

REPORT NUMBER: SPNCAP-KAR-13-036

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

**FORD MOTOR CO.
2013 FORD FOCUS ELECTRIC 5-DOOR HATCHBACK**

NHTSA No: MD0215

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



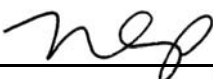
JANUARY 4, 2013


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**

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: 
Mr. Kelsey A. Chiu, Engineering Department Supervisor
KARCO Engineering, LLC.

Reviewed By: 
Mr. Michael L. Dunlap, Director of Operations
KARCO Engineering, LLC.

Approved By: 
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC.

Approval Date: January 4, 2013

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-KAR-13-036	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 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215		5. Report Date January 4, 2013																												
		6. Performing Organization Code KAR																												
7. Authors Mr. Kelsey A. Chiu, Engineering Department Supervisor, KARCO Mr. Frank Richardson, Program Manager, KARCO		8. Performing Organization Report No. TR-P32002-16-NC																												
		10. Work Unit No.																												
9. Performing Organization Name and Address KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301		11. Contract or Grant No. DTNH22-09-D-00122																												
		13. Type of Report and Period Covered Final Test Report, Dec. 20, 2012 - Jan. 4, 2013																												
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		14. Sponsoring Agency Code NVS-111																												
		15. Supplementary Notes																												
16. Abstract A 32.2 km/h (20 mph) 75 deg. oblique impact Side NCAP Test was conducted on the subject 2013 Ford Focus Electric 5-door hatchback in accordance with the specifications of the Office of Crash Worthiness 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 KARCO Engineering, LLC. facility in Adelanto, California on December 20, 2012. The impact velocity was 32.51 km/h and the outside ambient temperature at the struck (driver's) side of the vehicle was 9.7 deg. C. The target vehicle's maximum post-test static crush was 456 mm located at level 3. The test vehicle's occupant performance data is as follows:																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 35%;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (ES-2re)</th> </tr> <tr> <th style="width: 15%;">Units</th> <th style="width: 15%;">Threshold</th> <th style="width: 35%;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td style="text-align: center;">1000</td> <td style="text-align: center;">157.6</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">g</td> <td style="text-align: center;">82</td> <td style="text-align: center;">42.2</td> </tr> <tr> <td>Total Pelvic Force (Sum of Acetabular and Iliac Forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">3196</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38</td> <td style="text-align: center;">16</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45</td> <td style="text-align: center;">15</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (ES-2re)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	157.6	Resultant Lower Spine Acceleration	g	82	42.2	Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3196	Maximum Thoracic Rib Deflection	mm	38	16	Maximum Abdominal Rib Deflection	mm	45	15
Measurement Description	Driver ATD (ES-2re)																													
	Units	Threshold	Result																											
Head Injury Criteria (HIC ₃₆)		1000	157.6																											
Resultant Lower Spine Acceleration	g	82	42.2																											
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3196																											
Maximum Thoracic Rib Deflection	mm	38	16																											
Maximum Abdominal Rib Deflection	mm	45	15																											
The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches. 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 Information Services Division, NPO-411 1200 New Jersey Ave., SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833																												
19. Security Classification of this report UNCLASSIFIED	20. Security Classification of this page UNCLASSIFIED	21. No. of Pages 101	22. Price																											

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4
<u>Data Sheet</u>		<u>Page</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data	9
3	Dummy Longitudinal Clearance Dimensions	13
4	Dummy Lateral Clearance Dimensions	14
5	Camera and Instrumentation Data	15
6	Test Vehicle Accelerometer Locations	16
7	Rigid Pole Load Cell Data	17
8	Post-Test Observations	18
9	Test Vehicle Profile Measurements	20
10	Test Vehicle Exterior Crush Measurements	21
11	FMVSS No. 301 Static Rollover Results	24
12	Dummy/Vehicle Temperature and Humidity Stabilization	25
<u>Appendix</u>		<u>Page</u>
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 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00122. The purpose of this test is to generate comparative side impact performance in a 2013 Ford Focus Electric 5-door hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2012.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2013 Ford Focus Electric 5-door hatchback. The subject vehicle was towed into the rigid pole at an angle of 73.8° and a velocity of 32.51 km/h. The test was conducted by KARCO Engineering, LLC. in Adelanto, California on December 20, 2012. Pre- and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A¹ of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure, dated September 2012. Camera locations and other pertinent camera information are included in this report.

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

- Primary and Redundant Head CG tri-axial accelerometers
- Thorax upper, middle and lower rib displacement potentiometers
- Abdomen upper and lower rib displacement potentiometers
- Lower spine (12) tri-axial accelerometers
- Iliac load cell
- Acetabulum load cell

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

¹Photographs were taken with a placard stating 'Ford Focus' instead of 'Ford Focus Electric'.

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

Measurement Description	Units	Passenger ATD (SID-IIs)	
		IARV	Result
Head Injury Criteria (HIC ₃₆)		1000	157.6
Lower Spine (T12) Resultant Acceleration	g	82	42.2
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3196
Maximum Thoracic Rib Deflection	mm	38*	16
Maximum Abdominal Rib Deflection	mm	45*	15

*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	
Knee Airbag	Yes	No	No	
Side Airbag 1 (Curtain)	Yes	Yes	Yes	Yes
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other				

GENERAL COMMENTS

Both the front and rear doors on the struck side of the vehicle remained closed and latched. There was no separation at the hinges or latches. Both doors on the non-struck side remained closed and latched. There were no ATD values that exceeded limits.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION/DATA SHEETS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	MD0215
Model Year	2013
Make	Ford
Model	Focus Electric
Body Style	5-Door Hatchback
VIN	1FADP3R42DL126035
Body Color	Ice Storm
Odometer Reading (km / mi)	97 / 60
Engine Displacement (L)	N/A
Type / No. of Cylinders	Electric
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	1
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
Anti-Lock Brakes (ABS)	Yes

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

Does Owner's Manual provide instructions to turn off automatic door locks? Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co.
Date of Manufacture	Jul-12
Vehicle Type	Passenger Car

GVWR (kg)	2085
GAWR Front (kg)	934
GAWR Rear (kg)	1200

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

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

A
B
A-B

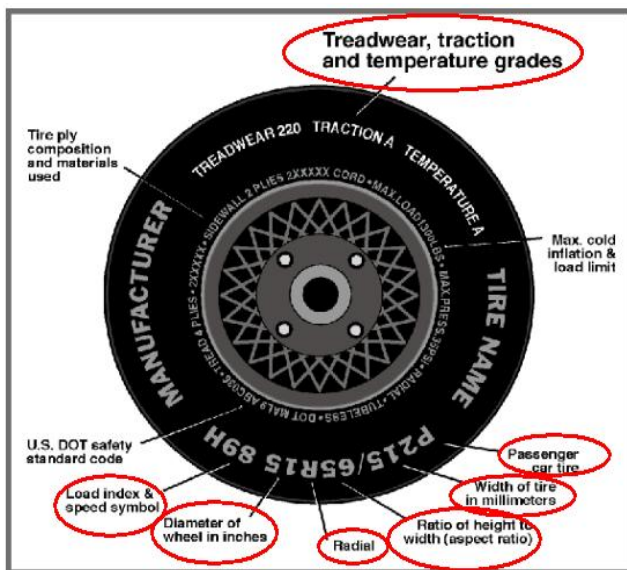
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	Yes					Yes	
Rear or Second Row Seat		Yes			Yes		
Third Row Seat							

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



VEHICLE TIRE INFORMATION

Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	350	350
Cold Pressure (kPa)	260	260
Recommended Tire Size	P225/50R17	P225/50R17
Tire Size on Vehicle	P225/50R17	P225/50R17
Tire Manufacturer	Michelin	Michelin
Tire Model	Energy Saver A/S	Energy Saver A/S
Treadware	480	480
Traction Grade	A	A
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 1 Polyamide, 2 Steel	1 Polyester, 1 Polyamide, 2 Steel
Load Index/Speed Symbol	93V	93V
Tire Material	Polyester, Polyamide, Steel	Polyester, Polyamide, Steel
DOT Safety Code Left	B90A 00NX 2612	B90A 00NX 2612
DOT Safety Code Right	B90A 00NX 2612	B90A 00NX 2612

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	255	255	260	255
Tire Placard	kPa	260	260	260	260
Owner's Manual	kPa	260	260	260	260
As Tested	kPa	260	260	260	260

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UJV)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	414.5	418.0		435.5	438.5		433.0	452.0	
Right	kg	395.0	417.5		407.0	439.5		399.5	443.5	
Ratio	%	49.2%	50.8%	100.0%	49.0%	51.0%	100.0%	48.2%	51.8%	100.0%
Total	kg	809.5	835.5	1645.0	842.5	878.0	1720.5	832.5	895.5	1728.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UJV)	kg	1645.0	A
Actual Weight of 1 P572 O ATD Used	kg	49.0	B
Rated Cargo/Luggage Wt (RCLW)	kg	34.8	C
Calculated Vehicle Target Wt (TVT _W)	kg	1728.8	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 -9.0 kg)? Yes No

TEST VEHICLE ATTITUDE AND CG

Measurement Description	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	°	-0.2	-0.2	-0.1	Yes
Front Passenger Sill Angle (front-to-rear)*	°	0.0	0.0	0.0	Yes
Front Bumper-Line Angle (left-to-right)**	°	0.0	0.0	-0.1	Yes
Rear Bumper-Line Angle (left-to-right)**	°	0.2	0.2	0.1	Yes
Vehicle CG (Aft of Front Axle)	mm	1345	1351	1372	
Vehicle CG (Left (+)/Right (-) from Longitudinal Centerline)	mm	9	12	19	

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

***The "As Tested" vehicle attitude angle measurements must be within "As Delivered" and the "Fully Loaded" vehicle attitude measurements at each location. Indicate "Yes" or "No" for "Meets Requirement"

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Headlights	6.5
Front Bumper Cover	7.0
Windshield Washer Bottle	1.0
Front Covers	3.0
Taillights	3.0
Trunk Trim	14.0
Rear Bumper Cover	3.5
Windows and Window Motors	3.5
Non-Struck Side Rear Door Panel	2.5
Ballast / Equipment Added	59.7

DATA SHEET NO. 2

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

SEAT POSITIONING

The driver's seat is set to the forward most position where the ATD will not contact any interior panels at the mid-height and mid-angle position. The front center seat (if applicable) and right front passenger's seat should be set in a similar manner as the driver's seat. The struck side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rearmost, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	5.3	0.0	2.7
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	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle	As Tested SCRP Height	SCRP Height Position	SCRP Height (mm)		
				Rearmost	Mid Fore/Aft	Forwardmost
Driver Seat	2.7	546	Max	522	535	546
			Mid	522	535	546
			Min	522	535	546
Front Passenger Seat	Fixed	549	Max	526	538	549
			Mid	526	538	549
			Min	526	538	549
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

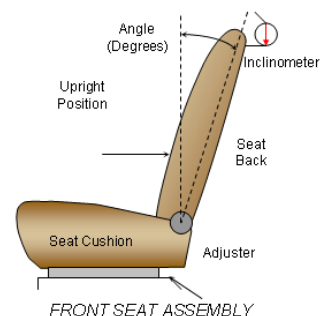
Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

SEAT FORE/AFT POSITION

Seat	Total Fore/Aft Travel		Test Position From Forwardmost Position	
	mm	Detents*	mm	Detent*
Driver Seat	248		0	
Front Passenger Seat	250	26	0	0
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The right front passenger seat back is set to the same angle as the driver's seat.



Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degree	Detent*
Driver Seat w/Seated Dummy	110.6		0.9	
Front Passenger Seat	75.0	34	0.9	
Front Center Seat				
Struck Side Rear Seat w/Seated Dummy	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1. The positions are marked H, M1, ... , L from top to bottom.

	Total No. of Positions	Placed in Position
Driver Seat	4	H

HEAD RESTRAINT ADJUSTMENT

The driver's head restraint is adjusted to the lowest and most full forward in-use position.

	Total No. of Positions	Placed in Position
Driver Seat	3	Full Down

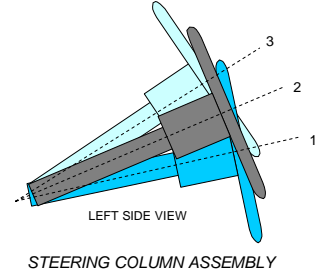
DATA SHEET NO. 2 ... (CONTINUED)

SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

STEERING COLUMN ADJUSTMENT

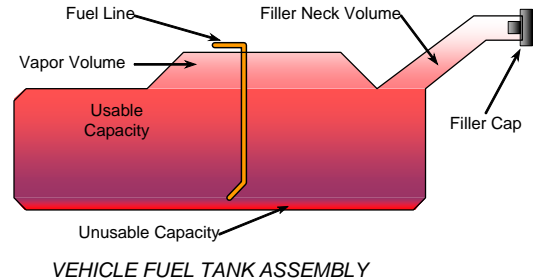
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of the geometric locus it describes when it moves through its full range of motion.



	Degrees	Fore-Aft Position (mm)
Lowermost - Position 1	18.6	172
Geometric Center - Position 2	21.9	151
Uppermost - Position 3	25.3	130
Telescoping Steering Wheel Travel		42
Test Position	21.9	151

FUEL PUMP

The test vehicle is electric and is not equipped with any liquid fuel system, including a fuel pump or tank.



FUEL TANK CAPACITY

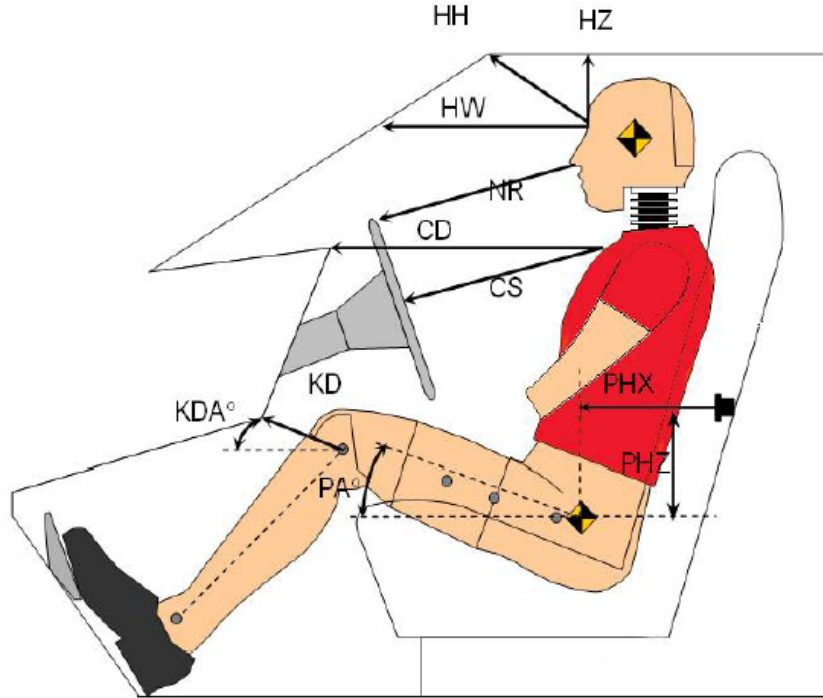
Description	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of "Standard Tank" (see Owner's Manual)	
Usable Capacity of "Optional Tank" (see Owner's Manual)	
93% of Usable Capacity	
Actual amount of Solvent Used in Test	
1/3 of Usable Capacity	

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

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	259	
HW	Head to Windshield	684	
HZ	Head to Roof	191	
NR	Nose to Rim	214	
CD	Chest to Dash	408	
CS	Chest to Steering Wheel	175	
KD(L)/KDA(L)°	Left Knee to Dash	99	38.8
KD(R)/KDA(R)°	Right Knee to Dash	98	41.0
PAX°	Pelvic Tilt Angle (x-axis)		20.0
PAY°	Pelvic Tilt Angle (y-axis)		0.2
PHX	Hip Point to Striker (x-axis)	328	
PHZ	Hip Point to Striker (z-axis)	107	

DATA SHEET NO. 4

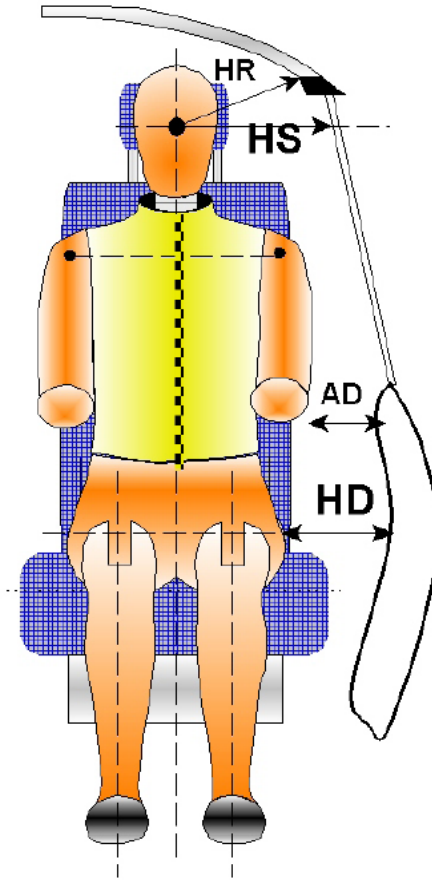
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback

NHTSA No. MD0215

Test Program: NCAP Side Pole Impact Test

Test Date: 12/20/12



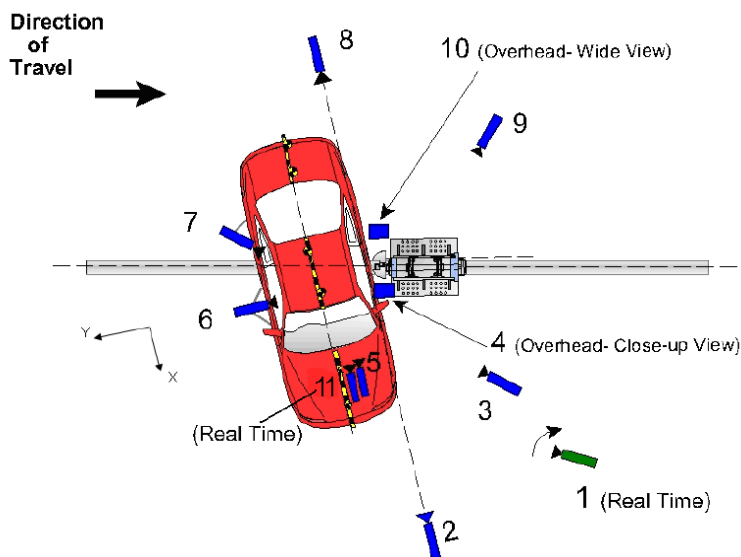
DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver
HR	Head to Side Header	mm	237
HS	Head to Side Window	mm	365
AD	Arm to Door	mm	170
HD	H-Point to Door	mm	163

DATA SHEET NO. 5

CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



CAMERA LOCATIONS AND DATA

Camera No.	View	Coordinates (m)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real Time Pan View of Impact	8.89	46.57	-3.04		30
2	Front Ground Level - Impact View	8.34	-0.05	-0.93	24	1000
3	Impact Side 45° - Forward Pole View	4.10	-2.15	-1.15	8.5	1000
4	Overhead Close-Up View of Impact	0.00	0.00	-5.79	12.5	1000
5	On-Board - Dummy Front View	1.12	0.47	-1.40	24	1000
6	On-Board - Dummy Side View	-0.05	1.63	-1.09	14	1000
7	On-Board - Dummy Rear Oblique View	-0.88	1.67	-1.02	12	1000
8	Rear Ground Level - Impact View	-6.12	-6.23	-0.96	24	1000
9	Impact Side 45° - Rearward Pole View	-8.02	0.04	-1.01	35	1000
10	Overhead Wide View of Impact	-0.06	0.22	-5.79	14	1000
11	Real Time Dummy Front View	1.19	0.53	-1.40		30

Reference from Point of Impact for X and Y; from Ground for Z):

+X = Forward of Vehicle, +Y = Right of Vehicle, +Z = Down

*All measurements accurate to ±6 mm

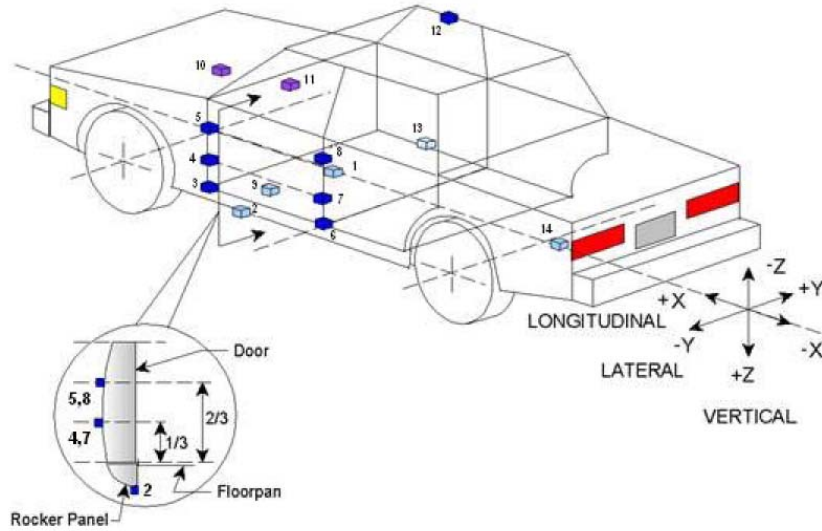
INSTRUMENTATION

Driver Dummy Channels	16
Vehicle Structure Accelerometers	18
Pole Load Cells	8
Total	42

