REPORT NUMBER: SPNCAP-MCW-12-04

NEW CAR ASSESSMENT PROGRAM (NCAP)
SIDE IMPACT POLE TEST

HONDA OF AMERICA MFG., INC.
2012 HONDA PILOT 5-DOOR SUV

NHTSA NUMBER: MC 5307

PREPARED BY:
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TEST DATE: 10 NOVEMBER 2011

REPORT DATE: 23 NOVEMBER 2011

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: _____

Date: 12/21/11

Reviewed by: _____

Date: 21 DEC 2011

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

1. Report No. SPNCAP-MCW-12-04	*2. Government Accession No.*	*3. Recipient's Catalog No.*
4. Title and Subtitle Final report of New Car Assessment Program Side Impact Pole Testing of a 2012 Honda Pilot 5-Door SUV NHTSA No. MC 5307		*5. Report Date* 23 November 2011 *6. Performing Organization Code* MCW
7. Author(s) Frank Pintar, Project Manager Mark Meyer, Project Engineer		*8. Performing Organization Report No.* MCW-12-04
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:* November 10 to November 23 *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 Honda Pilot 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 10 November 2011.

The impact velocity was 31.8 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 20 °C. The test vehicle's post-test maximum static crush was 520 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	585
Resultant Lower Spine Acceleration	G's	82	60
Total Pelvic Force (Acetabular & Pelvic)	NWT	5525	2955
Maximum Thoracic Rib Deflection	mm	38	28
Maximum Abdomen Rib Deflection	mm	45	21

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	
19. Security Classif. (of this report) Unclassified	*20. Security Classif. (of this page)* Unclassified	*21. No. of Pages* 106	22. Price

Form DOT F1700.7 (8-72)

TABLE OF CONTENTS

Section		Page No.
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	5

Data Sheet No.		Page No.
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment, and Fuel System Data	10
3	Dummy Longitudinal Clearance Dimensions	14
4	Dummy Lateral Clearance Dimensions	15
5	Camera and Instrumentation Data	16
6	Vehicle Accelerometer Data	18
7	Rigid Pole Load Cell Data	19
8	Post-Test Observations	20
9	Vehicle Profile Measurements	22
10	Vehicle Exterior Crush Measurements	23
11	FMVSS No. 301 Fuel Integrity Post-Impact Data	26
12	Dummy/Vehicle Temperature Stabilization Data	28

Appendix		
A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY'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 Honda Pilot 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 Honda Pilot 5-Door SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 31.8 km/h. The test was conducted at the Medical College of Wisconsin, in Milwaukee, Wisconsin, on 10 November 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 eighteen (18) 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).

Two (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 520 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	585
Lower Spine Acceleration	G's	82	60
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	NWT	5525	2955
Maximum Thoracic Rib Deflection	mm	38*	28
Maximum Abdominal Rib Deflection	mm	45*	21

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 Curtain Airbag	Yes – Roof Rail	Deployed
Side Torso/Abdomen/Pelvis Side Airbag	Yes – Seat Back	Deployed
Seat Belt Pretensioner	Yes	Deployed
Seat Belt Load Limiter	Yes	N/a
Other	No	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 5307
Model Year	2012
Make	Honda
Model	Pilot
Body Style	5 – Door SUV
VIN	5FNYF3H28CB005722
Body Color	Alabaster Silver
Odometer Reading (km/mi)	91 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	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering	Yes
Power Seats	No
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

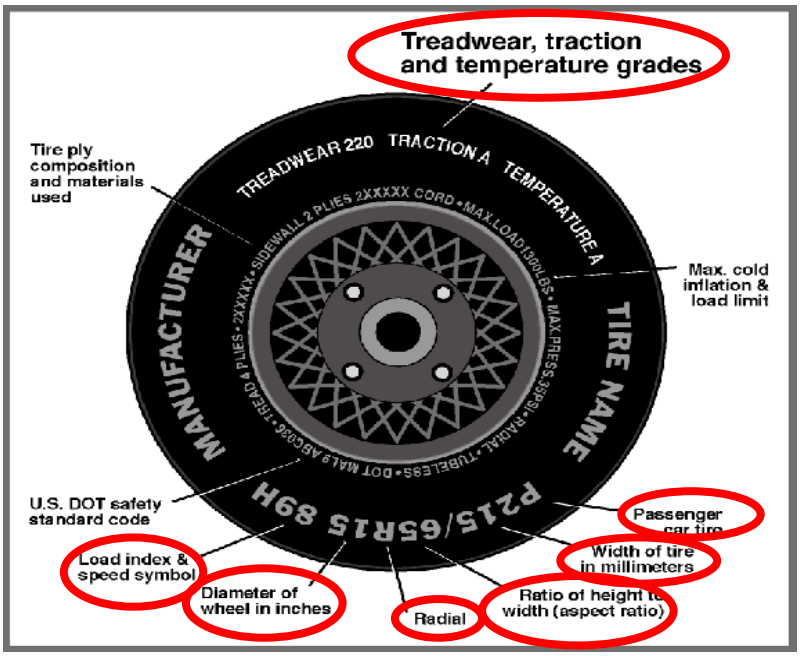
DATA FROM CERTIFICATION LABEL			
Manufacturer	Honda of America Mfg., Inc.	GVWR (kg)	2700
Date of Manufacture	October 2011	GAWR Front(kg)	1325
Vehicle Type	SUV	GAWR Rear (kg)	1450

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION					
	Front	**Rear**	**Third**	**Total**	
Designated Seating Capacity (DSC)	2	3	3	8	
Capacity Weight (VCW) kg				607.8	(A)
DSC X 68.04 kg				544.3	(B)
Rated Cargo Weight (RCLW)				63.5	(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	N/a	
Third Row Seat			X	X	X	N/a	

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



TIRE PLACARD INFORMATION		
Measured Parameter	**Front**	**Rear**
Recommended Cold Tire Pressure (kPa)	210	230
Recommended Tire Size	P235/65R17	P235/65R17

TIRE SIDEWALL INFORMATION		
Measured Parameter	**Front**	**Rear**
Max. Tire Pressure (kPa)	300	300
Tire Size on Vehicle	P235/65R17	P235/65R17
Tire Manufacturer	Continental	Continental
Tire Name	ContiProContact	ContiProContact
Tire Type	Passenger	Passenger
Tire Width	235	235
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index/Speed Symbol	103T	103T
Treadware	500	500
Traction Grade	AA	AA
Temperature Grade	A	A
Tire Material	Polyester, Steel, Polyanide	Polyester, Steel, Polyanide

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

TIRE PRESSURES					
	Units	**LF**	**RF**	**LR**	**RR**
As Delivered	kpa	241	240	241	242
Tire Placard	kpa	210	210	230	230
Owner's Manual	kpa	210	210	230	230
As Tested	kpa	217	216	231	231

TEST VEHICLE AXLE WEIGHTS										
	Units	**As Delivered (UVW)**			**As Tested (ATW)**			**Fully Loaded**		
		Front	**Rear**	**Total**	**Front**	**Rear**	**Total**	**Front**	**Rear**	**Total**
Left	kg	563.4	416.9		572.9	461.8		572.5	530.7	
Right	kg	532.5	420.0		552.9	446.3		470.9	466.3	
Ratio	%	56.7	43.3		55.4	44.6		51.1	48.9	
Totals	kg	1095.9	836.9	1932.8	1125.8	908.1	2033.9	1043.4	997.0	2040.4

TARGET TEST WEIGHT CALCULATION			
	Units		
Total Delivered Weight (UVW)	kg	1932.8	(A)
Sum of Actual Weight of 1 P572 ATDs (SID-IIs) Used	kg	44.1	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	63.5	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	2040.4	(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)**
Removed right rear tail-light and plastic storage container in rear of vehicle; added ballast in rear to achieve calculated "As Tested" weight	34.5

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.	-0.4	-0.5	-0.5	Yes
Front Pass. Door Sill Angle (Front to Rear)*	Deg.	0.0	-0.4	-0.2	Yes
Front Bumper Angle (Left to Right)	Deg.	-0.3	0.0	0.0	Yes
Rear Bumper Angle (Left to Right)	Deg.	-0.3	-0.1	-0.2	Yes
Vehicle CG (Aft of Front Axle)	mm	1202	1239	1356	
Vehicle CG Left (+) / Right (-) from Long. Centerline)	mm	14	17	81	

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

SCRL ANGLE RANGE			
	SCRL (°)		
	Max	**Min**	**Mid**
Driver Seat	11.9	10.3	11.1
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	11.1	N/a	Max	N/a	N/a	N/a
	11.1	-153.6	Mid	-129.2	-141.6	-153.6
	11.1	N/a	Min	N/a	N/a	N/a
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	-270.4	Mid	-270.4	-271.2	-272.0
	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			

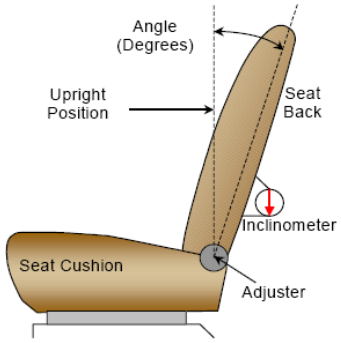
*If applicable

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	240	25	0	0 (w/ Full Forward = 0)
Front Passenger Seat	238	25	0	0 (w/ Full Forward = 0)
Front Center Seat*				
Struck Side Rear Seat	100	11	100	11
Non-Struck Side Rear Seat	100	11	100	11
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	60.0	Not-Measured	6.5	6
Front Passenger Seat	58.2	Not-Measured	6.3	6
Front Center Seat*				
Struck Side Rear Seat	Fixed	N/a	7.7	N/a
Non-Struck Side Rear Seat	Fixed	N/a	7.7	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.

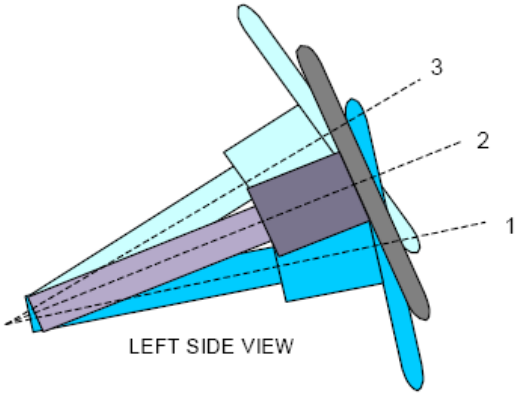
SEAT BELT ANCHORAGE ADJUSTMENT (D-RING)		
	Total No. of Positions	**Placement**
Driver Seat	4	M1

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

HEAD RESTRAINT ADJUSTMENT		
	Total No. of Positions	**Placement**
Driver Seat	7	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	20.7°	20 mm	
Geometric Center, Pos. No. 2	24.0°	20 mm	
Uppermost, Pos. No. 3	27.3°	20 mm	
Telescoping Steering Wheel Travel	N/a	40 mm	
Test Position	24.0°	20 mm	

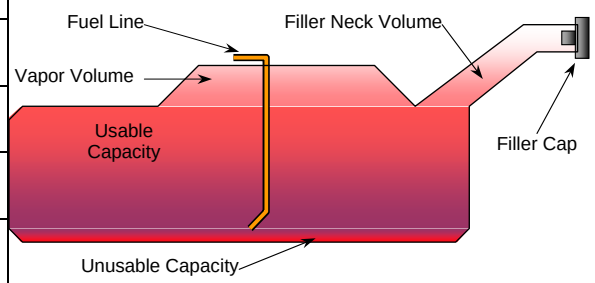


STEERING COLUMN ASSEMBLY

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	79.5
Usable Capacity of Optional Equipment Fuel Tank	L	0.0
Usable Capacity of Standard Tank as Specified in Owner's Manual	L	79.5
Usable Capacity of Optional Tank as Specified in Owner's Manual	L	0.0
Amount of Stoddard Added for Test	L	73.9
% Usable Capacity (92%-94%)	%	93.0
1/3 of Usable Capacity	26.5	



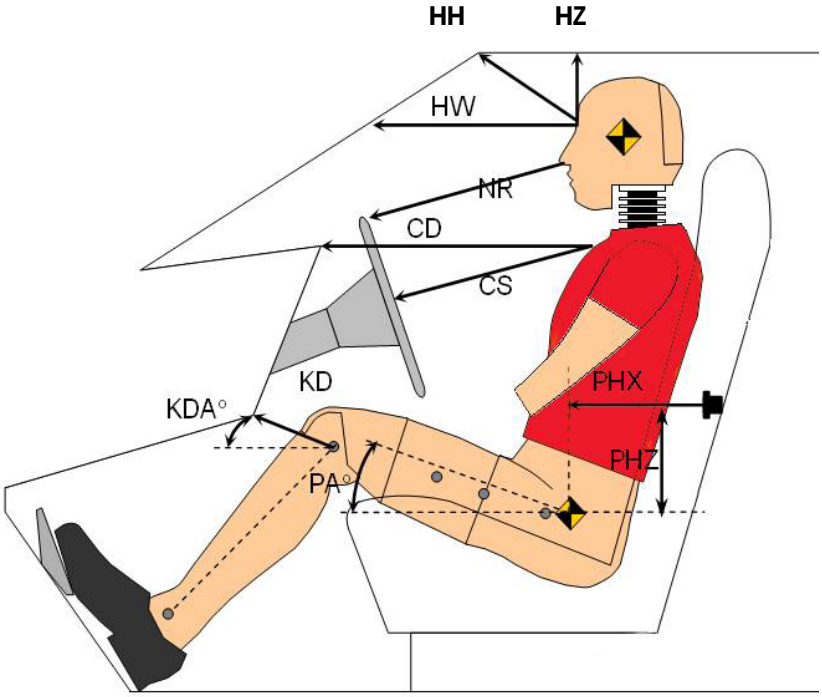
VEHICLE FUEL TANK ASSEMBLY

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?

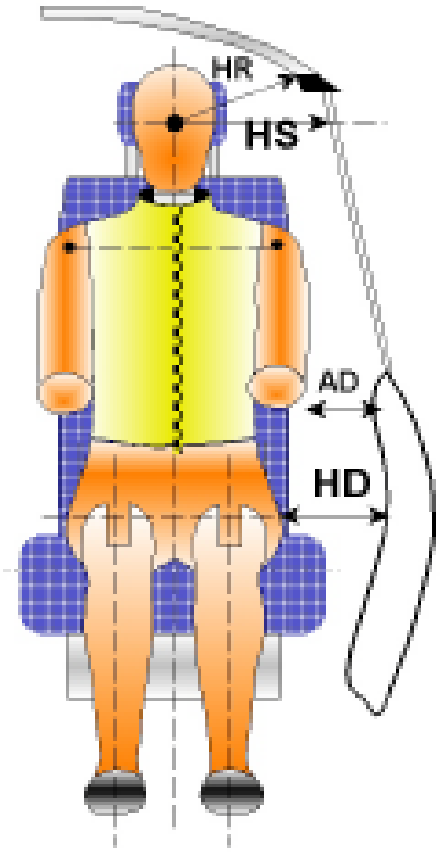
Yes

DATA SHEET NUMBER NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	365	
HW	Head to Windshield	637	
HZ	Head to Roof	303	
NR	Nose to Rim	267	
CD	Chest to Dashboard	429	
CS	Chest to Steering Wheel	195	
KDL	Left Knee to Dash	103	
KDAL	Left Knee to Dash		28.9
KDR	Right Knee to Dash	93	
KDAR	Right Knee to Dash		29.2
PAX	Pelvic Tilt Angle (X-Axis)		0.0
PAY	Pelvic Tilt Angle (Y-Axis)		18.6
PHX	H-Point to Striker (X-Axis)	322.2	
PHZ	H-Point to Striker (Z-Axis)	84.6	

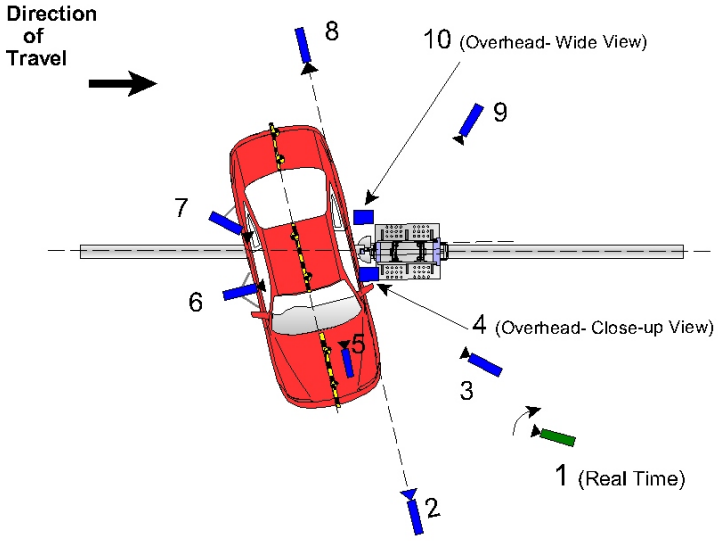
DATA SHEET NUMBER NO. 4
DUMMY LATERALL CLEARANCE DIMENSIONS



DUMMY LATERAL CLEARANCE DIMENSIONS		
Code	**Measurement Description**	**Length (mm)**
HR	Head to Side Header	296
HS	Head to Side Window	396
AD	Arm to Door	148
HD	Hip Point to Door	160

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Camera Locations



	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	9449	-3048	-1395	50	1000
3	Impact Side 45° - Forward View of Pole	6401	-3658	-1565	35	1000
4	Overhead Close – Up View of Impact	32	375	-5906	17	1000
5	Onboard – Dummy Front View				12.5	1000
6	Onboard – Dummy Side View				12.5	1000
7	Onboard – Dummy Rear Oblique View				17	1000
8	Rear Ground Level – Impact View	-7925	-2134	-1245	25	1000
9	Impact Side 45° - Rearward Pole View	-8839	-3652	-1632	35	1000
10	Overhead Wide – View Impact	110	38	-5889	12.5	1000
11	Real – Time (24 – 30 fps)Dummy Front View				25	24

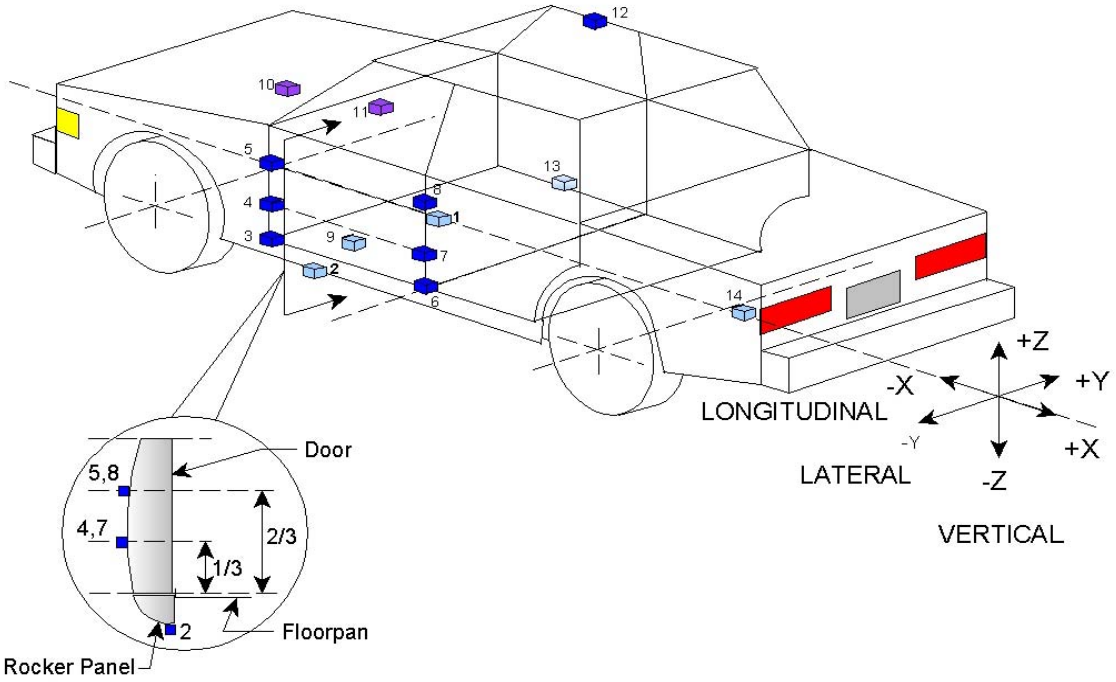
Origin		Orientation	
X	Impact Point	X	+(X) Forward
Y	Impact Point	Y	+(Y) Right
Z	Ground	Z	+(Z) Down

**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

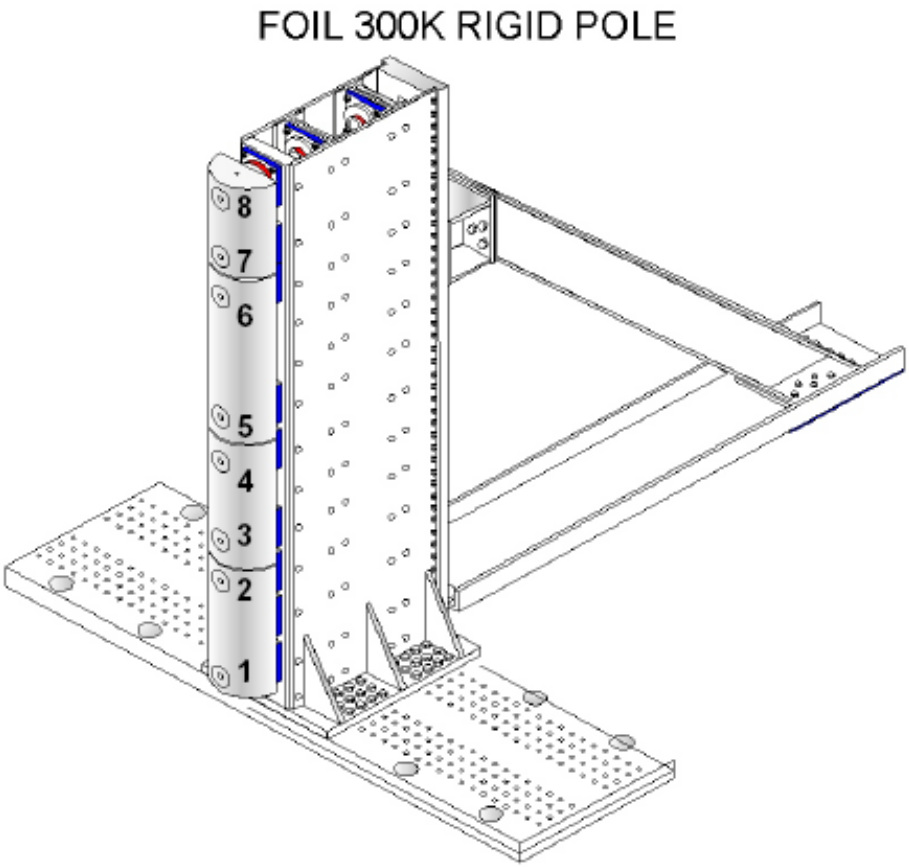
DATA SHEET NO. 6
VEHICLE ACCELEROMETER LOCATIONS



ACCELEROMETER/SENSOR LOCATION				
Loc. no.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	3262.1	79.9	-7.43
2	Left Floor Sill	3004.2	-813.1	139.0
3	A-Pillar Sill	3218.4	-816.0	142.0
4	A-Pillar Low	3366.1	-914.5	-258.7
5	A-Pillar Mid	3372.1	-916.1	-465.6
6	B-Pillar Sill	2348.7	-802.3	136.3
7	B-Pillar Low	2344.0	-920.8	-217.1
8	B-Pillar Mid	2354.1	-907.5	-457.3
9	Driver Seat Track	2746.4	-697.2	-84.9
10	Engine Top	4149.3	150.0	-466.0
11	Firewall	3778.0	146.9	-466.0
12	Right Roof	2326.8	591.1	-1302.1
13	Right Floor Sill	2676.7	799.4	126.5
14	Rear Floorpan	919.5	-22.7	-137.8

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	To Side Curtain Airbag
Left Shoulder	To Side Airbag
Upper Torso	Along Seat-Back To Side Airbag
Lower Torso	Along Seat-Back 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

