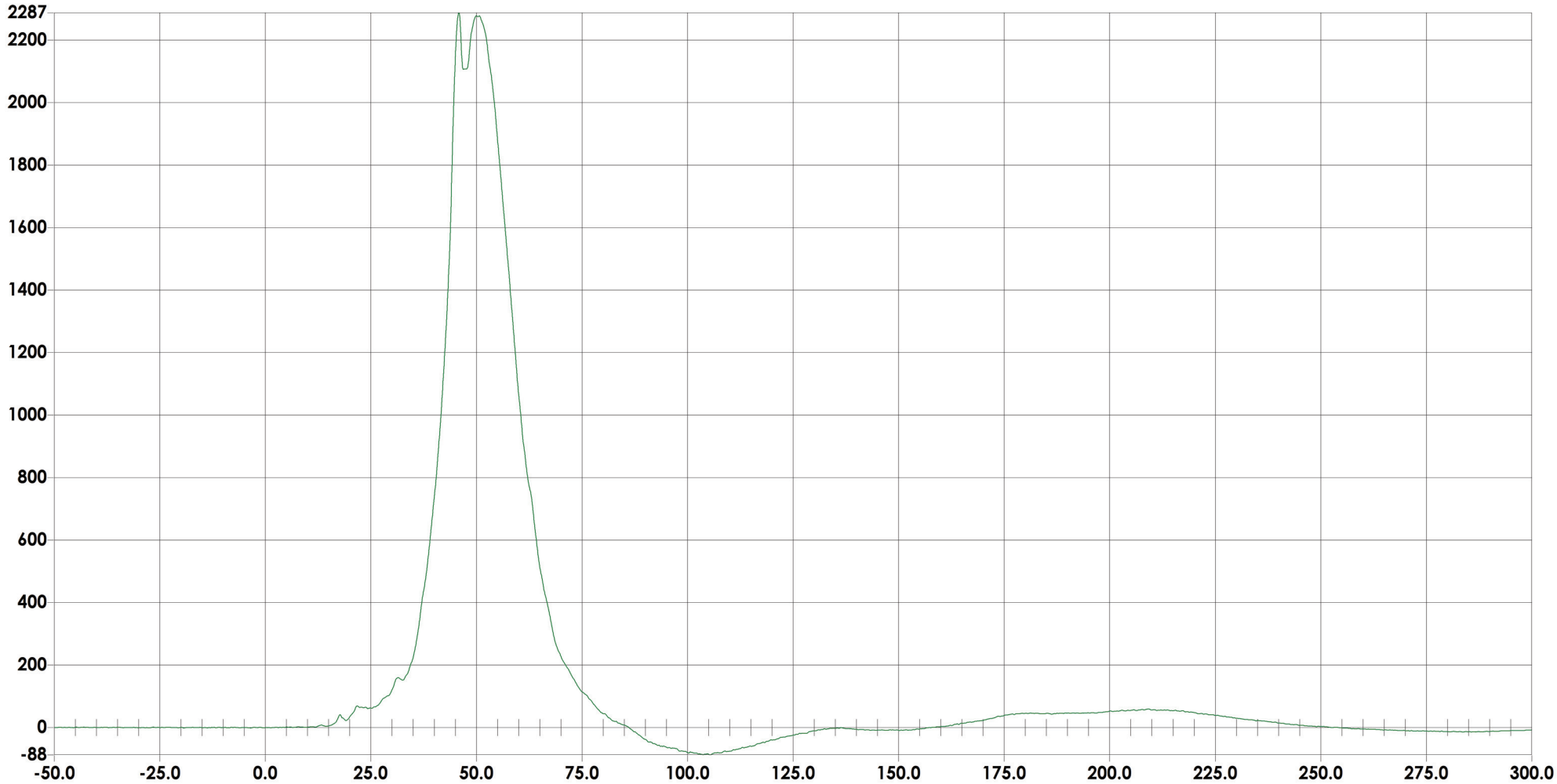
Milwaukee, WI 53295

Test ID	MC 0206_2012 FORD EXPLORER 5-DOOR SU	**Filter**	CFC600		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	PVAL
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	FTSS IF-520
		Pretrigger Points	625	Serial Number	IF-520_114

MEDICAL COLLEGE OF WISCONSIN

Driver Acetabulum Force on Impact Side (Y) vs. Time



Max	2287.31	NWT	at	45.84	msec
Min	-87.53	NWT	at	105.36	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 016

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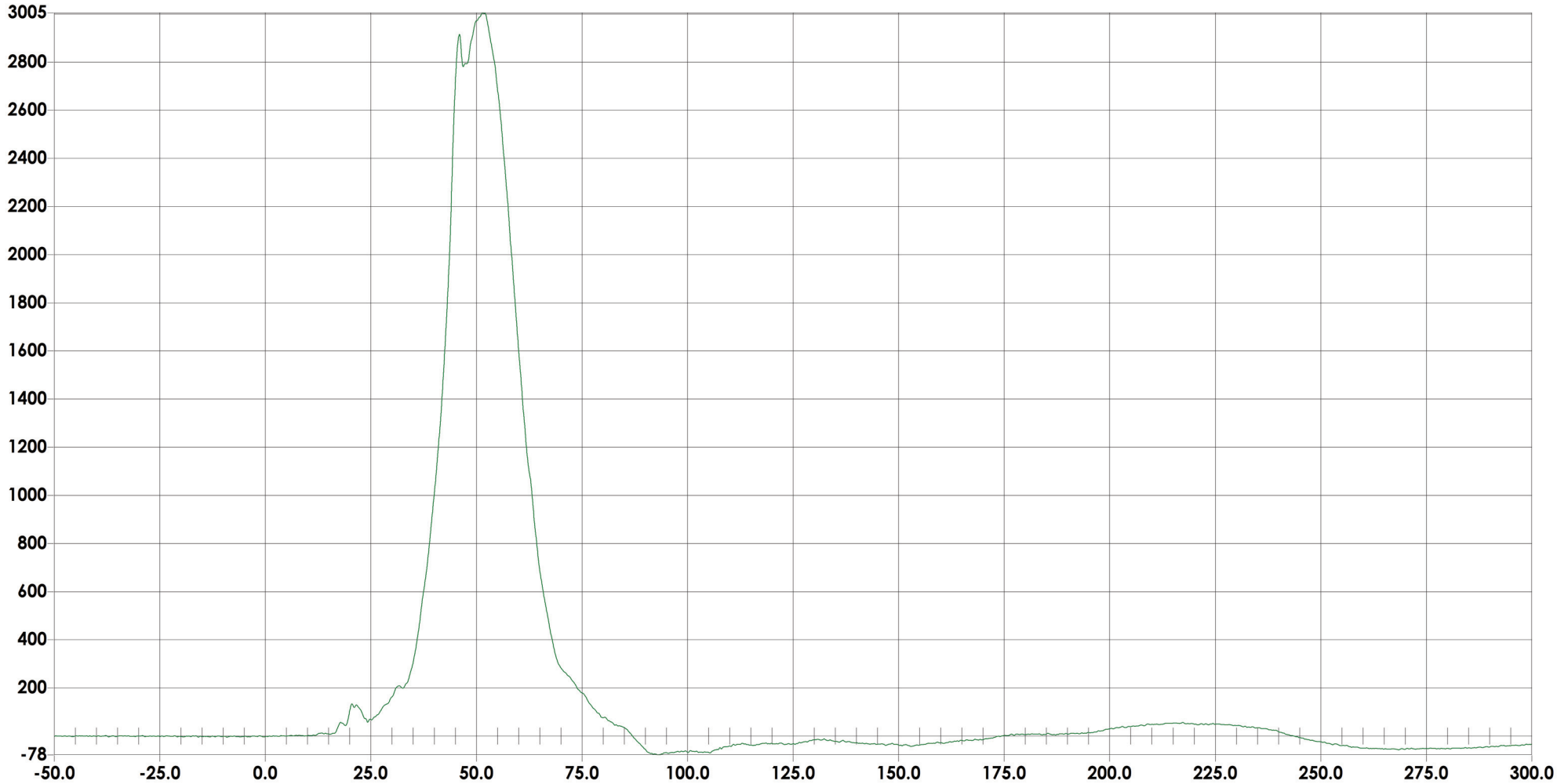
Milwaukee, WI 53295