DATA SHEET NO. 6

TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



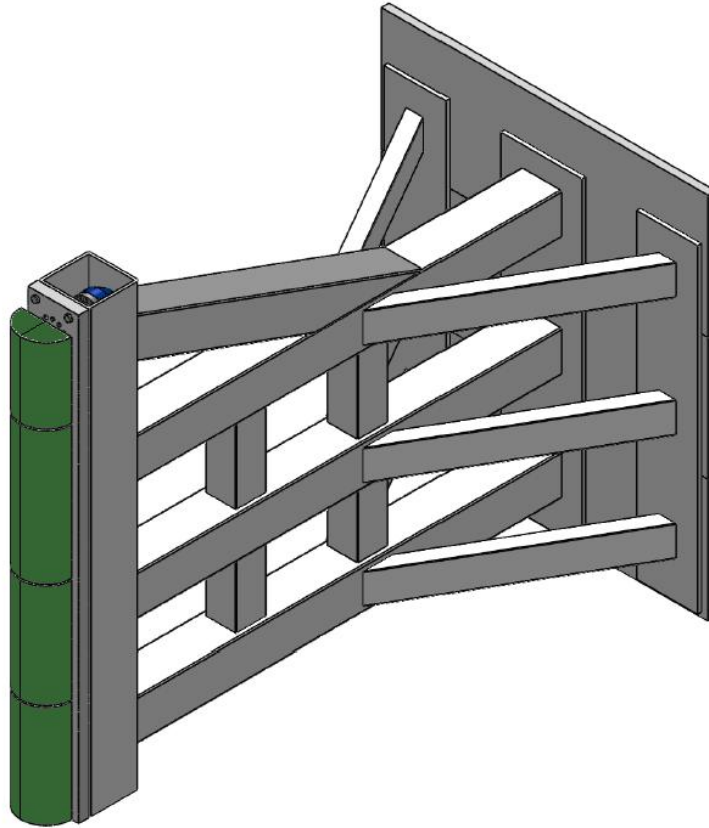
VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Loc. No.	Sensor Description	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	1680	0	-345
2	Left Floor Sill	2260	-720	-180
3	A-Pillar Sill	2860	-815	-400
4	A-Pillar Low	2860	-815	-530
5	A-Pillar Mid	2860	-815	-840
6	B-Pillar Sill	1825	-800	-350
7	B-Pillar Low	1825	-800	-650
8	B-Pillar Mid	1825	-800	-900
9	Driver Seat Track	2160	-605	-360
10	Engine Top	3725	0	-570
11	Firewall	3190	0	-805
12	Right Roof	1910	480	-1440
13	Right Floor Sill	1785	800	-350
14	Rear Floorpan	470	0	-560

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

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



RIGID POLE LOAD CELL LOCATIONS

ID	Units	Height From Ground
1	mm	87
2	mm	468
3	mm	648
4	mm	978
5	mm	1168
6	mm	1651
7	mm	1816
8	mm	2057

DATA SHEET NO. 8

POST-TEST OBSERVATIONS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215

Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

TEST DUMMY INFORMATION AND CONTACT POINTS

Dummy Body Part	Driver SID-IIs Dummy
Face	Curtain Airbag, Torso/Pelvis Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag, Torso/Pelvis Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Curtain Airbag, Torso/Pelvis Airbag, Seat
Upper Torso	Seat
Lower Torso	Seat
Left Hip	Seat, Torso/Pelvis Airbag
Left Knee	Right Knee

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 System 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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	No Separation
Windshield Damage	Broken
Side Window Damage	Left Front Window Broken
Other Notable Effects	None

DATA SHEET NO. 8 ... (CONTINUED)

POST-TEST OBSERVATIONS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

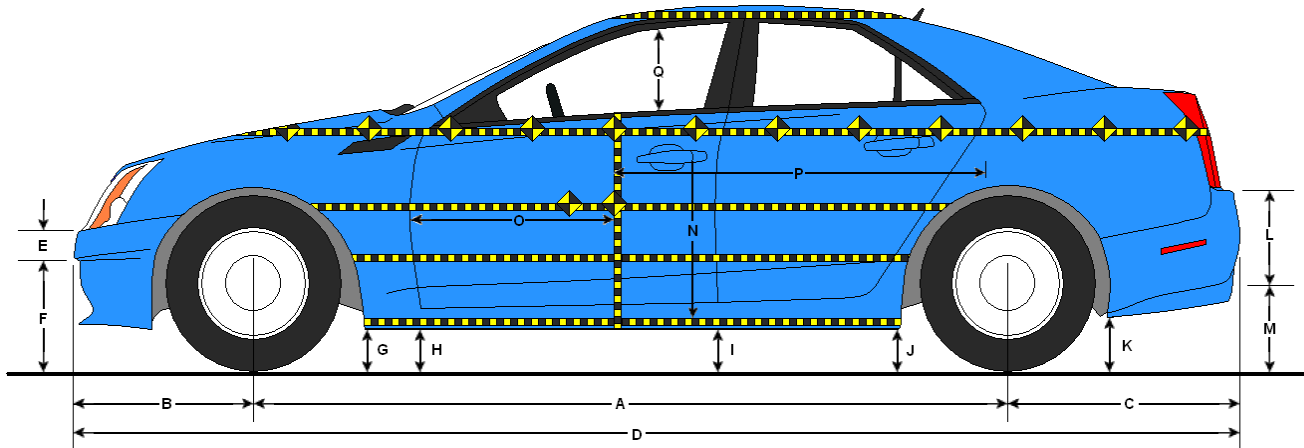
IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		1093
Actual Impact Point (Aft of Front Axle)	mm		1068
Horizontal Offset (+ forward / - rearward)	mm	± 38 of Intended Impact Point	25
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	°	75 ± 3	73.8
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.51
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.56

DATA SHEET NO. 9

TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

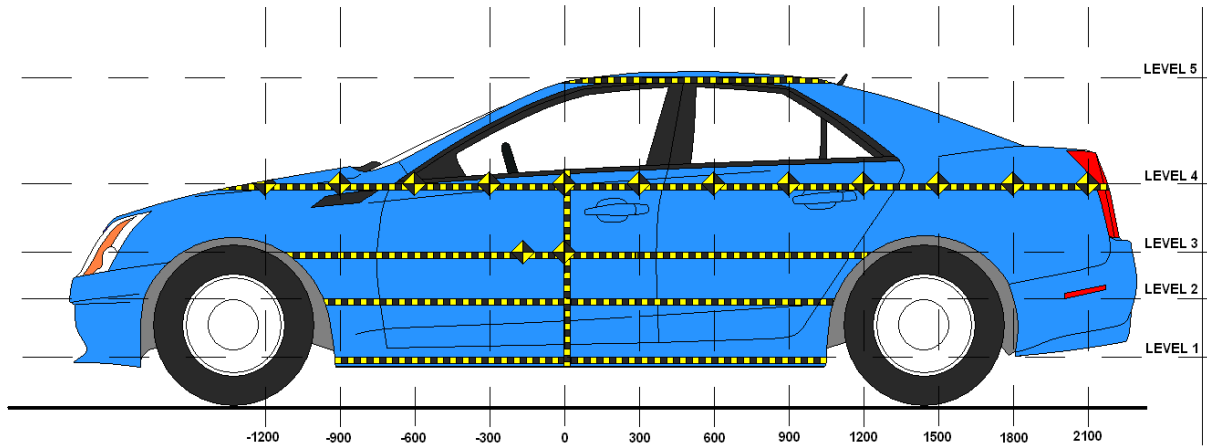
Code	Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2648	2548	-100
B	Front Axle to FSOV	830	846	16
C	Rear Axle to RSOV	790	827	37
D	Total Length at Centerline	4269	4221	-48
E	Front Bumper Thickness	113	113	0
F	Front Bumper Bottom to Ground	429	463	34
G	Sill Height at Front Wheel Well	184	211	27
H	Sill Height at Front Door Leading Edge	179	202	23
I	Sill Height at B-Pillar	209	239	30
J1	Sill Height at Rear Wheel Well	220	291	71
J2	Pinch Weld Height at Rear Wheel Well	182	227	45
K	Sill Height Aft of Rear Wheel Well	516	565	49
L	Rear Bumper Thickness	85	85	0
M	Rear Bumper Bottom to Ground	406	437	31
N	Sill Height to Bottom of Front Window Sill	573	638	65
O	Front Door Leading Edge to Impact CL	644	478	-166
P	Rear Door Trailing Edge to Impact CL	1418	1301	-117
Q	Front Window Opening	430	458	28
R	Right Side Length	3137	3144	7
S	Left Side Length	3137	2991	-146
T	Vehicle Width at B-Pillar	1780	1633	-147

All measurements in mm with tolerance of ± 3 mm

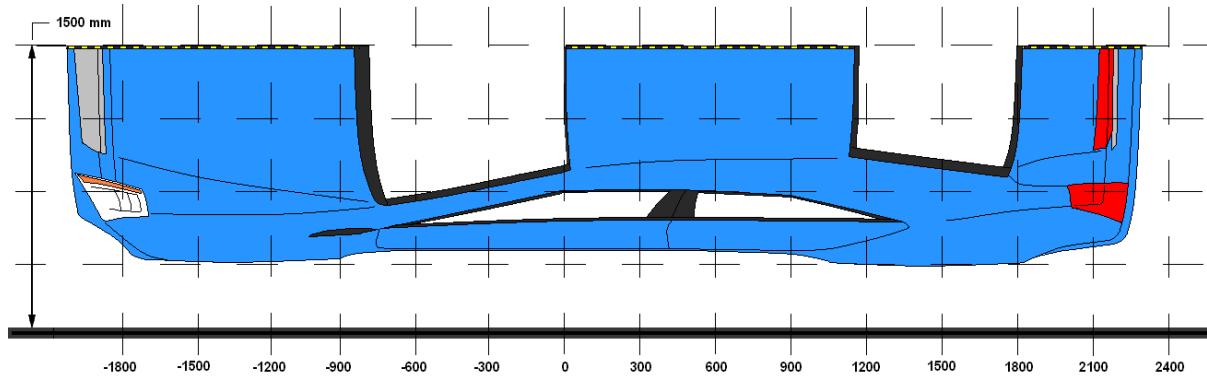
DATA SHEET NO. 10

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



LEFT SIDE VIEW



OVERHEAD VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	283	413	0
2	Occupant H-Point	539	450	0
3	Mid-Door	642	456	0
4	Window Sill	874	424	0
5	Window Top	1398	224	0

DATA SHEET NO. 10 ... (CONTINUED)

TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215

Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

	Pre-Test (mm)					Post-Test (mm)					Difference (mm)				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900				706					754					48	
-750		603	607	688			657	663	749			54	56	61	
-600	638	614	615	676		696	663	658	715		58	49	43	39	
-450	638	614	613	665		787	758	759	791		149	144	146	126	
-300	636	613	611	656		865	855	857	872		229	242	246	216	
-150	635	612	609	648		953	959	964	966		318	347	355	318	
0	635	611	608	639	906	1048	1061	1064	1063	1130	413	450	456	424	224
150	636	612	608	634	898	1019	1031	1037	1047	1114	383	419	429	413	216
300	638	614	609	630	896	909	914	916	924	1075	271	300	307	294	179
450	639	616	610	627	900	850	822	816	834	1048	211	206	206	207	148
600	641	619	612	626	903	808	787	785	803	1029	167	168	173	177	126
750	645	622	615	629	902	768	755	754	777	1013	123	133	139	148	111
900	649	628	620	630	903	729	725	729	751	994	80	97	109	121	91
1050	653	632	626	634	905	689	702	706	729	987	36	70	80	95	82
1200		626	622	654	907		671	672	722	978		45	50	68	71
1350			613	645	912			663	688	973			50	43	61
1500				652	917				701	971				49	54
1650				661	925				705	973				44	48
1800				674	936				712	976				38	40
1950															
2100															
2250															
2400															
2550															
2700															
2850															

DATA SHEET NO. 10 ... (CONTINUED)

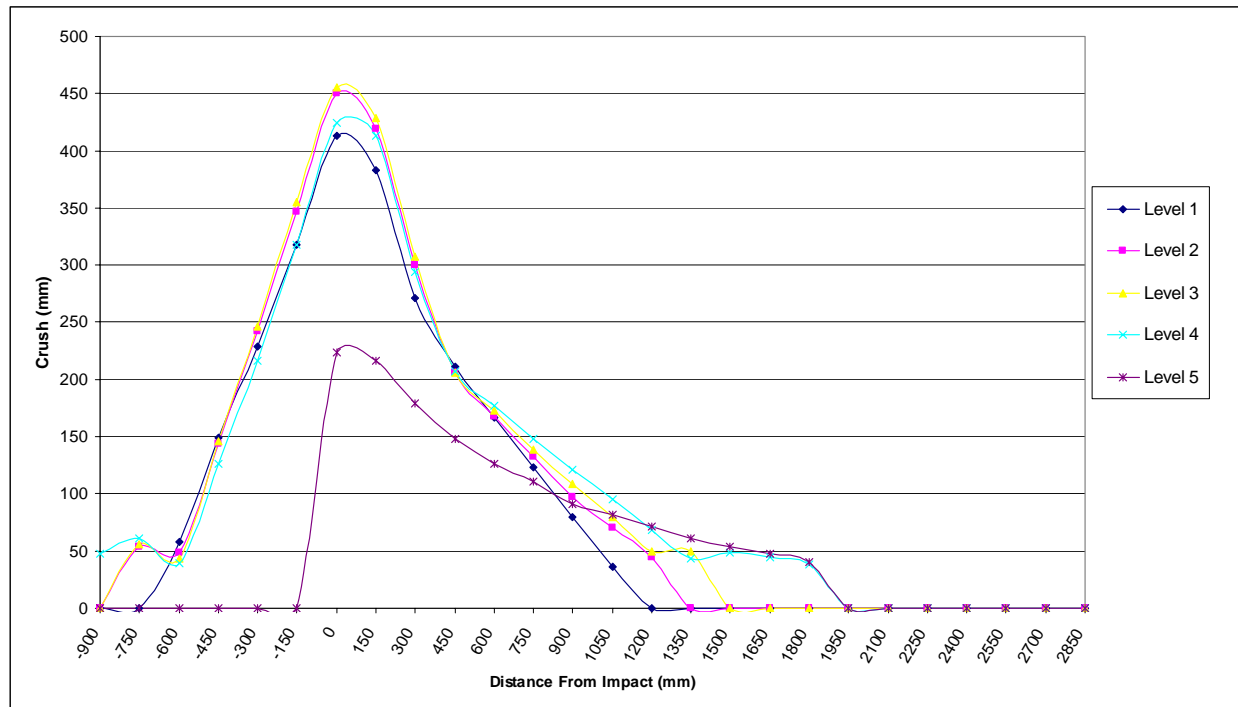
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback

NHTSA No. MD0215

Test Program: NCAP Side Pole Impact Test

Test Date: 12/20/12

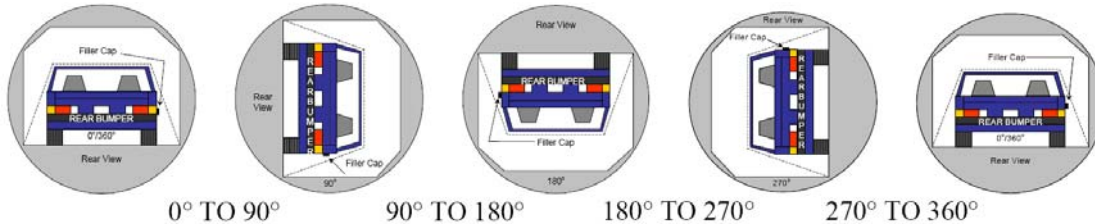


DATA SHEET NO. 11

FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215
 Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12
 Temperature at Time of Impact: 9.7° C Test Time: 1:10 PM

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



SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°			
90° To 180°			
180° To 270°			
270° To 360°			

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

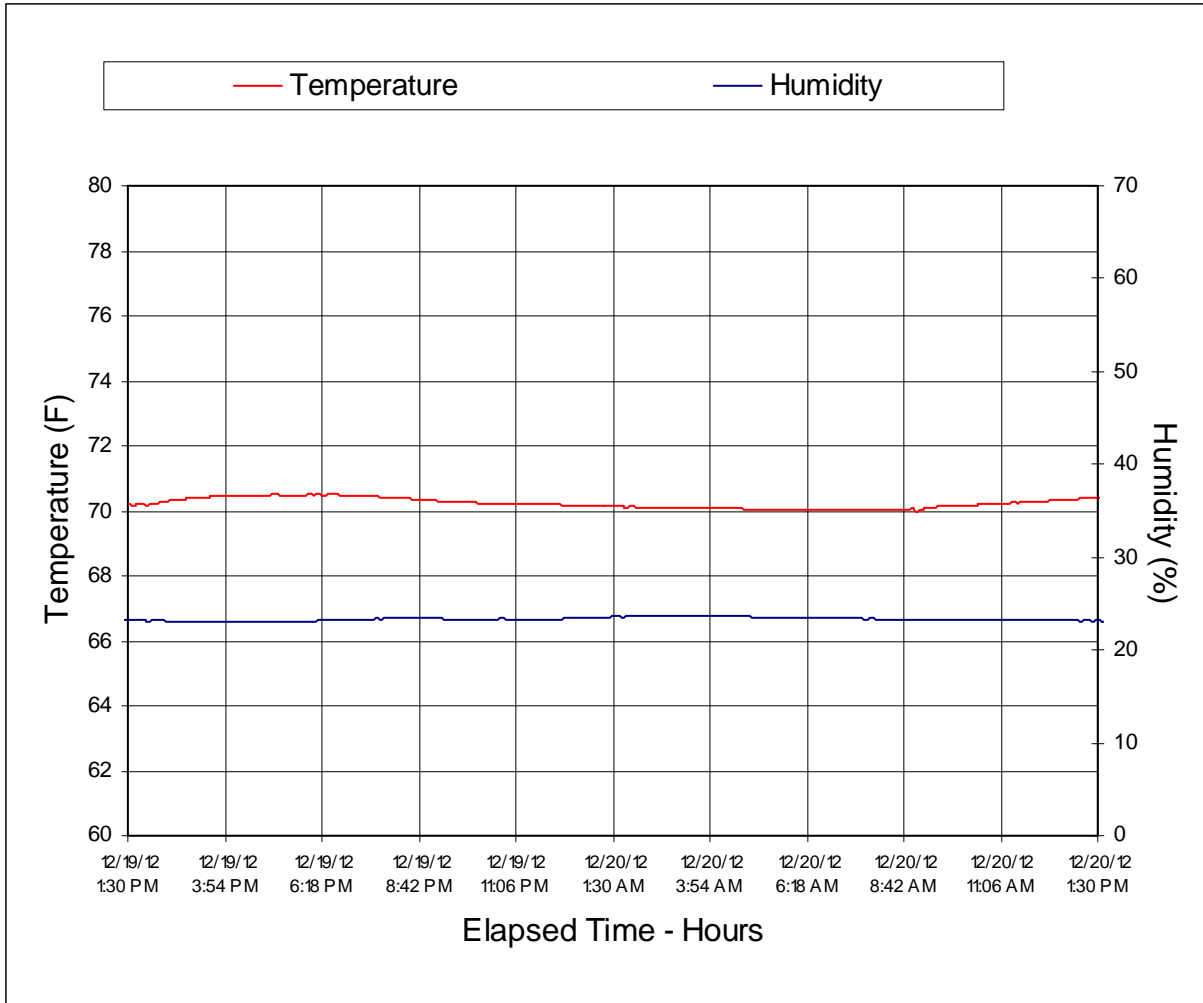
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 14

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback NHTSA No. MD0215

Test Program: NCAP Side Pole Impact Test Test Date: 12/20/12



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

Figure		Page
1	As Delivered Right Front 3/4 View of Test Vehicle	A-1
2	As Delivered Left Rear 3/4 View of Test Vehicle	A-1
3	Pre-Test Frontal View of Test Vehicle	A-2
4	Post-Test Frontal View of Test Vehicle	A-2
5	Pre-Test Left Front 3-4 View of Test Vehicle	A-3
6	Post-Test Left Front 3-4 View of Test Vehicle	A-3
7	Pre-Test Left Side View of Test Vehicle	A-4
8	Post-Test Left Side View of Test Vehicle	A-4
9	Pre-Test Left Rear 3-4 View of Test Vehicle	A-5
10	Post-Test Left Rear 3-4 View of Test Vehicle	A-5
11	Pre-Test Rear View of Test Vehicle	A-6
12	Post-Test Rear View of Test Vehicle	A-6
13	Pre-Test Right Side View of Test Vehicle	A-7
14	Post-Test Right Side View of Test Vehicle	A-7
15	Pre-Test Overhead View of Test Area	A-8
16	Post-Test Overhead View of Test Area	A-8
17	Pre-Test Left Side View of Pole Positioned Against Side of Test Vehicle	A-9
18	Pre-Test Right Side View of Pole Positioned Against Side of Test Vehicle	A-9
19	Pre-Test Close-Up View of Impact Point Target	A-10
20	Post-Test Close-Up View of Impact Point Target	A-10
21	Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
22	Post-Test Front Close-Up View of Dummy	A-11
23	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
24	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12
25	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13
26	Pre-Test Frontal View of Seat Back Prior to Dummy Positioning	A-13
27	Pre-Test Frontal View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
28	Pre-Test Overhead View of Seat Pan Prior to Dummy Positioning	A-14
29	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
30	Pre-Test View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
31	Pre-Test View of Dummy's Head Showing Dummy's Head is Level	A-16
32	Pre-Test Placement of Dummy's Feet	A-16
33	Pre-Test View of Belt Anchorage for Dummy	A-17
34	Pre-Test Left Side View of Steering Wheel	A-17
35	Pre-Test View of Disengaged Parking Brake	A-18