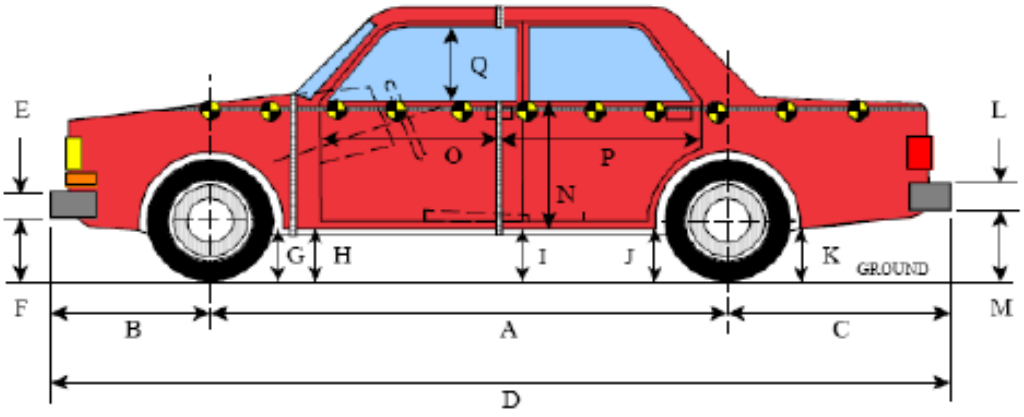
DATA SHEET NUMBER NO. 8
POST TEST OBSERVATIONS (CONTINUED)

POST TEST STRUCTURAL OBSERVATIONS	
Critical Areas of Performance	**Observations/Conclusions**
Pillar Performance	No Separation
Sill Separation	Max Sill Separation of 75 mm at Rear Door Below Latch; Door Remained Latched
Windshield Damage	Cracking Along Entire Windshield; Heaviest Concentration at Upper Left
Window Damage	Front Window Shattered at Impact
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

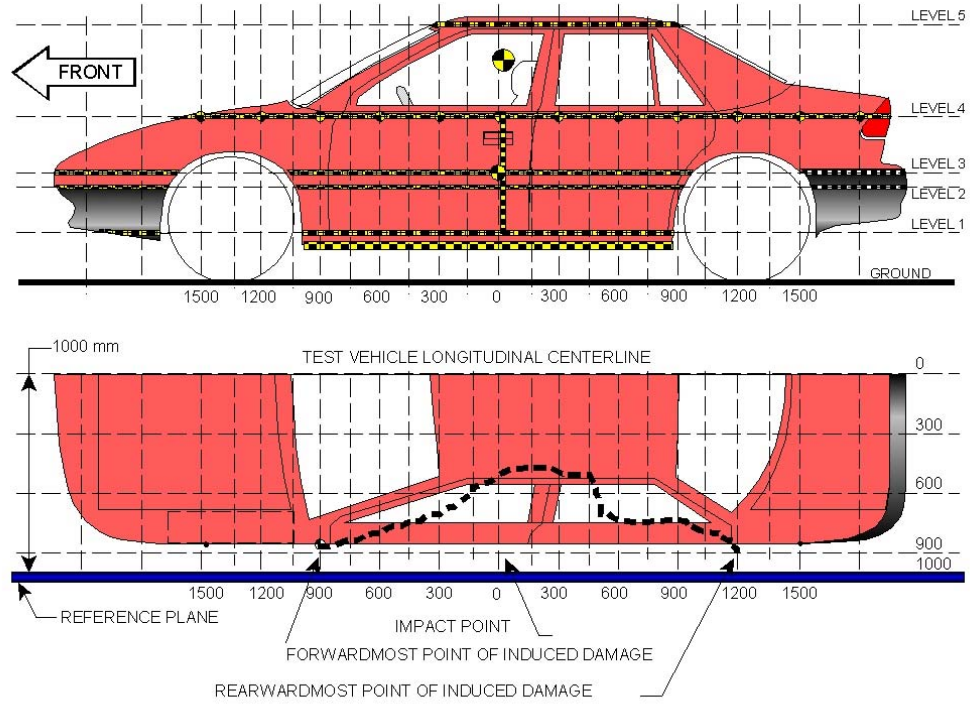
IMPACT SPEED			
Measured Parameter	**Units**	**Tolerance**	**Value**
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1111
Actual Impact Point (Aft of Front Axle)	mm		1118
Horizontal Offset (+ forward / - rear)	mm	+/- 38 of Intended Impact Point	-7
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	degrees	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	31.8
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	31.8

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	2776	2606	-170
B	Front Axle to FSOV	745	775	30
C	Rear Axle to RSOV	984	994	10
D	Total Length at Centerline	4856	4798	-58
E	Front Bumper Thickness	152	152	0
F	Front Bumper Bottom to Ground	565	603	38
G	Sill Height at Front Wheel Well	351	358	7
H	Sill Height at Front Door Leading Edge	364	363	-1
I	Sill Height at B-Pillar	380	385	5
J1	Sill Height at Rear Wheel Well	321	344	23
J2	Pinch Weld Height at Rear Wheel Well	383	410	27
K	Sill Height Aft of Rear Wheel Well	430	450	20
L	Rear Bumper Thickness	246	246	0
M	Rear Bumper Bottom to Ground	466	463	-3
N	Sill Height to Window Bottom Sill	832	830	-2
O	Front Door Leading Edge to Impact C/L	1040	690	-350
P	Rear Door Trailing Edge to Impact C/L	1048	1046	-2
Q	Front Window Opening	444	405	-39
R	Right Side Length	4505	4513	8
S	Left Side Length	4505	4375	-130
T	Vehicle Width at B-Pillar	1985	1847	-138

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	371	419	0
2	Occupant Hip Point	773	520	0
3	Mid-Door	787	520	0
4	Window Sill	1162	458	150
5	Window Top	1662	332	150

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

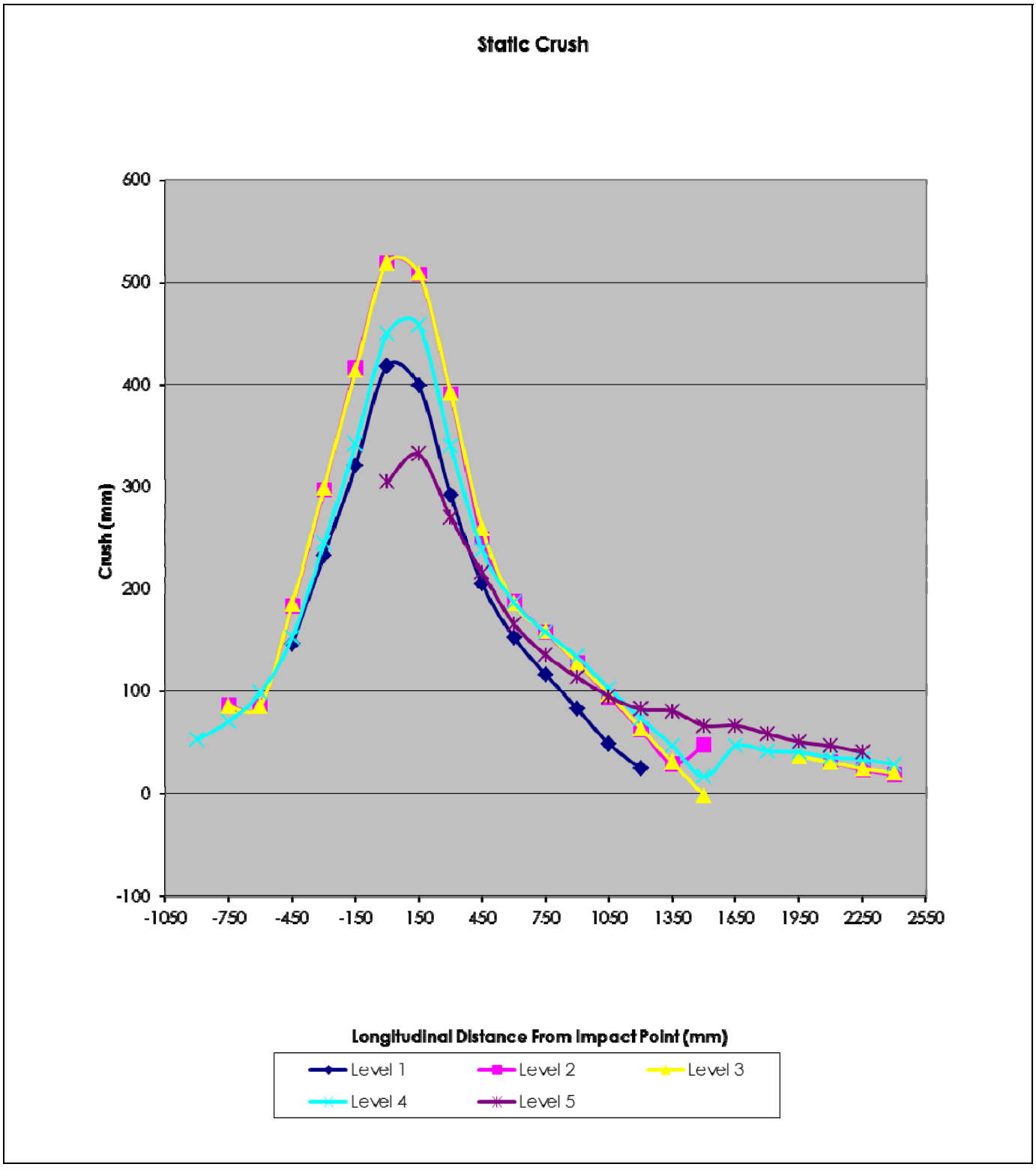
DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS
(CONTINUED)

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

TEST VEHICLE STATIC CRUSH

Level		1			2			3			4			5		
		371			773			787			1162			1662		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1650															
	-1500															
	-1350										340	386	46			
	-1200										327	376	49			
	-1050				170	217	47	174	222	48	317	366	49			
	-900										307	360	53			
	-750				168	255	87	170	256	86	299	370	71			
	-600				183	269	86	185	271	86	289	388	99			
	-450	249	396	147	189	373	184	188	373	185	284	437	153			
	-300	277	510	233	186	483	297	186	485	299	274	519	245			
	-150	277	598	321	185	602	417	185	599	414	268	610	342			
	0	277	696	419	184	704	520	184	704	520	263	713	450	449	754	305
	150	276	675	399	184	692	508	183	692	509	260	718	458	444	776	332
	300	278	570	292	184	575	391	183	575	392	256	596	340	442	712	270
	450	275	480	205	184	434	250	184	443	259	252	490	238	442	658	216
	600	276	429	153	183	371	188	184	370	186	250	437	187	440	606	166
	750	277	394	117	180	338	158	184	343	159	249	407	158	438	574	136
	900	278	361	83	180	308	128	185	313	128	244	378	134	438	552	114
	1050	276	325	49	182	277	95	187	284	97	245	348	103	439	534	95
	1200	249	274	25	184	247	63	190	254	64	244	318	74	439	522	83
	1350				175	205	30	175	206	31	245	292	47	438	519	81
	1500				166	214	48	165	163	-2	238	255	17	439	506	67
	1650										242	289	47	440	507	67
	1800										254	296	42	442	501	59
	1950							163	200	37	258	299	41	445	496	51
	2100				174	205		179	210	31	264	300	36	449	496	47
	2250				220	244		224	249	25	271	305	34	459	500	41
	2400				250	269		249	270	21	284	313	29			

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

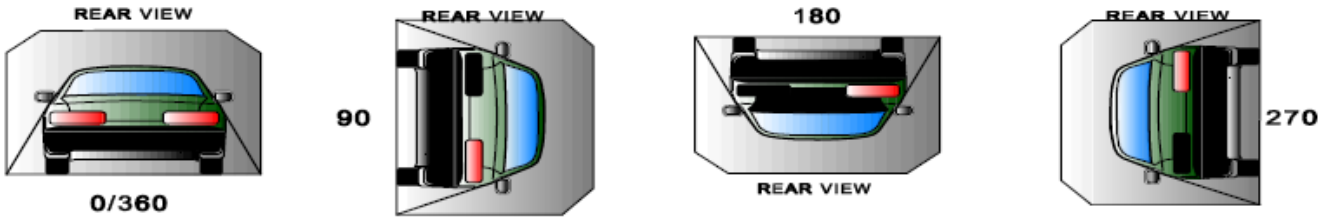


DATA SHEET NO. 11
FMVSS 301 STATIC ROLLOVER RESULTS

Temperature at Time of Impact: 20° C Test Time: 1:10 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



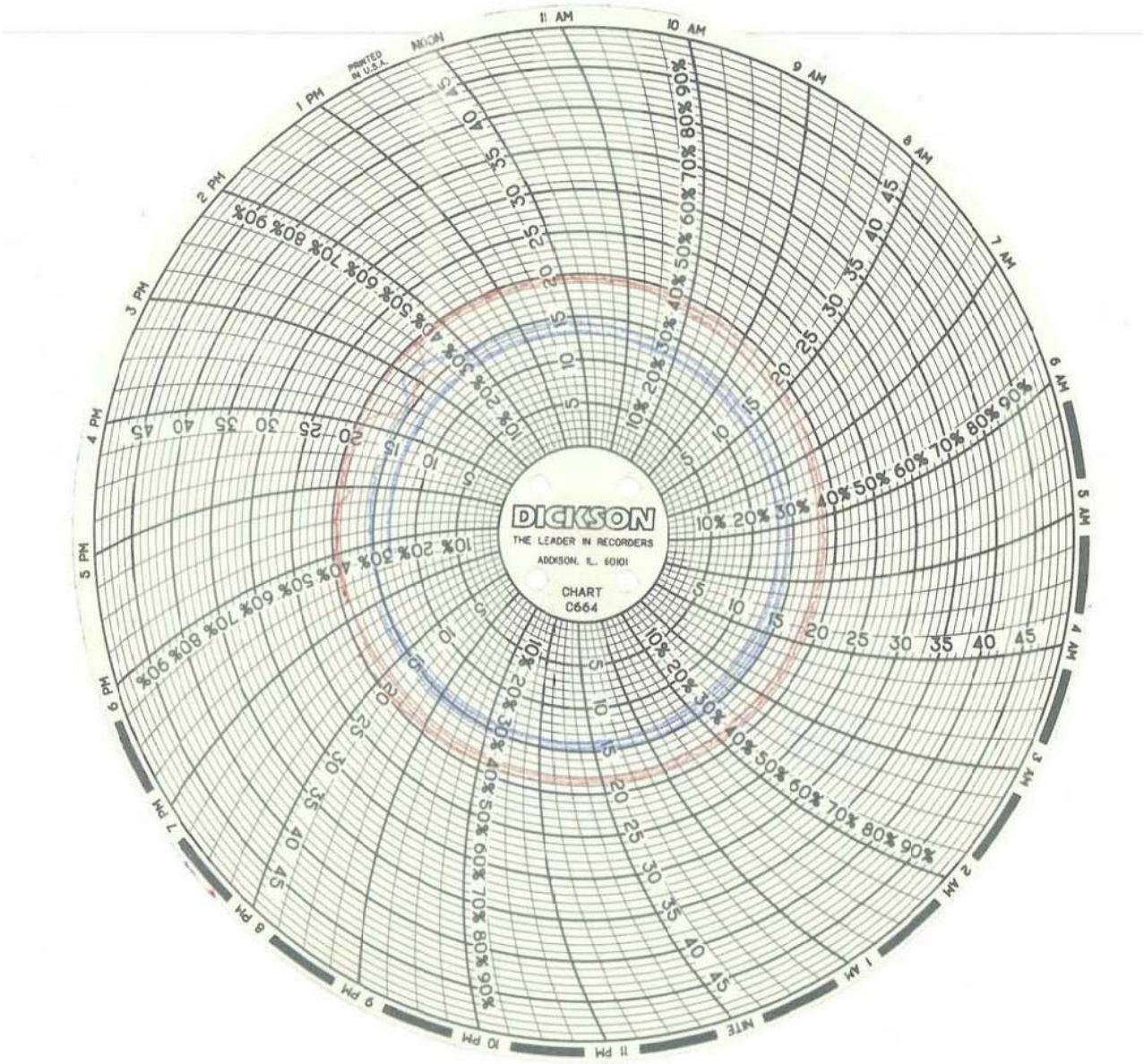
ROLLOVER SOLVENT COLLECTION TIME TABLE			
Test phase	**Rotation Time (sec.)**	**Hold Time (sec.)**	**Total Time (sec.)**
0° to 90°	65	300	365
90° to 180°	61	300	361
180° to 270°	65	300	365
270° to 360°	63	300	363

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

Figure	Photograph Description	Page
001	As Delivered Right Front 3-4 View of Test Vehicle	A-4
002	As Delivered Left Rear 3-4 View of Test Vehicle	A-4
003	Pre-Test Frontal View of Test Vehicle	A-5
004	Post- Test Frontal View of Test Vehicle	A-5
005	Pre-Test Left Front 3-4 View of Test Vehicle	A-6
006	Post- Test Left Front 3-4 View of Test Vehicle	A-6
007	Pre-Test Left Side View of Test Vehicle	A-7
008	Post- Test Left Side View of Test Vehicle	A-7
009	Pre-Test Left Rear 3-4 View of Test Vehicle	A-8
010	Post- Test Left Rear 3-4 View of Test Vehicle	A-8
011	Pre-Test Rear View of Test Vehicle	A-9
012	Post- Test Rear View of Test Vehicle	A-9
013	Pre-Test Right Side View of Test Vehicle	A-10
014	Post- Test Right Side View of Test Vehicle	A-10
015	Pre- Test Overhead View of Test Area	A-11
016	Post- Test Overhead View of Test Area	A-11
017	Pre- Test Left Side View of Pole Positioned Against Side of Vehicle	A-12
018	Pre- Test Right Side View of Pole Positioned Against Side of Vehicle	A-12
019	Pre- Test Close-Up View of Impact Point Target	A-13
020	Post- Test Close-Up View of Impact Point Target Showing Impact Location	A-13
021	Pre- Test Front Close-Up View of Dummy Head and Chest	A-14
022	Post- Test Front Close-Up View of Dummy	A-14
023	Pre- Test Left Side View of Dummy Showing Belt and Chalking	A-15
024	Pre- Test Left Side View of Dummy Shoulder and Driver Door Top View	A-15
025	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-16
026	Pre- Test Frontal View of Seat Back Prior to Dummy Positioning	A-16
027	Pre- Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint	A-17
028	Pre- Test Frontal View of Seat Pan Prior to Dummy Positioning	A-17
029	Pre- Test Overhead View of Dummy Thighs on Seat Pan	A-18
030	Pre- Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-18
031	Pre- Test View of Dummy's Head Showing Dummy's Head is Level	A-19
032	Pre- Test Placement of Dummy's Feet	A-19
033	Pre- Test View of Belt Anchorage for Dummy	A-20
034	Pre- Test Left Side View of Steering Wheel	A-20
035	Pre- Test View of Disengaged Parking Brake	A-21
036	Pre- Test View of Parking Brake	A-21
037	Pre - Test Close-Up Left Side View of Driver Seat Track	A-22
038	Pre- Test Close-Up Left Side View of Driver Seat Back	A-22
039	Pre- Test Close-Up View of Driver Seat Back or Head Restraint	A-23

LIST OF PHOTOGRAPHS (CONTINUED)

Figure	Photograph Description	Page
040	Post- Test Dummy and Door Clearance View	A-23
041	Post-Test Dummy and Door Clearance View	A-24
042	Pre- Test Right Side View of Dummy and Front Seat Occupant Compartment	A-24
043	Post- Test Right Side View of Dummy and Front Seat Occupant Compartment	A-25
044	Pre- Test Inner Driver Door Panel View	A-25
045	Post- Test Inner Door Panel View Showing Dummy Contact Locations	A-26
046	Post- Test Dummy Close-Up Head Contact with Vehicle Interior View	A-26
047	Post- Test Dummy Close-Up Head Contact with Side Airbag View	A-27
048	Post- Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-27
049	Post- Test Dummy Close-Up Torso Contact with Side Airbag View	A-28
050	Post- Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-28
051	Post- Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-29
052	Pre- Test View of Fuel Filler Cap or Fuel Filler Neck	A-29
053	Post- Test View of Fuel Filler Cap or Fuel Filler Neck	A-30
054	Close-up View of Vehicle's Certification Label	A-30
055	Close-up View of Vehicle's Tire Information Placard or Label	A-31
056	Pre- Test Pole Barrier Front View	A-31
057	Post- Test Pole Barrier Front View	A-32
058	Pre- Test Pole Barrier Side View	A-32
059	Post- Test Pole Barrier Side View	A-33
060	Pre- Test Ballast View	A-33
061	Impact Event	A-34
062	FMVSS No. 301/305 Rollover 0°	A-34
063	FMVSS No. 301/305 Rollover 90°	A-35
064	FMVSS No. 301/305 Rollover 180°	A-35
065	FMVSS No. 301/305 Rollover 270°	A-36
066	FMVSS No. 301/305 Rollover 360°	A-36
067	Impact Event	A-37
068	Monroney label	A-37
069	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-38