Test ID	**MC 0206_2012 FORD EXPLORER 5-DOOR SU**	**Filter**	**CFC600**		
Date	10-25-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	MC 0206_2012 Ford Explorer_5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2h

MEDICAL COLLEGE OF WISCONSIN

Driver Total Pelvis Force on Impact Side (Y) vs. Time



Max	3004.94	NWT	at	51.52	msec
Min	-78.21	NWT	at	92.96	msec

MC 0206_2012 FORD EXPLORER 5-DOOR SUV_SPNCAP Plot 045

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Milwaukee, WI 53295

APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE DATA

TABLE 1
EXTERNAL MEASUREMENTS

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	9/14/11		10/31/11	
Sequential Test Number	-	1		2	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	20.7	Pass	21.5	Pass
Relative Humidity (%)	**10-70**	31.6	Pass	30.4	Pass
Sitting Height	**772 – 788**	773	Pass	773	Pass
Shoulder Pivot Height	**437 – 453**	443	Pass	444	Pass
H-Point Height	**79 – 89**	84	Pass	85	Pass
H-Point from Seat Back	**141 – 151**	145	Pass	148	Pass
Shoulder Pivot from Backline	**97 – 107**	100	Pass	100	Pass
Thigh Clearance	**119 – 135**	122	Pass	121	Pass
Head Breadth	**140 – 148**	143	Pass	141	Pass
Head Back from Backline	**40 – 46**	42	Pass	43	Pass
Head Depth	**178 – 188**	180	Pass	182	Pass
Head Circumference	**541 – 551**	547	Pass	542	Pass
Buttock to Knee Length	**514 – 540**	530	Pass	520	Pass
Popliteal Height	**343 – 369**	360	Pass	355	Pass
Knee Pivot to Floor Height	**392 – 409**	400	Pass	398	Pass
Buttock Popliteal Length	**416 – 442**	424	Pass	423	Pass
Chest Depth w/o Jacket	**195 – 211**	205	Pass	204	Pass
Foot Length	**216 – 232**	222	Pass	222	Pass
Hip Breadth	**313 – 323**	319	Pass	321	Pass
Arm Length	**249 – 259**	253	Pass	254	Pass
Knee Joint to Seat Back	**477 – 493**	480	Pass	482	Pass
Shoulder Width	**341 – 357**	345	Pass	346	Pass
Foot Width	**78 – 94**	85	Pass	86	Pass
Chest Circumference w/Jacket	**851 – 881**	855	Pass	853	Pass
Waist Circumference	**761 – 791**	775	Pass	778	Pass

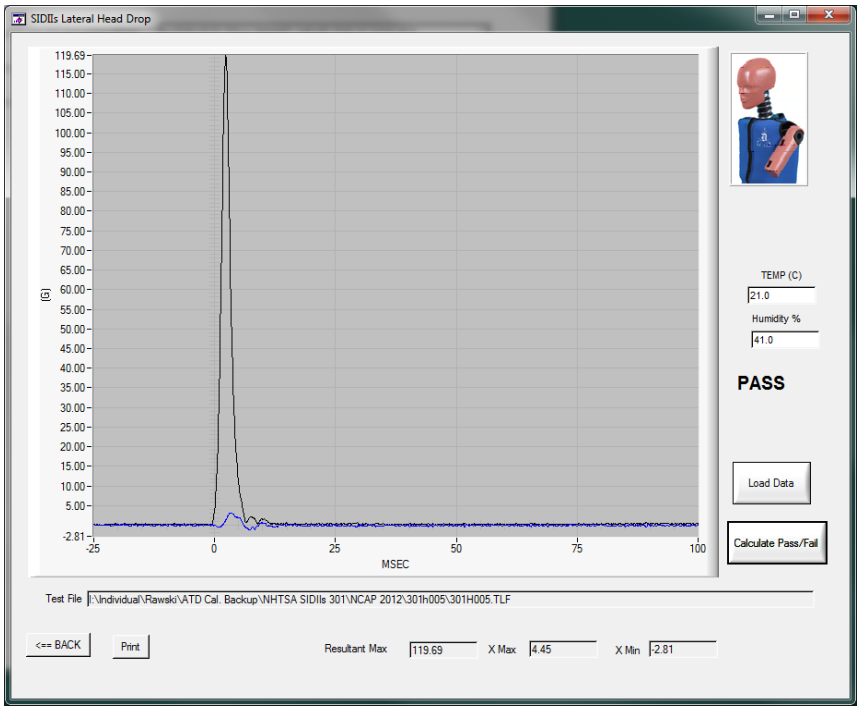
TABLE 2
HEAD DROP TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/9/11		10/28/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Head Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.5	Pass	22.1	Pass
	Min		20.8	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	54.2	Pass	31.3	Pass
	Min		35.1	Pass	29.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.0	Pass	21.6	Pass
Humidity – During Test (%)		**10-70**	41.0	Pass	27.7	Pass
Peak Head Resultant Acceleration (G)		**115-137**	119.69	Pass	120.45	Pass
Peak Head X Acceleration (G)		**<15**	4.45	Pass	2.85	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	-	Yes	-	Yes

TABLE 2
HEAD DROP TEST (CONTINUED)