TABLE OF PHOTOGRAPHS ... (CONTINUED)

<u>Figure</u>		<u>Page</u>
36	Pre-Test View of Parking Brake	A-18
37	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
38	Pre-Test Close-Up View of Driver Seat Back	A-19
39	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
40	Pre-Test Driver Dummy and Door Clearance View	A-20
41	Post-Test Driver Dummy and Door Clearance View	A-21
42	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
43	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
44	Pre-Test Inner Door Panel View	A-22
45	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-23
46	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
47	Post-Test Dummy Close-Up Head Contact with Side Airbag View	A-24
48	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
49	Post-Test Dummy Close-Up Torso Contact with Side Airbag View	A-25
50	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
51	Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View	A-26
52	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-26
53	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
54	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
55	Close-Up View of Vehicle's Certification Label	A-28
56	Close-Up View of Vehicle's Tire Information Placard or Label	A-28
57	Pre-Test Pole Barrier Front View	A-29
58	Post-Test Pole Barrier Front View	A-29
59	Pre-Test Pole Barrier Side View	A-30
60	Post-Test Pole Barrier Side View	A-30
61	Pre-Test Ballast View	A-31
62	Post-Test Primary and Redundant Speed Trap Read-Out	A-31
63	FMVSS No. 305 Rollover 0 Degrees	A-32
64	FMVSS No. 305 Rollover 90 Degrees	A-32
65	FMVSS No. 305 Rollover 180 Degrees	A-33
66	FMVSS No. 305 Rollover 270 Degrees	A-33
67	FMVSS No. 305 Rollover 360 Degrees	A-34
68	Impact Event	A-34
69	Monroney Label	A-35
70	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-35



FIGURE 1. As-Delivered Right Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 2. As-Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 3. Pre-Test Frontal View of Test Vehicle

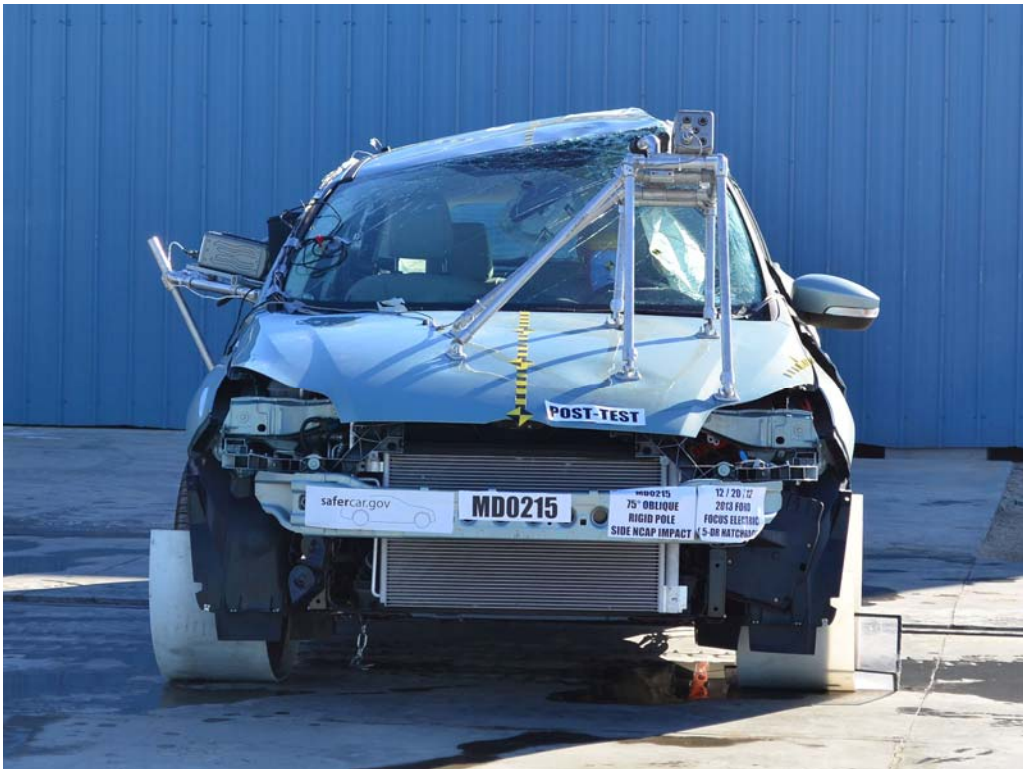


FIGURE 4. Post-Test Frontal View of Test Vehicle



FIGURE 5. Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 6. Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle



FIGURE 7. Pre-Test Left Side View of Test Vehicle

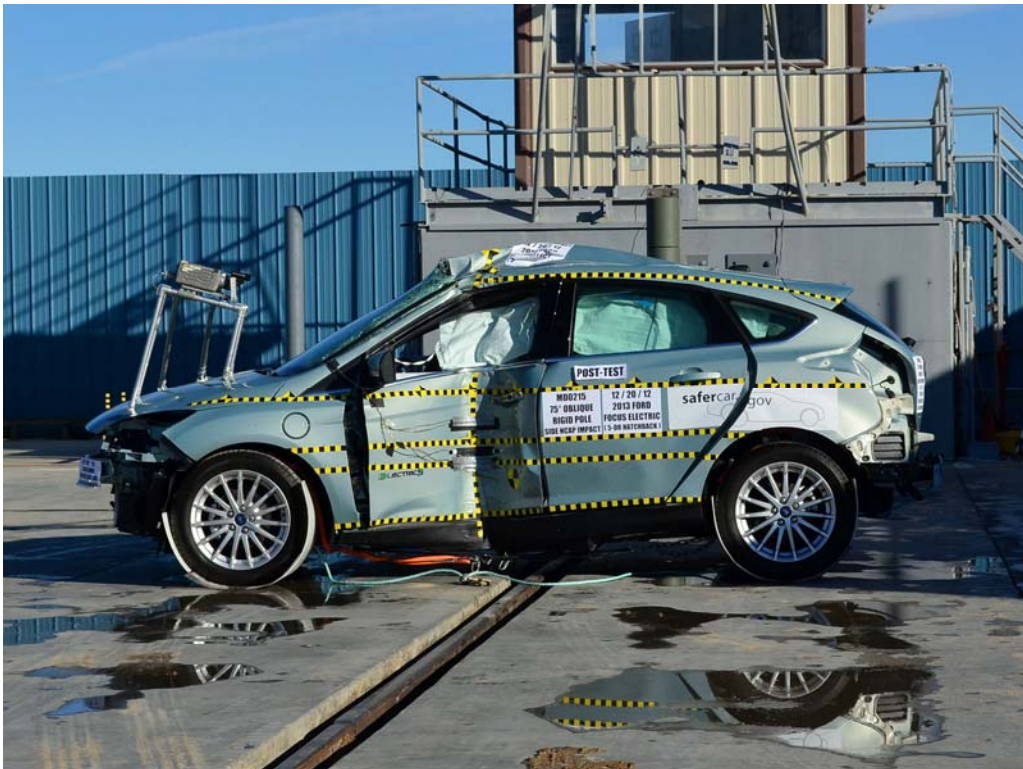


FIGURE 8. Post-Test Left Side View of Test Vehicle



FIGURE 9. Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 10. Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



FIGURE 11. Pre-Test Rear View of Test Vehicle

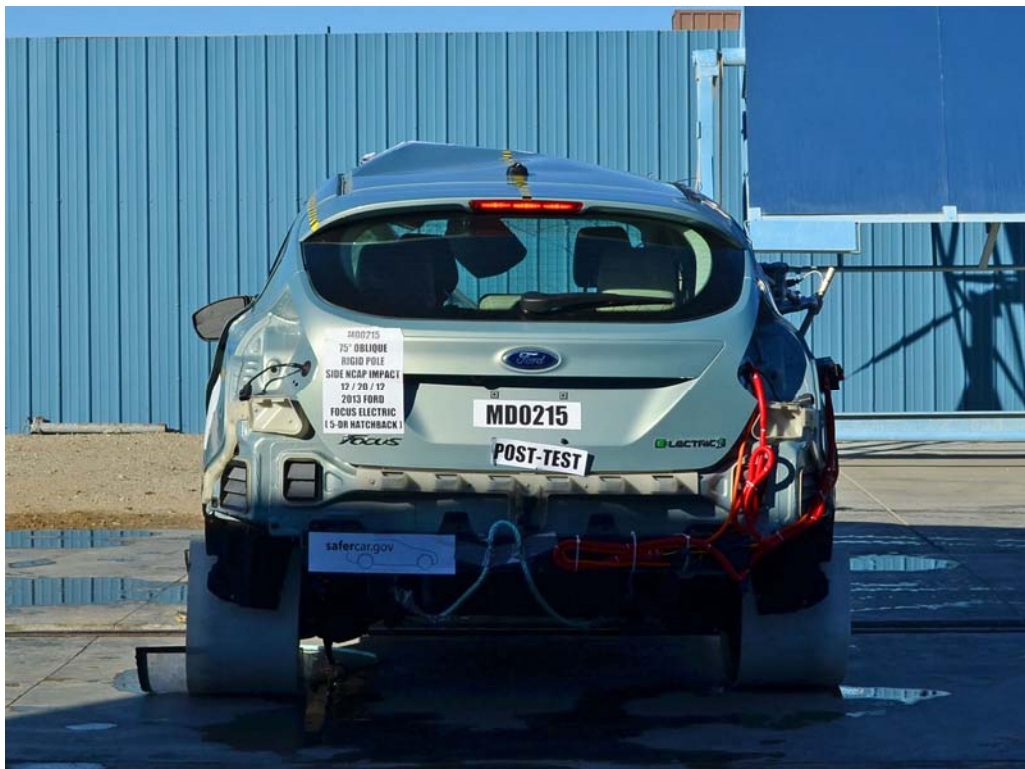


FIGURE 12. Post-Test Rear View of Test Vehicle



FIGURE 13. Pre-Test Right Side View of Test Vehicle



FIGURE 14. Post-Test Right Side View of Test Vehicle



FIGURE 15. Pre-Test Overhead View of Test Area



FIGURE 16. Post-Test Overhead View of Test Area



FIGURE 17. Pre-Test Left Side View of Pole
Positioned Against Side of Vehicle



FIGURE 18. Pre-Test Right Side View of Pole
Positioned Against Side of Vehicle



FIGURE 19. Pre-Test Close-Up View of Impact Point Target



FIGURE 20. Post-Test Close-Up View of Impact Point Target Showing Impact Location



FIGURE 21. Pre-Test Front Close-Up View of Dummy Head and Chest



FIGURE 22. Post-Test Front Close-Up View of Dummy



FIGURE 23. Pre-Test Left Side View of Dummy Showing Belt and Chalking

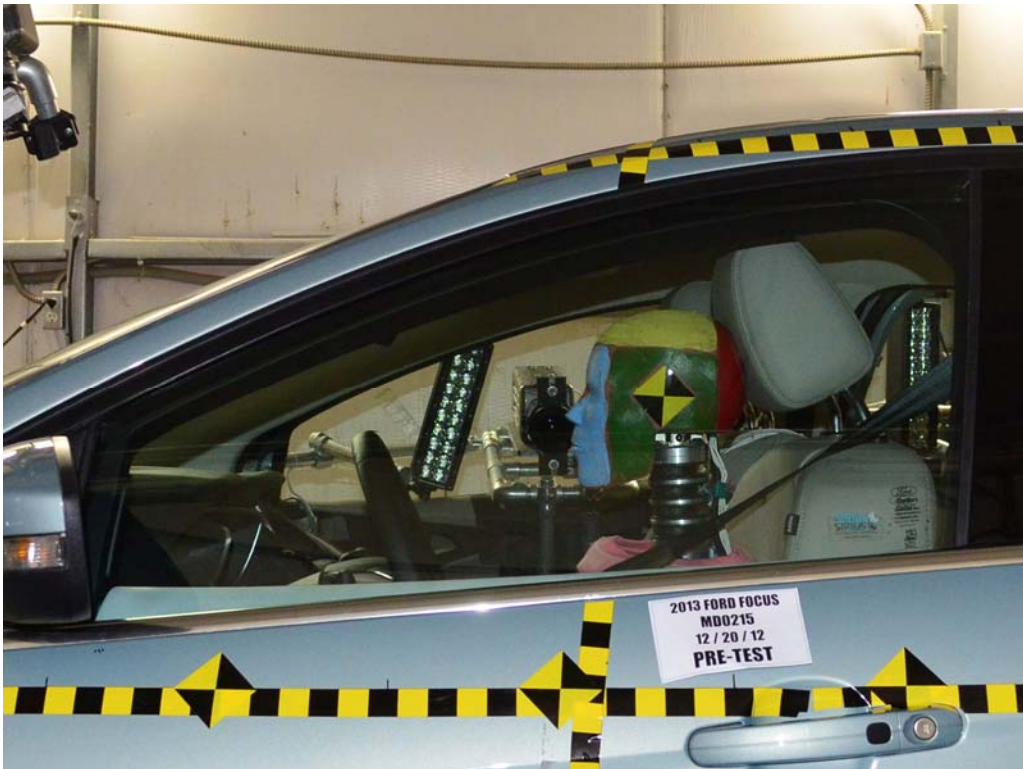


FIGURE 24. Pre-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 25. Post-Test Left Side View of Dummy Shoulder and Door Top View



FIGURE 26. Pre-Test Frontal View of Seat Back Prior to Dummy Positioning



FIGURE 27. Pre-Test Frontal Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



FIGURE 28. Pre-Test Frontal View of Seat Pan Prior to Dummy Positioning



FIGURE 29. Pre-Test Overhead View of Dummy Thighs on Seat Pan

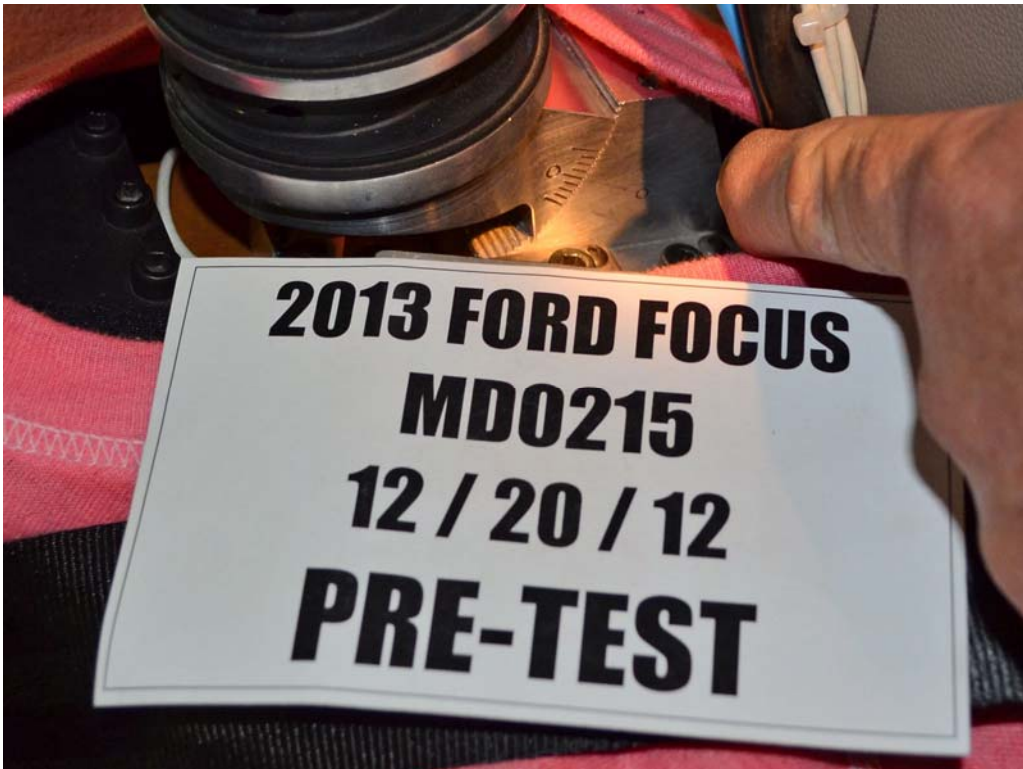


FIGURE 30. Pre-Test Left Side View of Dummy's Neck
Showing Position of Adjustable Neck Bracket