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

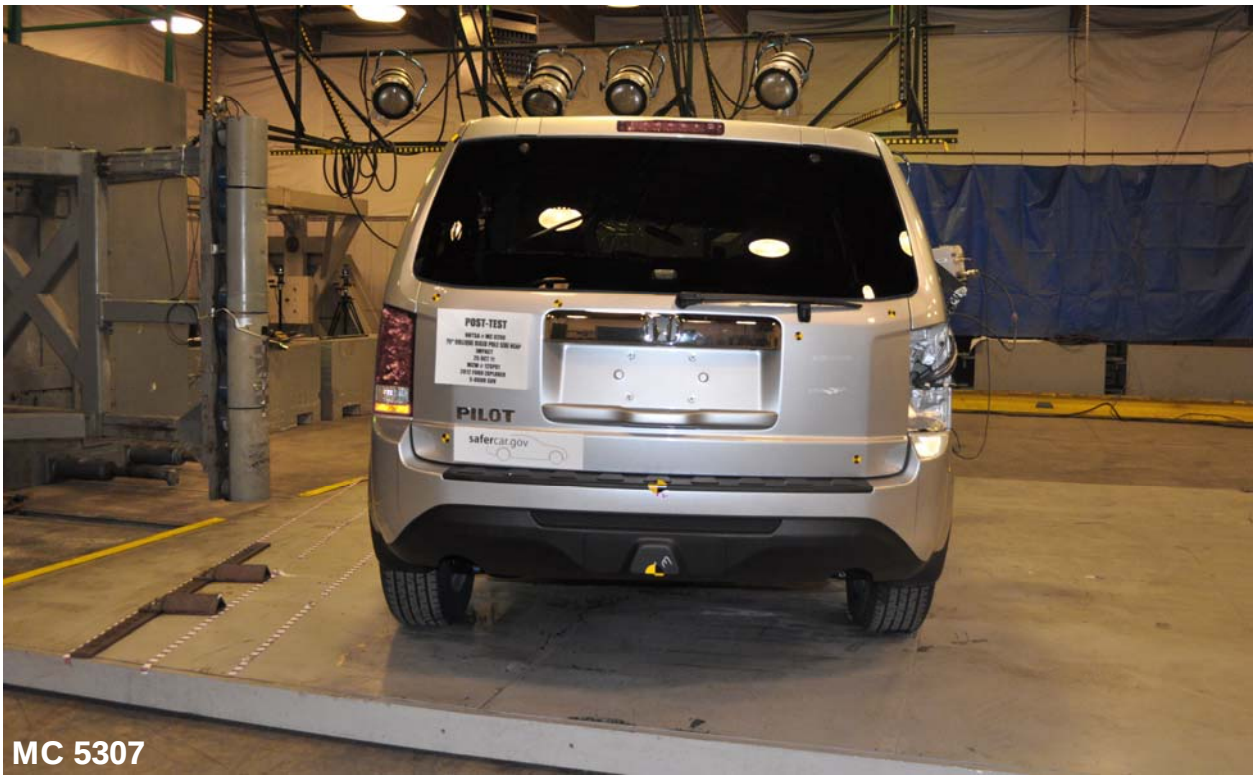


Figure 012: Post-Test Rear View of Test Vehicle

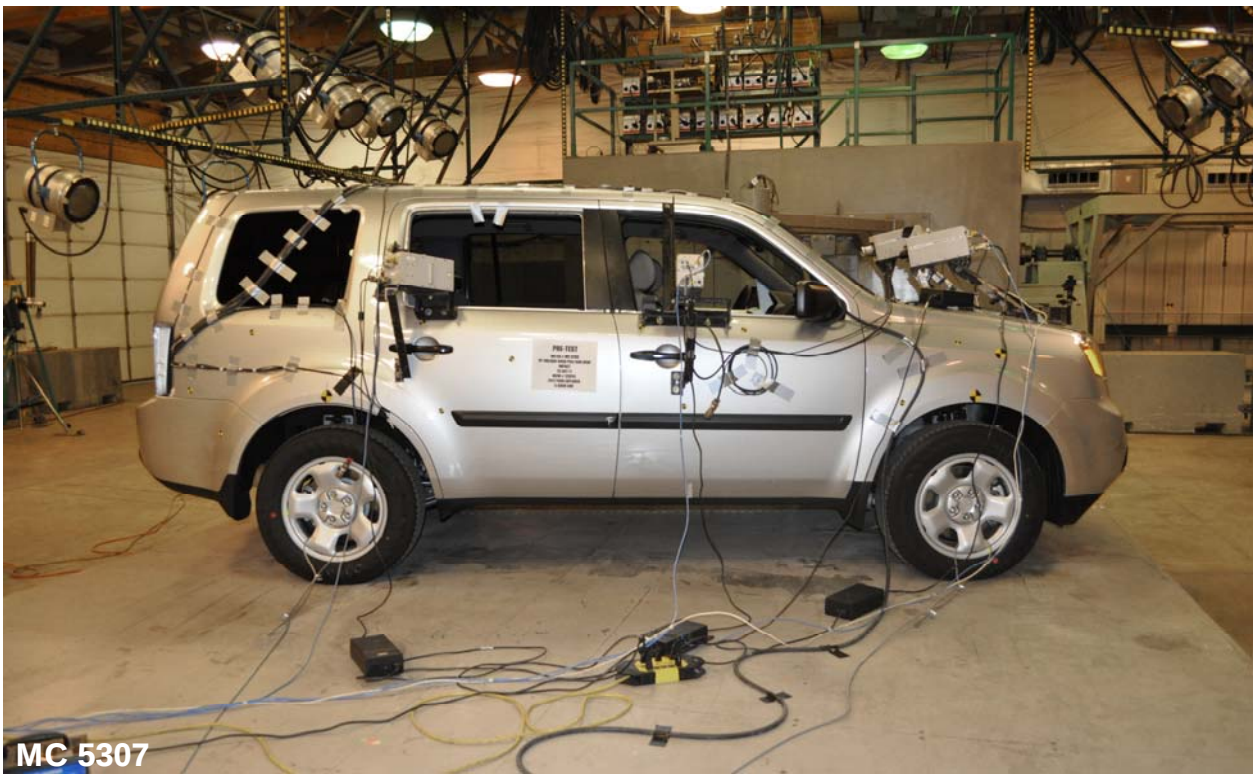


Figure 013: Pre-Test Right Side View of Test Vehicle

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

Figure 015: Pre-Test Overhead View of Test Area

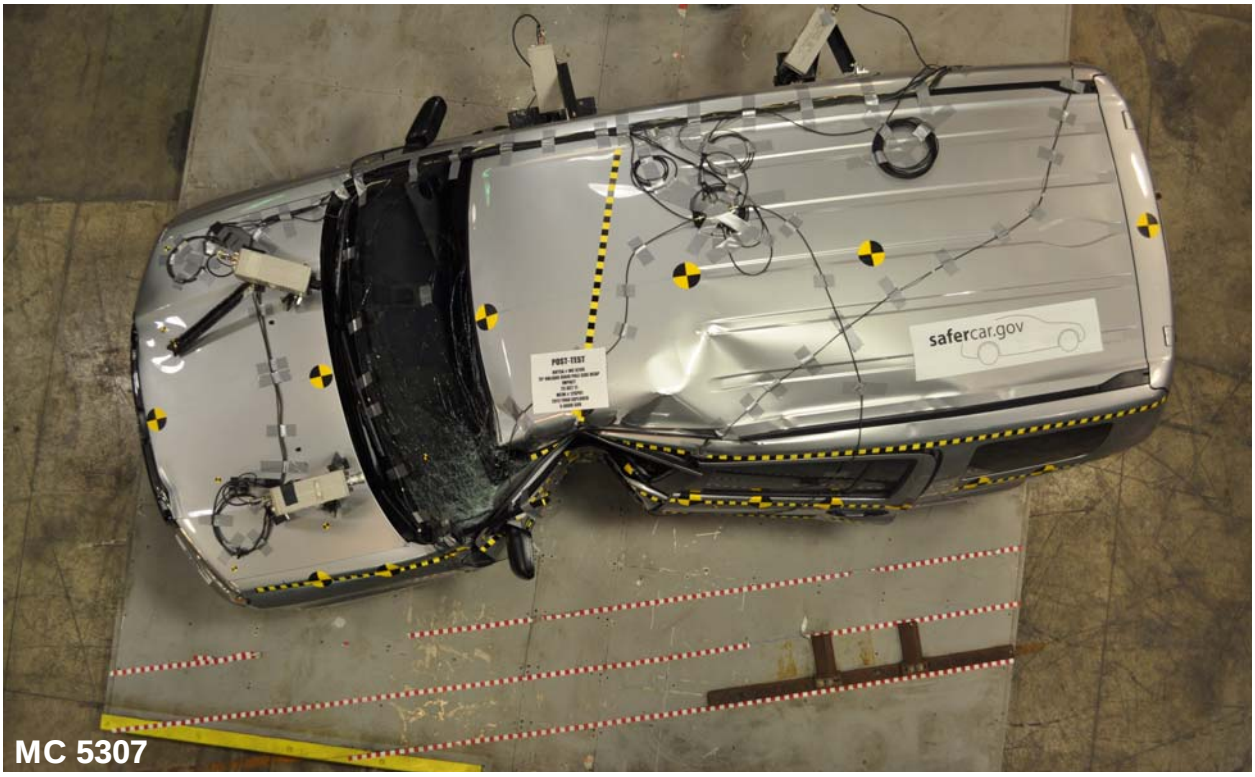


Figure 016: Post-Test Overhead View of Test Area

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

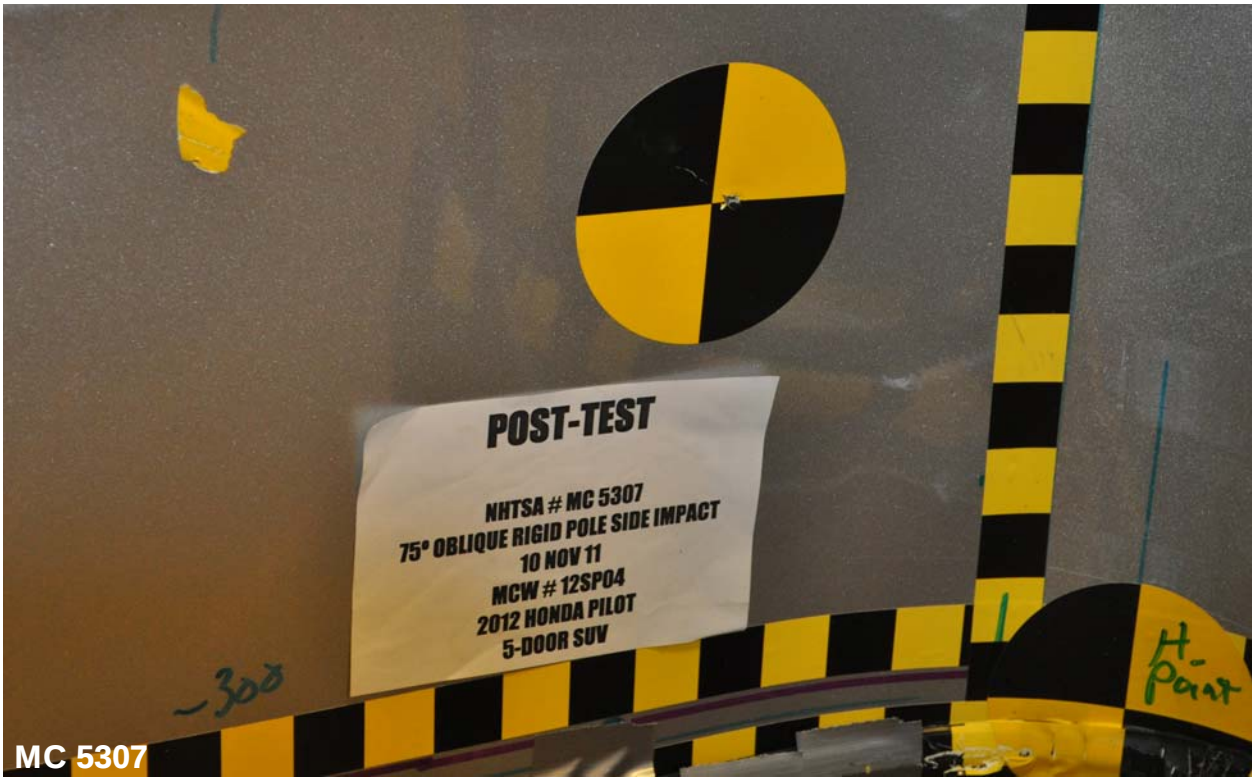


Figure 020: Post-Test Close-Up View of Impact Point Target Showing Impact Location