PRE-TEST



POST-TEST

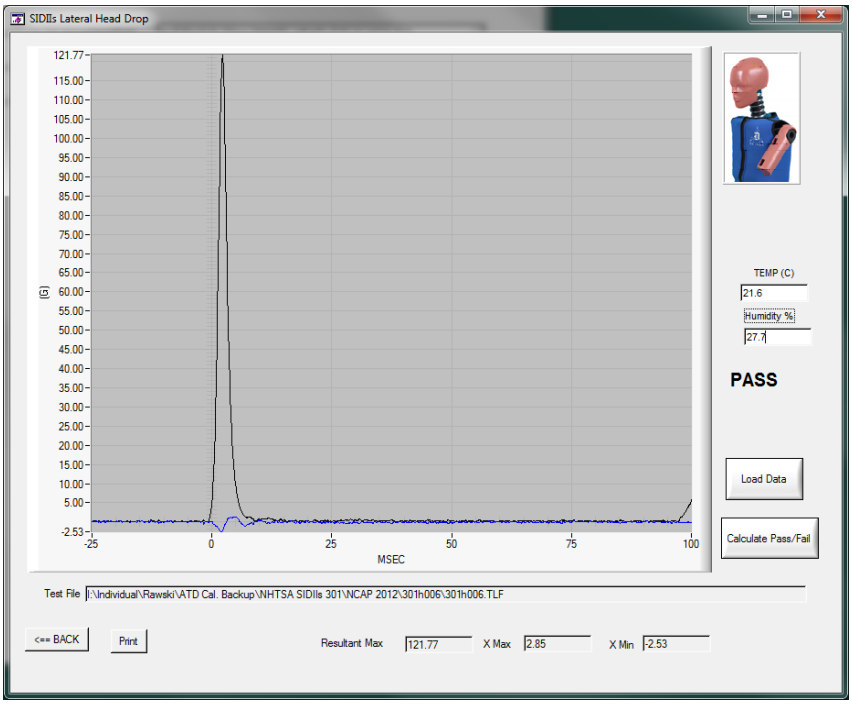


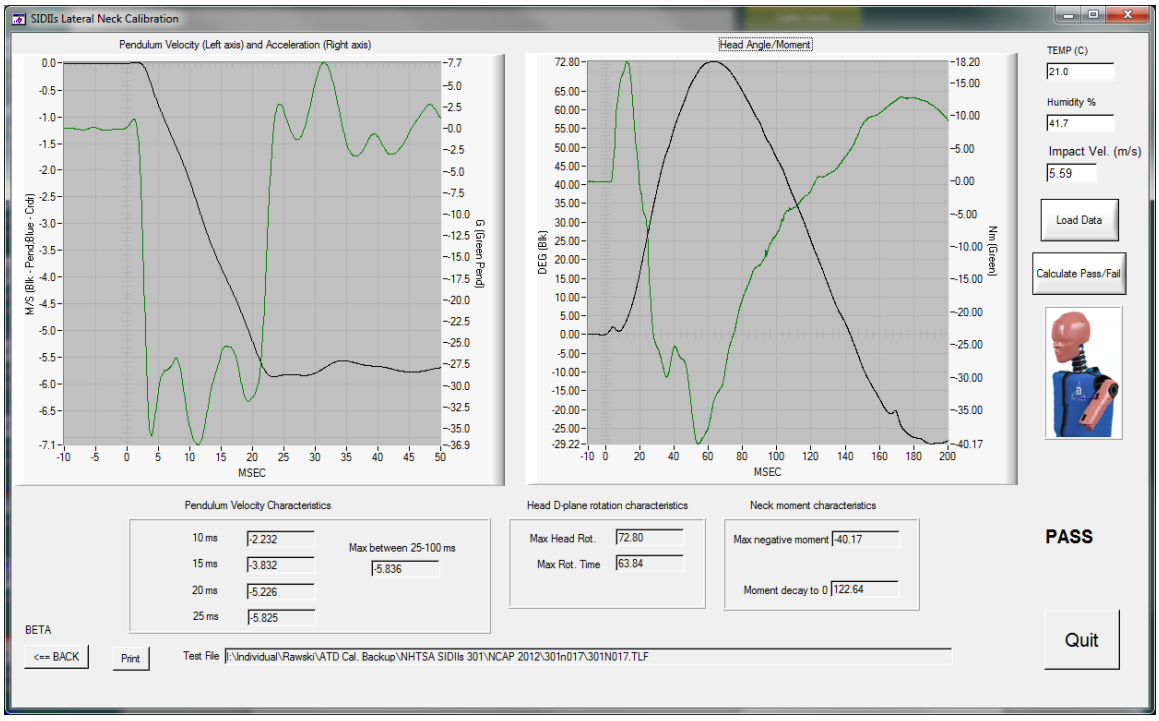
TABLE 3
LATERAL NECK PENDULUM TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/13/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Neck Assembly Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.0	Pass	22.0	Pass
	Min		21.7	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	61.2	Pass	32.1	Pass
	Min		34.7	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.0	Pass	20.6	Pass
Humidity – During Test (%)		**10-70**	41.7	Pass	30.2	Pass
Pendulum Velocity (m/s)		**5.51-5.63**	5.59	Pass	5.59	Pass
Pendulum Deceleration (G)	10 ms	**2.20-2.80**	2.232	Pass	2.256	Pass
	15 ms	**3.30-4.10**	3.832	Pass	3.867	Pass
	20 ms	**4.40-5.40**	5.226	Pass	5.373	Pass
	25 ms	**5.40-6.10**	5.825	Pass	5.861	Pass
	25-100 ms	**5.50-6.20**	5.836	Pass	5.875	Pass
Maximum D-Plane rotation (deg)		**71-81**	72.80	Pass	72.65	Pass
Time of Maximum D-Plane Rotation (ms)		**50-70**	63.84	Pass	62.00	Pass
Peak Occ. Condyle Moment (Nm)		**36-44**	40.17	Pass	40.86	Pass
Time of Moment Decay (ms)		**102-126**	122.64	Pass	121.68	Pass

TABLE 3
LATERAL NECK PENDULUM TEST (CONTINUED)