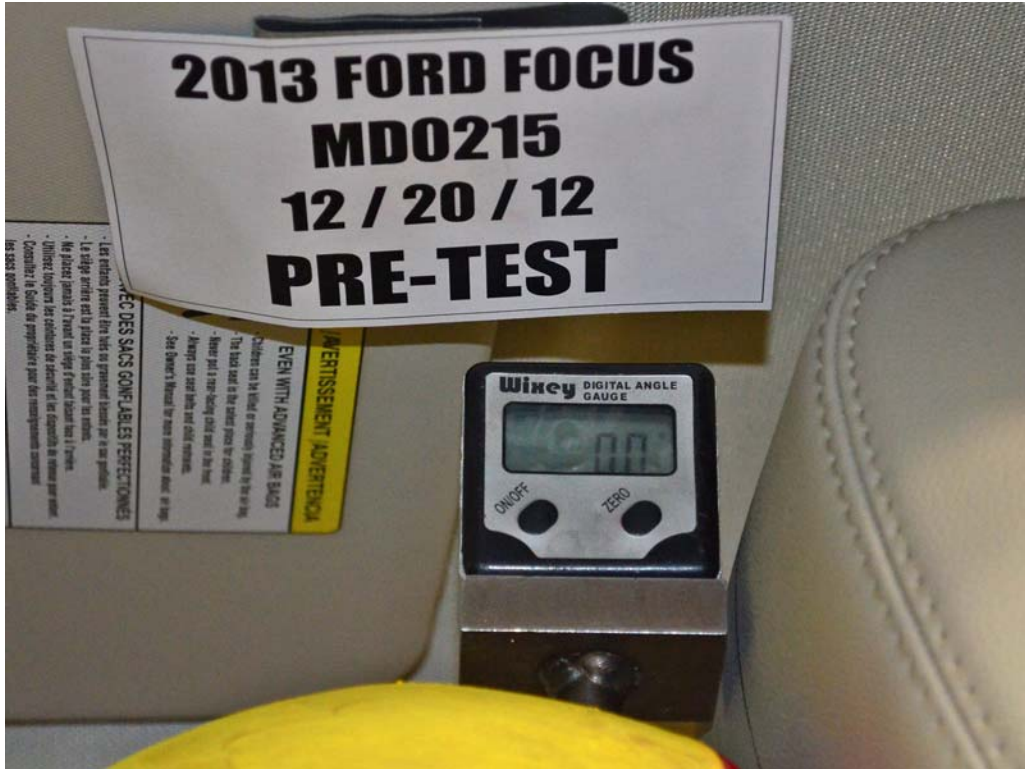


FIGURE 31. Pre-Test View of Dummy's Head Showing Dummy's Head Is Level



FIGURE 32. Pre-Test Placement of Dummy's Feet

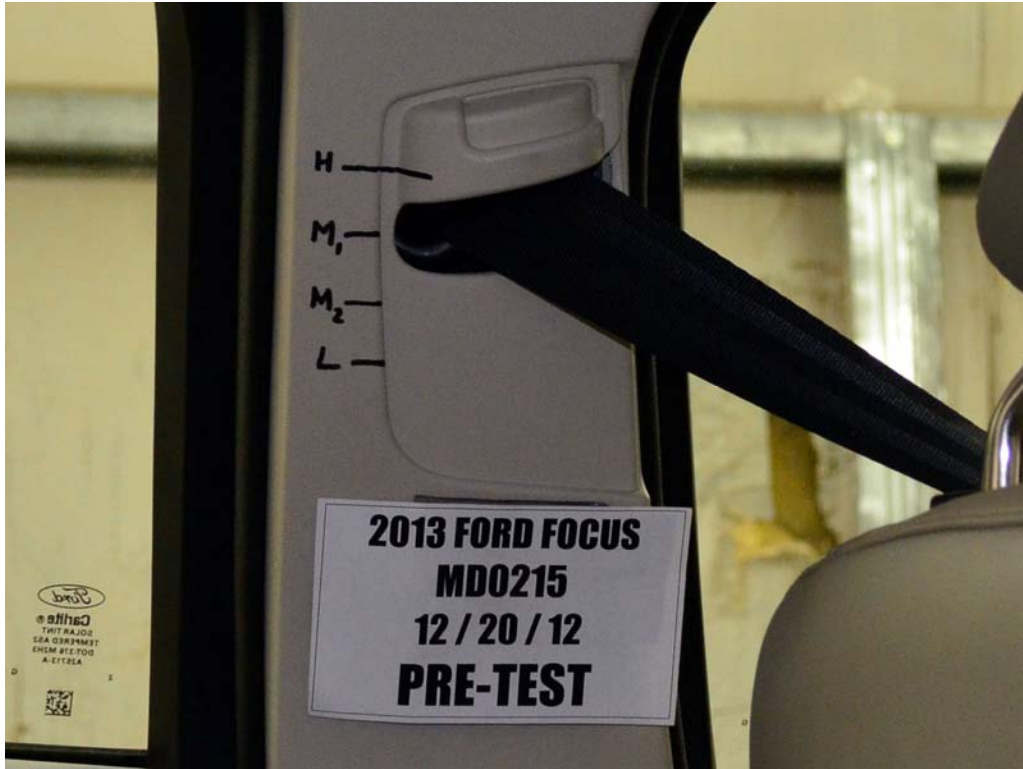


FIGURE 33. Pre-Test View of Belt Anchorage for Dummy



FIGURE 34. Pre-Test Left Side View of Steering Wheel



FIGURE 35. Pre-Test View of Disengaged Parking Brake

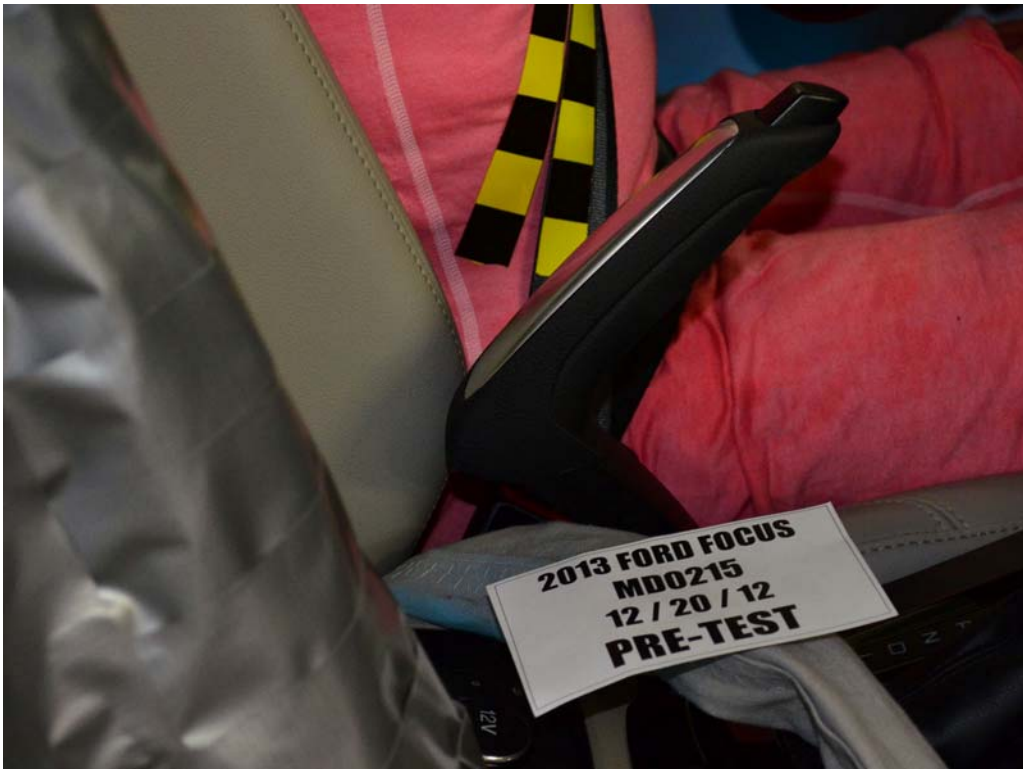


FIGURE 36. Pre-Test View of Parking Brake

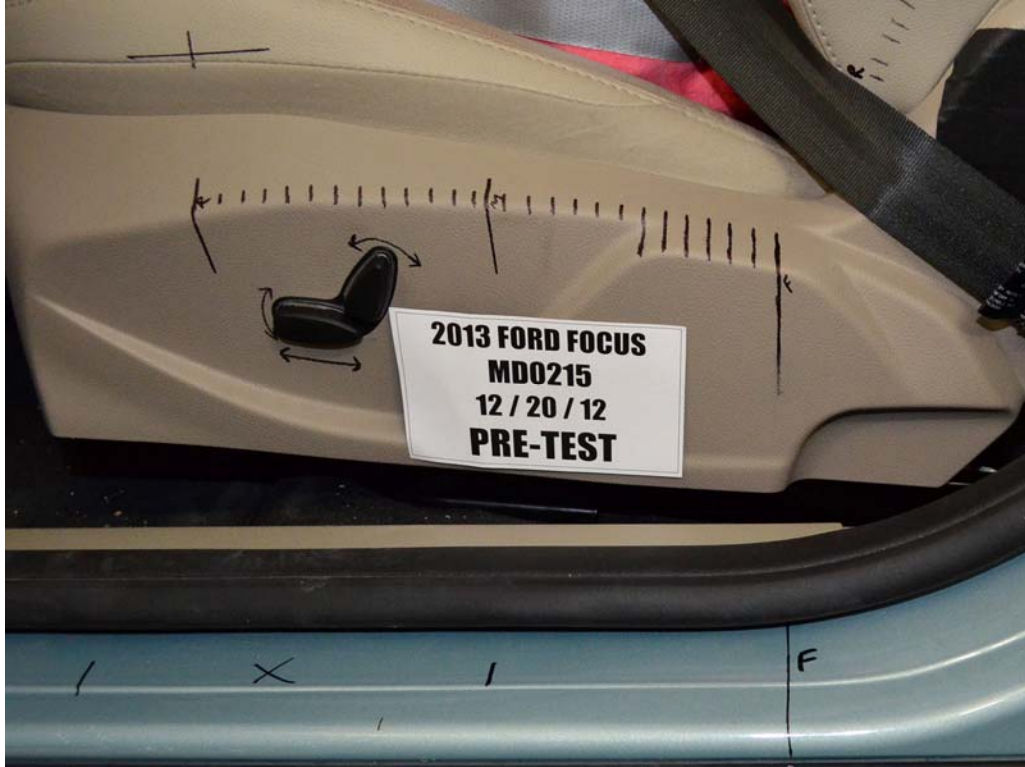


FIGURE 37. Pre-Test Close-Up Left Side View of Driver Seat Track



FIGURE 38. Pre-Test Close-Up Left Side View of Driver Seat Back



FIGURE 39. Pre-Test Close-Up View of Driver Seat Back or Head Restraint



FIGURE 40. Pre-Test Dummy and Door Clearance



FIGURE 41. Post-Test Dummy and Door Clearance



FIGURE 42. Pre-Test Right Side View of Dummy and Front Seat Occupant Compartment



FIGURE 43. Post-Test Right Side View of Dummy and Front Seat Occupant Compartment



FIGURE 44. Pre-Test Inner Door Panel View



FIGURE 45. Post-Test Inner Door Panel View
Showing Dummy Contact Locations



FIGURE 46. Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



FIGURE 47. Post-Test Dummy Close-Up Head Contact with Side Airbag View



FIGURE 48. Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



FIGURE 49. Post-Test Dummy Close-Up Torso Contact with Side Airbag View



FIGURE 50. Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



FIGURE 51. Post-Test Dummy Close-Up Pelvis Contact with Side Airbag View



FIGURE 52. Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



FIGURE 53. Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 54. Post-Test View of Fuel Filler Cap or Fuel Filler Neck



FIGURE 55. Close-Up View of Vehicle's Certification Label

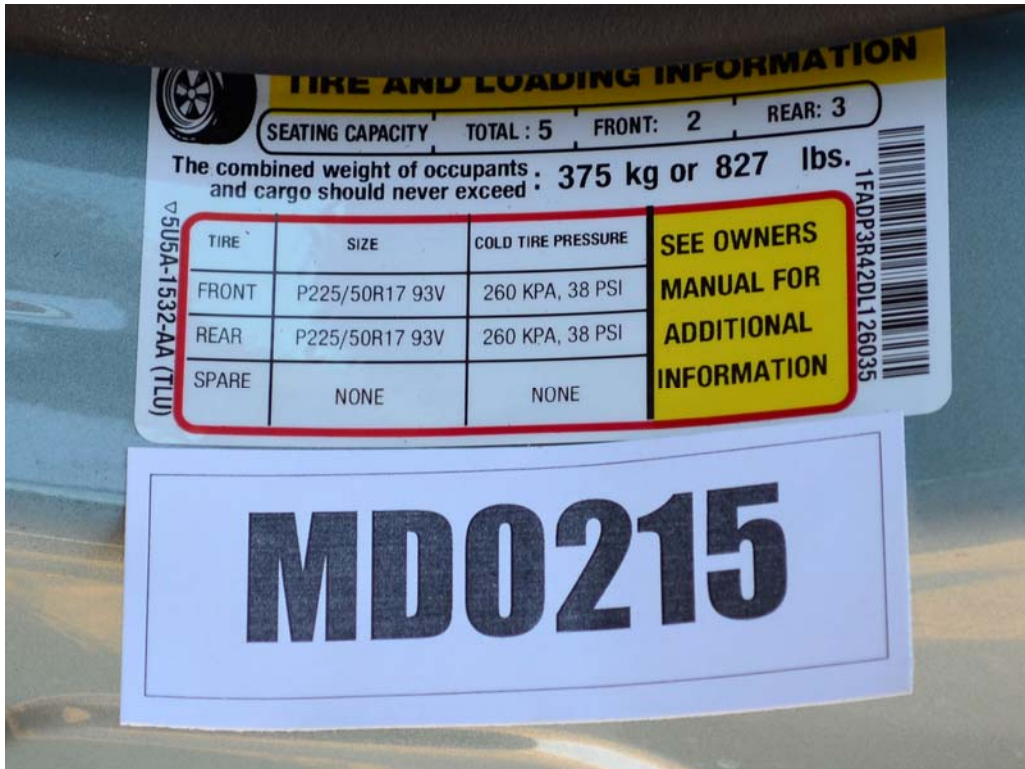


FIGURE 56. Close-Up View of Vehicle's Tire Placard Information or Label



FIGURE 57. Pre-Test Pole Barrier Front View



FIGURE 58. Post-Test Pole Barrier Front View



FIGURE 59. Pre-Test Pole Barrier Side View



FIGURE 60. Post-Test Pole Barrier Side View



FIGURE 61. Pre-Test Ballast View



FIGURE 62. Post-Test Primary and Redundant Speed Trap Read-Out



FIGURE 63. FMVSS No. 301 Rollover 0 Degrees



FIGURE 64. FMVSS No. 301 Rollover 90 Degrees



FIGURE 65. FMVSS No. 301 Rollover 180 Degrees

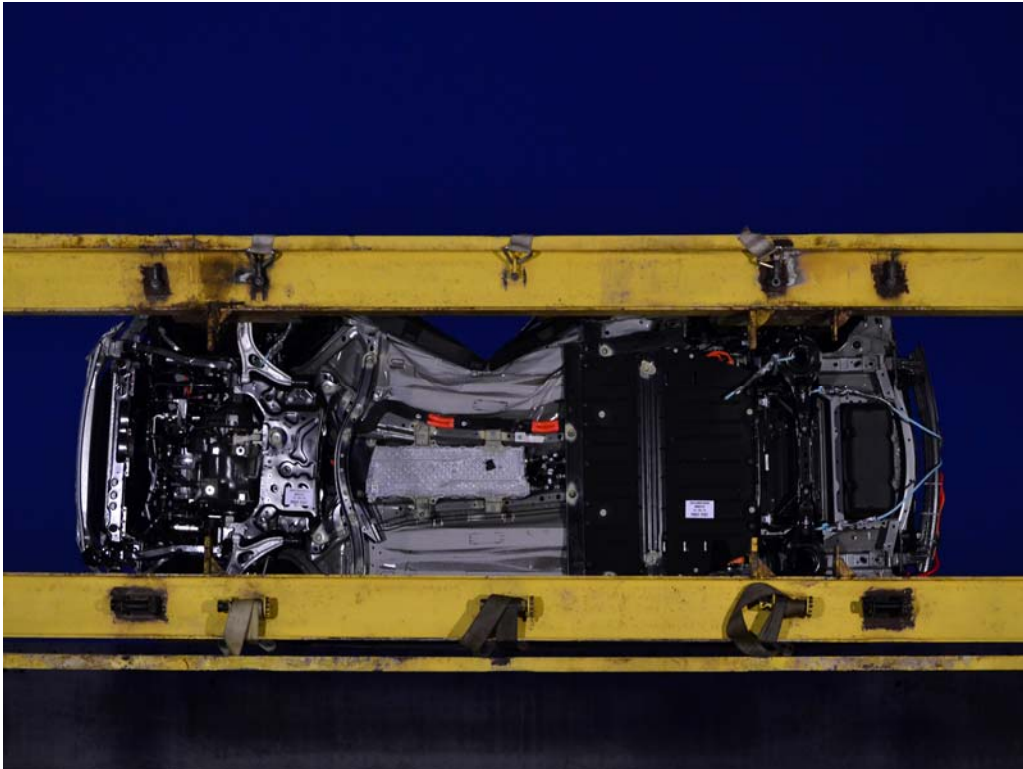


FIGURE 66. FMVSS No. 301 Rollover 270 Degrees



FIGURE 67. FMVSS No. 301 Rollover 360 Degrees



FIGURE 68. Impact Event

Go Further ford.com		FOCUS ELECTRIC DL 1260326035 2012 4-DR HATCHBACK 5-PASSENGER 192 kW ELECTRIC MOTOR 1-SPD AUTO TRANSMISSION EXTERIOR: ICE STORM INTERIOR: LIGHT STONE LEATHER SEATS LTS		EPA Fuel Economy and Environment Electric Vehicle 105 MPGe combined city/hwy 110 99 32 city highway 100 kwh per 100 miles Charge Time: 4 hours (Level 2)	
STANDARD EQUIPMENT INCLUDED AT NO EXTRA CHARGE EXTERIOR • LED ILLUMINATED CHARGE PORT • ELECTRIC MIRROR • 17" ALUMINUM WHEELS • HIGHER PROJECTOR HEADLAMPS • LED TAILLAMPS • FOG LAMPS • PWR LOCKED MIRRORS W/ INTGRTD BLIND SPOT • CHROME TRIM HIGHLIGHTS • REAR WIPER		INTERIOR • ECO-FRIENDLY CLOTH SEATING • AMBIENT LIGHTING • HTS DRIVER FRONT SEAT SEATS • DUAL-ZONE ELECTRONIC AUTO CLIMATE CONTROL • FRONT AND REAR FLOOR MATS • DUAL CLIMATE VENT FIBROFIBRE • DRIVER SEAT 4-WAY MANUAL • HEATED FRONT SEAT • POWER WINDOWS & LOCKS • CLIMATE CONTROL • LEATHER WRAPPED STR WHEEL • REAR CARGO MOUNT SYS • MAP LIGHTS W/ THEATRE DIM		FUNCTIONAL • 12V DC POWER OUTLET & COOLED LITHIUM-ION BATTERY • LEARN ONBOARD CHARGER • REGENERATIVE BRAKING SYS • 12V CHARGE CIRCUIT • MYFORD MOBILE • SYNC W/ MYFORD TOUCH • ROKY ALUIDO • 10 MACH • VOICE ACTIVATED NAVIGATION • REAR VIEW CAMERA • INTELLIGENT ACCESS W/ PUSH-BUTTON START • SYNC SAT SVC N/A, LX & H	
INCLUDED ON THIS VEHICLE (MSRP) EQUIPMENT GROUP 300A FRONT LEANS PLATE BRACKET NO CHARGE IN-STATE EMISSIONS NO CHARGE LEATHER TRIM BUCKET SEATS \$95.00		PRICE INFORMATION BASE PRICE \$39,200.00 TOTAL OPTIONS \$65.00 TOTAL VEHICLE & OPTIONS DESTINATION & DELIVERY \$41,915.00		Annual fuel cost \$600 Fuel Economy & Greenhouse Gas Rating Smog Rating The vehicle emits 2 grams CO ₂ per mile. The best emits 2 grams per mile (below only). Does not include emissions from generating electricity, seen here at Tesla.com/gc.	
SALES TO: Midwest Ford 3073 Canby Ave Suite 1000 CA 95847 SALES TO: 728 417 SALES TO: RA76 SALES TO: 728 417 SALES TO: MICHIGAN SALES TO: 72-5395 OPT 2 SALES TO: RAIL SALES TO: CG301 R RA X 315 000147 07 30 12		DEALER NO.: 728 417 DEALER NO.: 728 417 DEALER NO.: MICHIGAN DEALER NO.: 72-5395 OPT 2 DEALER NO.: RAIL DEALER NO.: CG301 R RA X 315 000147 07 30 12		WARRANTY: • 3-YR/50,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS • 8-YR/100,000 MILE POWERTRAIN WARRANTY • 5-YR/100,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS • 3-YR/50,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS • 5-YR/100,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS	
SALES TO: Midwest Ford 3073 Canby Ave Suite 1000 CA 95847 SALES TO: 728 417 SALES TO: RA76 SALES TO: 728 417 SALES TO: MICHIGAN SALES TO: 72-5395 OPT 2 SALES TO: RAIL SALES TO: CG301 R RA X 315 000147 07 30 12		DEALER NO.: 728 417 DEALER NO.: 728 417 DEALER NO.: MICHIGAN DEALER NO.: 72-5395 OPT 2 DEALER NO.: RAIL DEALER NO.: CG301 R RA X 315 000147 07 30 12		WARRANTY: • 3-YR/50,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS • 8-YR/100,000 MILE POWERTRAIN WARRANTY • 5-YR/100,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS • 3-YR/50,000 MILE BATTERY PKG & UNIQUE ELECTRIC COMPONENTS	

FIGURE 69. Monroney Label

<p>172 Seating and Safety Restraints</p> <p>The adjustable head restraints consist of:</p> <ul style="list-style-type: none"> • a trimmed energy absorbing foam and structure (A), • two steel stems (B), • a guide sleeve adjust/release button (C), • and a guide sleeve unlock/remove button (D). <p>To adjust the head restraint, do the following:</p> <ol style="list-style-type: none"> 1. Adjust the seatback to an upright driving/riding position. 2. Raise the head restraint by pulling up on the head restraint (A). 3. Lower the head restraint by pressing and holding the guide sleeve adjust/release button (C) and pushing down on the head restraint (A). <p>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.</p> <p>WARNING: The adjustable head restraint is a safety device. Whenever possible it should be installed and properly adjusted when the seat is occupied.</p> <p>To remove the adjustable head restraint, do the following:</p> <ol style="list-style-type: none"> 1. Pull up the head restraint until it reaches the highest adjustment position. 2. Simultaneously press and hold both the adjust/release button (C) and the unlock/remove button (D), then pull up on the head restraint. <p>To reinstall the adjustable head restraint, do the following:</p> <ol style="list-style-type: none"> 1. Insert the two stems into the guide sleeve collars. 2. Push the head restraint down until it locks. <p>Make sure the front of the head restraint faces the front of the vehicle. 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.</p>	<p>173 Seating and Safety Restraints</p> <p>WARNING: To minimize the risk of neck injury in the event of a crash, head restraints must be installed properly.</p> <p>Tilting Head Restraints (If Equipped)</p> <p>The front head restraints may have a tilting feature for extra comfort. To tilt the head restraint, do the following:</p> <ol style="list-style-type: none"> 1. Adjust the seatback to an upright driving/riding position. 2. Tilt the head restraint forward by gently pulling the top of the head restraint. <p>Once it is in its forward-most position, tilting it forward once more will release it to the upright position.</p> <p>Note: Do not attempt to force the head restraint backward after it is tilted. Instead, continue tilting it forward until the head restraint releases to the upright position.</p> <p>MANUAL SEATS</p> <p>WARNING: Never adjust the driver's seat or seatback when the vehicle is moving.</p> <p>WARNING: Rock the seat backward and forward after releasing the lever to make sure that it is fully engaged.</p>
---	---

FIGURE 70. Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
DUMMY RESPONSE DATA

TABLE OF DATA PLOTS

Plot		Page
1	Driver Head Acceleration (X) Primary vs. Time	B-1
2	Driver Head Acceleration (Y) Primary vs. Time	B-1
3	Driver Head Acceleration (Z) Primary vs. Time	B-1
4	Driver Head Resultant Acceleration Primary vs. Time	B-1
5	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
6	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
7	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
8	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
9	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
10	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
11	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

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

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Left Floor Sill Acceleration (Y)
Left A-Pillar Sill Acceleration (Y)
Left Lower A-Pillar Acceleration (Y)
Left Mid A-Pillar Acceleration (Y)

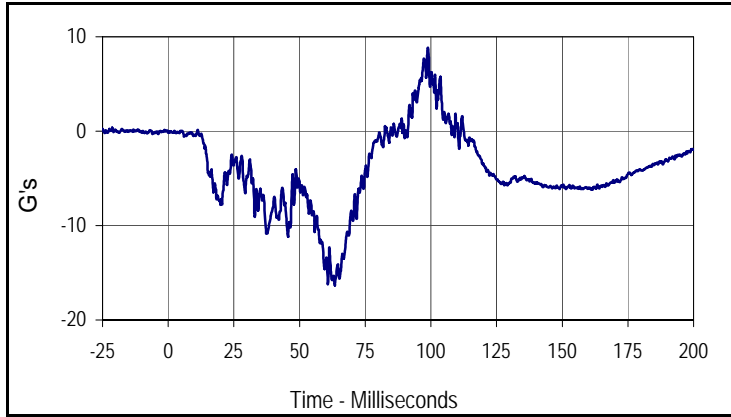
Left B-Pillar Sill Acceleration
Left Lower B-Pillar Acceleration (Y)
Left Mid B-Pillar Acceleration (Y)
Driver Seat Track at Dummy Hip Point Acceleration (Y)
Engine Top Acceleration (X)
Engine Top Acceleration (Y)
Firewall Center Acceleration (Y)
Right Roof at Vertical Impact Reference Line Acceleration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

Pole Instrumentation Data

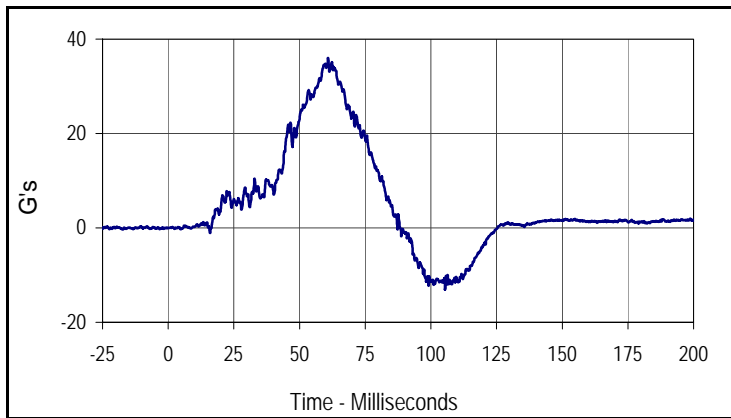
Load Cell Pole Barrier #1 Force (Y)
Load Cell Pole Barrier #2 Force (Y)
Load Cell Pole Barrier #3 Force (Y)
Load Cell Pole Barrier #4 Force (Y)
Load Cell Pole Barrier #5 Force (Y)
Load Cell Pole Barrier #6 Force (Y)
Load Cell Pole Barrier #7 Force (Y)
Load Cell Pole Barrier #8 Force (Y)