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

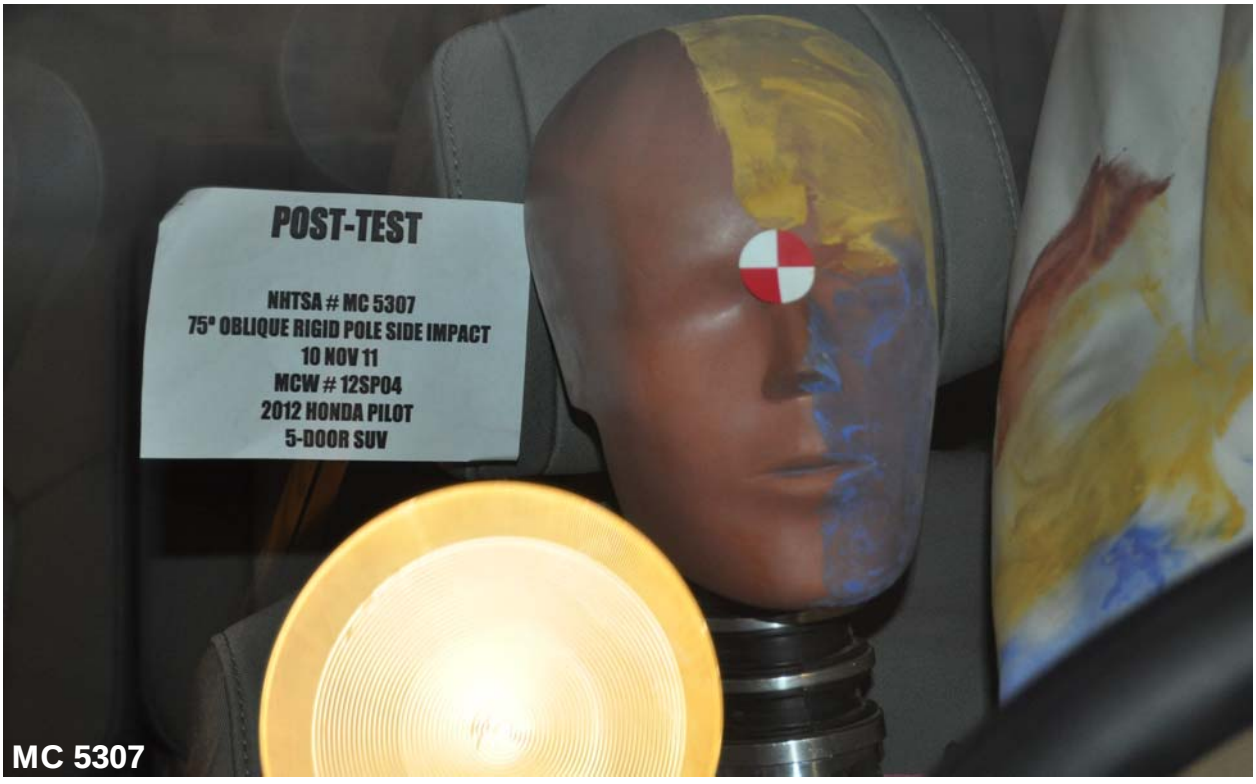


Figure 022: Post-Test Front Close-Up View of Dummy

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

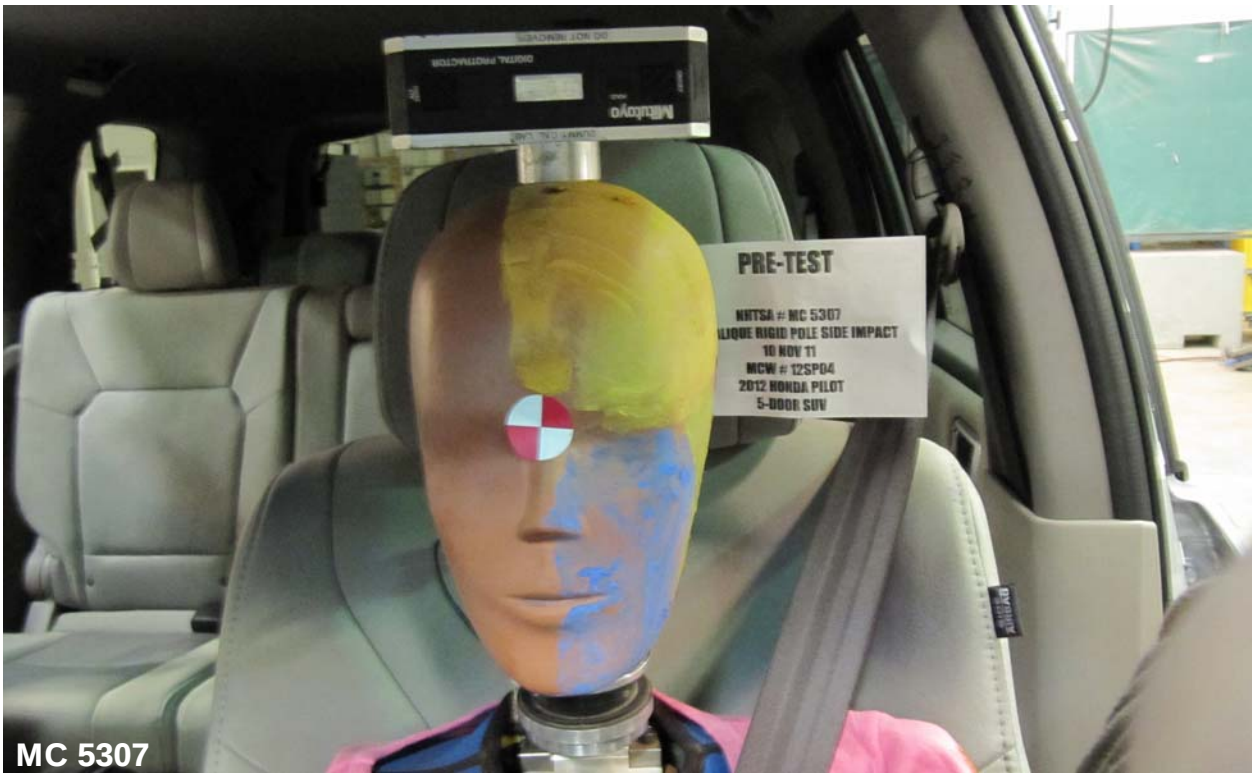


Figure 027: Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint

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

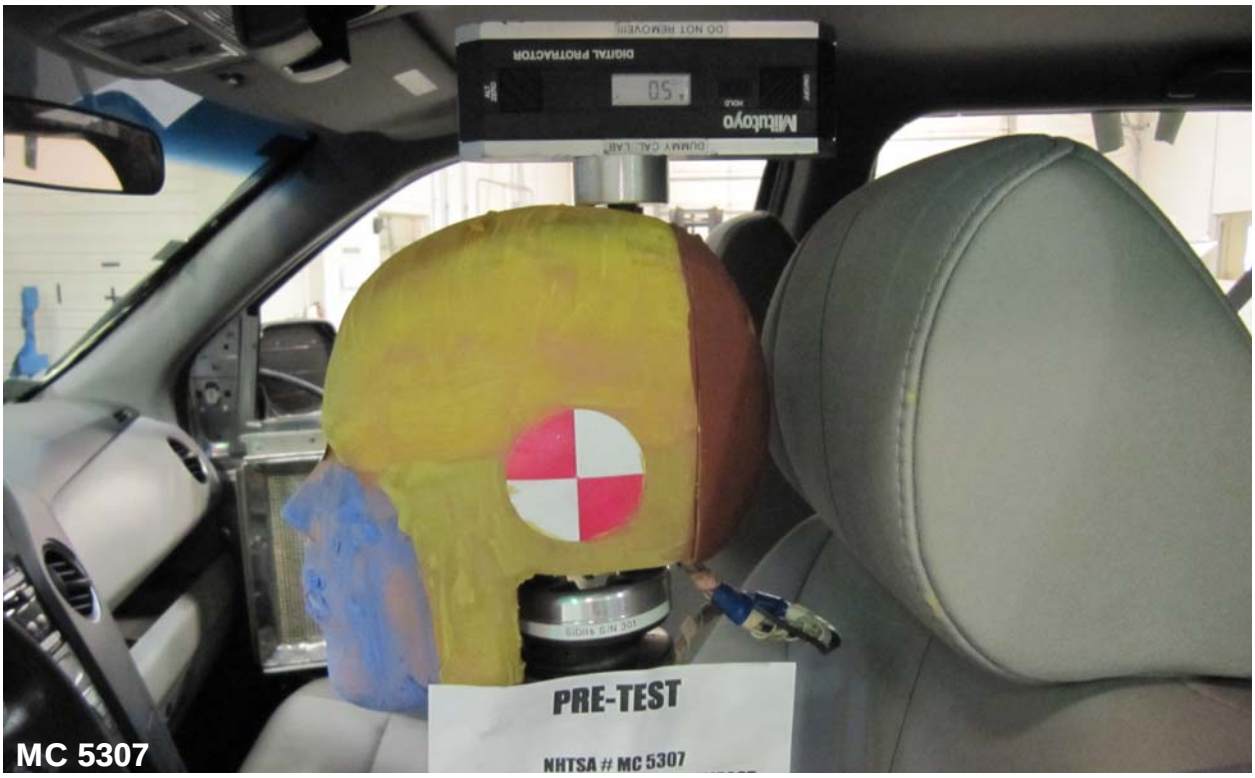


Figure 031: Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level

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

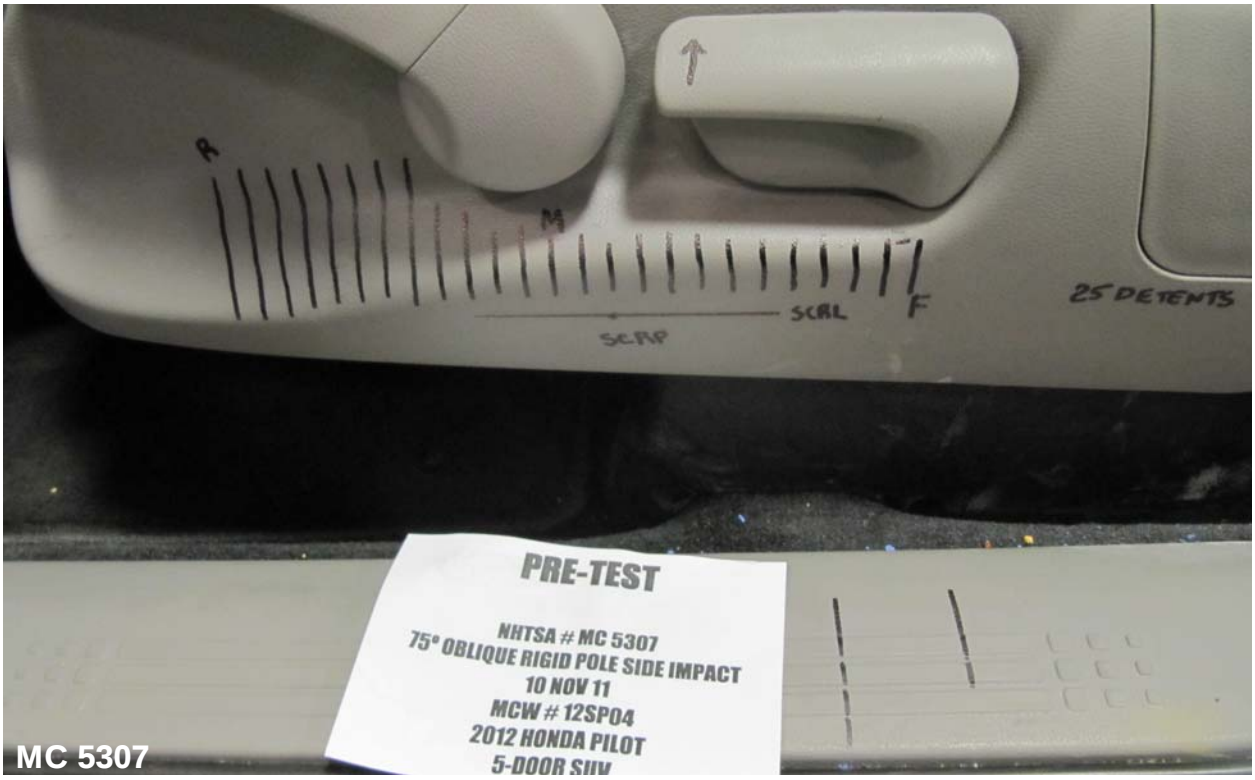


Figure 037: Pre-Test Close-Up Left Side View of Driver Seat Track

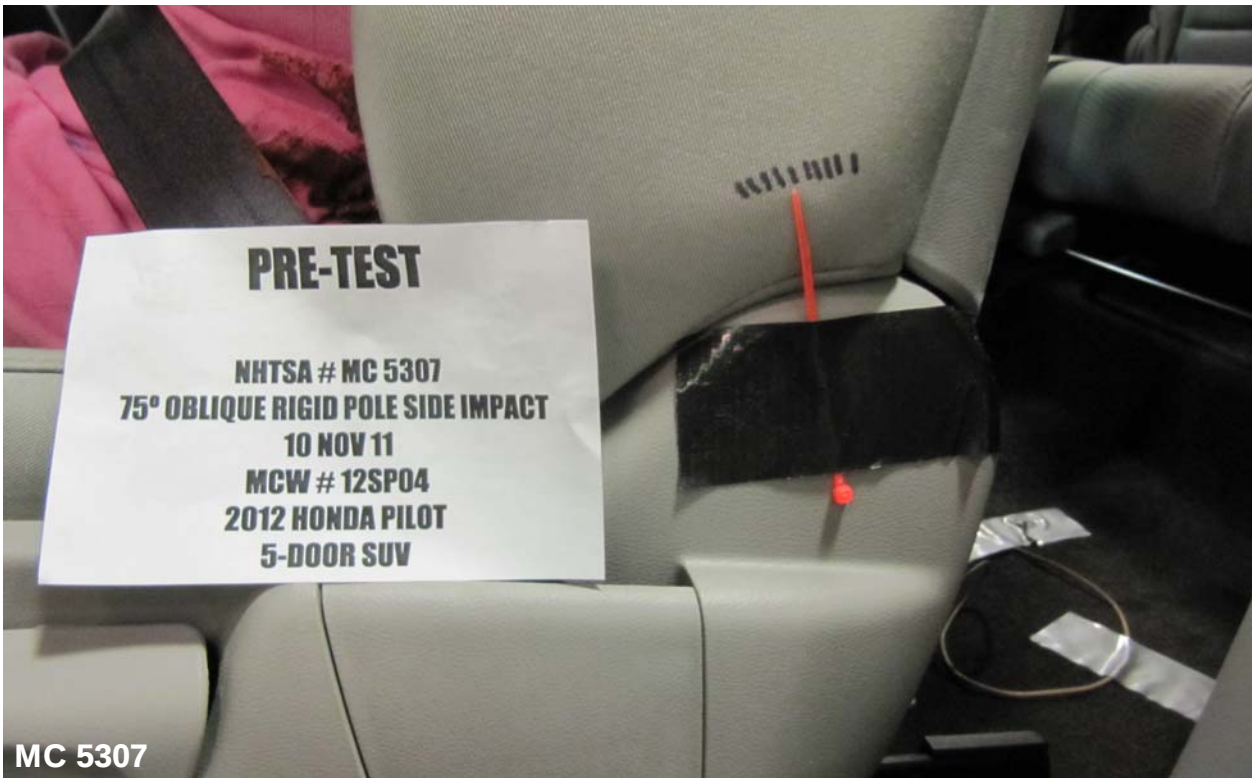


Figure 038: Pre-Test Close-Up Left Side View of Driver Seat Back

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

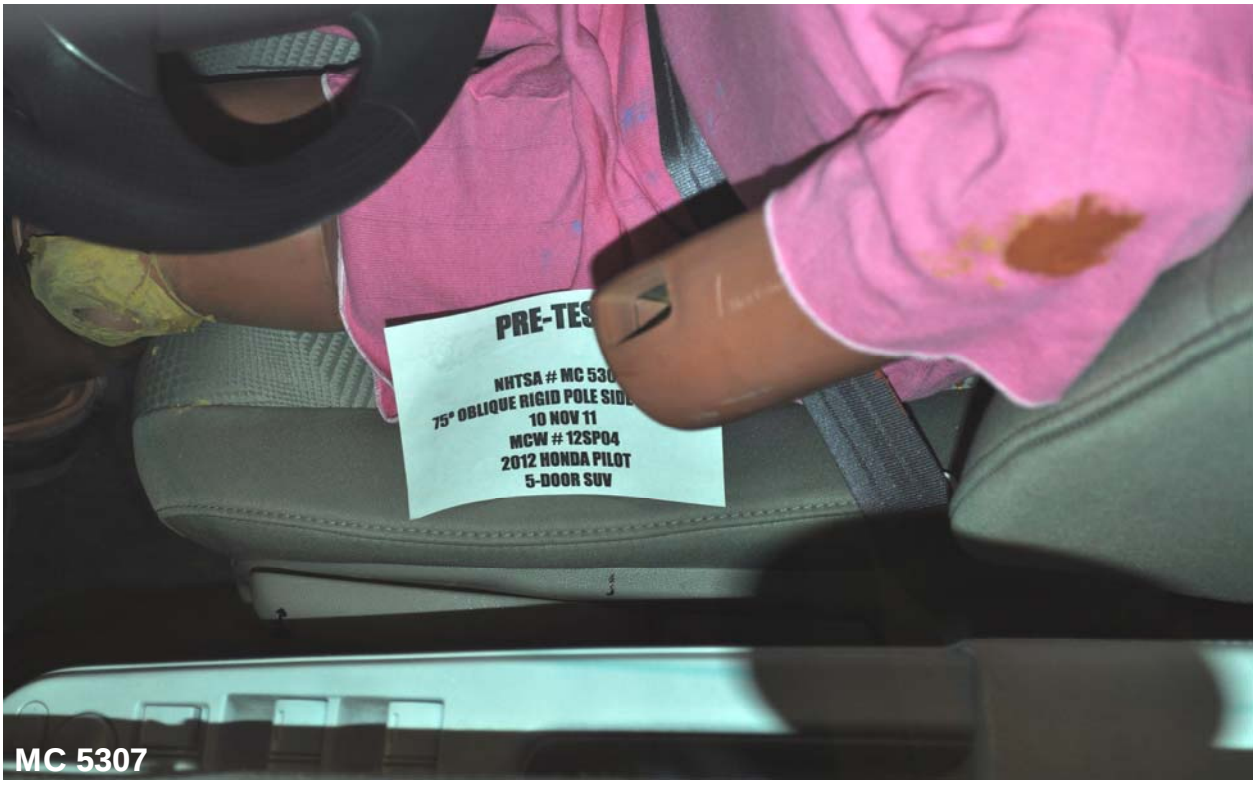


Figure 040: Pre-Test Dummy and Door Clearance View

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

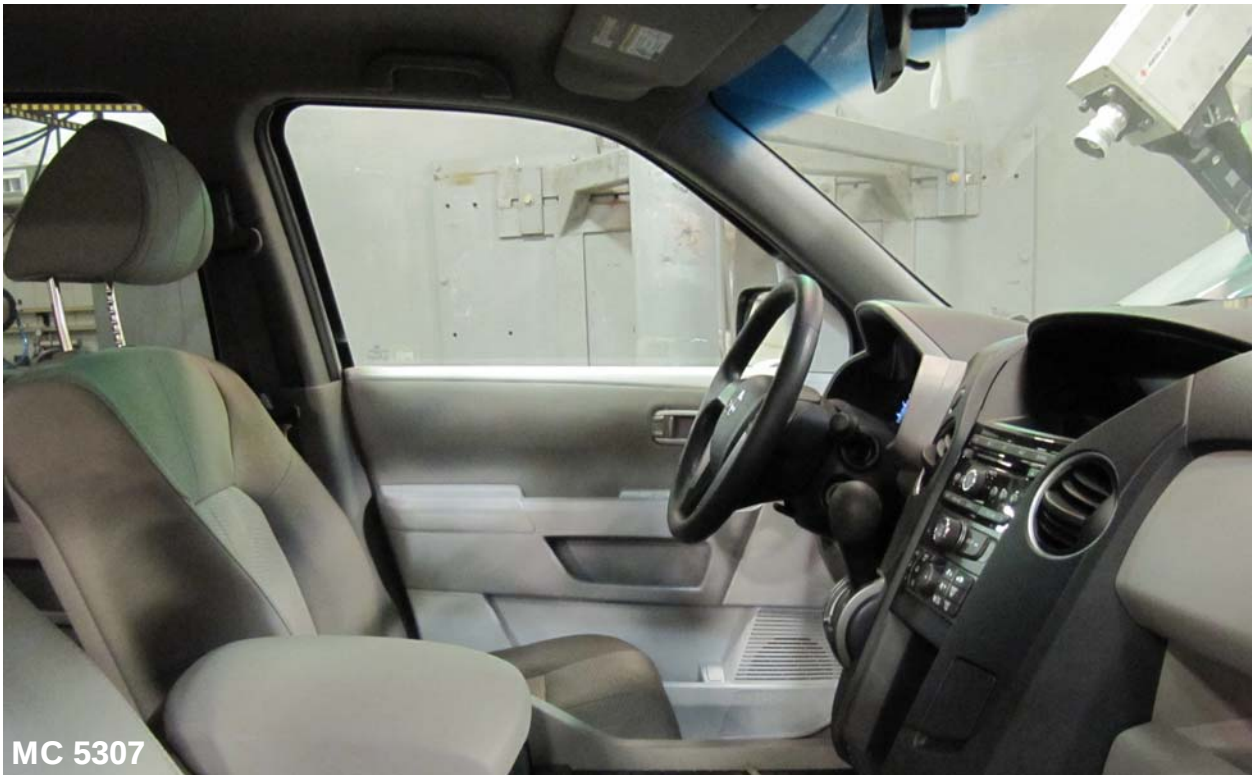


Figure 044: Pre-Test Inner Door Panel View

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

Not Applicable

MC 5307

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

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

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

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

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

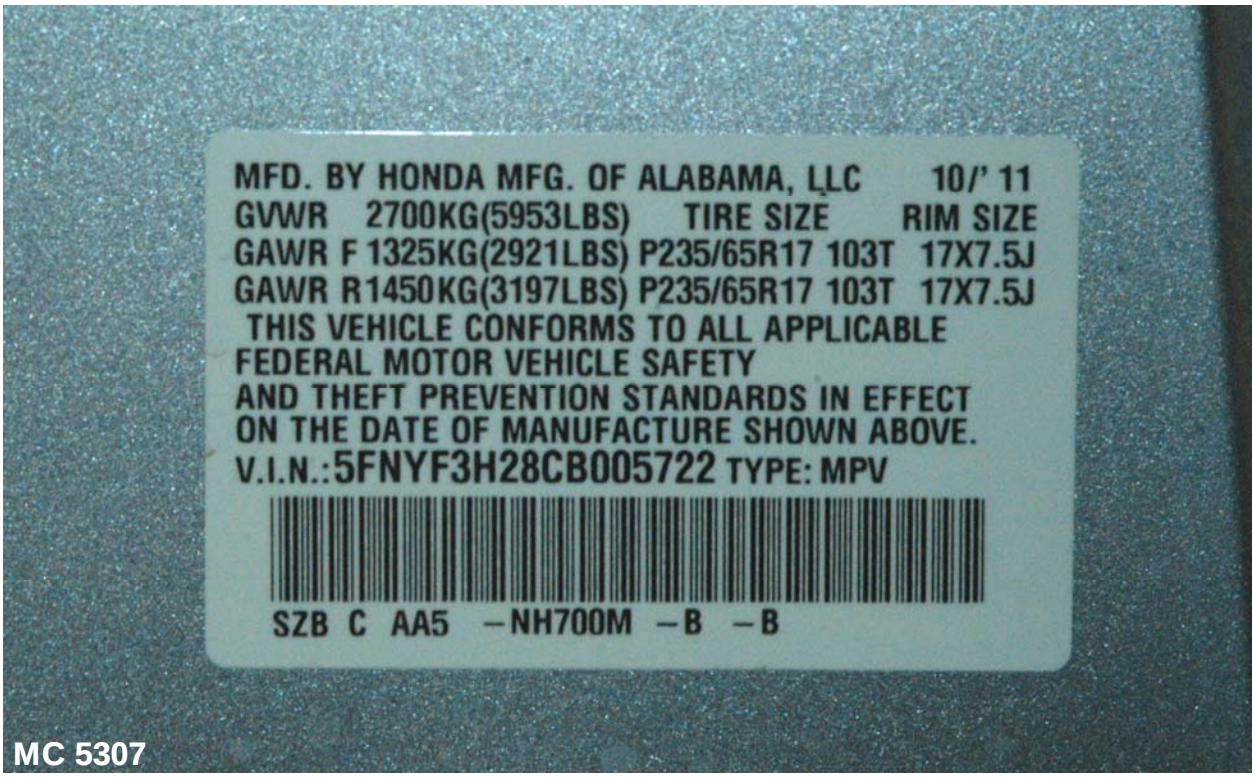


Figure 054: Close-Up View of Vehicle's Certification Label

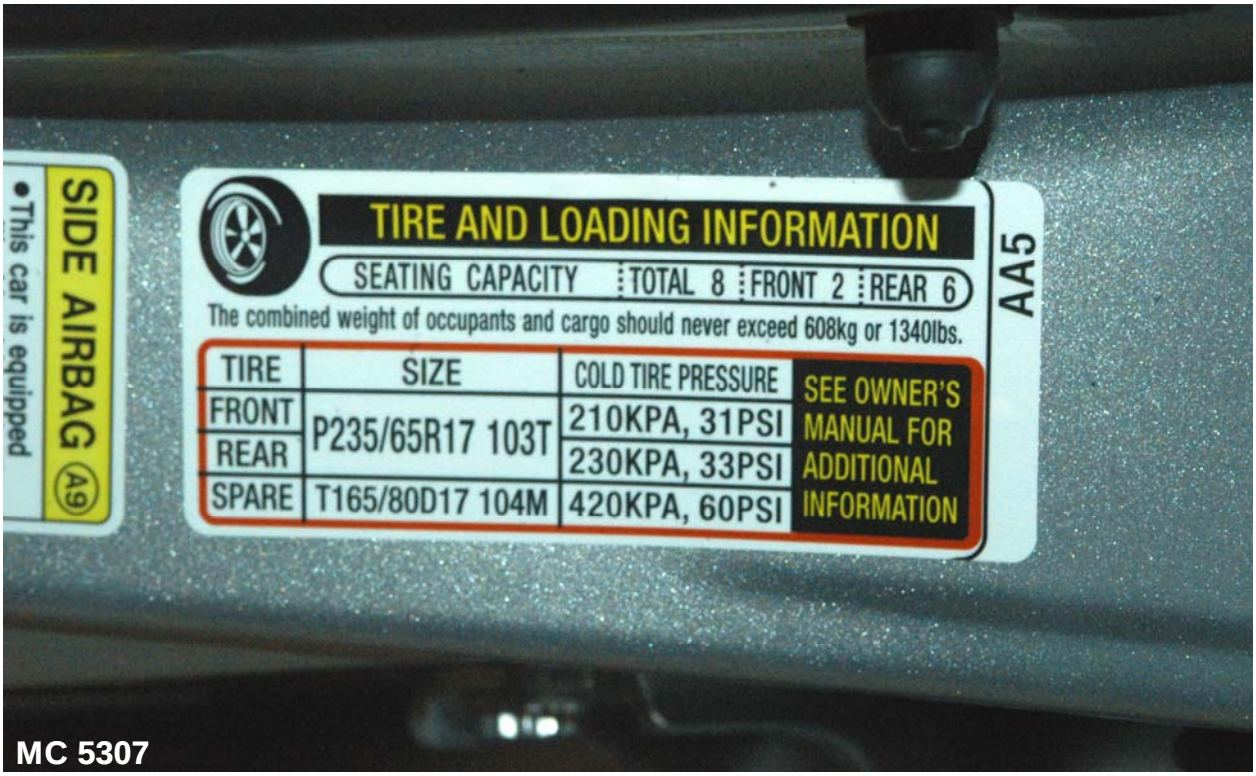


Figure 055: Close-Up View of Vehicle's Tire Information Placard or Label

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

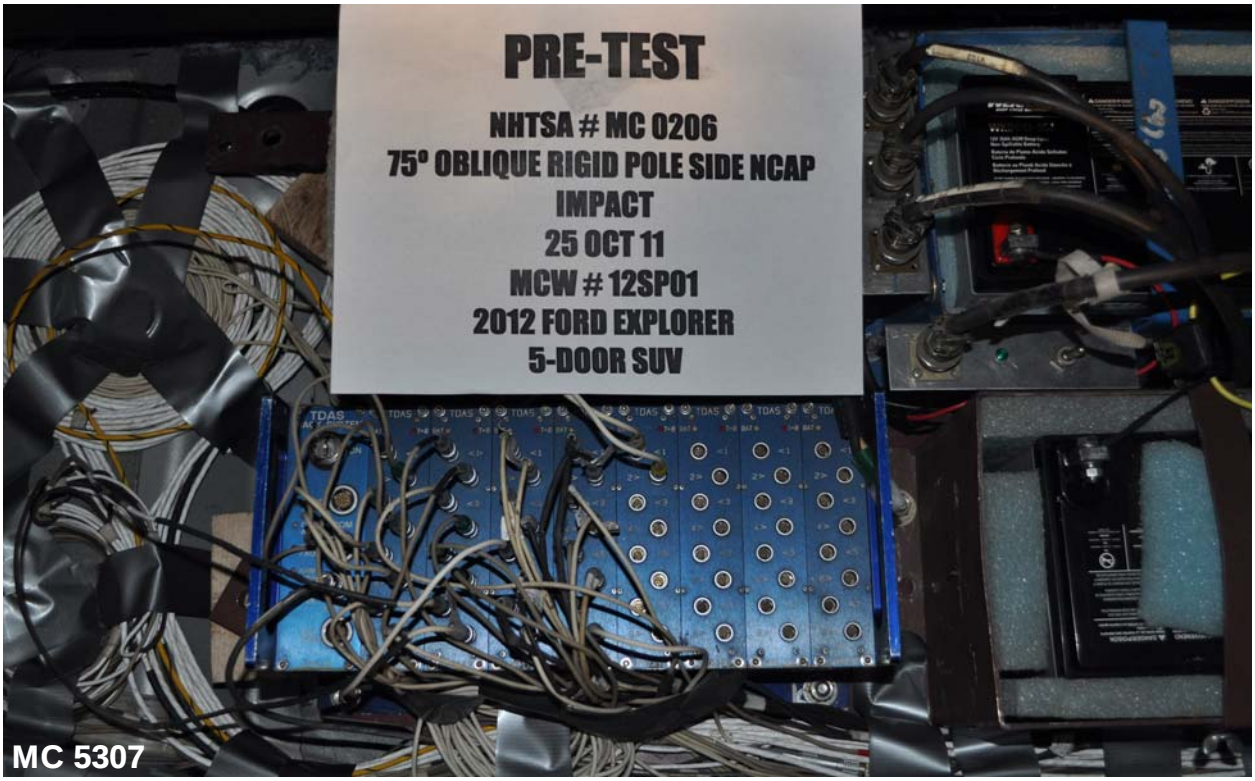


Figure 060: Pre-Test Ballast View

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

Figure 062: FMVSS No. 301 Static Rollover 0 Degrees

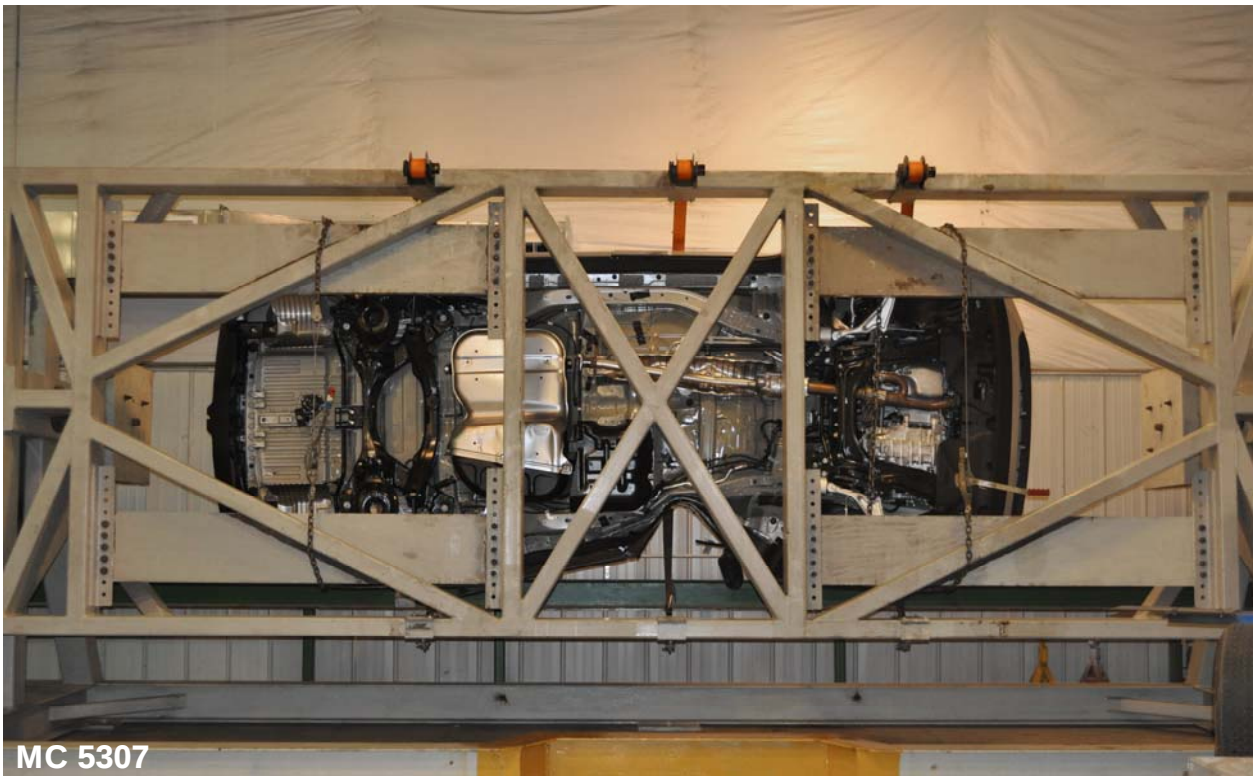


Figure 063: FMVSS No. 301 Static Rollover 90 Degrees

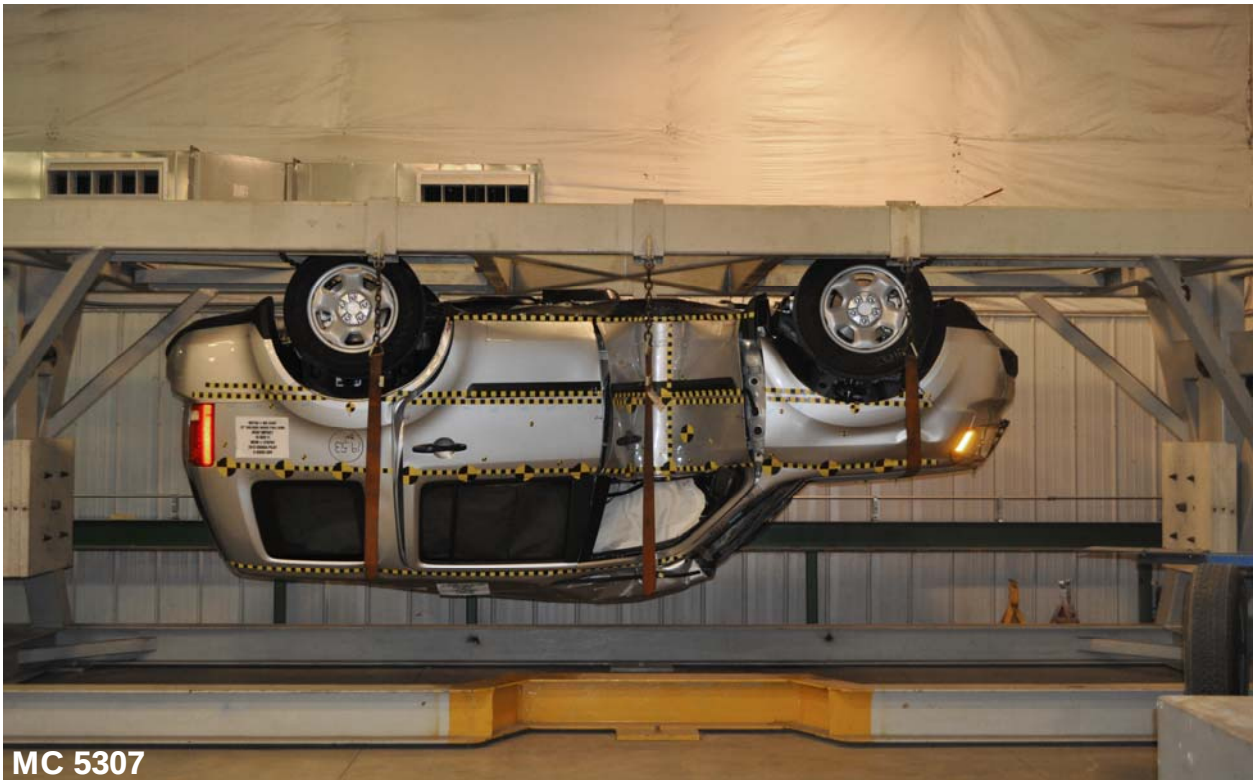
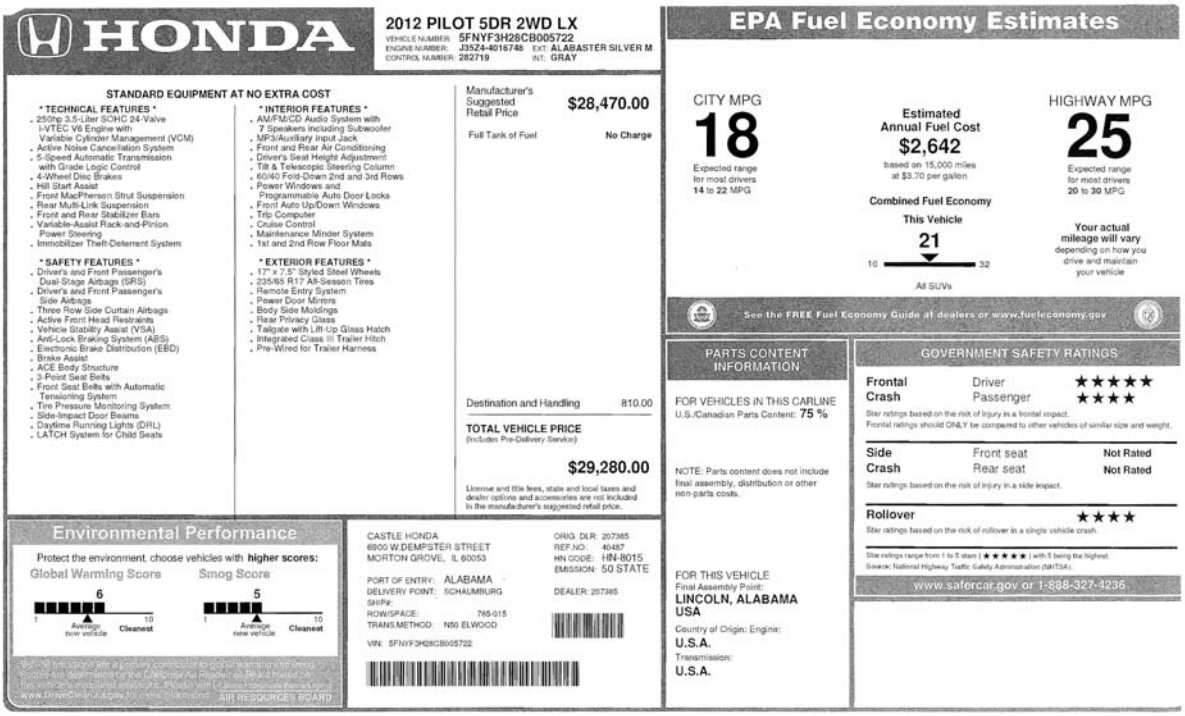


Figure 064: FMVSS No. 301 Static Rollover 180 Degrees

Figure 065: FMVSS No. 301 Static Rollover 270 Degrees

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

Figure 067: Impact Event


HONDA

2012 PILOT 5DR 2WD LX
VEHICLE NUMBER: 5FNYF3H28CB005722
ENGINE NUMBER: J35Z4-4016748 EXT: ALABASTER SILVER M
CONTROL NUMBER: 282719 INT: GRAY

STANDARD EQUIPMENT AT NO EXTRA COST

* TECHNICAL FEATURES *
- 250hp 3.5-Liter SOHC 24-Valve i-VTEC V6 Engine with Variable Cylinder Management (VCM)
- Active Noise Cancellation System
- 5-Speed Automatic Transmission with Grade Logic Control
- 4-Wheel Disc Brakes
- Hill Start Assist
- Front MacPherson Strut Suspension
- Rear Multi-Link Suspension
- Front and Rear Stabilizer Bars
- Variable-Assist Rack-and-Pinion Power Steering
- Immobilizer Theft-Deterrent System

* SAFETY FEATURES *
- Driver's and Front Passenger's Dual-Stage Airbags (SRS)
- Driver's and Front Passenger's Side Airbags
- Three Row Side Curtain Airbags
- Active Front Head Restraints
- Vehicle Stability Assist (VSA)
- Anti-Lock Braking System (ABS)
- Electronic Brake Distribution (EBD)
- Brake Assist
- ACE Body Structure
- 3-Point Seat Belts
- Front Seat Belts with Automatic Tensioning System
- Tire Pressure Monitoring System
- Side-Impact Door Beams
- Daytime Running Lights (DRL)
- LATCH System for Child Seats

* INTERIOR FEATURES *
- AM/FM/CD Audio System with 7 Speakers including Subwoofer
- MP3/Auxiliary Input Jack
- Front and Rear Air Conditioning
- Driver's Seat Height Adjustment
- Tilt & Telescopic Steering Column
- 60/40 Fold-Down 2nd and 3rd Rows
- Power Windows and Programmable Auto Door Locks
- Front Auto Up/Down Windows
- Trip Computer
- Cruise Control
- Maintenance Minder System
- 1st and 2nd Row Floor Mats

* EXTERIOR FEATURES *
- 17" x 7.5" Styled Steel Wheels
- 235/65 R17 All-Season Tires
- Remote Entry System
- Power Door Mirrors
- Body Side Moldings
- Rear Privacy Glass
- Tailgate with Lift-Up Glass Hatch
- Integrated Class III Trailer Hitch
- Pre-Wired for Trailer Harness

Manufacturer's Suggested Retail Price $28,470.00
Full Tank of Fuel No Charge
Destination and Handling 810.00
TOTAL VEHICLE PRICE (Includes Pre-Delivery Service) $29,280.00
License and title fees, state and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.