PRE-TEST



POST-TEST

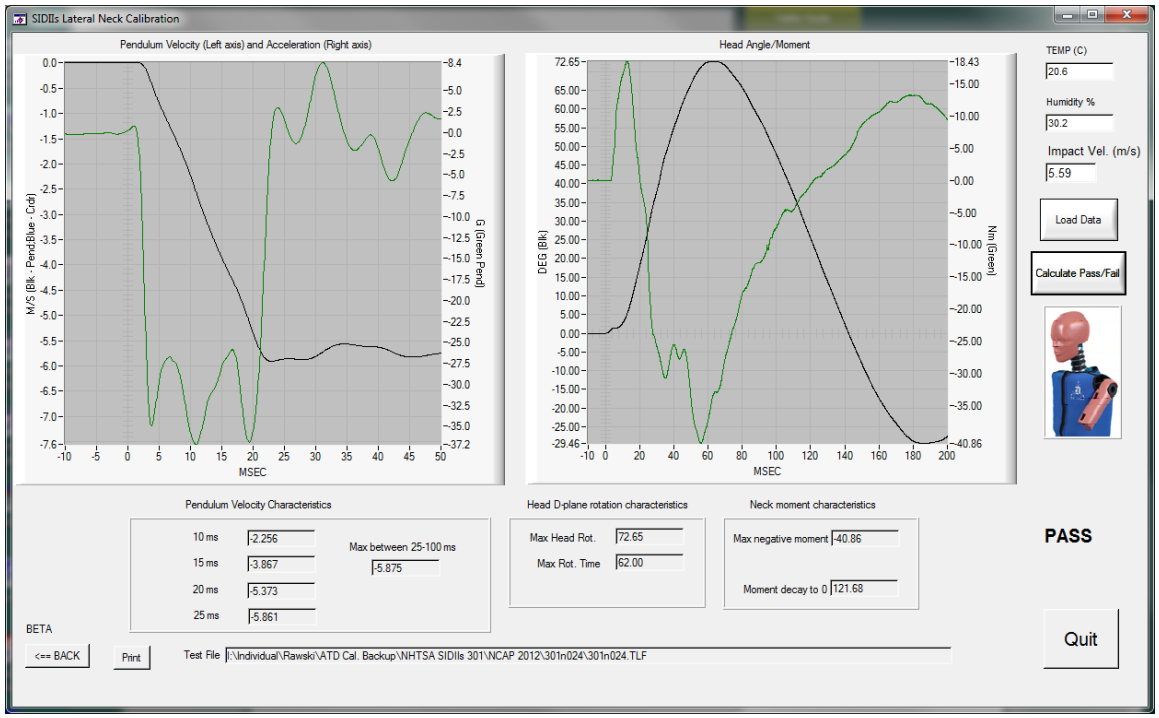


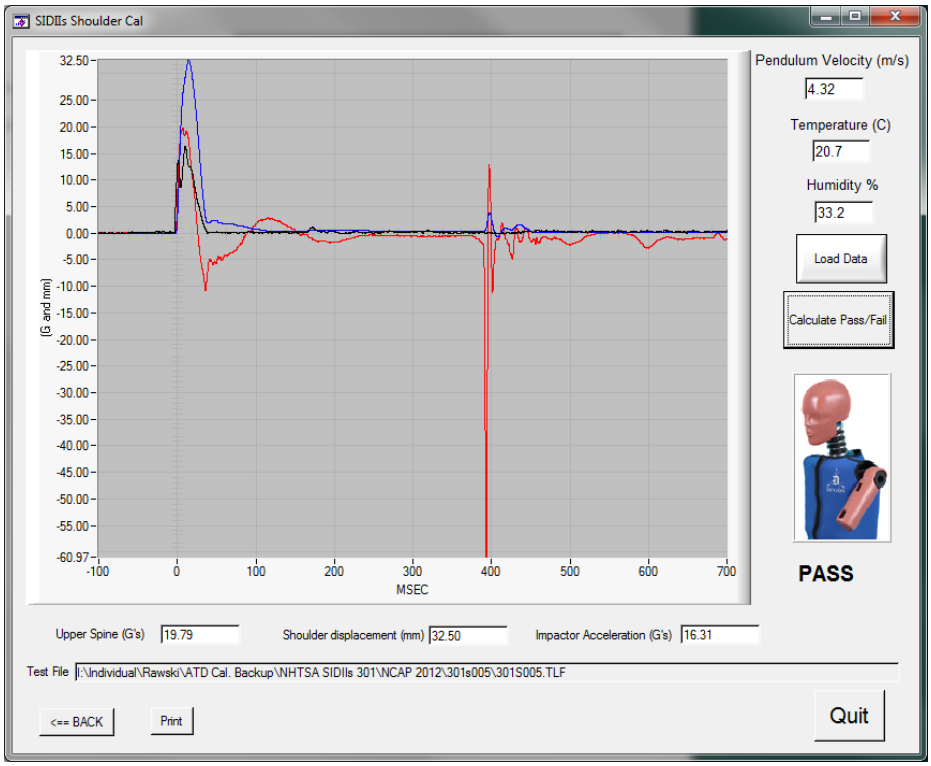
TABLE 4
SHOULDER IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/14/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.5	Pass	22.0	Pass
	Min		20.8	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	57.1	Pass	32.1	Pass
	Min		35.9	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.8	Pass
Relative Humidity – During Test (%)		**10-70**	33.2	Pass	30.7	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.32	Pass	4.32	Pass
Peak Shoulder Deflection (mm)		**28-37**	32.50	Pass	31.40	Pass
Peak Lateral Spine (T1) Acceleration Y (G)		**17-22**	19.79	Pass	19.15	Pass
Peak Impactor Acceleration (G)		**13-18**	16.31	Pass	16.09	Pass

TABLE 4
SHOULDER IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

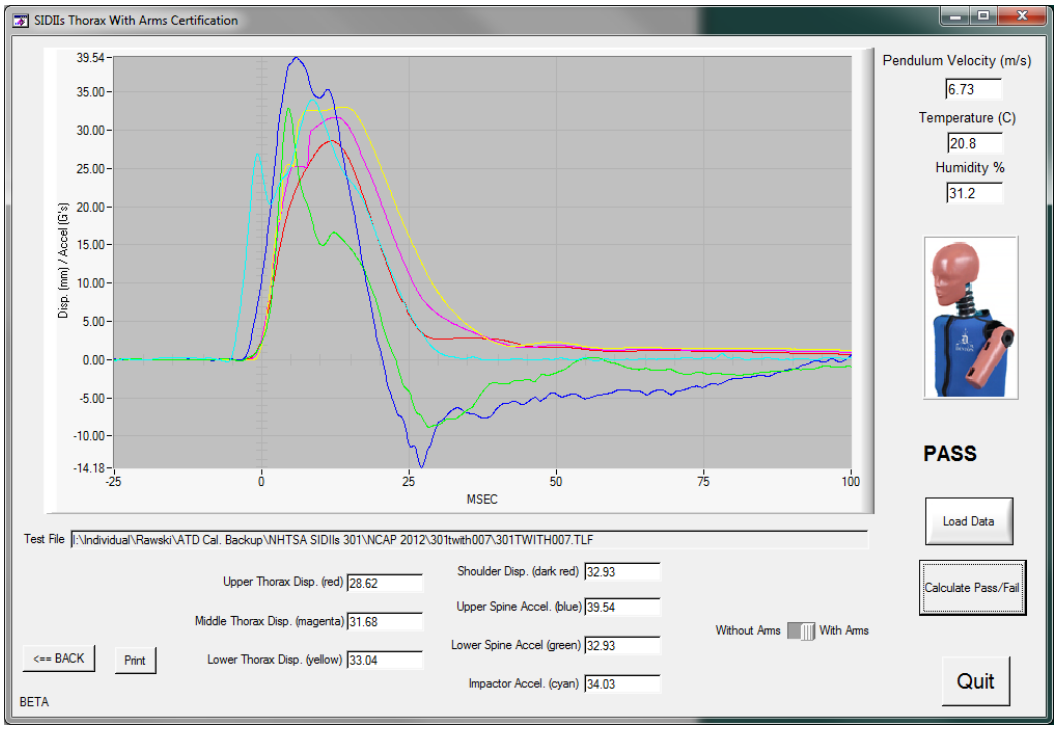
TABLE 5
THORAX (WITH ARM) IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/15/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.1	Pass	22.0	Pass
	Min		20.9	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	51.2	Pass	32.1	Pass
	Min		31.4	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.8	Pass	21.6	Pass
Relative Humidity – During Test (%)		**10-70**	31.2	Pass	30.4	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.70	Pass	6.73	Pass
Peak Shoulder Deflection (mm)		**31-40**	32.93	Pass	31.45	Pass
Peak Upper Rib Deflection (mm)		**25-32**	28.62	Pass	29.28	Pass
Peak Middle Rib Deflection (mm)		**30-36**	31.68	Pass	32.40	Pass
Peak Lower Rib Deflection (mm)		**32-38**	33.04	Pass	33.15	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**34-43**	39.54	Pass	40.53	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**29-37**	32.93	Pass	31.45	Pass
Peak Impactor Acceleration (G)		**30-36**	34.03	Pass	33.09	Pass