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

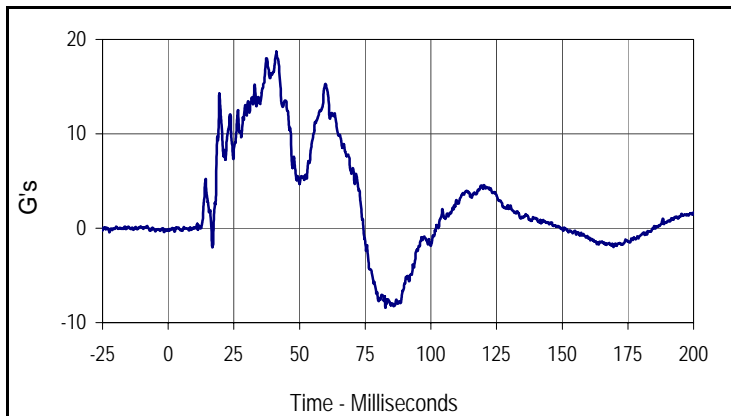
Test Date: 12/20/12
 NHTSA No.: MD0215



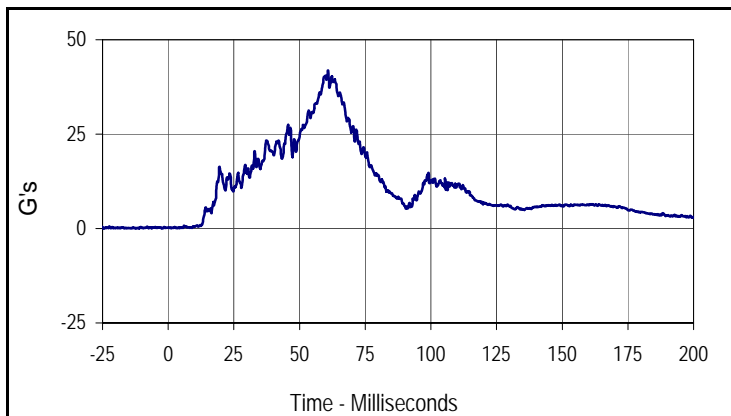
Curve Description			
Driver Head Acceleration X Primary			
Plot No.	Type	SAE Class	Units
001	FIL	1000	G's
Max	Time	Min	Time
8.8	98.9	-16.3	63.4



Curve Description			
Driver Head Acceleration Y Primary			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
36.0	60.9	-13.1	105.4



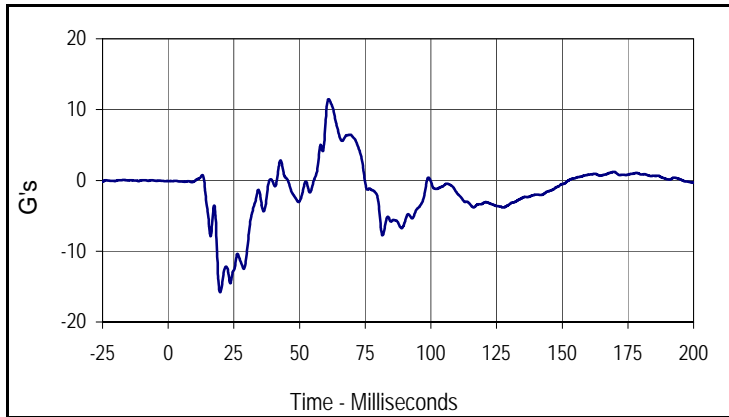
Curve Description			
Driver Head Acceleration Z Primary			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
18.7	41.2	-8.4	82.7



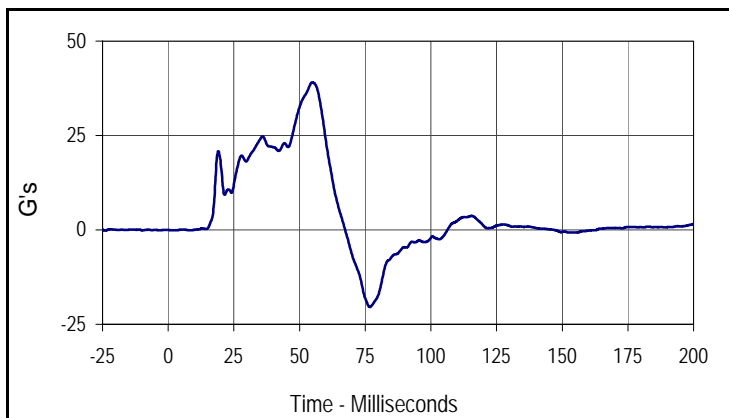
Curve Description			
Driver Head Acceleration Primary Res.			
Plot No.	Type	SAE Class	Units
004	RES	1000	G's
Max	Time	Min	Time
41.9	60.8	0.1	3.5

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

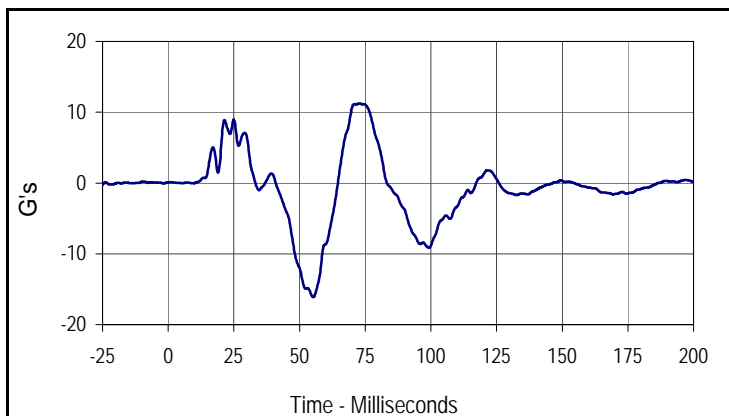
Test Date: 12/20/12
 NHTSA No.: MD0215



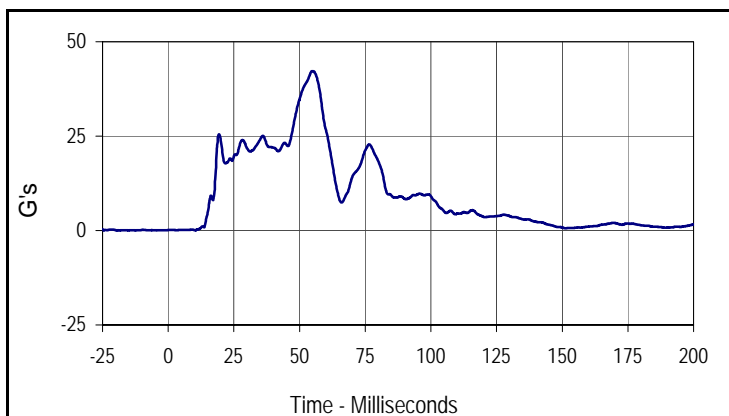
Curve Description			
Driver Lower Spine T12 Acceleration X			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
11.5	61.0	-15.8	19.8



Curve Description			
Driver Lower Spine T12 Acceleration Y			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
39.1	54.8	-20.4	76.8



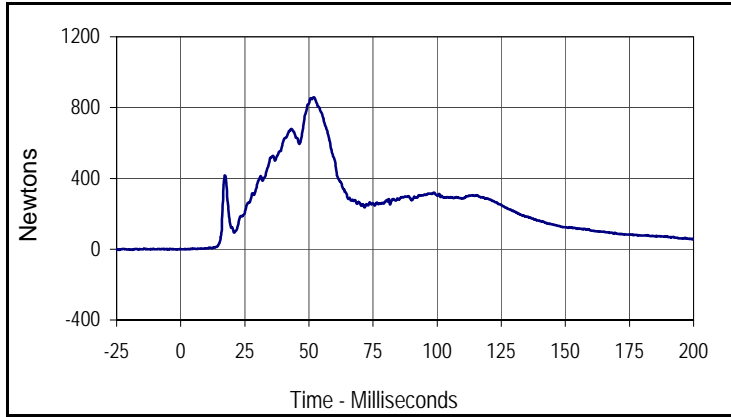
Curve Description			
Driver Lower Spine T12 Acceleration Z			
Plot No.	Type	SAE Class	Units
007	FIL	180	G's
Max	Time	Min	Time
11.2	73.0	-16.1	55.2



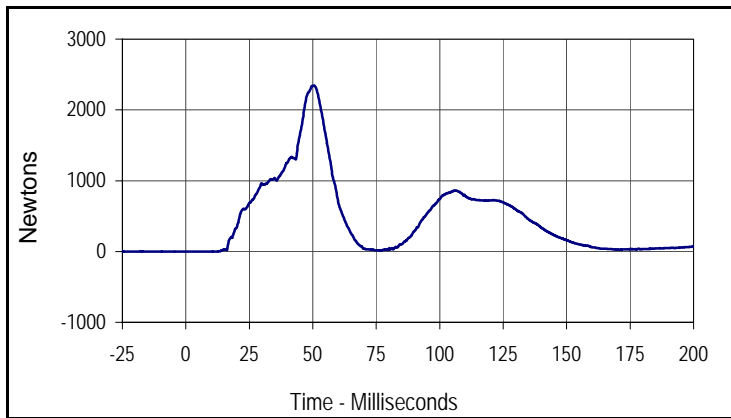
Curve Description			
Driver Lower Spine T12 Acceleration Res.			
Plot No.	Type	SAE Class	Units
008	RES	180	G's
Max	Time	Min	Time
42.2	55.0	0.1	10.3

Test Vehicle: 2013 Ford Focus Electric 5-Door Hatchback
 Test Program: 32 km/h (20 mph) Side Impact NCAP 75° Rigid Pole Test

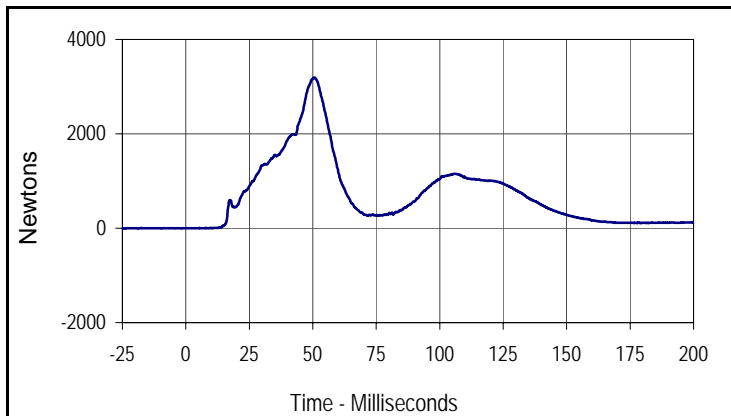
Test Date: 12/20/12
 NHTSA No.: MD0215



Curve Description			
Driver Iliac Wing Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
009	FIL	600	Newtons
Max	Time	Min	Time
858.4	51.9	-1.0	1.1



Curve Description			
Driver Acetabulum Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
010	FIL	600	Newtons
Max	Time	Min	Time
2346.8	50.4	-2.6	10.3



Curve Description			
Driver Total Pelvic Force on Impact Side Y			
Plot No.	Type	SAE Class	Units
011	SUM	600	Newtons
Max	Time	Min	Time
3195.7	50.6	-2.6	1.2

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: SID IIs External Measurements

Test Date: 12/13/2012



ATD Serial No.: 299

Test I.D.: N/A

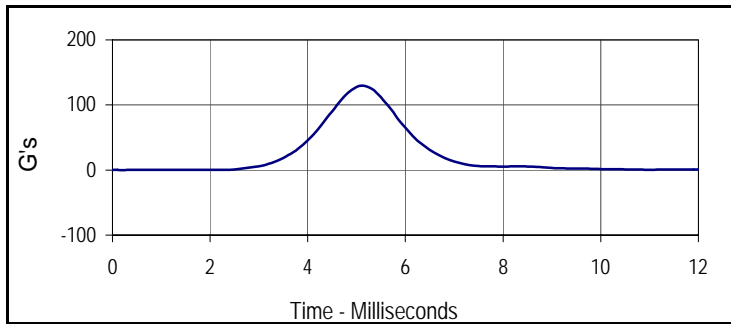
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A Sitting Height	mm	772 - 788	780	Pass
B Shoulder Pivot Height	mm	437 - 453	445	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	145	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	125	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	44	Pass
I Head Depth	mm	178 - 188	184	Pass
J Head Circumference	mm	541 - 551	545	Pass
K Buttock to Knee Length	mm	514 - 540	527	Pass
L Popliteal Height	mm	343 - 369	352	Pass
M Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P Foot Length	mm	216 - 232	221	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R Arm Length	mm	249 - 259	252	Pass
S Knee Joint to Seatback	mm	477 - 493	481	Pass
V Shoulder Width	mm	341 - 357	352	Pass
W Foot Width	mm	78 - 94	86	Pass
Y Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results				Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

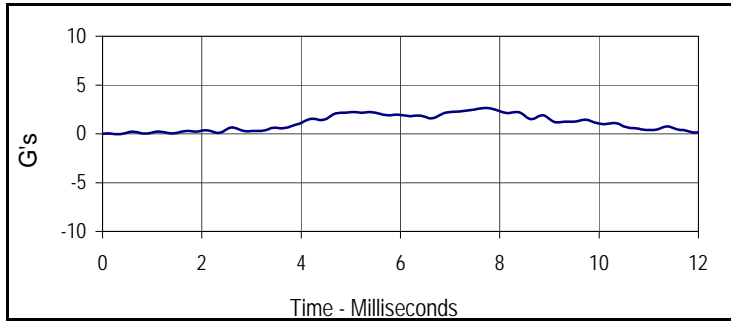
Test Date: 12/13/2012
 Test I.D.: 299HD052



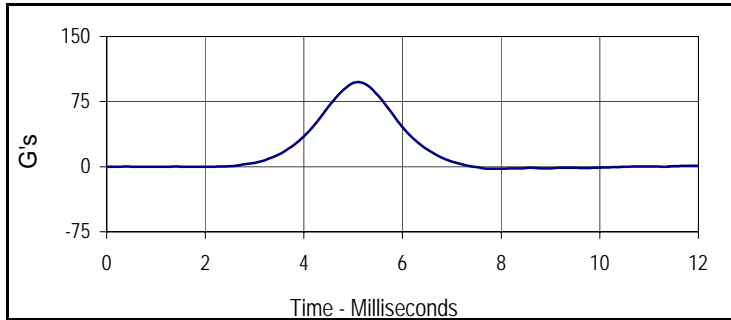
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	270	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.4	Pass
Peak Head Resultant Acceleration	G's	115 to 137	129.7	Pass
Peak Head X Acceleration	G's	<15	2.6	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.7	Pass
Overall Test Results				Pass



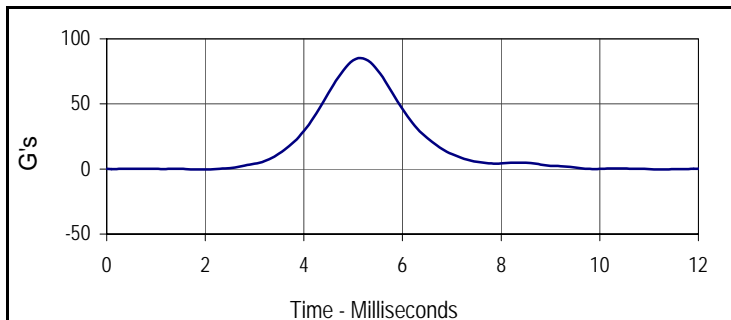
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
129.7	5.1	0.0	0.2



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.6	7.7	0.0	0.3



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
97.8	5.1	-2.5	7.9



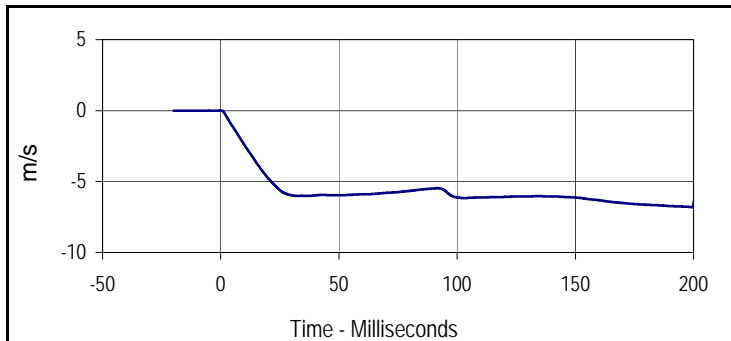
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
85.1	5.1	-0.4	11.3

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

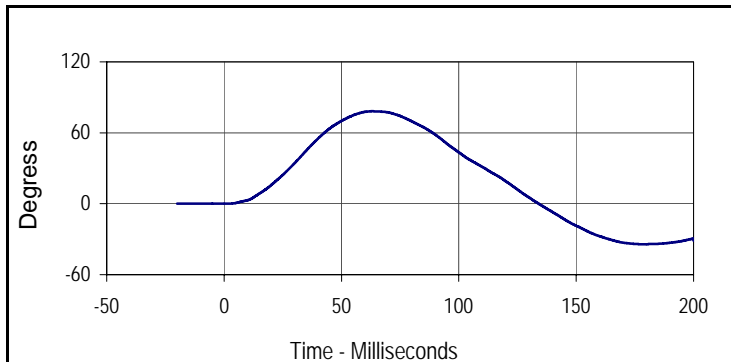
Test Date: 12/13/2012
 Test I.D.: 299NB052



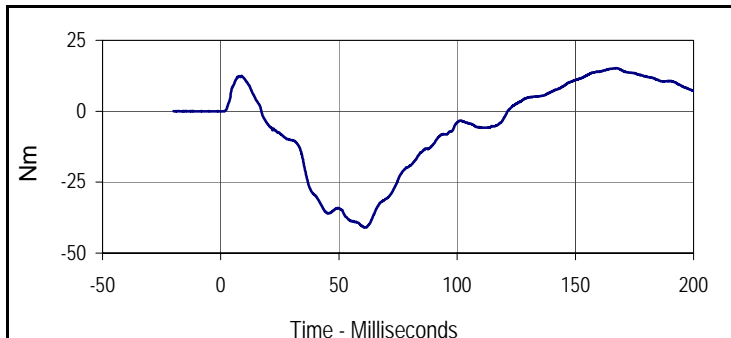
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	315	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass	
	Min		28.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	30.5	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.53	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.42	Pass
	15 msec	m/s	-3.30 to -4.10	-3.65	Pass
	20 msec	m/s	-4.40 to -5.40	-4.76	Pass
	25 msec	m/s	-5.40 to -6.10	-5.61	Pass
	25-100 msec	m/s	-5.50 to -6.20	-6.12	Pass
D-Plane Rotation	Max	Degrees	71 to 81	78.2	Pass
	Time	msec	50 to 70	63.1	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-41.0	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	121.4	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.1	-6.8	199.9



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
78.2	63.1	-34.2	178.4



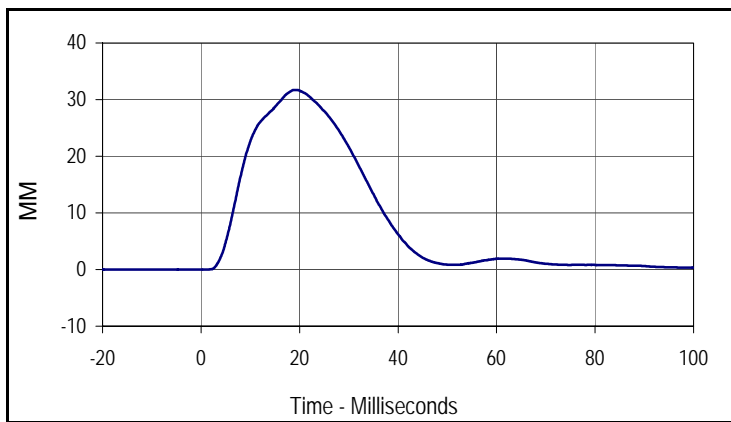
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
15.2	167.3	-41.0	61.5

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

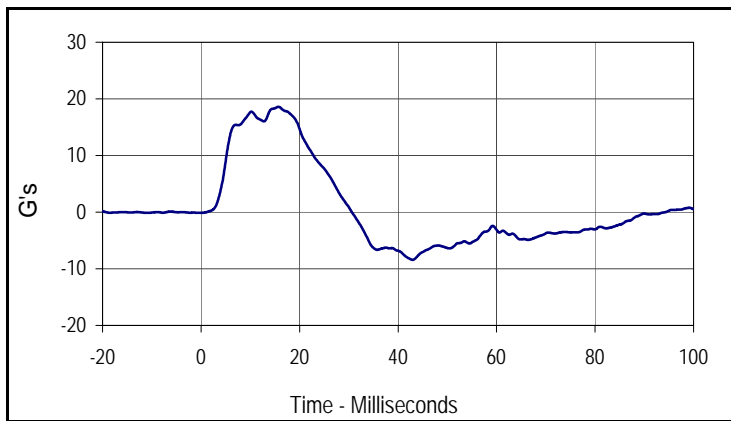
Test Date: 12/13/2012
 Test I.D.: 299SH052