Environmental Performance
Protect the environment, choose vehicles with higher scores:
Global Warming Score 6 (1 Average new vehicle, 10 Cleanest)
Smog Score 5 (1 Average new vehicle, 10 Cleanest)

CASTLE HONDA
6900 W.DEMPSTER STREET
MORTON GROVE, IL 60053
ORIG. DLR: 207385
REF.NO: 40497
HN CODE: HN-8015
EMISSION: 50 STATE
PORT OF ENTRY: ALABAMA
DELIVERY POINT: SCHAUMBURG
DEALER: 207385
ROW/SPACE: 785-015
TRANS.METHOD: N50 ELWOOD
VIN: 5FNYF3H28CB005722

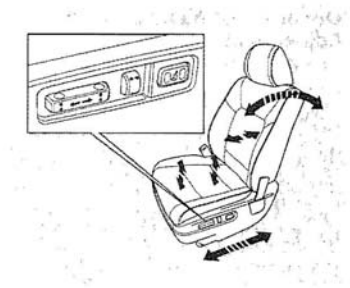
EPA Fuel Economy Estimates
CITY MPG 18 (Expected range for most drivers 14 to 22 MPG)
Estimated Annual Fuel Cost $2,642 based on 15,000 miles at $3.70 per gallon
Combined Fuel Economy This Vehicle 21 (10 to 32, All SUVs)
HIGHWAY MPG 25 (Expected range for most drivers 20 to 30 MPG)
Your actual mileage will vary depending on how you drive and maintain your vehicle
See the FREE Fuel Economy Guide at dealers or www.fueleconomy.gov

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE U.S./Canadian Parts Content: 75 %
NOTE: Parts content does not include final assembly, distribution or other non-parts costs.
FOR THIS VEHICLE Final Assembly Point: LINCOLN, ALABAMA USA
Country of Origin: Engine: U.S.A.
Transmission: U.S.A.

GOVERNMENT SAFETY RATINGS
Frontal Crash: Driver ★★★★★, Passenger ★★★★
Star ratings based on the risk of injury in a frontal impact.
Frontal ratings should ONLY be compared to other vehicles of similar size and weight.
Side Crash: Front seat Not Rated, Rear seat Not Rated
Star ratings based on the risk of injury in a side impact.
Rollover ★★★★
Star ratings based on the risk of rollover in a single vehicle crash.
Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA)
www.safercar.gov or 1-888-327-4236

MC 5307

Figure 068: Monroney Label



Moves the seat forward and backward.

Moves the front of the seat up or down.

Raises or lowers the seat.

Moves the whole seat up and forward, or down and backward. The front of the seat also tilts up or down at the same time.

Adjusts the seat-back angle forward or backward.

Increases or decreases the lumbar support. (Driver's seat only)

Front Seat Manual Adjustments

Except EX-L and Touring models

See pages 15 – 16 for important safety information and warnings about how to properly position the seats and seat-backs.

Make all seat adjustments before you start driving.

CONTINUED

MC 5307

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

Data Plot	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-4
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-6
4	Driver Head Resultant Acceleration Primary vs. Time	B-7
5	Driver Lower Spine T_{12} Acceleration (X) vs. Time	B-8
6	Driver Lower Spine T_{12} Acceleration (Y) vs. Time	B-9
7	Driver Lower Spine T_{12} Acceleration (Z) vs. Time	B-10
8	Driver Lower Spine T_{12} Resultant Acceleration vs. Time	B-11
9	Driver Illiac Wing Force (Y) on Impact Side vs. Time	B-12
10	Driver Acetabulum Force (Y) on Impact Side vs. Time	B-13
11	Driver Total Pelvis Force (Y) on Impact Side vs. Time	B-14

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)

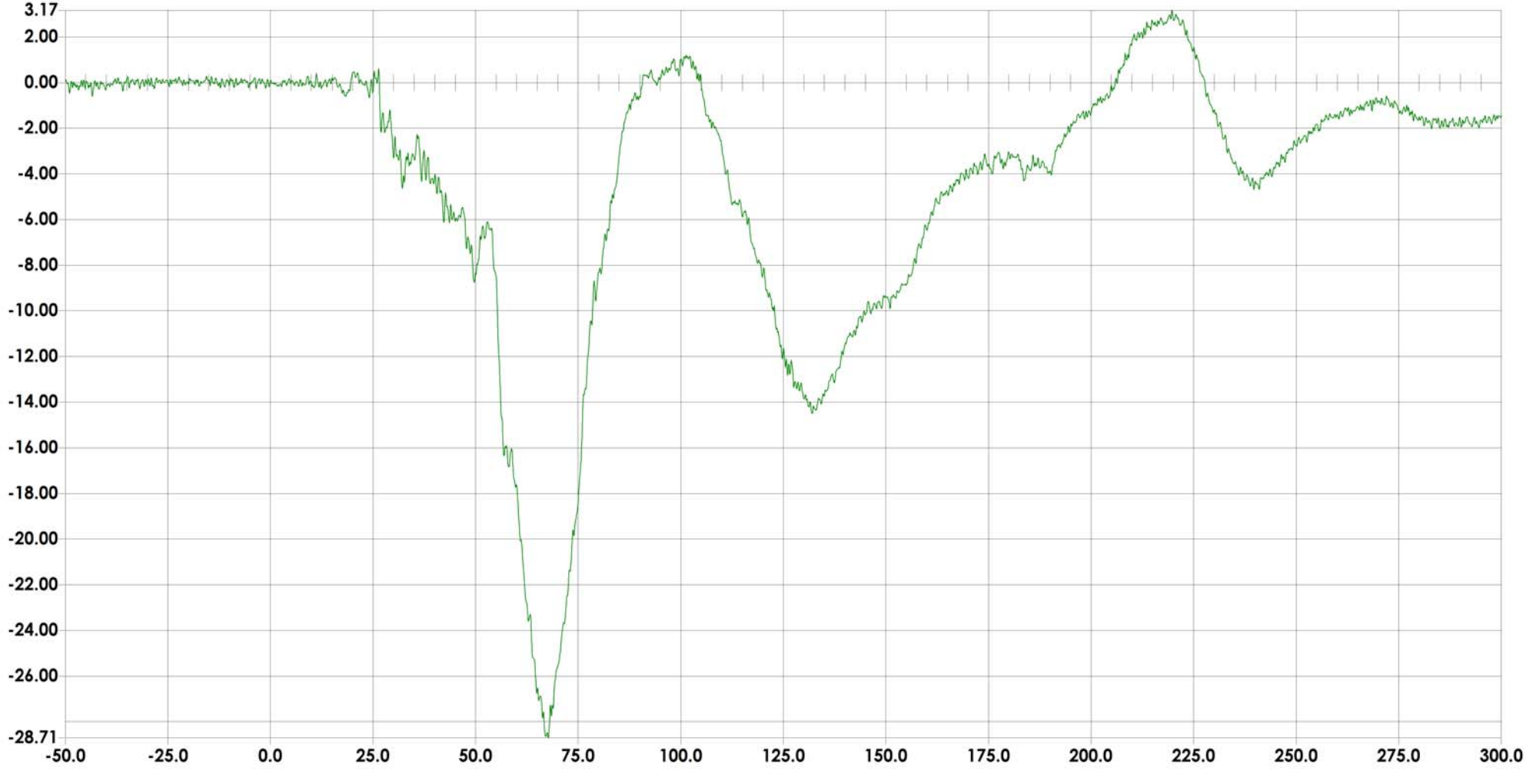
Pole Instrumentation Data

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 5307**	**Filter**	**CFC1000**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 5307_2012 Honda Pilot 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	3.17	G'S	at	219.76	msec
Min	-28.71	G'S	at	67.68	msec

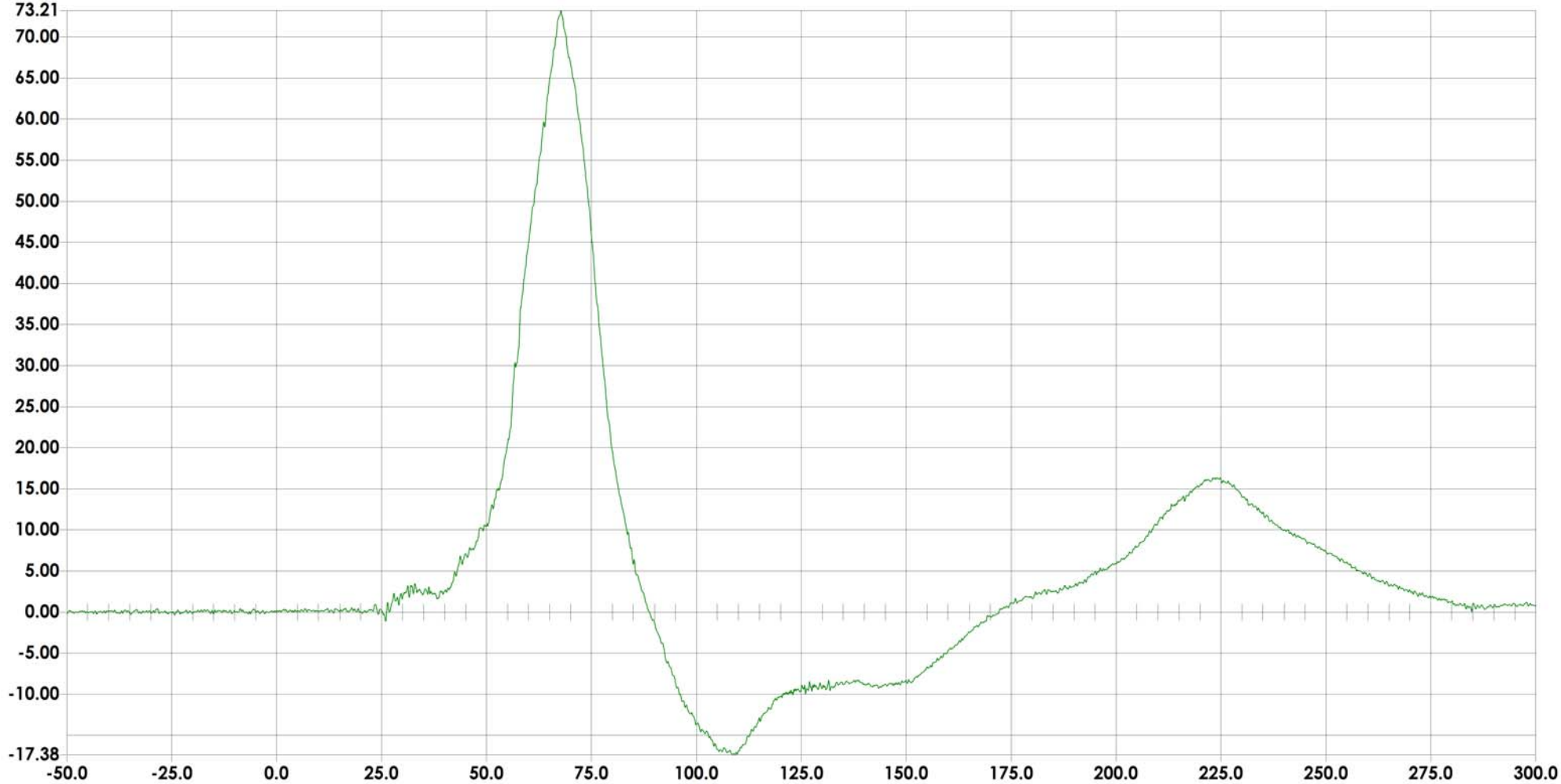
MC 5307 Plot 001

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC1000**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 5307_2012 Honda Pilot 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	73.21	G'S	at	67.76	msec
Min	-17.38	G'S	at	109.12	msec

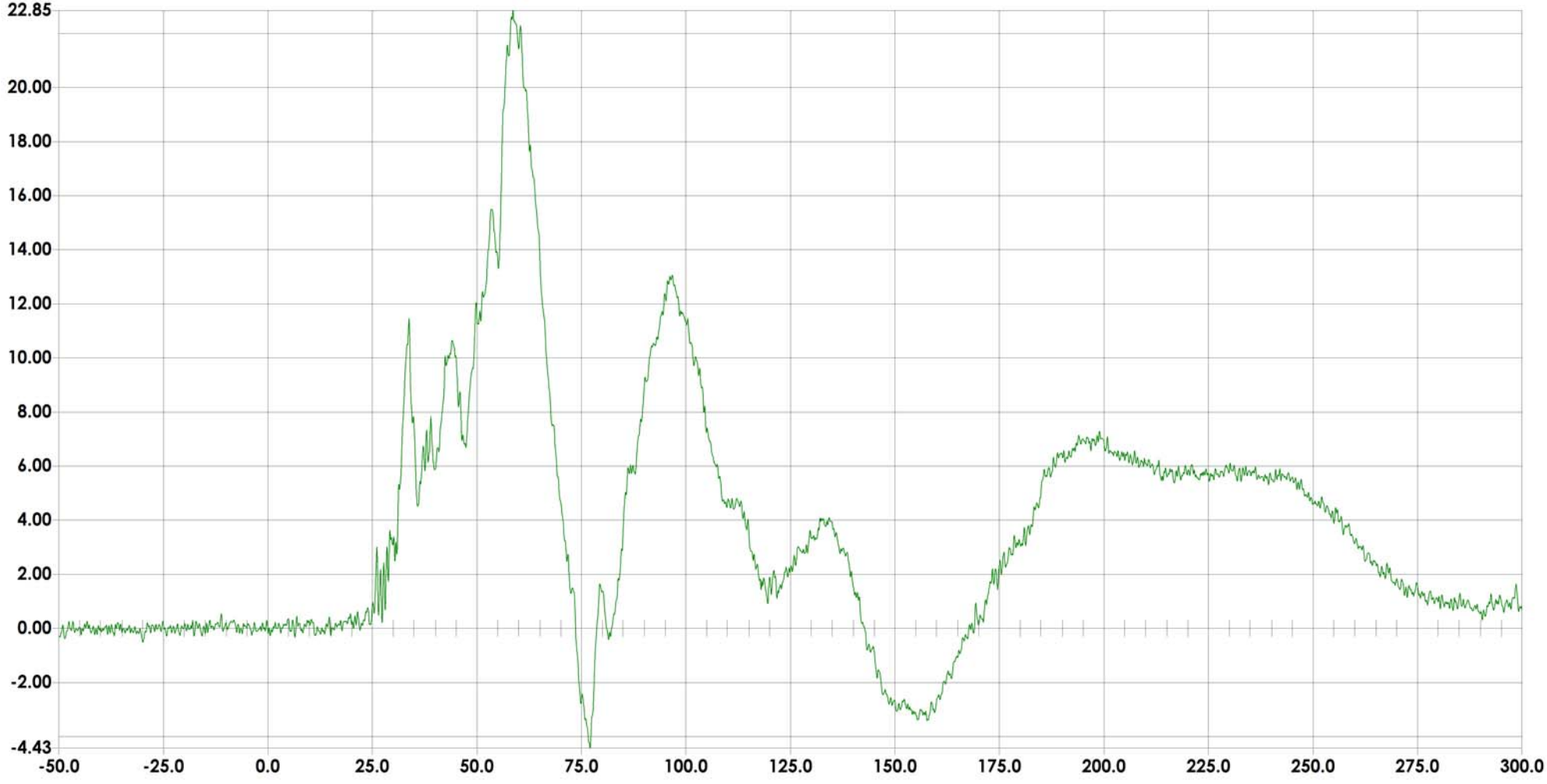
MC 5307 Plot 002

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC1000**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 5307_2012 Honda Pilot 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	22.85	G'S	at	58.64	msec
Min	-4.43	G'S	at	77.12	msec

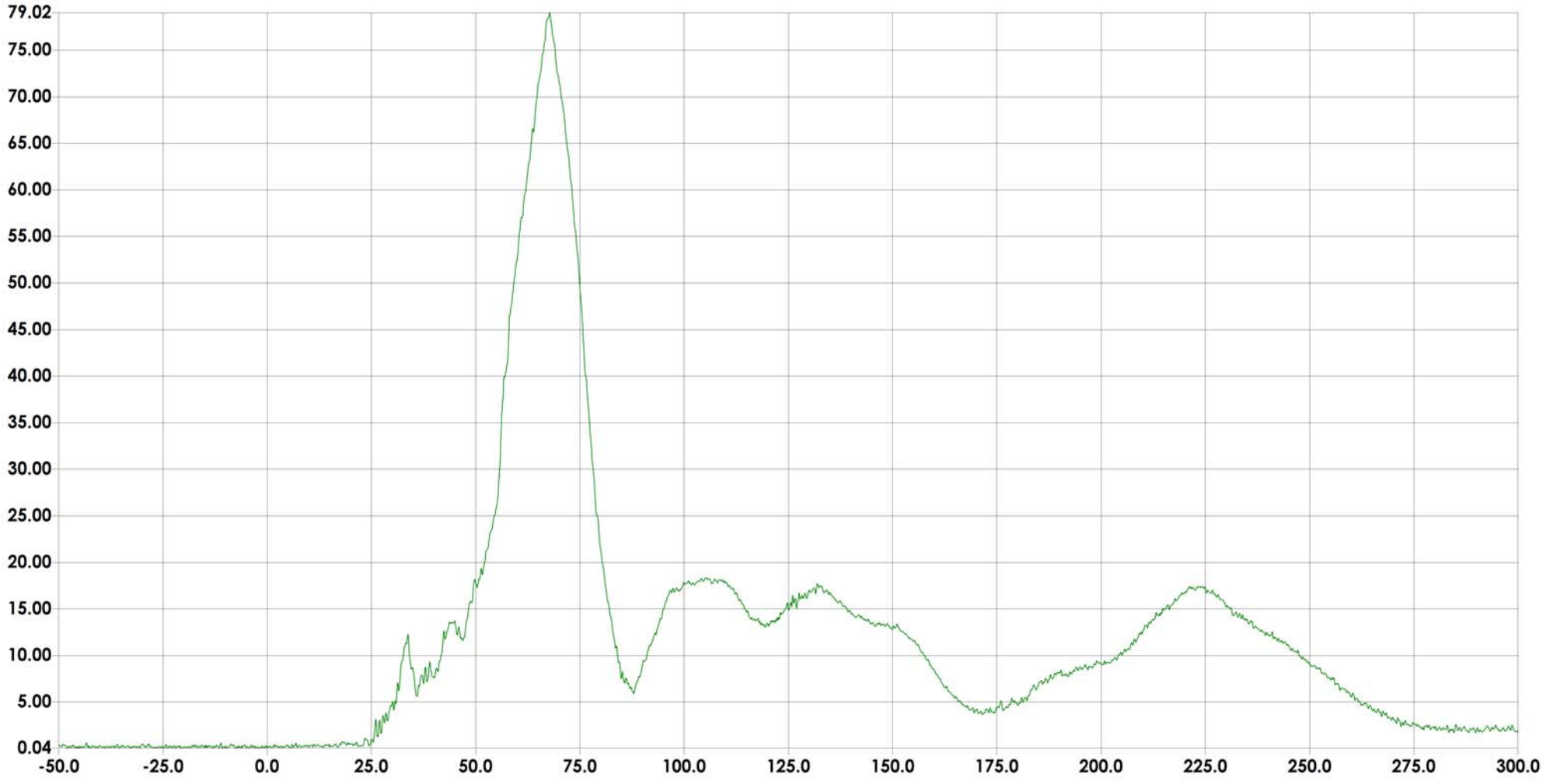
MC 5307 Plot 003

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC1000**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	MC 5307_2012 Honda Pilot 5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2i