TABLE 5
THORAX (WITH ARM) IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

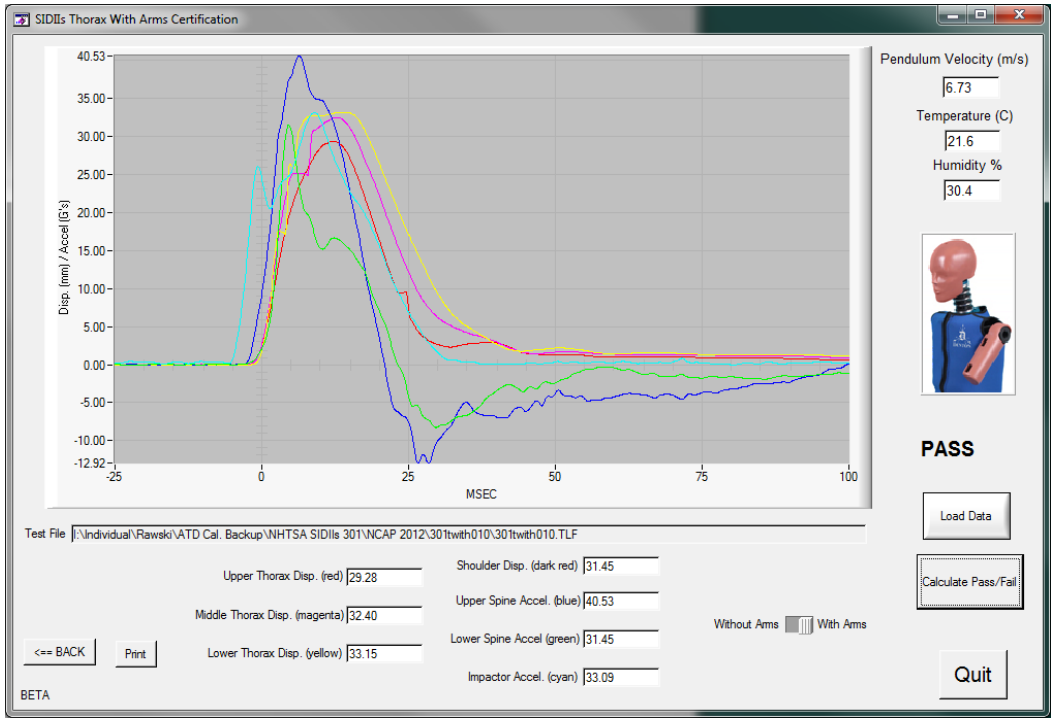


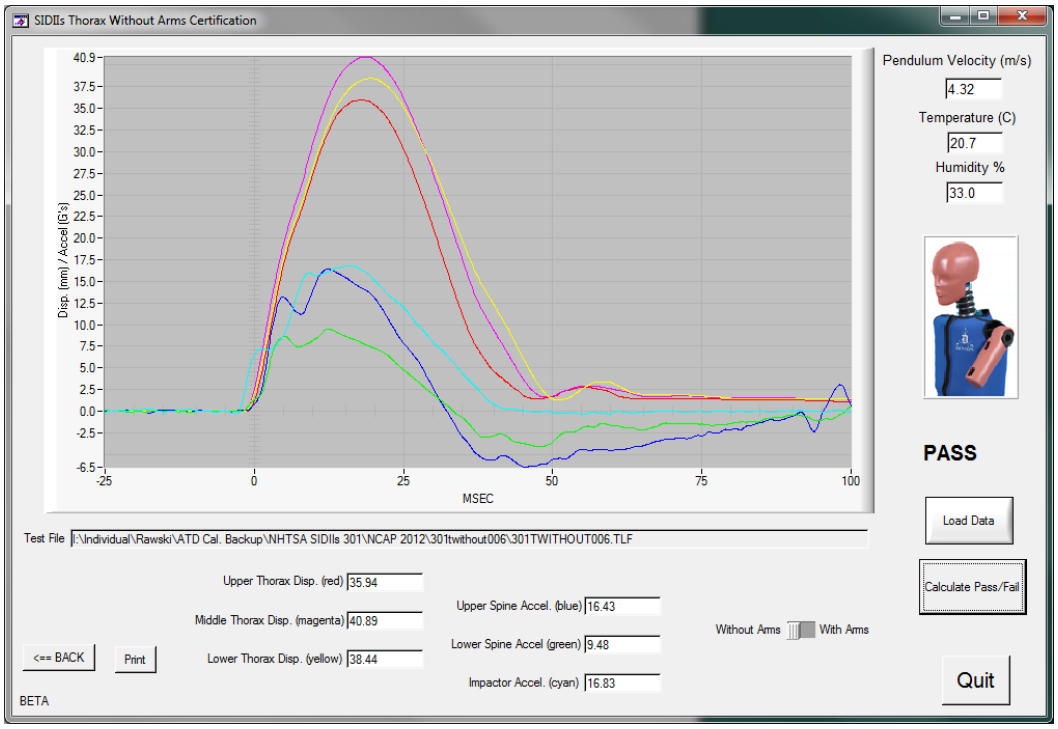
TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/14/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.5	Pass	22.0	Pass
	Min		20.9	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	47.8	Pass	32.1	Pass
	Min		31.3	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.6	Pass
Relative Humidity – During Test (%)		**10-70**	33.0	Pass	30.4	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.32	Pass	4.32	Pass
Peak Upper Rib Deflection (mm)		**32-40**	35.94	Pass	36.48	Pass
Peak Middle Rib Deflection (mm)		**39-45**	40.89	Pass	40.98	Pass
Peak Lower Rib Deflection (mm)		**35-43**	38.44	Pass	38.19	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**13-17**	16.43	Pass	15.69	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**7-11**	9.48	Pass	9.32	Pass
Peak Impactor Acceleration (G)		**14-18**	16.83	Pass	16.11	Pass

TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

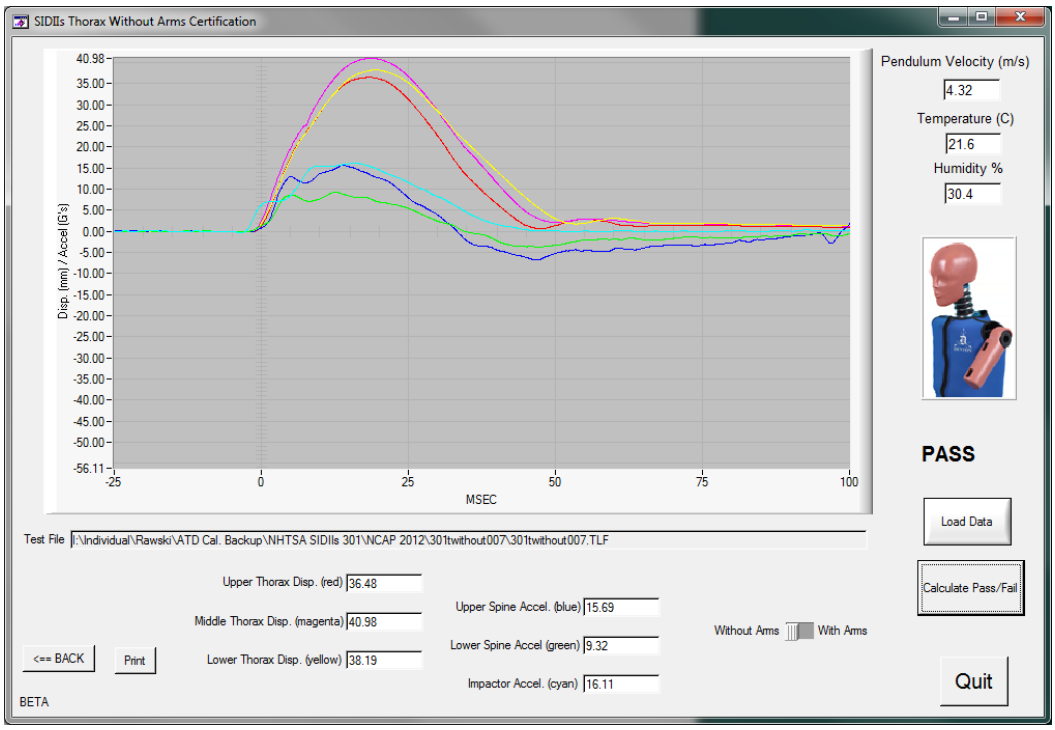


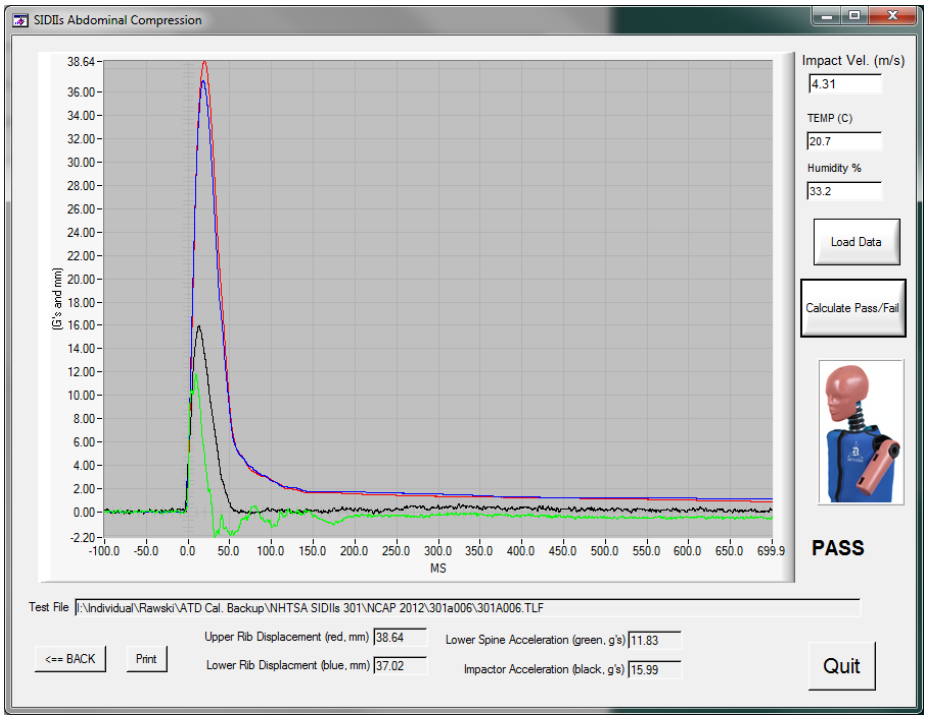
TABLE 7
ABDOMEN IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/14/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.0	Pass	22.0	Pass
	Min		21.6	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	40.1	Pass	32.1	Pass
	Min		30.9	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.5	Pass
Relative Humidity – During Test (%)		**10-70**	33.2	Pass	30.4	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.31	Pass	4.30	Pass
Peak Upper Abdominal Rib Deflection (mm)		**36-47**	38.64	Pass	40.47	Pass
Peak Lower Abdominal Rib Deflection (mm)		**33-44**	37.02	Pass	37.04	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**9-14**	11.83	Pass	11.18	Pass
Peak Impactor Acceleration (G)		**12-16**	15.99	Pass	15.32	Pass

TABLE 7
ABDOMEN IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

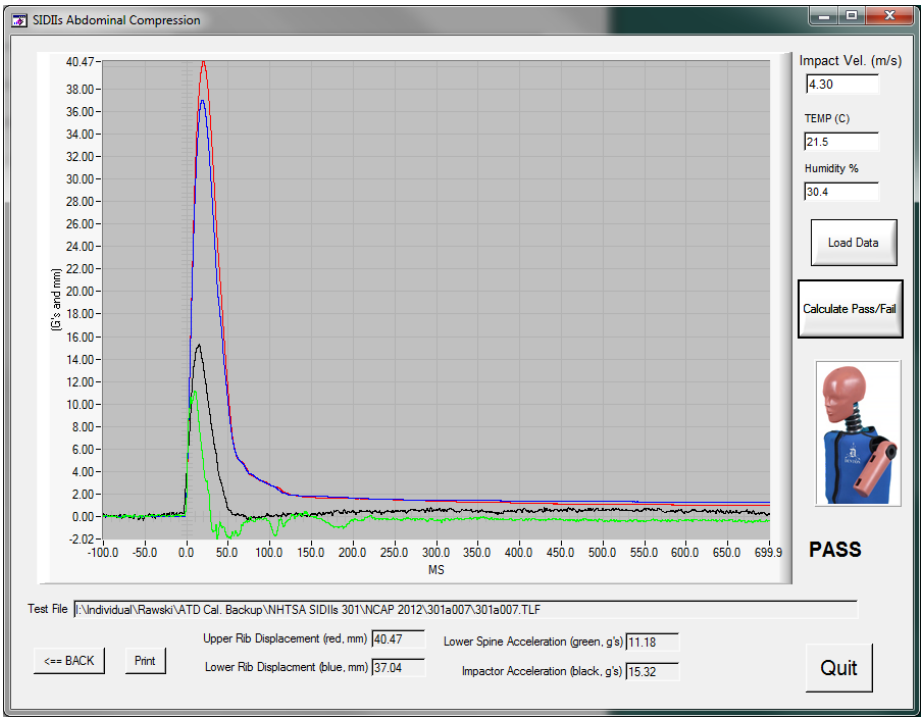
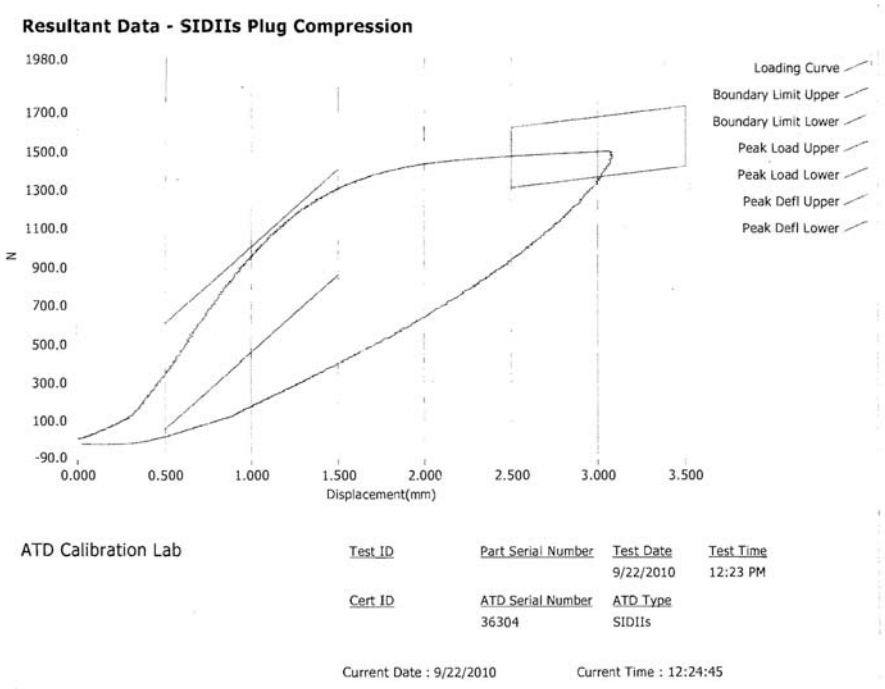