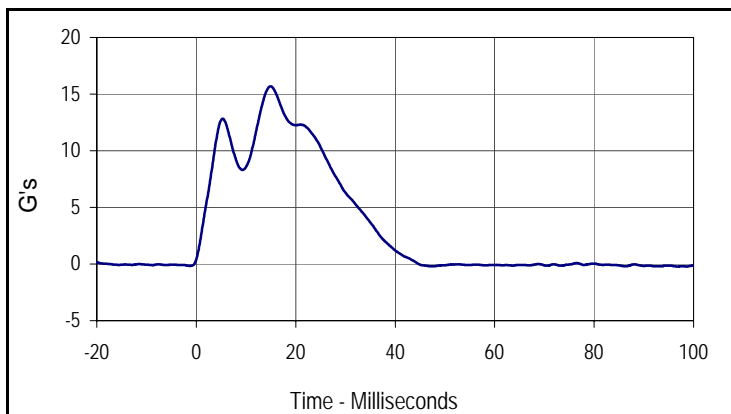
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	370	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.4	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.27	Pass
Peak Shoulder Deflection	mm	28 to 37	31.7	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.6	Pass
Peak Impactor Acceleration	G's	13 to 18	15.7	Pass
Overall Test Results				Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
31.7	18.8	0.0	-13.3



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.6	15.7	-8.4	43.0



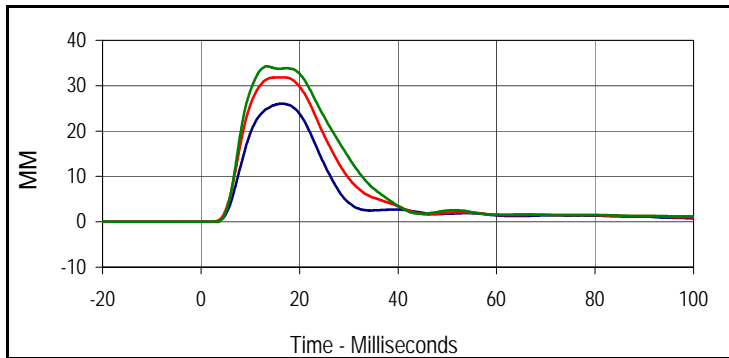
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.7	14.9	-0.2	96.8

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

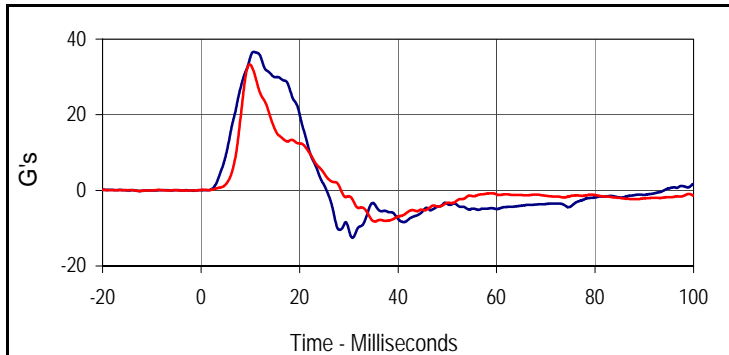
Test Date: 12/13/2012
 Test I.D.: 299TWA052



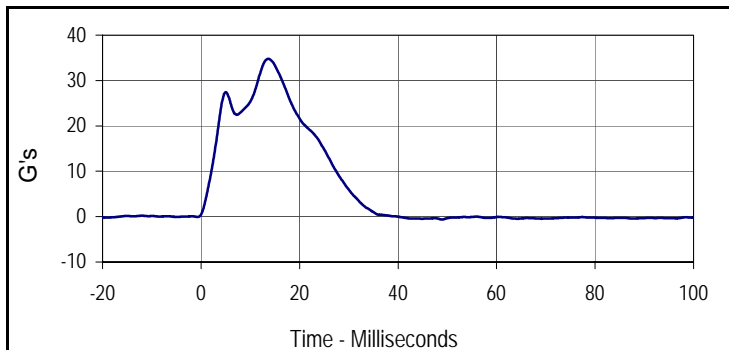
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	395	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.73	Pass
Peak Shoulder Deflection	mm	31 to 40	34.3	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.1	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	31.8	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	34.3	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.6	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	33.3	Pass
Peak Impactor Acceleration	G's	30 to 36	34.8	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.1	16.4	0.0	1.0
Middle Thorax Deflection			
Max	Time	Min	Time
31.8	16.5	0.0	-18.4
Lower Thorax Deflection			
Max	Time	Min	Time
34.3	13.3	0.0	-19.6



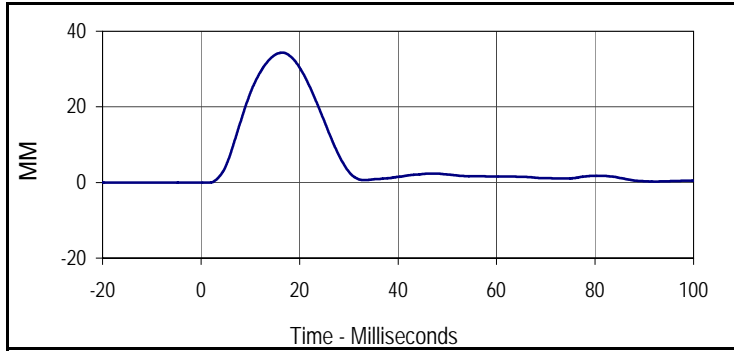
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.6	10.7	-12.6	30.7
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
33.3	9.9	-8.2	35.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
34.8	13.6	-0.6	48.9

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 12/13/2012
 Test I.D.: 299TWA052



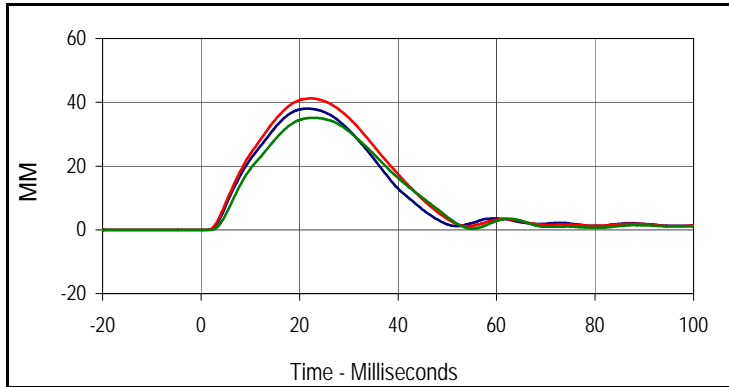
Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.3	16.5	0.0	-18.6

Test Program: SID IIs Thorax without Arm Impact Test
 ATD Serial No.: 299

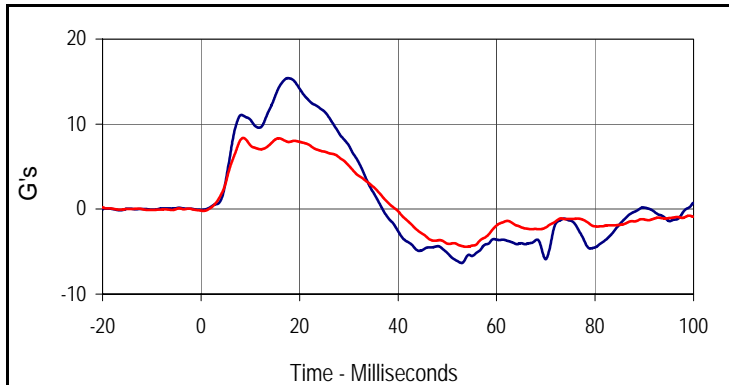
Test Date: 12/13/2012
 Test I.D.: 299TWOA052



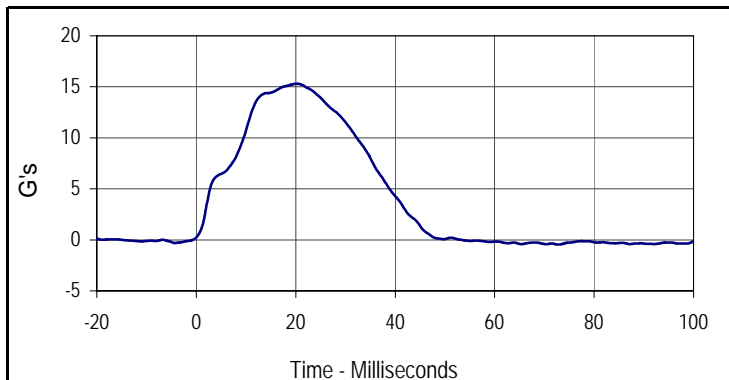
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	420	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.2	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	38.0	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	41.2	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	35.1	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.4	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	8.4	Pass
Peak Impactor Acceleration	G's	14 to 18	15.3	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.0	21.6	0.0	-11.3
Middle Thorax Deflection			
Max	Time	Min	Time
41.2	22.4	0.0	-2.9
Lower Thorax Deflection			
Max	Time	Min	Time
35.1	22.9	0.0	-6.7



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.4	17.7	-6.4	52.9
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
8.4	8.6	-4.4	53.8



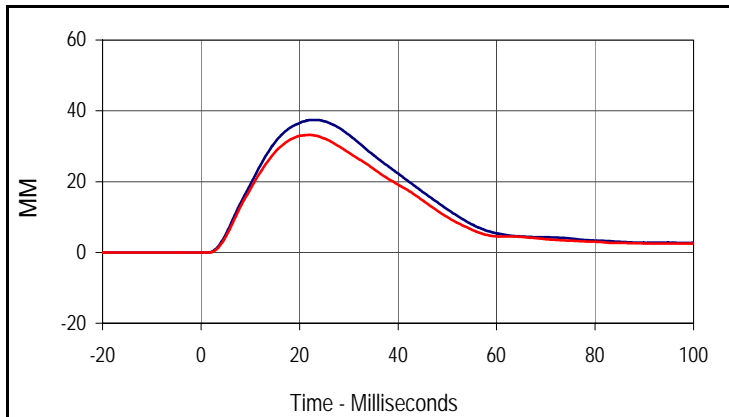
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
15.3	20.1	-0.5	72.9

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

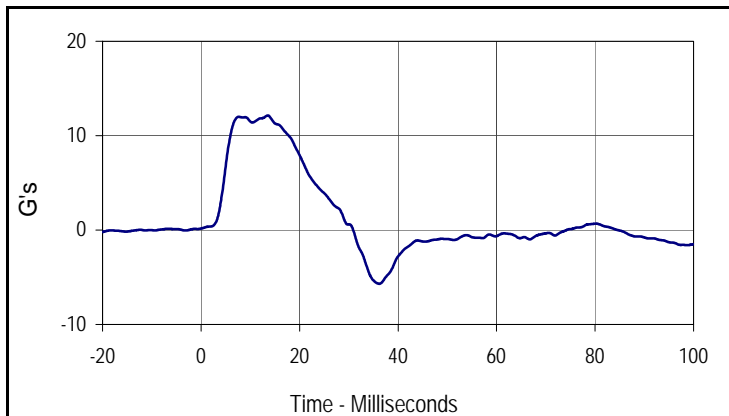
Test Date: 12/13/2012
 Test I.D.: 299ABD052



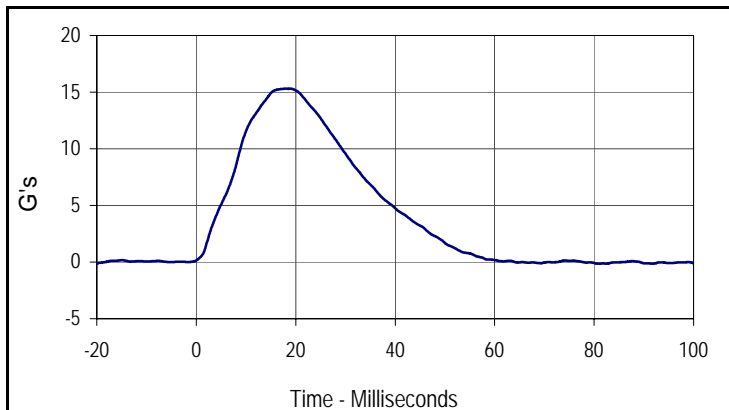
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	445	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.0	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.1	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.29	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	37.4	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	33.2	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.1	Pass
Peak Impactor Acceleration	G's	12 to 16	15.3	Pass
Overall Test Results				Pass



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.4	23.2	0.0	0.8
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
33.2	22.0	0.0	1.0

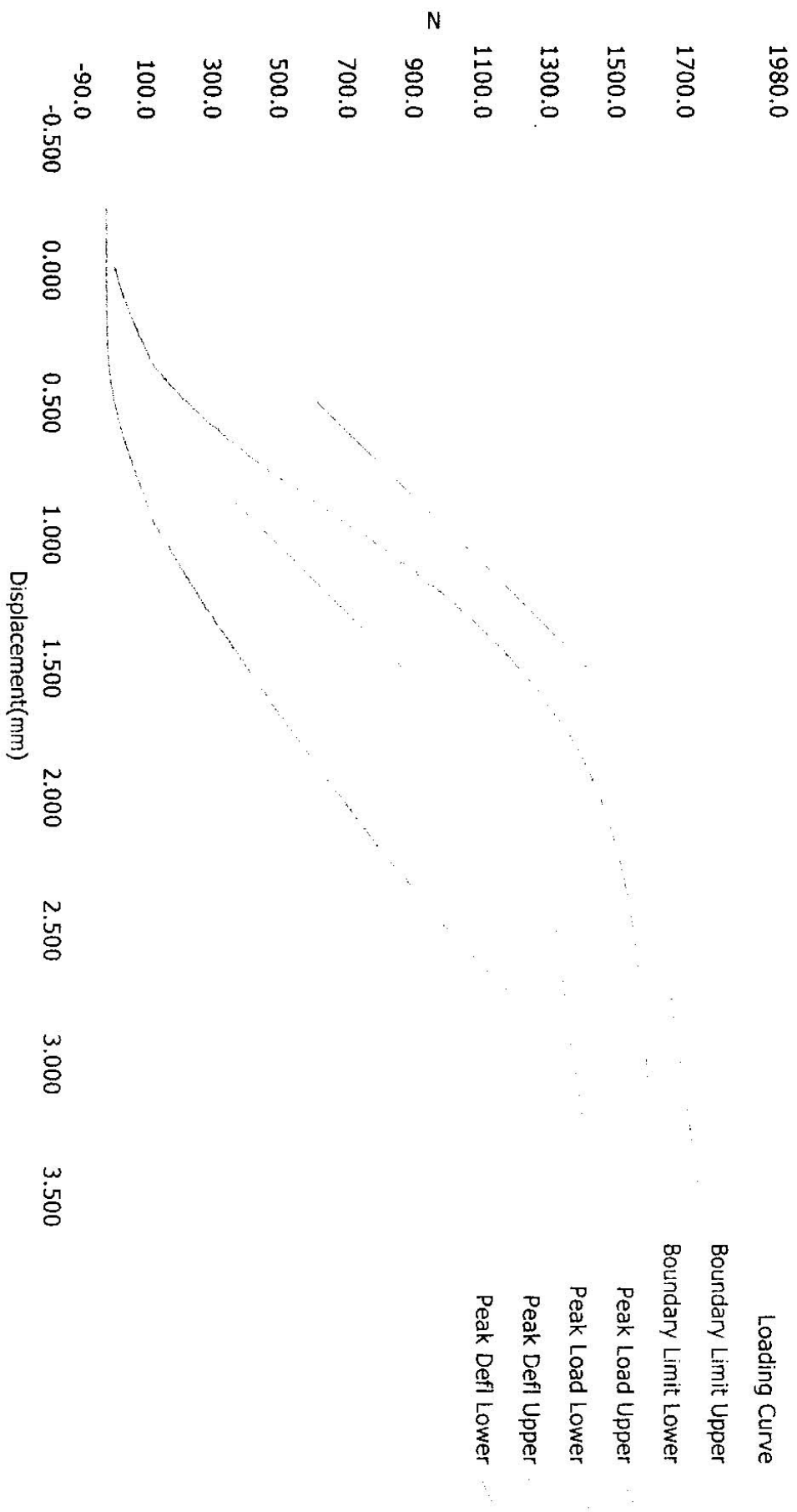


Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.1	13.5	-5.7	36.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.3	19.0	-0.1	81.0

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
	45976	9/20/2011	8:40 PM

<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>
	N/A	SIDIIs

Current Date : 9/20/2011

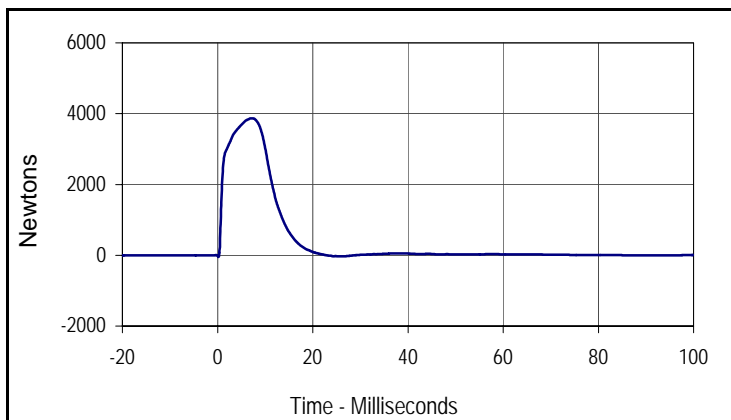
Current Time : 20:40:41

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

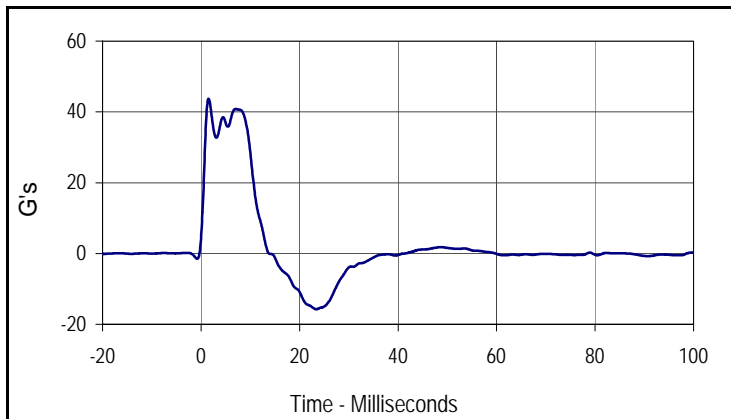
Test Date: 12/13/2012
 Test I.D.: 299ACET052



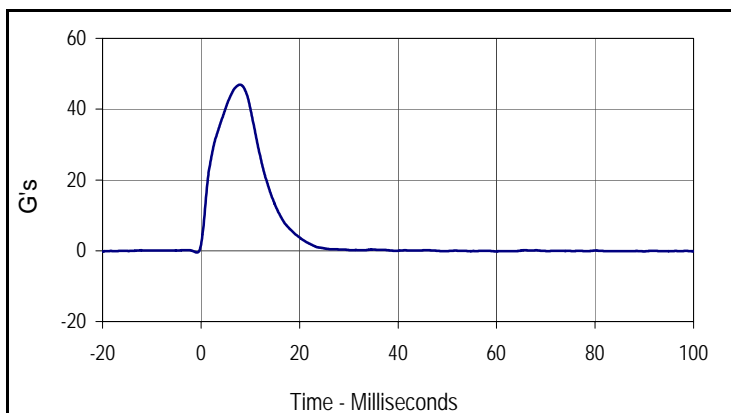
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	470	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.3	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.72	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	3870.3	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.8	Pass
Peak Impactor Acceleration	G's	38 to 47	46.9	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
3870.3	7.2	-50.5	0.2



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
43.7	1.5	-15.7	23.4



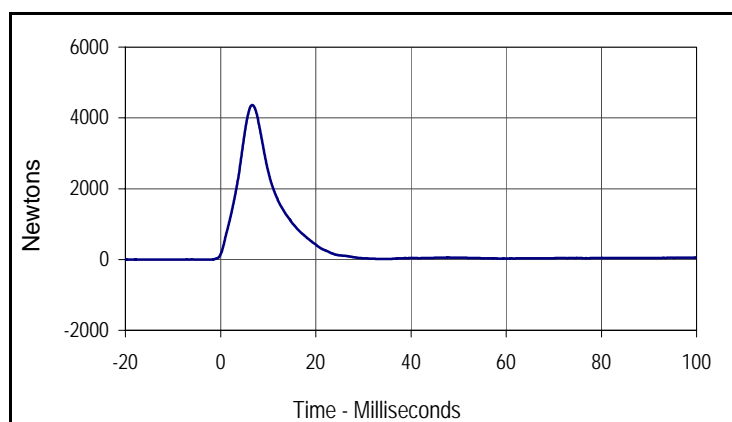
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
46.9	7.9	-0.5	-0.8

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

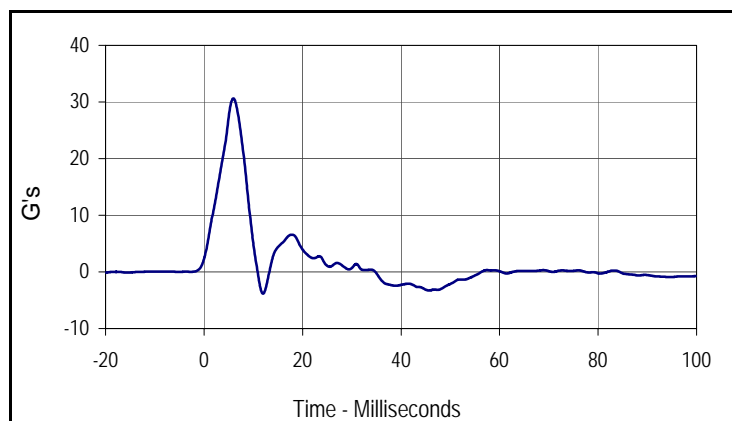
Test Date: 12/13/2012
 Test I.D.: 299PL052