MEDICAL COLLEGE OF WISCONSIN

Driver Head Resultant Primary vs. Time



Max	79.02	G'S	at	67.76	msec
Min	0.04	G'S	at	-20.32	msec

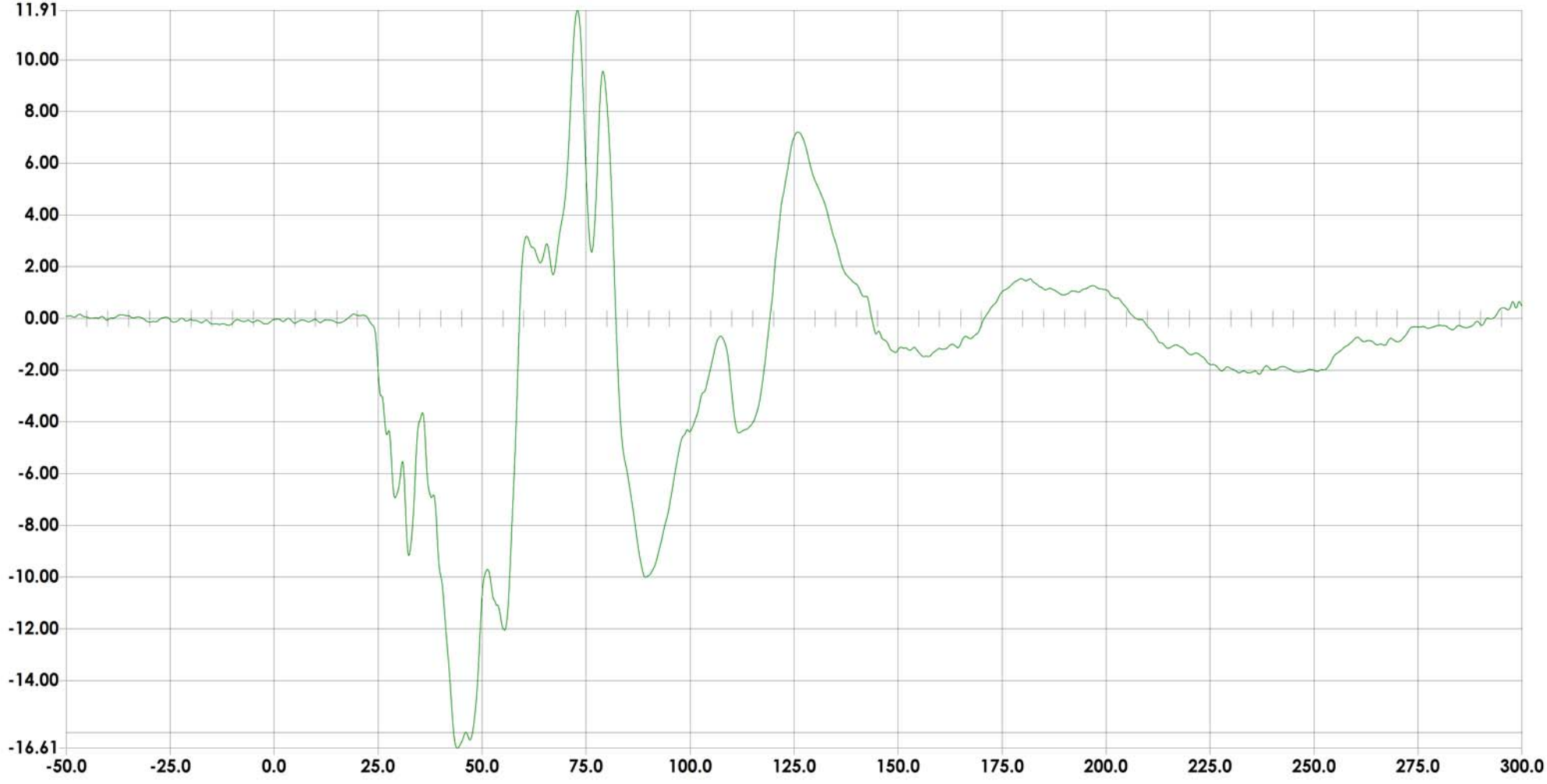
MC 5307 Plot 043

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC180**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 5307_2012 Honda Pilot 5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264B-2000T
		Pretrigger Points	625	Serial Number	B13098

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Spine T12 Acceleration (X) vs. Time



Max	11.91	G'S	at	72.88	msec
Min	-16.61	G'S	at	44.00	msec

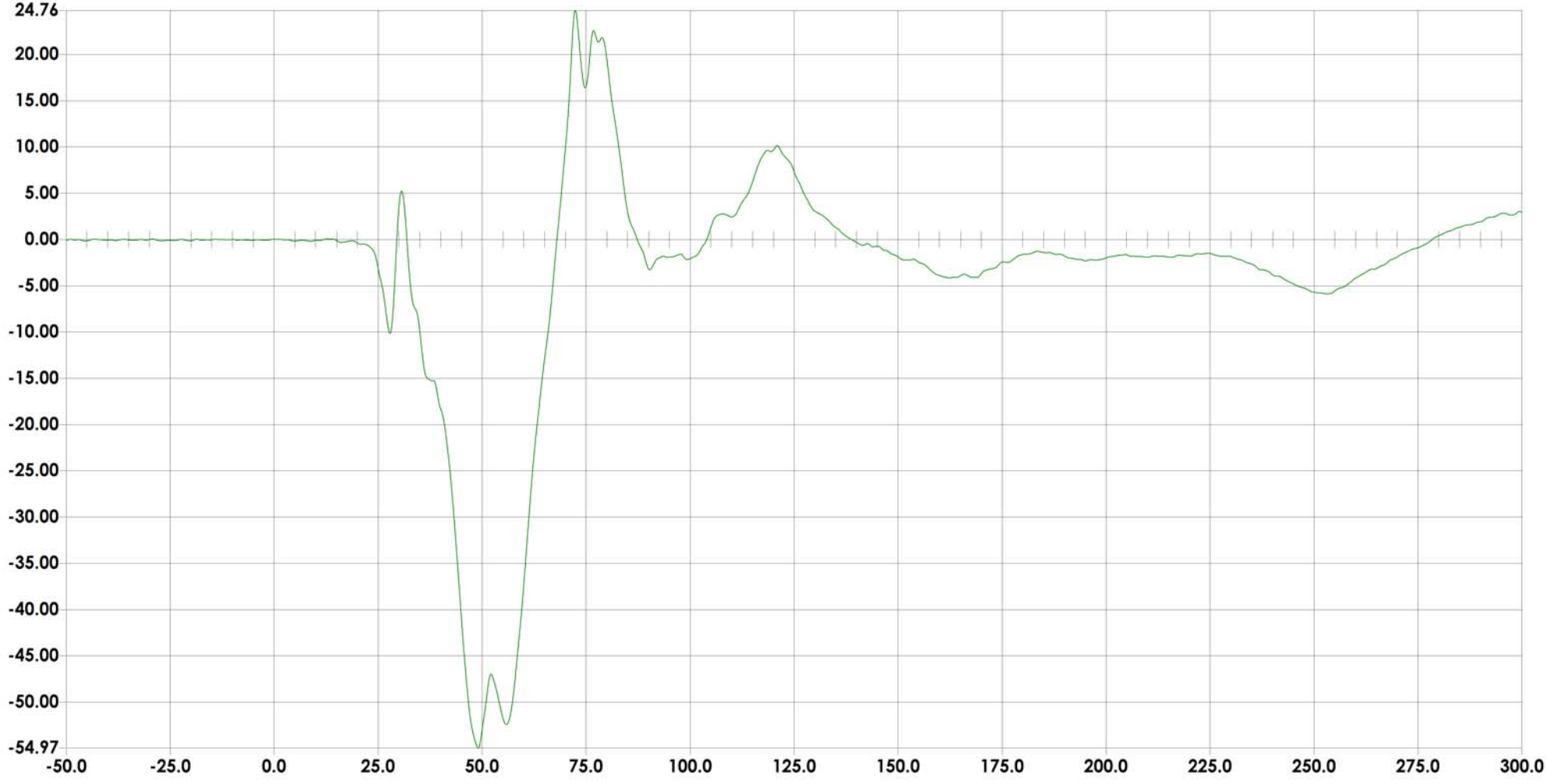
MC 5307 Plot 012

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC180**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 5307_2012 Honda Pilot 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	24.76	G'S	at	72.40	msec
Min	-54.97	G'S	at	49.04	msec

MC 5307 Plot 013

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC180**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 5307_2012 Honda Pilot 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	19.66	G'S	at	72.16	msec
Min	-18.05	G'S	at	49.04	msec

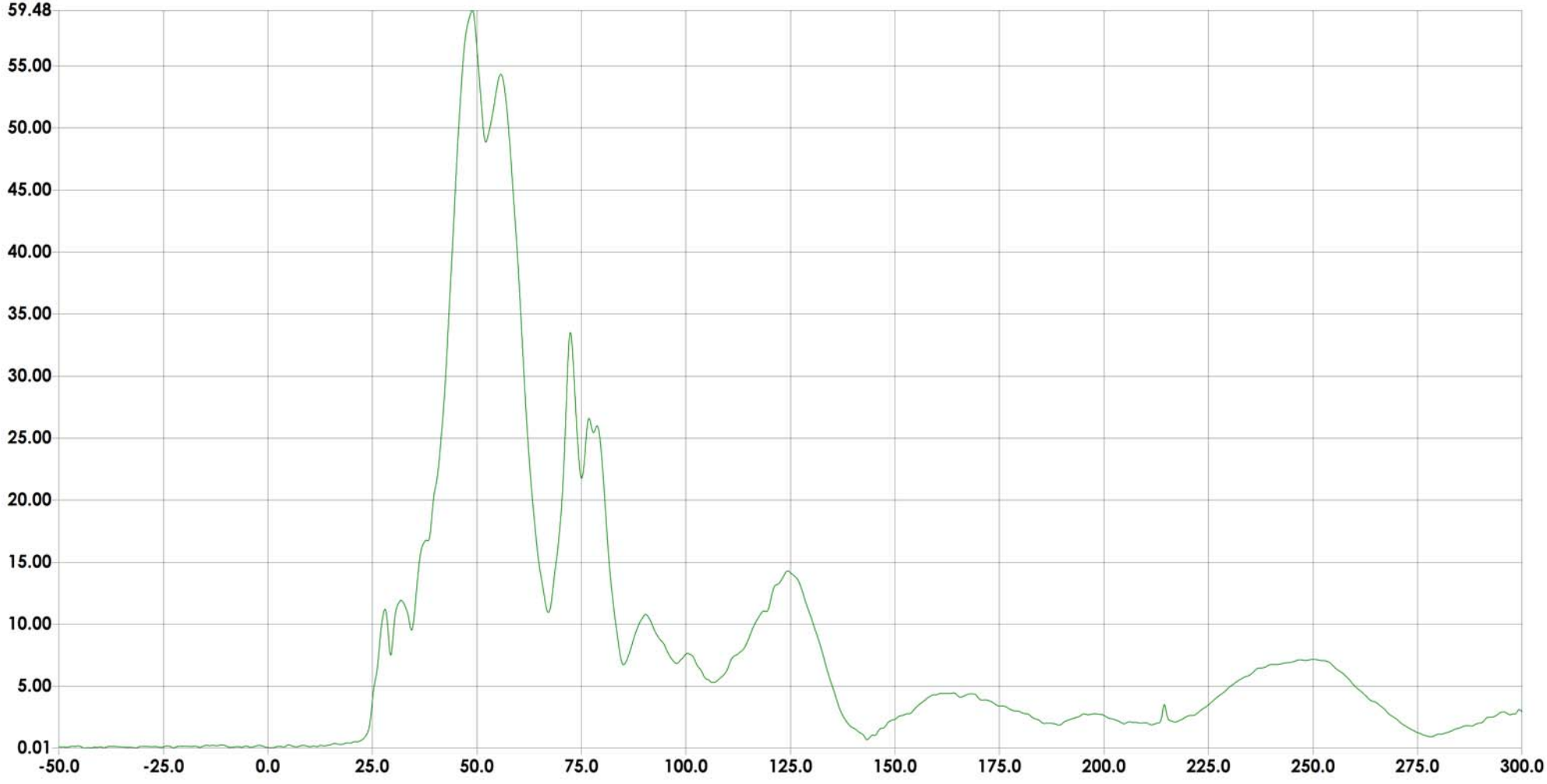
MC 5307 Plot 014

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC180**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	MC 5307_2012 Honda Pilot 5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2i

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Spine T12 Resultant Acceleration vs. Time



Max	59.48	G'S	at	48.88	msec
Min	0.01	G'S	at	-43.92	msec

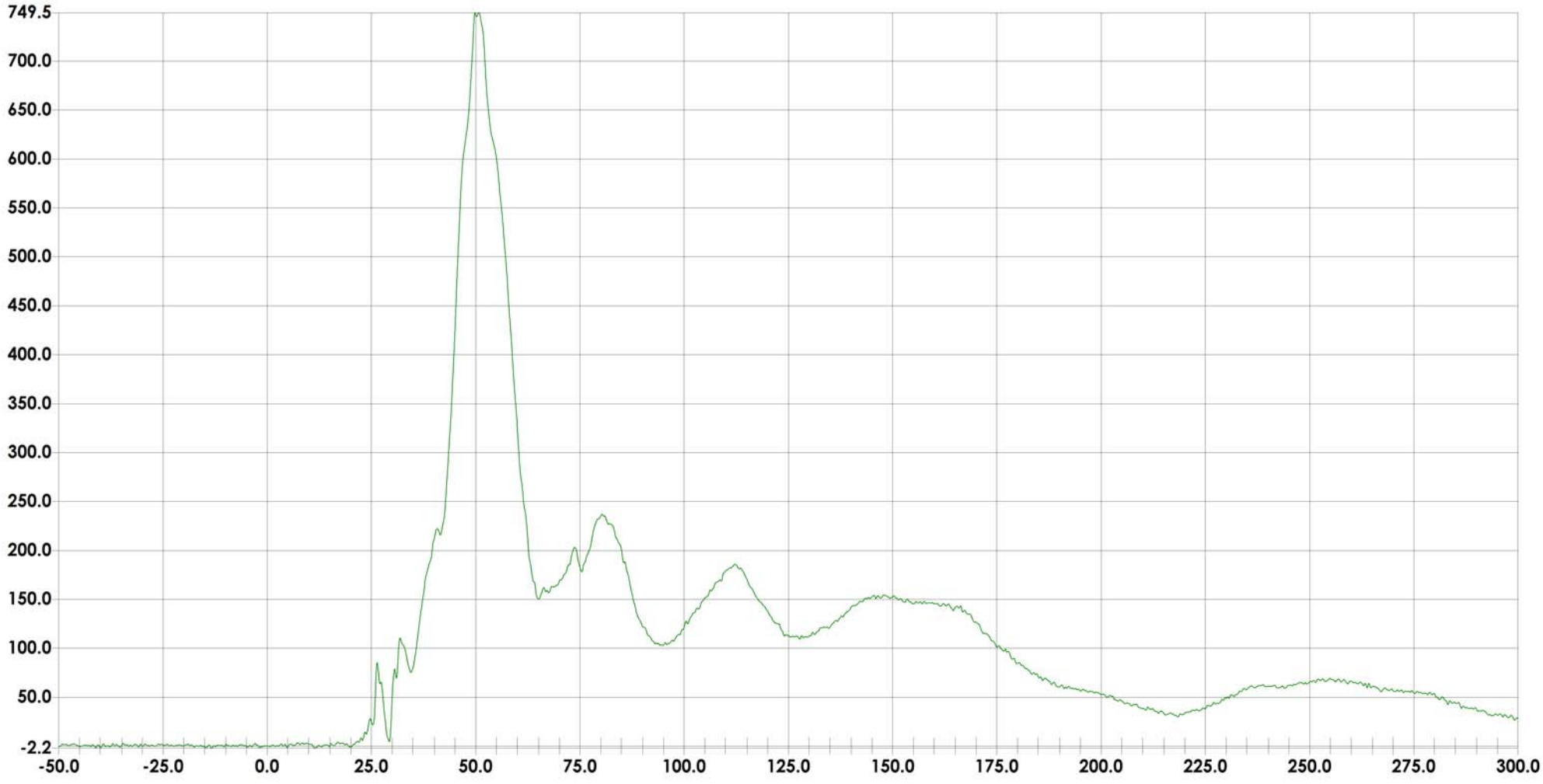
MC 5307 Plot 044

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC600**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	PVIL
Description	MC 5307_2012 Honda Pilot 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

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



Max	749.49	NWT	at	49.84	msec
Min	-2.20	NWT	at	-13.36	msec

MC 5307 Plot 015

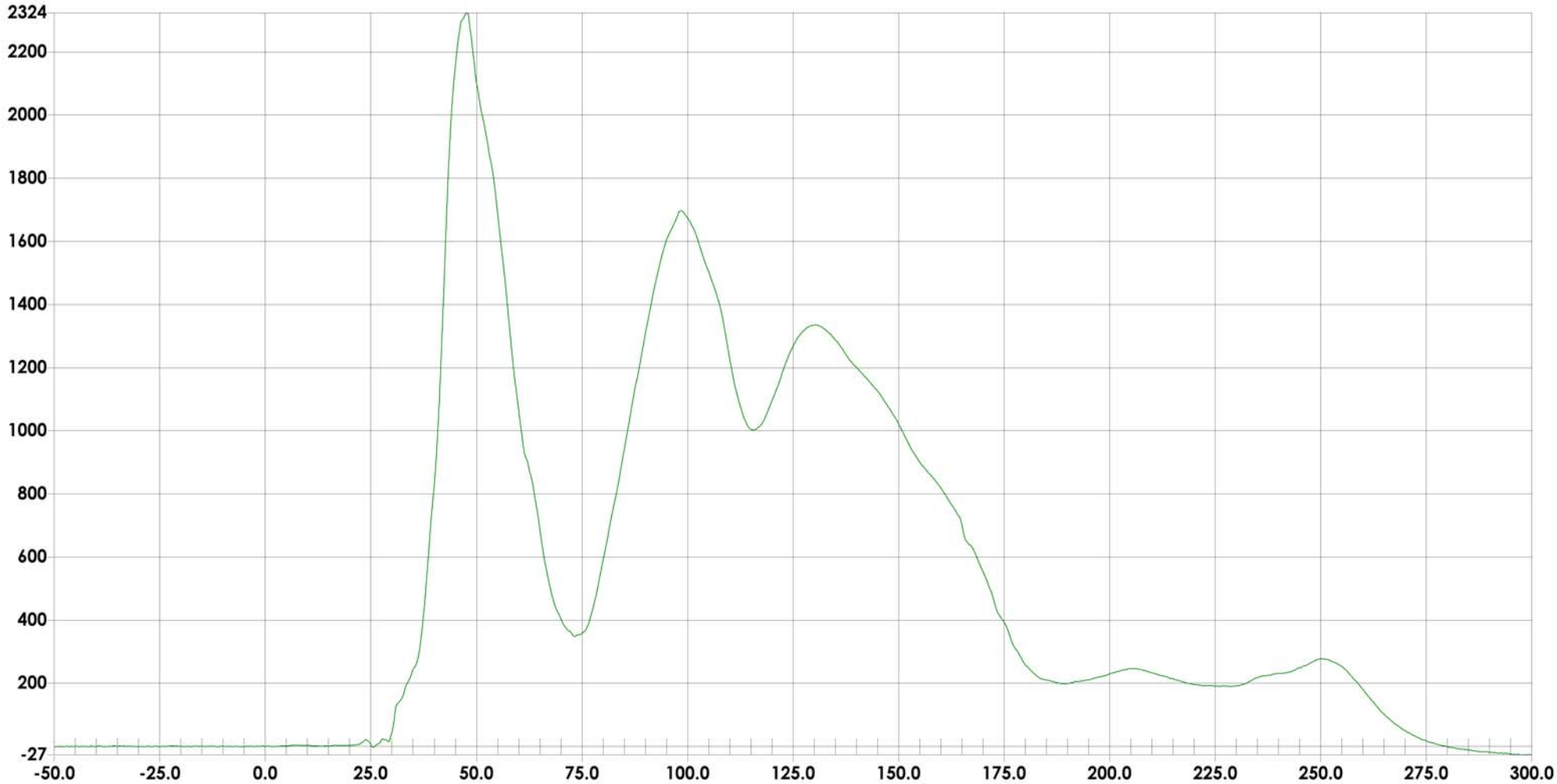
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5307
Date	11-10-2011
Description	MC 5307_2012 Honda Pilot 5-Door SUV_SPNCAP

Filter	CFC600		
Sampling Rate (Hz)	12500	Sensor Location	PVHP
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	2323.94	NWT	at	47.84	msec
Min	-27.16	NWT	at	297.52	msec

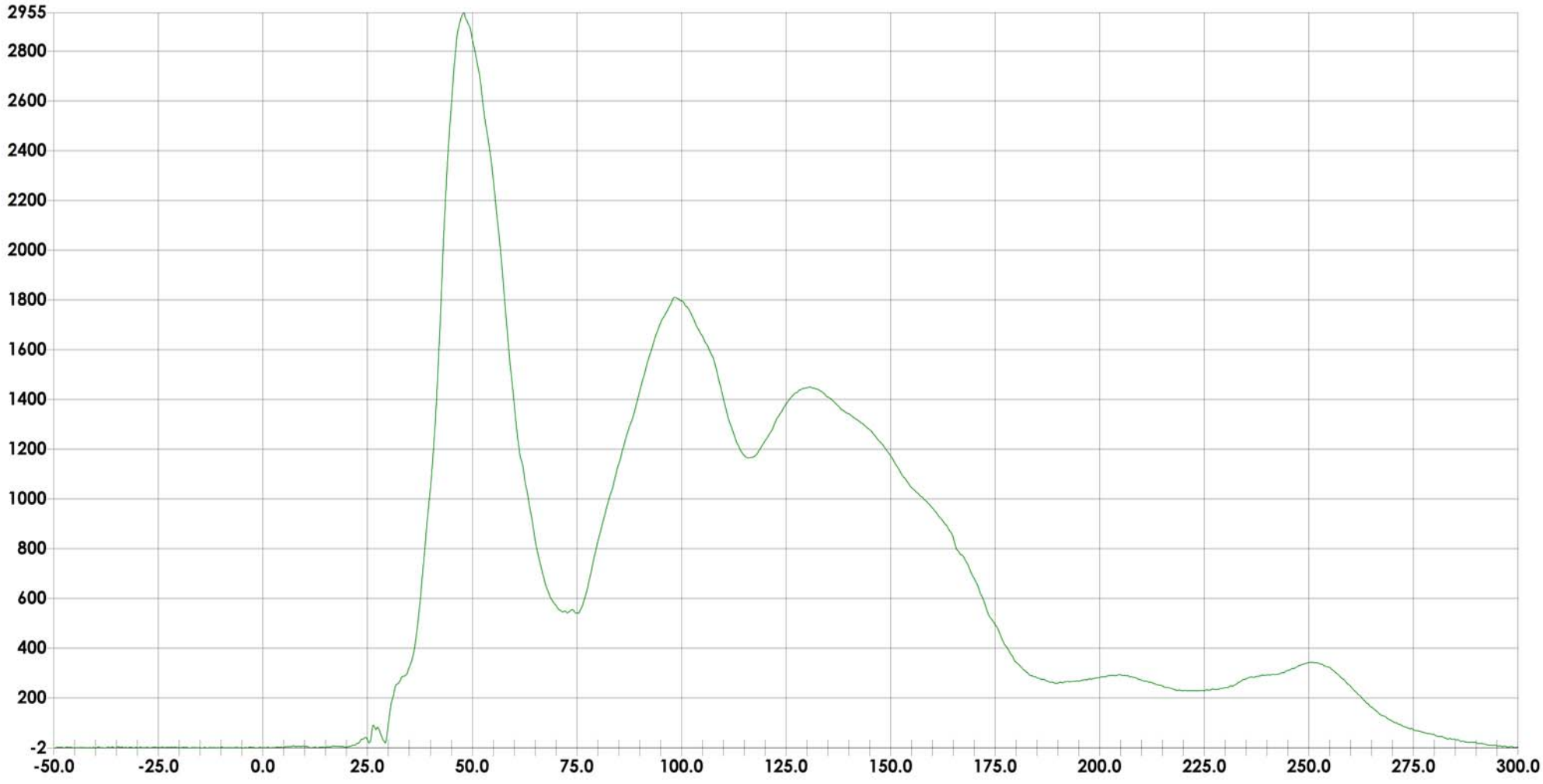
MC 5307 Plot 016

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5307**	**Filter**	**CFC600**		
Date	11-10-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	MC 5307_2012 Honda Pilot 5-Door SUV_SPNCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

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



Max	2954.79	NWT	at	48.00	msec
Min	-2.22	NWT	at	-40.00	msec

MC 5307 Plot 045

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE DATA

TABLE 1
EXTERNAL MEASUREMENTS

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	10/31/11		11/15/11	
Sequential Test Number	-	2		3	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	21.5	Pass	20.6	Pass
Relative Humidity (%)	**10-70**	30.4	Pass	28.9	Pass
Sitting Height	**772 – 788**	773	Pass	773	Pass
Shoulder Pivot Height	**437 – 453**	444	Pass	440	Pass
H-Point Height	**79 – 89**	85	Pass	85	Pass
H-Point from Seat Back	**141 – 151**	148	Pass	148	Pass
Shoulder Pivot from Backline	**97 – 107**	100	Pass	99	Pass
Thigh Clearance	**119 – 135**	121	Pass	123	Pass
Head Breadth	**140 – 148**	141	Pass	144	Pass
Head Back from Backline	**40 – 46**	43	Pass	43	Pass
Head Depth	**178 – 188**	182	Pass	181	Pass
Head Circumference	**541 – 551**	542	Pass	543	Pass
Buttock to Knee Length	**514 – 540**	520	Pass	516	Pass
Popliteal Height	**343 – 369**	355	Pass	353	Pass
Knee Pivot to Floor Height	**392 – 409**	398	Pass	395	Pass
Buttock Popliteal Length	**416 – 442**	423	Pass	420	Pass
Chest Depth w/o Jacket	**195 – 211**	204	Pass	200	Pass
Foot Length	**216 – 232**	222	Pass	223	Pass
Hip Breadth	**313 – 323**	321	Pass	320	Pass
Arm Length	**249 – 259**	254	Pass	254	Pass
Knee Joint to Seat Back	**477 – 493**	482	Pass	480	Pass
Shoulder Width	**341 – 357**	346	Pass	344	Pass
Foot Width	**78 – 94**	86	Pass	84	Pass
Chest Circumference w/Jacket	**851 – 881**	853	Pass	855	Pass
Waist Circumference	**761 – 791**	778	Pass	775	Pass