TABLE 8
PELVIS PLUG QUASI-STATIC TEST

PRE-Test



POST-TEST

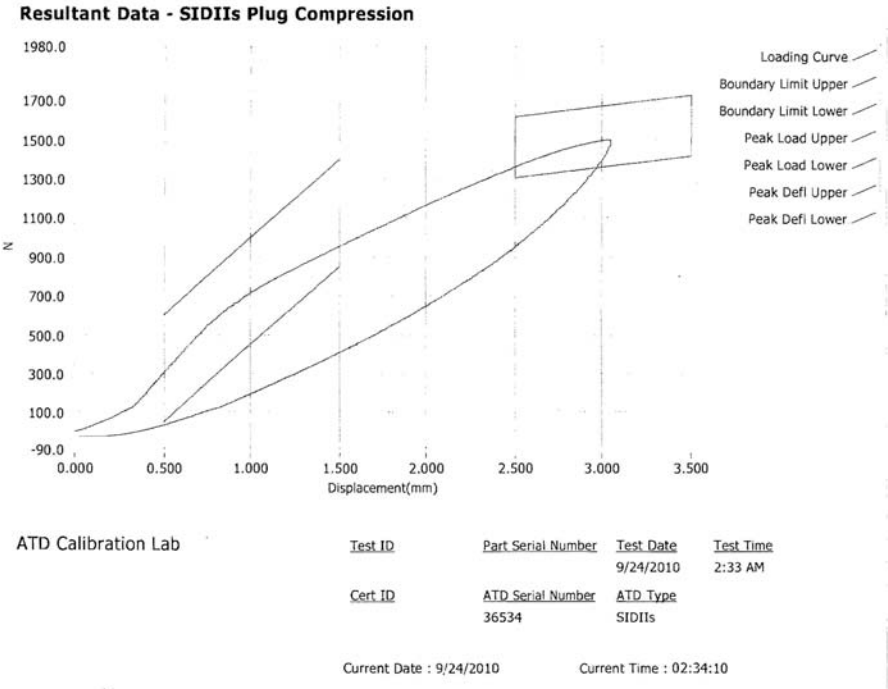


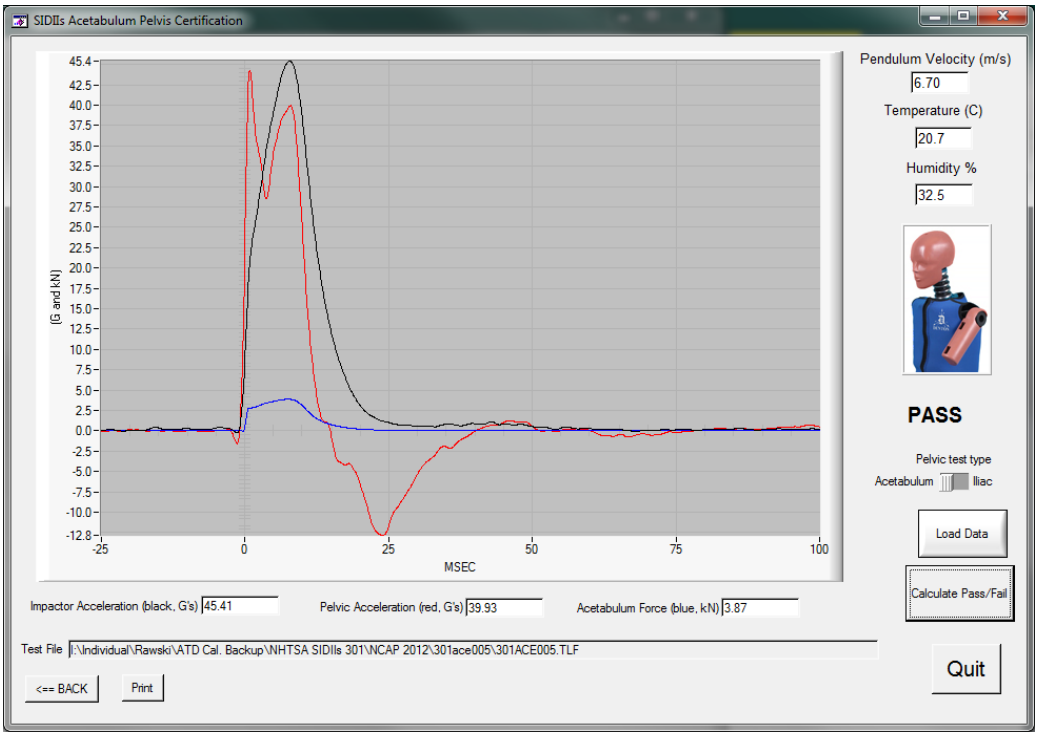
TABLE 9
PELVIS ACETABULUM IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/14/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Results**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.0	Pass	22.0	Pass
	Min		21.5	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	49.1	Pass	32.1	Pass
	Min		36.4	Pass	36.4	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.5	Pass
Humidity – During Test (%)		**10-70**	32.5	Pass	30.4	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.70	Pass	6.70	Pass
Peak Impactor Acceleration (G)		**38-47**	45.41	Pass	44.46	Pass
Pelvis Acceleration Y after 6ms (G)		**34-42**	39.93	Pass	38.59	Pass
Peak Acetabulum Force (kN)		**3.60-4.30**	3.87	Pass	3.84	Pass
Pelvis Plug Serial No. 36304 (Pre) No. 36534 (Post)						

TABLE 9
PELVIS ACETABULUM IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

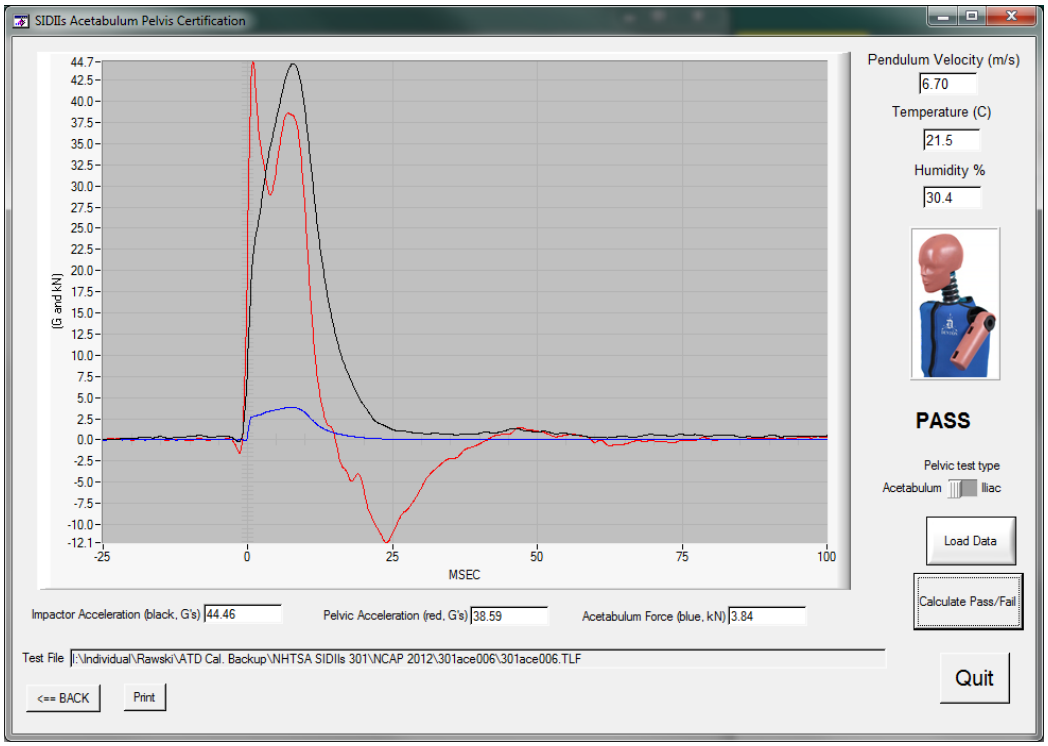


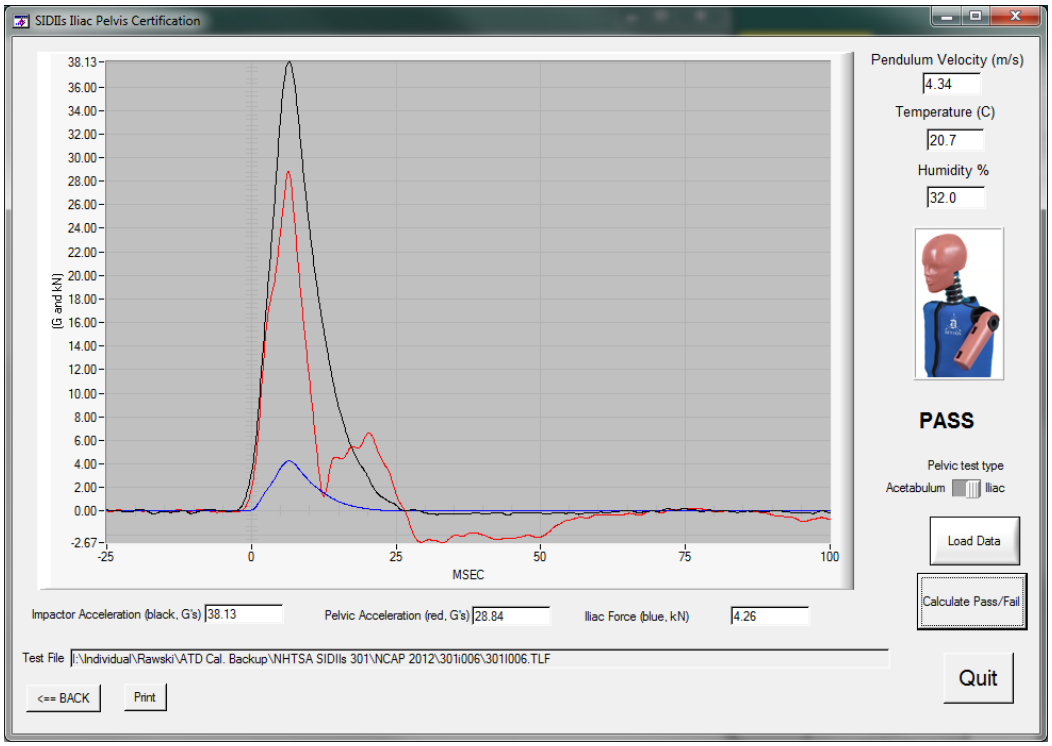
TABLE 10
PELVIS ILIAC IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 1 & 2