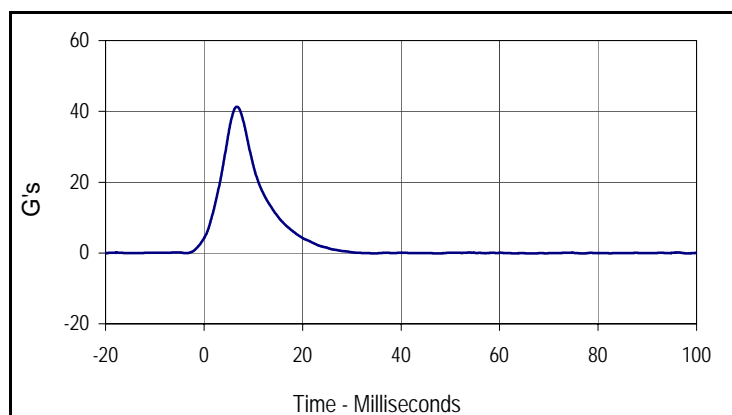
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	525	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.1	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	30.4	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.37	Pass
Peak Iliac Force	Newtons	4100 to 5100	4360.3	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	30.6	Pass
Peak Impactor Acceleration	G's	36 to 45	41.3	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4360.3	6.7	-1.4	-12.3



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
30.6	6.0	-3.8	12.0



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
41.3	6.7	-0.2	77.0

APPENDIX C
POST-TEST / ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Test Program: SID IIs External Measurements

Test Date: 12/21/2012



ATD Serial No.: 299

Test I.D.: N/A

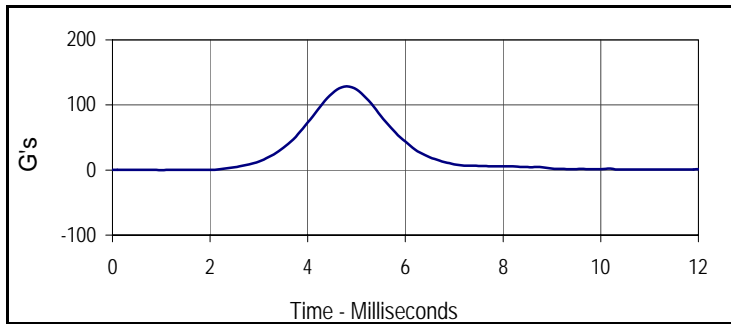
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
A Sitting Height	mm	772 - 788	780	Pass
B Shoulder Pivot Height	mm	437 - 453	445	Pass
C H-Point Height	mm	79 - 89	85	Pass
D H-Point from Seatback	mm	141 - 151	145	Pass
E Shoulder Pivot from Backline	mm	97 - 107	102	Pass
F Thigh Clearance	mm	119 - 135	125	Pass
G Head Breadth	mm	140 - 148	145	Pass
H Head Back from Backline	mm	40 - 46	44	Pass
I Head Depth	mm	178 - 188	184	Pass
J Head Circumference	mm	541 - 551	545	Pass
K Buttock to Knee Length	mm	514 - 540	527	Pass
L Popliteal Height	mm	343 - 369	352	Pass
M Knee Pivot to Floor Height	mm	392 - 409	401	Pass
N Buttock Popliteal Length	mm	416 - 442	432	Pass
O Chest Depth w/o Jacket	mm	195 - 211	202	Pass
P Foot Length	mm	216 - 232	221	Pass
Q Hip Breadth with Pelvic Plug	mm	313 - 323	315	Pass
R Arm Length	mm	249 - 259	252	Pass
S Knee Joint to Seatback	mm	477 - 493	481	Pass
V Shoulder Width	mm	341 - 357	352	Pass
W Foot Width	mm	78 - 94	86	Pass
Y Chest Circumference with Jacket	mm	851 - 881	872	Pass
Z Waist Circumference	mm	760 - 791	774	Pass
Overall Test Results				Pass

Test Program: SID IIs Head Drop Test
 ATD Serial No.: 299

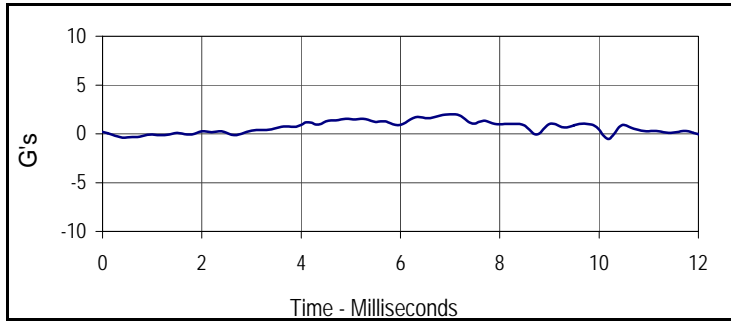
Test Date: 12/21/2012
 Test I.D.: 299HD053



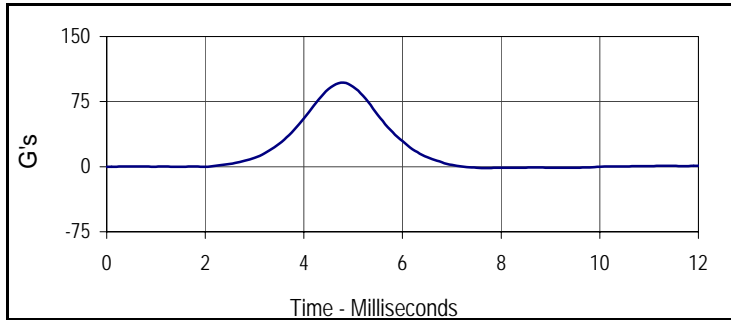
Tested Parameter	Units	Specification	Result	Pass/Fail
Head Assembly Soak Time	Minutes	≥240	250	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Peak Head Resultant Acceleration	G's	115 to 137	128.5	Pass
Peak Head X Acceleration	G's	<15	2.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<15	2.2	Pass
Overall Test Results				Pass



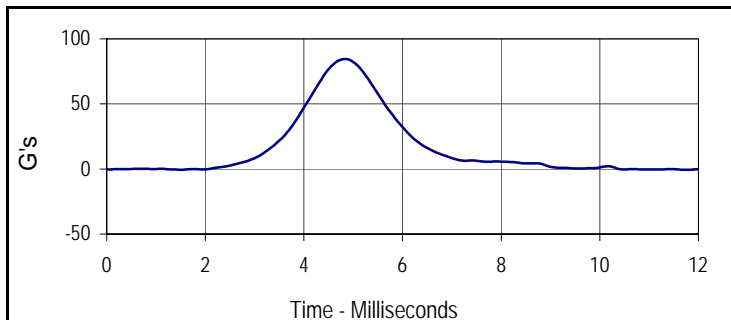
Curve Description			
Head Resultant			
Plot No.	Type	SAE Class	Units
001	RES	1000	G's
Max	Time	Min	Time
128.5	4.8	0.1	1.0



Curve Description			
Head X			
Plot No.	Type	SAE Class	Units
002	FIL	1000	G's
Max	Time	Min	Time
2.0	7.1	-0.4	0.4



Curve Description			
Head Y			
Plot No.	Type	SAE Class	Units
003	FIL	1000	G's
Max	Time	Min	Time
96.8	4.8	-1.6	7.6



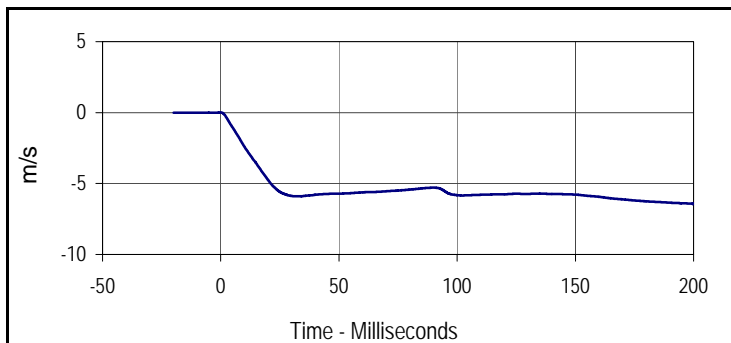
Curve Description			
Head Z			
Plot No.	Type	SAE Class	Units
004	FIL	1000	G's
Max	Time	Min	Time
84.6	4.8	-0.6	11.8

Test Program: SID IIs Neck Flexion Test
 ATD Serial No.: 299

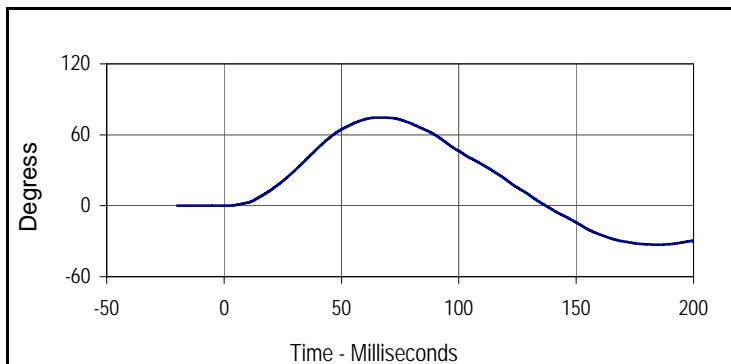
Test Date: 12/21/2012
 Test I.D.: 299NB053



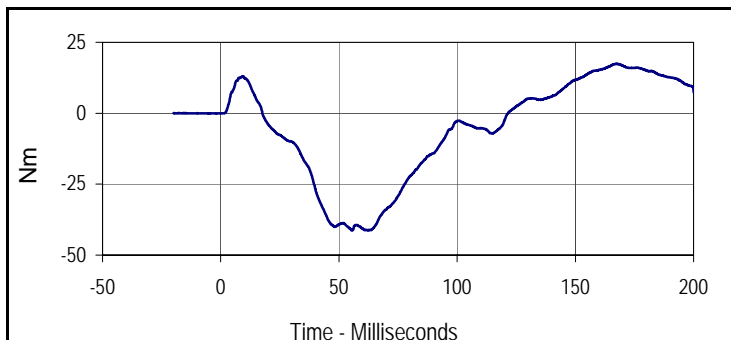
Tested Parameter	Units	Specification	Result	Pass/Fail	
Neck Assembly Soak Time	Minutes	≥240	295	Pass	
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass	
	Min		20.7	Pass	
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass	
	Min		28.0	Pass	
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass	
Laboratory Humidity During Test	%	10.0 to 70.0	29.9	Pass	
Pendulum Velocity	m/s	5.51 to 5.63	5.52	Pass	
Pendulum Deceleration	10 msec	m/s	-2.20 to -2.80	-2.40	Pass
	15 msec	m/s	-3.30 to -4.10	-3.58	Pass
	20 msec	m/s	-4.40 to -5.40	-4.74	Pass
	25 msec	m/s	-5.40 to -6.10	-5.59	Pass
	25-100 msec	m/s	-5.50 to -6.20	-5.90	Pass
D-Plane Rotation	Max	Degrees	71 to 81	74.6	Pass
	Time	msec	50 to 70	65.5	Pass
Peak Occipital Condyle Moment	Nm	-36 to -44	-41.3	Pass	
Decaying Moment Time to Cross 0 Nm	msec	102 to 126	121.5	Pass	
Overall Test Results				Pass	



Curve Description			
Pendulum Velocity			
Plot No.	Type	SAE Class	Units
001	FIL	180	m/s
Max	Time	Min	Time
0.0	-0.3	-6.4	199.9



Curve Description			
Maximum Translation Rotation			
Plot No.	Type	SAE Class	Units
002	FIL	60	Degress
Max	Time	Min	Time
74.6	65.5	-32.9	184.6



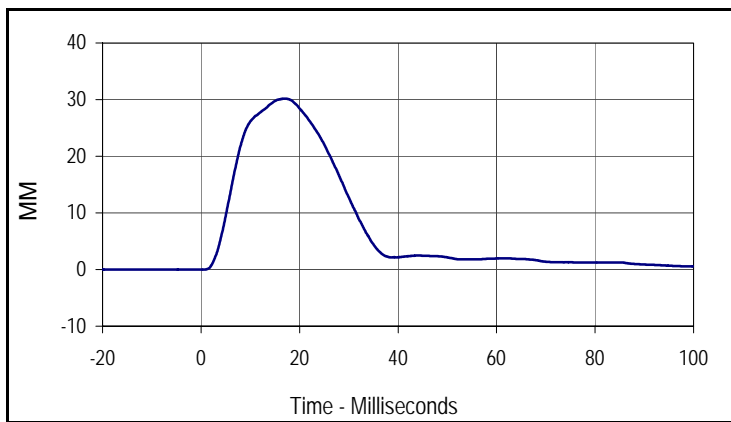
Curve Description			
Moment About Occipital Condyle			
Plot No.	Type	SAE Class	Units
003	FIL	600	Nm
Max	Time	Min	Time
17.4	167.2	-41.3	55.4

Test Program: SID IIs Shoulder Impact Test
 ATD Serial No.: 299

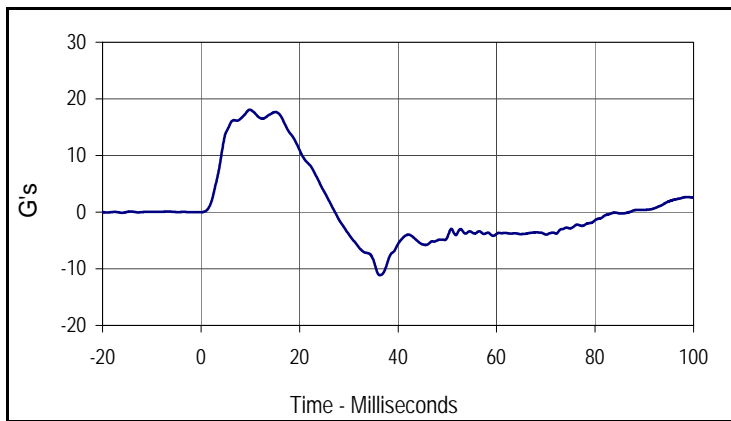
Test Date: 12/21/2012
 Test I.D.: 299SH053



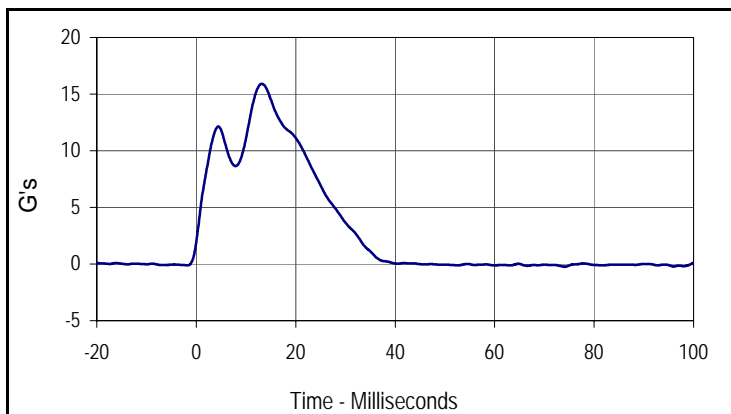
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	350	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	20.6 to 22.2	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Impactor Velocity	m/s	4.20 to 4.40	4.25	Pass
Peak Shoulder Deflection	mm	28 to 37	30.2	Pass
Peak Lateral Spine Acceleration Y	G's	17 to 22	18.1	Pass
Peak Impactor Acceleration	G's	13 to 18	15.9	Pass
Overall Test Results			Pass	Pass



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
30.2	17.0	0.0	0.7



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
18.1	9.9	-11.1	36.3



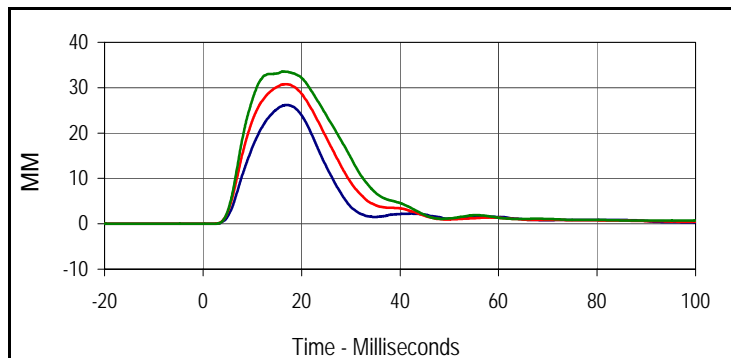
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
15.9	13.2	-0.2	74.1

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

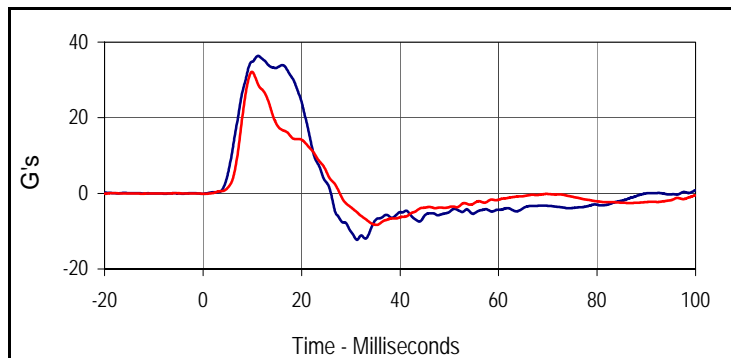
Test Date: 12/21/2012
 Test I.D.: 299TWA053



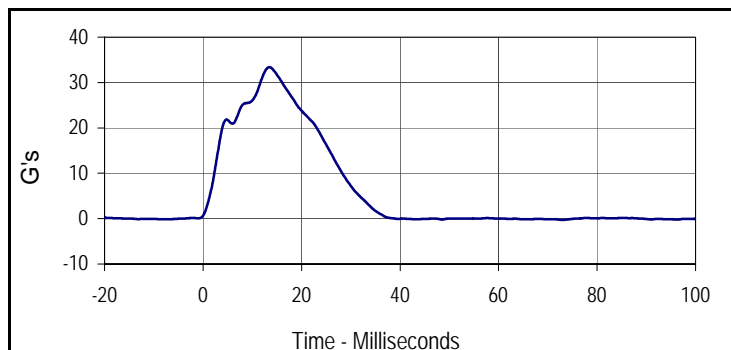
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	375	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.8	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.71	Pass
Peak Shoulder Deflection	mm	31 to 40	34.4	Pass
Peak Upper Thorax Rib Deflection	mm	25 to 32	26.2	Pass
Peak Middle Thorax Rib Deflection	mm	30 to 36	30.7	Pass
Peak Lower Thorax Rib Deflection	mm	32 to 38	33.6	Pass
Peak Upper Spine Y Acceleration	G's	34 to 43	36.4	Pass
Peak Lower Spine Y Acceleration	G's	29 to 37	32.1	Pass
Peak Impactor Acceleration	G's	30 to 36	33.4	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
26.2	17.1	0.0	-3.7
Middle Thorax Deflection			
Max	Time	Min	Time
30.7	16.8	0.0	-6.7
Lower Thorax Deflection			
Max	Time	Min	Time
33.6	16.3	0.0	-12.7



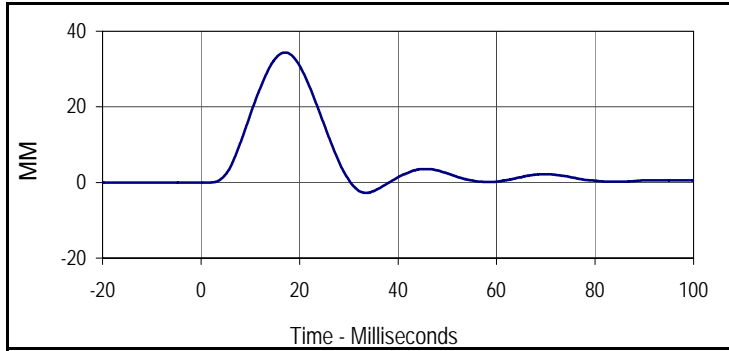
Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
36.4	11.2	-12.3	31.2
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
32.1	9.9	-8.4	35.2



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
33.4	13.5	-0.3	72.9

Test Program: SID IIs Thorax with Arm Impact Test
 ATD Serial No.: 299

Test Date: 12/21/2012
 Test I.D.: 299TWA053



Curve Description			
Shoulder Deflection			
Plot No.	Type	SAE Class	Units
007	FIL	600	MM
Max	Time	Min	Time
34.4	17.0	-2.8	33.5