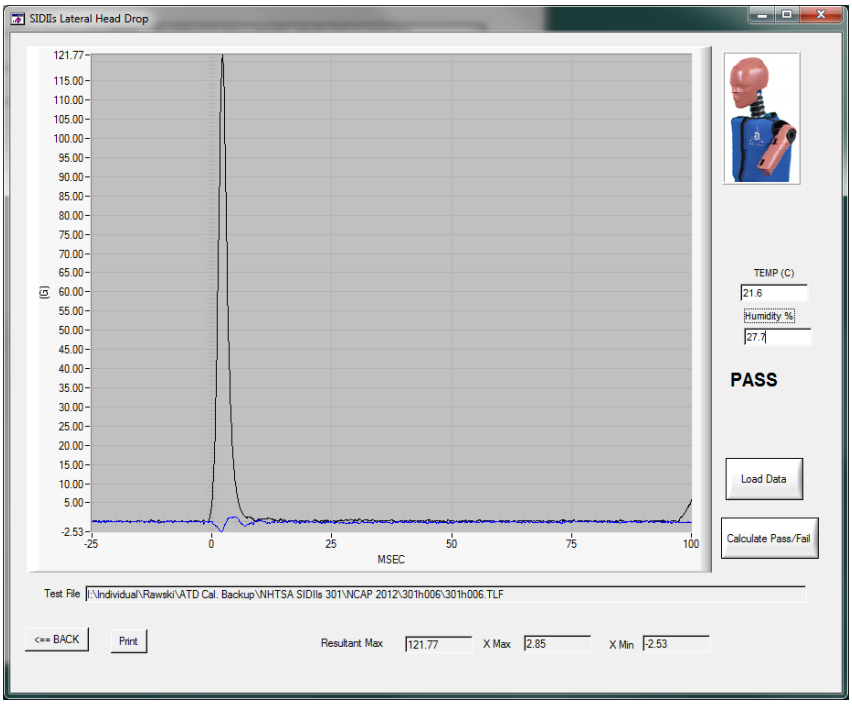
TABLE 2
HEAD DROP TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/28/11		11/11/11	
Sequential Test Number		-	2		3	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Head Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.1	Pass	21.5	Pass
	Min		20.7	Pass	20.8	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	31.3	Pass	30.1	Pass
	Min		29.1	Pass	25.6	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.6	Pass	21.5	Pass
Humidity – During Test (%)		**10-70**	27.7	Pass	30.1	Pass
Peak Head Resultant Acceleration (G)		**115-137**	121.77	Pass	122.28	Pass
Peak Head X Acceleration (G)		**<15**	2.85	Pass	9.70	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	-	Yes	-	Yes

TABLE 2
HEAD DROP TEST (CONTINUED)

PRE-TEST



POST-TEST

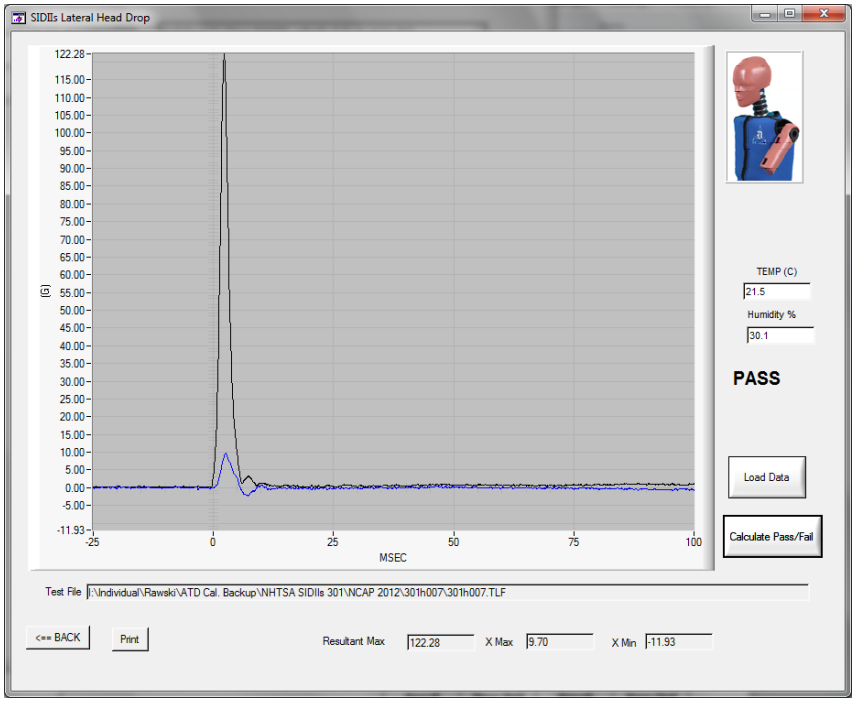


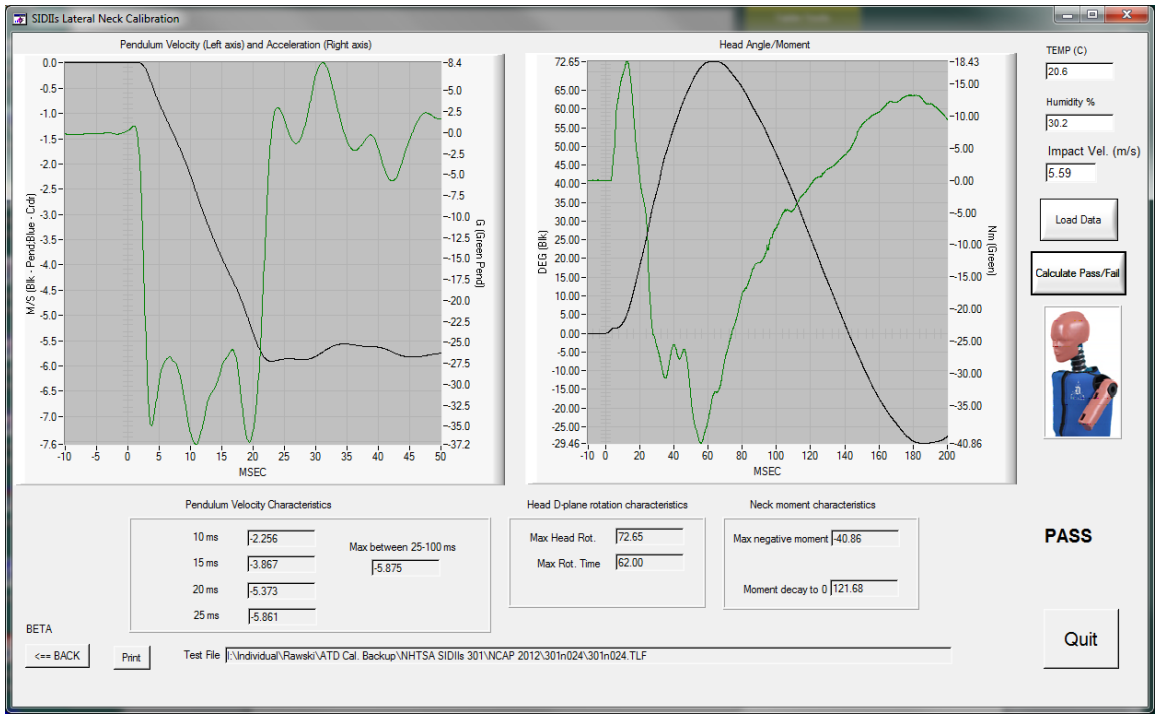
TABLE 3
LATERAL NECK PENDULUM TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			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**	22.0	Pass	21.2	Pass
	Min		20.6	Pass	20.9	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	31.0	Pass
	Min		36.4	Pass	21.3	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	21.2	Pass
Humidity – During Test (%)		**10-70**	30.2	Pass	31.0	Pass
Pendulum Velocity (m/s)		**5.51-5.63**	5.59	Pass	5.60	Pass
Pendulum Deceleration (G)	10 ms	**2.20-2.80**	2.256	Pass	2.219	Pass
	15 ms	**3.30-4.10**	3.867	Pass	3.740	Pass
	20 ms	**4.40-5.40**	5.373	Pass	5.132	Pass
	25 ms	**5.40-6.10**	5.861	Pass	6.005	Pass
	25-100 ms	**5.50-6.20**	5.875	Pass	6.066	Pass
Maximum D-Plane rotation (deg)		**71-81**	72.65	Pass	71.55	Pass
Time of Maximum D-Plane Rotation (ms)		**50-70**	62.00	Pass	62.56	Pass
Peak Occ. Condyle Moment (Nm)		**36-44**	40.86	Pass	42.35	Pass
Time of Moment Decay (ms)		**102-126**	121.68	Pass	121.52	Pass

TABLE 3
LATERAL NECK PENDULUM TEST (CONTINUED)

PRE-TEST



POST-TEST

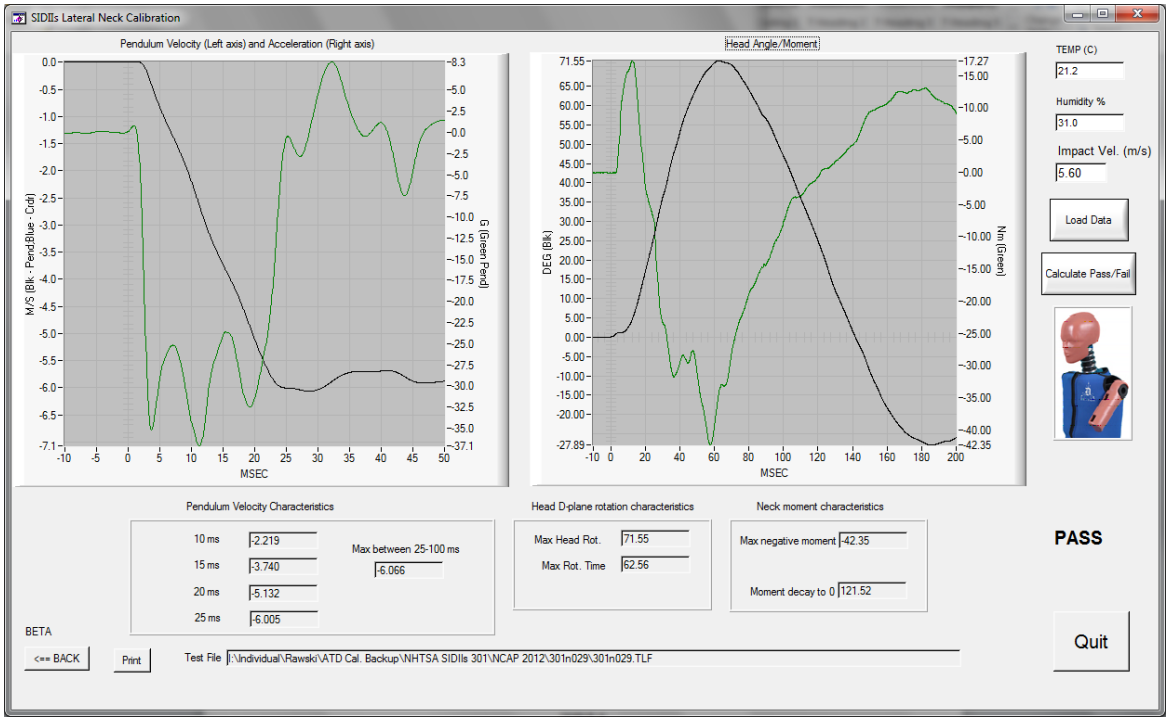


TABLE 4
SHOULDER IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			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	21.6	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	31.7	Pass
	Min		36.4	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.8	Pass	21.6	Pass
Relative Humidity – During Test (%)		**10-70**	30.7	Pass	31.7	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.32	Pass	4.32	Pass
Peak Shoulder Deflection (mm)		**28-37**	31.40	Pass	32.17	Pass
Peak Lateral Spine (T1) Acceleration Y (G)		**17-22**	19.15	Pass	19.59	Pass
Peak Impactor Acceleration (G)		**13-18**	16.09	Pass	16.11	Pass

TABLE 4
SHOULDER IMPACT TEST (CONTINUED)

PRE-TEST

POST-TEST

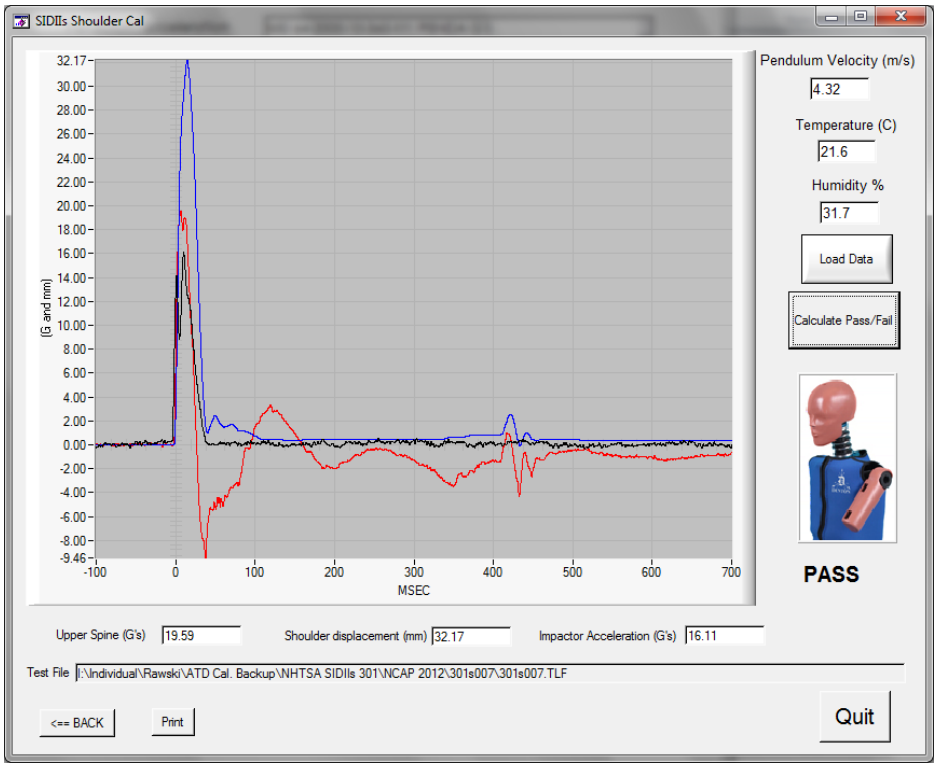


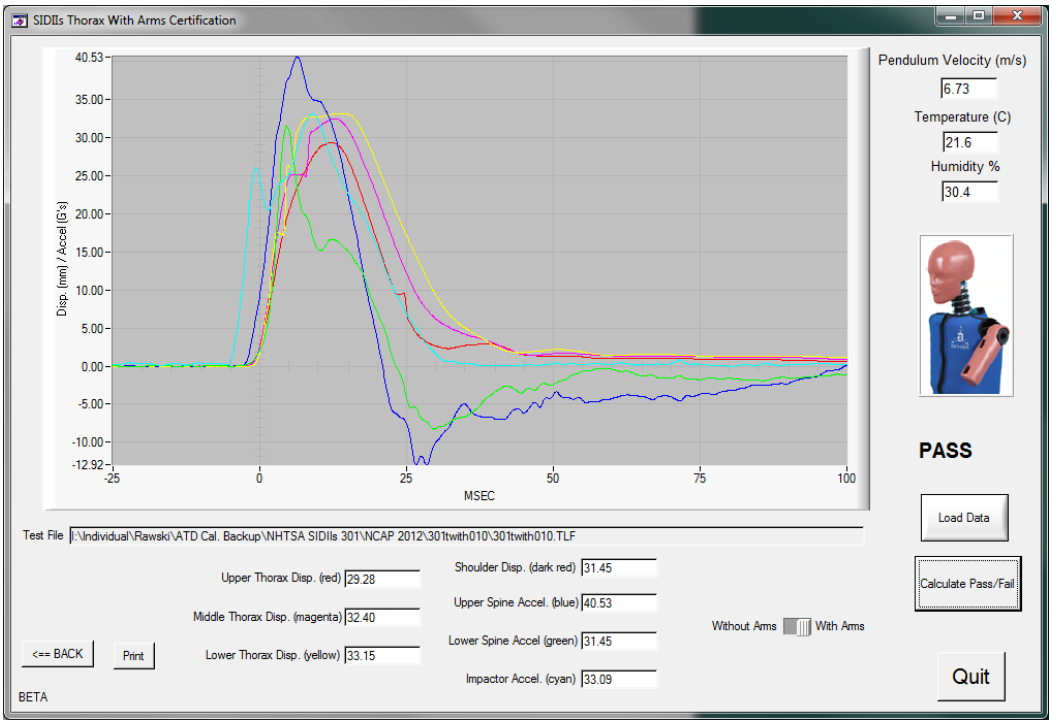
TABLE 5
THORAX (WITH ARM) IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			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	21.6	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	32.0	Pass
	Min		36.4	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.6	Pass	21.6	Pass
Relative Humidity – During Test (%)		**10-70**	30.4	Pass	32.0	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.73	Pass	6.73	Pass
Peak Shoulder Deflection (mm)		**31-40**	31.45	Pass	32.44	Pass
Peak Upper Rib Deflection (mm)		**25-32**	29.28	Pass	29.50	Pass
Peak Middle Rib Deflection (mm)		**30-36**	32.40	Pass	31.81	Pass
Peak Lower Rib Deflection (mm)		**32-38**	33.15	Pass	32.52	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**34-43**	40.53	Pass	40.20	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**29-37**	31.45	Pass	32.44	Pass
Peak Impactor Acceleration (G)		**30-36**	33.09	Pass	34.18	Pass

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

PRE-TEST



POST-TEST

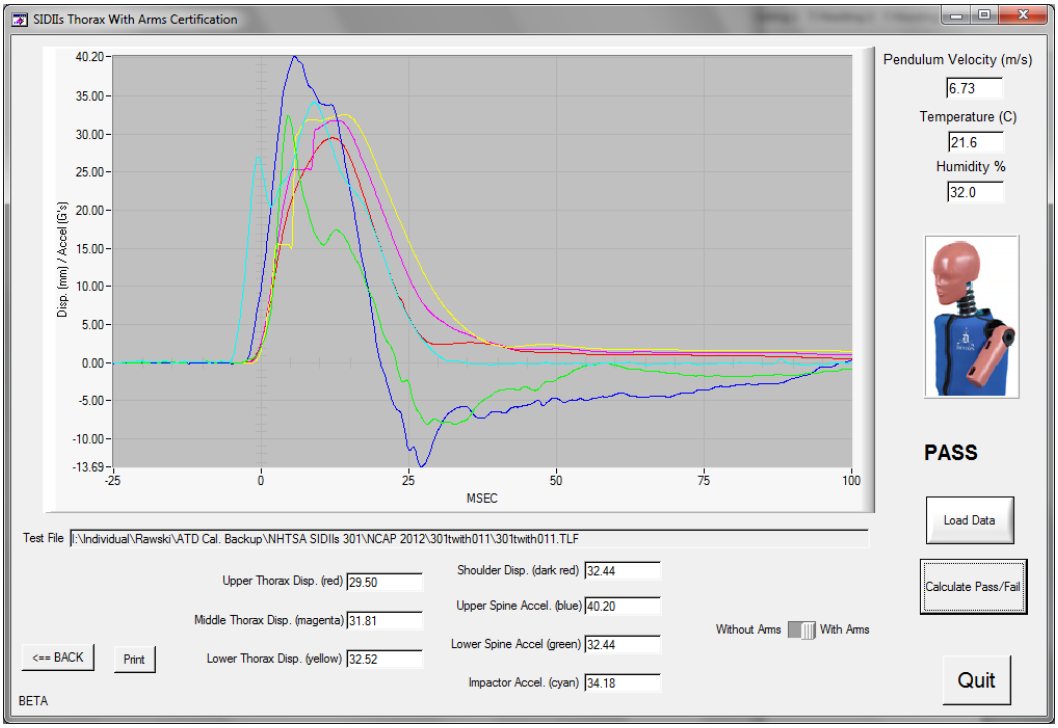


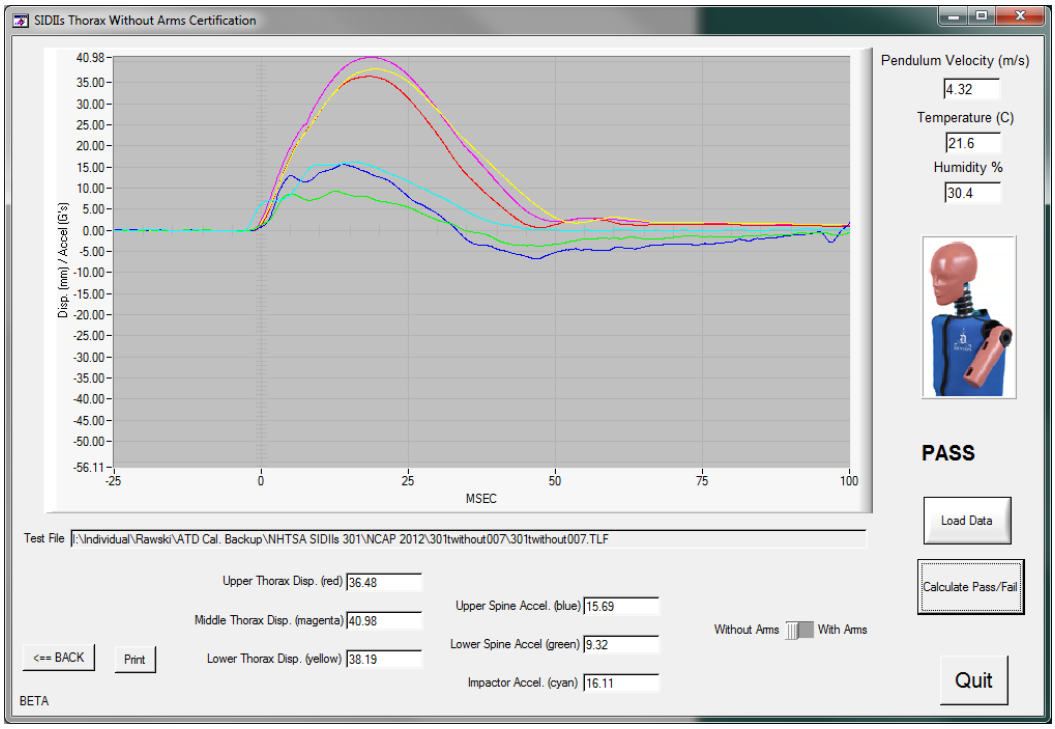
TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			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	21.6	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	32.1	Pass
	Min		36.4	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.6	Pass	21.6	Pass
Relative Humidity – During Test (%)		**10-70**	30.4	Pass	32.1	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.32	Pass	4.32	Pass
Peak Upper Rib Deflection (mm)		**32-40**	36.48	Pass	34.50	Pass
Peak Middle Rib Deflection (mm)		**39-45**	40.98	Pass	40.41	Pass
Peak Lower Rib Deflection (mm)		**35-43**	38.19	Pass	39.23	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**13-17**	15.69	Pass	15.57	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**7-11**	9.32	Pass	9.86	Pass
Peak Impactor Acceleration (G)		**14-18**	16.11	Pass	16.47	Pass