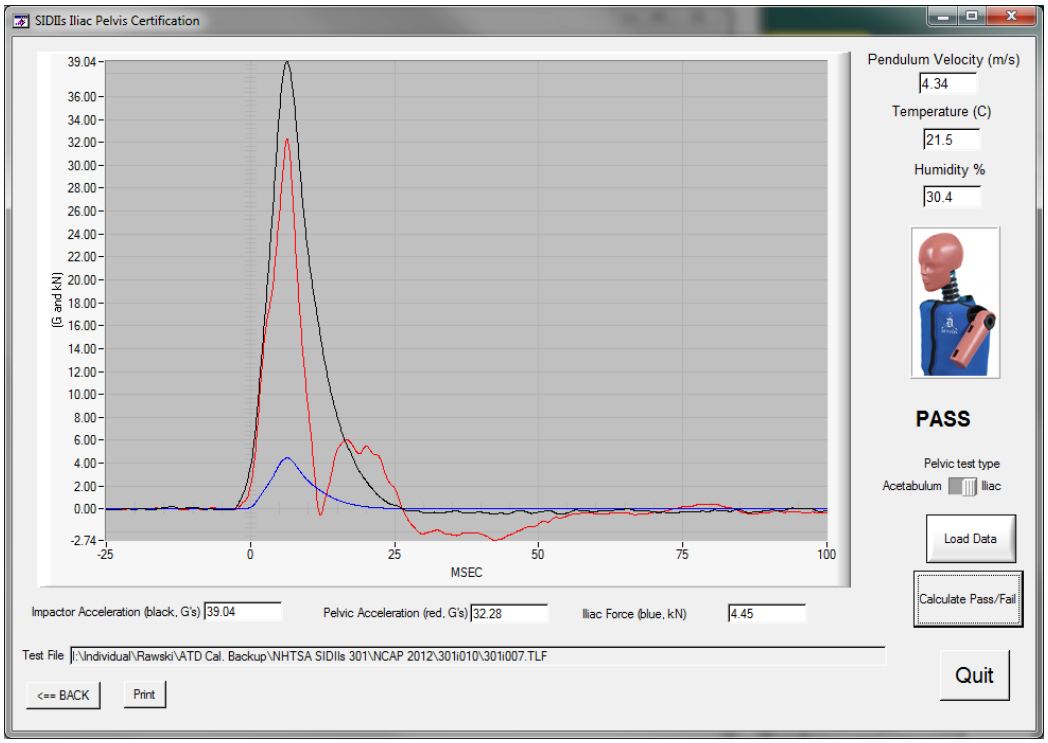
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	9/27/11		10/31/11	
Sequential Test Number		-	1		2	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.8	Pass	22.0	Pass
	Min		20.9	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	51.6	Pass	32.1	Pass
	Min		38.5	Pass	29.7	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.8	Pass	21.5	Pass
Humidity – During Test (%)		**10-70**	38.8	Pass	30.4	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.37	Pass	4.34	Pass
Peak Impactor Acceleration (G)		**36-45**	40.36	Pass	39.04	Pass
Pelvis Acceleration Y (G)		**28-39**	29.53	Pass	32.28	Pass
Peak Iliac Force Y (N)		**4.10-5.10**	4.47	Pass	4.45	Pass
Pelvis Plug Serial No. 36304 (Pre) No. 36534 (Post)						

TABLE 10
PELVIS ILIAC IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST



APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 - DUMMY INSTRUMENTATION

				SID-IIs S/N: 301		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	J43444	Endevco	25/APR/2011
			Y	J43739	Endevco	25/APR/2011
			Z	P21673	Endevco	25/APR/2011
			X_R	J43808	Endevco	25/APR/2011
			Y_R	12136	Endevco	25/APR/2011
			Z_R	P59119	Endevco	25/APR/2011
Displacement Potentiometers	Thoracic Rib	Upper	Y	1152	Denton	07/APR/2011
		Middle	Y	1142	Denton	07/APR/2011
		Lower	Y	1155	Denton	07/APR/2011
	Abdominal Rib	Upper	Y	1237	Denton	07/APR/2011
		Lower	Y	1205	Denton	07/APR/2011
Lower Spine Accelerometers (T_{12})			X	B13098	Endevco	25/APR/2011
			Y	J22318	Endevco	25/APR/2011
			Z	J22189	Endevco	25/APR/2011
Acetabulum Load Cell			Y	IF-507_115	FTSS	07/APR/2011
Iliac Wing Load Cell			Y	IF-520_114	FTSS	07/APR/2011
Pelvis Plug (Struck-Side)				36304	FTSS	22/SEP/11
Pelvis Plug (Non-Struck-Side)				36349	FTSS	23/SEP/11

TABLE 2 - VEHICLE INSTRUMENTATION				
		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P21608	Endevco	22/SEP/2011
Vehicle Center of Gravity	Y	P21785	Endevco	22/SEP/2011
Vehicle Center of Gravity	Z	P21605	Endevco	22/SEP/2011
Left Floor Sill	Y	A011644	MSI	22/SEP/2011
A-Pillar Sill	Y	A011655	MSI	22/SEP/2011
A-Pillar Low	Y	A086986	MSI	22/SEP/2011
A-Pillar Mid	Y	A086980	MSI	22/SEP/2011
B-Pillar Sill	Y	A086974	MSI	22/SEP/2011
B-Pillar Low	Y	A086972	MSI	22/SEP/2011
B-Pillar Mid	Y	A011625	MSI	22/SEP/2011
Driver Seat	Y	J43468	Endevco	22/SEP/2011
Engine Top	X	A011334	MSI	22/SEP/2011
Engine Top	Y	12110	Endevco	22/SEP/2011
Firewall	Y	J32662	Endevco	22/SEP/2011
Right Roof	Y	J43797	Endevco	22/SEP/2011
Right Floor Sill	Y	P23413	Endevco	22/SEP/2011
Rear Floorpan	X	A011335	MSI	22/SEP/2011
Rear Floorpan	Y	A010890	MSI	22/SEP/2011

TABLE 3 - POLE INSTRUMENTATION				
		Serial Number	Manufacturer	Calibration Date
Load Cell 1	Y	332403	Interface	12/JUL/11
Load Cell 2	Y	330834	Interface	12/JUL/11
Load Cell 3	Y	334238	Interface	12/JUL/11
Load Cell 4	Y	330824	Interface	12/JUL/11
Load Cell 5	Y	332400	Interface	12/JUL/11
Load Cell 6	Y	332420	Interface	12/JUL/11
Load Cell 7	Y	352865	Interface	12/JUL/11
Load Cell 8	Y	332407	Interface	12/JUL/11