Test Program: SID IIs Thorax without Arm Impact Test

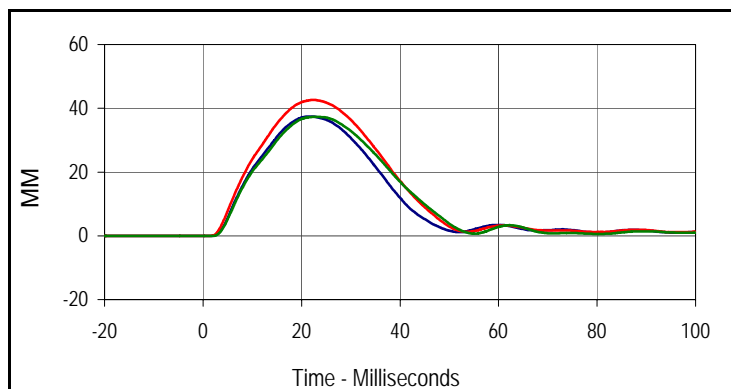
Test Date: 12/21/2012



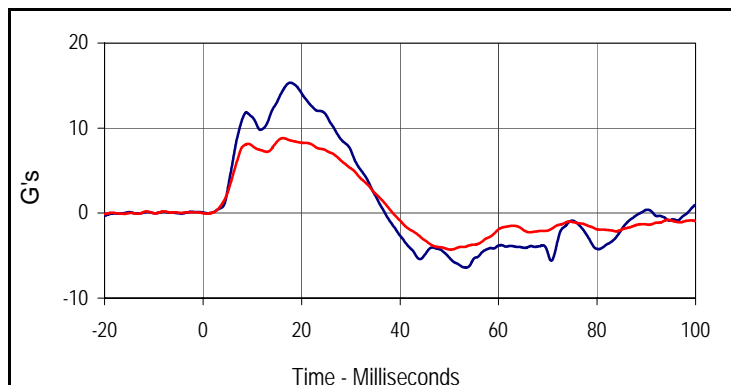
ATD Serial No.: 299

Test I.D.: 299TWOA053

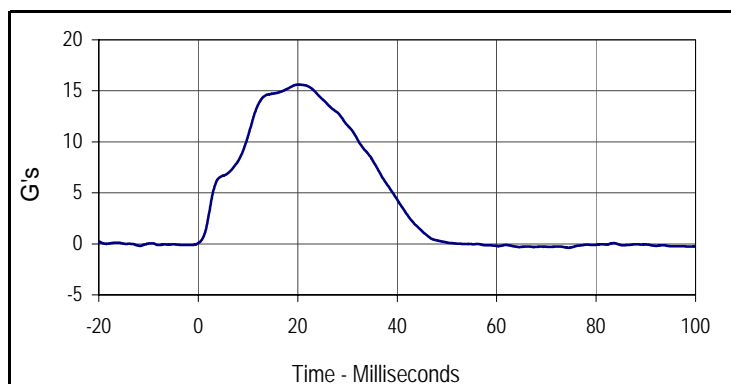
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	400	Pass
Temperature During Soak	Max	18.9 to 25.6	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.36	Pass
Peak Upper Thorax Rib Deflection	mm	32 to 40	37.4	Pass
Peak Middle Thorax Rib Deflection	mm	39 to 45	42.7	Pass
Peak Lower Thorax Rib Deflection	mm	35 to 43	37.3	Pass
Peak Upper Spine Y Acceleration	G's	13 to 17	15.3	Pass
Peak Lower Spine Y Acceleration	G's	7 to 11	8.8	Pass
Peak Impactor Acceleration	G's	14 to 18	15.6	Pass
Overall Test Results				Pass



Curve Description			
Upper Thorax Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
37.4	21.7	0.0	-10.8
Middle Thorax Deflection			
Max	Time	Min	Time
42.7	22.4	0.0	-6.0
Lower Thorax Deflection			
Max	Time	Min	Time
37.3	23.0	0.0	-2.2



Curve Description			
Upper Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.3	17.7	-6.4	53.3
Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
005	FIL	180	G's
Max	Time	Min	Time
8.8	16.2	-4.3	50.3



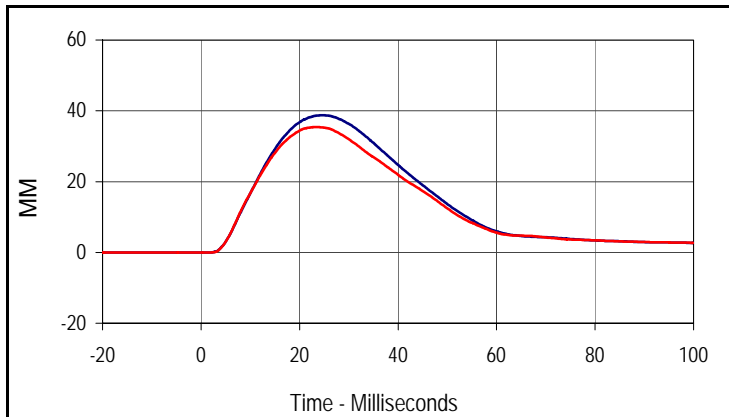
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
006	FIL	180	G's
Max	Time	Min	Time
15.6	20.1	-0.4	74.4

Test Program: SID IIs Abdomen Impact Test
 ATD Serial No.: 299

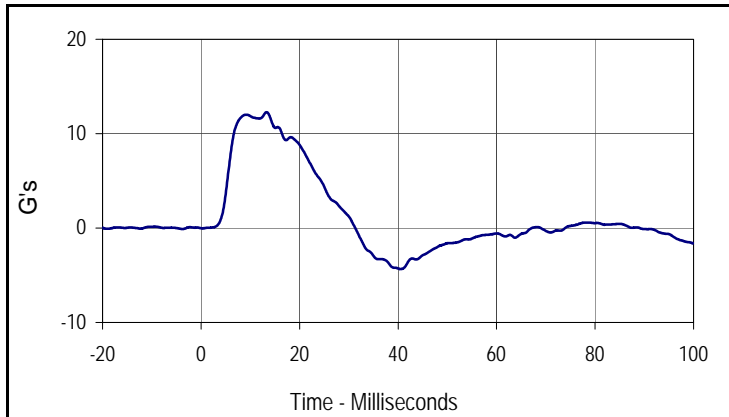
Test Date: 12/21/2012
 Test I.D.: 299ABD053



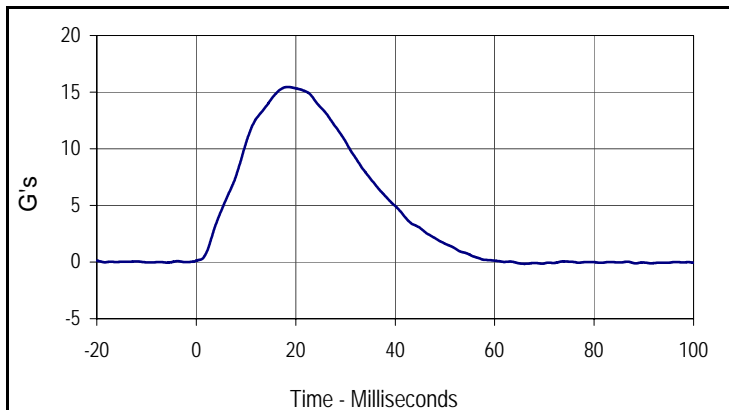
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	425	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.6	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.31	Pass
Peak Upper Abdominal Rib Deflection	mm	36 to 47	38.7	Pass
Peak Lower Abdominal Rib Deflection	mm	33 to 44	35.4	Pass
Peak Lower Spine Y Acceleration	G's	9 to 14	12.3	Pass
Peak Impactor Acceleration	G's	12 to 16	15.5	Pass
Overall Test Results				Pass



Curve Description			
Upper Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
001	FIL	600	MM
Max	Time	Min	Time
38.7	24.6	0.0	-14.4



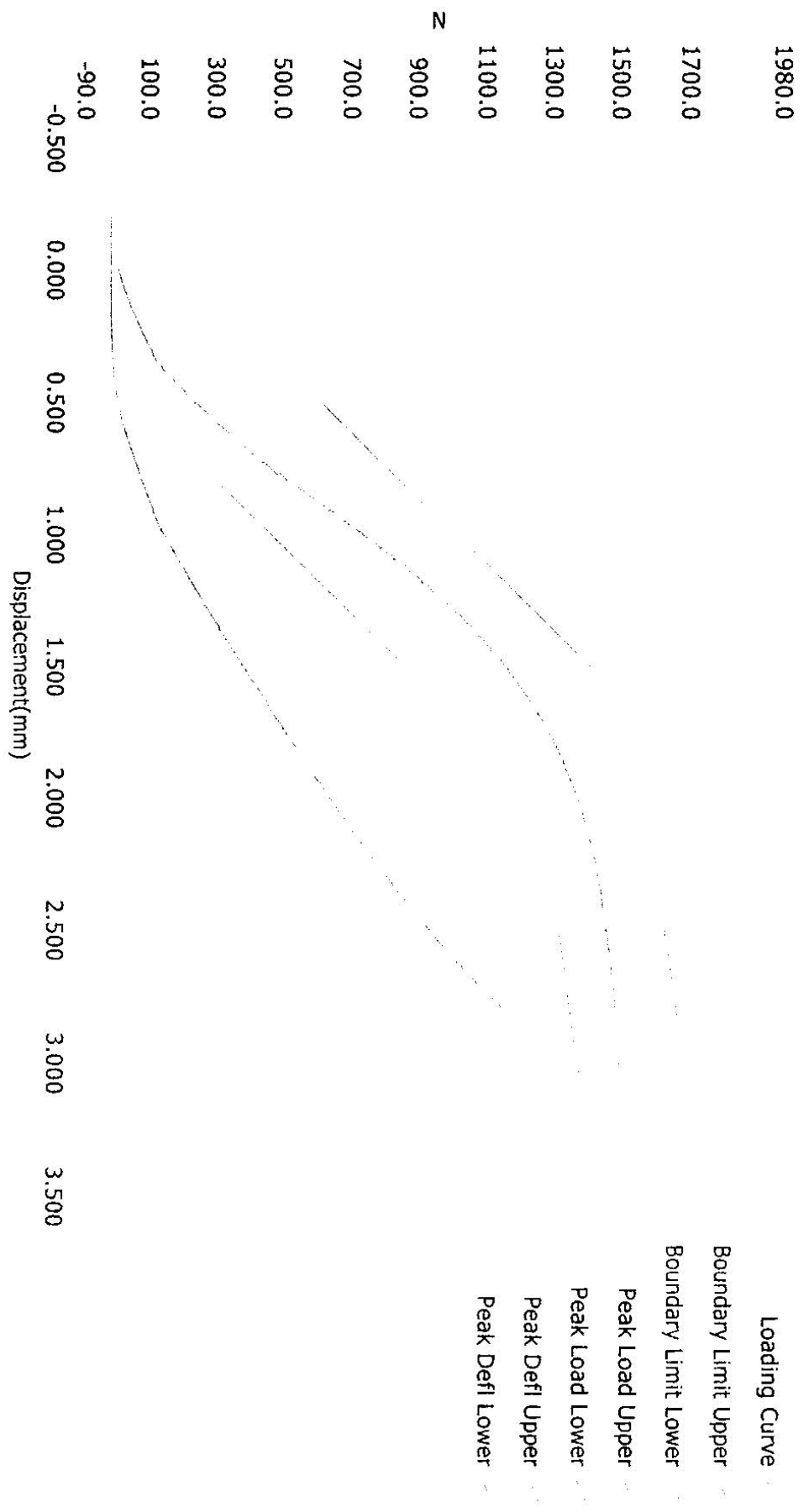
Curve Description			
Lower Abdominal Rib Deflection			
Plot No.	Type	SAE Class	Units
002	FIL	600	MM
Max	Time	Min	Time
35.4	23.2	0.0	-6.5



Curve Description			
Lower Spine Y Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
12.3	13.3	-4.3	40.6

Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
004	FIL	180	G's
Max	Time	Min	Time
15.5	18.5	-0.2	66.0

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
45982	9/20/2011	8:56 PM	
N/A	SIDIIs		

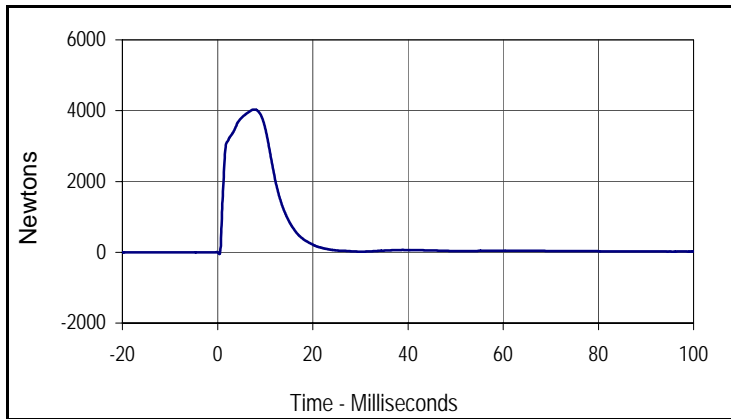
Current Date : 9/20/2011 Current Time : 20:57:15

Test Program: SID IIs Pelvis Acetabulum Impact Test
 ATD Serial No.: 299

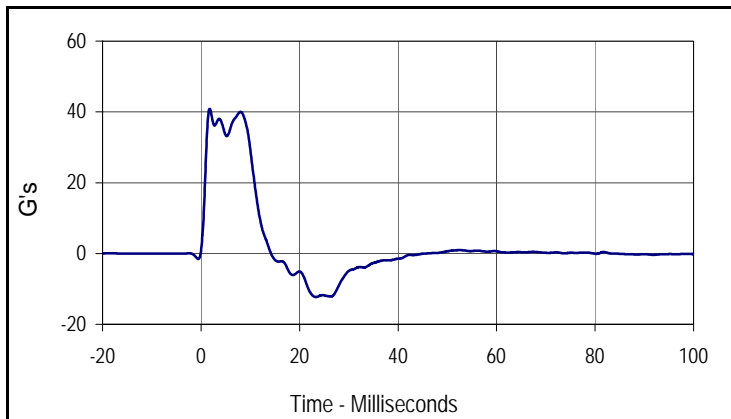
Test Date: 12/21/2012
 Test I.D.: 299ACET053



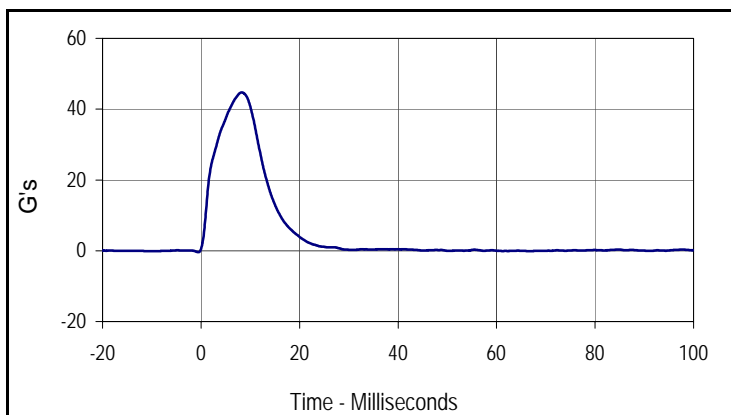
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	450	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.9	Pass
Impactor Velocity	m/s	6.6 to 6.8	6.76	Pass
Peak Acetabulum Force Y	Newtons	3600 to 4300	4032.3	Pass
Peak Pelvis Y Acceleration After 6 msec.	G's	34 to 42	40.0	Pass
Peak Impactor Acceleration	G's	38 to 47	44.7	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Acetabulum Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4032.3	7.7	-49.1	0.4



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
40.9	1.8	-12.3	23.3



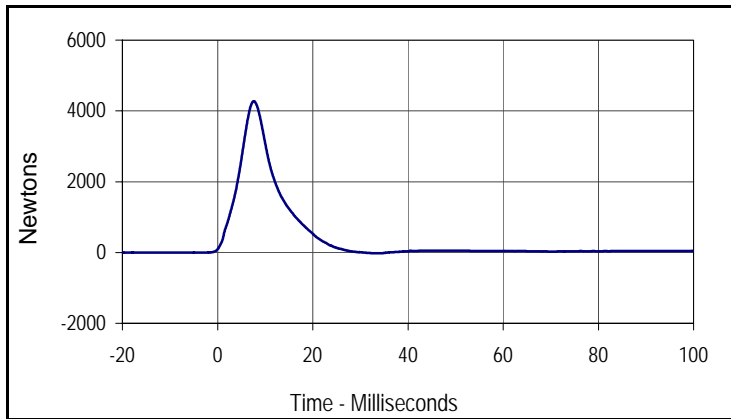
Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
44.7	8.2	-0.4	-0.6

Test Program: SID IIs Pelvis Iliac Calibration
 ATD Serial No.: 299

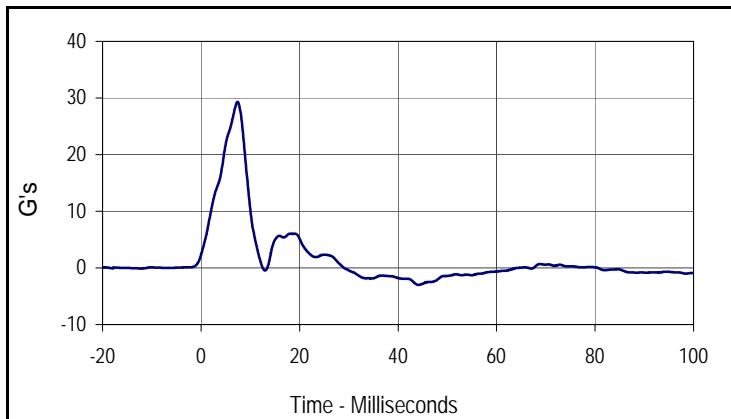
Test Date: 12/21/2012
 Test I.D.: 299PL053



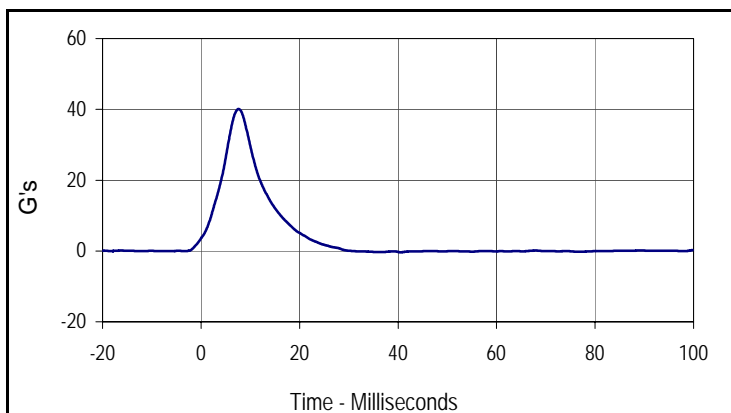
Tested Parameter	Units	Specification	Result	Pass/Fail
Dummy Soak Time	Minutes	≥180	505	Pass
Temperature During Soak	Max	20.6 to 22.2	21.4	Pass
	Min		20.7	Pass
Humidity During Soak	Max	10.0 to 70.0	30.5	Pass
	Min		28.0	Pass
Laboratory Temperature During Test	°C	18.9 to 25.6	21.3	Pass
Laboratory Humidity During Test	%	10.0 to 70.0	29.7	Pass
Impactor Velocity	m/s	4.2 to 4.4	4.32	Pass
Peak Iliac Force	Newtons	4100 to 5100	4275.6	Pass
Peak Pelvis Y Acceleration	G's	28 to 39	29.3	Pass
Peak Impactor Acceleration	G's	36 to 45	40.1	Pass
Overall Test Results				Pass



Curve Description			
Pelvis Iliac Force			
Plot No.	Type	SAE Class	Units
001	FIL	600	Newtons
Max	Time	Min	Time
4275.6	7.6	-24.3	33.9



Curve Description			
Pelvis Y Acceleration			
Plot No.	Type	SAE Class	Units
002	FIL	180	G's
Max	Time	Min	Time
29.3	7.4	-3.0	44.1



Curve Description			
Impactor Acceleration			
Plot No.	Type	SAE Class	Units
003	FIL	180	G's
Max	Time	Min	Time
40.1	7.6	-0.4	40.5

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N 299			
			Serial Number	Manufacturer	Calibration	
Head Accelerometers			X	P51926	Endevco	6/25/12
			Y	P51929	Endevco	6/25/12
			Z	P51934	Endevco	6/25/12
Displacement Potentiometers	Shoulder		Y	1074	FTSS	6/26/12
	Thoracic Rib	Upper	Y	1143	FTSS	6/26/12
		Middle	Y	1160	FTSS	6/26/12
		Lower	Y	1213	FTSS	6/26/12
	Abdominal Rib	Upper	Y	1218	FTSS	6/26/12
		Lower	Y	1234	FTSS	6/26/12
Lower Spine Accelerometers (T12)			X	P63999	Endevco	6/25/12
			Y	P58872	Endevco	6/25/12
			Z	P58795	Endevco	6/25/12
Acetabulum Load Cell			Y	272	Denton	5/24/12
Iliac Wing Load Cell			Y	284	Denton	5/24/12
Pelvis Plug (Struck Side)				49171	FTSS	12/8/11
Pelvis Plug (Non-Struck Side)				46075	FTSS	9/21/12

TABLE 2 – Vehicle Instrumentation

Vehicle Instrumentation		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	Ketx5a	ICSensor	8/20/12
Vehicle Center of Gravity	Y	Ketx5b	ICSensor	8/20/12
Vehicle Center of Gravity	Z	Ketx5c	ICSensor	8/20/12
Left Floor Sill	Y	13722	Endevco	10/22/12
A-Pillar Sill	Y	13473	Endevco	8/17/12
A-Pillar Low	Y	13480	Endevco	8/17/12
A-Pillar Mid	Y	13478	Endevco	8/17/12
B-Pillar Sill	Y	13481	Endevco	8/17/12
B-Pillar Low	Y	13470	Endevco	8/20/12
B-Pillar Mid	Y	13651	Endevco	9/24/12
Driver Seat	Y	13708	Endevco	10/22/12
Engine Top	X	13747	Endevco	10/22/12
Engine Top	Y	13704	Endevco	10/20/12
Firewall	Y	13674	Endevco	10/20/12
Right Roof	Y	13710	Endevco	10/22/12
Right Floor Sill	Y	13317	Endevco	6/18/12
Rear Floorpan	X	13381	Endevco	7/9/12
Rear Floorpan	Y	13341	Endevco	6/18/12

TABLE 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	131822A	Interface	9/17/12
Load Cell 2	132304A	Interface	9/17/12
Load Cell 3	19477	Interface	9/18/12
Load Cell 4	19325	Interface	9/18/12
Load Cell 5	131827A	Interface	9/18/12
Load Cell 6	132302A	Interface	9/18/12
Load Cell 7	19267	Interface	9/19/12
Load Cell 8	19321	Interface	9/19/12