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

PRE-TEST



POST-TEST

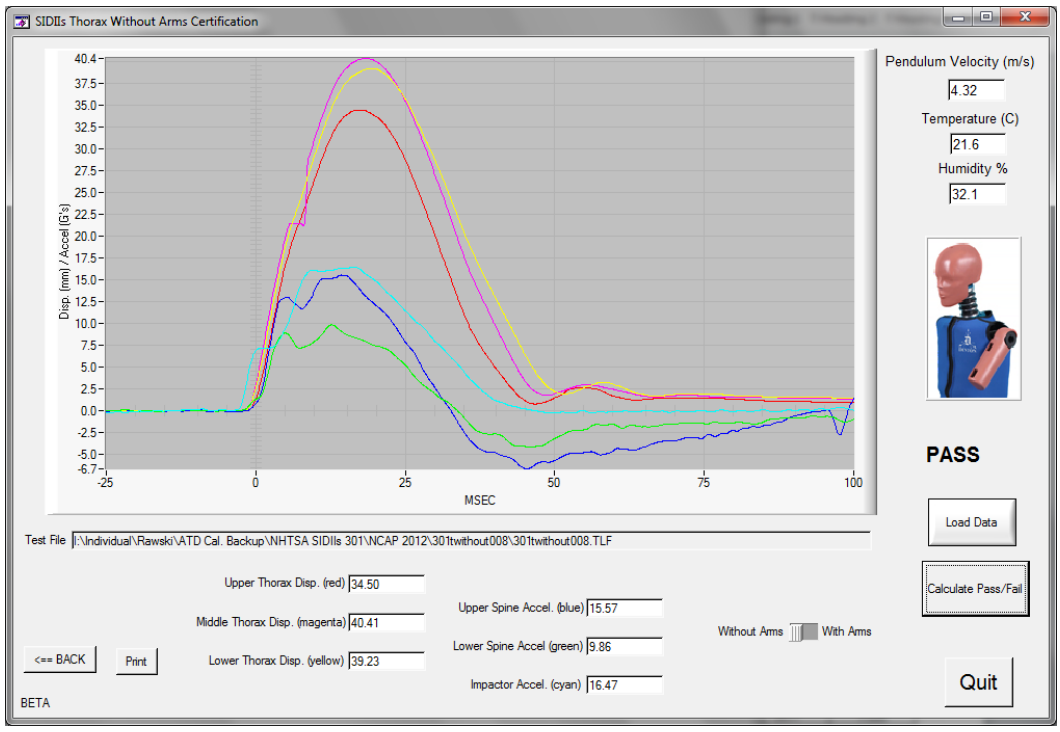


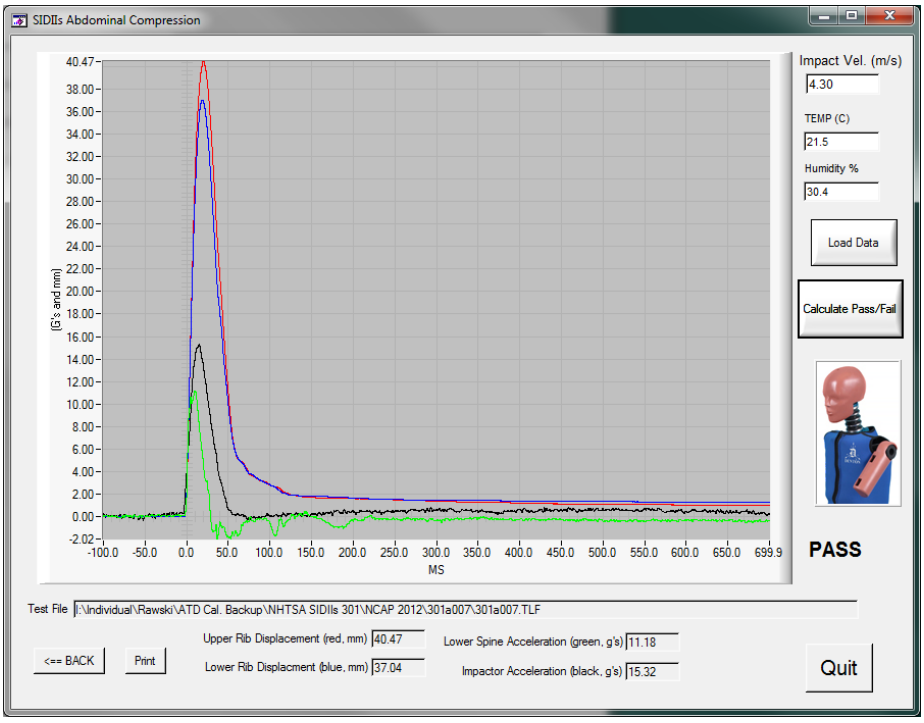
TABLE 7
ABDOMEN IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11			
Sequential Test Number		-	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	21.5	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	32.5	Pass
	Min		36.4	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.5	Pass	21.5	Pass
Relative Humidity – During Test (%)		**10-70**	30.4	Pass	32.5	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.30	Pass	4.30	Pass
Peak Upper Abdominal Rib Deflection (mm)		**36-47**	40.47	Pass	39.83	Pass
Peak Lower Abdominal Rib Deflection (mm)		**33-44**	37.04	Pass	37.01	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**9-14**	11.18	Pass	11.47	Pass
Peak Impactor Acceleration (G)		**12-16**	15.32	Pass	15.55	Pass

TABLE 7
ABDOMEN IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

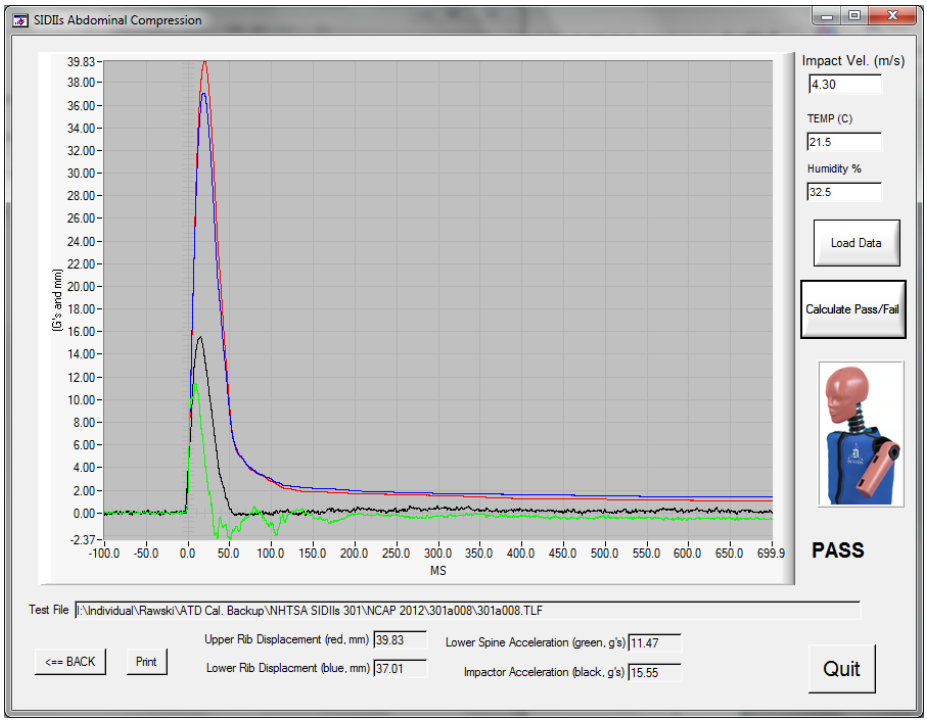
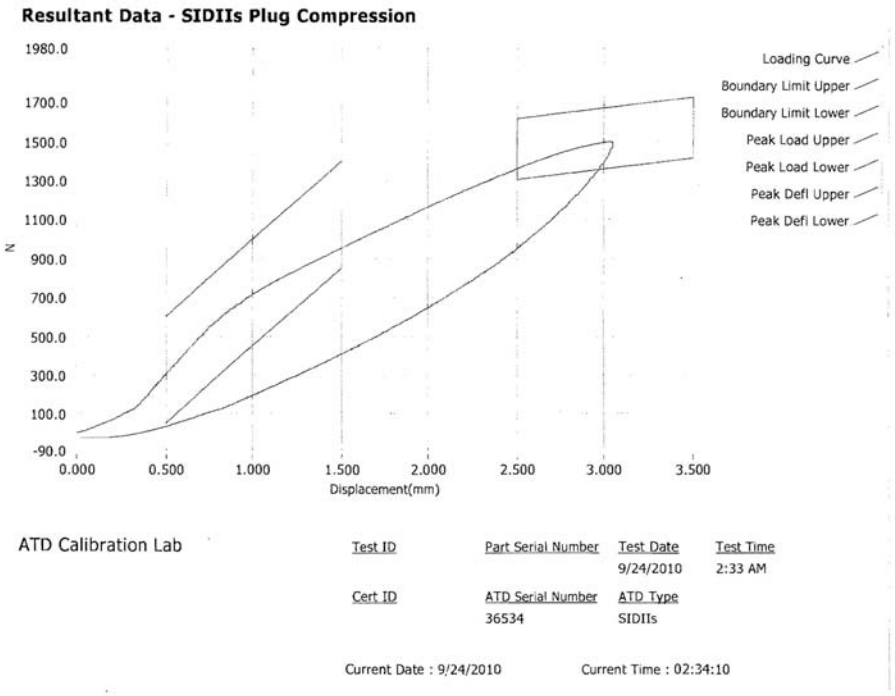


TABLE 8
PELVIS PLUG QUASI-STATIC TEST

PRE-Test



POST-TEST

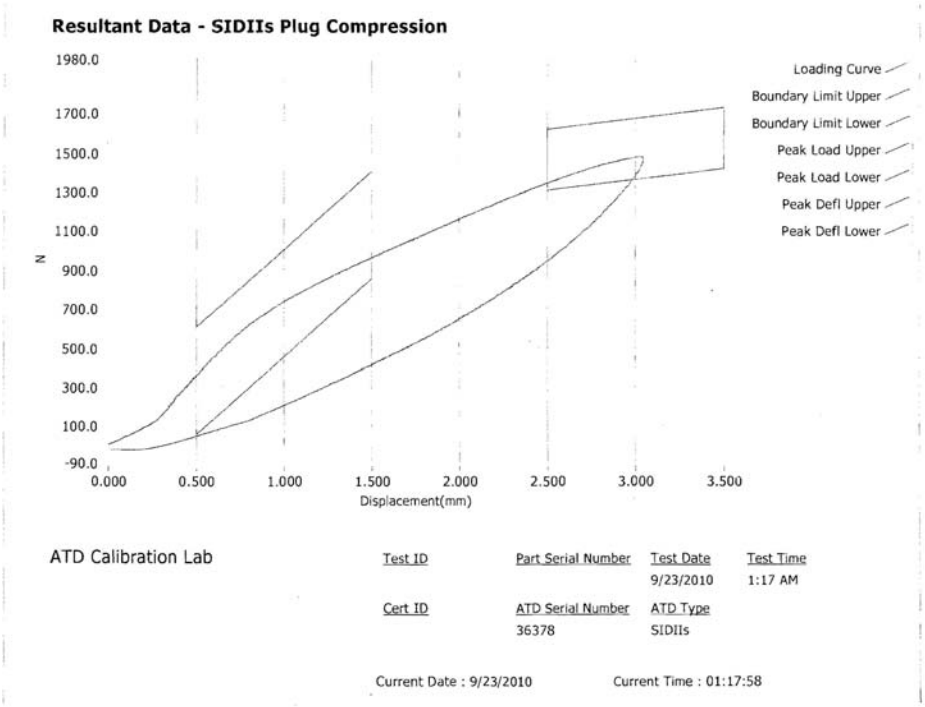


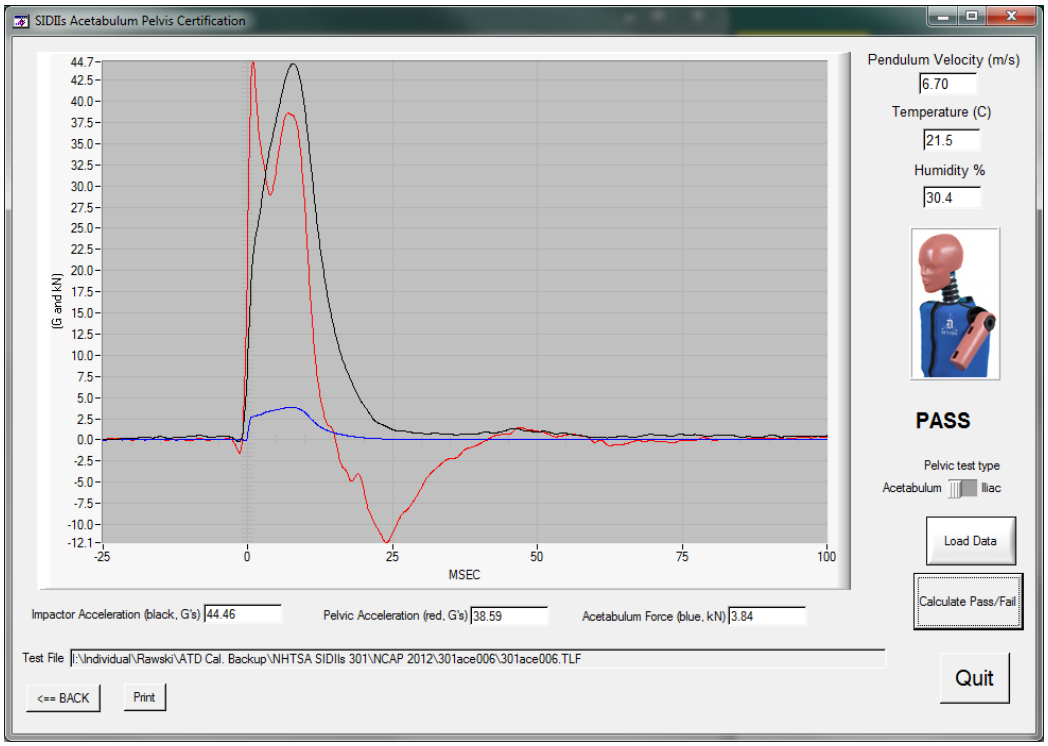
TABLE 9
PELVIS ACETABULUM IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			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	21.3	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	32.7	Pass
	Min		36.4	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.5	Pass	21.3	Pass
Humidity – During Test (%)		**10-70**	30.4	Pass	32.7	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.70	Pass	6.68	Pass
Peak Impactor Acceleration (G)		**38-47**	44.46	Pass	45.87	Pass
Pelvis Acceleration Y after 6ms (G)		**34-42**	38.59	Pass	40.54	Pass
Peak Acetabulum Force (kN)		**3.60-4.30**	3.84	Pass	4.06	Pass
Pelvis Plug Serial No. 36534 (Pre) No. 36378 (Post)						

TABLE 9
PELVIS ACETABULUM IMPACT TEST (CONTINUED)

PRE-TEST



POST-TEST

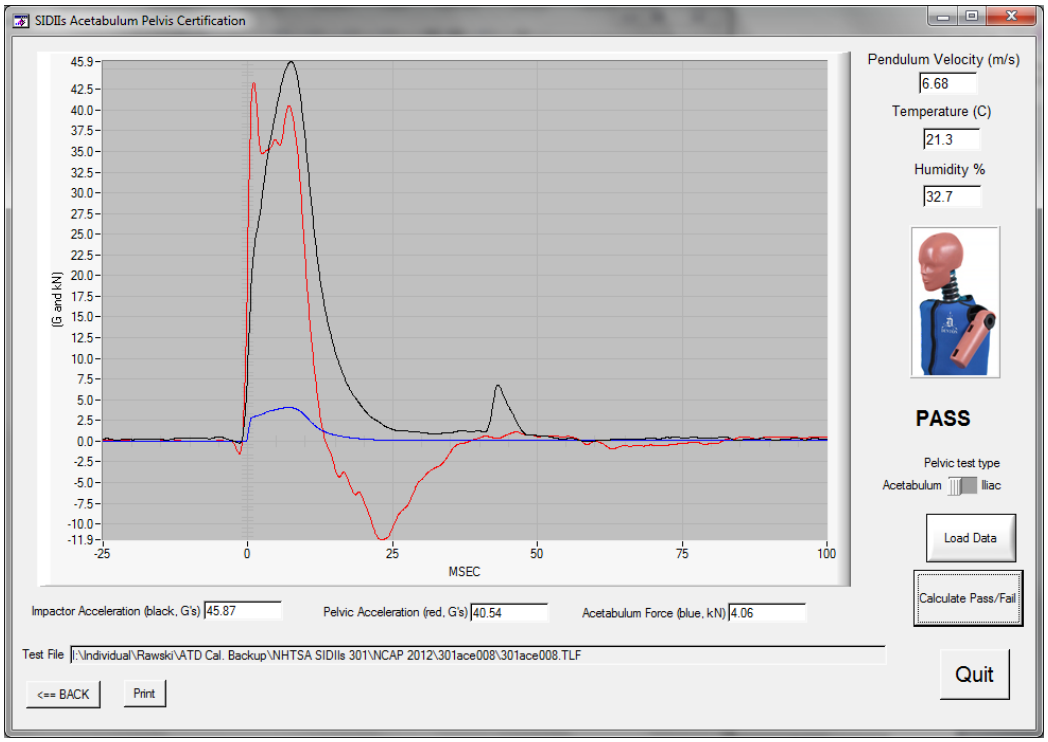


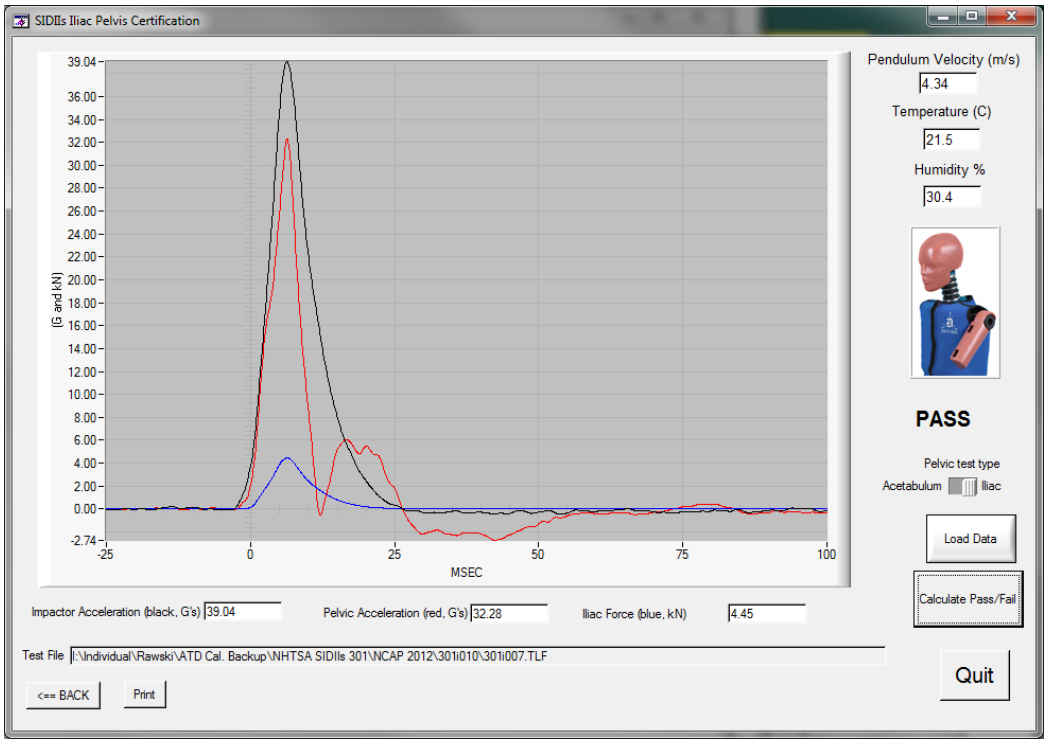
TABLE 10
PELVIS ILIAC IMPACT TEST

SIDIIs Serial Number 301 Test Sequences 2 & 3

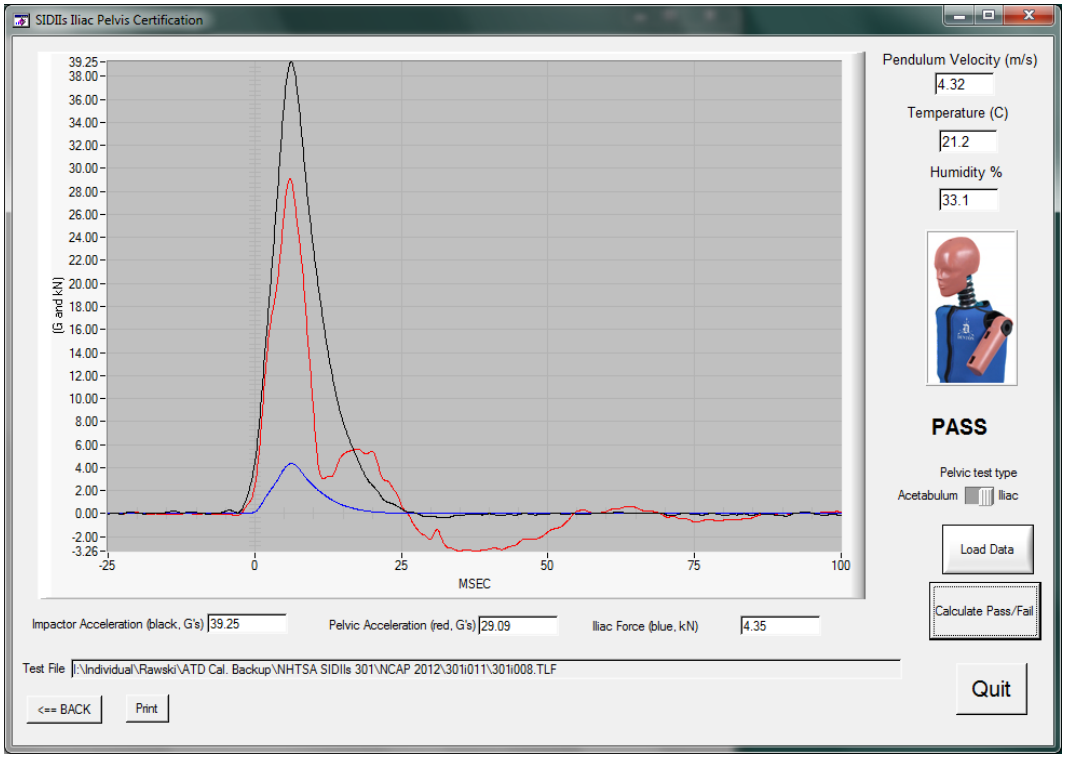
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	10/31/11		11/14/11	
Sequential Test Number		-	2		3	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.0	Pass	21.2	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.1	Pass	33.1	Pass
	Min		29.7	Pass	24.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.5	Pass	21.2	Pass
Humidity – During Test (%)		**10-70**	30.4	Pass	33.1	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.34	Pass	4.32	Pass
Peak Impactor Acceleration (G)		**36-45**	39.04	Pass	39.25	Pass
Pelvis Acceleration Y (G)		**28-39**	32.28	Pass	29.09	Pass
Peak Iliac Force Y (N)		**4.10-5.10**	4.45	Pass	4.35	Pass
Pelvis Plug Serial No. 36534 (Pre) No. 36378 (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)				36534	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	A011321	MSI	22/SEP/2011
Vehicle Center of Gravity	Y	A011312	MSI	22/SEP/2011
Vehicle Center of Gravity	Z	A011331	MSI	22/SEP/2011
Left Floor Sill	Y	A086974	MSI	22/SEP/2011
A-Pillar Sill	Y	A086985	MSI	22/SEP/2011
A-Pillar Low	Y	A086987	MSI	22/SEP/2011
A-Pillar Mid	Y	A086967	MSI	22/SEP/2011
B-Pillar Sill	Y	A011625	MSI	22/SEP/2011
B-Pillar Low	Y	A086976	MSI	22/SEP/2011
B-Pillar Mid	Y	A086983	MSI	22/SEP/2011
Driver Seat	Y	12142	Endevco	22/SEP/2011
Engine Top	X	P21820	Endevco	22/SEP/2011
Engine Top	Y	J43474	Endevco	22/SEP/2011
Firewall	Y	A007227	MSI	22/SEP/2011
Right Roof	Y	J43513	Endevco	22/SEP/2011
Right Floor Sill	Y	A086980	MSI	22/SEP/2011
Rear Floorpan	X	P12746	Endevco	22/SEP/2011
Rear Floorpan	Y	P13835	Endevco	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